



Headquarters - Info - Line

... a service from ...

The New Zealand Association of
Radio Transmitters Incorporated



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Greetings Everyone

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

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The NZART Business Manager Debby ZL2TDM Says

All about SMART...RSM no longer issue paper licences: SMART the online database is the legal Register for Radio Frequencies. However, if you logon to the Register at www.rsm.med.govt.nz and view at any time, by using your Client Key and Password (CKAP) you can download an extract and print it off. All the schedules and conditions are also available on the Register. If you do not have your CKAP, please phone our Contact Centre on free phone 0508 776 463 and they will assist you.

As of 21 November we will no longer be granting a call sign licence, instead I will be issuing a Certificate of Competency with a call sign. For those amateurs that already have a call sign, RSM will be migrating the licence detail data over to the certificate and for each individual who currently has a licence, their call sign will remain the same. The certificate will have the option of attaching a photo and can be printed off. The format of the certificate is very professional and could be framed if required.

The Amateur General User Radio Licence will still apply.

Please monitor RSM website for more detail on the release.

Examination and Training Material – Regulatory changes: The examination Question Bank has been revised. Some 30 questions out of the 90 in the Regulatory and Frequency sections have been amended by a team of reviewers. The revised questions have been checked by RSM and Gary ZL1AN has revised the exam-generating computer program to include the new questions and it is ready to go. The consequential updating of the printed booklet version of the *Examination Question Bank* is completed.

The *Study Guide* is being revised to accommodate the changes, but it cannot be finalised until the new extended SMART system is implemented and its final operating details are known. Consequential changes are presently being made to

the regulatory booklet: *AMATEUR RADIO, the New Rules Explained*. The *Become a Radio Amateur* training CD-ROMs on sale from Headquarters is being updated too.

It is hoped that this work will conclude shortly with all this newly updated training and examining material in place and available for use. An announcement will be then be put on the NZART web page. Meantime, thank you for your patience.

Radio, Radio Waves And Schools: Supported by NZART's RadioScience Education Trust, and spurred on by the need to encourage interest in radio among youngsters and in *science* and *technology* subjects in schools, demonstrations have been devised for the practical *hands-on* exploration of radio waves. The details are found at the NZART website at:

<http://www.nzart.org.nz/nzart/waves/radiowaves.html>

The items from this site, including several teaching booklets, are freely available for downloading by anyone to use to promote and to encourage interest in radio.

As a radio amateur you are asked to help. Please visit this site and download and print the Pamphlet, print it double-sided and please study it. It is developed to be read by science teachers to lead them to useful radio-related activity in schools. A copy is attached for your immediate consideration.

Please distribute copies of these pamphlets so that the staff at each of your local schools is made aware of this resource. Please *pass it on* to all your Branch members for passing-on.

A complete set of this demonstration equipment has already been built and donated to one secondary school. It was received with enthusiasm by the science teachers who were fascinated by what was possible. They had not seen this before!

Consider supporting your local school to take an interest in radio and to help students to find out the many ways in which radio is used today.

For payment of membership fees by bank direct debit: NZART account details are

BNZ 02 0772 0209760 00, please quote your membership number (where known) in the reference field, otherwise your call sign.

Talk to you all again soon... Debby **ZL2TDM**

From AREC National Director Jeff Sayer ZL4JS

"Over recent weeks, there has been debate in Amateur radio Forums regarding the use of ZK prefix for AREC Operations.

Representatives of NZART Council and the AREC Management Committee met in Wellington on Sunday 12th November to discuss any implications associated with the ZK usage.

All issues raised were satisfactorily resolved.

Call signs in the ZK series for AREC operations are as denoted on page 3-1 of the 2006/2007 Call Book."

VHF Convention 2007

The Members and Committee of the Wellington VHF Group invite you to attend VHF Convention 2007, Incorporating A Repeaters Beacons & National System Trustees Forum, to be held in Wellington during Easter 2007.

Please see the Information Sheet attached to this Issue of HQIL.

Waikato Planning Decision

From Mike Newman ZL1BNB

As a result of challenging the planners report, (something I intend to do at North Shore City Council (NSCC)) we have made (in Waikato DC) substantial gains; Our submissions have been largely accepted, most importantly, our main objective, to allow antenna heights of 15 metres as a permitted use, has been largely achieved. In the rural zone the limit is 20 metres and in the landscape policy area (there's some sensitivity about these areas) the limit is reduced to 12.5 metres. And the revised rules will allow lattice supporting structures, not just simple pole structures, and a maximum of 3 support structures on any site in the living and country living zones (same as residential and rural residential), no limit specified in other zones. Some clarification is necessary in relation to satellite dishes.

The detailed decision will be posted to the NZART Web site shortly.

Contest News

FORTHCOMING NZART CONTESTS

VHF Field Day Contest: All bands 50 MHz and up. Saturday the 2nd and Sunday the 3rd of December 2006.

2007 JOCK WHITE MEMORIAL FIELD DAY CONTEST

An early notification – the 2007 Field Day Contest will take place on 24 & 25 February 2007, Refer 2006/2007NZART Callbook for Contest rules and other operating information.

Now is the time for Branches to commence their planning for the 2007 event

OTHER FORTHCOMING CONTESTS

CQ Worldwide DX Contest, CW	November 25-26, 2006
ARRL 160 Meter Contest	December 1-3, 2006)
ARRL 160 10 Meter Contest	December 9-10, 2006
CQ 160-Meter, CW Contest	January 27-28, 2007

Auto-Subscription and Un-Subscribe

It has never been easier to subscribe to the Info-Line distribution list and have Info-Line sent to you direct by E-mail. Just check into the NZART web page.

<http://www.nzart.org.nz/nzart> Look for **Info-Line Subscribe**. Supply your name, callsign and e-mail address and that's all you need to do. You will receive an e-mail confirmation of your auto-subscription and you can un-subscribe at any time.

Dates To Remember

- **NZART Official Broadcast Sunday 26 November 2006 (Next Sunday)**
 - **Next HQ-Info-Line E-mailed on Sunday 17 December 2006**
- **Note: The last Official Broadcast for 2006 is also on the 17 December**

Regards
Jamie Pye ZL2NN
Editor

“VHF CONVENTION 2007”

Incorporating Repeaters Beacons & National System Trustees Forum

The Members and Committee of Wellington VHF Group invite you to attend the VHF Convention to be held in Wellington during Easter 2007. “It’ll be a good one!”

Please make a note in your diaries now!

Dates: Easter weekend 06-07-08-09 April 2007

Venue: Tawa Service Centre, Cambridge Street, Tawa, Wellington.
(Please note the change of venue from Christchurch)

Programme: An exciting mix of speakers and events is planned including; technical presentations; VHF Forum; the “Wallace” mobile rally; ATV, Satellites, AREC & other special interest groups; Repeaters Beacons & National System Trustees forum.

Doug Ingham ZL2TAR has again volunteered to organise the technical programme. Prospective speakers and contributors please advise Doug of their proposed topic and provide an outline of their talk as soon as possible. Please contact him direct via e-mail: zl2tar@nzart.org.nz or via our PO Box.

Friday pm	Registration and informal get-together at the venue.
Saturday	Keynote speaker, technical programme, VHF Forum.
Saturday night	Convention Dinner and social.
Sunday	Technical programme, mobile rally, Trustees forum, special interest groups.
Monday am	Technical visits, departure.

Charge: Our target is to minimise costs this year, and make the event more affordable, and the committee are already working on this aspect.

Registration forms will be published in the January/February 2007 issue of Break-In, in Wellington VHF’s Q-Bit journal and Auckland VHF’s Spectrum newsletter, and are also available directly from the Secretary.

Further information is available from Dick Greenbank ZL2TGQ, via e-mail: zl2tgq@nzart.org.nz, or home telephone 04 970 3985.

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“It’ll be a good one!”



“Hands on – to RADIO WAVES”

Introductory Demonstrations in Radio Technology

They are all around us. We can't see them, but we can generate them and detect them, we can determine their characteristics and we can measure them. They play a very great part in our daily lives, every member of the public uses this technology.

Radio provides the backbone technology for the information economy: radio and television broadcasting, cellphones, mobile communications, remote controls of many types, keyless car locks, remote door openers, wireless local area networks, satellite navigation, radio telescopes, environmental monitoring and so much more in our world. These all use the same “*electromagnetic waves*” so we should all have a working knowledge of them. Radio communication is so ubiquitous that it is almost taken for granted.

The widest public understanding of radio communication is important for our economy. There is a shortage of radio communications engineers, technicians and scientists. Many of these innovations were developed by scientists and engineers who had their interest aroused by a hands-on demonstration, perhaps at school, perhaps at an exhibition, perhaps through a demonstration by a radio amateur.

Experiments with inexpensive home-made apparatus can open up our vision and reveal this unseen radio world to us. Outline suggestions and guidance for some radio experiments are presented here for the individual and for school-room class demonstrations. These unseen waves and many mysteries of radio can be revealed by your own “hands-on” investigations.

A special radio licence is not required for the demonstrations and experiments described here. The radio-frequency generator falls in the provisions of the “New Zealand Radiocommunications Regulations (General User Radio Licence for Short Range Devices)”. See: <http://www.rsm.govt.nz/licensing/gurls/gurl-srd.pdf> But it should be noted that voice and similar communications at the frequency used here are not permitted by this licence.

For voice communication at this and at many other frequencies and for many other privileges too, an amateur radio licence can be used. Becoming qualified as a radio amateur is highly recommended. It is an internationally-recognised qualification in radio with a certificate to hang on the wall. Each radio amateur has a listed unique and discrete personal radio callsign. Details about Amateur Radio and how to qualify can be found at: www.nzart.org.nz The amateur radio qualification is a useful preliminary to a career in telecommunications. It is attainable by young and old, the youngest radio amateur in New Zealand was age 8.

The NZART Radioscience Education Trust

This is a charitable trust, formed by the New Zealand Association of Radio Transmitters to help and encourage young persons wishing to further their education in the science of radio whether by the payment of course fees for worthy candidates, the provision of prizes on a competitive basis for excellence in education activities, or as the trustees think fit. Young students could be Radioscience graduates in the years to come, the future generation of leaders in Science and Technology, a small start in this rapidly changing world. This is in keeping with the aims and objectives of NZART's Constitution. More details can be found at:

<http://www.nzart.org.nz/nzart/NZART/trustweb.html>



The Trust relies on volunteers from NZART Branches to provide judges to officiate at Science and Technology Fairs and for reports with photos of the prize winner's entry to be published in the Association's journal, "*Break-In*". The main activity of the Trust has been the provision of prizes (currently worth \$100 each) at local Area Science & Technology Fairs. At a recent meeting the Trustees expressed their concern over the paucity of prize-worthy Science & Technology Fair projects. The Trustees have decided to offer limited sums of money to support student projects in the general areas of radio and electronics; these will be in addition to the existing Science & Technology Fair prizes. These grants would be targeted towards projects that could lead to exhibits in local area Science & Technology Fairs.

An Electromagnetic Wave teaching resource:

This pamphlet and a series of instructional and constructional booklets with other information can be freely downloaded from: <http://www.nzart.org.nz/nzart/waves/radiowaves.html> Print as many copies as you need!

“Hands on to *Radio Waves*”: Experiments and features to be explored

General

The EM wave is not visible.
Need for sensor/detector devices to “make the wave visible”.

Launching a wave

Consider the transmitter as a very high-speed switch.
Electric and magnetic fields at the “near field”, resonance.
Polar radiation diagram of a dipole in the plane of its axis.
Polar radiation diagram of a dipole in the plane perpendicular to its axis.

The wave in space

Energy transfer from source to receiver.
The wave in the “far field” – its vector model.
Dispersion – signal decay with distance from a point source.
Effects of various materials in the path.
Polarisation.
Reflection.
The “boundary conditions”.
Standing wave.
Wavelength measurement and calculation.
Typical field-strengths and measurement in practice.

Reception

Receiver principles – extraction of transmitted information.
Positioning aerials in best signal path.
Aerial polarisation.
Addition of reflectors and parasitic elements to increase useable distance.
Aerial reciprocity.
Aerial types: Yagi, square-corner, parabolic dishes, with FM and TV applications.

Further considerations

Communication and information transfer from transmitter to receiver.
Practical transmitters and receivers.
Noise, signals and screening.
Feeder cables, aerial siting.
Consideration of other test frequencies.
The radio frequency spectrum.
The “radio services”, sharing of spectrum, need for regulations and licensing.
Applications of the wave: mobile communication, broadcasting, radar, satellites for communication and navigation, key-fob remote controls/locks.
Amateur Radio for “self-training, intercommunication and technical investigation”.

How do I get started?

The details of these demonstrations are in several booklets that can be downloaded and printed.
You can print your own copies and make your own demonstration apparatus from the instructions given.

The apparatus described is divided into three projects:

building the *transmitter unit*, building the *receiver unit*, and building the “*hardware items*”.

Idea: Does this seem like a project for three separate student project groups? Perhaps each group supported by a parent, all groups coming together with all the devices working together? Working Project Teams? You only need one set of the apparatus. Only the transmitter unit requires some soldered joints.

Further information: *The New Zealand Association of Radio Transmitters Incorporated* is the New Zealand radio amateur’s society. **Enquiries are welcome.** Further assistance can be provided on radio topics. NZART has Branches in main centres with members able to assist with radio communications demonstrations of all kinds.

NZART provides radio training publications and training assistance for anyone who would like to proceed to the New Zealand Amateur Radio Examination, obtain an Amateur Operator Certificate of Competency and experience the **Wonderful World of Wireless**. Many of these items are free. The examination syllabus and the full question-bank are in the public domain and can be downloaded from the NZART website. Examination papers are computer-generated and the examinations are conducted by volunteer supervisors at mutually convenient times and places.

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This pamphlet and a series of instructional and constructional booklets with other information can be freely downloaded from: <http://www.nzart.org.nz/nzart/waves/radiowaves.html> Print as many copies as you need!

