

The Official Newsletter of the
Auckland VHF Group Inc.
Spectrum 2009



**President John Dunn ZL1JD presents \$1000 cheque to
Fred Kennedy ZL1BYP for KiwiSAT Frame**



Auckland VHF Group Inc.

Branch 66 NZART

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Clubrooms: Hazel Ave, Mt Roskill

<http://www.qsl.net/zl1bq>

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ATV Interest Group					http://www.qsl.net/zl1qf/atvug/ATVusers.html

Club News and Net:

The combined Auckland VHF Group and Auckland Regional Branch News and Net are held on 146.625 MHz and 439.875 MHz at 8.15 pm each Sunday or after the ZL6A National Broadcast on the last Sunday of the month.

Club meetings are held at the Clubrooms at Hazel Avenue, on the second Monday of each month at 7.30 pm. For other details, listen to the News and Net each Sunday evening.

Membership of the Auckland VHF Group is via subscription; \$30 within the Auckland free dialling area, and \$25 outside. It is expected that members of the Auckland VHF Group Inc. are also members of NZART, as we are branch number 66 of NZART.

SPECTRUM is the official journal of the Auckland VHF Group Inc.

Opinions expressed are those of the authors and do not necessarily reflect club points of view. The closing date for SPECTRUM articles is the Monday 7 days before the following General Meeting. Articles may be submitted to the Editor.

Coming Events:

March Meeting:

Monday 9th March at 19:30.

Agilent RF Test Equipment – Modern Test Techniques and Equipment by Lex Grubner of RF Test Solutions, Wellington.

**Easter Weekend April 11th and 12th:
Technology Convention 2009 at Hamilton.**

Contents

President John Dunn ZL1JD presents \$1000 cheque to Fred Kennedy ZL1BYP for KiwiSAT Frame	1
Club News and Net:	2
Coming Events:	3
Contents	3
From the Chair – March 2009	3
Technology Convention 2009	6
RIG Magazines	6
Proposed Amendments to the VHF-UHF-SHF Contest Rules	6
Contest report from ZL3FJ at Okains Bay	7
VHF DX Weekend Contest Report from ZL4DK	7
So how do YOU measure field strength	8
AREC Report	8
Aluminium plate for KiwiSAT satellite	9
Meeting Notice	10
Market Day - 07 March 2009	10
TXO4010T 20.000 MHz High Stability Crystal Oscillator	11
TRADING TABLE	12

From the Chair – March 2009

Last Months Meeting.

Fred Kennedy, ZL1BYP, gave a very interesting presentation on the current status of the Kiwi Sat program, bringing us all up to date on the status of the various modules, and the readiness of the project. The design and development work is almost complete. It now requires the final “Flying Version” to be constructed and made ready for launch. A rather significant point in the progress of the whole project.

Work is well underway. Extensive testing has been completed and all the little “bugs” are being ironed out. The “transponder” has been active which gave us all a chance to test signals through the Satellite. All we need to do now is erect aerials and get the equipment ready for launch time, and then we can ALL participate in the project. Launch time is approaching!

As Fred stated, launch may not actually take place until next year. This will depend on progress in completing the final “Bird” as this year rolls on. One of the issues that required assistance to hasten the process was the construction of the actual flying frame, which up to now was fabricated from various pieces of metal so that the final form of the chassis design could be determined. The VHF Group has come to the party and donated \$1000 towards the purchase of the special Aluminium blocks that are then milled out with the aid of the final CAD drawings. This donation was made at the meeting to KiwiSAT Organisation, (AMSAT-ZL) with the challenge for other branches to contribute similar or better amounts to the project, so that the final assembly can be completed quickly.



At the time of writing, I can report that the Aluminium Blocks have already been purchased and that the CAD milling work (the really expensive part) has already begun. The final Satellite construction is under way!

With regard to the launch date, until the Satellite is finished and actually ready for delivery, it will not be known which scheduled rocket will carry our precious cargo into space and when that will occur. So we cross our fingers and toes, prepare ourselves and make ready, and then wait patiently.

When KiwiSAT does go up, it will be a proud moment for Fred and all his team, and for all of us in ZL land. This will be a moment in history to relish.

The next issue of Spectrum will include a special edition devoted to KiwiSAT, with all the necessary information to make use of the Satellite when launched. The committee would like to acknowledge the effort and support of the KiwiSAT Organisation (AMSAT-ZL) into producing this issue, and the donation by Mathews Electronics Limited. Many thanks everyone. The rewards will appear soon.

If you would like some practise meanwhile, listen out for the International Space Station repeater on 145.800 MHz as it flies over.

ATV Repeater Channel 39

A working bee was held at the site recently with the aid of a Cherry Picker that wasn't quite high enough. The aerial system and feeders were able to be tested and results obtained. Unfortunately the tests revealed that there is more work to be done.

10 watts was found to be disappearing into the Transmitter Coax cable going up to the Power Splitter. The power splitter was found to be corroded and in need of replacement. Each aerial bay was found to be OK with each one measuring exactly the same – this was a good sign. A two way power splitter was fitted in place of the four way unit such that one north facing and one East facing Aerial Bay was powered instead of the normal four, with no real noticeable drop in signal strength to most

areas – which was interesting. A new dipole for remote command was fitted and wired. More work on the receive aerial feeders has also been found necessary. At least now we know what the weather has got at over the years and can now develop an action plan.

The immediate aim is to stabilise the received input signal so that re-transmission can continue with some reliability. This could require the cable terminations up the mast to be re-done, so that any water egress is removed. This will be confirmed over the next week or so with further testing from the ground end. The equipment has shown much better reliability and service since the last upgrade and is not giving any reason for concern. However the radiated signal does need further investigation and improvement. This will need to be worked on as a separate part of the project, and will have to go into a much longer term plan.

As I write, more investigative work is under way. A more detailed account of what is needed should be completed by next month.

Field Day Results

Well done to the ZL1BQ team that went out on VHF Field day in December. They brought home the big prize with a staggering 19,056 points! The next place getter only acquired 8,684 points! Well done team, and thanks to Vaughan ZL1TGC for putting the team together, and to the participants at ZL1BQ who helped make it a successful weekend.

The weather was kind – and so were band conditions – though you can never tell, next year might be even better!

Technology Conference

The Bi-annual Technology Conference is happening in Hamilton over the Saturday and Sunday of Easter weekend. This is a great event, which brings together a range of interesting speakers and subjects, and allows the free discussion and exploration of a variety of technical topics. This year is no exception.

The organisers go to great length to make it a successful weekend and deserve our full support for the work put in. The Auckland contingent is usually fairly low at supporting such events in Waikato (must be something to do with the gates on the Bombay Hill!) So put aside some time at Easter and come on down to Hamilton to be educated and entertained. You won't be disappointed, and your support will be appreciated.

The Convention is being held at the Chartwell Scout Hall, Belmont Avenue, Chartwell, Hamilton. The list of speakers so far are: Peter Loveridge, Murray Greenman, Warren Harris, John Yaldwyn, Doug Ingham, Ian Ashley, Fred Kennedy, Kevin Murphy, Simon Watt Wyness, and Grant Taylor. There will also be forums with Vaughan Henderson and John Andrews, as well as a "Show and Tell" session where participants are invited to bring along their Pet projects and discuss progress/problems etc. Also on site will be a fully kitted Test Equipment section where equipment you might be having problems with can be tested and problems investigated.

It all promises to be a great weekend and well worth the visit.

The April meeting night for the Auckland VHF Group happens to coincide with Easter. So to encourage attendance at the convention, the VHF Group has decided to make its Monthly meeting for April the Technology Convention in Hamilton. So please join us and enjoy the variety of subjects and the equipment that will be around, in Hamilton at Easter. We look forward to seeing you all there.

GARAGE SALE - May 2nd

The Auckland VHF Group has been lucky enough to gain the use of the Scout Den next door before it is pulled down, so we have taken the opportunity to empty out the container and the club rooms and sort out all the junk and bits and pieces. (See working Bee on the 14th March!)

This means that we will need to dispose of or get rid off a lot of stuff, and to do that the

Group intends to have a Garage Sale on **Saturday May 2nd**, in the Scout Den. What "Stuff" is not sold or required for the trading table will finish up being scrapped or dumped, so there are going to be some real bargains available. More information will become available nearer the time – but keep the date pencilled for that Saturday.

WORKING BEE – 14th MARCH – CLUB ROOMS

Commencing around 9.30am on Saturday the 14th March there will be a Working Bee at the club rooms to prepare for the Garage Sale mentioned above. We would appreciate as many people as possible to come and give us a hand to sort and move stuff, particularly from the container. As they say – many hands make light work, so if you are able to spend a few hours with us on that Saturday, it would be very much appreciated.

This Months Meeting – A Special!

Digital Technology and cost has been a driving force in changes the way modern testing techniques are carried out for communications and other systems generally. Test equipment methodology has also changed, simplifying the way consistent results can be achieved thus eliminating some of the more critical interpretation required of earlier years.

Lex Grubner is MD of RF Test Solutions and also the ***local New Zealand representative*** of the well known ***Agilent Test equipment*** range, and is travelling all the way up from Wellington especially to give this presentation.

Lex will not only talk about the advances that have been made in testing equipment over recent years, but will also demonstrate some interesting and very useful equipment that is not entirely out of the reach of the amateur pocket, as well as the other interesting equipment worth knowing about.

This is a once only opportunity and a meeting not to be missed. **March 9th, at the club**

rooms Hazel Avenue, commencing at 7.30pm. Everybody is welcome.

Unfortunately I will be away for this meeting and I am saddened that I will not be back in time to attend it. However Jim ZL2BHF will be running the show, and I am certain you will enjoy the presentation and the night.

Best 73's

ZL1JD

Note from Editor: I had hoped that the booklet on KiwiSAT would have been ready for this issue, but more work is required to complete the documentation and more photos are required to be taken. The booklet will be available before Technology Convention!

I also need more articles for inclusion in Spectrum.

Ian ZL1AOX, Editor

Technology Convention 2009

From: KEVIN MURPHY <rfman@xtra.co.nz>

Hi,

Technology Convention 2009 is being held in Hamilton, New Zealand, during the 11th and 12th April, 2009.

This is about Amateur Radio related technology.

Registration forms will become available about the delivery time of the January/February NZART Break-In Magazine (First Week February). It is important that accommodation is booked EARLY, as the V8 racing is on the weekend following the Convention.

Registration Forms can be requested by email at techcon09@nzart.org.nz

We are looking for speakers, presentations, demonstrations for durations of 15 to 45 minutes. A data projector and laptop will be available.

Please contact Kevin Murphy at rfman@xtra.co.nz

ASAP with topics and expected duration.

Electronic format is preferred as we would like to make a Proceedings CD of the Convention.

If you are unable to attend but wish to provide a presentation for the convention/ proceedings please contact me at the above email.

Kevin Murphy ZL1UJG

RIG Magazines

Free to a good home - a collection of 40 to 50 issues of "Remote Imaging" magazine. Remote imaging was produced by the Inter Range Instrumentation Group, now known as the Remote Imaging Group. The magazines have a wealth of information on receiving and decoding telemetry and picture data from orbiting satellites. Contact Vaughan ZL1TGC - contact details on inside front cover of Spectrum, if you are interested.

Proposed Amendments to the VHF-UHF-SHF Contest Rules

Published for the information of, and seeking comments from, contestants.

The existing rules are available at:
<www.nzart.org.nz/nzart/update/contests/vhfcontestrules0606.html>

All comments should be sent to:

z12wa@clear.net.nz

with Contest Rules in the subject line, or by post to:

Wellington VHF Group
P.O. Box 12-259
Thorndon
Wellington

CLAUSE 1. Contest dates

DX Weekend Contest

All bands 50 MHz and up. First Saturday in February, and the following day. Delayed one week if the Saturday falls on the 4th or 7th of February.

Explanation: This amendment delays the contest to avoid 3-day weekend holidays when

New Zealand Day falls on the Friday or Monday.

CLAUSE 2. Definitions

QRP shall mean a transmitter having a maximum output power capability of 5 W, or less.

Explanation: This amendment avoids the power calibration problems of transmitters capable of a higher maximum output power capability.

CLAUSE 11. Logs

(d) Make, model and maximum output power capability of each transmitter used.

CLAUSE 13. Bonus Multipliers (in order of application)

Delete bonus multiplier for different modes.

QRP. Multiply score by 1.5 when your station uses a QRP transmitter, as defined in Section 2 of these Rules. Stations may use QRP on some modes, and/or bands, and high powers on others, with multipliers calculated on a contact by contact basis. The establishing of a contact on high power, then reducing the power for scoring purposes, is not permitted.

Field Station. Multiply previous score by 1.2 when your station is a Field Station, as defined in Section 2 of these Rules.

Explanation: This amendment clarifies and simplifies the application of multipliers.

Contest report from ZL3FJ at Okains Bay

Total washout as regards contest. Made a total of 4 contacts, all on 2mx, one with ZL4DK (very scratchy) and three with a local in Christchurch (ZL3CU) over at least as big a hill as that we had south. Okains is NOT a site to work locals or south from, and we never expected we could/would. Fortunately we were never that serious about the contest aspect anyway. Really wanted to have a crack at some significant SSB/CW DX north if poss. So - we DID expect that we would hear some ZL2 contest stations. Or any ZL2 stations! Not a single one!

While conditions were not up to much we would have had no trouble working ZL2 stations with a bit of elevation in the WN area - or further north up the east coast perhaps. Where were they all?

Could hear the WN beacons on 2mx and 1296 with varying strength virtually all the time. (I know, I know - no-one actually lives up Hawkins Hill, but.....). Occasionally they were only just above the noise but mostly good readable signals. No 432 beacon though- was it off the air?

Any comments on the stability and accuracy of the WN 1296 beacon from locals would be useful. We thought it to be 5 or 6 kHz low and shifting round within a few hundred Hz but need to check RX calibration etc I guess.

Had a few contacts on National system round mid-day Sunday with lighthouse award hunters chasing the Akaroa lighthouse and also with ZL2SEA up Egmont (tried a direct FM contact with him later while he was near the summit with his 2mx handheld - no luck).

At least we had HF so checked out the bands down there- 160 sounded useful - nice and quiet but signals were down anyway - based on reports Rod ZL3NW heard at some ungodly hour early Sunday morning (I was still asleep) around sunrise.

Overall quite an interesting weekend but would have been a lot better if there had been some ZL2s around.

73

Dave, ZL3FJ

VHF DX Weekend Contest Report from ZL4DK

From my reckoning there were 12 stations active (including ourselves) in the South Island, but this includes a couple of stations that only had 1 contact.

There may have been others that we couldn't hear. Heard no activity from Wellington/Lower North Island (again maybe due to conditions).

The late change of date may have caught a few unaware as there was no activity from Southland/South Otago either.

Best DX was;

2m Bob ZL3TY in Greymouth (375 km)

6m Neil ZL3ADC in Christchurch (310km)

770cm Starr ZL3CU in Christchurch (303km)

Nil contacts were made on 1296MHz despite a number of attempts with Starr.

Incidentally when checking the rules for the contest I noticed that the points scoring table had been changed. Something I unfortunately overlooked when compiling the VHF field day log as I ended up under-claiming our score by a significant amount. I wonder if other stations failed to spot this change also.

Thanks ALL for the contacts. Hope to hear you all again on the April Low Bands Contest.

Regards
David ZL4DK

So how do YOU measure field strength

Dave Brown ZL3FJ

While browsing through some old Break-Ins I came across this gem in the Dec 1951 VHF column - "Malcolm ZL1VF of Tauranga now has a 30 element beam (144mc) and can blow a torch bulb at a fair distance when connected to a dipole. He has hopes of S9 sig into Auckland yet."

So there you are. Real men blow "torch bulb dipole terminations" at "a fair distance"- betcha you didn't know that!

Seems to me this is the germ of an interesting competition. Who cares about all that test gear and proper OA test sites etc. It comes down to this. Can you blow a torch bulb at 10 metres? What about 100 metres? (Always WAS an optimist...).

Anyone care to lay down the rules of engagement?

To more serious stuff...

I was rather disappointed when the official NZART history was published some years ago. Very little re VHF etc was included. I'm starting to gather together all the info I can find on VHF and higher operation in ZL. Old Break-Ins are a good start but pictures are what I really want to find. Old and new stations, operators, antennas etc- what ever.

So if you think you have something that will add to the collective history of 50 and higher operation in ZL then how about sending me a copy?

It would be much appreciated.
Any costs covered of course.

73
Dave, ZL3FJ

AREC Report

Laurie ZL1ICU

Saturday 31st January 2009 the first meeting of Branch 66 AREC Section was held at the Auckland Civil Defence Head Quarters at Bledisloe Buildings, Auckland.



Jamie Richards and AREC members

Branch 66 members & representatives from other branches even as far away as from Whangarei were hosted by Jamie Richards Auckland Civil Defence Controller, who gave a talk on 'How Auckland Civil Defence Works' along with a power point presentation & a video DVD showing "What Happens In An Emergency".



Vaughan ZL1TGC operating the Tait2000II

After morning tea compliments of Auckland City Council we were free to inspect the area & Communications Equipment



Barrett HF Transceiver

AREC Net.

Branch 66 AREC Net takes place each Thursday evening at 7.30pm on the 146.700 repeater.

All subjects are discussed. This is a good platform to air your views. The last net which went for about 1 1/2 hours became a very good discussion on what we would do if a major event happened. This was started by Franc ZL1SLO who described happenings & training in Slovenia. It is proposed to have Frank give a talk at a future meeting.

Branch 66 AREC Section was represented at the Auckland Racing Cup Parade where we provided help & some communications for the event.

Laurie Mathews.
Branch 66 Section Leader.

Thanks to Alan ZL1AUW for the AREC photos.



Aluminium plate for KiwiSAT satellite.

Total weight is 47 kg, but will weigh less than 4 kg when milling is completed. The SolidWorks program is used for the 3D modelling and is able to calculate the centre of gravity from the drawings. Photo thanks to Mike Jack of the Auckland Society of Model Engineers.

AUCKLAND VHF GROUP (INC) BRANCH 66

SPECIAL

MEETING NOTICE

March 9th 7.30PM HAZEL AVENUE CLUB ROOMS

(Located behind the Scout Den at the end of Hazel Avenue)

The Evenings Subject:-----

MODERN TEST TECHNIQUES

AND TEST EQUIPMENT

A presentation by *Lex Grubner of RF Test Solutions Ltd – Wellington.*

Digital Technology and cost has been a driving force in changes the way modern testing techniques are carried out for communications and other systems generally. Test equipment has also changed, simplifying the way consistent results can be achieved thus eliminating some of the more critical interpretation required of earlier years.

Lex is MD of RF Test Solutions and also the *local New Zealand representative* of the well known *Agilent Test equipment* range, and is travelling all the way up from Wellington especially to give this presentation.

For the latest in this vary wide topic of interest, don't miss this meeting!

EVERYBODY WELCOME

The Auckland VHF Group has also invited the NZ Electronics Institute to join us at this meeting.

Market Day - 07 March 2009

Paengaroa Community Hall

Te Puke Amateur Radio Club

Hall open from: Vendors 06.30am, Buyers at 10.00am

WARO annual get together at 11.00am

TXO4010T 20.000 MHz High Stability Crystal Oscillator - \$5.00 each from the Trading Table

2.0 FREQUENCY CHARACTERISTICS

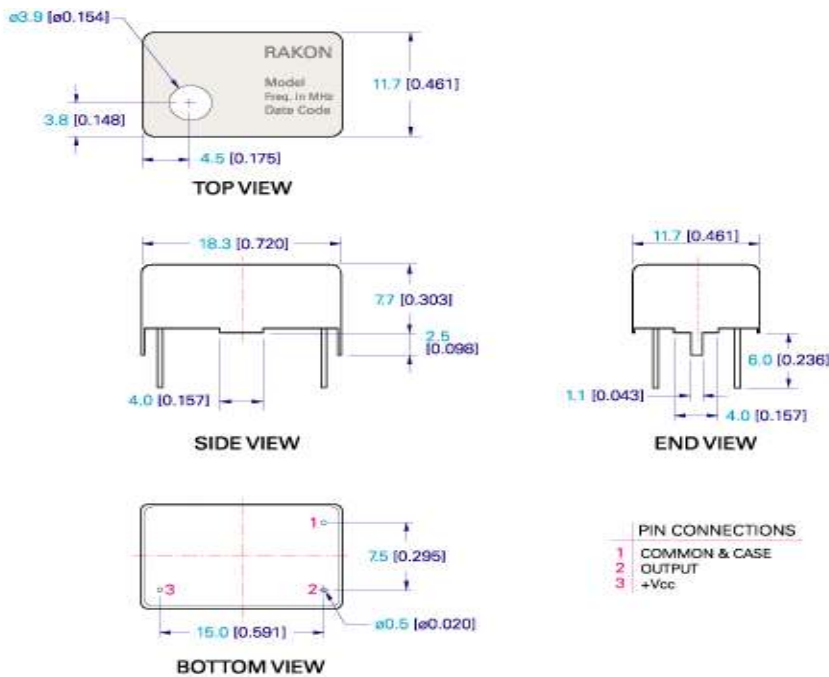
2.1 Nominal Frequency	20.000 MHz
2.2 Frequency at room Temperature	+/-1.0ppm at 23 deg C +/-2 deg C
2.3 Operating Temperature Stability	+/-1.0ppm 0 to 40 deg C
2.4 Frequency Perturbations	<0.5ppm peak to peak with slope < 0.5ppm/deg C
2.5 Static Temperature Hysteresis	+/-0.4ppm
2.6 Supply Voltage Stability	+/-0.2ppm +5v+/-5%
2.7 Load Sensitivity	+/-0.2ppm max for 20KΩ//5pF +/-10%
2.8 Short Term	<1.0E-9 Allan Variance for 1 second Tau
2.9 Long Term	+/-1ppm/year
2.10 G Sensitivity	<1x10E-9 per G all three axis from 30Hz to 1500Hz
2.11 Manual Adjustment	+/-3.0ppm min by internal trimmer

3.0 POWER SUPPLY

3.1 Voltage	+5V +/-5%
3.2 Current	2.0mA max

4.0 OSCILLATOR OUTPUT

4.1 Output Voltage	1.0Vp-p min
4.2 External Load	20KΩ//5pF dc-cut
4.3 Harmonics	-5dBc max



TITLE: TXO4080 MODEL	FILENAME: CAT019	REVISION: A	Tolerances:
RELATED DRAWINGS:	DATE: 22-Jun-98	SCALE: 2 : 1	XX = ±0.5
	Millimetres [inch]		X.X = ±0.2
			X.XX = ±0.10
			X.XXX = ±0.05
			X* = ±1.0°
			Hole = ±0.10



Note: Outline drawing is for the TXO4080. Pinout is identical but dimensions may differ from the TXO4010T

TRADING TABLE

Back in stock: **PL259 UHF Connectors and Reducing Adaptors.**



UHF-MALE (PL259) connector is nickel plated, with a tapered brass tip, brown phenolic insulation and heavy duty knurling. Suits RG8, RG213 50 ohm coaxial cables. These connectors perform satisfactory up to 200MHz, and are usable with caution up to 500MHz. The voltage rating is 500 volts RMS.

Our price: \$2.50 each or 10 for \$20.00



Nicely machined reducer which screws into the back of the PL-259 connectors.

Nickel-plated on brass construction, will fit RG58/U 50 ohm coaxial cable.

Our price: 50c each.

We also have a limited number of reducing adaptors for RG8-X coax as well. Ask!

AREC recommended "T" type connectors:

Set of male and female quick connect terminals and housings similar to illustration. Terminals are tin plated, not brass as shown.

Only \$2.00 per set



DATA MODES & UTILITIES CD has 73 updates and 19 new programmes on this latest release.

Still only \$10.00

Advance notice – Trading Table Sale at Clubrooms Saturday May 2nd. Come along for bargains and more!