



Illawarra Amateur Radio Society

Propagator May 2022

Upcoming Meeting on the 10th May 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 12th April 2022

SDR

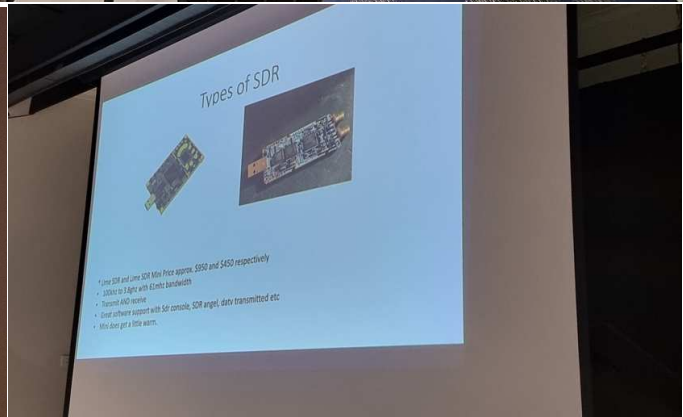
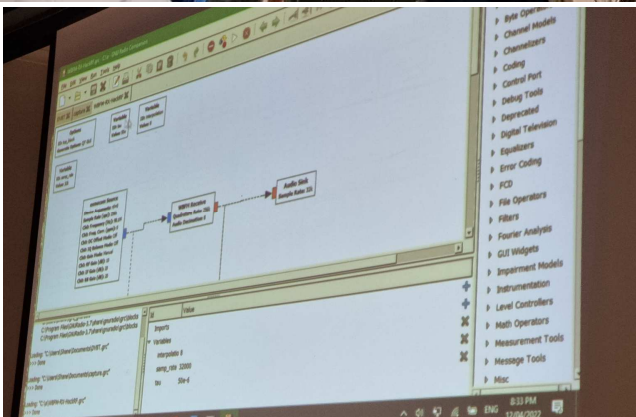


A great presentation that was put together by Shane VK2HCO and Mal VK2DXM.

Unfortunately, Mal came down with covid and had to miss out on his part of the presentation, however, Shane managed to do the work of two presenters in style, an awesome presentation. I am sure that everyone present learned a few tricks to get themselves on the SDR bandwagon, thank you Shane.

After the presentation it was the usual FEAST, thanks to Blue Scope Inside Industry and the Easter bunny for the chocolate eggs.



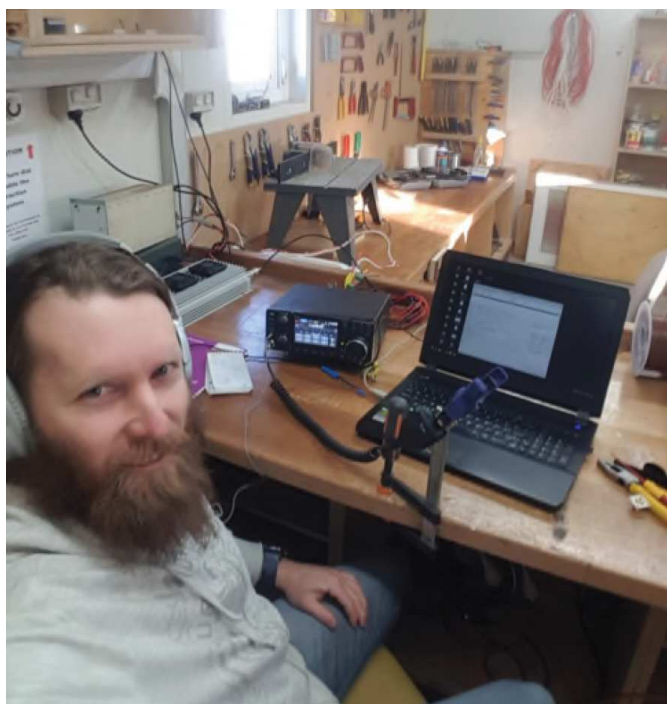


NEXT MEETING 10th May 2022



Paul VK0PD operating from Casey Station, Antarctica

(Pictures courtesy of the MSCARC Lyrebird magazine)



At our next IARS presentation we have the pleasure of welcoming Paul VK0PD/VK2PAD. Paul will be sharing his Antarctic experiences with us as he managed to squeeze in some amateur radio activities whilst working at the freezing base, but I will have to stop here and leave the rest to Paul to explain 😊

Please come along to the next meeting and catch-up with your mates and that good cuppa with the usual cake and biscuits 😊

LOOK FORWARD TO SEEING YOU THERE!!!!

SNOWBALL

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



Congratulations to Shane VK2HCO who won the last Snowball draw, well done 😊



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Don't forget the two weekly IARS nets as below



to the IARS NETS



Echolink

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



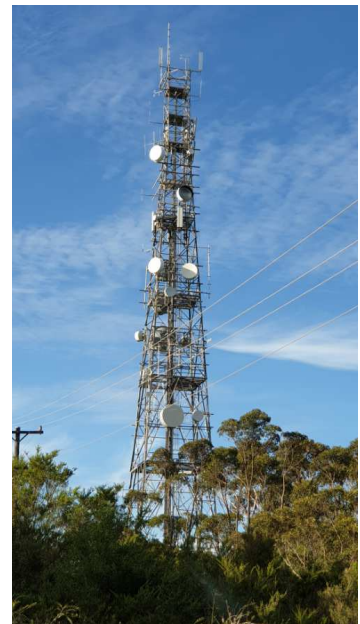
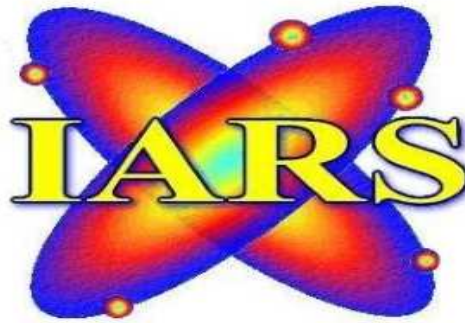
Looking to Upgrade to Standard or advanced and even obtaining your Foundation license during Covid lockdowns we have remote assessing available.

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@gmail.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.com.au)

REPEATERS



VK2RUW (Knights Hill)



VK2RMP (Maddens Plains)

STATUS

- 438.225 with a - 5MHz offset. **Currently off air**
- 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 **Will installed in the next few weeks**
- 1296.850Mhz Beacon with simplex repeater function – **Currently removed from maddens for service**

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"



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

GIVEAWAY



Contact Email iars.keithb@gmail.com

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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.



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 Tech-corner looks at the ISS and how we use it.



ARISS
Amateur Radio on the International Space Station

Frequencies in Use

The following frequencies are currently used for Amateur Radio ISS contacts (QSOs):

Voice and SSTV Downlink: 145.80 (Worldwide)

Voice Uplink: 144.49 for ITU Regions 2 and 3 (The Americas, and the Pacific and Southern Asia)

Voice Uplink: 145.20 for ITU Region 1 (Europe, Russia and Africa)

VHF Packet Uplink and Downlink: 145.825 (Worldwide)

UHF Packet Uplink and Downlink: 437.550

VHF/UHF Repeater Uplink: 145.99 (PL 67 Hz) CTCSS

VHF/UHF Repeater Downlink: 437.80

Most ARISS operations are split-frequency (each station uses separate receive and transmit frequencies). The downlink is the earth station's receiving frequency. The uplink is the earth station's transmitting frequency. Earth stations can listen to the downlink frequency and transmit on the uplink frequency when the ISS is in range and crew members are on the air. Please do not transmit on the ISS downlink frequency.

Call Signs in Use

The following call signs are available for use on the ISS:

- Russian: RS0ISS
 - USA: NA1SS
 - European: DP0ISS, OR4ISS, IR0ISS
- Packet Station Mailbox: RS0ISS-11 and RS0ISS-1

Other call signs may come into use as the station and crew change.

Radios, Modes and Antennas on the ISS

The ISS amateur radios are a Kenwood D710E and a Kenwood D710GA.

The Kenwood TM-D710GA radio is located in the ISS Columbus Module, supports 2 meter (144-146 MHz) and 70 cm (435-438 MHz) operation. This radio provides a higher output power capability (restricted to a maximum of 25 Watts in ISS operation) supporting FM and packet operations. The higher power capability allows nearly horizon-to-horizon signal reception using simple hand-held radios or scanners. A set of 5 default options, or Programmable Memories, are embedded in the D710GA to support ISS operations.

The Kenwood TM-D710E radio is located in the ISS Service Module (Zvezda), supports 2 meter (144-146 MHz) and 70 cm (435-438 MHz) operation. This radio provides a higher output power capability supporting FM and SSTV operations. The higher power capability allows nearly horizon-to-horizon signal reception using simple hand-held radios or scanners. A set of 5 default options, or Programmable Memories, are embedded in the D710E to support ISS operations.

There are numerous channels programmed in the radios. Two of these channels on the 2 meter radio band support voice operations (145.80 down/144.49 up for ITU Regions 2 & 3 & 145.80 down/145.20 up for ITU Region 1). It is necessary to use two uplink frequencies to operate in accordance with region-to-region IARU band plan differences.

The crew switches between one frequency to the other; scanning is not used. For example, if a crew member begins a QSO over the US, they can track US stations until they hit the Atlantic and then they will quickly lose US stations. They can then switch over to the other frequency and pick up stations in Europe or Africa.

SSTV Operations

Slow Scan Television (SSTV) images can be transmitted from the International Space Station. An SSTV system is an integral part of one of the ARISS ham radio stations, NA1SS/ RS0ISS in the Service Module. It transmits and receives JPEG still images. This system utilizes the Kenwood D700 and D710 radios and the ARISS antennas mounted on the Service Module. The SSTV equipment also includes Space Cam and MMSSTV software, a radio/computer interface module and data cables. A Kenwood VC-H1 is also used to provide near real-time automatically transmitted images (usually earth views) once every 3 minutes, when active.

A Kenwood D710 radio located in the Service Module was deployed by the Russian Space Agency, Energia to provide extended support of imaging experiments using various SSTV formats. It employs Space Cam and MMSSTV software to transmit stored images.

Antennas

A set of four antenna systems are deployed in the ISS Service Module supporting the current installation of the Kenwood D700 and D710 radios.

Each of the four antennas can support amateur radio operations on multiple frequencies and allow for simultaneous automatic and crew-tended operations. Having four antennas also ensures that ham radio

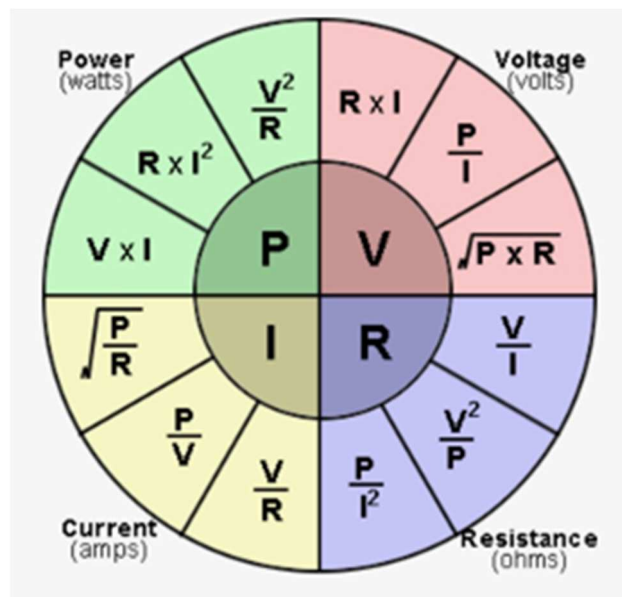
operations can continue aboard the station should one or more of the antennas fail. Three of the four antennas are identical and each can support both transmit and receive operations on 2 meter, 70 cm, L band and S band. They also support reception for the station's Russian Glisser TV system, which is used during spacewalks.

The fourth antenna has a 2.5-meter (8 foot) long vertical whip that can be used to support High Frequency (HF) operations, particularly on 10 meters. Currently, one of the 3 VHF/UHF antennas is disconnected and the HF antenna has no radio hardware available for use.

Two antennas are installed in the Columbus module, currently serving the Ericsson radios deployed there. Frequencies available for transmission to and from Columbus are 2 meters, 70 centimeters, L-band and S-band. These antennas will also support the Ham TV DATV transmitter.

For more interesting information visit

<https://www.ariss.org/contact-the-iss.html>



Ohms law, have we forgotten?

Sometimes we forget that the simple things we do everyday involving Amateur radio can be solved with Ohms law, from working out the Volt drops on our Dc feed cables to the voltage present on our coax connection or antenna tips, Ohms law to the rescue. In my day at work, I use it hundreds of times to the point I have learned it off by heart but with the formula wheel above, you don't have to.

Example: Copper wire based on approx. 0.01577 Ohms per meter for 1mm² wire.

If we had 5 meter run of 1mm² cable to a radio (remember 5 meters = 10 meters because of the return) we would have 10 x 0.01577 Ohms of resistance. = 0.1577 Ohms

If we were to draw 10 Amps, which is not much, we would lose 1.57Volts to the rig.

With voltage on antenna systems, we can use Ohms law again.

Let's assume antenna is resonant and has a perfect feedline impedance of 50 Ohms, happy days.

With Ohms law if we were running 100 Watts the wheel tells me I have $V = \sqrt{P \times R}$ which is 70Volts at the feed point, however if we move to the ends of the antenna, we could have > 400Ohms which will be 200Volts, getting scary and this is only 100Watt. Going to 400Watt you almost have 1000Volts right at that point.

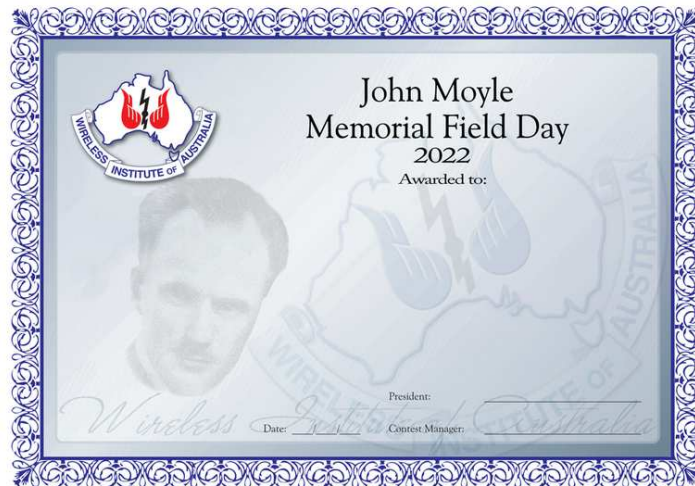
This was just a simple example of how you can work things around the shack by simple Ohms law. ☺

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

Recent IARS club events

John Moyle Memorial Field Day weekend

Congratulations to the IARS for receiving second place overall



Operators : VK2MT, VK2VIN, VK2KBI, VK2KQB, VK2HCO, VK2FO, VK2XIC, VK2FDSD, VK2BBI

**Station location : Penrose remote shack -34.6750637,150.2120457,15.25
QF55CH**

Station Power : Solar panels with battery backup

Radio equipment used : Icom 706MK2

Antenna system : Wire dipole with AH4 automatic tuner

System RF Power : 100Watts

Computer logging : Windows 10 with ver 1.15 VKCL program

Upcoming events



2022 WIA Hybrid AGM & Virtual Conference Program

7th May 2022

Antarctic Gateway Theme

Version: 20220331

The 2022 WIA Hybrid AGM & Virtual Conference is being held on 7th May 2022.

If attending both the AGM and Virtual Conference - you need to separately register for both events.

PROGRAM

Saturday 7th May Morning

AGM & Open Forum – Streamed via Zoom webinar - if you wish to attend the on-site AGM please register on [Eventbrite registration](#) - Online attendance will be via MemNet registration

AWST +8	ACDT +9.5	AEDT +10	Description
0830	1000	1030	Annual General Meeting
0925	1055	1125	Break
0930	1100	1130	Open Forum
1015	1145	1215	Break

Saturday 7th May Afternoon

Virtual Conference - Streamed via Zoom Webinar - [Eventbrite registration](#) required

AWST +8	ACDT +9.5	AEDT +10	Presentation Description
1100	1230	1300	Announcements and Housekeeping
1105	1235	1305	Keynote Speaker – Professor Elizabeth Leane - presentation on Sidney Jeffries and the role played by wireless in the Australasian Antarctic Expedition (1911-14)
1150	1320	1350	Rex Moncur VK7MO - Director Australian Antarctic Division (AAD) 1988-1999 – experiences and challenges as a Director of the AAD. The good and the challenging!
1235	1405	1435	Break
1300	1430	1500	Dr Andrew Klekociuk - AAD - Atmospheric Studies in Antarctica
1345	1515	1545	Peter Yates VK7PY and Kim Briggs VK7KB – AAD - Antarctic Communications Challenges and Review
1430	1600	1630	Wrap-up



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MAYDAY MAYHEM

The CCARC Wyong field day the 1st May 2022

For more information please visit the CCARC website at <https://www.ccarc.org.au/mayham-2/>

Bring your old gear or cash in your wallet to spend or both 😊 , fun day for all



Harry Angel Sprint Contest 80m

Date for the next Harry Angel:- Saturday May 7th 2022

10:00 UTC - 11:46 UTC

From 2022 the Harry Angel Contest will be adopting electronic logs only, in line with other WIA contests. This will improve crosschecking and ensure more rapid publication of results. More details will be posted in good time.

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



VK Shires contest

START TIME 00:00 UTC 24 Hours Saturday 11th June 2022, Ends: 23.59 UTC Saturday 11th June 2022

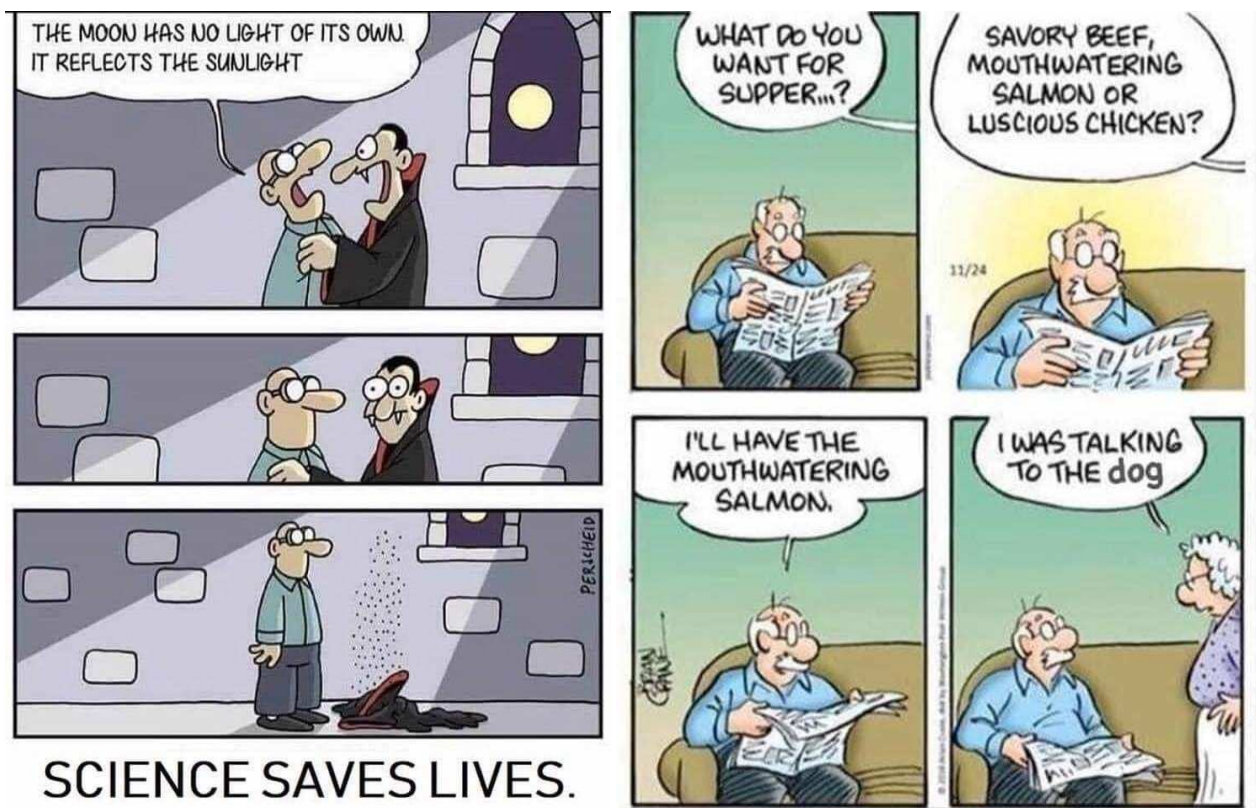
<https://www.wia.org.au/members/contests/wavks/>

Upcoming meeting presentations

- June 2022 : Homebrew telescopes, making your own \$10000 telescope, for much less, Ned VK2AGV
- July 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.
- August 2022 : IARS AGM , Show and Tell
- September 2022 : Surprise ??
- October 2022 : Trivia IARS with great prizes
- November 2022 : IARS annual auction with auctioneer Simon VK2XQX
- December 2022 : Christmas dinner with show and tell

Fun Corner

Please send in your funnies to iars.keithb@gmail.com



That's all for now, hopefully catch you all at the **Blue Scope visitors centre on the 10th of May 2022**

Stay Safe

73's

Keith VK2KQB

IARS Secretary

IARS, Amateur Radio in the Illawarra since 1948