

THE WORLD BELOW 400 GHz

The Periodical Newsletter of the
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July General Meeting 2007

The next General Meeting of the Waikato VHF Group, will be held at the Te Puke Club rooms on Sunday, 1st July, 2007, at 1.30pm.

The speaker will be Alan Wallace, ZL1AMW, who will be giving an illustrated talk on Winlink and Paclink. Winlink 2000 is a worldwide radio messaging system that takes advantage of the Internet where possible. It does this in order to allow the end-user more radio spectrum on the crowded spectrum.

Winlink 2000 Paclink AGW with Paclink Post Office is a new implementation of a flexible, easily configured personal mini radio E-mail Server that interfaces with most popular E-mail client programs such as Microsoft Outlook or Outlook Express.

Noel Rowe, our delegate to the NZART Conference, will also give a brief report.

GENERAL NEWS

Kaimai Site Building

A working bee was held on site, in mid March, to do some temporary repairs to the stays that hold the building down. These had become loose due to the concrete piles failing, causing the stays to become loose. The building was also strengthened internally, so as the holding down stays did not pull the building apart. More work will be required later in the year, when the weather improves, as the concrete piles must be replaced and new bearers for the hut installed. Also a new floor will have to be laid. This may result in the National System node and the data repeater being off the air for a short time.

UHF Link for 695 IRLP Node

New equipment is about to be purchased, to replace the aging Kenwood TR3200 transceivers that are presently being used for the IRLP link down to Hamilton. They need to be replaced because they have become unreliable due to their age, i.e. the down link audio is intermittently changing in level. When the replacement of the transceivers occurs, it will mean that the IRLP system will be out of service for at least a couple of weeks. Advance publicity of the IRLP outage will be provided - although exact dates of when it comes out and goes back will be dependent on contractor's staff infrequent visits to Te Aroha.

New Tower for Kaimai

The new tower for this site has been constructed, galvanised and is to be delivered to the site, shortly. Installation will take place later in the year, when the weather becomes more reliable. This will entail removing the old one and then standing the new one up in its place. So, please don't be shy when we ask for help with its installation. This will also mean that the National System and data repeater will be off the air again for a short period.

PRS Duplexer

A discussion will be held at the General Meeting on the 1st July, as to whether the Group should keep the PRS Duplexer or sell it to an interested buyer. It was agreed at the AGM in 2006 that it should be kept by the Group for use in a PRS repeater for encouraging new amateurs. However, a recent email poll of members was 95% in favour of it being sold.

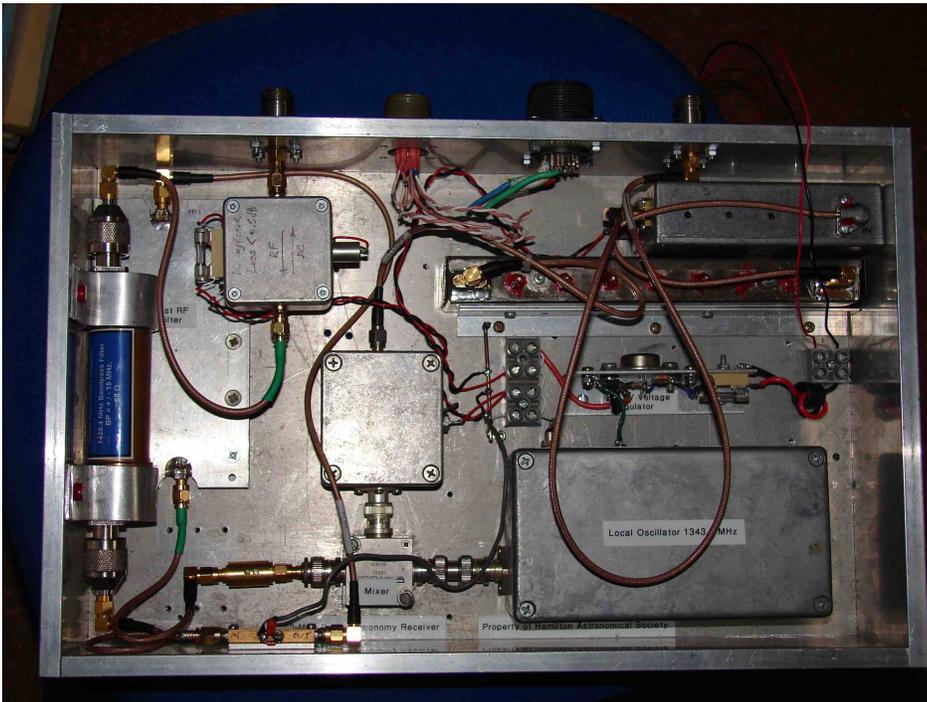
Preamps

The editor recently had spent some time building a 2M preamp (old LMW kit) and it was tuned using test equipment. The Noise performance (Noise Figure) was slightly less than 1 dB. It was put in front of a Yaesu FT290Mk2 and it brought an FM signal that was about Readability 1 (more noise than signal !) up to a Readability 4. (Almost fully quieting, just a touch of background noise). Thus having a good preamp will certainly improve your receive range. High gains are not required. The editor has a switched Mutek 2M preamp, with similar noise performance and gain less than 14 dB and a similar improvement was achieved. What is different with these preamps than with lots of the competition, is that adequate selectivity is used, so that gain drops sharply just outside the 2M band. (4 tuned circuits in total) This reduces the level of out of band signals. This may improve reception alone, as newer designs of 2M rigs are quite broad in their coverage.

The preamp was sent down to Ross ZL3DC in Feilding, who also has equipment for 2.424 GHz, and also 5.76 GHz.

Who else is using preamps and on what bands?

1420 MHz Radio Astronomy Receiver



Over a period of time, Robin ZL1IC and the scribe have rebuilt the 1420 MHz Radio Astronomy receiver of the Hamilton Astronomy Society. The unit is made up of commercial units (LNA's and Bandpass Filter) purpose built modules and some surplus units such as IF filters. The unit now has stable performance. The unit below has had further refinements done, since this image was taken last year.

DC is fed up the RF coax to power an external preamp at the antenna feed. The original VCO has been replaced with

Crystal Oscillator and Multiplier.

More information at www.qsl.net/zl1ujg.

A number of amateurs also do Amateur Radio Astronomy using Microwave Amateur band equipment such as for 1296 MHz or higher bands.

Meteor Scatter

A number of stations operate on Meteor Scatter FSK441 digital mode on 2M with contacts from the Auckland area down into Southland. Recently Steve ZL1TPH operated meteor scatter on 10 metres (28 MHz). In Steve's own words

Brian ZL4AD and my self decided to test 10m MS propagation. On the 2nd of June 2007 we had our first contact. The path distance from Waimate to Orewa is 927.9km. With modest dipole antennas [at my end] and with as little as 60watts, many burns and decodes were received into the South to Brian's 2 element beam. Having tried 2m [144 MHz] MS before, it was interesting to try this mode on 10m. Meteor trail ionization burns [10m] were more prolific and burns were pronounce and longer and as many as 20 burns per the half hour period. Peter ZL2IK and Bill ZL3NB have also joined in the mix with these activity sessions.

If you wish to take part in FSK441 experiments, let the scribe know and you will be put in contact with those pursuing this mode. Information also may be seen on the ZLVHFcontest Yahoogroup.

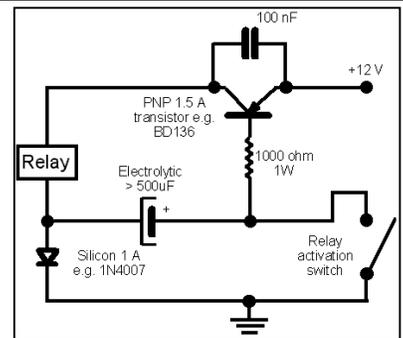


Theres a wee bit of flutter on the signal (via Kent Britain WA5VJB)

Tips When powering equipment off power supplies, make sure the power supplies are RF proof. I have seen RF increase regulated supplies from 13v to near 20v. This can destroy RF devices, especially those across the supply permanently. It is reasonably common for RF devices such as PA transistors and lower voltage tantalum capacitors, to fail under this mode.

Put 1nF and 10 nF capacitors across the supply output, using short leads.

It also pays to put a few turns of the DC leads supplying the PA or unit through some big ferrites. Clamp on ferrites for the mains cord also helps. Sometimes surplus RF relays appear, that require 28v for switching, however, only 12v normally holds them in. Image right shows a circuit off the IOJX website. Values may be adjusted to suit your relay.



Minikits (www.minikits.com.au) have a number of new products, such as a 2m Preamp, 3.4 GHz multiplier, DDS sweep generator and RF power head.

National System Images



The image to the left, is the Kordia (ex BCL) building at the Stratford Plateau on Mt. Taranaki. The small white dipole on the left mast, is the 434.900 MHz antenna for the National System.

The image below is the National System antenna array at Kaimai.



IRLP Reminders

1. Always start an IRLP session by announcing your callsign.
2. All active NZ IRLP nodes and their status, can be found at - <http://status.irlp.net/IRLPbycountry.php?country=173>
3. Information (including Node commands) for the Waikato VHF Group, node 6549, on the Te Aroha 695, 2m repeater, can be found at - www.zllis.aprs.net.nz/
4. The official IRLP page is at - www.irlp.net/
5. A good article on IRLP can be found at - www.eham.net/newham/irlp