An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

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2008 NOVEMBER- DECEMBER

WA1MBA visits the Martlesham Round Table ….

Tom Williams, WA1MBA, the administrator of the well known USA microwave internet reflector and a formidable exponent of the millimetre bands, attended the recent microwave event at Martlesham and delivered at after dinner talk at the Saturday night banquet. He's seen here on the left with Graham, G4FSG.

In this issue ...

- Converting the Ceragon 7GHz Module to 5.7GHz
- Scatterpoint Photo Caption competition
- Icom 746 Frequency Stability
- Solving a Relcomm WG20 switch problem
- Relcomm Relay Driver and Sequencer
- Martlesham Round Table Report and Photos
- Activity News
- Backscatter … details of how to purchase
- Plus general announcements and ads

Latest News …

- **Backscatter now available from UKuG**
- **WA1MBA attends the Martlesham Round Table**

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

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From the Editor's Desk

73 from Peter, G3PHO
Editor

Hello again... this is the final issue of 2008 and, on behalf of everyone at UKuG, I'd like to wish all readers a **Very Happy Christmas and a Rewarding and Peaceful New Year**. I'm already feeling very good because I've just recovered all my money from the failed IceSave Bank of Iceland! The hard economic times ahead should hopefully see more home construction as amateurs see the real sense in "rolling one's own" instead of throwing money at ready made items.

The exciting news of the month is that our Technical Compendium, Backscatter, is now published. Our excellent **Mensa Printers** of Sheffield (who do the paper edition of this newsletter for us) have once again done a great job. So, it's a pity that John G4BAO and myself did not notice a few missing diagrams from WW2R's article in the book! Never mind, John has added a small errata sheet. You will certainly enjoy reading our very first compendium as it contains the best of the old RSGB Microwave Newsletters and Scatterpoints published between 1996 and 2006. We hope to publish a sequel in the years to come but, if you all buy the 200 copies we have already had printed, we might very well have another print run of this first edition. Backscatter sold very well at Martlesham so be quick and send for your copy if you weren't there. Full details are on page 20 and also on the UKuG website www.microwavers.org.

As they say "Down Under", have a good one and we'll see you in January 2009.

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

LC meter Kits for Sale

I now have kits available for the LC Meter I was showing at Crawley and Martlesham as well as sets of SMD tweezers, for use with the above meter and also with multimeters. Anyone interested should go to http://g4hup.com/LCM/LCMeter.htm for further details and ordering information. **73,Dave G4HUP**

G0UPU GOING QRT FROM MICROWAVES

Just a note to let you know that I will have to give up my microwave activities shortly. There are several reasons but the main ones are that we will be moving house next year and my health has not been so good recently and it is difficult for me to put the dishes up these days.

My QTH was never the best due to the surrounding hills and, since KST has come on the scene, the number of contacts that I get is very low as I prefer to use 144MHz talkback.

I have decided that it would be better to sell my microwave gear which might get some more active operators on the microwave bands. I will be selling the 9cm, 6cm and 3cm equipments and I also have a nearly completed 24GHz set which only needs to be put into a case. I am sorting out the equipment and will put a list of what I have on the UK microwave reflector shortly. Unfortunately I wasn't able to get to Martlesham this year. **Regards to everyone from Roger, G0UPU**.

*(**Editor's note**... I'm sure everyone will wish Roger all the very best for the future and hope that he will come back to the microwave fold one day. Since this email was sent to Scatterpoint, Roger has disposed of most of his microwave equipment. If you purchased any of please use it!)*

10GHz EYAL UNITS

Several people have asked me about supply of the 10Ghz Eyal Gal units. I have just noticed that 'art-in-part' has some for sale on Ebay. The same seller also has the 7.1GHz Ceragon units, though this is not where my original 'new' units came from!

73 from Roger, G8CUB

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 on, 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
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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!)

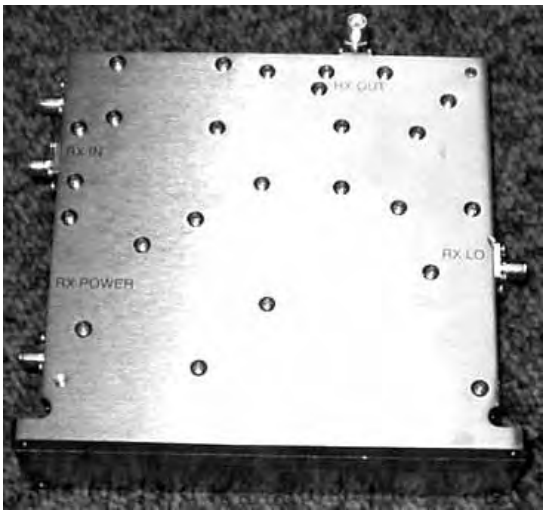
The standard membership rate for 2008 is:

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 an email copy, and a paper copy, **then the higher rates apply.**

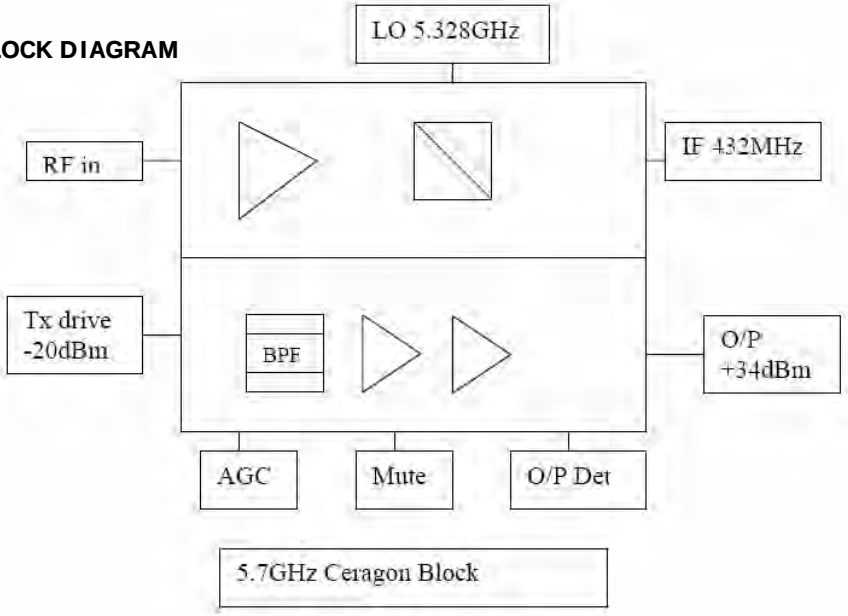
Ceragon 7GHz Module for 5.760GHz

by Roger Ray G8CUB



These units will work, after modification, on 5760MHz. They consist of a receive LNA mixer & IF amplifier, plus a transmit filter, amplifier & output monitor, thus just needing an LO, Tx mixer and a couple of relays to complete a 5.76GHz transverter.

BLOCK DIAGRAM



Measured performance on receive with a 432MHz IF, is as follows:
Conversion gain +19dB
System noise figure 2.6dB
Image rejection (5.328GHz LO) -22dB

Performance on transmit:
+33.7dBm output (2.3W) - 1dB compression
+34.3dBm output (2.7W) saturated
+53.5dB gain
Saturated power output on transmit is >2W.

Supply requirements:

	Receive (Tx Inhibited)	Full Output
+5.0V	0mA	50mA
+6.8V	180mA	0mA (switched)
+10.0V	0mA	2.1A
-5.0V	40mA	40mA

On the transmit side, the only essential modification is to place a piece of ceramic on top of the existing inter-digital filter. This shifted the entire frequency response down about 1.5GHz, to exactly where needed. Transmit image was 60 – 80dB dependant on the size of the ceramic. With the high transmit gain, it is necessary to either use an input attenuator, or use the AGC control to turn the gain down. This will give 1dB compression of around +32dBm. Adding some small tabs around the PA pushed the power up to +33.7dBm.

On receive, the image filter strips were extended by about 2mm using silver paint. This gave 22dB image rejection, but conversion gain was only about 11dB. Starring the RF amplifiers with small pieces of copper, improved the gain by about 7dB

The IF response was about 1 dB down at 432MHz, so the IF output capacitor was changed to 330pF to give a final conversion gain of 19dB.

In my 5.7GHz system I use the Ceragon block with an Alcatel synthesiser switched for either 10 or 5.7GHz, using a 10MHz reference.

No information was available on **pin-out or supply voltages**, so the following is my derivation. From data on the TX driver, a negative supply of -6V may be safer, although I used -5V.

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

Rx Connector 1 (6 way)

1	2	3	4	5	6
n/c	+6.8V	-5V	0V	+6.8V	n/c
	IF			RF	

Tx Connector 2 (6 way)

1	2	3	4	5	6
n/c	+10V	-5V	0V	+5V	+10V
	driver			amps	PA

Connector 3 (5 way)

7	8	9	10	11
n/c	Tx Det	AGC	0V	Tx Mute

Connections to the unit are by two, 0.1" pitch single in line connectors. It is quite easy to solder wires straight on if you don't have suitable mating plugs.

In my system, the 6.8V supply is provided by a 7808 regulator and dropper resistor. The two 10V supplies, use 3 x 10V 1A low voltage drop regulators. The -5V is provided by a block DC-DC

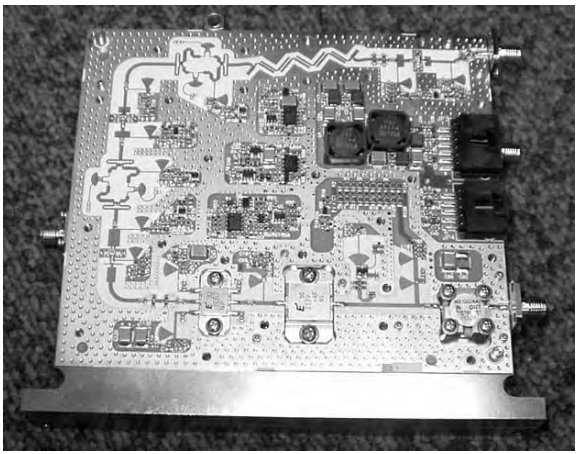
converter, and -5V regulator.

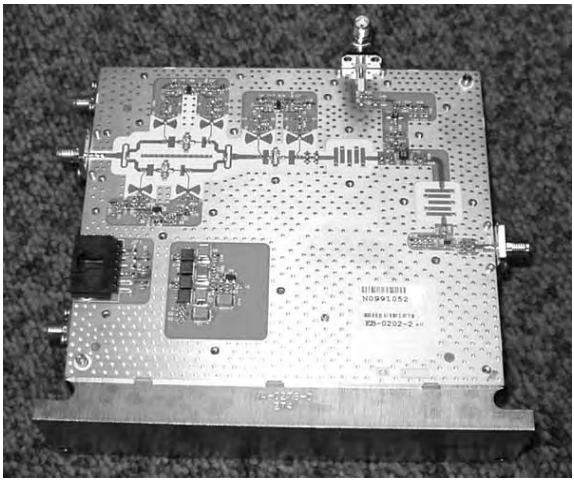
External protection is required, to inhibit the positive supplies, if the -5V supply fails:

Tx Mute – 0V to inhibit
Tx Det – DC proportional to dB output power (log detector) Max ~ 4V
AGC – 0- 5V Control I guess (I have not tried this, just left the pin o/c)

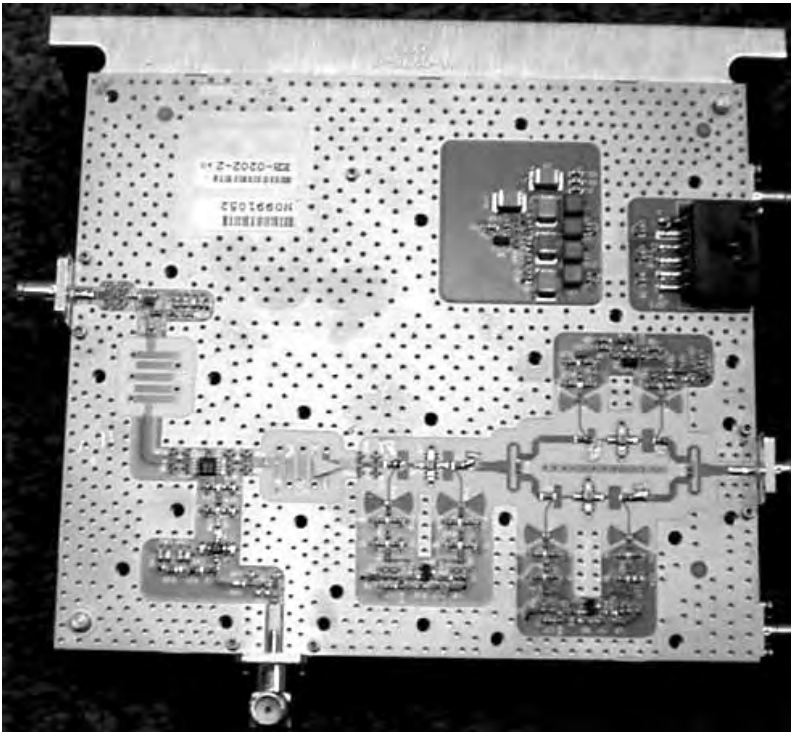
Local oscillator power required is +10dBm (5.328GHz). Around -22dBm Tx drive will give you full output (at max gain). The 2 SMA output connectors allow easy use of a coax relay, or the addition of a single stage low noise amp and / or PA.

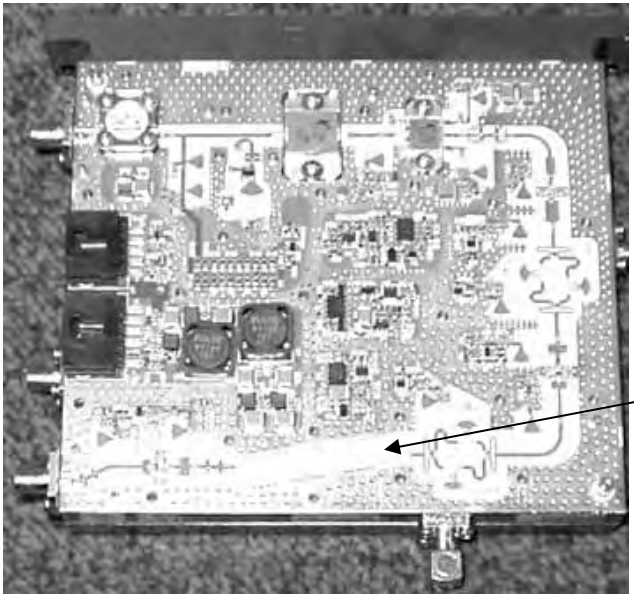
Unmodified PCBs



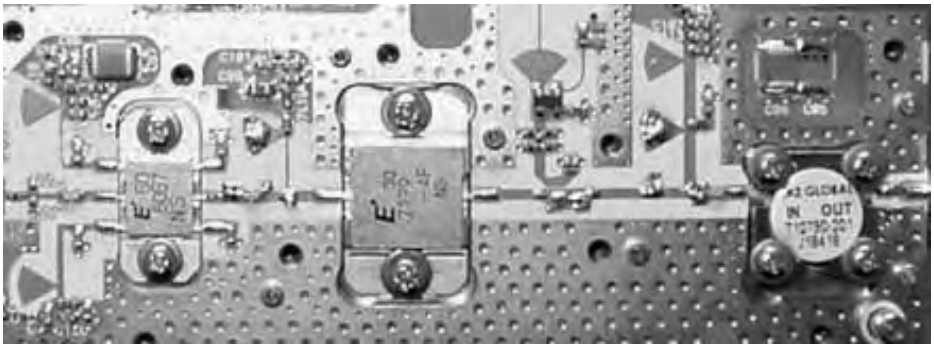


Modified receive board





Modified Transmit board – ceramic in place.



Power Amplifier mods for 2.7W Output. Driver FMM5057VF, PA FLM7179-4F,

Availability

Units are currently available on Ebay from 'art-in-part'. These however may have some faults, particularly Rx FET failure, and damaged SMA connectors.

I have a few that have been checked but are un-modified. These are available on a first come first served basis for £40 plus £4.50 postage (UK). I also hope to have some ceramic strips available soon. Contact littlemallards@hotmail.com

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SCATTERPOINT CAPTION COMPETITION

Guess what these folk were thinking!

Photos all taken at the November 2008 Martlesham Microwave Round Table

Jim, G3YLA (on the right in the photo below) explains the finer points of weather forecasting while Kevin, G3AAF, in the background looks on...

No prizes ...

just your name and callsign in print!

Email your own captions for these photos to Peter, G3PHO at:

editor@scatterpoint.org.uk

Icom IC746 Frequency Stability

David Hilton-Jones, G4YTL

I believe that I have solved the frequency drift problem of the IC746 transceiver and, for this solution, can claim no credit at all but rather thank Sergei, RW3BP, and Dave, G4HUP, who led me to the solution. All of my experience relates to using the rig on 144MHz.

What causes the problem?
The problem is the 30MHz oscillator. It drifts during the transmit cycle, and then drifts back during the next receive cycle. The cause is that during transmit the fan is activated, blowing cool air across the circuit board containing the oscillator. Several "solutions" have been proposed but none is ideal.

(1) Replacing the xtal with the Icom ovened xtal is expensive and in my own case only led to very slight improvement.

(2) Fill the oscillator compartment with cotton wool. This takes the draught off the xtal and adjacent circuitry and helped slightly.

(3) Wrap the whole board in bubble-wrap to stop the draft. I didn't try that – I didn't like the idea of other parts of the board potentially overheating.

(4) Hard-wire the fan so that it is on continuously. Paradoxically, for me, that made the drift worse.

To give an idea of the problem:

a) When transmitting FM into a dummy load at the lowest power setting, the 144MHz frequency drifts down by 5Hz over the first 30 seconds then stabilises
b) When transmitting at maximum power the frequency initially drifts up by 5Hz over the first 10 seconds, then drifts down by 22Hz over the next 50 seconds.

These changes in frequency cause no problems on FM or SSB, but do cause problems when somebody is trying to copy your EME CW with a narrow filter and when using JT65.

Solving the problem
Sergei, RW3BP, proposed a novel solution by "injection locking" – look at:

http://www.vhfdx.ru/component/option,com_zoom/Itemid,99/
and
http://list-serv.davidv.net/pipermail/moon-net_list-serv.davidv.net/2006-September/006558.html

He was, in fact, referring to the IC746 Pro which has a 32MHz oscillator but the principle is the same. In brief, a highly stable, reference-locked, signal is coupled to the onboard oscillator by simply putting a couple of turns around the oscillator coil. It "locks" the onboard oscillator to the injection oscillator.

I then came across Dave's (G4HUP) solution for drift with the IC706.... see

http://g4hup.com/FC/DFS30/DFS30.htm

He takes 10MHz from a stable reference source and trebles it to 30MHz.

So these two ideas gave me the solution! I use a 10MHz reference signal, treble it in G4HUPs DFS 30, and couple that to the oscillator coil using two turns of 34swg wire. I now have no drift whatsoever. The beauty of the solution is that it doesn't involve any "butchery" to the IC746; and if for any reason the 10MHz reference frequency is unavailable, the rig runs as normal (but with its usual drift!).

The pictures on Sergei's web site show very clearly how the two turns are put on the coil. The thin coax then exits through one of the ventilation holes at the rear of the rig. I've mounted the DFS30 on the top of the IC746 and take 13.8 volts from one of the accessory sockets.

Obviously, the principle may well be applicable to other rigs. What I cannot comment on are any issues relating to phase noise, etc.

73 from David, G4YTL

Solving a Relcomm Waveguide Switch Problem

by David Banks, G6KIE

I wonder if anybody else has had this problem with a RelComm WG22 switch or have I received the only duff one made? After building the power supply for my new 24GHz transverter I could not get the RelCom to operate at all. The switch was, as far as I know, a new and unused item ordered from New Zealand but it refused to work when 8.2v was applied to the coil connections (bk-rd/bn).

I eventually worked up enough courage to carefully take it apart and investigate. After tracing out the circuit and checking the reed switches and diodes I suddenly realised that the reeds were out of phase with the solenoid plunger. When volts are applied to one pair of coil windings through a closed reed switch, this switch should open when the plunger reaches its new position, while another reed closes, ready to send it back when volts are applied to the other coil, thereby taking just a pulse of current to operate. As the switches were out of phase the plunger which carries the WG switching block stuck at whichever end it was moved to and continued to take current.

It seemed that a little re-wiring was needed but further inspection suggested that as the wires were long enough I could just physically swap the two coils round to achieve the same effect.

Whilst the switch was apart, I also noticed the anodised coating on the sliding WG block was bubbling up slightly on one edge causing it to tighten up. Although this did not stop it working I smoothed this off so that the block slid freely.

Once everything had been re-assembled the RelComm worked perfectly with a nice solid clonk in both directions.

So, if you have a RelCom which appears duff don't be tempted to throw it away - have a look inside first to check if it's been assembled properly.

Warning: don't let debris fall into the ports from the inside - the clear plastic covering the ports is very sticky on the inside and cannot be cleaned off.

73 from Dave, G6KIE.

Relcomm Relay Driver and Sequencer

Lehane Kellett G8KMH

Introduction

The design is intended to provide a pulse drive to the Relcomm WR28 relay and sequence the supplies to the RX and TX systems.

On board there are the following:

PIC microprocessor PIC12F629 (or PIC12F675).
3 voltage regulators (PIC 5v 78L05ACM, relay 8V 78M08CDT and spare 78xx)
Relay drivers Zetex FZT851
FET supply switches Fairchild RFD8P05 (Dannel Electronics)

Depending on firmware the relay port 1 or port 2 can be the RX port.
The dc switching input can be TX high (default) or TX low (requires component changes). The RF section is separate to allow a choice of IF switch/frequency.

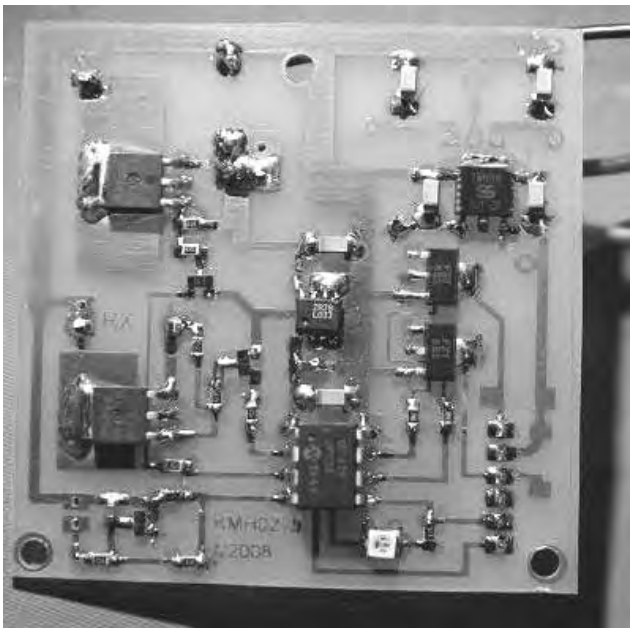
With a firmware change the sequencer can be used with normal SMA relays, with or without feedback contacts. A future variant may include space for a 28v power pulser.

PIC Firmware description:

At power up both the TX and RX power is off.

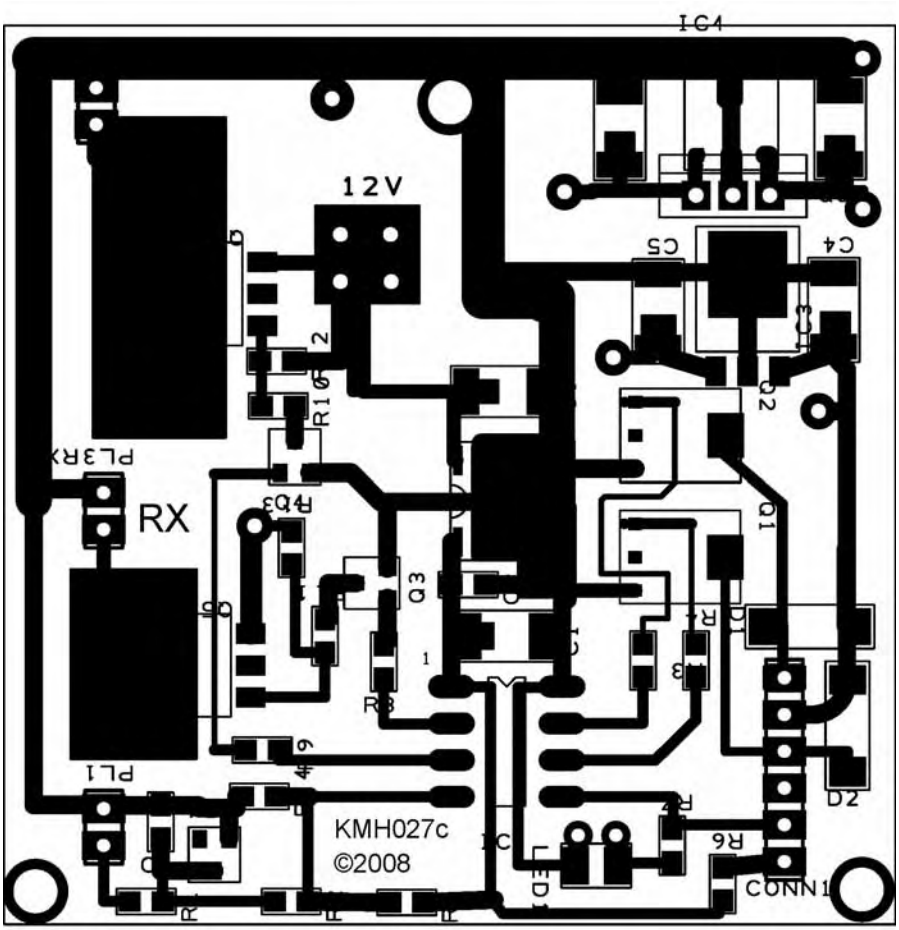
The relay is cycled to ensure it is in good condition and in a known state. It is then set to the RX position and after 100mS the RX power is applied. If an error occurs then the LED is flashed – you may need to disconnect the relay plug to see this if the feedback contact signal is overriding this.

When the switching input is taken high the interrupt service routine immediately takes the power off RX. Then the main loop switches the relay state and detects the change from the feedback contact, trying up to 5 times to cycle the relay and, if OK, after 100mS turns on the TX supply. The reverse happens for TX.



The high side P-FET's are low RDs on and measure 100mV drop with 1A. No further heatsinking is required for up to 3A.

The third regulator can, if required, be used for the LO multiplier with a suitable heatsink or can be fed from either of the switched RX/TX supplies.

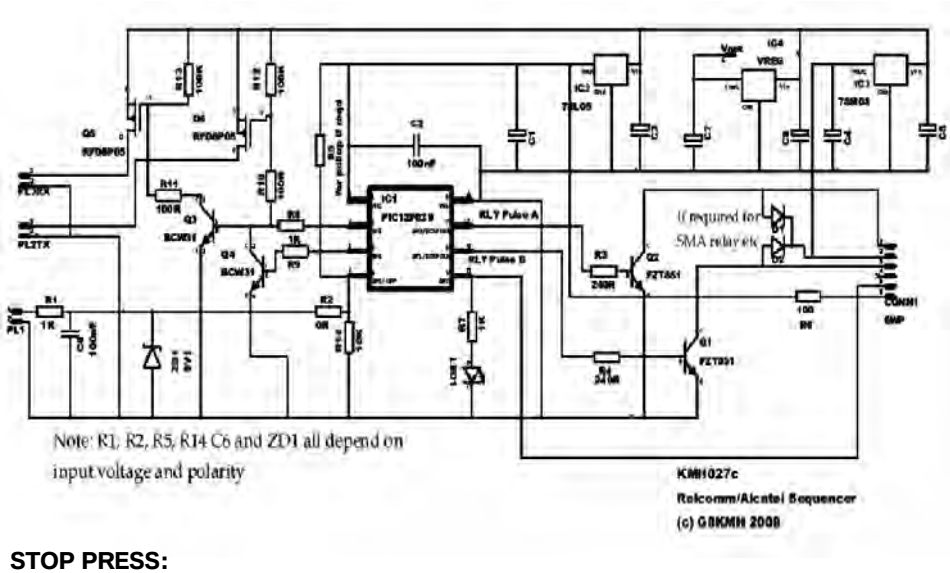


Construction is all SMD, except the 78xx 1A regulator and the DIP8 pic. An SMD version KMH027d would be available with an SMD PIC but the DIP8 is easier to build for many. Yes the DIP is mounted squashed bug style – easier to transition to SMD. Density is low to make construction easier. Wire links are used to feed the regulators and the RX power FET, again to allow flexibility.

There is space on the board for additional input protection/filtering/pull ups to allow any combination of inputs to be catered for, with the appropriate firmware change.

Components List

R1,R7,R8,R9,R14	1K 0805 SMD
R2	OR (or as required)
R3,R4	240R 0805 SMD
R5	as required for active low input
R6,R10,R11	100R 0805 SMD
R12,R13	100K 0805 SMD
C1,C4,C7	1uF SMD Tantalum
C3,C5,C8	0.1uF SMD Tantalum
C2,C6	100nF SMD Ceramic
Q1,Q2	FZT851 NPN SOT223 or equiv.
Q3,Q4	BCW31 NPN SOT23 or equiv.
Q5,Q6	RFD8P05 P-FET SOT223 (low RDs on)
LED	As available
ZD1	5V1 SMD or as available
IC1	PIC12F629 or PIC12F675
IC2	78L05ACM SO-8
IC3	78M08CDT D-PAK
IC4	as required 78xx



STOP PRESS:

There was considerable interest in the board at Martlesham and some other useful comments. If you are interested in the board or minikit the please let me know. The new board will have the option for a small 28V generator for SMA relays to be properly driven'

73 from Lehane, G8KMH **Email: g8kmh@mm-wave.com**

MARTLESHAM MICROWAVE ROUND TABLE

NOVEMBER 2008

Photos and a brief report by Peter, G3PHO

Pictured left is a dozen of the world's well known EME operators, just 10% of the folk who attended the Microwave Round Table at BT Martlesham in mid November. On the far left is Kent, **WA5VJB,** with Dave **WW2R** second from the right. To his left is Chris Bartram **GW4DGU** and centre, in the rather striking pullover, is Peter Blair **G3LTF**, with UKuG Chairman Brian Coleman **G4NNS** to his left. On the far right is **DL1YMK** who gave a superb, illustrated talk on his EME DXpedition to South America.

Below: Alan Melia, G3NYK ponders over his wares which he brought for sale at the fleamarket. He had an excellent range of tinplate boxes and a Marconi 6460 microwave power meter (with RF head).

Just out of sight, on the right of this photo, is a fascinating static display by the British Astronomical Association's Radio Astronomy Group, co-ordinated and set up here by Dr. Laurence Newell.

Dr. Laurence Newell (seen on the left of the **photo above**) allowed several car loads of us to visit the Radio Astronomy Groups observatory at Newbourne, a short drive from Martlesham. This Saturday visit was very much appreciated by all who attended.

Photo right: Tom Williams, WA1MBA, (on left) looks for a bargain on James G3RUH's fleamarket table where some of the latter's GPS locking units were available

Photo left: The Alan Wakeman, G3EEZ Award for Contribution to Microwave Communication was awarded at the meeting to **Peter G3PHO** who was completely taken by surprise but was nevertheless extremely thrilled and honoured to receive this award after it was first given last year to his good friend Ralph, G4ALY. Peter heard later that the UKuG Committee, of which he is a member, had to carefully limit its email distribution during the weeks leading up to Martlesham, in order to keep Peter out of the loop! The cup will be returned next year but Peter gets to keep the shield on the left.

(I'm immensely proud to receive the award this year... many thanks to those that put my name forward .. Peter G3PHO)

Photo right: Another award presented at the Sunday UKuG AGM was the **G3VVB Trophy** for Home Construction. This time given to **Mike, G3LYP** (left) for a beautifully made 10GHz transverter which was entered in the competition and judged at September's Crawley Microwave Round Table.

Photo left: shows the title slide of WA5VJB's lecture on waveguide basics. The callsign is actually Kent's new UK callsign! Apparently even Extra Class licence holders in the States cannot get a reciprocal Full UK licence and must sit all the exams for our three tiered system! The fact that Kent builds EME systems that work the world on amateur microwaves did make much impression on those who decide UK's radio Amateur licensing structure!

Sam, **G4DDK**, is shown here in the **right photograph** checking out an oscillator module with Rainer, **DF6NA**, looking on. The oscillator, on 7.3GHz, later finished up at G3PHO!

Martlesham RT always has an excellent array of microwave test gear on hand for those who want to check out their latest item of home construction

THANKS TO EVERYONE WHO MADE MRT A GREAT SUCCESS!

By Robin Lucas, G8APZ

As the year draws to a close, we can look back at 2008 and see some good and some bad on the microwave front. We have had some spectacular openings, and new distance records, though not as many as we would have liked, and there are some new operators getting QRV on the higher bands.

Activity levels are still giving cause for comment, not only in the microwave bands, but in the UHF and VHF region too. In contests, the levels have been down again this year. The picture is not much different in other countries nearby, where the same trend is observed. I was recently asked by a French station where all the G stations are - and I don't know the answer!

On our microwave bands, it is hard to suggest a reason for the decline. Some have work and family commitments which often mean that a hobby has to take a back seat, understandably.

With the availability of modern equipment, it has probably never been easier to get on the microwave bands, and we need to get this message across.

Just a few more contests left this year, so good luck with the activity and conditions!

CONTEST and ACTIVITY REMINDER

November

30-Nov 0900 - 2000 All-band Activity Day
Non competitive (last Sunday in month)

December

7-Dec 0900 - 2000 Low band 1.3/2.3/3.4GHz
16-Dec 2000 - 2230 1.3/2.3GHz Activity Contest
Arranged by VHFCC (RSGB Contest)
28-Dec 0900 - 2000 All-band Activity Day
Non competitive (last Sunday in month)

RSGB/IARU CONTEST

From: Ray James, GM4CXM (IO75TW)

I opted to concentrate on **23cm** with a few excursions to 70cm. It was certainly a struggle to find activity, and there were no replies to any of my CQ calls.

Simon **G8ATB** and Neil **G4BRK** were the only stations heard randomly and I had already worked Neil by that time!

It would be interesting to hear what suggestions other operators have that would lead to greater UK participation to either compete or give points away?

I have personally suggested to the VHFCC that they consider inter-UK multipliers, be they postal code based or "only UK locator square worked" counting for multiplier status. The "Points per Km Only" and "All Squares are a Multiplier" does absolutely nothing to encourage activity throughout the UK.

Highlights of the weekend were **EI9E/P** for a new country and two contacts into the Netherlands. **PA6NL** in particular was a very loud signal but repeated attempts to work **PI4GN** failed miserably.

73, Ray GM4CXM

Ray's list of contacts included **G4BRK,** IO91 517km, **G3YJR** IO93 337km, **G5B** IO92 447km, **G8ATB** IO83 348km, **G3OHH** IO83 345km, **G3CKR/P** IO93 348km, **G4RFR/p** IO80 578km, **EI9E/p** IO62 403km, **G3XDY** JO02 565km, **PA6NL** JO21 709km, **PA2M** JO21 764km, **2E0NEY** IO81 521km, **G4PBP** IO82 399km, **G3OHM/P** IO82 423km, and **G3LTF** IO91 554km.

There are some very good distances involved here, which shows that Ray's FT736R and **DL2AM** 150w SSPA in conjunction with an SP23MK2 LNA into the 4x44 array at 11m is working very well.

From: John Quarmby, G3XDY (JO02)

I found radio conditions below average, particularly on the higher bands, where signals were weaker than usual on tropo-scatter paths.

I spent quite a while on Sunday trying aircraft reflection tests with German stations on **23cm** and **13cm** but again the reflections seemed weaker and fewer than usual. I couldn't wind the tower right up because of the wind, and I think this impacted on signals inland from here so tests with **G4LDR** on **13cm/9cm** and **G4RFR/p** on **6cm** failed due to local tree blockage.

The wind was so strong that the antennas had a mind of their own at times and ended up pointing in totally the wrong direction.

Juggling the rotator became part of the operating technique needed. In view of the weather I did not install the 2m talkback antenna this time and relied on transferring contacts from **23cm** or KST.

A highlight was an easy QSO with **DF9IC** on **9cm** at 634km, the lowlight was that I only worked two other stations on that band!

Best DX on **23cm** was **DF0YY** in JO62 at 774km. Signals were also exchanged with **OK2KKW** and **DF0MTL** in JO60 but not enough for a QSO.

On **13cm DL0GTH** was the best at 684km, with signals exchanged with **DF0YY** but no QSO.

Christophe, **ON4IY** was active as **ON4CDU/M** from JO30 and provided the best QSOs on **6cm** and **3cm**, worked by troposcatter on the Saturday evening. He was also out under the **ON4IY/M** call in JO20 on Sunday, with good RS enhancement of his signals.

Activity from **PA0** seemed lower this year, particularly on the middle bands. Maybe next year we will have a nice tropo opening - we can but hope!

73, John G3XDY

BRIEF OCTOBER OPENING

A widespread high pressure area covered most of continental Europe on the 10th October. The 1024mb isobar stretched from Wales to Norway, with a central pressure in Eastern Europe of 1037mb.

At around 18:00z on **23cm**, Claus **DL7QY** (JN59bd) was hearing the **GB3MHL** beacon peaking 549, and John **G4EAT** (JO01hr) was hearing the **DB0AJA** beacon in JN59AS at 569.

Soon after 19:00, Jiri **OK7RA** (JO60) was on **10GHz** and heard **G4EAT** at 419. By 19:15 John and Jiri had a CW QSO (559) and by 19:30 Jiri was 58 on SSB and soon after was 59. Both stations use 10W on this band.

Jiri's QTH is 1300m asl, and looking at the mid path radiosonde data, there appeared to be two inversion layers, the first at about 1km and a stronger one at 2km. It is likely that the QSO took place via the high altitude duct, rather than a low level duct. Graham **G4FSG** (JO02) was not favoured by the duct on this occasion!

BEACON NEWS

The **23cm** beacon in Powys **GB3PYS** (IO82HL) is on **2320.9250MHz**, and has been heard recently by **G3UKV** in IO82, and by **G4CBW** in IO83. This is welcome news, since the beacon has not been reported for some time.

Please look out for this one, and log your spots via **www.beaconspot.eu**

GB3CCX at Cleeve Common, (IO81XW) was returned to service on the 18th October. The beacon was removed from site in February 2008 and has undergone extensive refurbishment, which should improve stability and accuracy.

The nominal frequency of **GB3CCX** is **10368.940MHz** and it has been received over a wide area since returning to service.

The proposed **10GHz GB3MCB** beacon for Cornwall is currently on test as an attended personal beacon at **G4NNS** (IO91FF). It has been reported on **10368.980MHz** though bear in mind that it is not always QRV.

The Cardiff **24GHz** beacon **GB3AMU**, IO81JN has been fitted with a new oscillator, according to a spot posted by Keith **GW3TKH**.

23cm DX TO UKRAINE

Ulf, **SM0LCB** (Stockholm) operates his remote station **SM7LCB** (JO86gh) via the internet. The remote station is situated at his summer home on the island of Öland where he uses an IC-706 with a transverter, and a PA producing 55W into a 55 element Tonna.

On 3rd November, a massive continental high pressure area covered mainland Europe, and Ulf worked a number of stations in Ukraine, Central European Russia, Belarus, and European Russia.

Ulf sent an account of the events leading up to and during this opening:

"During Sunday 2nd November, I travelled from the remote site back to Stockholm, so I didn't check the conditions that evening and I didn't see any reason for good conditions.

I was not prepared for the opening on Monday 3rd November, but I got a "wakeup call" from Björn, **SM7SRJ** who reported good conditions from his 2m mobile station, and I had some very nice QSOs to the east - and my first QSO on **3400 MHz**.

At the end of the evening, I noted a fault with the station and the next day I confirmed it with other stations. I could hear them but they could not hear me.

After some checking I found that the problem was in the preamp box, where the RX path seemed to be working fine, but not the TX path. A lot of power (not as much 50W) was going back to the PA.

I sent down a N-N adapter to bypass the preamp so that a relative there could insert it. On 5th Nov I was QRV again but without the preamp. So now I have one job to do when I go there again, hopefully during the Christmas holiday, to replace the preamp box.

It is not easy with a remote station sometimes."

Ulf's log contained some excellent DX on **23cm**, mainly on CW. Amongst them were:

UR5LX (KO70) 1433km, **RA3LE** (KO64) 990km, **EW1EW** (KO33) 753km, **RA3LW** (KO54) 930km, **LY2BAW** (KO25) 542km, **EW1ST** (KO33) 757km SSB, and **YL9OCP** 544km SSB.

RA6DA, (KN96) 1955km was heard on CW at 519 but despite numerous attempts, no QSO resulted, even though both heard each other.

SM1HOW worked **RA6DA** the next morning, but Ulf was unable to be QRV at that time, and his problem with the equipment would probably have ruled it out anyway. His **23cm** totals are now 104 squares, 7 fields and 19 DXCC.

23CM DX ... BEYOND UKRAINE

From: Lars, SM1HOW (JO97GL)

I noticed propagation to the east in the late afternoon of 3rd November, and worked a few **RA3** on 2m.

On **23cm** I worked **EW6FS**(KO35) in Belarus, and **LY2BAW** in Lithuania with good signals, and then **RA3LE** (KO64) in Central European Russia. Later in the evening a few more stations, **SM7LCB** (JO86), **SM7GEP** (JO77) and probably **SM6AFV** (JO67) worked **UR5LX** (KO70) in Ukraine but nothing was heard here!

Next morning I hoped to work **UR5LX** but I didn´t know if he was QRV at the time (I was calling CQ in that direction for a long time and was close to giving up).

Then **RA6DA** (KN96SA) spotted that he had heard a CQ and a few minutes later he came back to my call.

Reports at the beginning were 529/559 and at the end 559/579 ! From JO97GL to KN96SA the QRB is just over 1916km. Vitaly, **RA6DA** is located to the north Krasnodar in the eastern Black Sea area (beyond Ukraine).

My rig is a TS711e with a **DB6NT**mkII transverter into a **DL2AM** 40W PA and the antenna is a 1.2m dish. Vitaly's station runs 80W into a 2.1m dish.

My tower with 2m 9-el 75W, 70cm 21-el 75W, 23cm 1,2m 40W and 3cm 60cm 4W

73 de SM1HOW/Lars

The distance to Central European Russia from the nearest part of the UK is about 2,800km, so I don't expect **RA6DA** will be worked on **23cm** from the UK! However, **G3AUS** and **GM4CXM** worked **SP4MPB** in 2007 at 1694km and 1613km respectively, so Ukraine is possible.

From: Vitaly, RA6DA (KN96SA)

In the evening of November 3rd, on 1296.250, I started to hear weak signals. I listened carefully on the frequency and I managed to hear a signal in the noise "**CQ SM7LCB**" He was in JO86GH, at 1958km!

He only replied to stations who were closer to him, and I had to get his attention with the help of the web cluster! But it was already late, and the path had worsened. I received a report 519, but I had not received a confirmation of my report from **SM7LCB**.

On the morning of 4th I tried on 1296 with Tadas, **LY2BAW**, but it was not working. For 10 minutes I called CQ, and then I got his reply with my report 559! The QSO took place with reports of 559/559, from KN96SA to KO25KA, 1438km.

For another 15 minutes I heard a weak CQ and then the signal grew stronger and I heard "**CQ SM1HOW** " !

He answered my call after several tries, and had received my callsign correctly. We then exchanged reports 559/529, and by the end of the QSO the level of the signal had risen. We then changed the reports to 579/559 - KN96SA to JO97GL, 1916km!!

Vitaly RA6DA in his well equipped shack

Half an hour after the first QSO, I called **LY2BAW** again, 579/579, and then we went on SSB, with 55 both ways.

I heard a number of other weak signals, but unfortunately it was not possible to read them. I used a TS-2000X transceiver with a 2.1m dish. The LNA is 0.4dB, and the PA has 80W out.
73 de Vitaly, RA6DA.

UKAC 18th NOVEMBER 2008

Ray, **GM4CXM** in IO75 thought the activity was better than last month, although conditions were average. Some time was spent assisting several stations with feedback (portables without 'KST). One of them Nick, **G0HIK/p** was operating from the south of Cumbria for the first time on **23cm** UKAC on SSB with 10w and a 15el. With all this going on Ray's QSO rate was very low for the first hour.

Nevertheless, some good CW QSOs were had in excess of 500km, including ODX **G4EAT** (JO01) at 572km, **G4DDK** (JO02), **G3XDY** (JO02), **M0GHZ** (IO81) on SSB, **G8DKK** (IO91), and **G4BAO** (JO02).

Also worked were: **G8OHM**, **G3NEO**, **GW8ASD**, **M0DTS**, **G0HIK/p**, **GI6ATZ**, **GM4LBV**, and **GM0USI/p**.

All in all a very good turn out, and hopefully there will be even more activity for the last session of 2008 on Tuesday 16th December.

Christophe, **ON4IY** also found the activity was good, in his first QSOs on **23cm** since his QTH move recently. He had some bad QRM from the local radar station, but did manage to work through it and was able to contact **PA5DD**, **G4BAO**(JO02), **M0GHZ** (IO81), **G4RFR**(IO90), **PE1EWR**, **G3MEH** (IO91), **G3XDY** (JO02), **G0EWN** (IO93), **G4LDR** (IO91) and **G8OHM** (IO92).

He also heard many others but found it hard to get their attention. All his contacts were arranged via 'KST except for **G3MEH** and **PE1EWR**.

...AND FINALLY

My thanks to Lars, **SM1HOW** Ulf, **SM0LCB** and Vitaly, **RA6DA** for their contributions, and very well done all of you.

The level of correspondence from the UK remains very low, which is rather disappointing. Perhaps it is inevitable once the summer is in the past, but I hope this will improve before too long. That's all from me for this year!

73, Robin, G8APZ

Please send your activity news for this column to:

scatterpoint@microwavers.org

It's here!

Yes, at last the UKuG's Microwave Technical compendium has been published. Being 25mm thick with 445 pages and in A5 format, it was a bit of a 'mad rush' to get it ready in time for sale at Martlesham but John G4BAO, the book's editor, aided by Peter G3PHO in the final production, managed to make Mensa Printers' (Sheffield) deadline. Just 200 copies were made as a first run. Those of you who attended the Martlesham Round Table were able to buy copies at the special event price of £12 (only just above the actual production price!). However, if you want one now by post then the cost will be a few pounds more. Postage and packing plus the high airmail costs these days might encourage some of you overseas folk to either buy more than one at a time or to take the surface mail route instead of airmail.

Below are details of how to get one of the remaining copies. Be quick or you might lose out!

Details of content, etc, can be found at: **www.microwavers.org**, the official website of the UK Microwave Group

Backscatter is a compendium of the best technical articles that have been in Scatterpoint, the UK Microwave Group newsletter, (and its predecessor, The RSGB Microwave Newsletter) over the period 1999 to 2006.

The A5 size book is 445 pages and therefore is an excellent reference with many articles on all aspects of microwaves.

It is available by post at the following prices which include postage and packing:

	£ Sterling	Euro	USD
UK	18.60		
Europe	21.50	26.00	
RoW (air)	26.50		42.00
RoW (sea)	21.50		34.00

If you wish to order a copy then the preferred option is via Paypal to **ukug@microwavers.org**
Please give your name, callsign and full postal address when completing the Paypal details.

If you wish to **order by post** then please send a cheque **payable to `The UK Microwave Group and drawn on a UK bank** to:

John Worsnop, G4BAO
20 Lode Avenue
Waterbeach
Cambridgeshire
CB25 9PX
United Kingdom

Anyone who purchased the book before 15th November can download the small errata on the downloads page of www.g4bao.com. If you have a already placed an order and have a delivery enquiry email: **john@g4bao.com**

To buy the book by PayPal please make the payment to **ukug@microwavers.org**. This ends up with Graham G4FSG, so there is no need to contact me, as Graham will pass your order on to me to do the shipping, and you will immediately go in to the delivery queue.

To purchase by cheque drawn on a UK bank, send a letter to me by post, to the address below with the cheque and your delivery details. I will the wait 3 days from banking your cheque to allow clearance before putting you in the delivery queue. Please only email me if you have a already placed an order and have a delivery query but please have patience as I am doing the shipping myself and this involves packing, franking and going to my local post office to deliver them. **73 AND HAPPY READING... John G4BAO**