

THE WORLD BELOW 400 GHz

The Periodical Newsletter of the
WAIKATO VHF GROUP Inc.,
ZL1IS,
PO BOX 606,
Hamilton 2015, New Zealand.



NZART
BRANCH 81

JUNE 2006 ISSUE

WAIKATO VHF GROUP EXECUTIVE

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June General Meeting 2006

The next General Meeting of the Waikato VHF Group,
will be held on **Sunday, 18 June, at 1.30pm**
at the Hamilton, Branch 12, Club Rooms, Seddon Road, Hamilton.

The speaker will be Kevin Murphy, ZL1UJG,
Editor of the 'VHF Scene' in "Break In".

Kevin will be talking about the Kitset Boards that the VHF Group has
available and what they can be used for. If time permits Kevin will give a
second talk and PowerPoint presentation on "Transverters", mainly
covering 2m and 70cm.

The meeting will be concluded with afternoon tea.

National System

Since the last Newsletter, the National System has been connected to the Waikato-Bay of Plenty extension. In addition, a new 10 element yagi antenna has been fitted to the top of the tower at Klondyke, facing Egmont, which will give a greater fade margin over the Klondyke - Egmont path. This new antenna, replaced a 7 element yagi antenna, that was much lower down the tower and becoming obscured to Egmont by pine trees.

Planning is in the pipeline by the Wellington VHF Group, in association with Branch 60 Taupo, to install a National System repeater at Maroanui, near Taupo, Map Reference NZ260 U17 736942. This station will be connected to the Kaimai National System repeater by means of a UHF Link Station (ULS) at Maroanui on 985, being a transmit frequency of 439.850 MHz and a receive frequency of 434.850 MHz.

IRLP Node on 695

As result of a motion put to the AGM in March, the IRLP node 6549, that is connected to Te Aroha 695, will continue to operate for the foreseeable future.

Other IRLP News

New IRLP nodes have been established at Kawerau and Gisborne in the past week. IRLP nodes that are at present (4 June 2006) operating in New Zealand as per <http://status.irlp.net/IRLPbycountry.php?country=173> are as follows:-

Node ID	Callsign	City	Area	Freq.	CTCSS	Administrators	Notes
6105	ZL2AA	Gisborne	Poverty Bay	146.475	0	ZL1RIC - Ric	
6285	ZL2KS	Blenheim	Marlborough	432.700	0	ZL2BK - Grant	
6394	ZL1RW	Kawerau	Bay of Plenty	147.000	0	ZL1ALG - Graeme	
6549	ZL1IS	Hamilton	Waikato	146.950	0	ZL1AMW - Alan & ZL1GWP - Gavin	
6793	ZL2AS	Hastings	Hawkes Bay	147.250	0		Linked to 675 TPO
6900	ZL3TMB	Christchurch	Canterbury	147.200	0	ZL3TMB - Mike	
6910	ZL2LD	Masterton	Wairarapa	146.725	0	ZL2LD - Peter	
6920	ZL2SH	Masterton	Wairarapa	146.825	0	ZL2SH - Shane	Using 439.225MHz @ Wharite Node PC at Masterton
6931	ZL2VH	Upper Hutt	Wellington	147.300	0	ZL2UFI - Mark	
6943	ZL2KO	Feilding	Manawatu	145.725	0		Xcvr @ Wharite.

These Special Codes are pertinent to Node 6549.

00	Node "Help" file
44	Tells you the last 'Node' connected
55	Tells you the time in ZL
66	Tells you the time in UTC
67	Tells you the time in ZL (alternative)
73	Ends the current connection and closes the node
77	Checks the node to see if it is connected to another node
78	Advises the status of ALL Waikato Group Repeaters
81	Waikato VHF "Group News"
* #	Redials the last node
# #	# # <node no.> tells you the time at the remote node

General

2.424256 GHz Beacon

Tom ZL1THG had taken the Beacon off air for a day while the PSU main filter capacitor was changed. The original +85 degree electrolytic had all but disappeared in capacitance. A replacement capacitor rated at 105 degrees is now installed. (The PSU was 5 to 10 years old)

A point to note that older mains powered equipment should be checked for ripple. After regulation ~ 100 mV or less P-P of 100 Hz should appear across the output under load. In this case several volts was appearing. (Measured on a Oscilloscope) Another point to look to look out for is that some rectifiers fail and then 50 Hz appears. This has happened to the scribe a number of times.

Cambridge Market Day

Gavin ZL1GWP and Kevin ZL1UJG manned the table at the Market day and trading was consistent throughout the day. Many familiar faces passed the table, talked and sometimes bought items off our table. The items we had on our table were donated items/ parts/ PCB's from a number of sources.

Over a number of years, the stock of items has decreased and we are on the lookout for good quality "sellable" items for the Hamilton Market day. Contact committee members if you are able to help in this regard.

Funds (including sales, memberships and donations) raised at Cambridge totalled \$332.

At the end of the day, after most people had departed, Simon ZL1SWW and the scribe were able to do some tests using 10 GHz SSB/CW equipment. (Thanks to Tom ZL1THG for the loan of his transverter). These tests were only over a 500mm (not DX !!) and were to check operation of an oscillator (YIG) operating at 10368 MHz.

925 MHz

925 MHz is a band that has little activity, as it is not an international amateur band, hence there is no amateur transceivers available. For amateur radio stations in NZ, on the 925 MHz band, there is a 25 watt eirp limit (EIRP = estimated isotropic radiated power).

A number of stations have become active on this band however. During recent VHF contests, contacts of ~ 150 km were made from Auckland north.

Some stations have modified commercial transceivers. An alternative is to use transverters. Downeast Microwave had available 900 MHz transverters. (for the US 903/3 MHz band) and with slight retuning can be used on 925 MHz. A number of NZ stations use these, however some have had stability issues and have sliced the PCB into separate sections to isolate stages.

Simon ZL1SWW, Auckland has recently created a complete 300 mW transverter on a homemade PCB (minus LO), using surplus parts, and has talked to Tim ZL1TN over a 4 km path even at a 50 mW level.

See <http://www.qsl.net/zl1sww/> for information on his Simon's Yagi

With the EIRP limit of 25 watts a TX power of about 3 watts to a small Yagi (say 7 element) would be about maximum. The antenna would be useful on RX, whereas a 25 watt TX (if used) would be about the coax loss was 2.15 dB ($\frac{1}{2}$ wave dipole gain is 2.15 dBi) Note dBi = dB relative to a isotropic or point source.

The scribe's 925 MHz transverter (Work in progress) used a 65 MHz oscillator multiplied up to 780 MHz for the Local Oscillator. This is mixed with 145 MHz on a modified DEM transverter PCB, with an additional TX filter/amp (using a Waikato VHF Group filter board).

Tom ZL1THG also has a homemade 925 MHz transverter.

The NZ 925 MHz record stands at 620 km between ZL2TRV/p and ZL1TBG/p on NBFM on 30/11/2002. This was achieved using a special High Power licence.

It would be interesting to see the distances achieved on moderate powers and digital modes.

Some scanners/ ham handhelds have RX capability across the 925 MHz band, so a simple crystal oscillator/ multiplier or synthesizer could be used as a TX.

Microwaves

Steve ZL1TPH, and Ted ZL2IP along with Brian ZL1AVZ, and support by Harry ZL1BK and Ray ZL2TAL have been on the forefront on 24 GHz activity and exceeded 220 km. The weather has been variable and some paths had failed but perseverance has resulted in excellent results. Only a small number of stations worldwide have exceeded the 200 km distance and the NZ stations should be congratulated on their achievements. They are looking at increasing distances and further work should bring results.

The June Issue of Break In, should have coverage of some of the 24 GHz activities in the VHF Scene Column.

As the scribe also writes the VHF Scene column, I am also on the lookout for material for that column. The colder months reduce the amount of information coming from readers. Email address is rman@xtra.co.nz

Subscriptions

SUBSCRIPTIONS ARE DUE FOR 2006. Please support the Waikato VHF Group

WAIKATO VHF GROUP Inc. - NZART BRANCH 81	
2006 Membership Application	
NAMES: ADDRESS:	CALLSIGNS : I / we am an / are NZART MEMBERS? YES/NO AFFILIATED TO BRANCH No.
Occupation ^ : _____ _____	Branch 81 Member since (year) Email: _____
Post or deliver this form to: The Secretary <u>Waikato VHF Group Inc.</u> PO Box 606 HAMILTON 2015	2006 ANNUAL SUBSCRIPTION <input type="checkbox"/> Member / Associate Member \$20.00 <input type="checkbox"/> Family* / Club Member \$25.00 Payment herewith <input type="checkbox"/> Cash <input type="checkbox"/> Cheque DATE SENT IN: _____
OFFICE USE : RECEIPT No. _____	

* Family Members: Two or more members residing permanently at the same address, please give all names & callsigns

^ Information required per clause 22 of the Incorporated Societies Act. Estimate if you can't remember when you first joined.