



OXTALES

First published 1980

Newsletter of the Oxley Region Amateur Radio Club Inc.,

PO Box 712 Port Macquarie 2444

Club e-mail address: vk2bor@orarc.org

Club Website: www.orarc.org

ORARC's Forty-third Anniversary Year

Club Nets on VK2RPM
146.700MHz
(CTCSS 91.5Hz)
Every Sunday at 0830
Every Thursday at 1930

March 2014

Compiled by VK2TT & VK2AYQ

PRESIDENT: Henry Lundell VK2ZHE 6582 0534
VICE PRES: Larry Lindsay VK2CLL 6587 1155
TREASURER: Keith Anderson VKFKJA 6586 3988
SECRETARY: David Hogan VK2FRAB 6582 3006

President's Report

March 2014

President's Report

Congratulations and thank you to club Secretary David Hogan VK2FRAB for taking over the position of ORARC Public Officer following the resignation of Keith Anderson VK2FKJA from the position. Thank you to Keith for his past work as Public Officer, and thank you for continuing as Treasurer.



Unlike last year when we had flooding and strong winds over the Wyong Field Day weekend, the weather was much kinder this year and a great number of ORARC members ventured south to the Wyong Field day on Sunday the 23rd of February 2014. Those members who wore their club Tee shirts and hats were very easy to spot in the crowd. There were plenty of bargains for the early birds in the flea market. Various members were seen clutching booty as they went back to their cars to unload so that they had their hands free to continue bargain hunting.

The trade was well represented. Icom Australia showed off the new ID-5100 VHF/UHF D-Star radio with its large touch screen remote mounting front panel. The IC-7100 HF/VHF/UHF all-mode transceiver which also has a touch screen remote

(Continued Page 3)

ORARC VHF/UHF Repeaters

MIDDLE BROTHER

VK2RPM 2 metre (Voice - CTCSS 91.5Hz)
O/P 146.700MHz - I/P 146.100MHz

VK2RPM 70 cm (Voice - CTCSS 123Hz)
O/P 438.525MHz - I/P 433.525MHz

VK2RPM-1 (APRS Digipeater)
SX 145.175MHz 1200bps

TELEGRAPH POINT

VK2RCN 2 metre (Voice)
O/P 147.000 MHz - I/P 146.400 MHz

VK2RCN 70 cm (Voice - CTCSS 123 Hz)
O/P 438.425MHz - I/P 433.425MHz

VK2RCN-1 (APRS Digipeater)
SX 145.175MHz 1200bps

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Down The Coax

ORARC meetings held in the S.E.S. Building
Central Road, Port Macquarie.

Monthly General Meeting
Saturday 1 March 2014 2:00 pm

John Moyle Memorial Field Day Saturday 15
Sunday 16 March 2014

Friday Night Get-Together
Friday 21 March 2014 7.00 pm

Monthly General Meeting
Saturday 5 April 2014 2:00 pm

Friday Night Get-Together
Good Friday 18 April 2014 No Meeting

Urunga Convention
Saturday 19 and Sunday 20 April 2014

Monthly General Meeting
Saturday 3 May 2014 2:00 pm

Friday Night Get-Together
Friday 16 May 2014 7.00 pm

Monthly General Meeting
Saturday 31 May 2014 2:00 pm
(Note: 1 week early as 7 June is Field Day)

ORARC Field Day
Saturday 7 and Sunday 8 June 2014

email Directory

Net Controllers' Roster

Nets on Voice Repeater VK2RPM 146.700 MHz

Sundays
(0830 Local)

Thursdays
(1930 Local)

March 2014

VK2CHC	Mar - 02	VK2ICQ	Mar - 06
VK2TT	Mar - 09	VK2EM	Mar - 13
VK2CHC	Mar - 16	VK2ZHE	Mar - 20
VK2TT	Mar - 23	VK2ICQ	Mar - 27
VK2CHC	Mar - 30		

April 2014

VK2TT	Apr - 06	VK2EM	Apr - 03
VK2CHC	Apr - 13	VK2ZHE	Apr - 10
VK2TT	Apr - 20	VK2ICQ	Apr - 17
VK2CHC	Apr - 27	VK2EM	Apr - 24

May 2014

VK2TT	May - 04	VK2ZHE	May - 01
VK2CHC	May - 11	VK2ICQ	May - 08
VK2TT	May - 18	VK2EM	May - 15
VK2CHC	May - 25	VK2ZHE	May - 22
		VK2ICQ	May - 29

email Directory (cont'd)

(from Page 1)

front panel also created a lot of interest. The traders and special interest groups were well patronized. There were lots of interesting things to see and buy.



Icom ID-5100 VHF/UHF D-Star radio with its large touch screen remote mounting front panel.



IC-7100 HF/VHF/UHF all-mode transceiver

Wyong Field Day
 Proudly Supported by the **Central Coast Amateur Radio Club**
23rd Feb 2014 6.30am
 Flea market 6.30am Traders & Exhibitors 9.00am

- The field day is on Rain, Hail or Shine!
- Free Shuttle Bus from Wyong Station
- Lucky Gate prizes 2014 ARRL Hand Book and 5 Diamond antennas
- Raffle, Flea Market, Lectures & so much more
- Come and see your mates at the largest Amateur Radio gathering in the Southern Hemisphere
- Gates open at 6.30am Traders & Exhibitors 9.00am
- Where: Wyong Race Course, Central Coast, NSW

Traders included VK4ICE, Andrews Communications, Radio Supply Limited, Jaycar, Icom Australia, Softmark, RF Solutions, Cro-tek

Instruments, NBS Antennas, Emtron and Oatley Electronics.

The exhibitors included The Summits on the Air Association (SOTA), The Kurrajong Radio Museum, The Historical Radio Society of Australia (HRSA), The Australian Radio DX Club, Westlakes Amateur Radio Club, The WIA QSL Bureau, Hornsby & District Amateur Radio Club, ALARA, WICEN New South Wales, Norah Head Marine Rescue, AMSAT VK, ARNSW Homebrew & Experimenters Group, and the Wireless Institute of Australia.

I wonder how many people can say that they visited all the flea market stands, all the traders and all the exhibitors during the course of the day after engaging in the countless eyeball QSOs that are a hallmark of Wyong Field Days.

For those who were not able to go to Wyong this year to visit their stands, the good news is that both Radio Supply of Bellingen and VK4ICE Communications from Brisbane confirmed that they will as usual be trading at the Oxley Region Amateur Radio Club Field Day at the Tacking Point Surf Lifesaving Club at Port Macquarie on Sunday the 8th of June 2014. It is hoped that ALARA and ARNSW will also be there. Don't forget to mark your calendars for Saturday and Sunday the 7th and 8th of June for the ORARC Field Day over the 2014 Queens Birthday Weekend. The Field Day dinner as usual will be at 6pm at the Port Macquarie Golf Club on Saturday the 7th of June.

The next Amateur Radio event on the ORARC calendar is the John Moyle Memorial Field Day which commences at noon on Saturday the 15th of March and finishes at one minute to noon on Sunday the 16th of March 2014. This year the ORARC callsign VK2BOR will be aired from the club communications caravan. It is hoped to operate from John Downes Park on Pacific Drive. John Downes Park is the large park overlooking the sea south of Nobby's Headland. It has shelters with electric barbeques and toilets. As usual for the John Moyle Field Day there will be a barbeque sausage sizzle lunch. Tea, coffee and soft drinks will be available from the caravan. To get to John Downes Park, head south along Pacific Drive from Flynn's Beach. It's just past the Nobbys Beach turn-off. If you come to the

(Continued page 4)
(from page 3)

(from page 3)

Shelly Beach turn-off you have gone too far. In past years we have operated from Rosendahl Reserve overlooking the dam at the end of Clearwater Crescent, Port Macquarie, but it is time to try a new venue. For more information on the John Moyle Memorial Field Day visit <http://www.wia.org.au/members/contests/johnmoyle/>

During the same weekend as the John Moyle Field Day, the club has also been invited to provide safety communications for the Hastings Valley Sporting Car Club Bago Rally car rally on Saturday the 15th of March 2014. Members will have seen the email notice from Bruce Walker VK2HOT on the 26th of February calling for volunteers. The arrangements for the two events will be discussed at the March General Meeting on Saturday the 1st of March 2014.

The Urunga Convention runs over the Easter Weekend on Saturday the 19th and Sunday the 20th of April 2014 at the Senior Citizens' Hall in Bowra Street. ORARC club members are always well represented at this event. If you are staying overnight don't forget the Field Day dinner at the Urunga Bowling Club on the Saturday evening. The fox hunting is always keenly contested but there is always plenty of opportunity for a quiet eyeball in the comfort of the hall and surrounds. Regardless of whether you are in Urunga or not, please come on air between 9 am and 9:30 am on Sunday morning to participate in the famous Urunga Scramble – any power, any frequency, any location – highest number of contacts in the 30 minutes wins! Visit <http://users.tpg.com.au/goldy2/> for the field day program and information.

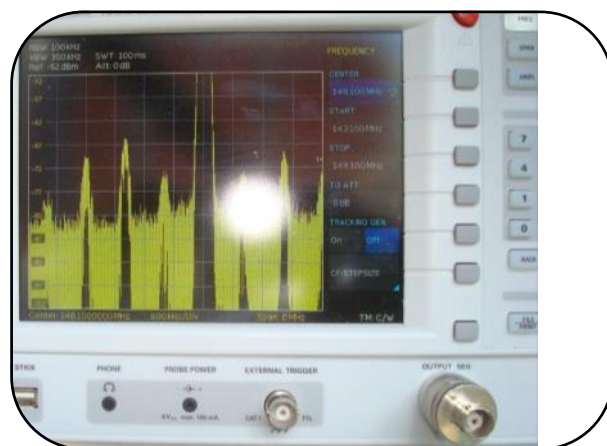


Urunga VK2AMV mobile AMT150. (Can any reader nominate the year?)

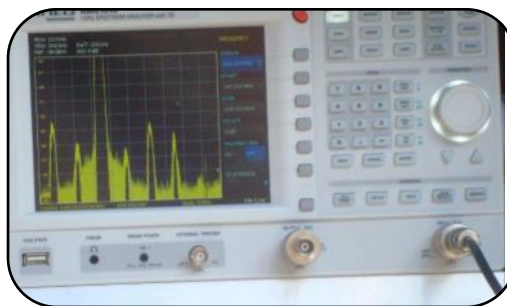
Despite a concerted effort, both on site and remotely, the persistent interference problem which is desensitizing the VK2BOR 2 metre 146.7 MHz repeater receiver has not been solved. Thank you to Arthur Monck VK2ATM, Lyle Smith VK2FCVI and Dennis Meade VK2FAET for participating in a recent day of intensive on site investigation. Thank you to Arthur for bringing his spectrum analyser along. Many detailed tests and measurements were undertaken during the course of the day.



VK2RPM cabinet heater Lyle VK2FCVI checking.



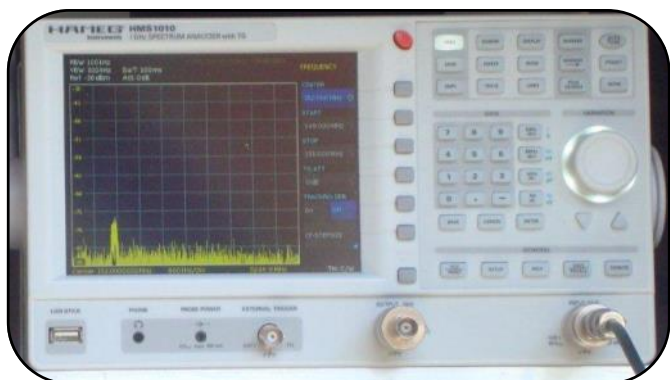
Site spectrum 2 meters off air with repeater TX



VK2RPM Site spectrum 2 meters with APRS

(Continued page 5)

(from page 4)



VK2RPM Site spectrum above 2 meters.

Standard Amateur Radio License are again under way for 2014. Larry Lindsay VK2CLL and Ross Boyd VK2RR are running the classes which commenced on Friday the 7th of February 2014 and will run each Friday night until the Standard Licence assessments. The classes will then continue as the Advanced Licence class. These classes were very successful last year. The next Foundation Licence training and assessment weekend will be held as soon as sufficient candidates register.

I have already mentioned that the ORARC 2014 Field Day takes place on Saturday the 7th and Sunday the 8th of June during the Queen's Birthday Weekend. The venue will be the Tacking Point Surf Life Saving Club hall in Matthew Flinders Drive, Lighthouse Beach, Port Macquarie. Please make yourself available when calls are made for assistance. It is important to make the field day a success as it is the major fund raising activity for the year. The income from the annual Field Day is very important in keeping ORARC membership subscriptions as low as possible.

Henry Lundell VK2ZHE
President

Silent Key Stan Ellis VK2DDL



Esteemed Life Member Stan Ellis VK2DDL passed

away on Friday the 28th of February 2014 after a period of declining health.

As a long time resident of Tuncurry in his retirement after a very interesting career in maritime communications, Stan was very active in Amateur Radio affairs over a great many years. Until his health began to limit travel, he regularly attended most Field Days within driving range of Tuncurry. He championed many causes, and he always took the opportunity to discuss matters face to face with as many people as possible. Field Days were always an ideal opportunity to meet up with active amateurs.

Stan was proud of his Life Membership awarded to him by his local club, the Great Lakes Radio Club.

Stan was also very proud to be a Life Member of the Oxley Region Amateur Radio Club.



Stan VK2DDL receiving Certificate of Life Membership from Henry VK2ZHE

Over a great number of years Stan had a close friendship with many of the Oxley Region Amateur Radio Club members and always took a great interest in club activities. He greatly valued his membership of the club and maintained a complete library containing every issue of "Oxtales". Having attained the age of 85 years, Stan was awarded Life Membership of the Oxley Region Amateur Radio Club. He was very disappointed that a slow recovery from a bout of ill health prevented him from being able to travel to the 2012 AGM to be presented with his Life Membership on the day. Shortly after the AGM, President Henry Lundell VK2ZHE, Member Liaison Officer Bill Sinclair VK2ZCV and "Oxtales" editor Trevor Thatcher VK2TT travelled to Tuncurry to make the presentation in

person to Stan on behalf of the club at Stan's home. Betty, Stan's XYL greatly assisted in making the event very special indeed.

At the time of publication of "Oxtales" it was understood that a private family funeral would be held for Stan Ellis VK2DDL.



Stan VK2DDL and Betty with Bill VK2ZCV and Trevor VK2TT at the Life Membership Presentation.

Vale Stan Ellis VK2DDL

A \$1.00 Noise Reducing Speaker *Kill the crackle on the cheap.*

Author, L.D. Blake, VE3VDC

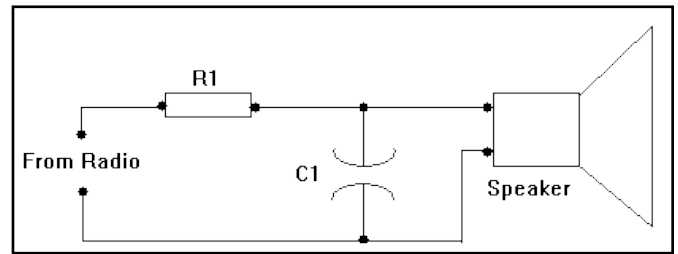
Submitted by John VK2KC

Many a good QSO has been wrecked by that high pitched crackling noise that is common on weak signals. Sometimes it comes in louder than the voice and makes it impossible for you to hear your partner. It's called "Bacon frying" or "Spike Noise" and it's the enemy of every ham.

Spike noise is a high frequency pulse that rides on top of the voice on weak signals. It is usually the highest pitched sound coming from your speaker and sometimes it's the loudest. Traditionally this has been handled by add on filtering systems using either analogue or digital signal processing methods. Only high end (i.e. expensive) rigs have had these devices built in. Whether analogue or digital, many low end and mobile radios don't include them.

Fear not! There is a perfectly workable solution to the problem using nothing more than a couple of cheap parts...

The circuit, pictured , is a simple low pass filter that can be added to any speaker and uses only a pair of 50 cent parts.



Despite the unusual electronic symbol, C1 is a common *non-polarized* electrolytic capacitor used mostly in speaker crossover networks. It has to be non-polarized because the speaker is working on alternating current. You cannot use a polarized electrolytic capacitor here because under reverse voltage it acts like a short and would cause considerable distortion.

The resistor, R1, is also a common part you can get at any electronics supply house. There is some volume loss due to the resistor being in series with one of the speaker leads but it is barely noticeable and given the benefits, it's a good trade off.

Human speech doesn't require full fidelity audio. Most voice energy is concentrated in the range of 400 to 3000 Hz. Most of the really annoying noise is in the range of 2500 to 10,000 Hz. Since these two ranges don't overlap very much we can effectively reduce the audible noise on a signal using a low pass filter to remove the portion of the audio spectrum above 3,000hz. This effectively takes off the noise and leaves the voice alone.

The combination of series resistor and shunt capacitor forms our low pass filter. At low frequencies the capacitor appears as an open circuit and all the audio goes to the speaker. At higher frequencies it acts as a short across the speaker, causing this energy to be dissipated across the resistor where we don't hear it.

The part values for noise cancelling with minimal impact on voice quality are on the right. The resistor should be 2 watts or better. The capacitor should be a non-polarized electrolytic type rated for at least 16 volts.

There is no harm in experimenting with different capacitor values to get a tonality you like. Increasing the capacitor's value will increase the noise reduction but will also make voices sound more bassy. Go too far and everything will sound muffled. (Continued page 7)

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To avoid excessive losses you should always match the resistor with the impedance of your speaker.

Construction

Adding this to your station speakers is easy:

- 1 Take the back off of the speaker you are going to modify.
- 2 Unsolder one wire from the speaker connection point. It doesn't matter which wire.
- 3 Now solder the capacitor to the speaker's two connections, one wire on each.
- 4 Solder one end of the resistor to the speaker connection where you took off the wire.
- 5 Then solder the wire you took off the speaker to the other end of the resistor.

Tuck the parts down out of the way, making sure they don't touch the speaker itself as this would cause a buzzing sound at louder volumes.

The finished project should look something like the picture below:



Conclusions

A \$1.00 circuit isn't going to replace a \$100.00 DSP unit but it can bring about considerable relief from that nasty crackling noise and it might save you a couple of headaches when trying to work that rare signal.

Thanks to John VK2KC for forwarding the article.

Repeaters 101



After the March general monthly meeting Bill, VK2ZCV led a discussion about the theory of repeater operation for the benefit of newer members. Repeater operation tends to be taken for granted and it was of great

interest to actually hear how the club's repeaters operated. Arthur VK2ATM was able to record the discussion on video for archival purposes.



Members taking part in the discussion on repeater theory.

Club Members from the past



Bill VK2ZCV correctly identified club member Dennis VK2FAET. This picture was taken some years ago before Dennis was a radio amateur and a member of Oxley Region Amateur Radio Club Inc.

CAR RALLY

CAR RALLY on Saturday 15th March 2014.

We have been asked to do a stage of the Rally. It is a daytime event and I need as many members/friends/partners etc as I can get. We do not need a HQ this time but we need to be located at 12 spots. The stage that we hope to do is very similar to the stage that we did last year which started just off Bago Road and finished along the old highway.

Please email me brucevk2hot@gmail.com if you can assist. There is only a short time to get this done so please help.

Cheers Bruce VK2HOT



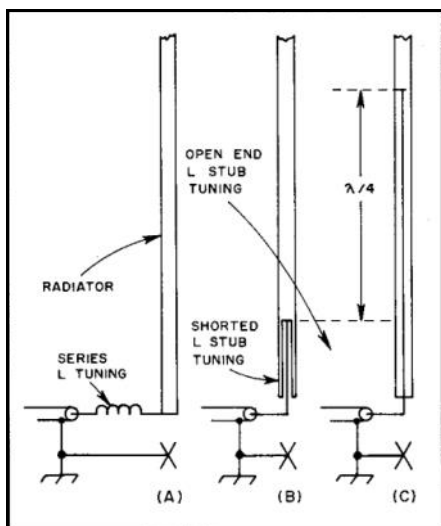
Constructing a Simple 5/8-Wavelength Vertical Antenna for 2 Meters

By E. J. Bauer,* W9WQ

A diligent search of the amateur journals will reveal a plentiful supply of articles concerning the use of the deservedly popular 5/8 antenna on the vhf bands. Being a recent convert to 2-meter FM operation, I took a closer look at this type of antenna. In the process of constructing several versions, I formulated some new ideas which may be of interest to those who derive satisfaction from making their own antennas.

Electrical Theory

1A.



Refer to Fig

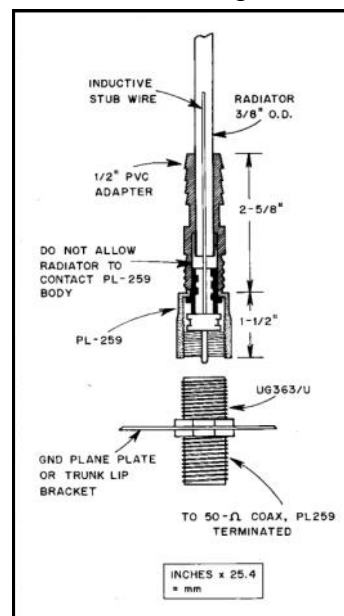
The feed point impedance of a 5/8 vertical antenna exhibit a resistive component in the vicinity of 50 ohms. It requires a suitably chosen series inductor, however, to cancel the capacitive reactance which also exists at that point. Only then will a reasonable impedance match be presented to a 50 ohm coaxial cable feed line. One constructor, K4LPQ obtained the required inductance by means of a short circuited stub of coaxial line of proper length. He improved the mechanical construction of the antenna by placing the stub inside the radiating element. See Fig. 1B. This approach requires an electrical connection to be made between the braid of the stub and the lower end of the radiator. Soldering such a connection would be difficult unless a material such as brass or copper is used for the radiator. If the center conductor of the stub is extended one-quarter wavelength beyond the inductive shorting point (as in Fig. 1C), a signal frequency short will occur at that point. Further more, there is now no need for the stub to be made of coaxial

cable. An insulated wire of suitable length (somewhat longer than an electrical quarter wavelength) is all that is needed to develop the required series inductance at the feed point of the antenna. It is only necessary to adjust the length of this stub until an acceptable VSWR is obtained. If desired, the radiator length can also be trimmed.

Construction

I selected a surplus whip antenna to be used as the re3radiating element for the 5/8 vertical. Cutting the fully extended whip at a distance of 4 feet (1.22m) from the top leaves the larger base end with a 3/8 (10mm) OD section. This size tubing fits closely into the hole at the barbed end of the PVC pipe adapter. See fig 2. The hole in the threaded end of this same adapter mates snugly with the body of a PL259 coaxial connector. Cement the radiator to the adapter using a good adhesive. If epoxy is used, it would be advisable to roughen the inner surfaces of the plastic adapter to provide some "bite." It has been my experience that the bond between epoxy and PVC is marginal. Insert the radiator no more than 2 in. (51 mm) into the adapter and allow adhesive to cure.

Solder approximately 28 in. (700 mm) of no. 18 solid, insulated wire to the pin of the PL-259. Larger wire may be used here, but the optimum length required for matching will be found to be somewhat longer. The inner diameter of this particular whip is 3/16 (4.8 mm) at this point and will easily accommodate no 12 insulated wire. Fig 2 shows a UG-363/U connector being used as the junction for the radiator ground plane and transmission line. This connector is expensive so one might prefer to use the less expensive SO-239 connector.



(from page 8)

Testing

Temporarily assemble the radiator/insulator assembly to the plug/wire portion, attach a ground plane and check the VSWR at two well separated frequencies. The results will show whether the stub is too long or too short. It should be possible to the VSWR below 1.5:1 across the repeater portion at the upper end of the 2 meter band. Shortening the stub to move the maximum VSWR point higher in frequency is easy. Should you overshoot, it is wimple to start over again with a new piece of wire. Once you are satisfied with the results, the PL-259 can be cemented to the insulator.

Blast from the Past

The comments for this month's Blast from the Past comes from the 1992 November Oxtales newsletter. Many of the office bearers are still with us as active club members today. Charles VK2KCE was Vice President under his old callsign of VK2FSH, Secretary Trevor VK2TT, Publicity Officer David dVK2AYD, Committee members included Bill VK2ZCV, Arthur VK2ATM, Larry VK2CLL. Henry VK2ZHE a WIA delegate, Lewis VK2LS Assistant Secretary. Member for more than 20 years no wonder our club has such a depth of experience.

The year 1992 was also the time when "... *the memberships decision to become an incorporated association has been put into effect. The initial application for Reservation of Name has been lodged with the Business and Consumers Affairs. Following the receipt of an all clear response from the B@CA our formal application will be lodged. It is hope that within the near future, we will be sporting those three letters Inc. after our name and enjoy the security which incorporation offers* "

The club has a long history of offering communications assistance to sporting events as the following shows " . . . *Horse Endurance Trial Coverage. The club has been approached by the organisers of local Endurance Rides to provide VHF communications between their checkpoints and base. There are two events fro which our services are sought. One is at Kendall on Sunday June 28, 1992 while the other is at Wauchope on 2 August 1992. Both events are based at their respective showgrounds. At this stage, the precise numbers of*

stations required are not known, but if members which to indicate their availability for these events please contact Jeff (VK2BTU) who as our new WICEN Regional Coordinator, is making arrangement for coverage and perhaps will be able to make a WICEN exercise out of one or both of those events . . . "

Who is this club member, where was it taken and what event was he participating in.



A clue would be to look at the operating station set up

Older Amateur Radio Equipment



The Drake radio company produced a series of high quality Amateur Radio Equipment in the 1970. The receivers and transmitters were well regarded by the amateur community as being exceptionally well made and very stable in operational. Pictured above is a R4B Drake receiver. The company also made a matching transmitter the TX4B.

(Continued on page 10)



The Drake TX4B was the matching transmitter to the receiver. Many amateur operators in Northern American have refurbished these sets successfully and operate them today.

Brief specifications are provided below:

The R.L. Drake Company produced the **R4B** as a refinement of their previous popular [R-4](#) and [R-4A](#) models. The R-4B covers: 3.5-4, 7-7.5, 14-14.5, 21-21.5 and 28.5-29 MHz plus ten additional 500 kHz crystal positions (with optional crystals). Modes of reception include: SSB, CW and AM.

The dial accuracy is impressive at ± 1 kHz. Features include: PBT, Line out, Crystal Calibrator (25 kHz), RF Gain, Mute Jack, Speaker Jack, Anti-Vox Jack and Dial Lamp. This radio requires an external speaker. 120/240 VAC 50-420 Hz 60 watts. 10.75 x 5.5 x 11.7 inches 17 Lbs.

The R-4B will transceive with the [T-4B receiver](#) or [T-4XB](#) transmitter.

The **Drake T-4XB** is an HF amateur band transmitter covering 80 through 10 meters. Four additional crystal sockets are available for 500 kHz ranges from 1.8-30 MHz (except 2.3-3, 5-6 and 11-11.5 MHz). Modes include USB, LSB, CW and AM. Input power is 300 watts PEP SSB, 260 watts AM/SSB. The solid-state VFO provides [1 kHz dial](#) accuracy. VOX or PTT may be selected.

This radio requires the AC-3 or AC-4 AC power supply or the DC-3 or DC-4 power supply.

Membership Fees to rise from 1 July 2014

Date : 21 / 02 / 2014

Author : Roger Harrison - VK2ZRH

WIA Membership fees will rise as of 1 July 2014. Full membership will rise to \$95 per year and Concessional membership will be \$80 per year. All other membership categories will rise in the same proportion, except for student membership, which at \$35 a year will not change.

To ease the burden of paying your full membership fee up-front for those of you who may wish to do so, the WIA is introducing the OPTION of quarterly membership payments by direct debit from your bank account.

The WIA Board made these decisions at its (Continued page 10)

February teleconference after many months' research and lengthy, detailed discussions at previous monthly teleconferences.

President Phil Wait VK2ASD has highlighted the Institute's financial situation in his President's Comment column in AR magazine during the latter half of last year

Trading losses have occurred over 2012 and 2013. Although the losses so far are not large (and the Institute has ample reserves to cover them), they are certainly tenacious. The Board has instituted as many savings as were possible without cutting member services, or cutting international representation at the ITU and the IARU. Both are critical to the future of amateur radio in Australia.

Fees for licence exam assessments and callsign recommendations will not change. These services are provided strictly on a cost-recovery basis under a Deed with the Commonwealth Government and are not linked financially to other WIA operations

The full story is set out in the March issue of Amateur Radio magazine, in an article titled "The WIA, technology and the challenge of change".





Amateur Radio And Electromagnetic Radiation Issues

The Wireless Institute Of Australia has published an informative article on these issues and on how we may comply with the relevant regulation.

Part 2 of a 3 Part Series.

Part 1 was included in the November 2013 edition of Oxtales.

In order to simplify the evaluation and reporting requirements for most transmitting stations, including Amateur stations, the ACMA has adopted a system of two compliance levels. All licensees are required to determine the compliance level of their station.

The ACMA publication Human Exposure to Radio Frequency Electromagnetic Radiation - Information for Licensees of Radio Communications Transmitters, October 2005, provides guidance for determining the compliance level.

The two compliance levels are summarised below.

Compliance Level 1

Compliance Level 1 applies if:

- the transmitter is a mobile transmitter with an average total power output, fed to all antennas, of not more than 100 watts (W); or
- the average total power supplied by the fixed station transmitter to all antennas fed by the transmitter is not more than 100 W, and each antenna fed by the transmitter is installed so that it is

inaccessible to a member of the general public; or

- the average total equivalent isotropically radiated power (EIRP) of all antennas fed by the fixed station transmitter does not exceed 3200 W in any direction and the minimum height of the lowest antenna fed by the transmitter is at least 10 metres above ground level.

So, an amateur home station operating a 400 W PEP SSB transmitter with low (or no) voice compression will have an average power of less than 100 W and therefore can be assumed to be Compliance Level 1, providing the antennae is inaccessible to the public.

If your transmitter installation is in the Compliance Level 1 category, then you do not need to do anything more and you do not need to keep records.

However, as an example, if your station has an average power of 110 W and the lowest element of an antenna fed by the transmitter is eight meters (8 m) above the ground, the station would not meet the requirements for Compliance Level 1 and would thus be Compliance Level 2.

Even if you have assessed your station as Compliance Level 1, you may be asked to provide a technical rationale. In other words, you may need to convince an ACMA representative that you have correctly assessed your station.

Compliance Level 2

All stations not meeting the Level 1 criteria are classified as Compliance Level 2, even though the actual calculated or measured exposure levels may be low.

If your transmitter installation is in the Compliance Level 2 category, then, as the licensee, it is your responsibility to assess your station against the exposure limits of the ARPANSA standard, and to also hold records showing compliance with the exposure limits

For an Amateur station, compliance can be by self-assessment, taking into account the knowledge and qualifications of the amateur licensee.

Continued as Part 3 in a future edition of Oxtales