

THE WORLD BELOW 400 GHz

The Periodical Newsletter of the
WAIKATO VHF GROUP Inc.,
ZL1IS,
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NZART
BRANCH 81

www.zl1is.info

June 2013 50TH ANNIVERSARY ISSUE

WAIKATO VHF GROUP EXECUTIVE

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Vice President	Morris Beale	ZL1ANF	07 884 8416
Secretary	Gavin Petrie	ZL1GWP	07 843 0326
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Committee	David King	ZL1DGK	07 579 9930
Committee	Neill Ellis	ZL1TAJ	07 576 1999
Committee	Kevin Murphy	ZL1UJG	07 847 0041
Editor	Kevin Murphy	ZL1UJG	07 847 0041

General Meeting June 2013

A General Meeting of the Waikato VHF Group will be held on
Sunday, 30th June, 2013 at 1:30pm.

The venue will be St. Stephens Presbyterian Church Hall,
Cnr Ohaupo Rd and Mahoe Street, Melville, Hamilton.
See website - www.zl1is.info/meetings.html - for location map.

The guest speaker will be Ian Brown, ZL1TAT, who will give a talk and presentation on
the Branch 81, WaiPlenty 2m Network.

The talk will cover all aspects of its operation and plans for the future.

Non members and visitors welcome.



News Items from the May 2013 Committee Meeting.

New Site: Progress on a site to cover Waihi and Whangamata is still stalled, due to proposed reconstruction at the site and change of contact personnel.

Kaimai Site: National System antenna to be replaced.

Repeater Sponsorship: There are still repeaters available to sponsor.

70cm Band Plan Review: A submission was made to the Review committee.

Fifty years ago on the 16th June, ten amateurs with a common interest met in Cambridge and formed the Waikato VHF Group.

That means the Waikato VHF Group is officially fifty years old, and we (pre)celebrated that event at our AGM in Matamata earlier this year. The group's history is published on our website at

http://www.zl1is.info/img/WVHF_Group_History.pdf



Back Row - Alan Wallace ZL1AMW, Kevin Hampshire ZL1KRH, Des Macartney ZL1DKM, Gordon Cooper ZL1KL, Noel Rowe ZL3GR, Brian Smith ZL1CJ, Kiely Petersen ZL1KM, Kevin Murphy ZL1UJG, David King ZL1D GK, Neill Ellis ZL1TAJ, Sue Cann

Front Row - Ian Brown ZL1TAT, Morris Beale ZL1ANF, Roy Smith ZL1BPB, David McGuire ZL3DM, Maxine Rowe ZL1FW, Gavin Petrie ZL1GWP, Vic Sinclair ZL1AQC, 'Willow'



Brian Smith ZL1CJ, and Ian Brown ZL1TAT original members cutting the cake, with Alan Wallace ZL1AMW, President, looking on.



BRANCH 12 MARKET DAY

When: 17th August, 2013

Location: Waikato Table Tennis Stadium, Edgecumbe Street, Hamilton

Times: Vendors - 8.00am

Buyers - 10.00am

Members of the Waikato VHF Group will be there, manning a table to raise funds, with exciting goodies. It's also a good place to see friends, and exchange stories about the DX that got away...

HAMILTON DISTRICT PLAN SUBMISSIONS

The Hamilton Amateur Radio Club made a submission opposing the provisions in the Proposed Hamilton City District Plan that were amateur radio unfriendly.

The Council has now published those submissions and invited further submissions which includes submissions in support. A copy of our submission can be read at:

<http://www.hamilton.co.nz/PDPSubmissions2013/Proposed%20District%20Plan%20Submission%201250.pdf>

The Hamilton Amateur Radio Club will be appearing at the Hearings to support their submission.

It will help if you would complete a submission in support and email or post it to the City Council before the 2nd of July.

A PDF version of this form can be found at the following address. All you need to do is on the first page. http://www.zl1ux.org.nz/img/Proposed_District_Plan_Further_Submission.pdf

You need to fill in your full name, your address, phone number, email address. Also you need to under "Public Hearing" nominate either that you do wish to be heard (not unless you particularly want to) and if so if you are willing to do a joint case with someone else making the same submission.

Finally you need to fill in your full name in the signature space if emailing it, or sign if mailing or delivering it and of course date it.

General

Meteor scatter Tests

As many of you will know, from previous newsletters, I have been doing Meteor Scatter tests to the South Island. My RX signals used to max out about 6 or 7 dB above the noise (SSB Bandwidth). Well I have been experimenting with using the Flex 1500 in manual gain (i.e AGC off), and largest signal received has been almost 30dB above the noise. Although the decodes tend to be not too good at the level, signals 25 dB above the noise decode well.

The Flex1500 has a pretty aggressive AGC and FSK441 signals were reaching about 6 or 7 dB above the noise, previously and then being pushed down in level.

Regular contacts are being made to Bob ZL3TY and Starr ZL3CU, on Sunday mornings.



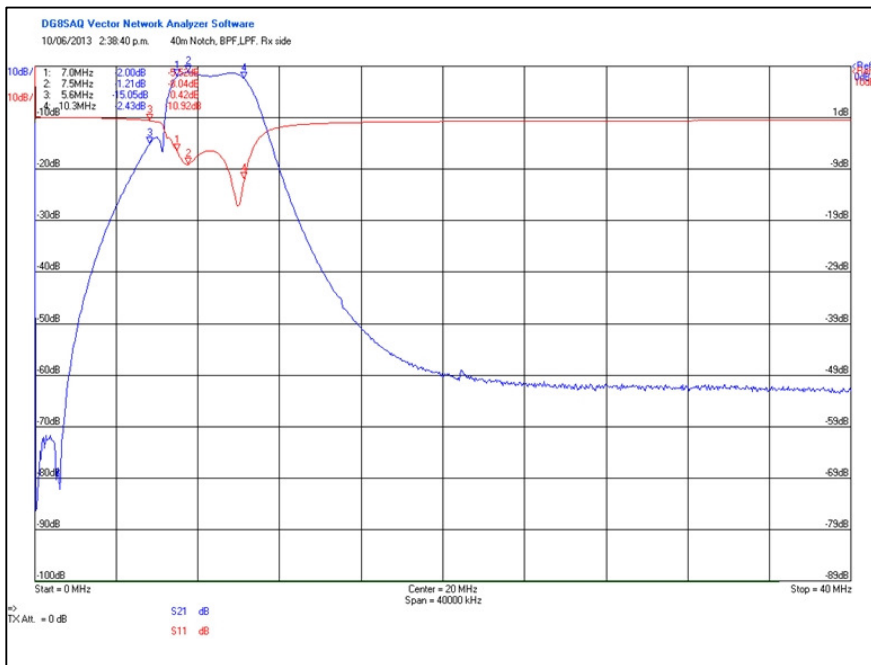
VNWA2.6

After a number of years languishing, one of my toys (err... pieces of test equipment), was pulled out of a bag and (re) fired up. This is a Vector Network Analyser, which has now evolved to Version 3.

http://sdr-kits.net/VNWA3_Description.html

This unit has Network analyser functions allowing me to check matching of circuits, as well as having some other modes such as a Spectrum Analyser and Signal Generator.

The unit has very good performance to 500MHz, with reduced performance to 1300 MHz



This unit has allowed me to check some parameters on an old 70's vintage Atlas 210 series transceiver.

This is an example of the RX Lowpass/ Bandpass and notch performance. Unfortunately the 210 uses low quality capacitors (molded mud) in a number of areas which degrades rejections.

An example of this is the notch to the left of the blue trace.

With good components this notch could be of the order of 30 dB, (dip around -35 from top of trace) however this dip is in the region of 10dB ☹.

The filter shown for 40m extends from 7 to 10.3 MHz

Another issue not apparent in this plot is that some filter PCB's have been built on single sided PCB leading to excessive inductance in earthplanes. This shows up as degraded rejection at harmonic frequencies, which can explain interference on low band TV reception. In later generations of transceivers from manufacturers the use of double sided PCB has become more common, and filtering is enhanced.

I recently tested some inductors using my AADE LC meter and the VNWA, to test their inductance and self-resonant frequencies. Some recent purchases on the "grey" market have incorrect values of inductance, up to 20% off. I suspect from being mean on the wire, as it was across several values of inductors. The self resonant frequencies were quite low, due to inter-turn capacitance.



You know those old PI wound inductors, like shown left. Well they are quite low in self-capacitance due to a special winding technique.

I also measured some yellow-white toroidal inductors. These were wound on a low frequency material similar to type 26 iron powder (similar to what is in a switch mode power supply- SMPS) While showing reasonable inductance of around 47uH, they were useless at RF. ☹

I wound a T37-2 core (0.37" diameter and Type 2 iron powder) with 10 turns. This resonated at 10 MHz with a 470pF NPO (COG) capacitor across it. The notch was 66 kHz wide at 10 MHz, which indicates a Q factor of about 150, which is quite useful. ☺ Cores of this size could be used in circuits up to ~ 10 watts.

By the way, I recently received 2000 1500pF X7R leaded capacitors. I only wanted 100 for a project, but the Ebay seller was very generous. (Remember not good for high Q circuits, but good for general decoupling) If anyone wants some for a project, drop me an email. Small quantities only.

Well, I am sure many of you will be doing some winter projects. Drop me an email, so that it can be put in print for the next newsletter.