

THE WORLD BELOW

400 GHz

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

www.zl1is.info

JUNE 2015 ISSUE

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July General Meeting 2015

A General Meeting of the Waikato VHF Group will be held on
Sunday, 12th July, 2015 at 1:30pm

at the Tauranga Volunteer Coastguard Headquarters, 72 Keith Allen Drive, Tauranga.
See website - <http://www.zl1is.info/meetings.html> - for location map.

The speaker for this meeting will be Alan Wallace, ZL1AMW, who will be speaking on

"Implanted Pacemakers, and the impact of Electrical and Radio Interference"

Non Members and visitors most welcome.

Items from June 2015 Committee Meeting:-

1. Waiplety Network - overall the Network is going well, except for the odd person who often persists in triggering the network for many minutes at a time. There are also a couple of interference issues. Te Weraiti picks up Japanese fishing boats when using their radios in the port or off the coast of Tauranga. Te Uku experiences interference almost on a weekly basis for about an hour at a time, from onsite personnel downloading data associated with the wind turbines.

2. A 70cm DMR (Digital Mobile Radio) repeater operating on 439.725 MHz has been installed in the centre of Hamilton in conjunction with Branch 12 and the National AREC. This repeater is part of a national network being setup by AREC, with several repeaters being installed up and down New Zealand and linked via the Internet. When not in use for AREC purposes, it is available for normal amateur communication. A map of the New Zealand AREC DMR Repeater Network Sites can be found [HERE](#). This 70cm DMR repeater network is part of the DMR-MARC Worldwide Network - more can be found [HERE](#).

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Newsletter Editor:-

Our longtime newsletter editor, Kevin Murphy, ZL1UJG, has stepped down after giving 15 years of sterling service. Kevin has kept us up to date with the happenings of the Group, produced dozens of technical items keeping us abreast of latest technologies coming on the market, and written many construction articles of interest to all. From us all, thank you Kevin for your dedication to the job and a task well done.

In place of Kevin we welcome David King, ZL1DGK, as our new newsletter editor. Thank you for agreeing to take on the task. If you come across any articles that could be used in the newsletter, please send them to David at - z11dgk@nzart.org.nz

Gavin Petrie - ZL1GWP

Thankyou Gavin. For anyone that doesn't know me, I run a computer support company in Tauranga and spend a lot of time using or fixing computers. As a result I tend to spend a lot of time online which allows me some time to read about news in the Ham Radio World. I'm also editor of the Branch 12 newsletter "Ham Hum" so had some experience of what I was volunteering for. My activity in Ham Radio is mostly serving on our committee and being one of those that run the Sunday Night Net.

David - ZL1DGK

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VHF Group Subs:-

For those who have not yet paid their sub for the 2015 calendar year, **this will be your last issue** of the Newsletter. Information on paying your sub can be found [HERE](#). If you can't remember if you have paid, please contact Gavin, ZL1GWP, at - z11gwp@nzart.org.nz

Hamilton Amateur Radio Club, Branch 12 - Market Day:-

The 2015 Market Day will be held on Saturday, 8th August, 2015 at 10.00am. It will be at the usual venue, the Waikato Table Tennis Stadium, Edgecumbe Street, Hamilton. More details will be available [HERE](#) as they come to hand.

Photos from the recent NZART AGM & Conference:-

Photos courtesy David ZL1DGK are at :-

<https://www.flickr.com/photos/zl1dkg/sets/72157653815279151>

Photos courtesy Steve ZL1TPH, are at :-

<https://www.flickr.com/photos/zl1dkg/sets/72157653581490640>

Antenna's:-

This is a perfect article for new Hams looking to get an antenna in the air, or experienced Hams wanting a back to basics refresher course, and anything in between.

Three Important Things to Consider Before Building a Ham Radio or CB Antenna

Building communications antennas can be fun and exciting especially for the new antenna builder that is eager to get started. But no matter what type of antenna you are building there are some important things to consider before getting started. Here are a few tips to help put you on the path to success with your antenna projects.

Number One: Purpose

The first consideration is, "How do you plan to use your antenna?" Before building any communications antenna you need to know what purpose the antenna is intended to be used for. There are different applications for the use of antennas. Some antennas are for short range communications while other antennas are specifically designed for long range or satellite communications.



Vertical antennas, such as mobile antennas and base station ground plane antennas, are basically for short range communications. When such an antenna is mounted in a vertical position we refer to it as being vertically polarized. A vertical antenna, or a vertically polarized antenna, sends its signal out along the earth's surface. This type of radio wave propagation is called, "ground wave." Although mostly for base to mobile communications a vertical antenna is also capable of working long distance communications. A ground plane

antenna has a low angle of take off and sends its signal out towards the horizon before bouncing off the ionosphere. A vertical antenna elevated on a mast will produce both a low and high angle of take off which in a way also increases gain.

Horizontal antennas such as dipoles, inverted V antennas and other horizontally polarized antennas are for working "sky wave" propagation. These antennas are for receiving signals that are coming down

from the ionosphere and for transmitting signals back into the ionosphere. Bouncing radio waves off the earth's ionosphere is how we communicate long distances. Charged ions in the ionosphere and favorable band conditions will allow even a 5 watt transceiver to receive and transmit half way around the globe. Horizontal antennas are not meant for close range communications. So if you build a horizontal dipole or an inverted V antenna for the CB band it will do a great job working stations half way across the country but it will not work very well for local communications.

Number Two: Cost

The next thing to consider is the cost of your antenna project. Some antennas are less expensive to build rather than purchase but in some cases it is less expensive to buy the kit! Antennas made of PVC pipe and wire cost very little to make while antennas made of aluminum tubing become much more expensive to construct.

In some cases it is less expensive to buy an antenna rather than buy all the parts to build it yourself. A small HF 3 element yagi antenna is often less expensive purchased as a kit than it is to buy all the parts separately. If you need to buy all new parts for a CB antenna then even a nicer vertical dipole made of aluminum tubing and mounted on a boom may cost more to make than a ready-to-install fiberglass half-wave antenna that performs about the same.



On the other hand, many of us do enjoy building our own antennas and so some of us would not mind paying a little extra for the pleasure of building it ourselves. The cost is really up to you.

Number Three: Resources

Now consider your resources. What do you have on hand to use for materials and how are you going to install the antenna? Resources are what materials you have on hand to work with and the space, area or way to mount the antenna. The type of antenna that you build may be limited by the way that you intend to mount your antenna. Not everyone has a lot of space to work with and often times space and height is the problem especially when it comes to larger HF antennas.

Vertical antennas can be mounted on a mast or mounted on the ground. For transmitting and receiving signals by means of ground wave propagation and "line of sight" vertical antennas are best mounted as high as possible on a mast or tower. HF vertical antennas mounted on the ground perform better as a long distance antenna.

Horizontal antennas such as horizontal dipole antennas require height in order to properly radiate a signal. These types of antennas will not work correctly if mounted too close to the ground. The required height depends on the wave length. Horizontally polarized antennas made for higher VHF/UHF frequencies do not require as much height as do larger HF antennas.

-KGOZZ