



# QST63

WWW.ZL2VH.ORG.NZ

Branch 63 Clubrooms  
Park Street, Upper Hutt

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Upper Hutt 5018

Newsletter of The New Zealand Association of Radio Transmitters, Upper Hutt Branch 63, Inc.

## July 2010

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### Presidents Report

Hi everyone...

This year the NZART Conference was held in Auckland as you will all know from my previous report. The weather was much like Wellington, wind and rain; in fact a few remarked on this fact to me as I struggled across the road to the venue from the motel - one thing though it wasn't cold!

The AGM went well and the remits were put and discussed. The Foundation or Entry Level Licence was put again after the Hastings (and Dunedin) Conferences and was lost on a count of members. It seems to me that a great opportunity has been lost here, to increase the general size of those in the amateur ranks. One of the biggest issues facing amateur radio is to remain a viable hobby and as such it needs new blood continually coming in and young blood as well. None of us are getting younger and with the general increase in age this would have been a way to arrest the aging population, however the membership has spoken and that is the end of the matter.

The 2011 Conference will be here in Upper Hutt. To this end a planning meeting will be held at the clubrooms on Friday 2 July 2010 to commence getting ready for this event. The earlier we start and get the jobs out of the way the better. This will mean less work in the New Year as we approach the date in June 2011.

On the whiteboard at the clubrooms is a list of jobs that need people to volunteer for. This commenced as a brain storming session to get some of the ideas out there.

Of those present Eric ZL2SET has already volunteered to run the talk-in station ZL2VH from Friday 12.00 pm - 8.00 pm, and Saturday 7.00 am - 9.00 am. Eric will be looking for volunteers to assist over these important time periods (and some operating periods outside of these times over the weekend as well depending on demand). Some finer details like towing the caravan on site, setting up the station (including HF?), QSL cards and the like will need sorting through.

I realise that the Conference is some eleven months away and it seems hard to commit as is it's so far out, but we need this commitment to ensure we run a successful event.

The 23CM Project continues its development see Simons Report.

Tom ZL2HGR has the Lighthouse Weekend organised for August 2011 again this year, subject to land approvals, so with some good DX it should all be go.

Well that's the news from me... 73's and good DX....

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## AREC Report

The following are the proposed AREC exercises we require operators for  
KMMC event            Trial Ride            Sunday 25 July 2010  
KMMC event            Spectro round 3        Sunday 15 August 2010

Last Sunday 29<sup>th</sup> May, Jens ZL2TJT, Mark ZL2UFI and Malcolm ZL2UDF provided support and operators for a Moonshine Run from Kapti Mana Motor Bike, Bulls Run Road location. All went well and the operation closed at 3:30 pm. Light conditions in the forest being zero at 5:15 in the evening, the circuit was closed at 3:00pm.

Malcolm ZL2UDF – AREC Leader

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## From our Treasurer

As you are aware, one financial year has closed, and another is starting.  
Subscriptions are remaining at \$25 and are now due.  
If you wish, you can pay by Direct Debit. The Branch Account is 030774 0897536 00  
Please leave some form of identification with the transaction.

73  
Gavin Smith  
Branch Treasurer

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## Light House Weekend 21-22 August 2010

It is that time of year to gather the troops for this year's Light house and Light ship weekend which is 21-22 August, after beating those back from Auckland for the Cape last year....for the sake of peace and harmony, we are currently looking at the Karori Light as the destination for this year....and if all goes to plan it could become a regular trip for us.

Malcolm, has booked accommodation at the Petone Working Men's Club fishing lodge/bach for the weekend....this is a paid fixed price...not Koha....however is still very.....very...did I mention very...cheap. \$10.00 each person.

There will be a couple of restrictions placed on us....but nothing that we cannot handle!!

Transport in is by 4x4 only....as I am a definite starter I could very well end up being the sole 4x4....no problem....I am happy to shuttle people in from the end of the road or other safe location for parked cars ....it is estimated to be about a 20 minute trip one way from the road end. There is something like 30+ stream crossings...hence the 4x4 requirement.

Once Malcolm and I have done a trip in to have a look we will advise where your cars can be parked.

Things to consider, club is providing radios, antenna tuners, antennas, generator. You are welcome to bring your radio gear to use. You need to bring food, clothing for all weather conditions and sleeping kit (sleeping bag/blankets, etc.). Last year we made the evening Pot Luck! The cooking / food can be agreed to before or during the weekend, let us know your preference!

Please let me know (Tom) if you are a starter or not, we could extend an invitation to other clubs in the area.

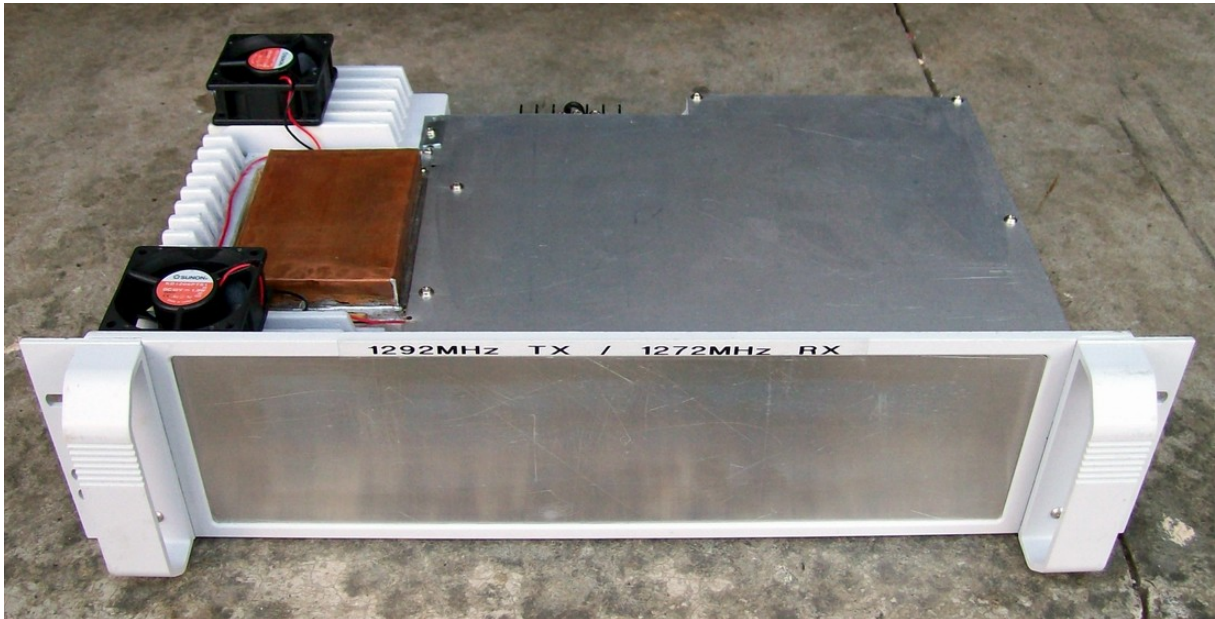
For more information on the weekend check out the web page at <http://illw.net/>

Regards  
Tom ZL2HGR & Malcolm ZL2UDF



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## Branch 63 Repeater Update - July



### 1292 23cm

#### Antenna

A Mount has been fabricated to mount the Coaxial Colinear Antenna.

#### RF Deck

The new Xtal arrived and has been fitted to the VK5EME Local Oscillator. After a week on soak the output was 20Hz low at 566 MHz . This is much better than the original, but it its still early days and more time is required to verify that the oscillator is now operating ok.

Metal Covers have been fabricated for the rf deck. Fans have been installed to Keep the PA heatsink cool(er) and brackets have been fabricated to mount the duplexer on the top of the chassis.

After recommissioning of the Repeater the duplexer was off tune.

RF power out was down to 8W. And rx sensitivity was down approx 6db. I was able to adjust the tx port of the duplexer to Restore RF out to 10W, but I need to get hold of a weak signal source to align the rx side. I have set the RF in to the duplexer to 15W.

#### Tait IF

The spare Tx module needs and to have all its Electrolytic capacitors replaced. One downside of the age of the gear we are using.

#### VK5DJ Repeater Controller

Still to apply the Firmware update.

#### 860 70cm

John ZL2TWS has constructed a Coaxial Colinear Antenna as a possible replacement for the dipole.

#### 730 / 5425 2m Repeater.

Nothing to report.

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## Chasing DX

### **DXing from days of old**

I've been reading an article from the 'Radio' magazine of America dated 1937, by the then W4DHz, Dave Evans. Interesting reading these old articles from the days of crystal controlled rigs, AM and CW only. Also interesting is that much of what they said in those days is still relevant in today's world of SSB, CW, RTTY, PSK, ATV etc.

It seems there were then and remains today two types of DXers. Those who practice the 'shotgun' tactics of calling CQ and working all and anyone, picking up the good DX in the process and those, like myself, who practise the 'efficient' method and listen a lot and only call when there is a good chance of a contact. By 'efficient' I mean the ratio of DX stations worked to time spent at the rig. I'm not saying one or the other way is best, just that for my time available and my station, the efficient method is best for me. It does mean I don't get spotted on the cluster much and others hardly ever hear me in pile-ups or working the DX, but then I'm after DX not a reputation.

There were many tips still relevant and some I have said and repeated before in this column. In particular the advice to 'listen, listen, listen'. Dave also stressed that power is not the answer but rather the operator's skills, antennas and receiver are more important.

For personal skills, Dave said 'you must study the gang across the seas' you want to work. Hone your listening skills, work out what they are doing especially if they are working split. Be ready and alert. Think of the times they will be on and which band. They will not be there to suit your schedule. They will be working their schedule to suit the larger ham populations of USA and Europe. This is especially true here in New Zealand. Develop the skill of copying weak stations in the noise. Both QRM and QRN. Be patient.

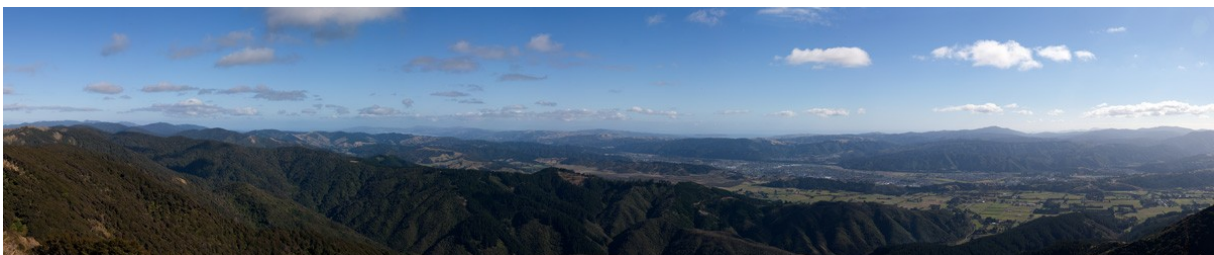
I agree with him that it is better to put up the most efficient antenna with gain you can, than make do with a compromise antenna. You can not work the DX if you can't hear them. Think about those RA stations you hear in a contest at 20 over 9 but they never come back to you. A ham friend who has worked with them in contests says that they run many kilowatts into a dipole or similar poor antenna. IE they are deaf! Good receivers these days are taken for granted. There is not much to choose between the top manufacturers, only personal preference.

If the DX is working '59 thank you' mode be as efficient as him. Just give your call maybe twice. If he hears you he will respond. He doesn't want to hear his call over and over again. He already knows his call. What he wants is your call to log. Make your reply simple and short. 'ZL2CC also 59 thank you'. In fact if he has your call correct when he replies to you the first time, leave your call off. It may confuse him into thinking that he had your call wrong first time. If he wants more information he will ask for it. Then is the time to give it.

Finally, if you want to work a lot of DX, be prepared for it at any time. It may only be there for a few minutes as propagation changes. You may be the only one to hear him and possibly work him from your area. Remember, you may be the only example of a ZL DXer he hears. Be polite and efficient. Protect our good reputation.

**C U in the pile-ups Mike (ZL2CC)**

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**Panoramic view of Upper Hutt from Eastern hills near Mount Climie**

Picture by John Shorland ZL2AQE

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## Forty metre dipole antenna design

Following on from the last Chasing DX column this article gives information on building dipoles. In particular a 40m dipole.

The basic formula for designing any wire dipole is usually given as;  
468/MHz to give an answer in feet or  
142/MHz to give an answer in metres.

While these formulas seem like they should give the correct dimensions for dipoles they are really more of an approximation. They will give an approximate total length for the antenna and should be on the long side of things. IE two legs of half this size. This is desirable as the real world situation means that the theoretical values will need adjusting. It is easier to shorten an antenna wire by folding back on itself than to lengthen. If the wire used is insulated this will also effectively lower the resonant frequency making a shortening of the length necessary. See the tables below.

The theory and discussions here are for the 40m band but are similar for any band. The tables are for a 40m dipole antenna for a frequency of 7.150MHz where the formula will give an overall length of 19.86m. With reference below to the table of bandwidth against element diameter, this is a good centre frequency for 1 or 1.5mm wire. These wire thicknesses correspond to easily obtainable insulated electrical cable. Remember to cut it longer initially for the reasons following.

What height do I need to mount my antenna at? There is no optimum height for a horizontally polarized antenna. The more height the better is the usual maxim. However, look at the table below to see how the height above ground affects the impedance and the resonant frequency. Most New Zealand situations will be in the 12m to 20m heights and typical ground conditions. You will see that when in these conditions the resonant frequency has moved up to 7.200MHz. This means the antenna wire is too short and the impedance is 73 to 84 ohms also too high.

The impedance can be changed by the angle of the legs into an inverted V configuration but the length will need to be physically changed. Hence cut it long to start with. It can be temporarily shortened by doubling the wire ends back on themselves and hand twisting along the length. Cut off and seal after all adjustments have been completed. Remember to adjust the leg lengths equally both sides.

The radiation pattern off a straight dipole depends on many things but in general if the dipole height is more than one wavelength above good ground it will be predominantly broadside and tending towards omni-directional as the height decreases. In practise if you have the capability to mount a dipole at 40m height a better choice of antenna is required. Maybe a loop but that is another story for later. Therefore, as your antenna is likely to be mounted around 12 to 14 metres high, then go for an inverted V configuration. This only requires a single support point and will improve the impedance as shown in the tables.

Height metres (feet)	Frequency MHz	Typical ground Impedance	Perfect ground impedance
40 (132)	7.175	73.5	72
30 (100)	7.100	75	60
20 (66)	7.200	68	70
12 (40)	7.200	84	92
8 (26)	7.060	73	63
4 (13)	7.080	53	22
Free space	7.150		75

Table of frequencies against height above ground for antenna designed for 7.150MHz

Angle degrees	Frequency MHz	Impedance
180	7.150	73.5
160	7.160	72
140	7.170	67
120	7.200	59.5
100	7.260	49.5
90	7.290	43.5

Table of frequency and impedance against angle at apex of inverted V wire antenna

Thickness of insulation	Frequency MHz	Impedance
No insulation	7.150	73.5
0.05mm	7.010	71
1.3mm	6.890	69
2.5mm	6.740	66.5

Table of frequency and impedance against insulation thickness of antenna wire

Element diameter	Frequency MHz	Impedance	Bandwidth in kHz
1mm	7.160	74	290
1.6mm	7.150	73.5	310
5mm	7.120	72.5	355
10mm	7.100	72.3	400
25mm	7.055	72	445
50mm	7.010	72	500

Table of bandwidth, frequency and impedance against element diameter

To sum up; use the formula to give you the wire length and cut it a little bit longer. Choose your method of support, hoist it up and adjust as required. This will take several attempts so don't despair. Use an antenna analyser to set the antenna resonant frequency and impedance and start working the DX.

**Mike (ZL2CC)**

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**Every Tuesday at 0800 UTC**

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