Propagator August 2022

Upcoming Meeting on the 9th August 2022 AGM

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 12th July 2022

Colour codes, time slots, talk groups and chat rooms was the order of the day at our educational presentation by Simon VK2KU.


Current Motorola DMR system at Maddens plains

Thanks to Simon VK2KU, we were left with a much better understanding of the terminology and those who had other thoughts about chat rooms were pleasantly surprised 😉

We all realised the actual simplicity of the system, once it was explained properly.

More detailed information, look under the repeater section of this propagator
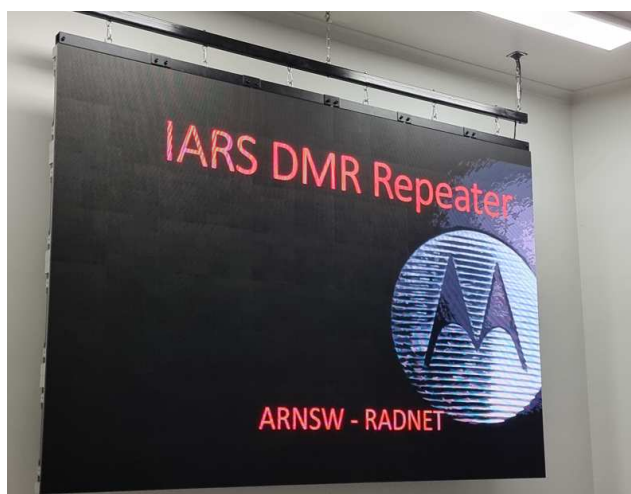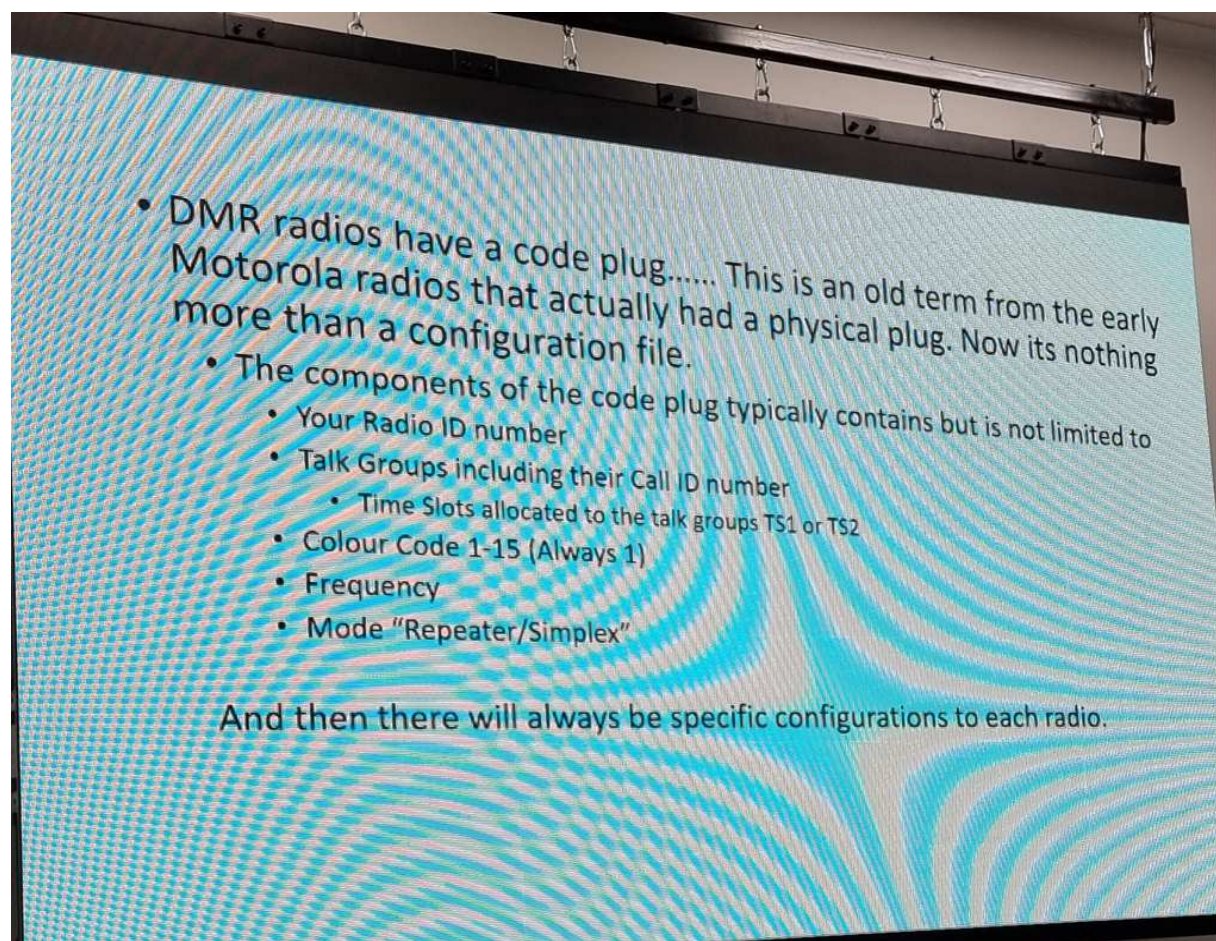
Please excuse the wavy lines, the flat pull down screen we normally use for the presentations was broken. We had to use the large led active panel display which was great, but doesn't allow for great photos due to scanning times.

http://rpt.vkdmr.com/ipsc/ - VKDMR Repeater Dashboard you can see VK2RMP (our repeater)

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, come along to our next meeting.

Next Meeting

9th August 7.30pm

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Unbelievably it is that time of the year already!

I think everyone will agree that 2022 has been fully turbocharged and it seems like the other day we had our last annual AGM.

Please ensure that your membership fees are up to date for you to exercise your vote. If you or anyone wants to become part of our committee, please fill out the forms available on our website and will be sent with this propagator.

After the committee voting and committee selection, there will be a show and tell.

Bring along some pictures of your shack, latest radio, antenna system or latest project you are working on and share it with us.

AND, you can have a catchup with your mates over a nice cuppa with some muffins and biscuits

SEE YOU THERE

Membership fees

We still have many membership payments outstanding and are hoping that we can get this all settled before the next meeting. The IARS membership fees are still one of the **lowest at $25.00 normal**, **$20 concession**. This relates to $2.20 per month, for 11 meetings (less than the price of a cup of coffee)

Your membership fees keep your club operational, please support your club.

All monies from our interest on investment, donations and membership fees goes to support the club with **Public liability insurances**, **Repeater maintenance**, **Repeater site fees**, **Blue scope meeting hall rental**, **IARS call signs with the ACMA**, **Coffee, tea & refreshments**, **Outings & picnics and Christmas dinner**.

Excellent value for money!!!!

We want to thank the members who have paid membership and the extra donations we received this year, much appreciated.

To make payments you could either pay John VK2EJL at the next meeting OR use the IARS bank account (info below), please add your call sign or name with the payment, thank you.

Bank: IMB Wollongong
Account name: Illawarra Amateur Radio Society
BSB: 641800
Account number: 100023291

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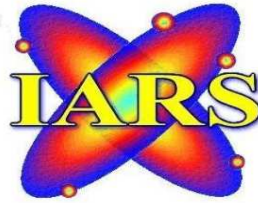
Looking to Upgrade to Standard or advanced and even obtaining your Foundation license we have remote assessing available.

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 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)

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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

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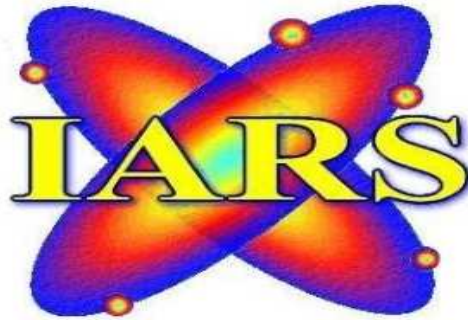
If you have some trash*, please bring it along to the next meeting and give it new life**

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

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 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 under the Contact details page.

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

Thank you Mark VK2PH for your very generous donation towards the repeater systems

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IARS DMR SETUP

MADDENS PLAINS

To follow on from last month presentation here is some information and links to assist you with setting up your radio and using the VK-DMR repeater at Maddens Plains. **Process AKA the code plug.**

- **REPEATER – Motorola SLR5000**
- **Power 50W AC / 5W DC**
- **TX Frequency 438.725 Mhz**
- **RX Frequency 433.725 Mhz**
- **Colour Code – 1 (BLUE)**
- **240Vac supply (50W), with 12Vdc backup supply (5W)**
- **TS1 Talk Group Monitoring 5-VKNETS, 1910-ARNSW Linked Repeaters**
- **TS2 Talk Group Monitoring 505-All VK Repeaters, 3802-All NSW Repeaters**

1. First off get your Radio I.D. number (links further on)
2. Set your Radio up with your *"Call Sign"* and your *"radio I.D number"*
3. Download and import the Australian DMR users Address list from **ARNSW.NET (generator)** into your radio
4. Set up your Talk Groups. Here you can make this as complicated or as basic as you want.
   o This is called *Priority Contacts* on the HD1

Example here is for the Ailunce - HD1. Other radios setup will vary however, the concept should be the same.

No.	Call Type	Contacts Alias	City	Province	Country	Call ID
1	Group Call	TG9 Local	Illawarra		Australia	9
2	Group Call	TG5 VK Nets	Australia		Australia	5
3	Group Call	TG8 Local Group	Syd Basin		Australia	8
4	Group Call	TG 53 Chat	Chat Room		Australia	53
5	Group Call	TG3809 Chat	Chat Room		Australia	3809
6	Group Call	TG505	Australia		Australia	505
7	Group Call	TG1910 ARNSW	ARNSW		Australia	7
8	Group Call	TG3081 ACT	ACT		Australia	3801
9	Group Call	TG3802 NSW	NSW		Australia	3802
10	Group Call	TG3803 Vic	Victoria		Australia	3803
11	Group Call	TG3804 Qld	Queensland		Australia	3804
12	Group Call	TG3805 SA	South Australia		Australia	3805
13	Group Call	TG3806 WA	Western Australi		Australia	3806
14	Group Call	TG3807 TAS	Tasmania		Australia	3807
15	Group Call	TG3808 NT	North Teritory		Australia	3808
16	Group Call	TG9990 Parrot	Parrot		Australia	9990

You will notice the call I.D. on the right. This is the Talk Group number.

Set up the Channels. This contains information for each memory channel

CH No.	RX Frequency	TX Frequency	Channel Type	Dec QT/DQT	Enc QT/DQT	TX Power	Scan Add	Bandwidth	CH Alias	More..
VFO-A	146.85000	146.25000	Analog CH	None	None	Mid		25K	VK2RMP Analog	>>
VFO-B	410.32500	410.32500	Digital CH			High				>>
1	438.72500	433.72500	Digital CH			High	Yes		TG9 Local	>>
2	438.72500	433.72500	Digital CH			High	Yes		TG8 Lcl Group	>>
3	438.72500	433.72500	Digital CH			High	Yes		TG53 Chat	>>
4	438.72500	433.72500	Digital CH			High	Yes		TG3809 Chat	>>
5	438.72500	433.72500	Digital CH			High	Yes		TG505 AUS Nets	>>
6	438.72500	433.72500	Digital CH			High	Yes		TG1910 ARNSW	>>
7	438.72500	433.72500	Digital CH			High	Yes		TG3801 ACT	>>
8	438.72500	433.72500	Digital CH			High	Yes		TG3802 NSW	>>
9	438.72500	433.72500	Digital CH			High	Yes		TG3803 VIC	>>
10	438.72500	433.72500	Digital CH			High	Yes		TG3804 QLD	>>
11	438.72500	433.72500	Digital CH			High	Yes		TG3805 SA	>>
12	438.72500	433.72500	Digital CH			High	Yes		TG3806 WA	>>
13	438.72500	433.72500	Digital CH			High	Yes		TG3807 TAS	>>
14	438.72500	433.72500	Digital CH			High	Yes		TG3808 NT	>>
15	438.72500	433.72500	Digital CH			High	Yes		TG9990 Parrot	>>
16										>>

Buttons: Import, Export, Up, Down, Insert, Insert copy, Delete, Clear

Configuration here is

Digital/Analog Data

- Channel Type - **Digital**
- Chanel Alias – Shown on the Screen
- RX Frequency **438.7250**
- TX Frequency **433.7250**
Digital Data
- Work Mode – **Repeat**
- Time Slot – Dependant on the talk group you are programming for
- ID Setting – Your Call. – This uses the Radio I.D. number
- Colour Code – 1 (blue) **…….** Always 1 for VK DMR
- RX Group List – Custom
- TX Authority – Colour Code
- Contacts – Priority
  - Choose a contact from the drop down you made in the *Priority Contacts* list

See the next examples.

Notice the Time slot changes depending on the talk group. A great Talk Group and resource guide can be found here: https://vkdmr.com/wp-content/uploads/2022/06/Using-the-VK-DMR-network-1.pdf

TALK GROUP 9 - LOCAL

Digital/Analog Data

Channel Type:	Digital CH	Channel Alias:	TG9 Local
TX Power:	High	RX Frequency:	438.72500
Time Out Timer(s):	75	TX Frequency:	433.72500
VOX Level:	1	VOX:	☐
Scan Add:	☑	Default to Talkaround:	☐
Channel Work Alone:	☐		

Analog Data

Bandwidth:	25K
Dec QT/DQT:	None
Enc QT/DQT:	None
TX Authority:	Allow TX
Relay:	☐

Digital Data

Work Mode:	Repeat	RX Group Lists:	Custom	TX Authority:	Color Code
Slot:	Slot1	Encryption:	☐	Kill Code:	None
ID Setting:	VK2KU	Encryption Type:	Normal Mod	WakeUp Code:	None
Colour Code:	1	Encryption Key:	1	Contacts:	Priority
		Promiscuous:	☐		TG9 Local

TALK GROUP 3802 – NSW

Digital/Analog Data

Channel Type:	Digital CH	Channel Alias:	TG3802 NSW
TX Power:	High	RX Frequency:	438.72500
Time Out Timer(s):	75	TX Frequency:	433.72500
VOX Level:	1	VOX:	☐
Scan Add:	☑	Default to Talkaround:	☐
Channel Work Alone:	☐		

Analog Data

Bandwidth:	25K
Dec QT/DQT:	None
Enc QT/DQT:	None
TX Authority:	Allow TX
Relay:	☐

Digital Data

Work Mode:	Repeat	RX Group Lists:	Custom	TX Authority:	Color Code
Slot:	Slot2	Encryption:	☐	Kill Code:	None
ID Setting:	VK2KU	Encryption Type:	Normal Mod	WakeUp Code:	None
Colour Code:	1	Encryption Key:	1	Contacts:	Priority
		Promiscuous:	☐		TG3802 NS

TALK GROUP 9990 – Parrot Repeater

Digital/Analog Data

Channel Type:	Digital CH	Channel Alias:	TG9990 Parrot
TX Power:	High	RX Frequency:	438.72500
Time Out Timer(s):	75	TX Frequency:	433.72500
VOX Level:	1	VOX:	☐
Scan Add:	☑	Default to Talkaround:	☐
Channel Work Alone:	☐		

Analog Data

Bandwidth:	25K
Dec QT/DQT:	None
Enc QT/DQT:	None
TX Authority:	Allow TX
Relay:	☐

Digital Data

Work Mode:	Repeat	RX Group Lists:	Custom	TX Authority:	Color Code
Slot:	Slot2	Encryption:	☐	Kill Code:	None
ID Setting:	VK2KU	Encryption Type:	Normal Mod	WakeUp Code:	None
Colour Code:	1	Encryption Key:	1	Contacts:	Priority
		Promiscuous:	☐		TG9990 Par

Each channel created can also monitor other talk groups simultaneously, by adding members (talk groups) to the *RX Group List* .

See the example below.

Channel is created for Talk Group 8 (locally grouped repeated in the Sydney basin), and is monitoring TG 3802 All NSW Repeaters.

If you go ahead and have a look at the VKDMR dashboard http://rpt.vkdmr.com/ipsc/ , you will get an idea of what talk groups are most commonly used which may help you to decide what talk groups you will program into your radio.

Useful Links

https://www.radioid.net/ - Where to get your Radio I.D. number

https://arnsw.net/ - ARNSW - RadNET

https://arnsw.net/config-generator/ - RadNET Configuration generator for the Australian address list

https://arnsw.net/site-loop.php/505076 - VK2RPM DMR Repeater Statistics

http://rpt.vkdmr.com/ipsc/ - VKDMR Repeater Dashboard

https://vkdmr.com/ - VK DMR main Page

A Big thank you to Simon VK2KU for the presentation and all the DMR information to make our lives easy, how good is that

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

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.

This month's contribution comes from Simon VK2KU

SWR Bridge – VK2KU

So I have a crack at making a SWR bridge a few times and have never really been successful at making one that could handle any kind of power above QRP.

Looking around at the different designs, looked at the FOX Delta balanced bridge.

This design utilises a binocular core toroid. Easier than two separate cores.
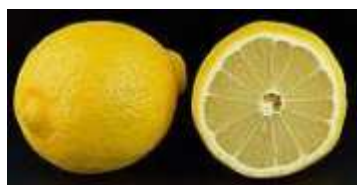

The set up comprises of 3 parts.

- RF Bridge
  - Designed using Eagle Cad
  - This is a dual hole Type 43 core. Good to 100W. May get hot at higher powers.
  - Use of two BAT54 diodes to rectify forward and reflected voltages.
  - Use of two trim pots to accurately calibrate the output to the maximum input for the ADC on the Arduino.
  - Use of on-board BNC connectors. These can be used to mount the bridge into
- Controller
  - An Arduino based simple circuit that reads to analog voltages from the RF bridge. This then via formulas in the program can back calculate the voltages into power.
  - Uses a 20x4 LCD display to create a polished readout
  - LM7805 Reg onboard so can use with rig supply
- 20x4 LCD Display
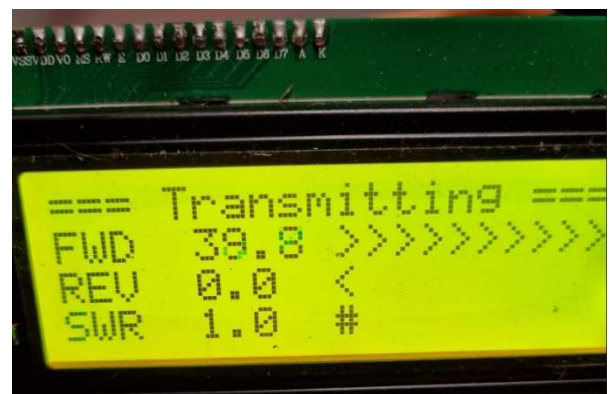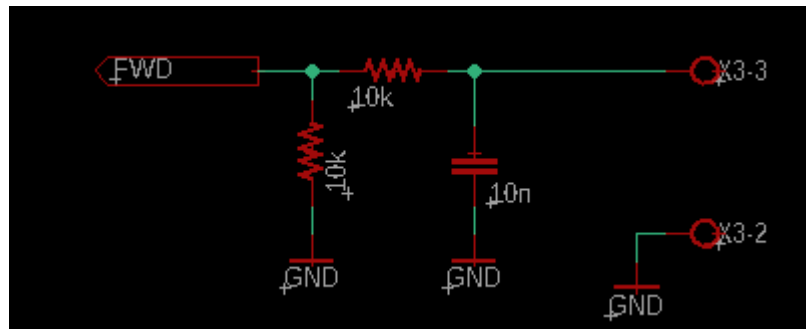 - Utilised an I2C Backpack to simplify communications to the display

The controller design I chose is completely non-related to the RF bridge. This was for a QRP SWR meter.

Changed to the program and circuit have been made to accommodate the higher power.

No board of mine ever gets made without a few lemon though….

On the inputs for the FWD and REV voltages on the controller board, I used a double 10K voltage divider to accommodate the higher voltage from the new RF bridge.

MISTAKE HERE – I can turn the voltage down with the trim pots. Have accommodated this in code this time but will fix this in the next version of the controller board.

Calibrating is carried out by applying forward power (100W) into a 50 ohm load and adjusting the trim pot on the board so the output is 5.00v. Same steps for adjusting reverse power, only this time the TX and Antenna coax is reversed.

The readings are not quite linear, where the forward power at 5W displays 1W, and 100W displays 105W. More work to be done on this, however it is accurate forward and reverse.

All you need to do here is Bring Your Own enclosures. I do suggest the control board and display in one clear lid enclosure, and the bridge in a separate enclosure (possibly diecast)

All code is done in the Arduino Environment and easily uploaded to an Arduino Nano.
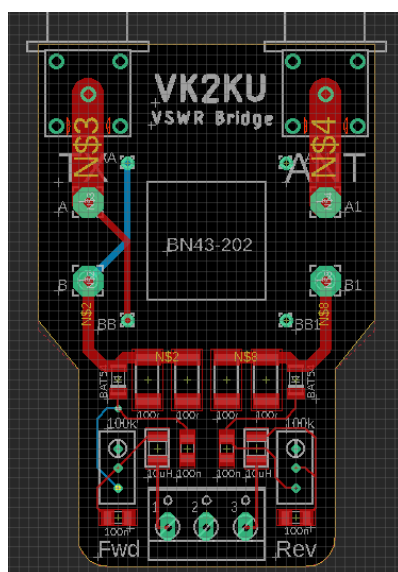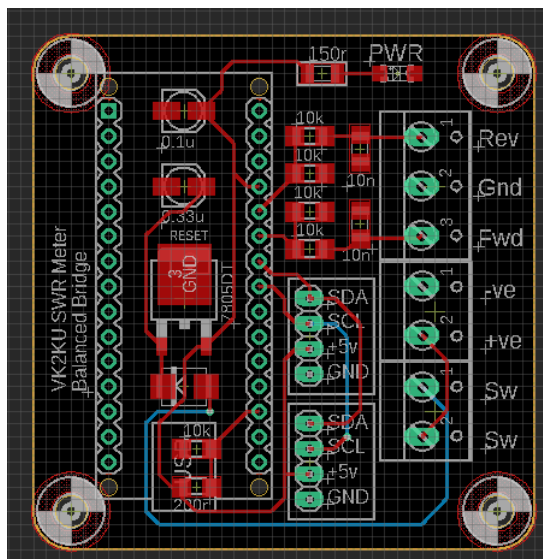
Display shows FWR / REV/ SWR with average and peak hold values when **not** transmitting, and instantaneous values and bar graphs when transmitting.

All in all a pretty successful stab and making a half decent SWR meter

Thank you to Simon VK2KU for sharing your latest project with us, I am most cetrtianly going to get my hands on one of these.
For more information, please contact Simon at iars.simonr@gmail.com

Please send your ideas and tech stories to iars.keithb@gmail.com so that we can publish them in upcoming editions.

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Remembrance Day

Contest

Lest we forget

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)](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: 27th August 2022(anytime after 6am)   PLACE : IARS Remote site PENROSE
RSVP before the 20th 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 August for $25 and enjoy the many benefits the club has to offer 😊)

RSVP Keith VK2KQB iars.keithb@gmail.com

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Proposed SHACK-CRAWL

Due to pesky Covid, the successful and fun IARS shack crawl has been put on ICE for the past couple of years. The good news is **"WE ARE BACK BABY!"**

(Previous winner 😊)

If you are not familiar with the shack crawl, IARS members get together and visit members shack's , this year we will have a BBQ at the last persons shack for the day.
It gives everyone an insight into how your other mates do it.
We all travel in convoy whilst travelling in-between shacks and make sure no one is lost by using radio communications which is part of the fun.
If you are interested to participate, visit your shack or just a tourist, please let me know at
iars.keithb@gmail.com

Upcoming meeting presentations ……………………………

- 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
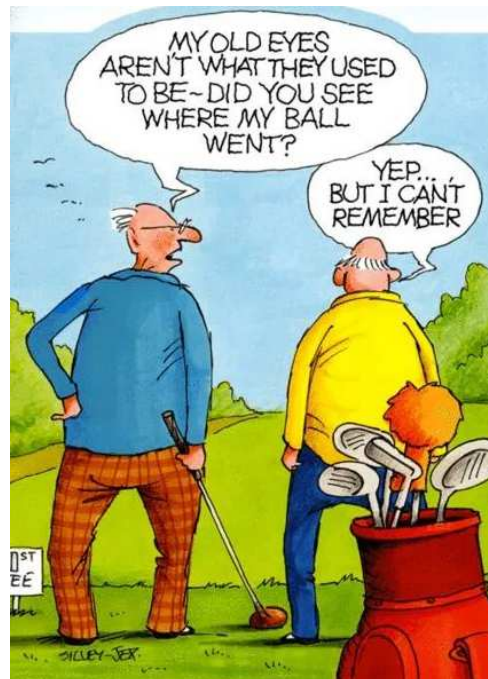
- December 2022   : Christmas dinner with show and tell

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Fun Corner

That's all for now, hopefully catch you all at the **Blue Scope visitors centre on the 9th of August 2022**

Stay Safe
73's
Keith VK2KQB
IARS Secretary

IARS, Amateur Radio in the Illawarra since 1948