

Ham Hum

December 2007



The official newsletter of
The Hamilton Amateur Radio Club Inc
Branch 12 of NZART - ZL1UX



**Annual Club BBQ : 15 December 2007,
Noon, Clubrooms.**

Disclaimer: The Hamilton Amateur Radio Club (Inc) accepts no responsibility for opinions expressed in this publication. Where possible, the articles source details will be published. Copyright remains with the author or HARC.

<u>Contact Details 2006-2007</u>			
President:			
Robin Holdsworth	ZL1IC	855 4786	z11ux@nzart.org.nz
Vice Presidents:			
Gavin Petrie	ZL1GWP	843 0326	z11gwp@nzart.org.nz
Phil King	ZL1PK	847 1320	z11pk@nzart.org.nz
Secretary:			
David Nation	ZL1TCE	843 0108	david.nation@xtra.co.nz
David King	ZL1DGK	847 1320	z11dgk@nzart.org.nz
AREC Section Leader:			
Deputy Section Leaders:			
Tony Case	ZL1UD	850 5218	z11ud@nzart.org.nz
David King	ZL1DGK	847 1320	z11dgk@nzart.org.nz
Treasurer:			
Tom Powell	ZL1TJA	834 3461	z11tja@nzart.org.nz
Committee:			
Terry O'Loan	ZL1TNO	824 7561	z11tno@nzart.org.nz
"Jono" Jonassen	ZL1UPJ		z11upj@nzart.org.nz
Tony Case	ZL1UD	850 5218	z11ud@nzart.org.nz
Patron:			
Fin Bruce	ZL4HI	843 9634	
Ham Hum Editor:			
David King	ZL1DGK	847 1320	z11dgk@nzart.org.nz
Ham Hum Printer:			
John Nicholson	ZL1AUB	846 7477	
ATV Co-ordinators:			
Robin Holdsworth	ZL1IC	855 4786	
Phil King	ZL1PK	847 1320	z11pk@nzart.org.nz
Market Day Co-ordinator:			
David Nation	ZL1TCE	843 0108	834 4637
Publicity Officer:			
David Craig	ZL1CDO		
BBS Team:			
Phil King (sysop)	ZL1PK	847 1320	z11pk@nzart.org.nz
Doug Faulkner	ZL4FS	855 1214	
Alan Wallace	ZL1AMW	843 3738	z11amw@nzart.org.nz
Gavin Petrie	ZL1GWP	843 0326	z11gwp@nzart.org.nz
Club Custodian:			
Alan Mowry	ZL1UGM	847 7868	
Equipment Officer:			
Colin McEwen	ZL2CMC		
QSL Manager:			
Sutton Burtenshaw	ZL4QJ	856 3832	suttonb@slingshot.co.nz
Net Controllers:			
80m net—David King	ZL1DGK	847 1320	z11dgk@nzart.org.nz
2m net— Vacant			

From the Committee

Repeaters, Links and Beacons

We have 2x digipeaters, 3x links, 2x STSP's and 1x ATV license that fall under the new government rules regarding licenses. As NZART are funding ATV, National System, and STSP licenses, this leaves us with 5 licenses to pay. A total of \$225.

Recycling

Many thanks to ZL1PK, ZL1UD and ZL2CMC for their work in separating out the different metals in our collection of surplus and unwanted microwave gear. This work greatly increases the sale value of the scrap metal. Especially with the prices on copper and brass being so high at the moment.

2m STSP

While not set in stone at time of writing, it appears that our 2m STSP will need to be QSY'd to one of five predefined frequencies. There is some discussion as to what needs to happen with the filter in the STSP, however we kept this repeater under the previous MED system which gives us a year to make the changes and make sure everything works as well as previously.

Paint

The clubrooms and some surrounding properties have been subject to some attempts to repaint structures in a different colour. We would like to thank the Hamilton City Council, ZL1UGM and ZL1PK for their efforts in maintaining the clubrooms in the proper colour. The City Council is now checking the building on a regular basis and efforts are underway to ensure that the West Hamilton Community Patrol also checks regularly.

Next Committee Meeting - 2 Jan 2008

Page 2

SB PROP ARL ARLP050

ARLP050 Propagation de K7RA

Sunspots appeared over several days in the past week. November 24-27 had daily sunspot numbers of 15, 12 and 11. Otherwise, the Sun has been blank. In the previous reporting period, November 15-21, there were only two days with sunspots, and the daily sunspot numbers on both days were 13. The result is the average daily sunspot number from the previous reporting period to the current (November 22-28) reporting period rose from 3.7 to 5.4.

There were no days with geomagnetic storms, and geomagnetic conditions should be quiet over the near term. The next recurring solar wind stream is expected December 17. Expect more weeks of no sunspots, with occasional appearances for a few days at a time. The U.S. Air Force predicts a planetary A index of 5 for the next ten days. For the week, Geophysical Institute Prague predicts quiet geomagnetic conditions for today, November 30, quiet to unsettled December 1, and back to quiet conditions for December 2-6.

For more information concerning radio propagation, see the ARRL Technical Information Service at,

<http://www.arrl.org/tis/info/propagation.html>

For a detailed explanation of the numbers used in this bulletin see,

<http://www.arrl.org/tis/info/k9la-prop.html>

An archive of past propagation bulletins is at,

<http://www.arrl.org/w1aw/prop/>

Monthly propagation charts between four USA regions and twelve overseas locations are at,

<http://www.arrl.org/qst/propcharts/>

Sunspot numbers for November 22 through 28 were 0, 0, 15, 12, 11, 0 and 0 with a mean of 5.4. 10.7 cm flux was 69.7, 70, 71.3, 70.7, 71.5, 71.4, and 71.2 with a mean of 70.8. Estimated planetary A indices were 13, 10, 12, 11, 8, 4 and 3 with a mean of 8.7. Estimated mid-latitude A indices were 6, 8, 8, 8, 6, 5 and 3, with a mean of 6.3.

***** UPDATE *** Hamilton VHF Net *** UPDATE *****

The Hamilton Club, Branch 12, VHF Net is on 146.525 simplex.

Other details remain the same. Tuesday 8pm (2000 NZT).

We are also looking for a Net Controller for this club net. I want to hand it over to someone who'd like to help the VHF Net continue and grow.

- ZL1DGK

AREC Training

The following was mentioned at the recent AREC Training days.

To transmit on a frequency (any frequency) legally you MUST meet 2 requirements

- Type approval of the apparatus (see below)
- Be licensed to transmit on that frequency

The only exception to this is if you (and not the person standing next to you) are in real and imminent danger.

Examples :-

Amateur radio

Amateur radio equipment is the only category exempt from type approval. This allows us to brew our own equipment. We still must meet our licensing requirements as shown in our GURL

<http://www.rsm.govt.nz/cms/pdf-library/gurl-amateur.pdf>

Marine radio

To transmit on marine radio your equipment must be a type approved marine radio. Land Mobile radios do not meet this type approval. (Instant Ch16 recall, limited power output on adjacent channels). Licensing is covered by GURL

<http://callsigns.co.nz/downloads/gurl-mm.pdf>

PRS / CB

Your radio for PRS / CB must first be type approved (40ch, 5W etc) Your license is covered by a GURL

<http://www.rsm.govt.nz/cms/pdf-library/gurl-cbr.pdf>

Land Mobile

This includes Search and rescue, civil defence, DOC, or any other service we may work with on occasion. To be legal your equipment must be a type approved commercial radio. Your ham radio does not meet this requirement. Licensing. You must hold the license to own the radio's capable of transmitting on commercial frequencies. Alternatively you can hold what is called a Regulation 13 letter, permitting you to own equipment capable of transmitting on the frequency.

Note

The word "Capable" above is very important. You do not have to be actually transmitting to be at risk of an infringement notice. Having the transmit frequencies loaded, having an opened up radio, will put you at risk. Having the microphone unplugged makes no difference. If you wish to avoid the risk of a fine, the advice is to stay within the rules above.

Fines.

For an individual the fine is \$350. For an organisation it is \$1200.

Although the risk of being audited is low, Radio inspectors now are issuing infringement notices rather than giving warnings.

The above is intended to be informative only, and as a guide to keeping yourself free from risk of a fine. What you do with this information is up to you.

If you wish to get a Reg13 letter from a government agency for your type approved equipment contact your section leader first. We will have templates to make this process easier, and can advise on the procedure, and possible success of such an application.

Regards,
Warren Harris
ZL2AJ

Some notes on Digital TV

Now that terrestrial digital TV is scheduled to start up in early 2008 I thought you might like to see this summary of information gleaned from several sources including the excellent series of articles in the Wellington VHF Group newsletter by Doug Ingham and Steve Jepson, information on the Freeview web site (<http://freeviewnz.tv/>) , the RSM SMART system, and the TVNZ web site.

First of all the web site at <http://freeviewnz.tv/> has quite a bit of information.

There are two services offering. They are:

1. Satellite Dish which is currently available
2. Aerial which is on TV UHF channels and will become available in main centres in early 2008. Coverage maps
for the Waikato at <http://freeviewnz.tv/images/hamilton.pdf> or
for Tauranga at <http://freeviewnz.tv/images/tauranga.pdf> etc.

According to Freeview there are two different versions of the set top box from each manufacturer, one each for terrestrial and satellite services. Eventually integrated digital TV sets will be available.

The UHF terrestrial channels are as shown in the table at the end of this article. There are three bearer channels for each site.

In the case of Te Aroha:

channel 46 TVNZ, 48 TVWorks, & 50 Kordia.

In the case of the satellite service there are two bearer channels:

TVNZ 12,483 MHz and Kordia/TV3 12,456 MHz

The terrestrial signal is made up of 6817 COFDM carriers each modulated with the 64QAM method. The carriers are spaced at 1.116 kHz so the bandwidth is 7.61 MHz.

On the other hand the satellite signal is modulated with the 4QAM (DQPSK).

According to Freeview the satellite service will be Standard Definition (SD) for the foreseeable future. The terrestrial service will be High Definition (HD)capable and individual programme suppliers will decide for themselves whether their signal is HD or not.

However all will be wide screen at 16:9 aspect ration instead the 12:9 of the present TV channels. By the way the SD 16:9 picture has the same number of pixels as the SD 12:9 picture, they are just elongated horizontally by 33%.

The modes currently considered are:

SD	576	720 pixels wide x 576 pixels high interlaced
HD	720	1280 pixels wide x 720 pixels high may be interlaced or progressive (circa 1 Mpixel)
HD	1080	1920 pixels wide x 1080 pixels high may be interlaced or progressive (circa 2 Mpixel)

TV1 & TV2 will be High Definition (720 lines progressive scan (1280*720 resolution)) on the terrestrial service and their other programmes will be Standard Definition according to TVNZ.

Freeview say that a High Definition ready TV receiver must have at least 1280 *720 resolution and a High Definition Multimedia Interface (HDMI) input. It also must have HDCP (High-bandwidth Digital Content Protection (copy protection)) or no HD picture will be shown.

By the way it appears from the newspapers that the analogue services will be switched off at 75% take-up of digital or 2012, whichever comes first, according to the Minister of Broadcasting. A firm date will be set once take-up reaches 60%. Sky has until 2020 to end analogue services.

Channel allocation according to Freeview

Area	Site	TVNZ	TV Works	Kordia
Auckland	Waiatarua	29H	33H	45H
	Pinehill	28H	32H	40H
	Remuera	28V	32V	40V
	Sky Tower	28V	32V	40V ***
	Auckland	28V	32V	40V ***
Waikato	Te Aroha	46H	48H	50H
	Hamilton	49V	51V	47V ***
Tauranga	Kopukairua	49V	51V	42V
Hawkes Bay	Mt Erin	27V	31V	43V
	Napier (in-fill)	48V	50V	59V ***
Manawatu	Wharite	48V	50V	59V
Wellington	Kaukau	48H	50H	59H
	Fitzherbert	51V	53V	57V
	Baxters Knob	51H	53H	57H
	Wellington	51V	53V	57V ***
	Ngarara	45V	53V	57V ***
Christchurch	Sugarloaf	47H	49H	50H

Dunedin	Mt Cargill	43H	45H	53H
---------	------------	-----	-----	-----

*** These transmitters are not listed in the RSM Smart database as at 24 November 2007 so presumably are for a later stage.

Transmission parameters as presented to the VHF Convention in 2007
by Doug Ingham

DVB-T (T for terrestrial)

Optimised for ghost-resistnce

8k mode 6817 COFDM carriers 1116 Hz intercarrier spacing

64QAM modulation of each carrier

$\frac{3}{4}$ Forward Error Correction (FEC)

1/16 Guard interval Resistant to ghosts up to 56 μ s delay

26.35 Mb/s net data rate

188/204 Reed-Solomon error correction

7.61 MHz occupied bandwidth

Standard 8 MHz wide TV channels between 502 MHz and 806 MHz

DVB-S (S for Satellite)

Optimised for Johnson noise-resistance

4QAM (DQPSK) RF modulation

$\frac{3}{4}$ Forward Error Correction (FEC)

Symbol rate 22.50 MS/s

0.35 root cosine roll-off RF spectrum shaping
188/204 Reed-Solomon error correction
31.10294 Mb/s net data rate
Singtel/Optus D1 satellite at 160 East
NZ Spot beam Transponder 12 "Horizontal"
Two 27 MHz wide carriers in a 54 MHz wide transponder
Centre frequencies are 12,456.2 MHz and 12,483.2 MHz

-ZL1PK

A Fishing Pole Antenna

Santiago Quinteiro Mahia, EA1BRM

One solution to getting back on the air

After more than 18 years away from active ham radio, I decided to come back. I like to built my own antennas so I built a 144 Mhz colinear made with adhesive copper tape, a magnetic loop for 28 to 14 Mhz and finally a "fishing rod antenna" that I'm going to describe here.

My original idea was to make something like a long wire, but since I didn't have enough horizontal space, I thought about a vertical, helicoidal wire.

As you know from theory, the length of wire used in a helical wound antenna should be about one half wave for the lowest frequency, so I made a winding equivalent to half a wavelength on 7,050 MHz. (20.8 meters of 1.5 mm electrical copper wire). At the top I put a capacitive hat composed of 2 elements of copper wire with a diameter of 3 mm and length 35 cm each, connected electrically with solder. Each arm of the capacitive hat is then, $35/2 = 17.5\text{cm}$.

The support for the helical winding is a telescopic fiberglass fishing rod. You can choose your own length, but you must protect it from UV. I provided the protection with two layers of electrical adhesive tape. The outer tape, over the electric wire, is UV and weather proof. My overall antenna length was limited to 5.17 m over my chimney because I live close to the Cathedral in a World Heritage City.

Contd page 12

Page 10

Upcoming Happenings & Events

<i>Date</i>	<i>Happenings & Events</i>
1st December	Kawerau Branch 67 40th Anniversary luncheon
2-3 December	VHF Field Day
3rd December	HF Net, 3.575 MHz, 19:30
4th December	VHF Net, 146.525 MHz, 20:00
5th December	Business Meeting, 19:30
8 December	AREC Training Whangarei
9 December	HQ Infoline due
10th December	HF Net, 3.575 MHz, 19:30
11th December	VHF Net, 146.525 MHz, 20:00
15 December	Annual Branch 12 BBQ
17th December	HF Net, 3.575 MHz, 19:30
18th December	VHF Net, 146.525 MHz, 20:00
23rd December	NZART Official Broadcast, 20:00
23rd December	HQ Infoline due
24th December	HF Net, 3.575 MHz, 19:30
25th December	VHF Net, 146.525 MHz, 20:00

2 January—Business Meeting

10 January—Closing date for next Break-In

16 January—General Meeting

23-24 February—Jock White Memorial Field Day Contest

8 March 2008—Kona Colville Connection

16-17 August—International Lighthouse/Lightship Weekend

From page 10

We have some restrictions, but you can certainly make longer fishing rod antennas.

My fishing rod has a diameter of 13mm at top and 34 mm at the bottom and is joined to the chimney wall very simply: a pipe is fixed to the chimney wall and the rod is inserted 50 cm inside the pipe. Note that the outer diameter of the rod and the inner diameter of the pipe are the same. The overall length is measured from the top of the pipe.

There are 4 radials ($\frac{1}{4}$ wave) arranged like clock hands at 12, 3, 6 and 9 o'clock. They are also made with 1.5 mm wire. Each radial is composed of 3 wires: one each for the 40, 15, and 20 meter bands. I bound the 3 wires in each radial using electrical insulated adhesive tape. I've read about bent radials on the web [Ed: See, for example, <http://www.comportco.com/w5alt>], so I bent the radials to an external total length of 2.5 m. Again, you can choose your own length, it isn't critical. The 9:00 radial is in a circle, around the chimney because I don't have room to go 2.5m away from the chimney in that direction. I also ran a ground wire with a cross section of 6 square mm directly to the garden. The tuning system is inside a weatherproofed box at the bottom end of the antenna. It has a LDG 4:1 balun and an LDG Z100 autotuner that I already had at home. I made a remote control for the autotuner using automatic doorkeeper wire (a wire bundle containing 12 colored smaller wires). The pushbutton that activates the autotuner is an SPST switch, so I put another switch in parallel and ran the wires into the shack. I also added two additional LEDs (green and red) in parallel to the autotuner LEDs to see the ATU performance remotely. The system is working fine from 7 to 21 Mhz and it was lots of fun to build.

-EA1BRM

Annual Club Christmas BBQ

15 December 2007

12 noon

Clubrooms

88 Seddon Rd

Bring your own : Meat, drinks etc...



3cx2500F3



4400a

Upcoming AREC Events

Please mark these dates on your calendar and/or diary

The club has 2m handheld radios for use on events like these which means YOU can help out.

Kona Colville Connection 2008

8th March 2008

Contact ZL1UD if you want to be up the hill (~300m) or as a reserve person. Using HF & 2m.

ZL1DGK, ZL1IC, ZL1KF, ZL1KK, ZL1KN, ZL1LD, ZL1PK, ZL1TCE, ZL1TNO (reserve), ZL1UD, ZL1UPJ already booked in.



Twin Rivers Water Ski Race 2008

12th April 2008.

Ngatea to Paeroa.

WRC Rally 2008

29-31 August 2008, Mystery Creek

Names of primary operators to ZL1UD via eMail. Reserve your spot quick. Possibly moving from checkpoints every 5km to every 3km.

For Details about and to help with these events, contact :-

Tony Case ZL1UD zl1ud@nzart.org.nz or

David King ZL1DGK zl1dgk@nzart.org.nz

Club Information

Contacts :-



Business Meeting: 1930 First Wednesday of each month
88 Seddon Road, Hamilton

General Meeting: 1930 Third Wednesday of each month
88 Seddon Road, Hamilton

Homepage: <http://welcome.to/zl1ux>
eMail: branch.12@nzart.org.nz

HF Net: 3.575MHz LSB 1930 Mondays
VHF Net: 146.525MHz simplex 2000 Tuesdays

STSP 145.325MHz -600kHz split
Repeaters: 438.725MHz -5 MHz split
ATV Repeater: 615.250 Ch39

*Cover Photo: Western Electric LD-T2.
Tubes—807, 4E27A, 4-400A, 3CX2500F3.
Produces 10 KW SSB.*

Sender	Hamilton Amateur Radio Club (Inc) PO Box 606 Hamilton 3240
--------	--