



# OXTALES

First published 1980

Newsletter of the Oxley Region Amateur Radio Club Inc.,

PO Box 712 Port Macquarie 2444

Club email address: vk2bor@orarc.org

Club Nets on VK2RPM  
146.700MHz  
(CTCSS 91.5Hz)  
Sundays 0900  
Thursdays 1930

ORARC's Forty-seventh Anniversary Year

## November 2018

Compiled by VK2AYQ and VK2TT

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SECRETARY: Henry Lundell (act)	VK2ZHE	6582 0534

### President's Report

November 2018

### President's Report

### JOTA 2018



On Saturday the 20<sup>th</sup> of October ORARC club members set up one station for the 61<sup>st</sup> annual Jamboree on the Air (JOTA). VK2BOR operated from the club's communications caravan adjacent to the Port Macquarie Sea Scouts' Boatshed at McInherney Park on the banks of the Hastings River. VK2BOR operated during the daylight hours of Saturday the 20<sup>th</sup> of October only.

The Port Macquarie JOTA station was very busy this year as Port Macquarie was a District JOTA Event covering the area between Camden Haven and Coffs Harbour with Scouts from the Lower Orama District and Girl Guides from the Timberlands Division very keen to make their on-air contacts. In all 43 Scouts and Guides at the event made individual contacts. In addition,

*Continued on 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  
C4FM digital mode capability

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 (6m Repeater)  
O/P 53.800 MHz - I/P 52.800 MHz

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

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## Down The Coax

Monthly meetings & Friday Nights held in  
the S.E.S. Building Central Road, Port  
Macquarie.

Monthly meetings & Friday Nights held in the  
SES Building Central Road, Port Macquarie.

Monthly General Meeting  
Saturday 3 November 2018 2:00 pm

Friday Night Get-Together  
Friday 16 November 2018 7.00 pm

Spring VHF-UHF Field Day  
12 noon Sat 24 to 12 noon Sun 25 November  
2018

White Ribbon Port Macquarie Coastal Walk  
Sunday 25 November 2018

ORARC Christmas Party  
Saturday 1 December 2018  
Long Point Winery Picnic Area  
From 9 am. BBQ Lunch 12 noon  
No December Monthly General Meeting

Friday Night Get-Together  
Friday 21 December 2018 7.00 pm

Monthly General Meeting  
Saturday 5 January 2019 2:00 pm

Friday Night Get-Together  
Friday 18 January 2019 7.00 pm

## Net Controllers' Roster

Nets on Voice Repeater VK2RPM 146.700 MHz

**Sundays**  
(0900 Local)

**Thursdays**  
(1930 Local)

### November 2018

VK2FMGM	Nov - 04	VK2ZHE	Nov - 01
VK2FMGM	Nov - 11	VK2ICQ	Nov - 08
VK2FMGM	Nov - 18	VK2EM	Nov - 15
VK2FMGM	Nov - 25	VK2ZHE	Nov - 22
		VK2ICQ	Nov - 29

### Dec 2018

VK2FMGM	Dec - 02	VK2ICQ	Dec - 06
VK2FMGM	Dec - 09	VK2EM	Dec - 13
VK2FMGM	Dec - 16	VK2ZHE	Dec - 20
VK2FMGM	Dec - 23	VK2ICQ	Dec - 27
VK2FMGM	Dec - 30		

### Jan 2019

VK2FMGM	Jan - 06	VK2ZHE	Jan - 03
VK2FMGM	Jan - 13	VK2ICQ	Jan - 10
VK2FMGM	Jan - 20	VK2EM	Jan - 17
VK2FMGM	Jan - 27	VK2ZHE	Jan - 24

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The Port Macquarie Sailing Club the venue for the JOTA event.



the VK2BOR operators continued to speak with Scouts and Guides at other JOTA stations during a couple of lulls in the otherwise continuous stream of local Scouts and Guides waiting to make on-air contacts.

HF propagation was reasonable. Horizontal dipoles supported by a central portable flagpole were set up along the river bank for the 40 and 20 metre bands. As usual one leg of the 40 metre dipole was over water as it spanned over the boat ramp (see photograph below)



VK2BOR made contacts on 40 metres and all the scouts and guides patiently waiting for their turns on air got to talk with JOTA stations in NSW, ACT and Queensland. The signals from VK4TG on the Sunshine Coast and the VK1BP Baden Powell flagship JOTA station in Canberra held up particularly well despite the level of static from the line of thunderstorms moving across the Western part of NSW increasing significantly during the afternoon. Many stations were heard on 20 metres but very few of them were JOTA stations. A far cry from the great HF DX contacts that we took for granted during previous solar cycles, but much better propagation than in some of the recent years.

This year we did not end up working any JOTA stations via EchoLink through the VK2RPM 2 metre repeater from VK2BOR. A couple of JOTA stations did connect early in the day to



Henry VK2ZHE and Rob VK2CRF set up VK2BOR for operation.

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*Continued from previous page* carry out some tests, and to ascertain that the VK2BOR JOTA station had Scouts and Guides on site and would be available for contacts in the event that HF radio propagation became unfavorable. It was comforting to know that we had an alternative means of making on air contacts in the event that it was needed.

This year was the 22<sup>nd</sup> JOTI. JOTI was popular but interestingly, most Scouts and Guides ranked talking on the radio for JOTA, sailing and canoeing, and Morse Code as their favorite activities.

The various games of skill included several different forms of target accuracy and consistency. The balloon bursting "TNT" activity punctuated the entire day with loud bangs. The participants wore protective earmuffs and glasses as they pumped up the balloons by hand but spectators had to stand well back! The rope bridge opposed crossing tested both balance and strategy.

The catapult was very popular. Despite the guaranteed dunking in water containers, riding the cleverly constructed crane was particularly popular.



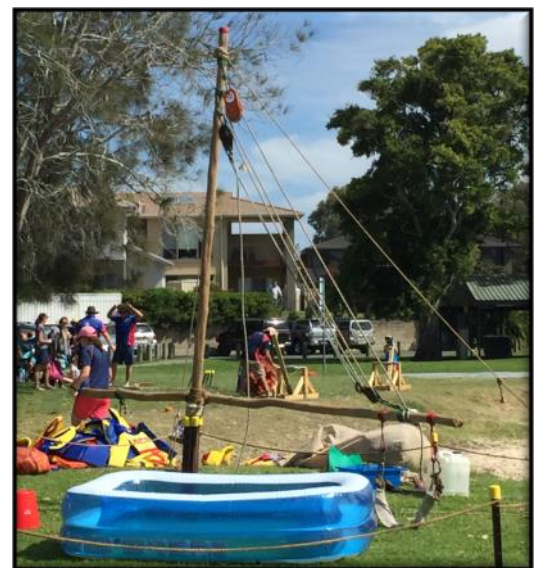
*Sausage sizzle in full bore feed the hungry hoards.*

At Port Macquarie the 1<sup>st</sup> Port Macquarie Sea Scouts set up varied range of outdoor activities and a sausage sizzle. The outdoor activities were very popular and nicely complimented JOTA. The Jamboree on the Internet was set up with several computers under a marquee erected adjacent to the Communications Caravan (photograph below)



*Catapult left fired water filled balloons with surprising accuracy!*

*Dunking crane demonstrated an ingenious use of pulleys.*



Despite heavy rain during the preceding week, the day dawned fine and clear at the site for the JOTA and JOTI day. The nor'easter blew consistently throughout the

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day making for a comfortable temperature and exhilarating sailing on the river. Needless to say there was always a queue for sailing. The canoeing was popular too. Paddling back to the launching beach against the nor'easter was hard work and more than one canoe was noted taking advantage of a tow from the outboard motor powered tender.



*The Hastings River running strongly.*

It is fortunate that the chairs at the VK2BOR operating position have hard plastic seats as many of the Scouts and Guides arrived wet for a turn at the microphone to make on air JOTA contacts! Clearly, getting wet in participating in the activities that involved immersion or spray was an enjoyable part of the day.

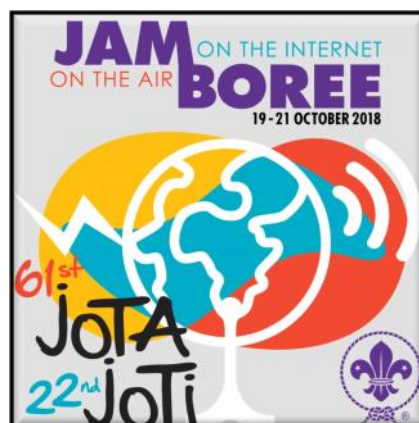
Thank you to Rob Frost VK2CRF, Arthur Monck VK2ATM, Mark McGuire VK2FMGM, Dennis Meade VK2DAM, Henry Lundell VK2ZHE, Alex Dorahy VK2HBF, Ivan Southwell VK2FIJN and John Hansen VK2AYQ. The teamwork in setting up the caravan, supervising and operating the radio, and then packing up at the end of the day made for a very enjoyable day. Special thanks to John Bailey VK2KHB for arriving early to help with setting up. Distant Member Alex Dorahy VK2HBF came down from Toormina near Coffs Harbour for the day to bring his son to the JOTA/JOTI event, and to assist with the VK2BOR JOTA station. Special mention must be made Rob

Frost's great patience and perseverance in supervising a great number of the VK2BOR on air contacts.



*Part of the bump out crew Dennis VK2DAM, Rob VK2CRF and Ivan VK2FIJN.*

*Mark VK2FMGM sheltering from the wind.*



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## Beechwood Billycart Classic



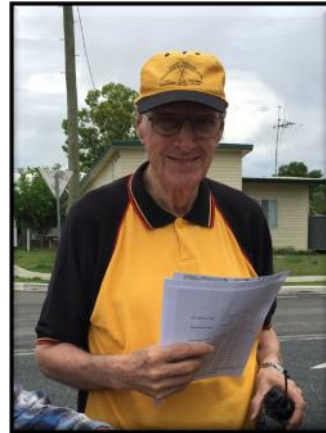
This year the Beechwood Billycart Classic was held on Sunday the 21<sup>st</sup> of October 2018. This event is run down the longest course in Australia. It is about 5 kilometres long. As usual, ORARC members provided the safety communications for the event. The safety communications is critical to the running of the Classic. Thank you to Bruce Walker VK2HOT and Richard Court VK2CHC for taking over co-ordination of the many volunteers who were needed to man all the check points, and to set up and operate the communications for the commentary vehicle, the finish and public address interface, the net control and the liaison with first aid.



*Arthur VK2ATM and Bruce VK2HOT*

*Discussing the setting up of the Public Address position.*

It was great that stalwart Richard Court VK2CHC who is still recovering from recent surgery was well enough to participate in the co-ordination again this year.



*Richard VK2CHC back on his old stopmping ground!*

*Thank you to all the volunteers. Callsigns included VK2AYD, VK2CRF, VK2DAM, VK2FMGM, VK2ATM, VK2CLL, VK2BIG, VK2ZRE, VK2ZSW, VK2AYQ, VK2SMI, VK2FAIL, VK2MPK,*

*VK2IJS, VK2FT, VK2NJJ, VK2ZHE and VK2FRJH.*

Those who participated in the day will recognize themselves in the group photographs included in this issue of "Oxtales". Special thanks go to Glen O'Riley VK2FAIL for coming up from Taree to participate.



*Pre race briefing Richard VK2CHC, Steve VK2ZSW, Bob VK2ZRE, Lyle VK2SMI, John VK2NJJ and Bruce VK2HOT.*

John Winchester VK2NJJ will remember the day for his encounter with the hazard at the edge of the road at checkpoint 11.

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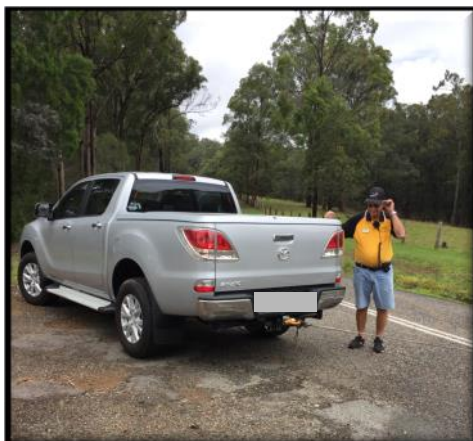
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*Hmm probably John took the instruction to make sure that cars were parked off the road a little to literally!*



*John VK2NJJ and property owner discuss recovery options. In one of those life co-incidences it turned out that they both knew each other.*



*A relieved John VK2NJJ watches the winched recovery. Note the large yellow shackle that Henry VK2ZHE just happened to have in his 4WD*

This year Rob Frost VK2CRF enjoyed an adrenalin fueled white knuckle ride in the commentary vehicle. Arthur Monck VK2ATM provided the public address interface and the liaison with the officials. David Pilley VK2AYD did a great job as net controller (photograph below).



The event ran smoothly despite a few exciting moments near the start. The leading carts managed some serious speeds down the mountain and provided a great sight for the spectators who watched from their favorite strategic vantage points. The lead cart reached speeds in excess of 100 kilometres per hour which pushed the commentary vehicle to its limits to stay ahead.

One entry that was conspicuous by its absence this year was the very sturdy heavily ballasted three wheel cart which made an unsuccessful debut last year. This innovative cart had disproved the theory that heavy ballasting would take advantage of the extra momentum that results when a heavy mass travels at high speed. Significantly, this year, all the carts were of lightweight design with a strong emphasis

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on minimizing drag and rolling resistance. As can be seen from the following photographs.



Imagine doing 100 kph in the cart below!



This year the main race was run and completed before the junior event started.

As always, Beechwood put on entertainment with food and drink stalls to make the Classic an enjoyable family day out. The event had been intensively advertised this year. This resulted in a much

bigger attendance than usual. Parking was at a premium with all spaces near the finish occupied very early in the day. Cars were parked along the road for two kilometres either side of the finish. The entertainment was enjoyed by a very large crowd and the food and drink stalls did a roaring trade.

In keeping with tradition, the weather remained fine despite the forecast of rain. It had rained heavily overnight and was till drizzling in Port Macquarie during the earlier part of the morning but the road at Beechwood along the Billycart course was completely dry for the start of the race. The day remained fine at Beechwood for the entire day. This encouraged the large crowd to stay and enjoy the entertainment for the afternoon.

The organisers formally thanked ORARC for its role in helping to make the Classic safe and enjoyable. ORARC has been promised a cheque for \$150.00 as a kind donation which will greatly assist with club

projects. We look forward continuing our long-standing support and participating in next year's event.



Marshal Peter VK2MPK with the flags and if they don't attract attention his shirt will!

Below the law of physics; gravity finally takes its toll!



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*Above Dennis VK2DAM studies the map.*



*Ivan VK2IJS awaits the off*



*Last minute details with Larry VK2CLL and Bruce VK2HOT.*



*Family help for Glen VK2FAIL and son above and Rod VK2FRJH with XYL at right with Dennis VK2DAM*



### **Spring VHF UHF Field DaY**

The annual Spring VHF UHF Field Day takes place from 01:00 hours UTC on Saturday the 24<sup>th</sup> of November to 01:00 hours on Sunday the 25<sup>th</sup> of November 2018. This equates to 12 noon Saturday to 12 noon Sunday Eastern Australian Daylight Saving Time.

The contest rules are available on the WIA website at <http://www.wia.org.au/members/contests/vhfuhf/documents/2018%20Spring%20VHF-UHF%20Field%20Day%20Rules.pdf>



*Locals Jason VK2FT and Rod VK2FRJH ready to work their check points*

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The ORARC club station VK2BOR has participated in this annual Field Day in past years. However, this year club members are encouraged to participate from their individual stations. Members will be providing safety radio communications for the White Ribbon Coastal Walk on Sunday the 25<sup>th</sup> of November so it was decided against setting up VK2BOR in the field on the Saturday as this would have resulted in two club events on the one weekend.

## White Ribbon Coastal Walk

Port Macquarie Hastings  
domestic & family violence  
specialist service

**Sunday 25  
November 2018**

is proud to once again present the

# COASTAL WALK

*Against Domestic & Family Violence*

Lighthouse Beach to Westport Park OR Flynn's Beach to Westport Park OR Town Beach Kiosk to Westport Park

7.30am - bus departs Westport Park  
8.00am - opening address and walk commences from Tacking Point SLSC

8.30am - bus departs Westport Park  
9.00am - opening address and walk commences from Flynn's Beach

9.30am - opening address and walk commences to Westport Park

The Coastal Walk Against Domestic & Family Violence is a FREE community event, raising awareness about the **International Day for the Elimination of Violence Against Women**.

**Starting points** - Walk from Lighthouse Beach (11km), Flynn's Beach (3km) or Town Beach Kiosk (2km) to Westport Park. The paved walk from Town Beach Kiosk is suitable for strollers, prams and mobility aids. Unfortunately no pets between Lighthouse and Nobbys Beach.

**FREE buses** - Departing from Westport Park to Lighthouse Beach or Flynn's Beach. Times above. No buses to Town Beach Kiosk.

**BBQ** - Join us after the walk for a BBQ provided by Marine Rescue.

**Registration essential** - Register before Friday 23 November, online at [www.dfvss.org.au/coastalwalk](http://www.dfvss.org.au/coastalwalk) or fill in a form at Liberty Cottage 22 Table St or SNAP 110 William St.

**Wear white** - Please show your support by wearing a white t-shirt. Don't forget your water bottle, hat and sunscreen. And please note THIS IS NOT A RACE.

**Further information** - [www.dfvss.org.au](http://www.dfvss.org.au) or call 6584 9102

Proudly sponsored by

JR Richards busways sn@p PMHDV COMMITTEE PMPA PORT MACQUARIE PERFORMANCE ARTS MARINE RESCUE PORT MACQUARIE portnews Spectravors

ORARC members will be providing safety radio communications for the 2018 White Ribbon Coastal walk from the Tacking Point Surf Life Saving Club to Westport Park in Port Macquarie on the morning of Sunday the 25<sup>th</sup> of November. The club has supported this annual event for several years. The safety communications requires operators at the start and finish, and at the major check points along the course.

This year the walk has been extended to a

new finish at West Port Park and the previous finish at the Town Green will become another check point. The intermediate check points are now Shelly Beach, Flynn's Beach, Town Beach and Town Green.

The club's Communications Caravan will be set up at the West Port Park finish. Due to the shadowing by the steep coastal terrain at the Lighthouse Beach start, and the checkpoints at Shelly Beach and Flynn's Beach, a relay will required to enable those locations to communicate with the finish and the rest of the course.

Thank you to those who have already volunteered for the event. A few more operators are still required. Please contact Henry Lundell VK2ZHE if you are able to help. Set up is from 7am and the event will be over by 11am. Port Macquarie Marine Rescue will be running a barbeque at the West Port Park finish.

As with all recent club major communications events, participation is recognized by WICEN so WICEN members will receive credit for their time in the field.

A full report on the walk will appear in the January 2019 issue of Oxtales.

## Christmas Party

Members and their families and friends are cordially invited to attend the club's 2018 Christmas Party on Saturday the 1<sup>st</sup> of December. The party will feature the traditional sausage sizzle lunch followed by a delicious home made dessert. Please bring your own salads and some pre-lunch nibbles.

The venue is the picnic area at the Long Point Vineyard and Art Gallery at 6 Coinda Place, Lake Cathie. Coinda Place runs off Long Point Drive which in turn runs off Houston Mitchell Drive. This is the "Ghost

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Road” which runs between Ocean Drive just south of Lake Cathie, and the Pacific Highway. The location is easy to find but a map is available on the Vineyard web site at <http://www.longpointvineyard.com.au/contact-us/>

There are two tables on the picnic area deck but it is a good idea to bring your own folding chair and table if you have one.

Please see the separate notice of the Christmas Party in this issue of “Oxtales”.

Thank you to Committee member Arthur Monck VK2ATM for securing the venue with free use of the picnic facilities for the ORARC Christmas Party again this year. Last year’s Christmas Party at this venue was very popular with everyone who attended. The Long Point Vineyard and Art Gallery management was very pleased to welcome us back so we clearly made a good impression.

The Winery and the Art Gallery will be open on the day. Please take the opportunity to visit during the day.

The club’s communications caravan will not be on site for the party but the club will still provide tea and coffee and soft drinks as usual.

There will not be a December Monthly General Meeting during the Christmas Party. If business arises during December such items will be discussed at the normal December Friday Night Get Together at the SES Building at 7:30 pm on Friday the 21<sup>st</sup> of December 2018. The next Monthly Meeting will be the normal January Monthly General Meeting at the SES Building at 2 pm on Saturday the 5<sup>th</sup> of January 2019.

### ORARC 2019 Calendar

Steve Wynn VK2ZSW has been busy creating the club’s 2019 calendar.

Calendars will be available at the Christmas Party for a mere \$2 each. The annual calendar has become a “must have” for every ham shack. The calendar is indispensable for putting a face to members’ callsigns. There are a few new faces on the 2019 calendar. In addition, the information on the calendar will ensure that you never miss a club meeting or net.

The club is indebted to Jaycar Port Macquarie for subsidizing the printing costs of the calendar. This enables the calendars to be sold for the low price of \$2 each.

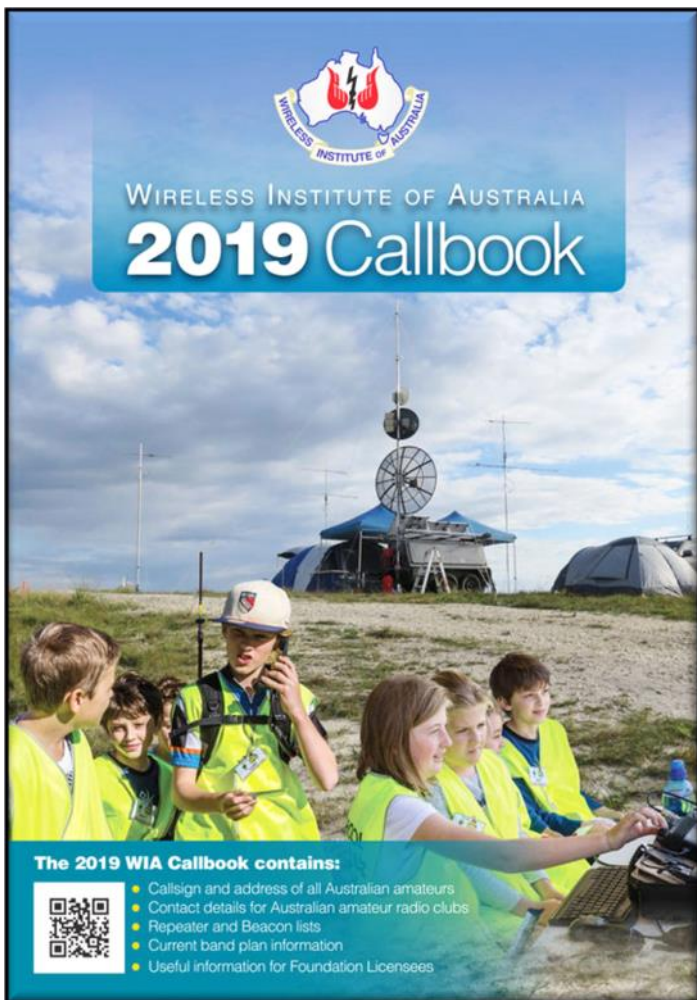


### 2019 Callbook

The club has a limited number of copies of the 2019 Amateur Radio Callbook. The call books will be \$32 each to ORARC members. At that price the club makes only a small profit. However there is a worthwhile saving for ORARC members as there isn’t an additional charge for postage. If you haven't already done so, please contact Henry Lundell club president, *Continued on next page*

[vk2zhe@orarc.org](mailto:vk2zhe@orarc.org) , to order your copy .

There are only a few uncommitted copies available so please order your copy as soon as possible to avoid disappointment. The callbooks should be available for collection



at the ORARC Christmas Party on Saturday the 1 of December 2018.

### VK2RCN Telegraph Point Repeaters

There has been a lot of work by the sub-committee appointed at the September 2018 ORARC Meeting to erect a new mast for the VK2RCN repeaters at Telegraph Point. Initially it was planned to develop a new site a short distance from the existing site but unfortunately, circumstances changed and the proposed new site is no longer available. The sub-committee is now

exploring alternative arrangements for erecting the new mast. More news in the new year.

### Mid North Coast Region WICEN

Amateurs are invited to join Mid North Coast Region WICEN. Meetings are held in the SES building in Central Road Port Macquarie after the conclusion of the ORARC monthly general meetings on the afternoon of the first Saturday of each month except December.



### Congratulations

Congratulations to Paul Colledge VK2ICQ and Paula Keena VK2FPDC on their marriage. The wedding was in Queensland on the weekend of the 20<sup>th</sup> and 21<sup>st</sup> of October 2018. Yes, that's the reason that they weren't able to participate in the Beechwood Billycart Classic this year. We all wish Paul and Paula well.

I wish all members and their families and friends a safe and happy Christmas and best wishes for 2019.

Henry Lundell VK2ZHE  
President



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The ORARC Christmas party will be held this year the venue:

[The Long Point Vineyard & Art Gallery](#)

6 Coinda Place, Lake Cathie  
Saturday 1 Dec, 2018, at 10am.

(Please Note that there will **not** be a December Monthly meeting at this event.)

**The Entrance Gate**



**(Below)** The large viewing deck which overlooks the picnic area, has been reserved for our Christmas Get-together. There is one large table with seating, but it might be advisable to bring a chair and a small table if you have one. There is plenty of shade with a covered BBQ, and the toilets are nearby. Members can drive up to the area, unload, then park back under the shade of the trees.



## VK2RPM Middle Brother Repeater Intermod Issues

By Bob VK2ZRE

I have just conducted a Passive Intermod (PIM) Analysis of our VK2RPM 2 metre repeater on Middle Brother Mountain.

It is not a pretty sight (or site!). It appears the dreaded "Rusty Bolt" mixers are having a field day!

As we all know only too well, VK2RPM is particularly bad in dry, windy weather. The problem is that the 2M repeater is almost "deaf" during these times and is made worse once the repeater is transmitting. As can be seen from the analysis in the attached document, there are a total of 58 intermod products across the 3rd, 5th and 7th Intermod products occurring right on the repeater Rx input on 146.100MHz. Of these, 12 7th Order products are a Direct Hit (ie on the Rx frequency) when the repeater is transmitting. The other 46 products merely serve to desense the receiver continuously!

It should be noted that the analysis was made using only the centre frequency of the digital TV channels. In reality, there are many more products as the digital TV signal is a spread spectrum signal extending +/- 3MHz either side of the centre frequency. This will result in hundreds of additional products right on 146.100MHz or within the receiver passband.

Even if we could remove every last piece of extraneous hardware from the TPG tower, there are so many "junctions" and so much RF up there to "bias" them that I believe it is virtually impossible to eliminate PIM on 2 metres from the installation.

I therefore suggest that the only effective cure for this problem is to either:

- 1) Shift the repeater frequency OR
- 2) Physically relocate the repeater.

Solution 1) may not be a viable proposition as I believe we will not be able to find a "clean" frequency in the 2 metre repeater band, however I am quite prepared to rerun the analysis on any suggested frequency.

Mt Kophi may prove to be the answer to Solution 2).

I would I welcome any feedback on this issue from members

73...Bob VK2ZRE

### VK2RPM 2 Metre Middle Brother Passive Intermod (PIM) Products

The 5 FM Tx and 5 VHF TV Tx frequencies plus 146.7MHz were used for the calculations. 146.100MHz was used as the Rx frequency.

The 3rd and 5th Order PIM products result in Rx desense.

The first 12 7th order products result in direct interference of the 2M Rx by the 2M Tx on 146.700MHz.

The remaining 37 7th order products just add to the general desense created by the 3rd and 5th order products. Even if all extraneous hardware is removed from the tower, given the number of intermod products present at the site, the only options are to either shift the repeater frequency or the repeater location.

#### Discrete Frequency PIM Calculator

This PIM calculator checks for any 3rd, 5th and/or 7th order products within a specified tolerance for up to 12 discrete transmitting and receiving frequencies.

Transmit Frequencies(MHz):  
146.70 94.70 96.30 95.50 97.10 98.70 219.  
5 184.5 191.5 226.5 177.5

Receive Frequencies (MHz): 146.10  
Tolerance (MHz): 0.001

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I decided to run the PIM Analysis on the VK2RPM repeater for the 70CM repeater as well.

### **VK2RPM 70CM Middle Brother Passive Intermod (PIM) Analysis**

In the interests of completeness, here is the PIM Analysis for the VK2RPM 70CM repeater on Middle Brother.

The 5 FM Tx and 5 VHF TV Tx frequencies plus 438.52MHz were used for the calculations. 433.52MHz was used as the Rx frequency.

There are no 3rd or 5th Order PIM products.

All five (5) 7th order products result in direct interference of the 70CM Rx by the 70CM Tx on 438.52MHz.

All 7th order PIM products require 2nd harmonic components which are less likely to occur in a PIM situation.

This, coupled with the relatively low overall number of PIM products, would explain the lack of desense problems on the 70CM repeater compared to those experienced with the 2M repeater.

Note: The PIM calculator used only has 5 significant figures for inputting frequencies. Therefore the 70CM repeater frequencies are truncated. Due to the +/-3MHz spread spectrum nature of the digital TV signal, these figures are still considered valid.

#### **Discrete Frequency PIM Calculator**

This PIM calculator checks for any 3rd, 5th and/or 7th order products within a specified tolerance for up to 12 discrete transmitting and receiving frequencies.

Transmit Frequencies (MHz):  
438.52 94.7 96.3 95.5 97.1 98.7 219.5 184.  
5 191.5 226.5 177.5  
Receive Frequencies (MHz): 433.52  
Tolerance (MHz): 0.001

The PIM Analysis was also conducted on what the interference might be like if the input and output frequencies were swapped.

### **VK2RPM/VK2RCN Frequency Swap PIM Analysis**

The analysis was run using the Middle Brother FM Radio and Digital TV frequencies as input along with the current Telegraph Point Repeater output frequency of 147.00MHz.

There are no 3rd order products. There is one 5th order product.

There are 19 7th order products.

All Intermod products are a function of the Repeater Tx frequency of 147.00MHz.

The results are encouraging using the TV centre frequencies, however, given the spread spectrum nature of the TV signals, it is suspected there will actually be products on 146.400MHz which will result in quiescent desense.

#### **Discrete Frequency PIM Calculator**

This PIM calculator checks for any 3rd, 5th and/or 7th order products within a specified tolerance for up to 12 discrete transmitting and receiving frequencies.

Transmit Frequencies (MHz):  
147.00 94.70 95.5 96.3 97.1 98.7 177.5 184.  
.5 191.5 219.5 226.5  
Receive Frequencies (MHz): 146.40  
Tolerance (MHz): 0.001

Third Order - Nil

Editors Note: Bob VK2ZRE has available the full set of analyses results for members who wish to see them.

*Continued on next page*

## Unusual Cycle Mobile

Sent in by Bob VK2BIG as seen on his travels in the great outback.



Spotted this chap and his special bike outside the IGA in Lightning Ridge. Bit of a rough diamond (opal?) but his bicycle was quite a piece of work!

He had 2m, 70cm and 40m Mobile setups and another 2m/70cm handheld that he kept charged for when he wanted to go Portable! An SLA battery and a small solar panel was also fitted.

A tapped HF whip can be seen over his left shoulder plus the 2m and 70cm whips on the front of the bike. His sign said he was VK2HMY but he said he had a Foundation

license and was sitting for his advanced later this year. He did tell me his name but my forgettery was working exceptionally well that day and it didn't stick. I haven't looked in the call book however he was quite happy for me to send his details for this short story in Oxtales.

Also from Bob VK2BIG.



An old Acer laptop, free to a good home. (or anybody that can use it!) It is running Linux Mint 13 (Maya) quite happily, has Chirp loaded and has worked very well at loading frequencies and channels in to my 2 Baofeng UV5R dual band handhelds and my mobile 2m/70cm rig. It does browse the WWW with Firefox and the available Libre Office suite handles all the jobs that MS Office does. Maybe useful as a shack PC to someone.

I have also run QJack and QTractor and Rosegarden on it for any MIDI people out there! The internal WiFi radio seems to have given up the ghost but the USB WiFi dongle you can see in the photo works well.

The travels are going well but there is not much radio activity out here aside from CB'ing to the truckies and my grey nomad compatriots.

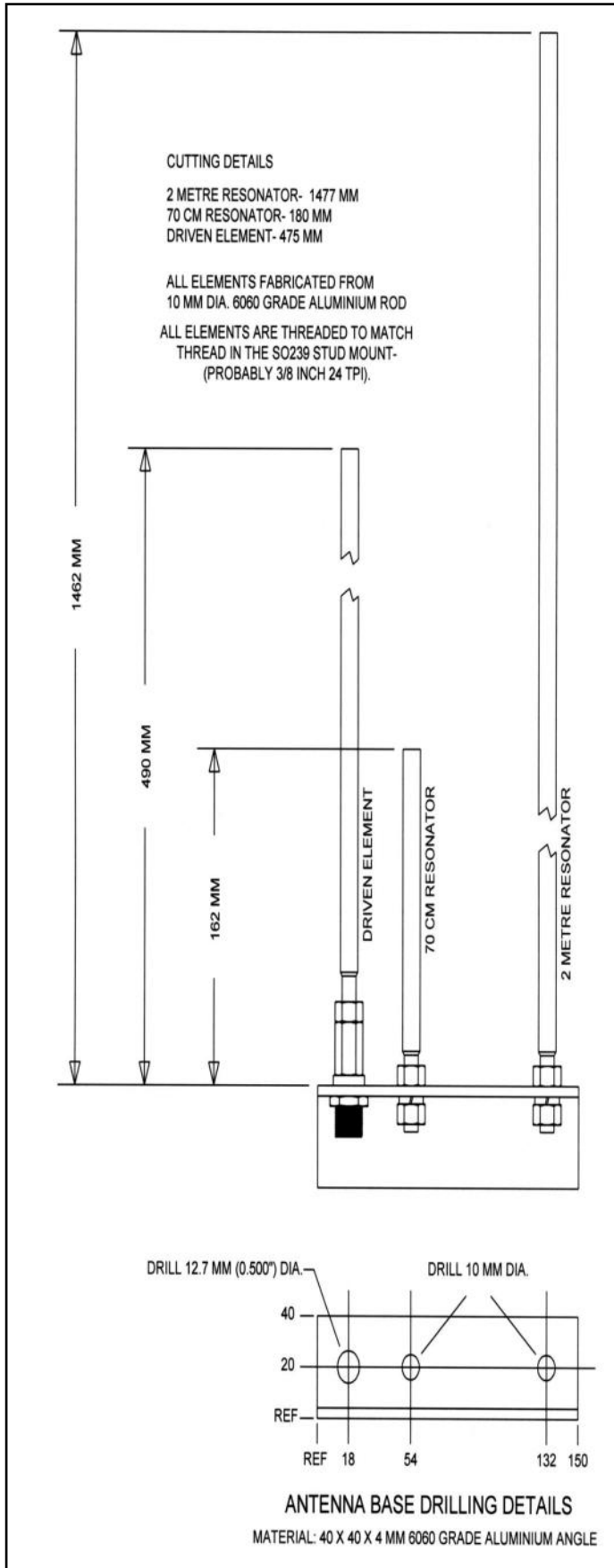
Bob VK2 BIG

Editors note: If members have an interesting story or photograph taken on their travels we would really like to share as a future Oxtales article.



## Aussie Version of The Dual Band J Pole Antenna.

John VK2KC has made one according to the following dimensions and reports that it works extremely well.



This antenna provides continuous coverage of the 2 metre (144 – 148MHz) and 70cm (430 – 450MHz) bands and is an excellent choice for base station use. The design is based on an article which originally appeared in CQ magazine (1987), and a version of this design is produced by Arrow Antennas of the USA (not available in Australia). In Adelaide, Barry (VK5ZBQ) and Paul (VK5PH) produced a kit version of this design for members of the Adelaide Hills Amateur Radio Society, and this kit for South Coast Amateur Radio Club members is a mechanically simplified version of the AHARS kit and original CQ article.

The antenna has a low SWR (less than 1.5:1) over both bands and forms an ideal aerial system for the dual band transceivers that now dominate the market. It features a single feed point via a stud mount SO239 socket. It has excellent DX properties and will out-perform many theoretically better antenna systems. The antenna is a dual “J pole” design, and has a common driven element for both bands. It does not require a ground plane for operation, but it is firmly recommended that the antenna should be mounted on a well grounded metal pole. This will provide some protection in the event of a lightning strike. The top of the metal pole should not protrude significantly beyond the top of the metal mounting bracket, thus avoiding the creation of high SWRs.

The principle of a J Pole is well understood, and basically involves feeding the upper part of the antenna (a half wave dipole) with the lower part of the antenna (a quarter wave matching stub). This structure exhibits better gain than a quarter wave ground plane and about the same gain as a half wave dipole. Viewed from the top the radiation pattern is omnidirectional. The vertical plane radiation is parallel to the ground (zero angle of radiation) giving good local coverage. In this antenna, the feed is at the current point of the quarter wave stub, providing a low impedance that can be easily matched to the coaxial feeder. For best performance on both bands use a high

*Continued on next page*

Continued from previous page

## Blast from the Past

quality low loss coaxial cable, particularly if the feeder cable is long. RG-8 or RG-213 is recommended.

All aluminium alloy used in the antenna is grade 6060 which has excellent weathering characteristics. The resonator rods are secured with 304 grade stainless steel nuts and washers, and this allows minor adjustments to be made in the lengths of the elements. In turn this allows the user to fiddle with the SWR and bandwidth centre to optimise performance at a selected frequency.

The antenna design is massively simplified by using an SO239 Stud mounting base on the driven element. These bases are attractively priced and readily available on the internet. The adaptor nut at the top of this mount is internally threaded with a 3/8" x 24 TPI thread, and so the bottom of the driven element must be threaded to match. To keep life simple it is recommended that the same thread is also cut on the bottom of the other two elements, which are then fitted with the 3/8" x 24TPI stainless steel nuts and washers.

If the antenna is to be mounted outside, it is recommended that the socket on the driven element is weatherproofed with self amalgamating tape or silicone sealant. The mounting bracket should be appropriately drilled to match the U clamp which retains the antenna to the mast.



SO239 STUD MOUNT

VK5JST September 2007

Blast from the past is taken from back issues of Oxtales and it provides an opportunity to reflect on past club activities and also provides new members an insight to the club's history.

This months Blast from the Past is taken from the November 2003 edition of Oxtales. It is interesting to see that 10 years the club played an active part in both JOTA and the Billy Cart Derby.

The first extract is an edited rather amusing account of the Billy Cart day written by the Club's President Alan Nutt VK2GD (SK).

“ . . .

*The volunteers were, in no particular order, other than call sign, VK2AIF (David), VK2CHC (Richard) - rejoining the club after sometime wandering in the wilderness), VK2FSH, (Charles), VK2TT (Trevor), VK2YOR (Roy) and VK2ZCW (Bill). They formed the crew that attended to the tasks required by the organisers.*

*These tasks involved the setting up of a 2-Metre Base station and a P.A. system to inform the gathered throng of proceedings, plus equipping a "commentary Vehicle" with radio communications (and riding in it during its exciting run down the mountain) and last but by no means least, providing hand-held communications between the starting grids and the base during the running of the Billy cart events.*

*The weather, although just meeting the category of fine, was not as balmy as previous years have been. A stiff breeze and one or two sprinkles of rain did little more than cause some unfounded apprehension at times.,*

*Technically things took on a grim outlook as the beginning of the set up session, When fired up, the hired P.A. System took and instant dislike to the presence if our 2 metre emissions from the base station and hand-held. It exhibited symptoms of serious RFI. This P.A. showed its dislike by producing quite rude noises whenever anyone touched their PTT's (reminiscent of the behavior of a pampered, show-off flighty, Brewery-horse.*

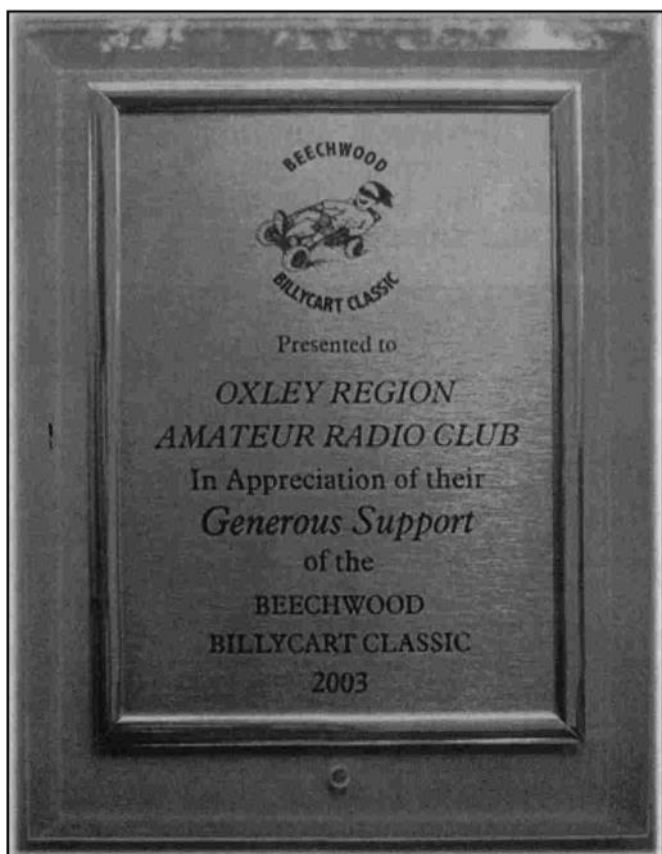
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 Whilst these noises gave rise to occasional bursts of unbridled laughter from some vulgar elements within the crowd, they struck fear in the hearts of others', particularly those who were trying to find the causes and/or suppress these embarrassing effects that were threatening to mar the whole event, or worse still, ruin the reputation of the ORARC!*

*Richard produced some toroid's to try and choke off the speaker leads, Charles stole some wire from somewhere to enhance the earthing, various other usually effective suggestions from within the group were tried, but still the P.A. persisted with its ribald equine emulation.*

*Then, serendipitously, a set of conditions, was achieved, quite accidentally which related to the geographical placement of the equipment...the P.A. suddenly calmed down, and performed in a most exemplary manner. Fortunately, the event organisers were totally unaware of the threat that had been looming over their communications holding firmly through the 1 hour critical period. Hew!.*

*'... The surprise of the day came at the end of the official trophy presentation formalities, The organisers called a representative of the ORARC to the podium and made a presentation of an attractive glass and brass plaque'*



Editor's note: Since the article was written in 2003 there has been a change to several of the call signs. VK2FSH Charles is now VK2KCE, VK2YOR Roy is now a silent key (SK) as is Bill VK2ZCW (SK).

The Club also participated in JOTA2003 in conjunction with the 1st Port Macquarie Sea Scouts at their hall in Buller Street.

Gear was installed at the Scouts hall and operations commences at 10.30am until 6:30 pm on both HF and VHF. During this time several overseas contacts were made and an enjoyable time had by all.

Below can be seen former club members Bob VK2EJK now (SK) and Bill VK2ZCV now (SK).

(Right)

VK2EJK (Bob), hard at work calling "CQ JOTA" at the JOTA 2003 Venue, Buller Street Sea Scouts Hall.

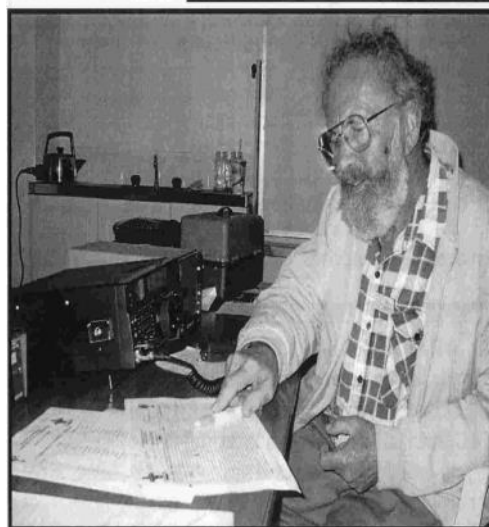
(Picture by Henry—VK2ZHE)



(Left)

Bill (VK2CZV) checking the progress of the log at the JOTA 2003 event at the Buller Street Sea Scouts Hall.

(Picture by Henry—VK2ZHE)



## Equipment from the Past

### Drake TR7 A



The Drake TR7 was a very advanced HF Transceiver for its time and introduced in 1978 and continued production into the 1980's. The TR7 range was fully solid state and cost about US\$1,500 in 1980.

The Drake TR-7 was a solid-state amateur band transceiver covering 160 through 10 meters. Modes include USB, LSB, CW, RTTY and AM. It provided receive coverage from 1.5 to 30 MHz without crystals or gaps. 48 MHz IF Up Conversion was used in the receiver section.

The Drake TR-7 Transceiver, designed by the R.L. Drake Company was considered the first all solid state commercially available transceivers. Being 100% solid state all the circuits were broadbanded so there was no need for preselector tuning or transmitter adjustments across the entire 1.5MHz to 30MHz operating range of the transceiver.

The high performance frequency synthesizer and the Drake designed PTO provided smooth tuning with a 1Khz analogue dial and 100Hz digital readout. The frequency synthesizer provided tuning ranges in 500Khz steps across the operating range of the transceiver selectable with the Band Switch and the "UP" and "DOWN" front panel pushbuttons. Drake was the first to introduce "Up-Conversion" for Amateur Radio transceivers. This was the process putting the 1st IF above the received frequency. Drake put the 1st IF at 48.05Mhz plac-

ing image frequencies well outside the tuning range of the receiver. The transmitter was designed to operate at 250 watts input power across the entire operating range of the radio. This netted a typical output power level between 130 and 150 watts on the lower bands and 90 and 100 watts on 15 and 10 meters. The transmitter being all solid state and designed to produce a flat frequency response across the entire operating range required no transmitter tuning or adjustment. The transmitter included VSWR protection which shut-down the power level when the antenna was not properly matched. The TR7A included a 150 MHz frequency counter and RF watt meter.

Dimensions of the transceiver were:

34.5cm x 11.87cm x 31.75 inches 8 Kg. The radio requires 13.6 VDC at 25 Amps



The TR7 A was often matched with a Drake L-75 power amplifier.

The **Drake L-75** provided 1200 watts input on SSB and 1000 watts on CW (50% duty cycle). It covered 160, 80, 40, 20 and 15 meters. This amp employs the *Eimac* 3-500Z triode. There is a by-pass switch. Power requirements are 115 VAC 50-60 Hz 20 amps or 230 VAC 50-60 Hz 10 amps. The power supply is built in. This amp features a temperature controlled, two speed fan. 34.7cm x 16.2cm x 36cm 19.5 Kg.

### Acknowledgements

<https://www.eham.net/reviews/detail/711>

<https://www.universal-radio.com/catalog/>



## International HF Interference Complaint

Date : 01 / 11 / 2018

Author : WIA



In recent times a number of operators within and outside Australia have reported interference on 7190 kHz between 1500UTC and 1535UTC.

The source of this interference was traced to an Australian organisation, Reach Beyond Australia, from their global transmission complex in Kununurra, Western Australia.

The WIA has been in contact with Reach Beyond and the ACMA. The organisation has voluntarily elected to cease their programming on 7190 kHz whilst the ACMA assesses this situation.

The WIA would like to thank the members

of Reach Beyond for their open dialog and working in the spirit of cooperation to rapidly mitigate the impact of this issue.

The WIA will update when further information comes to hand.

## ACMA releases Approach To Market (Tender) document.

Date : 28 / 10 / 2018

Author : WIA

The ACMA has released the Approach to Market document for Amateur radio licencing and administration.

The ACMA is seeking appropriately qualified and resourced organisations for the provision of certain statutory functions and administrative services associated with amateur radio licencing.

The services to be provided include:

Conducting examinations to assess amateur radio proficiency.

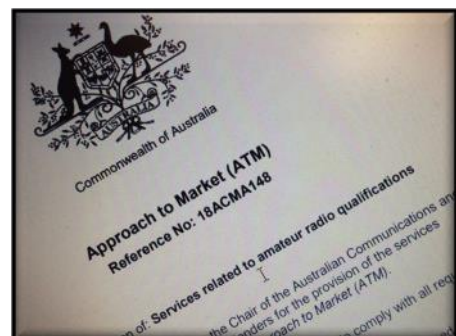
Issuing amateur radio certificates of proficiency.

Making recommendations to the Customer about the allocation of callsigns to amateur licensees.

Participate in the Syllabus Review Panel, and associated non-statutory administrative functions

The WIA is currently working on submitting a tender response.

Deadline for responses is 26 November 2018.



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## 2200m VK Beacon On Air

Date : 01 / 10 / 2018

Author : Caboolture Radio Club

The Caboolture Radio Club is proud to announce the commencement of operation of a new Beacon Station on the 2200m band.

The Australian Communications and Media Authority has granted permission for continuous operation of a Beacon on 137.444 kHz

Details:

Callsign: VK4RBC

Location: Caboolture, Queensland, Australia Maidenhead: QG62lw

Frequency: 137.444 kHz

Mode: WSPR2 (6H00F1D) plus CW Ident

Power: 1 Watt EIRP

Antenna: 500m Long Wire, 40m max height

TX %: 50 %

Status: On Air

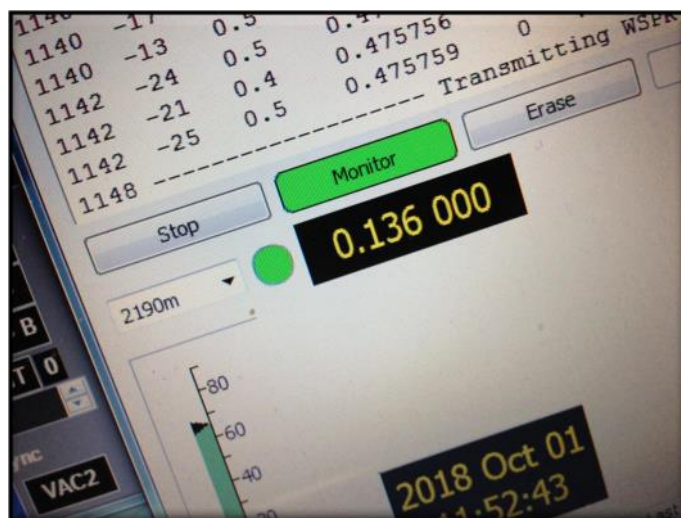
There are many beacons on 2200m operated by individuals like WH2XND. This beacon is a little different. It is an official beacon specifically licensed as such by the Australian Government. The first to be granted permission to operate below 28MHz. It has been given the frequency 137.444 only. It can not change frequency. It can not make QSOs.

It operates 24/7 and must be reliable, so that anyone can check their station at any time. It also receives, which is unusual for a beacon. Last night it got its first decodes of WH2XND, so its receiver is working well using that great long wire as the antenna for Tx and Rx. With WH2XND also reliable, we will now see exactly how good the path from USA to

VK really is on 2200m.

Information sourced from the 600m mailing list and Roger, VK4YB, President Caboolture Radio Club.

Page Last Updated: Monday 1 October 2018 at 21:29 hours by Justin Giles-clark



Editor's note: This should provide a valuable resource for any club members experimenting with VLF. Also if anyone is conducting experiments on VLF Oxtales would like to have an article.

The following is from Steve VK2ZSW and will be of interest to those who intend upgrading their Amateur Licences.

If anyone is thinking of upgrading their amateur licence or in the process of studying for a licence, the WIA has advised all exam papers will need to be into the WIA first week of December to get processed this year.

The alternative is wait until Feb 2019 as the system shuts down until almost the end of January.

73, Steve

VK2ZSW

## Did you Know This?

The following article was submitted by Dave VK2AYD for the November 2003 edition of Oxtales. With the current interest in record players it is perhaps timely to 'play it again'. It may even be useful for those trivia nights that are so popular!

### Record Players and 78 RPM



You may wonder why the phonograph (or was it called a gramophone) records ran at 78 revolutions per minute.

Well a posting to one of the audiophile re-mailers explains it this way. Up until the 1920's recordings were made at a variety of speeds from 75 rpm to 84 rpm and sometimes outside this range. The minimum acceptable speed was governed by the quality of the sound from the innermost grooves of the record. By trial and error this speed was found to be around 78 to 80 rpm.

The speed of records is based on the American electricity AC standard of 60 hertz. When engineers wanted to standardise the speed of recording equipment in the studios they started using synchronous electric motors. These are motors that are locked on to the 60 hertz power and ran at precisely 3,600. If you use simple gear ratios then 3,600 divided by 40 is 78.26 rpm. All other

phonograph record speeds came from the same source as well. 3,600 divided by 80 gave us the popular 45 rpm record that helped to make the rock and roll revolution. 3,600 divided by 108 is responsible for the L.P 33 and 1/3 rpm record and 3,600 divided by 216 made the somewhat rare 16/23 rpm disks. Of course these days most 'black flat' albums have been replaced by digital compact disks. But the history of grooved disks is an interesting only and now you know how it all came about.

(ARNEWSLine via QNEWS).

Editor's note. Since 2003 there have been strong sales in records with several music shop outlets in Australia. Also seen have been a large variety of record players and turntables on sale. Prices of which vary from a few hundred dollars to thousands of dollars.

The ABC reported recently on one of its morning technical segments that some records are even now sold with the rights to a digital download!

Its interesting to note that news records still require great care in handling to avoid scratching and that the record stylus and cartridge can be quite expensive items to replace. In addition even with new technology a record stylus wears out and need to be replaced on a regular basis depending upon how many times it is played.

Jaycar is once again supporting the club by making a financial donation to help with the printing of the club's calendar helping to keep the cost down to \$2. Calendars will be available at the Club's Christmas function on the 1 December.

