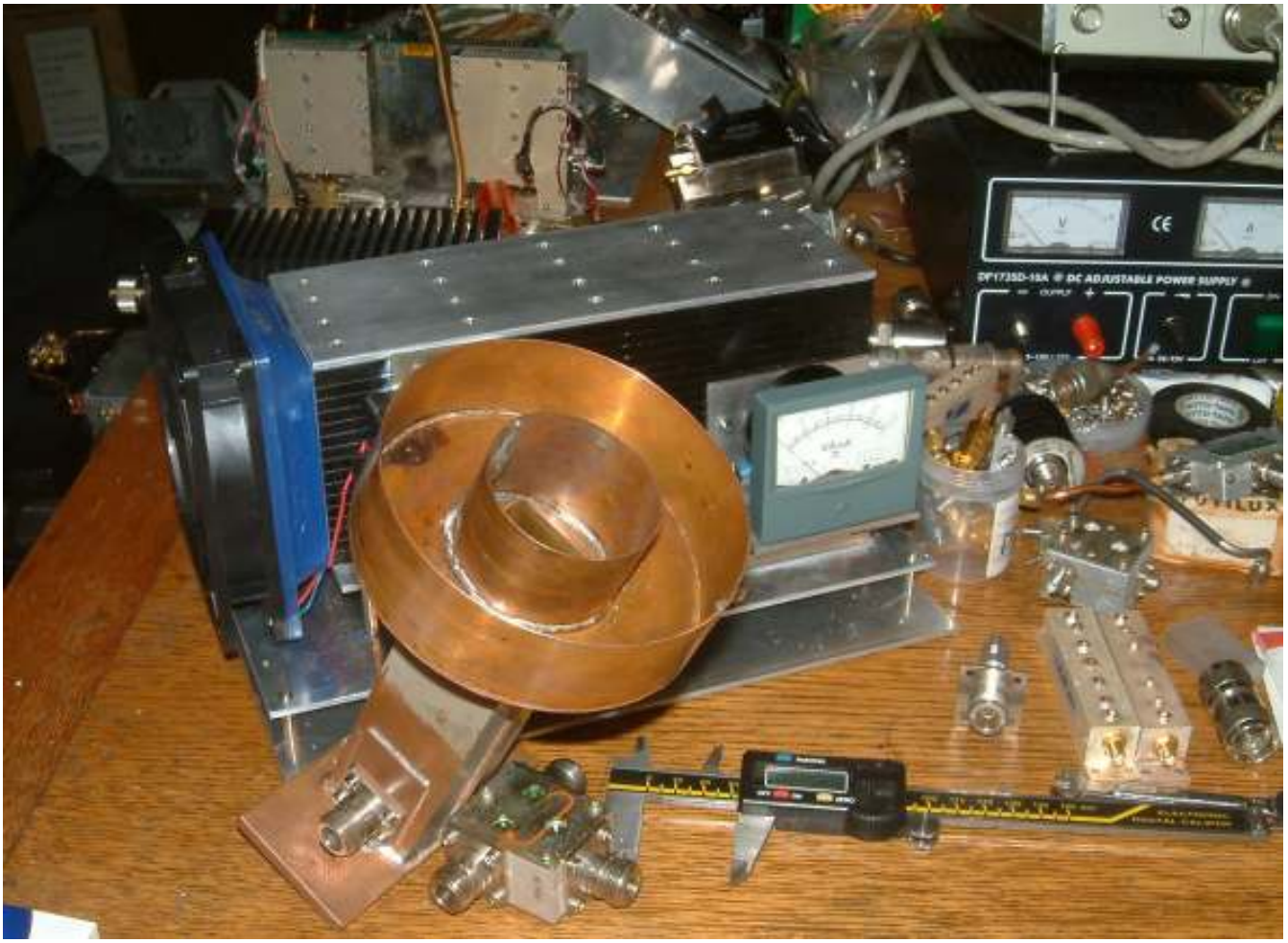
SPECTRUM **August 2007 Vol. 44 No. 8**

The Official Newsletter of the

Auckland VHF Group Inc.

Spectrum 2007



Steve ZL1TPH's Septum Feed for 5760 MHz

Auckland VHF Group Inc.
Branch 66 NZART

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Clubrooms: Hazel Ave, Mt Roskill
http://www.qsl.net/zl1bq

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Club Web Page	http://www.qsl.net/zl1bq
ATV Interest Group	http://www.qsl.net/zl1qf/atvug/ATVusers.html

Club News and Net:
The combined Auckland VHF Group and Auckland Regional Branch News and Net are held on 146.625 MHz and 439.875 MHz at 8.15 pm each Sunday or after the ZL6A National Broadcast on the last Sunday of the month.

Club meetings are held at the Clubrooms at Hazel Avenue, on the second Monday of each month at 7.30 pm. For other details, listen to the News and Net each Sunday evening.

Membership of the Auckland VHF Group is via subscription; $30 within the Auckland free dialling area, and $25 outside. It is expected that members of the Auckland VHF Group Inc. are also members of NZART, as we are branch number 66 of NZART.

SPECTRUM is the official journal of the Auckland VHF Group Inc.

Opinions expressed are those of the authors and do not necessarily reflect club points of view. The closing date for SPECTRUM articles is the Monday 7 days before the following General Meeting. Articles may be submitted to the Editor.

Coming Events:

NOTE the change to the SECOND MONDAY of the month.

August 13th: FreeView Satellite TV by Mr Doug Stevens, head of the Technical Team at FreeView will follow the General Meeting commencing at 19:30.

September 10th: Asset Management.
All members are urged to attend this meeting to discuss the future direction of the club!
Please see the VHF group web site for further information.

November 12th : AGM
December: End of year Bash.

Contents

Contest Calendar:

October 6th and 7th – Microwave Contest. All bands 614 MHz and up.

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From the President:
Hi All,
Well, another month has been consigned into history, and for me it has been very busy around here. Work has been crazy, just not stopping, and the politics are getting more and more frustrating, and some of the things that are going on just make you wonder...

I hope nobody else lost any antennas or anything else in the big blow a few weeks ago, I lost my main dual band collinear, and my HF 80/40m fell when the collinear came down on it, and several tree branches broke free as well. One of my friends lost tiles from his roof, and his stainless BBQ flue bent over.
There were several big trees around Howick that came down, and parts of the area looked like a disaster area, with all sorts of things strewn around. At least we were fortunate enough not to be washed away in the storm.

Last month's meeting, the meal and movie in Avondale was well attended; the roast dinner was well worth it, a good hot kiwi roast with good company. The movie "The Enigma Code" set in WW2, around England's Bletchley Park, was shown on the big screen in the mini cinema, after a short British comedy that dates back to the old 405 line B&W days.
It was a good evening to catch up with each other and those that we don't see that often. Thank you to all those who came and made the evening such a success.

This month, we are once again at the clubrooms for our monthly meeting, we're lucky enough to have a talk about the new FreeView, the new digital free-to-air TV service which carries most of our free-to-air services currently available on the analogue VHF and UHF channels. The FreeView digital TV service is currently delivered via the Optus D1 satellite on Ku band (12GHz) only, but towards the end of this year, or early next year, FreeView will also be delivered via a network of terrestrial DVB-T transmitters in the existing UHF TV bands from sites such as Waiatarua. To date, it has been suggested that any new High Definition TV (HDTV) programming will only be delivered via the terrestrial network.

There have been a few other things happening in and around the club during the last month or so besides the meeting events, Vaughan, ZL1TGC took plenty of items from the Trading Table to Whangarei for the sale day up there, which was combined with their 75th anniversary, which by all accounts was well attended, and very social occasion. Once again, many thanks to Vaughan for your efforts and taking the Trading Table selection to Whangarei.

Repairs to our channel 39 ATV repeater are continuing, and great progress has been made, the second Barco exciter has been tuned up, the amplifier line-up is still a work in progress, but I believe progress has been made.

All other voice repeaters are working well, although I believe there may still be an Asian intruder that is using 70cm frequencies and from time to time being heard on the National System. It is believed that they might be using the Brynderwyn output frequency, 434.950 MHz simplex, and they may be located around the Hillsborough area. If you hear them, try to get a bearing on them.

The 145.625 data repeater is still operating at lower power than normal, as the problems with that are still being investigated, and we hope to be able to return the data repeater to full transmit power soon.

On Saturday August 11, the Auckland VHF Group took the Trading Table to Hamilton for the Hamilton Amateur Radio Club Market day, and once the sales are added up, I'm sure it will have been worth the effort, and once again, thanks to all those who came along and lent a hand on the day.

The Auckland city council lease on the land that our clubrooms is located on is also progressing well, and a new lease agreement has been drafted that will be up for renewal in January 2016. John ZL1JD has spent considerable time working on the lease, being available for meetings with Council staff, and dealing with the paperwork. Thanks from us all John.

Recently, the Auckland VHF Group was approached by the Low Power FM Radio Broadcasters Society, to ask if our clubrooms might be suitable or available for use one night a month for their meetings, as it turns out, the site will be ideal, and the committee have agreed to the clubrooms being used by another non-profit organisation, which has members of the Auckland VHF Group among their ranks. It means that the clubrooms will see increased use, which can only be encouraged.

Also, the club's IRLP node is currently being tested, prior to being re-commissioned on the 670 2m repeater, hopefully within the next month, so we can all look forward to hearing more than just locals on our 2m repeater.

On a more sombre note, recently we have learned of the passing of Maureen Shaw, ZL4AN, following the Whangarei Anniversary. Maureen had lived in her motor home for the last 12 or so years, and travelled the country on a seasonal basis, enjoying the milder northern climate during the winter months, and heading south for the summer period.

Maureen was a regular on various 80m nets, and was also often heard on the National System. I had met Maureen on many occasions such as NZART Conferences, and I had spoken to her several times on 80m, and several of our 2m and 70cm repeaters from her motor home.

Also, Sir Angus Tait, ZL3NL, the founder of Tait Electronics, one of New Zealand's pioneering electronics manufacturing companies passed away on Tuesday August 7. He leaves behind a legacy in NZ electronics manufacturing that will go on for many years to come.

Tait Electronics is a name that nearly every New Zealand Amateur knows, and the majority

of our voice repeaters are all Tait equipment, and many of us own items of Tait equipment.

That's about it from me for another month, I'll hope to see you all this coming Monday at the General meeting. Until then, may it continue to get lighter earlier and darker later, roll on the warmer weather!

73 All, Tim ZL1TN.

* *

August Contest report by Simon ZL1SWW

Hi all,
Not too much activity this contest from my side due to bad weather and not much time to prepare. The FT-817 finals blew up a couple of days before and had to replace them. No mean feat!! Anyway Harry ZL1BK and I went up Mt Wellington for a quick bash and combined we had Harry's 2m and 5.7 Gig and my 3.4 Gig and 10 Gig units. 3.4 was on its maiden voyage and performed faultlessly with good signals over a 50km path. Weather a bit unkind to us with wind and rain that had us taking cover for a bit. All gear back into the cars apart from 10 gigs which can withstand water for the wet parts.
3400 is a DXR unit with an old Remec ODU that I pulled the guts out of and used it's 20 element Patch antenna with about 19dB gain, lucky as the Remecs run at 3399 up and 3500 odd coming down so thought it was a quick and dirty antenna. Beam width seems about 30 degrees odd when testing in the shack.
Only had a period and a bit to work as had visitors coming and had to get home to help my wife prepare. Fun times had and looking forward to the big one at the end of the year.

Cheers,
Simon ZL1SWW

Update from Steve ZL1TPH's activities.

Hi Ted ,

Septum feed is built. Needs a bit of a clean up but hot off the press. The GIF files from VE scaled down to 5760 are similar but concerned with over all length. I think it makes no difference (but minimum length is important) but about to put a posing up on moon-net to find out 4sure. Those dudes are experts. Mind you we have to show them the Kiwi DX style yet.

100 watt PA for 5760 goes on other side. Hope you lot won't tell me it's not big enough. 10 m/watt to 800 m/watts driver amp is under first chassis. Pulled the 7 watt Gas-as-Fet out of that amp as no need. I hope Leon never finds out. Below the chassis goes the DXR 5760 TRV. So she's reasonable compact. Will use 4 port SMA latch relay to sink pre amp into the dirt on TX. From memory, isolation is greater the 60dB and with a 4 port on TX you sink both TX side and RX side with a 50 ohm load. Think about it.
Back to da radio.
Steve

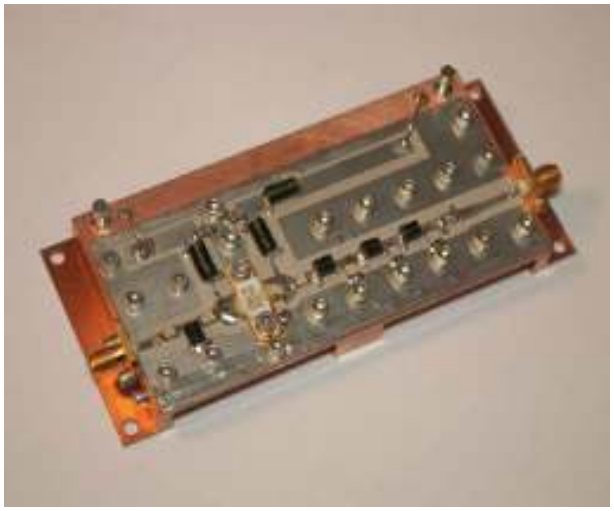
AMSAT News Service Bulletin 196.04
VHF, high-efficiency, class-E, RF power amplifier

AMSAT members Allen Katz, K2UYH and Marc Franco, N2UO have designed a VHF, high-efficiency, class-E, RF power amplifier with a DC to RF efficiency of 86.8%. Their innovative design is based on silicon carbide (SiC) metal-semiconductor field effect transistors, or MESFETs.

The design was presented in a paper at the IEEE International Microwave Symposium in Hawaii. It is now available on-line:

http://www.cree.com/products/wireless_docs.htm
titled
"Class-E Silicon Carbide VHF Power Amplifier" (June 5, 2007)

The final amplifier efficiency was measured at around 86 to 88% with this number holding quite well at almost any drain voltage or output power. This type of amplifier is under consideration for the envelope elimination and restoration linear amplifier planned for the AMSAT Eagle satellite.



[ANS thanks Marc, N2UO for the above information]

Thanks to Doug ZL1AVY also for bringing it to my attention.
Ed.

CIMS 2 Course.

(CIMS = The New Zealand Coordinated Incident Management System)

A CIMS 2 course will be run at the Papakura Radio Club Clubrooms on Wednesday 22nd August at 19:30.
It will be run by Mr. Kelvin McMinn, the Papakura Emergency Management Coordination Officer.
This is an introductory course and it will be open to anyone wanting to improve their knowledge of how incidents are handled by the Fire Service, Police etc.

Please advise Ian ZL1AOX if interested at (09) 298 1810 or zl1aox@nzart.org.nz.

ZL1UHF Digipeater is back on the air at Whitford.

An 11kV wire between an insulator and a pole switch had suffered from metal fatigue and broken during the height of the storms last week, breaking the supply of power to the 334 kHz Airways NDB beacon and our amateur radio shed housing the ZL1UHF APRS Digipeater.

Airways had paid a visit to the 334 kHz beacon building several times during the week, keeping the standby generator fed with fuel.

I paid a visit to our shed, finding the problem was a lack of 230V mains, and not that the shed had been blown off the face of the earth, which was one possibility I had feared. After finding out the shed was unscathed, albeit still without power, I dropped in on Garth (farm owner) on the way out. While I was there, a Vector van drove in through to the gate, so I stopped to have a talk while he opened the gate. He explained that they still had had reports of a lack of power, so I filled him in on where the 11kV wires went and how he could get to them. About an hour later, he came back down & said he'd got stuck a couple of times on the muddy track but had found the problem, and got another Vector guy to turn off the 11kV feed where it branched off from the street.

He drove back up to the fault site, and replaced the broken section of wire, all of about 1/2 metre in length. Talking with the guy at the 11kV switch at the road end, they livened the line and he checked the 230V output from the pole transformer. All was good, so he went off to the Airways building to check that it had power also, which it did.
I checked that our digipeater was all powered up and happy too, which it was, and then we drove back down to the farmhouse & off he went.

About 2 hours later, as I was leaving the farm, an Airways vehicle showed up, presumably to switch the 334 kHz NDB transmitter back to mains power from the standby generator.

So all's good now, as they say,

'Normal service has been resumed"

73's Ian ZL1VFO

Maureen Shaw ZL4AN SK

Maureen passed away in her van "Turtle" on Sunday 29th July, the morning after the Whangarei Radio Club's 75th anniversary.
Maureen travelled extensively in her campervan and usually spent the winter in the top half of the North Island and summer in the south.
Many Radio Amateurs have had the pleasure of working Maureen during her travels, both on HF and VHF.
She will be sadly missed.

Maureen Shaw ZL4AN. Photo from August 89

Sir Angus Tait ZL3NL KNZM, OBE – SK

Sir Angus passed away on the 7th August 2007, aged 88 years.

Sir Angus's selfless business practices created mutual loyalty with staff; retention has remained very high. He provided staff with health and superannuation benefits, long before the latter was made compulsory. Casual Fridays and the focus on in-house training were also part of the culture built by Sir Angus.

Always a radio enthusiast (call sign ZL3NL) Angus kept up to date with the latest technologies. Until the end at 88, Sir Angus drove into work in his characteristic red Alpha Romeo. Rather than a parking space, he pretty much parked right by the front door. After all, it was his name on the office sign.

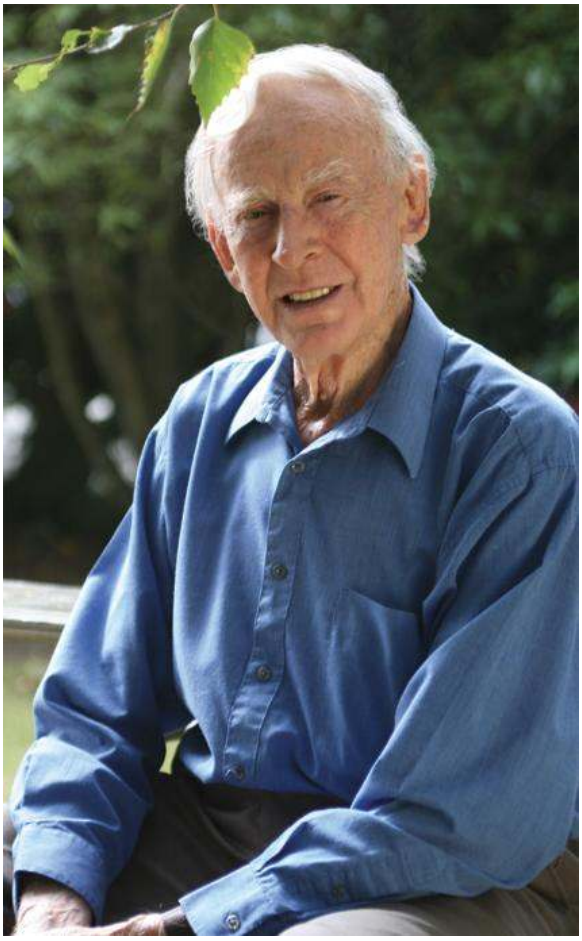


Photo: Guy Frederick.

QUOTES FROM A BUSINESS LEADER

Angus on innovation starting up a business:
"If you're going to start down the road on a new piece of activity, don't be too wise. Don't know too much about it, because if you know how hard it is, you won't do it."

Angus on work:
"Enjoy your work, learn as much as you can, upgrade your skills, aim high in your standards."

Angus on those considering engineering as a career:
"Recognise it as a sphere of activity that has no bounds. Don't be concerned that you'll be bored and be doing the same thing every day. It's moving so quickly with new technologies that are emerging, I hesitate to predict where it will go."

Angus on success:
"Success comes from an unwavering dedication to a specific goal, from teamwork in the face of adversity and from aiming high in a competitive world."

Angus on creativity:
"When designing new products, yes, there were sparks of creativity, but often it was applied knowledge and accumulated experience that improved every little detail and generated a great product."

Angus on the environment:
"I believe taking action on our environmental sustainability is vital for New Zealand and the world."

Angus on mortgaging his house to start again after bankruptcy:
To Bank Manager "I won't be making the same mistakes again…I'll be making new mistakes in future."

About Tait Electronics Ltd
Tait Electronics Ltd was formed in 1969 and is a leading provider of radio communications solutions to public safety organisations, utilities and transport providers. The company exports equipment to over 140 countries from its global headquarters in Christchurch, New Zealand. Its research and development operation is one of the largest in its sector in Australasia. Tait employs about 800 people in New Zealand and has wholly-owned customer service facilities in Australia, Singapore, Thailand, China, United Kingdom, France, Germany, Canada and the United States.

Thanks to Scoop Business for the information.

Watch your Is and Qs

Processing two signals rather than one has many advantages in software defined radio, as Steve Ireland and Phil Harman VK6APH explain.

This is the introduction to a 3 page article which I would like to share with you, but it has already been printed in the January issue of RadCom. To view the article, go to

http://groups.yahoo.com/group/softrock40/files/VK6APH/
and you should see the file (344K size) available for download.

Useful APRS location

http://aprs.he.fi/

Hamilton Market Day is coming up on Saturday August 11th.

This year the Auckland VHF Group is taking the whole Trading Table shelves etc, plus a heap of other goodies to Hamilton.
As usual, everything will be packed on the Friday night, the 10th of August, into Dave's ZL1TIA truck. We will travel to Hamilton on Saturday morning, stopping at the TOP of the BOMBAY Hills for breakfast for those who would like sustenance, aiming to be at the Claudelands Show Grounds in Hamilton at around 8.30am.
At sale closing time (around 1.00pm) the trading table will be packed up again and transported back to the clubrooms in Hazel avenue, where it will need unloading and setting up again. It is anticipated that the arrival at the clubrooms will be around 3.30 - 4.00pm on Saturday.
Communication will be on 6625 repeater.

John Dunn ZL1JD, Trading Table Manager.

ZL1AB's BBS description:-

Computer	Pentium 90 (FBB and BPQ) and a 486 33meg (Xrouter)
TNC's	3 x Tiny-2 Terminal speed 19200
Antennas	3 Vertical Collinears on 70cm and 2m.
Rigs	Plessey MTR7000 432.650 1200baud AFSK
	Plessey MTR 6000 144.600 1200baud AFSK
	Plessey UF61 438.300 9600baud AFSK
Software	F6FBB Multi-user BBS with 10 channels available on one port.
	This is running on top of a BPQ Switch and connected by a 10meg
	Ethernet LAN to XROUTER a Multi-Protocol Router with 3 RF ports
	Both computers are running DOS.
Hours	144.600 24hrs, 432.650 24hrs, 438.300 24hrs.
Location	400 East Coast Rd. North Shore Civil Defence H.Q. RF73IG
Your Sysops:-	
	ZL1ABS (Michael) General enquiries and Housekeeping
	ZL2AQY (Eddie) Software development

73 de Michael ZL1ABS

ZL2AQY-1 Node

For anyone wanting to connect to the 44.x.x.x ampr.org system I run a gateway on my node ZL2AQY-1 accessible on 144.600 and via the internet on telnet://olson.net.nz:23

My Node ZL2AQY-1 also connects to the rest of the world and N.Z. packet network without using TCIP just as a Node.
It also has a Chat Server
(connect to ZL2AQY-1 and then type chat, use /?
For commands to use. You will find most users on channel 1234 use /c 1234 to get there /q to quit.)
For full use of ZL2AQY-1 from the internet you will need a password (email me for this) connects via 144.600 do not need a password.

I also run a DxCluster accessible via 144.600 and on the internet telnet://olson.net.nz:9000

73 Eddie ZL2AQY

ZL1AB BBS report

Branch 29 NZART INC. ZL1AB BBS broke down during the recent storm & mains power failure this week 12th July, 2007.
The main 13.6 Volt DC power supply for the three Radios (one 2m 144.600 MHz & two 70cm 432.65 MHz & 438.30 MHz) blew its' main fuse in the AC primary circuit.

A failed bridge rectifier or protective MOV (Metal Oxide Varistor) is suspected.

President Vaughan ZL1TGC has loaned a "Sorensen" power supply to replace the "Daiwa" supply while the "Daiwa" is repaired. Secretary Alan ZL1AUW is looking into the "Daiwa" supply. He recalls having replaced the electrolytic capacitors on a previous occasion. ZL1AB was back on air 1600 Friday 13th July.

The ZL1AB BBS NODE comprises two PCs running the DOS operating System. The "BBS" PC runs a ten port BPQ Packet switch to an Ethernet NIC with DOS F6FBB V7.01 BBS software running "on top". The "Xrouter" PC runs G8PZT Xrouter V1.87F3 DOS software with an Ethernet card (to connect to the "BBS" PC) and three serial ports to three TNCs + associated radios.

P-MAIL, BULLETINs, 7 PLUS, YAPP, AUTOBIN, REQDIR, REQFIL, AX25, TELNET, APRS, CHAT, DX Cluster, Messaging, Netrom Nodes, DX list, WX List, STATistics are some of the features available.

The NZART INFOLINE is available as Jamie ZL2NN (EDITOR) uploads it from Wellington by internet access via Eddie ZL2AQY.

The BBS is all up to date with MAIL & Bulletins as the other ZL BBS stations stored all the ZL1AB traffic for the few days that ZL1AB was off air. With Eddie's ADSL connection to the other Xrouter connected ZL BBS stations all the traffic was delivered in a few hours.

New crystals for the ZL1AB BBS to be accessible over the National System (2AM to 5AM) 439.875 MHz Klondyke are on order.

73 de Michael ZL1ABS
ZL1AB BBS Co-Sysop with Eddie ZL2AQY

AO-51 schedule for August
August 5 - August 20
FM Repeater, V/U
Uplink: 145.920 MHz FM, NO PL Tone
Downlink: 435.300 MHz FM
9k6 Digital, Telemetry Only
Downlink: 435.150 MHz FM, 9k6 Telemetry
August 20 - August 27
FM Repeater, V/U
Uplink: 145.920 MHz FM, NO PL Tone
Downlink: 435.300 MHz FM
FM Repeater, L/U
Uplink: 1268.700 MHz FM, NO PL Tone
Downlink: 435.150 MHz FM
August 27 - August 31
FM Repeater, V/U
Uplink: 145.920 MHz FM, NO PL Tone
Downlink: 435.300 MHz FM
9k6 Digital, Telemetry Only
Downlink: 435.150 MHz FM, 9k6 Telemetry

Waveguide length at 5760 MHz

Ted Barnes ZL2IP wrote:

Just worked out that the guide wavelength is so close to the free space wavelength you can take them as the same. So at 5760 wavelength is 52.08mm. If the guide is lengthened by any multiple of this nothing is changed.

Cheers Ted

Reply from Steve Zl1TPH
Ted and the DX / contest gang,

What I am trying to work out is, what is the wavelength / guide in mm at 5760.

This is not standard guide but square guide as per septum feed from OK1DFC and RA3AQ. Square septum to end of guide = 52mm 1 Lambda as per OK1DFC. 52mm is free space length. I gather he says the same as per free space loss as to square guide. Or very close. I think he is correct.
If we look at WG14 at 5760 then wavelength = 78mm as per RSGB. But that is with rectangular guide. Here we have square guide.

So out with R/L bridge and 5watts into the square OK1DFC feed. Looking for the max and min on R/L by a piece of metal from the aperture of the guide. Remembering the end of the septum is 52mm inside the face of the square guide.

And guess what! The max reflect is at the face of the guide and each half wavelength is the same to = 52mm. So I guess the max R/L as a reference is 52mm inside the square guide from the end of septum. Exactly at what OK1DFC says.

So let's connect the 32mm RA3AQ two ring choke to the original OK1DFC. (It would be best to go as per 1 wave length as Paul Wade mentioned). And same tests again with the max & min. It's still in the same place (maybe a few mm longer but not by much)

So this proves that in a square waveguide that the waveguide length is very close if not the same as the free space wavelength. And to extend the length of this septum feed (which we need to do so to fit to Ted's dish because of that ring) I only need to extend this feed in multiple of one wavelength from either the end of the septum or the face of the guide with the addition / subtraction of the 32mm of the RA3AQ choke.

Not sure where you got your info from Ted but I think you are correct. Next job is to extend the guide and connect choke. But comments all the same Ted / all.

Steve - ZL1TPH

Trading Table – August 2007

New from December:

ATF-55143 - Low Noise Enhancement Mode Pseudomorphic HEMT in a Surface Mount Plastic Package (SOT-343) (4 lead SC-70). Ideal for systems in the 450 MHz to 6 GHz frequency range. Spec: 2 GHz; 2.7V, 10ma (Typ). 24.2 dBm output 3rd order intercept. 14.4 dBm output power at 1 dB gain compression. 0.6 dB noise figure. 17.7 dB associated gain.	$2.50 each Packet of 5 for $10.00
Full Spec sheet available on request.	
SMD RESISTORS – 10 per pack. 1206 Format.	10 per packet.
Values in stock: 2E7, 4E7, 56, 68, 100, 180, 680, 820 Ohms.	50c per packet
SMD CAPACITORS – 10 per pack. 1206 Format. (50v)	10 per packet.
Values in stock: 5E6pf, 10pf, 22pf, 33pf , 100pf, 1200pf, 2200pf, 4700pf, 100nf.	50c per packet
SMD CAPACITORS – 10 per pack. 0603 Format. (50v)	10 per packet.
Values in stock: E68pf, 1.2pf 1.8pf 2.2pf 6.8pf 8.2pf.	50c per packet
TRANSISTOR MPSA77, PNP Darlington, TO92, Max Vceo = -60v, Max Vcbo = -60v, Max Vebo = -10v, Max Ic – continuous = -1.2A	5 per packet $2.00 per packet.
RG178 50 ohm coaxial cable, (1.8mm O/all diameter, Brown colour). Cut to your nearest meter of length. (ie. 1.5meters will be cut to 2 meters, etc.)	$2.50 per meter.
RG178B/U (Belden 83265) 50 ohm coaxial cable in cut (75mm) lengths. Ideal for those "interboard" connections. Stripped and Pre-tinned ready for connection. 10 lengths per packet.	$1.00 per packet
PL259 Plugs – the old favourite: Still in stock. Sorry no reducers – yet!	$2.50 each
Moving Coil Meters - 500µA movement with back lighting via separate terminals. Two scales 0 – 30 and 0 – 100, plus a battery "replace/good" indication. Scale can be removed/reversed for different uses. A very versatile meter.	$3.00 each
Integrated Circuits	
ZSM560 under voltage monitor IC's. 4.6 volt threshold for 5 volt systems. Spec sheet available on request. Packet of 5	$2.00 per packet
HEF4060B SMD IC's. and HEF4060BT 14-stage ripple-carry binary counter/divider and oscillator. Spec sheets available on request.	$1.00 each
74HC74D SMD IC's Dual D-type flip-flop with set and reset; positive- edge trigger. Spec sheets available on request.	$1.00 each
LM393D IC's (SO8 package) and LM393DT Low Power Dual Voltage Comparators. Wide single supply voltage range or dual supplies: +2V to +36V or +/- 1V to +/- 18V. Spec sheets available on request.	$0.50 each
74LS38N IC's Quad 2-Input NAND Buffer with Open-Collector Outputs. Still in original RS packets.	$1.00 each

Limited stock left of the following:

GPS Patch Antenna: GPS Patch antenna mounted in waterproof white plastic housing. Comes with 10m of RG174 coax and SMA plug. Antenna has a pre-amp inside. These are brand new. $25.00 each

GPS Receivers – 12 channel GPS receivers in plastic dome mounting with DB9 Connector. RS232 output on pins 2,3 and 5 and power +ve 6-12V on pin 6. NMEA output sentences. $120.00 each

GPS Patch Antenna – with Macom SO8 preamp 26dB @ 1.575 GHz, 1.15 dB NF. It still has 20dB gain @ 1.3GHz but the noise figure is rising a bit. Fitted with 3m of RG174 cable and MCX connector. No housing/case for patch antenna. $10.00 each

GPS Patch Antenna – as above but in plastic case. Fitted with about 3m RG58 coax cable and SMA connector. $20.00 each

Mail Order accepted. Please forward your mail orders to Auckland VHF Group, PO Box 10138, Dominion Road, Auckland. Or Email to john.dunn@clear.net.nz.

Please Note: For mail orders please add $5.00 for packing and postage.

For Sale from the Trading Table (Ex estate of ZL1MO)

Maker	Model	Description	Ticket
ICOM	2A	2m Handheld + manual + rptr kit	$60.00
ICOM	4E	70cm Handheld + manual + rptr kit	$60.00
Kenwood	TH-D7A	Dual band Handheld + manual	$400.00
Kenwood	TM 221A	2m mobile 50W	$225.00
Kenwood	TM 255A	2m multimode	$450.00
Kenwood	TM 851A	70cm multimode	$450.00
Kenwood	TR 7930	2m Mobile + mounting bracket	$250.00
Lurich	Power	13.8V @ 7A	$50.00
Misc	Load	25W to 500 MHz SO-239	$25.00
Sabtronics	8100	Frequency counter 100 MHz	$75.00
Uniden	UBC 100XL	16 channel Handheld scanner	$125.00
Yaesu	709-R	70cm Handheld + extended manual	$150.00
Yaesu	FT 817	HF-UHF multimode 5W	$750.00
Yaesu	G-250	Rotator	$300.00

NEW INTO STOCK – LIMITED NUMBERS – A/V Distribution Amplifiers.

Talia professional Audio/Video Distribution amplifiers in a single 1U rack unit. 75 ohm looping video input with 10 separate outputs, all on BNC connectors. Stereo balanced or unbalanced audio input (RTS Jack's) with 10 stereo outputs on RCA connectors. This will be the last of these.

Limited numbers available. $40.00 each.