

# FREQUENCIES VHF, UHF, SHF NEWSLETTER

**NZ** This newsletter is compiled by Kevin Murphy ZL1UJG to promote operational and construction activity on the VHF, UHF and SHF Amateur Radio allocations in New Zealand (and overseas).

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Earlier newsletters @ [www.qsl.net/zl1ujg](http://www.qsl.net/zl1ujg)

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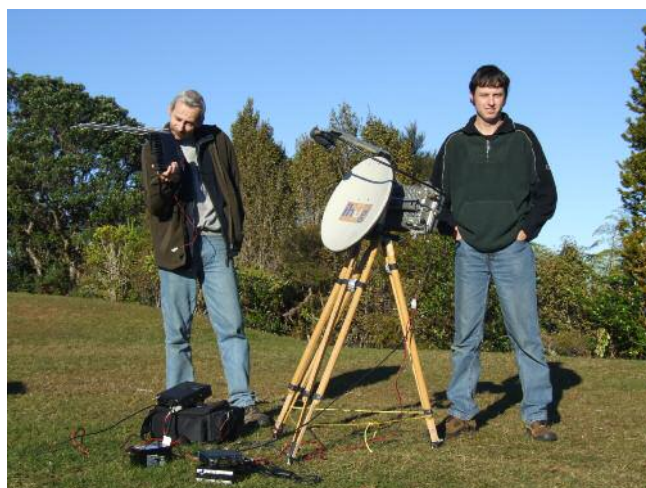
### VHF Scene July/August 2006

Please Acknowledge NZART/Break In/VHF Scene if using material in other publications.

#### **Microwaves.**

Simon ZL1SWW reports on a Microwave Activity day, held on June 25<sup>th</sup>.

I'm happy to say that there is one more person active on 10.368 GHz. Harry ZL1BK, Scott ZL1KB and I, took my newly built transverter, using a DXR710, 4 watt PA, and a 40cm offset fed Ihug dish up to Mt Atkinson for it's maiden voyage. Soon after calling Steve ZL1TPH on 2m, we had easy 10 GHz contacts with Steve and Brian ZL1AVZ (home QTH) with good signals both ways. Tests with Brian showed us that the dish angle needed raising a bit, but as we had no spanner, we tilted the tripod instead. The Phase noise was minimal with the YIG oscillators running at 2MHz steps. We tried to contact Kevin ZL1UJG up a Mt Pirongia access road without success. Content with 10 GHz, we went onto 925 MHz to give my homebrew 925 MHz transverter a run. An easy contact was made with Steve at 60km away, he was booming in and I was a little bit weaker with only 300mW out. Brian ZL1AVZ heard me fullscale with a screwdriver stuck in the antenna socket of his scanner, however Brian had no TX capability. A great day out with the lads and nice views being a fine day. (The scribe was using a 500 mW G3WDG transverter and small horn, but it appeared that local terrain near Mt Pirongia was not suitable for 10 GHz)



Simon ZL1SWW operating/p on 10.368 GHz SSB. Harry ZL1BK, and Scott ZL1KB

Steve ZL1TPH also reports on the same day. I had good contacts on 10GHz with Simon ZL1SWW, Scott ZL1KB and Harry ZL1BK (using Simon's Setup). These were 1<sup>st</sup> time QSO's with these stations on 10 GHz. The carrier sounded great, due to optimising of the YIG oscillator PLL settings.

It was interesting to test reflections once again. On 10 GHz Brian ZL1AVZ beamed towards central city landmarks, resulting in 5/6 signals back up north to Moirs Hill. That's a round trip of about 70km on an

obstructed path. With Brian on 10GHz, beaming towards the Waitakere ranges to where Simon was located, also gave good reflections back to the Moirs Hill location.

Brian and I did similar tests again on 24 GHz. No reflections off the ranges at all, but a 5/9 contact both ways off the central city landmarks. Sharp as a razorblade though! It is interesting to note, that we believe that they are possibly not off the Sky tower, as the beam heading is the right by a few degrees and with a single reflection. Brian has two reflections that are most pronounced and also to the right. Looking back at our previous contacts on 5.7 GHz, off city landmarks, it appears that signals will reflect off building structures and 24 GHz does it even better. With 10GHz, signals reflect off anything.

With 925 MHz contacts to date: I have worked in total 5 stations. ZL1AVZ, ZL1TBG, ZL1GSG, ZL1TN and ZL1SWW. Not many, but worth the effort to promote the band. (Note that are other stations with 925 MHz capability)

(This activity is often noted on the ZLVHFContest reflector on Yahoo Groups.)

There was some further Microwave activity on the 9<sup>th</sup> July. Simon ZL1SWW posts the following report. Harry ZL1BK, Keith ZL1BQE, Steve ZL1TPH and Simon ZL1SWW decided to have a go at working Ted ZL2IP at his home QTH in Taranaki. We worked from Mt Atkinson at about 170m ASL from an old lookout area. The path was 259 km with obstructions in front of us but at a slightly lower level. Initially we had some problems hearing carriers both ways but finally got reception. Steve and Simon's 10.368 GHz transverters were close to each other in terms of output power and RX sensitivity with Steve's one marginally ahead with a bigger dish and not so many bushes to contend with.

Harry was very useful for holding bushes out of the path of Simon's 10 GHz signal as there was noticeable increase in RX signal with the bushes out of the way. It was good to get a side by side comparison of two different transverters. Steve's transverter was a DB6NT unit and Simon's a newly converted DXR700-710 unit with microprocessor controlled PLL. Steve's TX was 5 watts while Simon had 4 Watts.

We all had a good day out and Ted was receiving us both with RS55 or better signals. Ted ZL2IP was running 1 watt.

## General

The Auckland VHF Group (Branch 66) celebrates its 50<sup>th</sup> Anniversary this year. There will be celebrations over Labour weekend (21<sup>st</sup> to 23<sup>rd</sup> October). For more information either write to Celebration, Auckland VHF Group, PO Box 10138, Dominion Road, Auckland, or email [john.dunn@clear.net.nz](mailto:john.dunn@clear.net.nz).

Simon ZL1SWW has updated his webpages at [www.qsl.net/zl1sww](http://www.qsl.net/zl1sww) on his 925 MHz and 10.368 GHz projects. A useful link for NZ repeaters/ Beacons is <http://www.nzart.org.nz/nzart/Repeaters/>

There are some changes happening in the 614 to 622 MHz allocation, which will be reported as more information becomes available.

## VHF Nets

Branch 30 Otago .. Sunday 1930 hrs .. 146.900 MHz

Branch 35 Balclutha .. Monday 2000hrs. 3585 kHz and Kuriwao 146.750 MHz

Branch 37 Southland .. Sunday 2000hrs. 145.775 MHz linked to 146.800 MHz

The "Queenstown Net" is on daily at 0930hrs on 3685Khz (Mon to Fri) and Kuriwao 146.750 MHz (Sat and Sun) (Information from Branch 08 East Southland Branch Newsletter)

## Construction

Ted, ZL2IP is working on a DXR transverter and PA unit for 5.76 GHz. The scribe retuned a DXR filter for Ted. The filters have short screws and will not retune down to 5.76 GHz. However a small dollop of solder on top of the rods (~1mm), enables them to be retuned ok. We look forward to hearing a great signal from the Taranaki region on that band.

The scribe has almost completed a 1 watt 925 MHz transverter, using an old DEM 903 MHz PCB, that was available from the Wellington VHF Group and DEM. I have made significant changes to improve the performance.



## ATV

News from Andrew ZL2ALW. The Western Suburbs Radio Club, Branch 03, NZART, has decided at its last AGM to embrace the age of Television, and become the first branch of NZART devoted to Amateur Television, in support of its quest to encourage young people to become new amateur radio operators. Studio WSRG, has been under construction since the AGM and has had two trial setups, including recording the party and speeches for Tom Duxbury's 70 years as a ham. We are currently seeking a suitable transmitter, and have had some offers of equipment, and are negotiating on features etc. We will be transmitting on ~1.250 GHz FM, with 5.5 MHz sound subcarrier.



The studio once set up will be used for two things, first a regular transmission on the Auckland ATV repeater (input ~1.250 GHz output CH39), and second, the recording of a series of Ham radio training and informational segments for inclusion on our program later on. Merv Thomas, (ZL1SK) a well known local entertainer and longtime TV producer, is helping us set the studio up and initially will loan us his equipment until we get our own sorted. (Please note we do not leave any expensive equipment at the club, it is all removed at the end of each session for safety). A Local Scout group, the Orheous Sea Scouts are

also getting involved and will act as "talent" in some of the segments, and transmissions.

If there are Auckland hams who would like to be involved with this facet of Ham radio contact Andrew Barnett ZL2ALW, ph 09 8168008, or email [zl2alw@yahoo.com](mailto:zl2alw@yahoo.com)

Above image shows Andrew ZL2ALW presenting Tom ZL1CZ with his award

For some years Hamilton Amateur Radio Club, Branch 12, NZART have operated ATV on channel 39 (~616MHz ) using a TX power of 6 watts and a variety of antennas. The Alford slot performed well but had problems of vibrations in the audio range when the wind blew, while the current Yagi is too directional. Despite all this, coverage was enjoyed by the local club members, viewing public and retail outlets, particularly for our test pattern. Recently, The WEL Trust made available funds for the purchase of a commercial amplifier with sufficient bandwidth to accommodate both vision and sound carriers and capable of powers up to 100 watts output. This prompted a rethink of the antenna situation.

The club contacted Mr J.Richards who specialized in antenna design, construction and adjustment for the old NZBC's many regional TV stations. After a Q and A session in which the club identified that an omnidirectional field pattern best suited our needs, he recommended a Quadrant Antenna of initially two bays with a single feed point. This antenna consists of two vertical feed pipes with two pairs of wings. Quarter wave stub adjustments, pipe spacing and wing dimensions determine the ultimate match conditions for the all metal construction. We look forward to the commissioning of this new look ATV system. Branch 12 thanks those members who donated Aluminium forms, coaxial cable, N connectors and John for his time spent constructing and adjusting this antenna. (Robin ZL1IC)

## EME

A report from Bob, ZL3TY. EME activity on 2m continues here, May a quiet month with 6 QSOs to OE3FVU, DK7DR, OE1SOW, S52LM, RA6DA, YU7AA. (YU7AA has a son living here in ZL). June was a little better, with 10 QSOs, with VK3AXH, RA4AOR, UA4ALU, OK2VSO, OH4LA, AA2WV, W7IUUV, PA0ZH, RZ3AED, LZ1OA, DJ9CZ. K0KP. All QSOs using JT65b digital mode. So far in July just one CW QSO with SV1BTR.

### New 5.76 GHz World EME Record

On May 23, 2006 at 0225 hours UTC, a new World Record distance of circa 15,931km for a 5.76 GHz EME contact was set by Alan Devlin VK3XPD and the Czech Republic's OK1KIR EME Team of... Vladimir OK1DAK, Tonda OK1DAI & Jan OK1VAO.

This QSO is also the FIRST ever 5.76 GHz EME contact for Australia. Signal Reports were "O" Copy from VK3XPD & "M" Copy from OK1KIR.

The OK1KIR station uses Circular Polarisation with a 60 Watt (SSPA) feeding a 4.5 metre dish. The VK3XPD station is a VE4MA Feed, Horizontally Polarised with a rear dish mounted TWTA feeding a 3 metre dish. It is fully Coaxial (Coax Relay at the Feed)

Alan's PA, a 100 watt TWTA is unfortunately unreliable and hopes to sort the problems out soon. (From Scatterpoint June 2006 issue)

With the large number of 5.76 GHz transverters in NZ, perhaps someone here may take up 5.76 GHz EME and push the record along.

### Meteor Scatter

The meteor scatter skeds are continuing each Saturday and Sunday morning, 8am to 9am local time, on 144.230 MHz using FSK441. Those of us in the south are missing David ZL1BT after his antennas were damaged in a storm. One of the interesting properties of this mode is that multiple stations can operate simultaneously on the same frequency with little QRM. It is possible to conduct QSOs with several stations by careful formatting of messages. (Bob ZL3TY)

During the MS skeds on the 17<sup>th</sup> and 18<sup>th</sup> June Steve ZL1TPH operated from his sea level QTH in Orewa. He didn't mention that he was going to TX to anyone, and was pleasantly surprised to have his callsign copied both sessions down south. ZL4LV, Dunedin, ZL3CU, Christchurch and also Bob ZL3TY in Greymouth copied Steves transmissions. Steve ran 120 - 180 watts and a 6 element beam.

### DX.

Nick, ZL1IU, is now operational on Digital Modes and has been attempting to work across to VK on meteor scatter. The distances are generally over 2000 km and thus one needs a very good take-off. Tests to date with VK4AFL, VK2FZ and VK4EME have resulted in only, one or two decodable pings an hour. Nick does, however, provide an excellent opportunity to test out ideas on tropo-ducting extensions of meteor scatter as were discovered last summer with ZL3TY. Stations in VK and ZL should monitor the Hepburn charts and whenever these indicate "yellow" for a few hundred km at either end of the path, try some tests, and see if we can improve our understanding of this dual mode of propagation.

Bob ZL3TY reports this winter has not been a great time for sporadic E activity on 6m to Australia. The best opening for Bob occurred early in June with eight stations worked in VK1, 2, 3, and VK5.

On 6m Bob ZL3NE/1 worked VK2BHO on CW and VK2AH at up to S7 strength on 29<sup>th</sup> of June. Bob also mentioned the FK8SIX/B Beacon has been in for 4 hours or more on the 29<sup>th</sup> of June and also the 1<sup>st</sup> and 2<sup>nd</sup> of July. On the 8<sup>th</sup> July, just before 4pm, 6m opened in ZL and allowed Bob to work ZL4LV Dunedin and ZL3MF in Christchurch with S8 signals on SSB.

Thanks to those who sent information for the column. If you have any information regarding your VHF/UHF activities whether operational or on the construction front please send it to to Kevin at

[rfman@extra.co.nz](mailto:rfman@extra.co.nz)

END of Column

### General

Hamilton Amateur Radio Club Junksale 26<sup>th</sup> August 26<sup>th</sup> @ Claudelands Event centre. Doors open 10am

Work is progressing on a 1665 MHz Radio Astronomy RX for a local group. It is constructed from a EME65 Oscillator, MMIC's, VHF Group PCB's, and a few surplus parts. The PCB's have been built up without many problems. (Murphy must be keeping clear). There are some interesting ideas, such as frequency sensitive attenuators (to reduce the Bandwidth of the IF). It is still a work in progress, but I have documented the work so far. Any others who may be interested in its progress, please let me know as a PDF is available.

Any information for the column or newsletter will be gratefully received, especially this time of year.  
Thanks Kevin ZL1UJG/ZL1MRF

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