

# 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.**

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80m net—David King ZL1DGK 847 1320 z1dgk@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**

## **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

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**AREC Training**  
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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

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### **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-resistance

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  $\mu$ 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



## Upcoming Happenings & Events

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



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## 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](mailto:zl1ud@nzart.org.nz) or

David King ZL1DGK [zl1dgk@nzart.org.nz](mailto: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](mailto: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.*

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