



NSW WICEN NEWS

The Official Journal of WICEN (NSW) Inc.
Winter 2005 Edition



Ammended Edition

Affiliated with the NSW Volunteer Rescue Association

Affiliated with the NSW State Emergency Service

Affiliated with the Amateur Radio NSW

Editorial

Welcome to Winter 2005 WICEN News. This is my first issue as editor. With a number of articles on power connectors maybe it should be sub-titled "The Power Issue".

The truly tragic events of 26 December demonstrated the value of Amateur Radio in assisting after a major disaster has destroyed so much, including communications infrastructure. Thankfully, the VU4RBI & VU4NRO DXpedition was in-place on the remote Andaman and Nicobar islands at the time. While the initial clean-up is long completed, the need for assistance continues.

Northern Rivers was activated on 11th October 2004 in support of the RFS in the New Italy area, south of Woodburn but then put on Standby as fire conditions improved. Members have also provided communications support for a wide range of sporting and community events, and participated in dedicated excercises.

A number of members have been busy with WICEN related projects over the past year.

Garry Barker has obtained a donation of 100 high-visibility vests. These are yellow-green with reflective strips for day and night use. They have been screen-printed and the majority distributed to Regions.

Dave Horsfall has been redesigning the membership database software, while Greg James is working very hard on updating the actual membership records. As part of the of this effort you will recently received a form with your details and space to correct them. Please update this and return it as soon as practical.

Take a look at the new website, updated and re-designed by Mark Cheeseman.

Meanwhile, Ross and Peter Mudie have been upgrading their tower at Berowra, which supports antennas for WICEN, HADARC, CREST and St Johns.

Well done to those who set-up and manned our stand at Wyong.

During the previous year the Wireless Institute of Australia has moved from a Federal body, with state divisions to a single national organisation. Some divisions have voted themselves out of existence, while a number remain, renamed to reflect their local nature. As such, the NSW Division, while retaining its existing legal company name, is now trading as "Amateur Radio New South Wales".

Many members, along with the Amateur Radio community in general, are looking forward to the next round of licence condition changes. Novice members will gain access to more HF bands, useful for WICEN use. The Foundation licence is expected to bring a significant number of new people to the hobby, including many active younger people.

July 23 is the AGM. See the notice on Page 4. Please come along. A number of committee positions will become vacant, so please consider if you are able to serve the organisation in this way. Currently the Committee meets one Saturday afternoon every second month. After the AGM we will be meeting for lunch at the nearby Commercial Hotel. This provides good meals, including vegetarian, at reasonable prices.

I am planning another issue after the state and region AGMs, including updated positions and contact details. I already have some articles promised, but would love some reports on events, construction projects, and any other articles.

73, Julian Sortland, VK2YJS.

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WICEN NETS

Northern Rivers	Tuesday	2000	146.800 MHz -
Hunter	Wednesday	1930	146.975 MHz -

What is WICEN?

WICEN NSW Inc. is a volunteer organisation which provides communications support to emergency service organisations and the community. WICEN members are trained radio operators and are experienced in communications technology and operations procedures. WICEN is pronounced "why-sen". The name is derived from "Wireless Institute Civil Emergency Network", although we are now a separate organisation.

There are WICENs in each state and mainland territory.
See: <http://www.wicen.org.au/>

Operators are needed urgently for the Wilderness Rescue Navigation Shield at Coolah Tops NP. The new date is 13-14 August. Please contact Operations.

WICEN (NSW) Inc. Newsletter Winter 2005

Coming Events – 2005

3 July	Kiarrak Horse Ride
23 July	WICEN NSW AGM
19-21 August	Lighthouse / Lightship Weekend
6-7 August	Asia-Pacific Air-Internet Jamboree
13-14 August	Wilderness Navigation Shield
22-26 August	Shahzada Horse Enduro
24-27 August	East Coast Targa, Bathurst (VK1)
September - TBA	Wyong Car Rally
17th September	Caltex Airport Starmart Rally (VK1)
30 Sept – 2 Oct	Eden Creek Horse Enduro
15-16 October	JOTA
22-23 October	Hawkesbury Canoe Classic

President's Report

This report is something of an oddity - it is both my first report for the committee year, and the last before the next AGM.

First of all, I would like to welcome the two new members on the State Committee: Julian Sortland VK2YJS and Greg James VK2ZGJ, and also welcome Dave Horsfall VK2KFU back to the committee for a second time. I would like to take this belated opportunity to welcome them to the state management committee and thank them for volunteering their services. I would also like to thank the continuing members of the committee for their ongoing commitment and support during the past year.

Speaking of committee members, the AGM is fast approaching and once again, and as usual, the various committee positions are all up for re-election. A few of the present committee members have indicated that they will not be standing for re-election the the upcoming AGM, so there are some vacancies that will need to be filled. This is your chance to contribute to the running of the administrative aspects of WICEN (NSW) and to help shape the direction of WICEN into the future.

On the infrastructure side of things, the WICEN NSW trailer was fitted this year with brakes, so it can now stop as well as go. Seriously, it brings the trailer within the towing specs of a much wider range of vehicles than just large 4WDs and although it does nothing to reduce the weight of the trailer (the brakes of course add to the weight) it does reduce the tendency for the trailer to overtake the towing vehicle under brakes. Thanks are due once again to Mal Alexander for his tireless efforts with the trailer project.

Oh, I almost forgot, the trailer has also acquired a 2.3kVA generator to keep all the batteries charged and make sure that the trailer brakes earn their keep!

We also have some good news on the repeater front. We have received an offer for access to a very good repeater site in Chatswood. Members in the Sydney area may remember that Chatswood was the original site of the the VK2RWS repeaters, prior to a change in ownership leading to our need to vacate the former premises. The new site is in a different (higher) building and promises to offer better coverage than the previous site, once we are able to put the required equipment in place.

The initial plans are to establish a 2m amateur repeater and VHF Mid-band base at the site. A 70cm repeater is also being planned by HADARC (through whom the offer originated). This site is a significant commercial radio site and as such, we will

have to use commercial equipment for all RF components on the site.

A large part of the required equipment has already been procured (such as almost all of the gear needed for the Mid-band base, and a 148MHz expager transmitter for use on the 2m repeater), but one or two items may need to be purchased new (eg, commercial-grade cavities for the 2m repeater). Peter Mudie and HADARC deserve our thanks for negotiating to make this site available for us.

Some time ago, WICEN received a sizeable equipment donation from SES of surplus radio equipment. This included a number of VHF and UHF mobiles and handhelds which have been deployed (or are in the process of being deployed) on either our amateur or commercial frequency allocations. As part of the shipment, we received a considerable number of crystal-locked HF rigs (mostly Wagner 25W solid-state units). Some of these have already found service with our regions and other emergency services, but many still remain.

As part of the conditions under which we obtained the gear, we have to use the units ourselves or pass them on to other emergency services; we cannot sell them to outside parties. So if your region has some use for some of these remaining radios, please let the state committee know. Although the radios are originally USB-only, Peter O'Connell is working on modifying them for use on LSB in the WICEN amateur allocations and reports on his progress will be promulgated as it arrives.

As you will have noticed, the newsletter frequency has been declining over the last couple of years, as a consequence of the reduced volume of content available for inclusion and other time commitments of the committee members who put it together. Thanks to Julian Sortland for pulling this issue together.

In order to address the issue of more frequent communication with members, committee member Greg James has commenced producing a new publication - Flashes - which is designed to fill the gap between the weekly items on the WIA news broadcasts and the newsletter which has a lot more detail but with a low frequency. Flashes will be distributed on a regular basis to members, primarily by email (postage is a huge cost burden these days for an organisation such as ours) but arrangements will be made for members without email access.

Until next time,

73,
Mark Cheeseman VK2XGK
President, WICEN (NSW) Inc

WICEN (NSW) Inc

Notice of Annual General Meeting

The 2005 Annual General Meeting of WICEN (NSW) inc will be held at Amateur Radio House, 109 Wigram Street, Parramatta on **Saturday the 23d of July 2005.**

The programme is as follows:

0930 State Management Committee meeting

1000 RCO's meeting

1100 Annual General Meeting

After the AGM those members who wish to partake will adjourn to the Bistro in the Commercial Hotel

Garry Barker VK2TSR
Secretary

The Agenda is on the last page of this newsletter.

WICEN (NSW) Inc
AGM 28 AUGUST 2004
Held at Amateur Radio House
109 Wigram Street Parramatta

Meeting Commenced at 1100

Present: G James, K Dawson, D Ramsay, A Whitmore, E Kidd, D Matthews, M Cheeseman and G Barker

Apologies: Peter Mair, Pat Leeper, M Alexander, John Toland, N Fallshaw, D Moss, G Dalglish, N Imrie , W Munn

It was moved by D Ramsay and seconded by E Kidd that the meeting be adjourned until the auditor's report was available: carried

Meeting closed at 1100

ADJOURNED AGM **25 SEPTEMBER 2004**

Held at Amateur Radio House
109 Wigram Street Parramatta

Meeting Commenced at 1103

Present: J Sortland, D Ramsay, A Whitmore, D Horsfall, D Matthews, B White, R Demkiw, T Farrow, G James, M Cheeseman, E van de Weyer and G Barker

Apologies: R. Shamay, G. Hinchcliff, N. Fallshaw plus apologies listed for 28 August 2004

Adoption of minutes of 2003 AGM: Moved David Ramsay, seconded R Demkiw : carried

Outgoing President's Report. Mark Cheeseman gave a verbal report and was seconded by Tony Farrow : carried

Acting SCO's Report. Mark Cheeseman also gave a verbal report and it was seconded by Tony Farrow : carried

Treasurer's Report: The main item that Eric van de Weyer raised was that all assets had to be realistically revalued. Moved and seconded D Ramsay / G. Barker carried

Adoption of 2004 Auditor's Report: Moved and seconded E van der Weyer / R. Demkiw : carried

Election of Returning Officer Mark Cheeseman nominated Tony Farrow, seconded R. Demkiw carried

Election of Officer Bearers

President: Mark Cheeseman

Snr Vice President: Eric van de Weyer

Jnr Vice President: Julian Sortland

Secretary: Garry Barker

Treasurer: David Ramsay offered to look after books, but could not attend meetings

Committee (5 positions)

David Matthews

Greg James

Evan Kidd (to be confirmed at next meeting as he was not present)

Dave Horsfall

General business.

1. Tony Farrow commented that we should approach Michael Owen, the new Federal President, to have WICEN incorporated into the Foundation Licence Syllabus, with the view to recruiting new members

2. Bob Demkiw gave a verbal report on his activities as Jnr Vice President.

a. He found a concerted lack of interest in getting contributions to the newsletter

b. Represented WICEN at numerous VRA conferences

Moved: G. Barker, Seconded: A. Whitmore.

Carried

c. Submitted his resignation as public officer

3. Barry White:

Mentioned that he was concerned about the availability of the colour of our uniform. To be discussed at the next management meeting

At the Kuringai Area emergency meeting it was stated that Sydney has only 2 years water supply left and WICEN may have to be involved in emergency evacuation of the population

4. Greg James:

Stated that there was a report in Govt, which we will hear about in 2 weeks and that desalination was not an option.

Training document is out of date and contains errors.

5. 5 metre allocation discussed

6. Federal WICEN discussed

Meeting closed at 1205

Notes from VRA Mid-Year Conference

CESSNOCK 28th MAY 2005

From: *Garry Barker, Secretary*

Greg James and myself attended this meeting

1. One minute's silence was observed for Sgt Ray Tyson ex Police rescue squad and instigator of the formation of the VRA and patron of the VRA

2. Lecture on DVI (Disaster Victim Identification) by Det Sgt Richard Wood, NSW Police. He led Australian Contingent to Khao Lak in Thailand to identify victims of the December 26th Tsunami. His report was extremely interesting and covered all aspects of organisation, methods of identification, logistical problems as well as keeping in well with the local politics. One interesting point was a USA warship arrived and asked him how many refrigerated 40 foot containers did he need and when he told them, their reply was " they will be here tomorrow!"

3. There was an extraordinary general meeting where the constitution of the VRA was changed to conform with current legislation regarding honorariums

4. Business arising from last meeting (Oct 04) plus other business

a. National Medal - Better support from NSW Govt required. (request from Aust. Govt)

b. Squad Affiliation fee down from \$209 to \$5, effective 2005-6

c. Vehicle insurance discussed

d. Briefing on Tyson funeral

e. Police Event Numbers must be on call out reports

and to be included on all Hours returns where applicable

f. Web Based Stats System was discussed

g. State Rescue Board Policy discussed such as no trainees to work on Rescue jobs. All services have rejected this!

h. It was stated that The AVCG were to affiliate with The VRA (this did not ring true to me so I checked with a senior Coast Guard officer and the true story is that the VRA Marine Division is affiliating with the Coast Guard for the simple reason is that if they don't, they will be off the water within 2 years as they don't have competency based training in place.

i. Treasurers report discussed

j. Training Officers report discussed

k. Marine Report (Verbal) discussed

l. Uniform officer gave his report

m. John Mitchell retiring as hon solicitor as at 30th June 2005

n. Rankings Police have requested VRA adopt a visible ranking system so that Police / ambos and firemen can quickly identify the officer in command They stated that they were looking at an American system but my outside source told me that the Coast Guard (AVCG) supplied them with a CD of the Coast Guard ranking system which is identical to what was shown at this meeting.

They was a lot of dissension about this move and a committee was formed to examine this proposal

o. Discussion on Hep B and C

- p. Identity cards discussed
- q. Auditor General has done audit on rescues with response times based on USA heavily populated areas and not large NSW sparsely populated areas
- r. Police analog radios being replaced by digital
- s. Next years mid year conference likely to be in Albury
- t. Red & Blue lights on Rescue vehicles discussed.

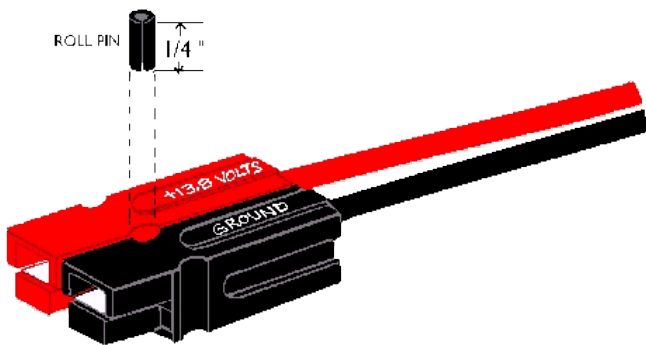
Standard 12v DC Power connectors.

By Julian Sortland, VK2YJS.

WICEN NSW has adopted a standard connector for 12v (13.8v) DC power. It is the Anderson Powerpole, configured following the US ARES / RACES pattern, with a red and black housing side-by-side. In this configuration the connector is genderless, and the correct polarity is preserved.

For radios, accessories, small batteries, chargers, solar panels, etc, the standard is the 30 Amp connector. This uses the smallest housing size, into which a contact is inserted once the wire is crimped to it. There are also 15 and 45 amp contacts available for this housing. Like the 30A contact, the 15A one uses a barrel wire crimp, while the 45A contact has a C-shaped crimp area.

In our application red and black contact housings dovetail together side-by-side to form the completed connector. Generally this is quite tight, but a very small amount of Cyanoacrylate adhesive - "superglue" can be used to ensure they do not slide apart. As this can give off fumes which produces an insulating condensate it is probably a good idea to let the glue set before fitting the contacts.



The correct layout. The roll-pin is not recommended, as these can fall out. Image from Orange County RACES.

For large batteries, high current devices and feeding distribution panels the 75A connectors can be used. Both the housing and the contacts are significantly larger. If a 75A connector is fitted to a battery it is a good idea to also fit a 30A (or 45A) connector so the battery can be charged and used without a separate adapter or distribution panel.

If possible the contacts should be crimped rather than soldered. If soldered at the rear the wire becomes inflexible and may eventually fail, while at the front there is a risk that solder will get onto the contact surface and increase its resistance.

Remember to use appropriate fusing, especially on batteries. Automotive "blade" style ATO / ATC fuses appear to be ideal, (and they do not contain glass). Just remember to carry spares!

If you already have your own system, you may consider just making adapters so you can receive power from, and supply power to, a Powerpole based system.

Cautions

If you build multi-way connectors so that you can distribute power to several devices do not configure it with four contacts side by side [+-+] as it will be very easy to plug a single plug in staggered across two pairs, so that reverse polarity is supplied.



Two pairs side-by-side risks making a reverse connection.

Multi-way connectors may need to be current de-rated to prevent over-heating.

Roll-pins and spring-pins can fall out, possibly causing a short-circuit.

For other voltages we strongly suggest that another format of connector is used, such as the Anderson SB.

While this system is also used in industry to build complex multi-coloured, multi-way connectors, as the contacts are not touch-proof, they must not be used for hazardous voltages except within enclosed equipment.

Other uses

Powerpoles can be used to make a multi-band portable HF dipole or other wire antenna. Imagine a long dipole with insulators along its length. Below each insulator the loose ends of each section have powerpoles. The desired band is selected by plugging or un-plugging these connectors.

Sources

WICEN NSW, including at the Wyong Field Day,
 RS Components,
 Farnell-inOne,
 Various US suppliers including:
 Power-werx: - <http://www.powerwerx.com/>,
 Summerland ARC.

Orange County RACES: <http://www.ocraces.org/>

Extra Low Voltage Plugs or “T-Connectors”

By *Julian Sortland*, VK2YJS.

These are the same size as standard 240 volt plugs, and were designed for rural 32V DC power systems, and are rated 15A.

A range of services use these as auxiliary power outlets in motor vehicles, and we may need to power our equipment from these at times. However, as there are 2 pins and 2 wires there are at least 2 standards for their connection. New South Wales follows the Australian Standard, as does everywhere but VK3. I understand that the basis of the standard is that when the plug is held so the pins for a “T” the lower, vertical pin is the earth or chassis, just as the vertical pin on a 240 v plug is. In a modern car this means that the vertical pin is negative and the horizontal plug is positive.

The Victorian system is the reverse, evidently following the logic that the horizontal pin looks like a minus sign, so is negative, with the vertical pin positive.

There are two more “gotchas”. The first is that an outlet complying with the Australian Standard can still provide reverse polarity! In an old positive earth vehicle the vertical pin is connected to the chassis and the negative supply is on the horizontal pin. The other is that many heavy vehicles use 24 volts, as do some four-wheel drives, including FFR (Fitted For Radio) ex-military Land Rovers.

As such it is wise to check before plugging into any vehicle mounted outlet. Ideas are a multi-meter, a 3 LED automotive test probe (shows polarity and 6, 12 and 24v), or a simple test-plug made using a bi-colour LED and series resistor.

Using a negative ground radio in a positive earth vehicle means that the case of the radio, and the magnetic mount or other antenna base would be live with respect to the chassis. Perhaps using a suitably secured “gel” battery instead would be safer.

Where possible, clear-topped plugs and line-sockets should be used so that polarity can be easily seen. DSE sell these.

Cables and Fitting

Cable should be double insulated (sheathed), and with a red-black or red-white colour-code, rather than mains coded. Also, to avoid voltage drops the cable may need to be quite heavy. These plugs can accommodate cable up to 3.3mm. Pirelli make a suitable automotive cable.

Stripping dimensions are shown on the packaging. For the plug remove 70mm of sheath and 9mm of insulation. Make sure you run the wires around the strain-relief tabs.

These are available as a plug, a surface mounting socket and extension lead socket. Suppliers include electrical wholesalers (John R. Turk, Rexel, L&H, TLE, etc), and Dick Smith.

Clipsal's part number for the plug is 492/32. Add TR for transparent.

Note: American publications use the term “T-connector” to refer to a smaller connector consisting of two 6.35mm / ¼” quick-connect plugs (or similar) in a T configuration.

WICEN (NSW) has standardised on the PowerPole connectors for all 12V power requirements and recommends their use for all new installations. Operators are encouraged to carry adaptors to permit interoperability with the T-connectors, but are advised to bear in mind the polarity and voltage variations that can appear on these connectors.

WICEN mentioned in QST

WICEN was mentioned as a potential user of a series of 5MHz channels proposed for allocation to Amateur Radio by Glenn Dunstan, VK4DU, in a submission to the ACA. This appeared in a northern winter edition, and has been picked up by various other publications.

Reflections on Portable Operations

From *Dave Horsfall*, VK2KFU.

I always look forward to the next “camping out” WICEN exercise such as the Nav Shield and the Shahzada Horse Enduro, because it gives me an opportunity to escape the rat race and experience Nature at her finest. Over the years I've amassed some practical experience, and in this article I'd like to share some of it, in an effort to encourage others to try it as well, especially if you are younger than I am (I'm in my fifties).

First, there is the 4WD. Without that, I simply would not have been able to have seen some of the most beautiful scenery that Australia has to offer, all within a few hours drive from Sydney. About 8 years ago when I was in the market for a new car, it came down to a choice between a large station-wagon, or a small-ish 4WD. When I heard that there were exercises with checkpoints that required 4WD, my mind was made up, and the Kia Sportage with its full ladder-chassis and dual-range transfer case fitted the bill, and I was hooked. She's a bit long in the tooth now, with reliability problems etc, so I'll probably sell this year and buy something like a second-hand Patrol.

Perhaps I'm getting lazy in my old age, but I cannot be bothered putting up a tent for just one or two nights (unless I see heavy rain clouds) so these days I sleep under the stars in a second-hand swag. Even the week-long Shahzada Horse Enduro means camping out overnight at several checkpoints, so it comes into its own; of course, the GPS also helps in finding your way to that obscure turn-off in the middle of the night...

I always take a set of telescopic tent-poles and some lightweight tarps; they are useful for building awnings against the sun, and can be used to construct an impromptu radio shack. Don't forget the light camping table to hold the radio equipment (the reason why you're there in the first place!).

I've tried various items over the years to determine their suitability for these exercises, and whilst some show promise (such as the model rocket launcher that could be turned into an antenna launcher - make sure it's the one where you supply the air, as the one with the built-in pump can only be operated vertically), some are less so. A large portable 12-volt fridge sold by a big electronics chain did not live up to its promises; one I tested could only meet half its claimed temperature differential, so 30C outside meant warm beer inside. A one-burner portable gas stove sold by many outlets does the job, but I wouldn't use it as my primary stove; with three good burns a day and hot drinks in between, you'll go through a (non-refillable) cylinder a day, but it would be fine for occasional use. And a radiant heater that screws onto a standard bottle is ineffectual in an open marquee, but would be OK in a closed room (and *not* a plastic tent!).

By the time this appears in print, I will have tried out an interesting portable HF antenna at the Nav Shield; this will form part of an article on portable HF operations that I am writing.

Until then, happy camping! Try it - you might like it.

240 volt plugs

By *Julian Sortland*, VK2YJS.

Insulated pins on power plugs

You should have noticed that electrical appliances are now fitted with mains plugs with insulated or "shrouded" active and neutral pins. This consists of a thin layer of very hard, often black plastic inlaid into the pins for the first 8.5mm.

This follows the standard for Plugs and Sockets, AS/NZS 3112:2000. All plugs, including those on equipment sold on or after 3 April 2005* must comply with this under laws of all Australian states and of NZ. These plugs are being called "Extra Safety Plugs". This includes 2 and 3 pins plugs, and those rated to 10, 15 and 20 Amps. * Now 3 April 2006, to allow existing products to be sold.

The intention is to prevent metal objects, such as venetian blind slats contacting or shorting live pins on poorly inserted plugs, and to protect small fingers. Unlike many overseas layouts, including the US non-grounded 2 phase non-NEMA or "Crow's Foot" plug on which ours is based, our plugs are used with the live pins at the top, meaning anything falling between the plug and outlet contact the live pins.

Current UK plugs have shrouded Active/Live and Neutral pins, as do South African versions of the older, round-pin British plug.

Clipsal are selling a range of plugs with the pins colour-coded brown and blue.

PDL's 940 plug has also just been totally re-designed to this standard. 940 plugs are most useful. They are a "tap-on" or piggy-back plug which can be purchased in any quantity required, in black, white or white with a clear top, and can be put together using a philips or blade screw-driver, not a press. The new design of both 940 and a regular side-entry plug includes extra plastic inside to insulate the tops of the pins, to prevent scuffing of the wires leading to a short. Sadly, 940s are only sold in NZ.

While looking for information for this article I found that HPM sells plugs and sockets following the 10-amp pattern up to 32 amp. A and N pins are the size of the earth on a 15 amp plug, and the Earth is reverse-C shaped. The 25 amp version is similar, with a reverse or rotated L shaped earth. The Earth is positioned so it can accept a straight earth pin of a lower current plug. Just the thing for that seriously QRO amplifier.

Manufacturers:

<http://www.clipsal.com.au/>

<http://www.pdl.co.nz/>

<http://www.hpm.com.au/>

South Australia's Office of the Technical Regulator:

<http://www.technicalregulator.sa.gov.au/>

Warning on certain side-by-side double adapters:

<http://www.technicalregulator.sa.gov.au/images/pdfs/adapters1.pdf>

Chinese Plugs

China also uses a plug very similar to ours, (or the US "crow's foot" mentioned above), but with earth at the top. You will notice the E, N and L marked on the same pins as ours, but with the letters the right way up when the plug is rotated 180 degrees from how we use it. These have non-insulated pins, which are reportedly longer than Australian / NZ plugs meaning that they make contact with the outlet contacts while there is still a significant gap between the plug body and the socket faceplate, meaning that there is a danger of fingers touching live pins.

The value of 5MHz (60 metres)

By *Julian Sortland*, VK2YJS.

As most members would know, users wishing to use High frequency (HF) radio to communicate must select frequencies which provide optimal signals based on the condition of the ionosphere, the upper layers of the atmosphere. This changes cyclically each day, on a seasonal basis, and due to solar conditions. Signals on inappropriate frequencies can be either absorbed by the lower layers of the ionosphere, if too low, or not refracted by the upper layers, if too high, and so lost into space.

Limitation of current allocations

Above 7MHz the factor between bands is 1.4 or less. However, from the 3.5MHz band to 7MHz bands the factor approaches 2.

This means that there are times when a 3.5MHz signal is absorbed while a 7MHz signal is not reflected, meaning that there is no or very poor signal propagation. 7MHz also suffers from broadcast interference. Overseas submissions supporting this band have cited congested or overcrowded in existing bands.

Especially during summer, when we are often activated, atmospheric and man-made noise levels on 3.5MHz are so high that it is unusable, and at the same time 7MHz may not be propagated.

Overseas experience (including the WA2XSY test) has demonstrated that an allocation in the 5MHz area allows effective medium-range communications, including during times when neither 3.5 nor 7MHz would permit communication.

A range of bands also allows a frequency to be chosen which avoids multipath propagation. This can distort signals such as SSB voice, and also impedes digital communications by smearing one element into the next.

The overseas experience

The US and UK have five USB-only channels each, in the 5.25 to 5.4 MHz, including the 5403.5kHz common channel. The US allocation is available to all amateurs holding a General licence or above, while in the UK they must obtain a "Notice of Variation" or NoV.

Contacts between the US and UK were made on the common channel within days of 60m became available in the US.

For some years Alaska has had a USB only channel for emergency communications only in and near the state: 5167.5 kHz. A number of radios, including Yaesu FT-847 (activate using Menu 40) and FT-857D provide this.

New Zealand and Norway allow internal emergency communications only, such as the AREC (NZ) mountain search and rescue service.

Somalia allows very broad access to the band, while Canada and Finland are allowing restricted club-based tests.

NVIS - Near Vertical Incidence Skywave

NVIS communications uses an HF radio signal transmitted upwards being returned to cover the local area, several hundred kilometres in radius. The range of frequencies in which it can be effective is about 1.5 to 11MHz. However, at various times lower frequency signals can be absorbed by the D-layer while higher frequencies may exceed the "critical frequency" of the higher layers and not be returned. Having a 5MHz allocation would assist in finding a workable frequency at any one time.

Recently WICEN participated in a series of tests, focusing on NVIS, which evaluated Amateur and VRA Bushwalkers communications capabilities. The Bushwalkers' 5MHz frequency reportedly proved particularly successful.

Propagation

Steve Ford, WB8IMY, in "Head on Down to 60" (QST, Nov 2004, p60) says "It is good for regional work during the daylight hours, out to about 300 miles or so. When the sun goes down, however, 60 meters becomes a long-distance band".

I recall that the 5MHz signal from the VNG time and frequency standard station generally provided good and reliable coverage.

Current users of the Spectrum in Australia

In the 5.0 to 5.5MHz band current users include Department of Defence and various Federal, state and local government authorities and utilities, Antarctic Division, RFDS, plus mining, aviation and other companies.

If administrations in the Asia-Pacific and Indian Ocean regions provided compatible allocations, this may be valuable in providing assistance during disasters. As far as I can ascertain, 60m is available to amateurs in US territories in the Pacific (unlike 222MHz, which is restricted to ITU Region 2).

Links:

ARRL's Petition for Rule Making:

<http://www.arri.org/announce/regulatory/5MHz/>

UK info:

<http://www.rsgb-spectrumforum.org.uk/5MHz.htm>

Beacons

GB3RAL beacon in Oxfordshire on 5290.0 kHz every 15 mins. GB3WES in Cumbria and GB3ORK on Harray in the Orkney Islands, same channel, 1 and 2 minutes after GB3RAL.

Options for WICEN

If the attempt to obtain a 5MHz Amateur allocation fails WICEN may be able to obtain a "commercial" allocation in this band.

Sixty metres has the potential to be a valuable addition to our spectrum, and will assist us in providing communication support to our clients.

Another benefit is that 60m will be a new challenge for Amateurs, something to help maintain interest in the hobby.

New radio-communications regulator

From 1 July, 2005 the Australian Communications Authority will be combined with the Australian Broadcasting Authority to form the the Australian Communications and Media Authority (ACMA).

See: <http://www.acma.gov.au/>

WICEN Repeaters

Compiled by *Julian Sortland*, VK2YJS.

WICEN owns a number of repeaters, both on amateur frequencies and "commercial" channels.

Permanently-on amateur-band repeaters:

Northern Sydney is covered by the linked 2m and 70cm repeaters at **Berowra**. These are on 147.175 MHz (+600 kHz) and 438.275 MHz (-5.4 MHz)*.

Kurrajong, north west of Sydney has the 439.825MHz (-5 MHz) repeater.

Bulls Head, in the north-west corner of ACT is on 147.175 MHz (+600 kHz).

Saddleback, near Kiama in the Illawarra: 438.300 MHz (-5 Mhz)

Boomanoomana / Murray, (just north of the Victorian border): 147.200 MHz (+600 kHz)

A considerable amount of time and effort has gone into building and maintaining these, so please use them for general chat, and encourage others to. And, if they are faulty please let us know!!! Kurrajong and Berowra can be linked on request. Sydney net anyone???

Solar powered repeater, only turned on as needed:

Central Coast (in the range west of Wyong) 147.125 MHz (+ 600 kHz).

Additionally, we have a range of portable repeaters on 2m (147.125 to 147.2MHz), 70cm and also UHF CB.

Expanded network

Committee has approved spending to place repeaters onto a site at **Chatswood**, on the lower north shore, linked to the Berowra and also some future sites.

* The **-5.4 MHz** offset places the input outside the LIPD band. Most modern radios let you programme independent Rx and Tx frequencies into a memory.

Berowra work

Work over the past two years has included upgrading the footings and rationalising antennas and feedlines to reduce windloading. This will ensure the tower will survive extreme winds. Hornsby and Districts ARC members, including Bob VK2ZRM and myself helped as ground-crew during some antenna and feeders work.

Earlier this year the tower received a massive, sustained multi-stroke lightning strike. Due to the very extensive grounding and other lightning protection very little was damaged, although many items needed to be power-cycled or otherwise reset. One major item damaged was the controller for the WICEN amateur repeaters. The repeaters were quickly restored, using a basic circuit, with a fully featured controller to follow.

A number of variable voltage power supplies used for charging the large battery banks went over-voltage. These were reset, and now have 15v 5W Zeners across their terminals.

Techie Toys!

Compiled by *Julian Sortland*, VK2YJS.

Blue Snowball

This is a professional quality microphone with a USB interface rather than the normal balanced output. Just plug it into a desk-top or laptop, add suitable software, and you have a high quality recording and editing system. The user can switch between to mic elements, or select both. A number of Blue's mics are ball-shaped, with a screw socket at the bottom for the stand.

Google: "blue snowball microphone"

An interesting use of super-glue fumes.

Super-glue fumes can be used to fix fingerprints.

See: <http://onin.com/fp/cyanofo.html>

By the way, superglue reacts exothermally with cellulose fibres (it generates heat). This includes those in clothing. One guy mentioned on the site above had an accident while trying to re-open a large can, spilling it on his sleeve. The reaction burnt his arm.

NSW Channel – Digital TV Channel 44

The NSW Dept of Commerce is now running their own Digital TV channel. It consists of various text pages, such as coming events, and RTA traffic camera images, plus beach and ski conditions and cameras.

Digital set-top boxes are available from under \$100 from electronics stores, and even supermarkets at times.

Each RF carrier can carry several channels of content, and I feel the advantage is this extra content, rather than the claimed improvement in image quality.

SBS runs an extra channel, taking news from around the world, plus the 2 radio channels. ABC has ABC2, with a range of historical and repeat content, each "Stateline" from around the country, plus extra news, sport, music, etc, and a number of audio (mainly music) channels. In Sydney there is an extra transmitter on 35, but with a logical channel number of 44. It is mainly "datacasting", and is somewhat experimental. Content includes the NSW Channel, Parliament, news, weather, sports, finance, and the Australian Christian Channel.

Field operating events

Compiled by *Julian Sortland*, VK2YJS.

Members or regions might consider taking part in one of these events, or something similar, to practise field operations.

International Lighthouse/Lightship Weekend

Operate a station at or beside a lighthouse.

0001 UTC 20th to 2359 UTC 21st August 2005

WICEN NT (Darwin) took part in 2002 from Emery Point Lighthouse as VK8DA/portable.

Pics: <http://www.vkham.com/vk8da/html/08-Album.html>
Event info: <http://illw.net/>

International Museums Weekend

Set up a station at a museum, whether a small local one or a major national institution. This has just passed, but may be something to think about for next year.

Info: <http://www.ukradioamateur.org/imw/>

JOTA - Jamboree on the Air

Help Scouts and Guides communicate with one another locally and around the world. Some operations are in Scout and Guide buildings, while others are true field operations, and I am sure we could learn a lot about field ops from the scouts. One I visited and helped pack up last year in the Arcadia area was very well set up, and included an impressive Scout-built flag-staff and antenna support system.

2nd Asia-Pacific Air-Internet Jamboree 6 - 7 August 2005

See: <http://www.scouts.com.au/>

Or, how about activating a local island, whether eligible for IOTA or not? Or getting your local club involved in celebrations of your local town / shire. VI175RYDE style calls should be more easily obtained shortly, as may "single letter" calls like VK2H (they are in the ACA guidelines as valid callsigns).

T-Connector polarity and voltage tester.

By *Julian Sortland*, VK2YJS.

This circuit will fit inside a 492/32 plug.

It will show you the polarity of an outlet (including AC), and warn you if it is supplying 24 or 32v. It uses a 4 pin RGB LED available at Jaycar for \$5.95.

I selected blue for NSW (sporting colours), red for Victoria, and green for over-voltage. The 15v Zener means that the Green LED will only begin to light once the voltage reaches about 20 volts.

Construction

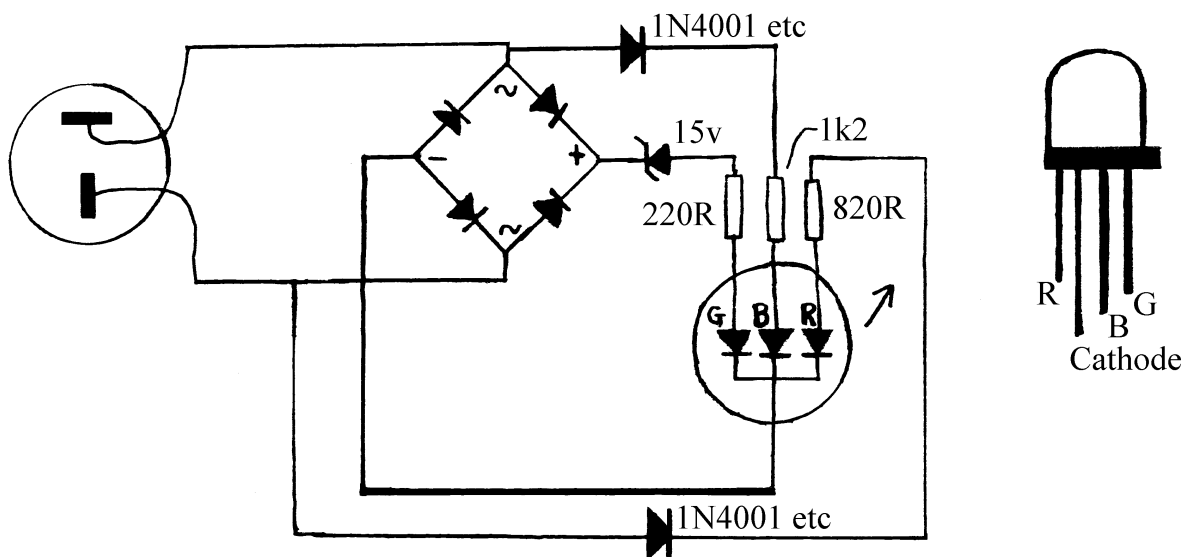
Firstly I cut away some of the nylon on the plug-base which extends up into the cover. I used a small, round bridge for the bridge, as it fitted well well. Once I shaped the legs I soldered the two extra diodes and fitted it. Leave a little length on the Anode of the diodes so that you can comfortably fold the diode down into the space beside the top of the pins. I supported the plug and soldered the zener and resistors in, sliding a little heatshrink over the resistor / diode joints. I also put this on every second LED leg, and soldered it in. I then tested it and fitted the cover.

Maybe bread-board it first. The resistor values could need tweaking. I used slightly different values, and found that green LED was somewhat overpowered by the blue LED, although it was plain with the red one, (reverse 24v). Maybe use a different colour scheme, or redesign the blue leg using a Zener or other regulation device so that its brightness does not increase over the 12v brightness.

You may also consider building one to use with cigarette lighter & accessory outlets. Some modern cars are fitted with heavier wiring to these outlets to power laptops, car fridges and the like. These will power a 50W VHF radio without the voltage sag found in earlier vehicles.

Special Components (with Jaycar part numbers).

RGB LED 5mm, 4 pin: ZD-0270
Also available from: www.ledsales.com.au
Bridge, small, leaded - WO4, etc: ZR-1304
15v Zener, 1 Watt - 1N4744, etc: ZR-1415
Plug: Clipsal 492/32TR, etc.



**WICEN (NSW) INC
2005 ANNUAL GENERAL MEETING
AGENDA**

Meeting open:

Apologies:

Adoption of the minutes of the 2004 AGM:

Outgoing Presidents Report:

Acting SCO's Report:

Treasurer's Report:

Adoption of 2005 Auditor's report:

Motions on Notice:

Election of Returning Officer:

Election of Office Bearers:

President:

Snr Vice President:

Jnr Vice President:

Secretary:

Treasurer:

Committee (5 positions):

Auditor:

Close of Meeting: