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).

Newsletter Articles may be sent via email to rfman@xtra.co.nz

Post to K Murphy, 8 Tamar Place, Hamilton, 3200, New Zealand. Ph 07 8470041

ISSUE 24, SEPTEMBER/OCTOBER 2006 Earlier newsletters @ www.qsl.net/zl1ujg

CONTENTS Pages 1-4 VHF Scene,

Sept/Oct 2006 VHF Scene

As I put the last few words into this particular column, I was informed of the passing of Irving Spackman, ZL1MO on Thursday 7th September, 2006. Irving had a huge influence on VHF activities in NZ, being a founding member of both the Auckland VHF Group and also AMSAT-ZL. His articles and talks were always very knowledgable. He was active on 6m and 2m and was active on numerous AMSAT Satellites, numbering around 55 in total. He edited the "Amateur Satellite Scene" in Break-In for over 15 years, from mid 1985 until mid-2001 and made regular contributions to the VHF Scene column.
There are excellent reports of EME activity from Trevor VK4AFL, and VHF Contesting by Vaughan ZL1TGC

Satellite

SuitSat-1 (AO-54),. the surplus Russian Orlan spacesuit turned satellite re-entered and burned up in Earth's atmosphere Thursday, September 7, at 1600 UTC some 1400 km south-southwest of Western Australia. (ARRL)
Satellite Report by Murray ZL3MH.
The stations that I have worked on FO-29 in the last month or so are Chris VK3VSW, Geoff VK2ZAZ, Graham VK2ZIS, Horst VK2HL, Tony VK3ZOT, John VK3FXJR, Vercil VK5VCI, Don VK6AKI and David VK5DG. Every Western pass there is someone on the Satellite to work.
Roy VK4ZQ has worked 4 JA stations and been heard in Taiwan, Singapore and Shanghi on FO-29. On AO-51 on Mode S FM in the last few days he has worked Don VK5HI , Reg VK2RW and Ron VK6AKI . David VK5DG has all the gear but cannot quite get it all going to have a contact on mode S FM on AO-51 which is only on Mode S every month or so but it proves the gear is ready for Eagle.
The scribe has modified his Drake 2880 downconverter. This can be used to receive 2.4 GHz downlinks. As it stands it receives 2.424 GHz on 146 MHz and 2400 MHz on 122 MHz. (using a FRG8800 and VHF converter)
Employing the basic modifications as stated on various sites on the Internet, normally results in a Noise Figure (NF) of 5 to 6 dB and gain around 24 dB. The scribe performed different changes and this resulted in only 3 dB NF and around 38 dB gain, with good image rejection. Needless to say the scribe was impressed with the result. If others are interested, email me at address at end of column.

Microwave

A report from Simon ZL1SWW.
Steve ZL1TPH and I decided to try something different and have a go at digital modes, using FSK441 on 5.76 & 10.368 GHz. After fixing my optocoupler link from computer to radio interface Iwas ready to go.
We took about an hour to complete a 10.368 GHz contact as we had to contend with drift and multipath etc. The path was NOT LOS as I was working off the top deck and have to work over a cliff face about 70 feet above that I have to get over to go north.

We completed a 5.76 GHz contact quite quickly after that. We seemed to get fades every 2-5 seconds on 5.76 GHz and reasonably good on 10.368 GHz although sometimes it was watery. Path was about 43 km.We seem to be suffering from some bad reflections. Frequency drift was a real concern for getting a good decode and had to constantly make small adjustments to keep things straight. It also pays to have some shade while working a laptop in the sun as Steve was battling with seeing what was on the screen.

Meteor Scatter

Bob, ZL3TY.reports that meteor scatter skeds are continuing each Saturday and Sunday morning, 8am to 9am local time, on 144.230 MHz using FSK441. Recently stations active have included ZL1BT, ZL1TPH, ZL1SWW, ZL3CU, ZL3TY, ZL4LV.

We have also intiated skeds with Rex, VK7MO on Saturday mornings, 7am to 8am local time on 144.330 MHz. This has resulted in Peter ZL4LV making contact with Rex and Starr ZL3CU has heard and been heard by Rex.

EME

An interesting report from Trevor, VK4AFL / ZL1AL.

Rex VK7MO, a noted authority on the use of WSJT, and Trevor ,VK4AFL, have been experimenting with very low power communication via the moon on 1296 MHz using JT65C.

Equipment on Rex`s end is a 2.3m TV dish, home brew septum feed,0.4dB NF preamp and solid state PA. At my end is a 3.7m TV dish, homebrew VE4MA feed, 0.4dB preamp and solid state PA.

Initial tests were made a few months ago at the 50 watt level which at the time we thought was not too bad ,however there was quite a bit left in it and following contacts were made with 20 watts which proved to be fairly easy and repeatable plus definitely putting us in the low power category.

The next reduction by 3dB to 10 watts was a bit more problematic. After a few attempts we managed 10w at one end with 20w at the other.

After some e-mails between Rex and Joe Taylor K1JT a new version (5.9.5) of WSJT was released which amongst other improvements (esp in false decodes which now appear not to exist) is more suited to 1296 MHz. Problems at this frequency include libration (multi-pathing effects due to the rough surface of the moon) and equipment stability which compared with 144 MHz makes operation of WSJT more difficult.

At about the same time Rex fabricated and installed a choke ring onhis septum feed which he felt improved his receive performance slightly and subsequent tests showed that we are now able to complete QSO`s on a reasonably regular basis with just 10w at each end even with the moon near apogee.

QRP by definition means a power level of 5 watts or less and this is our goal. During the last session Aug 7th we both operated at 5 watts for 90 minutes during which Rex had 1 decode and I had 15, with the best being - 27dB which is approx 2 to 3 dB in reserve so we are possibly not far away.

A VE4MA feed is under consideration at VK7MO`s end to see if receive performance (always the most difficult aspect of any form of EME) can be stepped up a notch and I may also build the newer version VE4MA "super feed" to get a bit extra also. At this signal level absolutely anything in the way of extra gain however small (plus a bit of luck) helps and hopefully a 5 watt contact can be reported in a future column.

On 7th September VK7MO and I realised our goal of a completed JT65C contact with 5w at each end. Subsequent attempts with 3w resulted in some sync and one decode but no completion. Conditions were exceptional and I was getting CW loud speaker echos with 10w and this combined with a new VE4MA super feed at Rex`s end I believe clinched the deal. Hopefully this might encourage other stations in the region to get on 1296 MHz QRP EME [or any other power level] since what we have done in recent months demonstrates what can be achieved with very small & inexpensive setups.

Great Report Trevor

Bob ZL3TY also reports on his EME activity on 2m. In July and August I made 10 contacts each month. I was happy to work GM6VXB, LA8KV, EV5M and A71AW for new countries on 2m.

On Saturday 9th September, I had a QSO with PE1BTX on 6m EME, a first PA - ZL QSO on 6m.

General

Murray ZL3MH gave a talk and demonstration of his Luxeon LED work to Branch 05 Christchurch and Branch 56 Christchurch West. A few more stations in the North Island have also expressed interest in using Luxeons.Some of the elevated contest sites may be ideal for DX using Luxeon leds.

Useful links

Brisbane VHF Group http://qdg.sorbs.net/qdgbvhf.htm

Microwave propagation in the upper troposphere http://www2.arrl.org/qex/larkin.pdf

The scribes webpage at www.qsl.net/zl1ujq

VHF Contesting ZL1BQ Style

by Vaughan Henderson ZL1TGC

With the summer contest season starting around the time you read this, a look at how one club, the Auckland VHF Group operates during the December Field Day Contest might stimulate interest and activity. The ZL1BQ Contest site, Maunganui Bluff, north of Dargaville, on the west coast is around 450m above sea level – Maunganui Bluff itself is 460m, but access is difficult with joint DOC/Maori ownership of the land, so we actually operate from a friendly farmers ridge top, some 500m further north.

The site is about 3 hours drive north of Auckland, and our typical 3 to 4 person contest team is seldom away from the city on time! There are always last minute preparations, another antenna to be finished, or equipment issues to sort out just prior to departure. Our aim is always to be on site 2 to 3 hours before the start of the first operating period, but it's usually a little into the first hour before we are ready and on air!

For the past few years, the core team of Peter ZL1UKG, Tim ZL1TN and Vaughan ZL1TGC with assistance from whoever else wants to come along has got setting up and operation from the site down to a fine art.

First priority is to get the tent up. This is an annual loan from Peter ZL1UKG's brother, and is large enough to have one half for operating, the other half for sleeping. Cooking, eating and microwave band operation typically uses the front awning for shelter. Next comes the poles and antenna for 6m, 2m and 70cm. We try to have Yagis both horizontal and vertical for 2m and 70cm, and recently we have had the luxury of rotators to help the fine pointing of beams. Typical power levels run from the site are 100W on 6m, 2m and 70cm, with 10W on 23cm and less on the higher bands. Auckland city is typically due south from the site, with Taranaki about 4 to 5 degrees off to the west. Nelson stations are worked with the beam only a little more to the west.

This means that, to work 90% of the stations in the contest, we only have to move the beams through due south and 5 to 7 degrees either side. Sorry you stations over Napier way, but we do listen that way occasionally! Nick ZL1IU in Northland can be worked with the beam pointing any direction!

The photos show our operating site set up with the antenna poles anchored to a convenient boundary fence. Power at the site is from a hire generator. Over the years we have found a 3 to 4 kW petrol generator is more reliable than the 2kW models, idles along nicely for the weekend providing 230V AC for the rig power supplies, a battery charger and at night for good lighting. We are able to site the generator about 60m away from tent, behind a circular concrete building used for the local TV translator. This nicely blocks any noise from the generator. The circular tank seen in the photos is part of the farm water supply.

The weather is fairly unpredictable, and some years we have had to abandon the site in fairly difficult conditions. These photos taken during the 2005 VHF Field Day, show one of the better contest weekends. We now use a rule of thumb – if it looks like rain in Auckland on Saturday morning, then it will rain on site! With most of the team having got older, but not necessarily wiser, we have now decided that "Plan B", operation from an alternate site closer to Auckland will be in order if the weather forecast is not good for contest weekend.

Tim ZL1TN can be seen at the operating position with 2m and 70cm multi-mode rigs in use. Outside, the loop Yagis for 1296MHz and 2400MHz tend to stay pointing fairly much in one direction. Peter ZL1UKG is taking a turn on 6m.

We typically have equipment for 6m , 144 MHz, 432 MHz, , 910 MHz (FM), 1.296 GHz 2.424 GHz, 5.76 GHz and sometimes 10.368 GHz. Operation tends to be voice only and we have yet to find the time to operate on any of the digital modes. Perhaps this year?

The ZL1BQ team plans to be active again from Maunganui Bluff during December 2006 VHF Field Day Contest. Operation from this site requires considerable organisation, logistics and effort. When the band conditions are good, it's a great site to operate from. We look forward to working you!

Tim ZL1TN operating 2m and 70cm (above) and Peter ZL1UKG on 6m. (left)

With the weather improving, I hope to receive more activity reports and information on your VHF/UHF activities. Send the information to Kevin at rfman@xtra.co.nz

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@xtra.co.nz

END of Column

Any information for the column or newsletter will be gratefully received,
Thanks Kevin ZL1UJG/ZL1MRF SUPPORT NZART