



Illawarra Amateur Radio Society

# Propagator July 2022

## Upcoming Meeting on the 12<sup>th</sup> July 2022

The next meeting **will be at the** Blue Scope Steel visitors centre **7.30pm.**

Blue Scope Northgate entrance off Springhill road



THE  FOLLOWS A COVID19 SAFE PLAN

## Our last meeting 14<sup>th</sup> June 2022



**The IARS Star Seeker club , thanks to Ned, VK2AGV**

How to build your own \$10,000 telescope for fraction of the price. Thanks to Ned VK2AGV for sharing one of his other passions other than amateur radio and airplanes with us, ASTRONOMY.



**Yes we eventually braved the freezing cold to enjoy some moon and star gazing on Ned's homebrew Dobsonian telescope.**

Before we braved the cold we were presented with a complete and detailed process to build our own telescope. Astronomy and Radio go hand in hand and the synergy of building one's own receiver or telescope is paralleled.

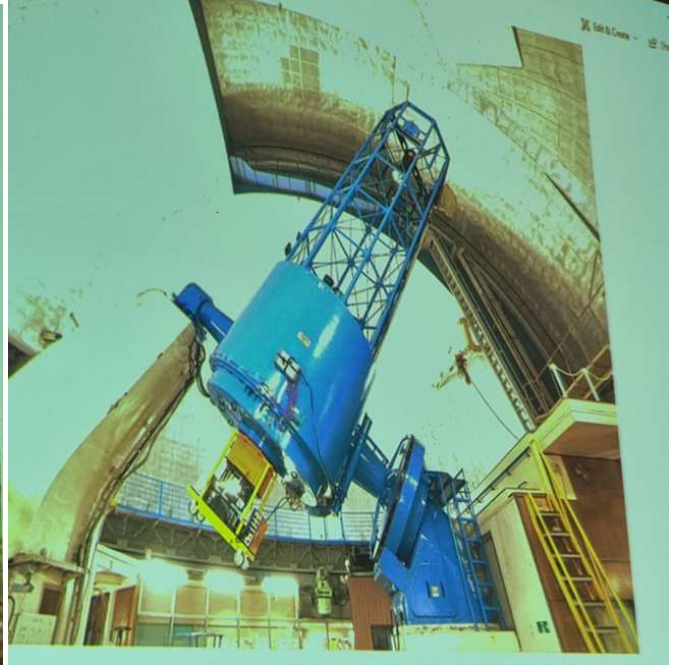


Looks very commercial but everything is HAND MADE





The art of Lens grinding and polishing was a very interesting part of the presentation and seemed like the hardest thing to do but it has its rewards.



A very big thank you to Ned for a great presentation, a very enjoyable evening was had by all.

**After the presentation it was coffee, tea and cake as always, make sure you don't miss out catching up with everyone over a nice cuppa and come along to our next meeting.**

# Next Meeting



Simon VK2KU (same fella looking after those Snowball raffles), was part of the DMR team responsible for the install of the Motorola system currently operating from our Maddens Plains Repeater Site.

Simon will be giving an overview of the DMR system and some tricks to get you up and running on the new system.

**LOOK FORWARD TO SEEING YOU THERE!!!!**



Is back 😊, for \$5 you can earn some good cash and all monies go to your society, win-win.

As usual see Simon VK2KU, the fella with the coloured balls and big smile



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**Don't forget the two weekly IARS nets as below**



**to the IARS NETS**



IARS Tuesday evening weekly 80m NET on 3.666MHz at 8.30pm hosted by Mal VK2DXM and Rob VK2MT

Don't forget to join us every Tuesday evening, expect the second Tuesday of the month for a great get together on 80m. Signal reports, news and general discussions are the agenda.

There have been some really good conversations so if you are bored on Tuesday evenings, pop in for a chat.

Saturday Morning EAST COAST NET hosted by Steve VK2BGL

You are invited to join Steve every **Saturday at 9.30am** on our **146.850MHz** repeater (linked to 146.675MHz) or **VK2BGL-R** on Echo-link for a very enjoyable morning of general discussions from amateurs who log in from all over the world.

This NET is linked to multiple repeater systems including VK2RFS south coast. Join Steve and everyone for a very enjoyable 2 hours on Saturday morning

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**Looking to Upgrade to Standard or advanced and even obtaining your Foundation license we have remote assessing available.**

The IARS **can help** with obtaining your Foundation, upgrading to Standard or Advanced from *the comfort of your own home*.

We have approved AMC accessors that can offer remote assessments for the AMC.

Please contact Keith VK2KQB at [iars.keithb@gamil.com](mailto:iars.keithb@gamil.com) for further information.

**Your society supports further learning**, please find out more on how we can help you. AMC website is [Australian Maritime College - Australian Maritime College | University of Tasmania \(amc.edu.au\)](http://AustralianMaritimeCollege-AustralianMaritimeCollege|UniversityofTasmania(amc.edu.au))

# REPEATERS



**VK2RUW (Knights Hill)**



**VK2RMP (Maddens Plains)**

## STATUS

- 438.225 with a - 5MHz offset. **OK**
- 146.975 with a -600kHz offset NO CTCSS, **C4FM** enabled **OK**
- 146.850 with a – 600kHz offset (linked to 146.675) NO CTCSS **OK**
- 146.675 with a – 600kHz offset (linked to 146.850) NO CTCSS **OK**
- 53.650Mhz with a – 1Mhz offset **OK**
- 438.725Mhz with a -5mHZ offset DMR only, **OK**
- 1296.850Mhz Beacon with simplex repeater function – **OK**

**The IARS welcomes any feedback on our repeater systems.**

**Please send all your feedback to [iars.keithb@gmail.com](mailto:iars.keithb@gmail.com) and it will be passed on to our repeater team.**

Any donations to help us maintain our great repeater system will be greatly appreciated. Please check our banking details on our website at [www.iars.org.au](http://www.iars.org.au) under the Contact details page.

As reference of the donation please add your Call sign and the words “Repeater Donation”

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## LOOKING FOR SOMETHING to SWAP, BUY, SELL, an OLD PART

Parts you may need for repairs or some radio gear you no longer need that could go to a new home.....?

Email [iars.keithb@gmail.com](mailto:iars.keithb@gmail.com)

## *Disposables Donation Table*

Each meeting we have the disposables table with items donated to the club.

Please keep the support for this going and bring oddities in and take some home for a small donation to the IARS. With the next meeting please bring along and donate those old items that you no longer use and may even have thought about throwing it in the bin, someone else may be looking for that very part. Wire, pieces of coax, old parts, plug packs, power supplies, capacitors, resistors, coils, tubes, knobs, anything that someone can use.

This month's meeting saw some old video equipment, computers and old CB radios going to good homes. Thank you the John VK2EJL who brought along all the gear.



**If you have some trash\*\*\*, please bring it along to the next meeting and give it new life**

\*\*\* Trash , just in case the wrong impression is given, it is not literally trash 😊 no rubbish please



Share it with us, this could be suggestions, technical ideas, circuit diagrams, IARS community projects, pictures of your latest shack project, in fact **ANYTHING** of interest

Let us know by return email [iars.keithb@gmail.com](mailto:iars.keithb@gmail.com)

Also, if you have some IARS related pictures or information that we can put on the **IARS website**, please let us know and we can get that happening.

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**This month's technical idea is shared by Vaughan VK2KBI**

**Connecting RG58 coax / PL259 with reducer fitting.  
(PL259 - Jaycar Cat No. PP0680)**



*Jaycar Cat No. PP0680*

I had bought PL259 connectors sold as suitable for RG58 coaxial cable. The question remained – “how is coaxial cable to be correctly connected?”

There did not seem to be anywhere I could get clear instructions.

- The cable was of too great a diameter to fit into the reducer with the black outer sheath on.
- Stripping of that outer sheath revealing the braid would give a too small a diameter to be screwed in (there being an internal thread in the reducer).
- Trying to solder braid has always been a difficult task with the need to provide plenty of heat into the mass of the connector and not melting the dielectric between the braid and the centre conductor. Difficult...?? - well-nigh impossible!



After searching on the internet, the best solution appeared to be that exposed braid is folded back over the black sheath and this is screwed in (or perhaps the connector is rotated rather than the cable!) and only the centre conductor is soldered to the connector centre pin.

Some versions of the PL259 readily accommodated this method, **but not my version**... With the Jaycar connector being relatively readily available, I needed a method of snugly fitting the braid over the outer sheath and screwing into a reducer.



*Figure 1 Measuring the reducer inside diameter and Coax cable diameter*

Firstly, some dimensions need to be sorted out. Using Vernier calipers, the internal diameter of the reducer was measured as 4.6mm. This must be considered as the “minor diameter” on the reducer, the “major diameter” being that of the “root” of the screw thread, and somewhat greater than the minor diameter.

The diameter of the coaxial cable complete with outer sheath was measured as 5.3mm. A 0.7mm diameter difference is significant and the addition of folded back braid would result in an untenable situation if no action was taken. The cable would simply not fit!

In order to “make it fit”, it was decided to open out the reducer with thread taps so that a screw thread was available for a snug and secure fit. A sample of coax was used to fold back braid over the outer sheath and the diameter was measured as 5.7mm. It seemed reasonable to open up the reducer with a No. 12 UNC tap. Rather than specify a diameter directly, in an ancient system, threads of bolts smaller than  $\frac{1}{4}$  inch were specified by number. Just

below  $\frac{1}{4}$  inch, No. 12 was specified with a major diameter of 0.216 inch (nearly = 5.5mm).



*Figure 2 Sample of folded back braid*



Figure 3 Measuring the diameter of folded back braid

But the cable and folded sheath had to be inserted within the minor diameter. Tapping with a No 12 as it turned out was insufficient. Ok then, move up to an M6 tap. The mix of metric and UNC may have messed the thread structure with different thread pitches. But if there was some thread, then all would be good. But again, it was insufficient to insert the coaxial cable with the folded sheath. Oh well... move up another notch...

The next time was back to UNC, and this time  $\frac{1}{4}$  inch. With a major diameter of  $\frac{1}{4}$  inch = 6.35mm, it may seem to big and make for a slack fitting, but as it turned out, it provided a snug fitting. This is likely because 6.35mm was the major diameter. The minor diameter being somewhat less, and being what the coax fits into, is likely why it fitted well. The connector screwed onto the coax with pulling and pushing demonstrating all was mechanically sound. A continuity check on the cable sheath confirmed it was electrically sound.



When fitting to the needed cable, the PL259 screw fitting was slid onto the coax first, followed by two different size heat shrink. One heat shrink was to fit over the end of the PL259 reducer, whilst another section was fitted over the other but when shrunk would hug the coaxial cable. The larger heat shrink would not shrink over the cable.



Coaxial cable cut 1st step



Bunching up the braid



folded back over the sheath



Measuring then fitting the coaxial cable to the reducer and soldering the tip

The coaxial cable was then prepared for the PL259 reducer and centre pin. This involved laying the coaxial cable next to the reducer and centre pin of the PL259 connector to gauge where cuts were to be made. The outer sheath is cut so that its final position is inside the reducer, but not protruding far into the space between the reducer and the centre pin – the space where some solder the braid. The braid and dielectric was cut so that initially, it would seem the dielectric would be too long to fit the outer sheath to where we want it.

But this is only temporary.

The braid was manipulated with a thumb and forefinger until it began to move. Combing out the braid weave is NOT needed. Leave the weave as is. Once the braid began moving, it was bunched up against the outer sheath and then folded back over the outer sheath maintaining the weave as much as possible. The braid sleeved over the outer sheath.

Now a cut of the exposed dielectric was made so it all would fit in the reducer. The reducer was screwed on over the folded back braid and confirmation of mechanical and electrical integrity (you don't want the whole thing to fall apart or not make a good connection) was done. The centre conductor was soldered in position.



Heat shrinking

Continuity tests were done again on both the centre conductor and the braid as another check. Once continuity was confirmed, one heatshrink was shrunk in position, the second positioned and shrunk and finally the PL259 screw fitting was brought into position.



Finished product

Of course, if you wish to do similar on the Jaycar PL259 connectors, drill the reducer to the size demanded by the tap. A Society of Automotive Engineers (SAE) chart for drill and tap recommends a drill size of No. 7 (0.2010 inch, or a little larger than either 3/16 inch or 5mm). A 5mm metric drill is a little closer than 3/16 inch for those who do not own a No. 7 (most of us).

**But take care in any event that when tapping you do not apply to much stress to the reducer lest it fracture and be a throwaway.**

Job done!

73 Vaughan VK2KBI

Thank you Vaughan for sharing this project with us

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## *Taking VHF/UHF portable to the next level*



*If you planning to get away with some portable work, Wayne may have the answer with this compact setup in a waterproof – shockproof case.*

*Complete with dual battery backup, RasbPI, large screen and QUAD bander in the mix, and DC to DC converters to take care of all those auxiliary power requirements.*





*Wayne has been working on this for a few months and has a few tips on noise free DC-DC converters and good setup practices. If you are keen for more information, Wayne will be more than happy to share.  
Wayne should be available for a chat at the next meeting*

*Please send your ideas and tech stories to [iars.keithb@gmail.com](mailto:iars.keithb@gmail.com) so that we can publish them in upcoming editions.*

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Harry Angel Sprint Contest 80m 2022



**Congratulations to Rob VK2MT president IARS for first place  
with 60 points**



## New IARS members

Join us in welcoming our new IARS members for June 2022

James Van Duin

Jeremy Brun

Anthony Howes VK2AJH

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## Upcoming events .....

### Trans-Tasman Low-Band Contest

#### Trans Tasman Low Band Contest

Contest Manager

Alan Shannon VK4SN



Next contest - 16 JUL 2022

The Trans-Tasman contest, held on the 3rd weekend in July, aims to encourage Low Band activity between VK and ZL. Only contest bands 160, 80 and 40M are allowed with SSB, CW and Digital (RTTY OR PSK).

From 2018 this contest is an official WIA Contest and will count towards the Peter Brown Contest Champion Awards.

#### MORE INFO BELOW

<https://www.wia.org.au/members/contests/transtasman/>



## Remembrance Day

### Contest

Next contest 13th & 14th August 2022

This contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area.

#### MORE INFO BELOW

[The Wireless Institute of Australia \(wia.org.au\)](https://www.wia.org.au)



# Joint Club Picnic & FOX HUNT

**You are invited to join the Mid South Coast Amateur Radio Club (MSCARC) and the Illawarra Amateur Radio Society (IARS) at the remote site in Penrose for a great picnic and FOX HUNT.**

**DATE: 27<sup>th</sup> August 2022 (anytime after 6am) PLACE : IARS Remote site PENROSE**  
**RSVP before the 20<sup>th</sup> August , PLEASE**

**Maps will be given to everyone that sends in RSVP (which we need for catering)**  
**Free sausage sizzle and drinks to all IARS members and \$10 for Non-Members.**  
**(Become a member at the next IARS meeting in July for \$25 and enjoy the many benefits the club has to offer 😊 )**

**RSVP Keith VK2KQB [iars.keithb@gmail.com](mailto:iars.keithb@gmail.com)**

## Upcoming meeting presentations .....

- July 2022 : DMR, with Simon VK2KU
- August 2022 : IARS AGM , Show and Tell, everyone 😊
- September 2022: Microcontrollers for amateur radio projects, Simon VK2KU and Keith VK2KQB.  
How to select, configure and program those micros that can make your next project easy
- October 2022 : Trivia IARS with great prizes, Keith VK2KQB
- November 2022 : IARS annual auction with auctioneer Simon VK2XQX
- December 2022 : Christmas dinner with show and tell

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# Fun Corner

Please send in your funnies to [iars.keithb@gmail.com](mailto:iars.keithb@gmail.com)

"Let me get this straight:  
You have thousands of  
dollars of ham gear,  
but you still can't  
hear me calling you  
from the kitchen?"



Damn it's cold outside



Oscilloscope



Signal Generator



Mixed Signal Oscilloscope



Mixed Signal Generator

That's all for now, hopefully catch you all at the **Blue Scope visitors centre on the 12th of July 2022**

Stay Safe

**73's**

**Keith VK2KQB**

**IARS Secretary**

**IARS, Amateur Radio in the Illawarra since 1948**