



23rd November 2003

Issue # 64

Greetings Everyone,

Welcome to **Headquarters-Info-Line** a fortnightly bulletin of news from NZART Headquarters E-mailed directly to Branches.

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NZART Business Manager Debby ZL2TDM Says:

IARU Region 3 Triennial Conference - Many of you will have been aware of the postponement, due to SARS, of the Region 3 triennial conference to have been held in September of this year. A date has now been confirmed and will be held from 16th – 22nd February in Taipei. NZART anticipates sending 4 if not 5 delegates to represent our country.

If you wish to assist the IARU committee or need further information on papers to be discussed, please either contact myself or a member of the IARU committee. Committee members include Peter Lake ZL2AZ, Jumbo Godfrey ZL1HV, John Lochhead ZL4QS, Steve Davis ZL3UCX and Terry Carrell ZL3QL.

Jock White Memorial Field Day Contest - This contest is being run over the weekend of the 28th/29th February. Summary and multiplier sheets will be posted out as in a hard copy next week with via a Branch circular.

NZART Specials - In the last issue of Info-line I advised that I had a small number of vests size XL and long sleeve poloshirts size XL for sale at reduced cost. If you are considering buying one please be in quick, as they appear to be very popular, both here and overseas, therefore are selling fast. Probably a good chance to get that Christmas presents that the OM has wanted.

Subscriptions and CD Rom - A final reminder to get your rebated subscriptions to me before the end of November, you only have 1 week to go. Also remember to include your order for the free Call Book on CD Rom for 2004.

CU soon... **Debby ZL2TDM**

From the NZART Administration Liaison Officer:

Amendment to the Radio Regulations - The Ministry of Economic Development, Radio Spectrum Management Group, has received legal advice and advises that their proposed amendments to the Radiocommunications Regulations are within the scope of the Act and the requisite papers have been prepared for submission to the Minister and Cabinet. Assuming these are approved it can be expected that Parliamentary Counsel Office can start drafting the necessary regulatory text. Following drafting and approval by the Cabinet Legislation Committee, and Cabinet, the amendments will be implemented by Order-In-Council. There is requirement that regulations must sit for 28 days before they come into force. So the time for coming into force is still not determined.

Contest Information:

Straight Key Night Trophies Question - Straight Key Night 2003 attracted around 30 participants, making it one of the more popular NZART on the air activity nights. This in spite of the last hour clashing with the All Blacks vs Wales match!

It occurs to me that in addition to the certificates there could be a place for trophies for the overall winner, and possibly the four divisional winners. Any suggestions about the design of the trophies or the desirability of the idea, or general comments would be appreciated. At the moment I am simply seeking opinions, any decision to go ahead would be made only after consultation and approval of NZART Contest Manager, SPAM who sponsor the contest, and NZART HQ.

Contact Barry (Baz), ZL1DD, email: bjk@ihug.co.nz or phone/fax 09 372-5161

From the Ministry of Economic Development:

As at 23 October 2003 - Beacons 42, Digipeaters 28, Fixed 2, General 3198, Limited 1546, Novice 12, Repeaters 211 and TV Repeaters 19. Total 5058

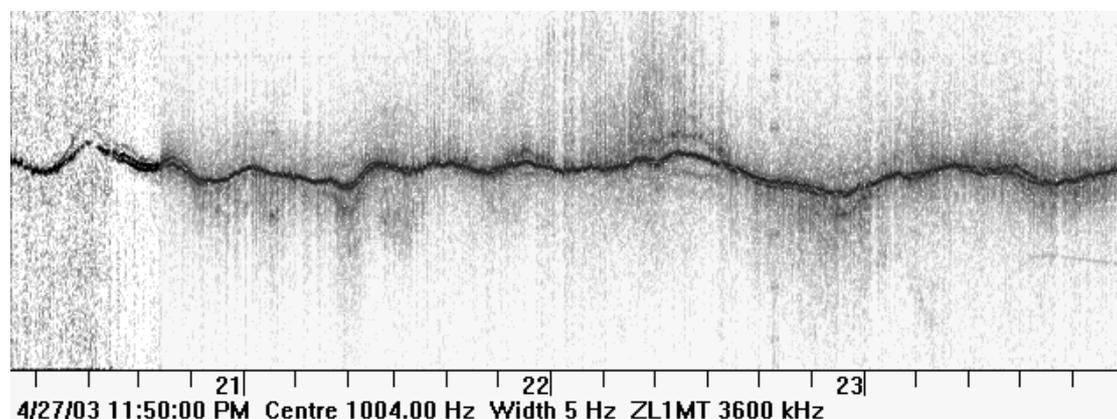
Amateur Standard Frequency Service Proposed:

07 Nov 2003 - Well known "Digital Modes" Amateur, Murray Greenman ZL1BPU, has proposed that VK and ZL Amateurs put together a network of simple and inexpensive transmitters, to provide a high accuracy Standard Frequency Service to replace the excellent VNG service, now QRT.

An accurately transmitted carrier provides a convenient equipment calibration source for the typical ham shack. Amateurs in the South Pacific have for many years relied on VNG transmissions as a prime source of accurate frequency reference. With the closure of VNG in December 2002, the sole remaining precision signal source in our area is WWVH, in Hawaii. Unfortunately the WWVH signal quality in the South Pacific is generally too poor for reliable use, either to zero beat a simple calibrator, or using more sophisticated computer based techniques, such as the spectrogram or digital mode software carrier frequency measurement.

In a series of tests over the last two years with Bob Vernall ZL2CA and Ted Minchin ZL1MT, Murray has shown that simple low power carrier transmissions on the 80m band would fulfil most of the requirements of a Standard Frequency Service. The proposed Service is now active, currently with four stations using simple low power equipment. Good reports of signal strength, frequency accuracy and carrier purity have been received from all over ZL, and from VK, ZK and 3D2. The equipment offers high stability, a low noise carrier with an accuracy of well under 0.1Hz, and costs less than \$50 to make. These low power transmissions have confirmed the usefulness of low power signals for both calibration purposes and Doppler propagation studies, over a range of 3000km or more. The signals also make a great practice signal for those interested in Frequency Measurement Contests.

Ionospheric F-layer propagation is accompanied by very small carrier frequency shifts ("Doppler Effect"), and multiple paths with different refractive indices for different signal polarizations ("O and X Rays"), which affect the precision of frequency measurement. Ground wave is not affected by Doppler effects at HF, and E-layer is affected very little except during strong solar disturbance. These effects can only be studied using extremely stable transmissions and stable receivers. The effects can be quite exciting at sunrise and sunset, or during unusual solar events, and understanding them is the key to good frequency measurement.



[Figure 1: Narrow Spectrogram of ZL1MT transmission]

The Service operates on a test basis as follows:

- * An 80m frequency on an exact kHz point is used, at about 1W - 5W carrier power.
- * Transmissions are usually identified in Morse, typically every 30 minutes.
- * Transmissions use a high precision local reference (typically GPS or TV).
- * Operation is from a different geographical location each weekend.
- * Transmissions are announced and coordinated beforehand by email.

Ideally a station in each ZL and VK call area should be involved in the service. This would offer Amateurs nearby signals for high quality calibration and measurement, and longer distance signals for propagation study. At present ZL1MT (3600.000kHz), ZL3JE (3602.000kHz), VK2BLR (3610.000kHz) and ZL1BPU (3840.000kHz) are running extended tests, operating weekends in rotation from Friday evening continuously through until Monday morning.

It is important to realise that these are privately owned and operated attended test transmissions, not beacons. Establishing a Standard Frequency Service formally, perhaps under the auspices of the NZART, will be considered.

A simple micro controlled Exciter design is available from ZL1BPU. The Exciter has very high stability, and can use a local oscillator, GPS or TV signal timing reference. The Exciter has 40mW peak output, can operate from 160 - 20m, and features Morse ID and a clock. A 3W power amp design is also provided. The micro firmware, PC tools for frequency setting, time and carrier phase/frequency monitoring are also supplied. Those interested in building the Exciter, taking part in the proposed Standard Frequency Service, being notified of further test transmissions, or in discussion of the nature of a long term Standard Frequency Service should contact:

Murray Greenman ZL1BPU
Zl1bpu@nzart.org.nz

Dates To Remember:

- **Next NZART Official Broadcast 8pm & 9pm on Sunday 30th November**
- **Next NZART Conference 5th and 6th June 2004 at Marlborough Girls College, Blenheim**
- **The final HQ-Info-Line for 2003 e-mailed on Sunday 7th December**

73

Jim Meachen ZL2BHF
Editor