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, New Zealand. Ph 07 8470041

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VHF Scene March/April 2006

VHF Scene Jan/Feb 2006

The last issue provided a big VHF Scene column, however the column is very dependent on your input. If readers provide just a few words on VHF/UHF activities, whether they be on the air, or on the construction front, this helps considerably with the production of the column.

Beacons

The Auckland 144.253 MHz beacon has been taken off air by Quentin ZL1QF. He is looking at frequency stability issues that surfaced, some time after changing to the new frequency.

Microwaves.

There is a new world DX record claim of 114.4km for the 134GHz band. The QSO was between Pete W4WWQ/4 and Brian WA1ZMS/4 using FSK-CW copied by ear. The contact was made on February 26th , 2006 at 2315z. The former record stood at 79km. There is some information on the web at http://www.mgef.org/zms_134_VUCC.htm .
Although this doesn't include the current record, there is some interesting information about hardware used.

I was invited by Steve ZL1TPH to take part in a 24 GHz DXpedition in an attempt to better the existing distance achieved on 24 GHz in New Zealand. Steve had constructed a second 24 GHz transverter including a high quality dish and feed, which was sent to Ted ZL2IP. After some discussions, two suitable sites were decided upon and Sunday 5th March was chosen for the attempt. Ted ZL2IP and Ray ZL2TAL assembled at the North Egmont Visitors Centre at about 9.30 am, while Steve ZL1TPH and I, were at an elevated coastal site, SW of Raglan.
We had set up the equipment about 30 minutes earlier so that the crystal oscillator had "warmed up a little". Upon activating the station at the southern end, signals were acquired readily at about RS55 We carefully optimised dish beam headings and signal strengths increased substantially (S9+++) Contacts were made on voice and also seperately on CW. The drift on 24 GHz was quite managable, with adjustment of the IC202 RIT required, and occasional retuning of the main dial as RIT exceeded its limits.
A long QSO was held between all members of the groups with excellent armchair copy on SSB.
The distance was over a Line of Sight (LOS) path and hence the impressive signal strengths. Both stations attempted to contact Brian ZL1AVZ at Murawai, however the path to his location was unfavorable on the day and not a whisper was heard.

The picture on the first page is of the scribe at the Raglan end of the 24 GHz contact. The picture on this page is of Ray ZL2TAL at the southern end.
At the time this column is being written, the contact is awaiting record verification.
Note:-The Icom IC202 is an elderly SSB/CW VXO transceiver, basic but excellent for portable activity.There is also IC502 (6m) and IC302/402 (70cm) versions. They are superceded by small multimode HF/VHF/UHF transceivers, such as the FT290 or FT817, and others of similar design.
Note:- Since the article has been written, Steve, ZL1TPH and Ted ZL2IP have extended the distance and are attempting Scott ZL1KB has boosted his 2424 MHz transverter performance with a PA/Preamp unit and will be working other stations in the region.

Construction

Simon ZL1SWW is working on a transverter for 10368 MHz, which no doubt will be reported further as progress is made. Simon is also working on a "Bitser" 925 MHz transverter (ie made out of Junkbox bits).
Tom Bevan ZL1THG has completed a G3WDG kit for 10368 MHz. Some stability issues have been resolved after discussion on the UKMicrowave reflector (Yahoogroups). TX power is ~ 50 mW, and a 1 watt PA is being retuned from 14 GHz (This unit is available surplus from the USA.).
I tested Tom's RX converter a few months back, by receiving the signals of Steve ZL1TPH from Moirs Hill, Warkworth. I was portable 10's of metres from the home QTH in Hamilton. Copy was RS55, even with a less than optimum feed of a N to waveguide adapter on an old 60 cm prime focus dish (Ex 2.4 GHz). I am sure that stations on 5760 and 10368 MHz in the Auckland region will be worked from the Hamilton area.
Steve has recently refurbished a 1296 MHz MMT transverter, and added a GaAsfet preamp.and copied the Hamilton 1296.256 MHz Beacon at good strength
The scribe also notes that recently he has seen a number of FET Power Amplifiers where Tantalum capacitors have been fitted back to front. This is especially important with FET type PA's as failure of Gate bias can result in catastrophic failure !
The Waikato VHF Group has a 5 watt 1296 MHz transverter available, for loan to a club or individual, to increase the level of activity on this band. A suitable IF transceiver would be a IC202, FT290 or 2 to 3 watt 2m rig.Contact Kevin for details.
Mark VK5EME has developed a new version of the EME65 crystal oscillator commonly used with his transverters. A new 2400 MHz transverter is also available. Further details may be found at www.minikits.com.au

General

A report on the Wyong Hamfest by Simon ZL1SWW
On 18th February, Dave ZL1DK, Keith ZL1BQE and Simon ZL1SWW met up in Sydney to catch a train up to Wyong where a Hamfest occurs each year, that brings many people from all parts of Australia and New Zealand.
The three of us caught the train that took about an hour and three quarters to reach Wyong station. From there, a short walk got us to our accommodation up the road. On arrival we saw many cars with all sorts of antennas attached. People were gathered around a car with lots of bits in the boot,

no doubt talking of all things radio.
Next day with an early start, we arrived at the Racecourse where the sale is held. After parting with $10, we wasted no time in looking at the many stalls with all sorts of items from old radios through to miniature microwave parts.
It didn't take long to meet up with Vaughan ZL1TGC and Wayne ZL1UJK who were fossicking around in little boxes like us.
The layout is that there are car boot sales / stalls outside and the radio vendors / seminars held indoors under cover. Most time was spent outside, digging for goodies in little boxes.
A highlight was when we found small 20 watt PA units for 2400 MHz. $20 / unit. Numerous parts were bought and photos taken.
Simon ZL1SWW arranged a meeting with Gary VK2KYP to sell some microprocessors that drive the PLL chip in the DXR-700 5.7GHz transverter mod projects. Many topics were discussed regarding this unit. Along with the PLL controllers, small Sequencer micros were sold as well that have 3 outputs 100mS spaced apart and are very simple to build. Details for these chips are available from Simon's website
http://www.qsl.net/zl1sww
We met up with a few VK's whose specialties ranged from microwave to satellite operation. A good day was spent there and had a very enjoyable time and would recommend it to others.
On arriving home, the goodies were unloaded and inspected more closely. The 2400MHz PA's that 3 of us bought, turned out to have blown GaAsFETs with all ports shorted to ground. Let buyer beware!
Both nights we were there, dinner was had at the RSL club around the corner. The first night, the 13 seater van was overloaded with 15 hams that caused the suspension to bottom out.
All in all a good trip.

Propagation
Bob ZL3NE/1 has been working on his predictions as this report shows. A couple of weeks back I did a trial with QST which kind of took them back, they provided me with maps or I predicted the next days openings etc. We did about 2 1/2 weeks and on the last one I told them you can all have a holiday tomorrow as there would be no propagation in NA the next day! Now North America had been having the best winter propagation on record, and to have nothing they thought was impossible. Can you imagine their amazement the next day having to tell me there was not a single contact recorded for the day!
I will leave them to tell their own story from there, suffice to say that QST are starting on it with the May issue and they think it will take several months to get through the paper. I understand they are issuing the recommendation, "down load and use it".
CQ magazine had their first issue on it in January, the second should be out by now, while the UKSMG are also now going to publish it possibly out next month.
See http://www.df5ai.net/Material/articles0.html#ArticlesChrono for an article from Bob ZL3NE/1. This site has lots of interesting propagation, which can be found by returning to the home page
Bob has heard openings, on 6m on several occasions but no replies.
A report from Mick VK2BZE:- There have been several fronts during February, as described in the previous article. This provided good ZL TV and also the 50.040 MHz beacon, but no ZL's to be found. A classic front moved in from the south west on the 26th February, and had given propogation most of the day. DX continues at least during February

DX.
On 26th February at 2124, Scott ZL1KB, Auckland worked Steve ZL2KG in Otaki on 144.2 USB. Tom ZL1THG mentioned that 20 odd years ago, numerous contacts were made from his central Hamilton location down to similar areas of the lower North Island. During VHF contests, contacts are often made from the Auckland region into Wellington. It pays to have a listen for the Beacons/ repeaters in distant areas as this indicates improved propagation. Well sited stations, with good RX/TX systems and modest aerials may be able to work 500 to 600 km, or more, under flat band conditions. This mode is called troposcatter and is weak signal work. Digital modes have helped improve these distances.

EME
A short report from Rod ZL3NW on his EME activities. On the the 3rd March I had a complete 6 metre EME contact with Joel F6FHP, a distance of some 19,440km which extends the world record. This contact was after many many skeds over several months. It was difficult as we both used single yagi antennas and the moon

maximum elevation was less than 4 degrees at either end for all skeds.The maximum eme window time being 20 minutes. Joel received my "RRR" at 0830 UTC thus completing the contact.The mode used was JT65A.
By contrast I worked Goran YU1CF on the 19th February and for those interested in his antennas for 6 and 2 metres have a look at :
http://www.dual-yu.com/news/news/news_item.asp?NewsID=1

Information may be sent to Kevin at rfman@xtra.co.nz

RESULTS OF THE CLIFF BETSON MEMORIAL VHF-UHF-SHF CONTEST
14th and 15th January 2006

2 m 144 MHz			70 cm 432 MHz		
ZL1DFA	RF72JP	569	ZL1DFA	RF72JP	815
ZL1SWW	RF73IR	437	ZL1SWW	RF73IR	713
ZL1ATC	RF73HM	409	ZL1ATC	RF73HM	343
ZL1AOX	RF72MV	194	ZL1AOX	RF72MV	299
ZL1TN	RF73MB	128	ZL1TN	RF73MB	220
ZL2MA	RF70KE	11			
			13 cm 2424 MHz		
32 cm 925 MHz			ZL1SWW	RF73IR	3928
ZL1ATC	RF73HM	108	ZL1AOX	RF72MV	1716
ZL1TN	RF73MB	108	ZL1ATC	RF73HM	1146
23 cm 1296 MHz			9 cm 3399 MHz		
ZL1DFA	RF72JP	801	ZL1AOX	RF72MV	608
ZL1SWW	RF73IR	516	ZL1ATC	RF73HM	480
ZL1ATC	RF73HM	408			
ZL1AOX	RF72MV	310	3 cm 10368 MHz		
			ZL1ATC	RF73HM	6138
5 cm 5670 MHz					
ZL1SWW	RF73IR	3967	12 mm 24192 MHz		
ZL1AOX	RF72MV	2366	ZL1ATC	RF73HM	81
ZL1ATC	RF73HM	2321			
ZL1TN	RF73MB	923			
ZL2HD	RE79NH	205			
ZL2RST	RE78LX	205			

TOTAL SCORES

ZL1ATC	RF73HM	11434
ZL1SWW	RF73IR	9560
ZL1AOX	RF72MV	5492
ZL1DFA	RF72JP	2185
ZL1TN	RF73MB	1379
ZL2HD	RE79NH	205
ZL2RST	RE78LX	205
ZL2MA	RF70KE	11

CHECK LOGS

ZL2IP	RF70BS
ZL2TGQ	RE78JS

BEST DX

2 m	ZL1SWW-ZL2IP	333 km
70 cm	ZL1SWW-ZL2IP	333 km

32 cm	ZL1ATC-ZL1TN	70 km
23 cm	ZL1SWW-ZL1AKW	211 km
13 cm	ZL1IU-ZL1SWW	140 km
9 cm	ZL1AOX-ZL1ATC	81 km
5 cm	ZL1AOX-ZL1SWW	94 km
3 cm	ZL1ATC-ZL2IP	310 km
12 mm	ZL1ATC-ZL1AVZ	45 km

32 STATIONS ACTIVE
ZL1AAA ZL1ABC ZL1ACM ZL1AKW ZL1AOX ZL1ATC ZL1AVZ ZL1BK ZL1DFA ZL1DK ZL1IU ZL1KB ZL1QF ZL1RP ZL1RB ZL1SWW ZL1TAC ZL1TBG ZL1TCF ZL1TN ZL1TWR ZL1UET ZL1WTT ZL2ALW ZL2HD ZL2IP ZL2MA ZL2FNF ZL2RST ZL2TAL ZL2TGQ ZL4SJ

EQUIPMENT USED (IF STATED)
6 m
IC-551 to 3 element Yagi, IC-706MKIIG. 10 W to discone

2 m
IC-706 MKII to 7 element Yagi, IC-910H. 100 W to KLM 22C
FT817 + 20 W amp to 7 element Yagi Horizontal Polarisation
TS711. Not stated. 250 W

70 cm
IC-375 to 12 element yagi, IC-475 to 9 element Yagi
IC-910H. 70 W to KLM 40CX, TR9500. 10 W to 28 element X yagi RHCP
TR9500 + HL130U. 120 W to 11 element Yagi, Not stated. 120 W

32 cm
FT817 + DEM transverter. 5 W to 8 element panel antenna Horizontal Polarisation
Not stated. 5 W

23 cm
IC-1271. IC-1275. IC-910H. 10 W to 1.2 m dish, IC-970 to 32 element Yagi
Transverter. 12 W to 27 element loop Yagi,Not stated. 25 W

13 cm
IC-970 to 2x 29 element Yagi, FT-221 to home-made transverter 1 W to 60 cm dish
TM-2400 to 18 element Yagi, UTV-2400 to 50 cm dish, Transverter. 3 W to 44 element loop Yagi
Transverter + MP-24-3-10 amp. 10 W to 1.2 m dish.

9 cm FT-221 + transverter. 1 W to 60 cm dish

5 cm
IC-202 + transverter. 4 W to horn, UTV-5600 to 50 cm dish,
DXR-700 transverter. 4 W to 26 dB 60 cm dish
TV modulator + DXR-700 transverter. 5 W to panel antenna
FT817 + DXR-700 transverter. 5 W to 90 cm dish Horizontal Polarisation

3 cm
UTV-10 to 30 cm dish

12 mm
UTV-24G to 30 cm dish

The rules were published on page 26 and 27 of September/October 2000 Break-In.

The rules are also available at:
www.nzart.org.nz/nzart/update/contests/vhfcontestrules.html

All contest logs should be sent, to arrive within two weeks, to:
Contest Manager
Wellington VHF Group
P.O. Box 12-259
Thorndon
Wellington

REVISED VHF-UHF-SHF CONTEST RULES

In the January/February issue of Break-In, readers were invited to participate in a revision of the contest rules.
Nine submissions were received. We thank everyone who made a submission.
Many valuable suggestions were made, most of which have been included in the new rules, published below.
The main themes of the submissions were: simplify and clarify the rules, while maintaining their effectiveness, and reward effort.
Submissions were either neutral, or supportive, on the need for more contests and revised contest dates. As a result, the mid January contest has reverted to its original date, in early February, and name. An additional contest has been created: the "Low Band" contest.
There is now a contest every two months, allowing plenty of time to recover from the previous contest and to prepare for the next one. This also fits in with the bi-monthly Break-In publication schedule.
Inevitably, the greatest divergence of opinion concerned the points table, with each of the two main interest groups wishing to maintain, or enhance, their present position, at the expense of the other group. The Contest Committee has produced a compromise points table that is certain to please neither group.

VHF-UHF-SHF CONTEST RULES WITH EFFECT FROM JUNE 2006

CLAUSE 1. Contest dates

DX Weekend Contest
All bands 50 MHz and up. First Saturday in February, and the following day.

Low Band Contest
All bands 50 MHz to 440 MHz. First Saturday in April, and the following day. Delayed one week if it clashes with VHF Convention.

Hibernation Contest
All bands 50 MHz and up. First Saturday in June, and the following day. Delayed one week if it clashes with NZART Conference.

Brass Monkey Contest
All bands 50 MHz and up. First Saturday in August, and the following day.

Microwave Contest
All bands 614 MHz and up. First Saturday in October, and the following day.

Field Day Contest
All bands 50 MHz and up. First Saturday in December, and the following day.

For all contests, the operating periods are 1700 to 2300 on the Saturday, and 0700 to 1300 on the Sunday, NZ local time.

CLAUSE 2. Definitions

QRP shall mean a transmitter operating at an output power of 5W or less.
A Field Station is one where all equipment, including power sources, antenna systems and operating shelters are taken to the site, and no other facilities are used.
Light. Electronic signal generation, modulation and detection, shall be used on all bands, including between 400 THz and 750 THz (light).

CLAUSE 3. Crossband or repeater contacts
Crossband contacts, or contacts through repeaters, are invalid in these contests.

CLAUSE 4. Time
All contest periods begin and end on the hour. Use time signals from a reliable source.

CLAUSE 5. Operation site
Stations may use only one site for the duration of the Contest, but may move to shelter within one kilometre. Any greater move requires a scoring restart. Two, or more, stations in close proximity may only participate if the stations are erected and operated entirely independently throughout the Contest.

CLAUSE 6. Teams
Team operation is advisable on field sites, for safety. No member of a team that has set up and operated a station may earn points for that station by making contact with that station.

CLAUSE 7. Call-signs
Only one call-sign may be used by a station for the duration of the Contest.

CLAUSE 8. Repeat contacts
No station may be worked twice in a period on the same band, nor may consecutive contacts be made on that band to the same station, bridging a period change, unless the other station has worked a third station, if available, in the interim. There shall be a period of, at least, 5 minutes between contacts, if a third station is not available.

CLAUSE 9. Contact Serial Numbers
Contacts must be full two-way. Serial numbers must be correctly exchanged and acknowledged, before points may be claimed. The serial number is made up of RS(T) plus a three digit number.

CLAUSE 10. Station location
Location details of contesting stations must be exchanged on first contact with each new station, especially if mobile, and entered into the log. Stations shall give their location as latitude and longitude, using the NZ1949 Geoid, to within five minutes resolution or full Maidenhead Locator. As the full Maidenhead is only accurate to 7 km, station location shall be given to within 30 seconds resolution, approximately 0.9 km for contacts above 2.4 GHz. "Christchurch" or "Home station" is an insufficient description. The station giving the insufficient description will be penalised.

CLAUSE 11. Logs
Contest logs must reach the VHF/UHF/SHF Contest Manager, Wellington VHF Group, PO Box 12-259, Thorndon, Wellington, within two weeks of the contest, and must contain:
(a) A certificate signed by the chief operator, stating that the station was operated in accordance with the Radio Regulations and these contest rules.
(b) A list of all operators and call-signs.
(c) The station call-sign and operating site, accurately described. Please include an email address for correspondence and a postal address for certificates.
(d) Power of each transmitter used.
(e) Optional supplementary information on conditions and/or equipment used, for publication. This is of value to other contestants, and to the contest organisers.
(f) Separate log sheets for each contest section, in each band, single-sided, showing the following:

(i) Heading, showing Section, Band, Contest, Date.

(ii) Time and (other) station call-sign, for each contact.
(iii) Serial numbers exchanged.
(iv) Other station location (first contact).
(v) Distance in kilometres to other station.
(vi) Claimed score for each contact.
(vii) Running score per sheet, total for band, with any bonus points. Each section, on each band, is a mini-contest, please log them that way.

(g) An email address for results, if you don't want to wait until the results are published in Break-In, HQ InfoLine, Q-Bit and Spectrum.
(h) Check logs are welcome.

CLAUSE 12. Scoring
You must score your own log, as detailed below.
For ease of scoring, the use of a map with a scale of one to one million, such as InfoMap 265, or similar, is suggested. At this scale 1 mm = 1 km.
Table 1 Basic scores

Distance (km)	Band 6m	2 m	70 cm
0-25	1	1	2
25-50	2	2	3
50-75	3	3	5
75-100	5	5	7
100-150	7	7	10
150-200	10	10	15
200-300	12	12	20
300-400	15	15	30
400-500	20	20	40
500-600	25	25	50
600-800	25	40	75
800-1200	25	50	100
1200-2000	35	75	150
2000-3000	50	125	250
3000-4000	60	175	350
4000-5000	80	225	450
>5000	100	250	500

48 cm 0.3 points per kilometre
32 cm 0.3 points per kilometre
23 cm 0.2 points per kilometre
13 cm 0.5 points per kilometre
Above 3 GHz, one point per kilometre
Round the points per contact to the nearest integer: Less than 0.5 rounds down; 0.5 and above rounds up.

CLAUSE 13. Bonus Multipliers (in order of application)
There are no multipliers for "manual" modes such as: CW, AM, SSB, FM and digital voice, etc.
Multiply the basic score by 1.5 for "machine" modes such as: RTTY, ASCII, AMTOR, Packet, SSTV, ATV, etc.
QRP. Multiply previous score by 1.5. 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, as defined in Section 2 of these Rules - multiply previous score by 1.2.

CLAUSE 14. Discussion
The ruling of the Contest Committee is final, and no discussion will be entered into.

(Note there is no mention of being a NZART member) (Kevin ZL1UJG)