Illawarra Amateur Radio Society

Propagator February 2026

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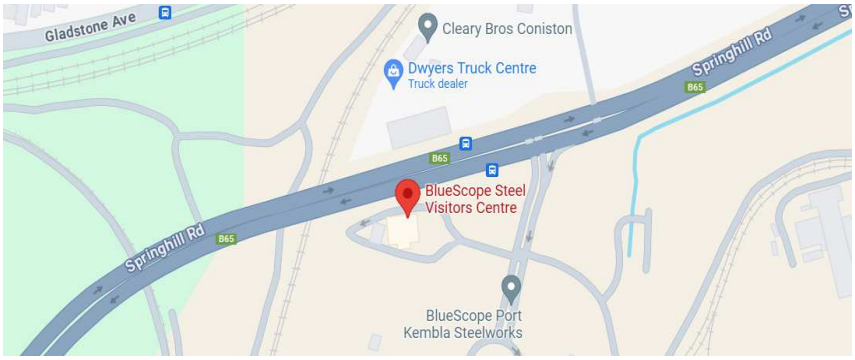
The IARS committee would like to wish everyone a happy, healthy and prosperous 2026!

Upcoming Meeting on the 10th February 2026

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

Blue Scope Northgate entrance off Springhill Road (See website for detailed map)



VK2RUW (Knights Hill)
34.6231° S, 150.6942° E
QF55IJ

AMATEUR RADIO IN THE ILLAWARRA SINCE 1948

VK2RMP (Maddens Plains)
34°15'30.6"S 150°56'47.4"E
QF55LR

VK2AMW

Our last meeting 9th December 2025

What a very happy bunch celebrating the end of 2025

Of course we couldn't just eat pizza and Christmas pies, we had to throw in some technical stuff with Roger VK2VRK showing us the latest addition to be added to the Maddens Plains site, our new APRS system, at least it will indicate the correct co-ordinates now 😊 https://aprs.fi/#!lat=-33.82890&lng=151.08290

It was one of those *legendary* nights you wish came with a replay button, great vibes, big smiles, and happy faces all around! 😄
Let's do it again this year. Only 10 months to go, and blink twice… we'll be back before you know it!

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

The Snowball number was drawn (after a few tries) and the lucky winner was Dennis VK2VCC who took home the big prize, more radios and amateur stuff to be purchased Dennis??? no excuses now 😉.

Next meeting we will be ready to giveaway some more cash.

NEXT Meeting…….

Show And Tell

Got a shiny new project you're itching to show off? Whether it's your latest antenna masterpiece, a clever bit of radio wizardry, or *anything* radio related you've been tinkering with, bring it along.

We'll have a laptop ready to plug in your USB stick and beam your brilliance onto the Visitors Centre media wall. And of course, no gathering would be complete without the essentials, plenty of tea and coffee, plus a few biscuits thrown in for extra motivation for those not on diet 😊

The Disposables Table

Will be back with VENGANCE! at the next meeitng so please bring along those gadgets collecting dust that you no longer want, give it a second life.
Let's see what goodies the next meeting brings to the table! 😊

The IARS Flying Gang

The Flying Gang is a volunteer team to support IARS members who are unable to install or repair their antenna systems due to age, injury, or other limitations. Many members are finding it increasingly difficult to stay active on the air—especially when antennas are damaged by storms or when new systems need to be installed. If you need assistance, simply reach out to the team using the email addresses listed below. We'll coordinate with you to provide the help you need.

The flying gang team members, please REACH OUT to anyone of the team below.

Simon VK2XQX, Simon VK2KU, Keith VK2KQB, Adam VK2AEV, Phil VK2CPH, Tony VK2TS, Mal VK2DXM

Or contact us using any one of the emails below.
iars.keithb@gmail.com ; iars.simonr@gmail.com ; simon.ferrie3@det.nsw.edu.au

Other contacts like phone numbers are on the club website at https://www.iars.org.au/?page_id=29

Licensing and upgrades?

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

We have approved **ACMA** accessors that can offer remote or face to face assessments for the **ACMA**

Please contact Keith VK2KQB at iars.keithb@gmail.com for further information on training and assessments.

Your society supports further learning, please find out more on how we can help you.

GREAT INFORMATION >>>>> Last year the IARS assisted in getting 14 new amateurs licenced and upgraded…. Average was more than one a month.

The IARS helping Amateur Radio grow in Australia

Australian Government | acma Australian Communications and Media Authority

If you would like to find out more about amateur radio upgrades, here are some handy links to help.

https://www.acma.gov.au/qualifications-operate-amateur-radio

https://www.acma.gov.au/amateur-radio-resources

https://www.acma.gov.au/amateur-radio-accredited-assessors

https://www.acma.gov.au/amateur-radio-licences

https://www.acma.gov.au/technical-details-amateur-radio-licences

https://www.acma.gov.au/amateur-radio-operating-procedures

https://www.acma.gov.au/amateur-radio-call-signs

https://www.acma.gov.au/amateur-class-licence

https://www.acma.gov.au/amateur-radio-related-fees

IARS NETS

1. Saturday Morning, the EAST COAST NET hosted by Steve VK2BGL at 9.30am

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.

The IARS would also like to thank Doug VK2XLJ and Angelo, VK2NWT who are is always willing to assist whilst Steve is away.

2. **IARS Tuesday evening weekly 80m NET on 3.666MHz at 8.30pm hosted by Mal VK2DXM using VK2AMW.**
   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. Normally runs for around 60minutes.

3. **IARS Wednesday evening weekly 6m NET, 8PM on 53.650Mhz with a – 1Mhz offset Hosted by Geri VK2UTE or Simon VK2XQX, (123Hz CTCS tone enabled due to interference) Maddens plains 6m Repeater**
   General discussions about building antennas for 6m, transceivers and what else comes to mind, this net is normally between 30 and 60minutes.

4. **IARS Thursday evening weekly 10m NET, 8PM on 28.466Mhz +/- for QRM/QRN Hosted by Tony VK2TS**
   General discussions about building antennas for 10m, transceivers and what else comes to mind, this net is normally between 30 and 60minutes.

5. **IARS Monday evening weekly 70cm NET , 8PM on 438.675MHz ** with – 7MHz offset (No CTCSS required) Hosted by Rob VK2XIC (note this has been moved due to the Ozzie Pub Nett at 8pm on Fridays**
   General discussions keeping the repeaters in work, ***"If we don't use it, we may lose it "***

6. **The Ozzie Pub Net is on Friday 8PM, linked via VK2MT-R which is 146.850Mhz and 146.675Mhz**

IARS REPEATERS

VK2RUW (Knights Hill) VK2RMP (Maddens Plains)

146.675 MHZ >>>>> *linked* <<<<< 146.850 MHZ

Current Repeater STATUS

- **439.675 with a – 7MHz offset, C4FM Enabled. OK – On Air**
- **147.275 with a + 600kHz offset NO CTCSS, C4FM enabled OK – On Air**
- **146.850 with a – 600kHz offset (linked to 146.675) NO CTCSS OK– On Air**
- **146.675 with a – 600kHz offset (at Knights Hill, linked to 146.850) NO CTCSS OK– On Air**
- **53.650Mhz with a – 1Mhz offset (123Hz CTCSS tone enabled due to interference) OK– On Air**
- **438.725Mhz with a -5mHZ offset DMR only, OK – On Air**
- **1296.850Mhz Experimental Beacon/Simplex repeater, Maddens Plains OK – On Air ***
- **Echo-link VK2MT-R via 146.850MHz also linked to 146.675MHz and VK2BGL-L OK**
- **APRS DIGI-PEATER on 145.175MHz OK– On Air**
- **PACKET 2M on 147.575Mhz Temporarily off air**

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.

If the repeaters are silent, why not just give out a call, who knows who may be on the other end of the tower.

Latest Repeater Report:

*** Note, this will be changing to 1.293 800 GHz Simplex soon, however, plans are in place for it to become a Full Duplex repeater system during 2026 (Funding dependant)**

A special thanks to Roger VK2VRK for building a new APRS repeater unit, replacing the aging FM828 and Modem. It was installed over the Christmas break and initial reports are very pleasing with increased coverage and signal integrity already reported by a large number of amateurs using the system. The co-ordinates are also in line with the actual placement of the unit.

146.850MHz receiver at Maddens Plains is operating off a temporary antenna until the main dipole is repaired/replaced. Please advise if you are having signal difficulties, include your location with a grid square.

BUY..SWAP..SELL..GIVEAWAY

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

Tower Giveaway




I'm planning to move QTH over the next couple of months and unfortunately won't have room at the new place for my tower. Rather than see it go to waste in Tony VK2TS metal recycling bin, I'm happy to give it a new home **for free**. It comes complete with the winch motor with cable, Yaesu antenna bearings, galvanised pole with thick wall and rotator can remain and purchased if wanted.

There is one catch — it needs to be removed by the new tower owner.

The tower is made up of two main parts: the fixed tower section, and a movable carriage that holds the rotator and supports the mast and beams. In the photos, the first image shows it fully extended, with the carriage right at the top. When antenna work is needed, the carriage is lowered using the winch, the support bolts are removed, and the winch cable is clipped onto the mast. The whole carriage can then be tilted down to a nice, comfortable working height. One man operation so the Flying Gang is not required for any maintainance. The tower on its own is approximately 10meters and weighs about 180kg. Once extended, the comple height is about 16meters to the top beam.

If you're interested, please email me, vk2kqb@gmail.com

Electronic component and service suppliers

JLCPCB https://jlcpcb.com

element14 https://au.element14.com

RS https://au.rs-online.com/web/

Mouser Electronics https://au.mouser.com

DigiKey https://www.digikey.com.au

Minikits https://www.minikits.com.au

Core Electronics https://core-electronics.com.au

Elite https://www.elitecommunications.com.au

Little Bird Electronics https://littlebirdelectronics.com.au

ATR Amateur Transreceiver Radio Supplies **https://amateurradiosupplies.com.au**

BNCom Australia https://bncom.com.au

VK Radio **YAESU Sales and repairs** https://www.vkradio.com.au

DXing https://dxing.com.au

Telco Antennas https://www.telcoantennas.com.au

Altronics **https://www.altronics.com.au**

Jaycar **https://www.jaycar.com.au**

TWR Technology ICOM **agent** **carlo.twr@gmail.com**

Radio Communications Equipment Supply, Service including radio and antenna installations, support local Wollongong business

If you know of a good supplier of electronic stuff or services 😊, please share it with us so we can all benefit.

Send information to iars.keithb@gmail.com and we will publish it in the next propagator

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got an idea

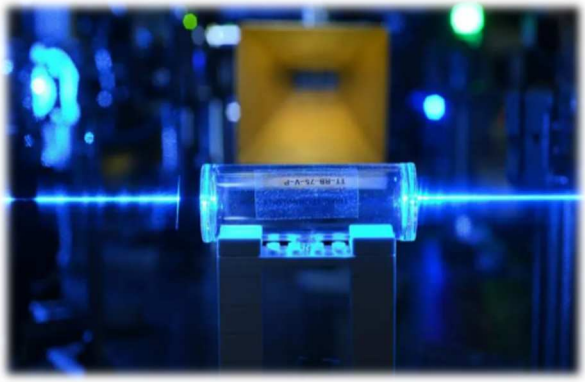
Tech Corner

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

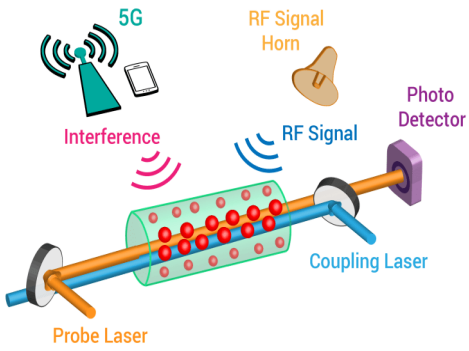
Let us know by return email iars.keithb@gmail.com

Rydberg Atomic Quantum Receivers for Classical Wireless Communication and Sensing



Rydberg atomic quantum receivers (RAQRs) are revolutionary devices using excited Rydberg atoms to detect radio frequency (RF) signals with ultra-high sensitivity and broad tunability, overcoming limitations of traditional antennas by converting RF to optical signals, enabling quantum-limited sensing, and promising advancements in wireless communication, sensing (like direction-finding), and metrology by leveraging large atomic dipole moments and quantum effects like Electromagnetically Induced Transparency (EIT).

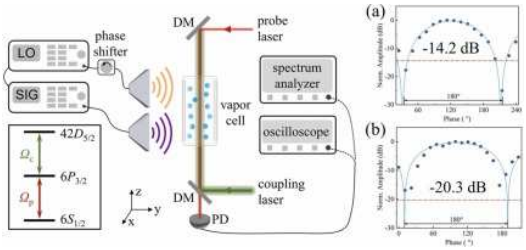
Detecting faint electromagnetic signals requires increasingly sensitive receivers, and a new approach utilising the unique properties of Rydberg atoms promises a significant leap forward in this field. Javane Rostampoor and Raviraj Adve, both from the University of Toronto, lead a team that investigates how these highly excited atoms can overcome a major challenge in signal detection, interference from unwanted signals. Their research demonstrates that a receiver built with Rydberg atoms effectively filters out interference without needing additional components, a feat conventional receivers struggle to achieve. This innovative design allows the Rydberg receiver to simultaneously filter and decode signals, resulting in a lower error rate and paving the way for more reliable communication and sensing technologies.



Scientists are exploring a new approach to wireless communication using Rydberg atoms as receivers, offering a potential solution to signal interference. Rydberg atoms, with their extreme sensitivity to electromagnetic fields, can detect and demodulate radio frequency signals with remarkable precision. This research demonstrates how a Rydberg receiver can effectively suppress interference, specifically a strong unwanted signal operating on a different frequency than the desired communication signal. The receiver functions using a five-level atomic system, allowing for nuanced interaction with incoming radio waves.

The team investigated an 8-ary Phase Shift Keying (8-PAM) modulated signal, encoding information in variations of the carrier wave's phase, while simultaneously introducing an interfering signal. The core principle relies on the AC Stark shift, where the interfering signal alters the energy levels of the Rydberg atom, effectively distinguishing the desired signal from noise. Detailed modelling and simulation accurately predicted the receiver's performance. Simulations confirm that the Rydberg receiver successfully mitigates interference, filtering out unwanted signals through the AC Stark shift. Performance comparisons reveal that the Rydberg receiver outperforms conventional receivers, even those equipped with substantial interference attenuation filters.

Accurate calibration is important, but the Rydberg receiver maintains a performance advantage even with some calibration errors. The AC Stark shift is crucial, as the interfering signal creates an electric field that subtly changes the atom's energy levels, altering its response to the desired signal. Utilizing a five-level atomic system provides greater control over the interaction between the radio signals and the atom, enhancing the desired signal while suppressing interference. The Symbol Error Rate (SER), a measure of decoding accuracy, serves as a key metric for evaluating receiver performance, with lower rates indicating better performance.



This research represents a novel approach to wireless communication, exploring the untapped potential of Rydberg atoms. The detailed modelling and simulations provide a solid foundation for future development, and the performance comparison clearly demonstrates the receiver's capabilities. By addressing the real-world problem of interference, this work offers a promising path towards more reliable and efficient wireless communication systems. Future research will focus on building and testing a physical Rydberg receiver to validate the simulation results. Investigating ways to simplify the design and scale it up for practical applications is also crucial.

Reducing power consumption is essential, particularly for mobile devices. Testing the receiver in realistic interference scenarios, with multiple interfering signals and varying signal strengths, will further refine its performance. Finally, integrating Rydberg receivers with existing wireless standards, such as 5G and Wi-Fi, is vital for widespread adoption.

How They Work (Core Principles)

- **Rydberg Atoms:** Atoms are excited to extremely high energy levels (Rydberg states), giving them massive electric dipole moments, making them highly sensitive to electric fields.
- **Atom-Light Interaction:** A weak laser creates a transparency window (EIT) in the atomic vapor.
- **RF Detection:** The incoming RF signal perturbs this transparency, and this change is read out optically, effectively converting the RF signal into a measurable light signal.

Key Advantages & Applications

- **Superior Sensitivity:** Can achieve near quantum-limited performance, significantly outperforming classical receivers.
- **Broadband & Compact:** Size is independent of wavelength, allowing for compact devices covering DC to Terahertz frequencies.
- **Metrology & Calibration:** Provide fundamental standards for traceable electric field measurements, overcoming calibration challenges.
- **Wireless Systems:** Integrate into classical systems for better communication (MIMO) and sensing (Direction of Arrival estimation).

RAQRs vs. Traditional Receivers

- **Traditional Antennas:** Size-dependent on wavelength, limited by geometry and materials, struggle with calibration.
- **RAQRs:** Quantum-enhanced, size-independent, offer extreme precision, directly measuring electric fields.

In essence, RAQRs use quantum mechanics to create a new generation of RF sensors and receivers with unprecedented capabilities for communication, navigation, and scientific measurement.

For more information see this link https://www.rydbergtechnologies.com

Jet Propulsion Laboratory
California Institute of Technology

NASA DSS-23 (Deep Space Station 23) is a new, advanced 34-meter (112-foot) beam-waveguide antenna being added to NASA's Deep Space Network (DSN) at the Goldstone complex in California, designed to significantly boost communication capacity for deep space missions, including future Mars and Artemis exploration, with advanced radio and laser capabilities, expected online around **2026**. As this system is part of the Canberra Deep Space Communication Complex, upgrades for the Tidbinbilla site are looming.

Canberra is getting the *sixth* new antenna in the same enhancement project, with DSS-23 being the fifth and expected online in 2026. Both stations are crucial parts of the global NASA Deep Space Network (DSN) (DSN) for communicating with spacecraft beyond Earth, alongside the Madrid complex.

Key Features & Purpose:

- **Beam-Waveguide Technology**: Uses mirrors and waveguides to send signals from the dish to receivers in the pedestal, allowing for multi-frequency communication.
- **Dual Capability**: Supports both radio frequencies and optical (laser) communications for higher data rates, crucial for future human missions to the Moon and Mars.
- **Location**: Goldstone Deep Space Communications Complex, California, one of three DSN sites.
- **Supports Major Missions**: Will track and command missions like Mars rovers (Perseverance), Europa Clipper, and Voyager 1 & 2.

Construction & Status:

- **Groundbreaking**: Occurred in February 2020.
- **Reflector Installation**: The 133-ton reflector dish framework was installed in December 2024, a major milestone.
- **Commissioning**: A multi-year process, with the antenna projected to become fully operational in 2026.

Significance:

- It's part of a DSN upgrade to handle the increasing demand from numerous deep space missions.
- Enhances NASA's ability to explore the solar system and beyond, supporting the Artemis program and future interstellar exploration.
- **Canberra's New Antenna:** The Canberra station (CDSCC) will receive the *sixth* new beam waveguide antenna in this DSN expansion, planned for completion around 2029.

Global Network: CDSCC (Canberra Australia) , GDSCC (Goldstone), and the Madrid (Spain) complex form the three vital locations of the DSN, providing continuous contact with spacecraft.

The Future of Amateur Radio in 2026

As of late 2025 and early 2026, the most interesting developments in amateur radio centre on integrating **advanced, AI-assisted digital modes**, **high-performance, low-cost software-defined radio (SDR) hardware**, and the rise of **personal space weather stations**.

The Rise of "Intelligent" Digital Modes (FT8/WSPR/VarAC)

- **AI-Enhanced Propagation & Decoding:** While FT8 is established, the cutting edge lies in using AI for real-time propagation prediction (VOACAP) and smarter signal decoding.
- **VarAC:** This is gaining massive popularity, acting like "Discord over RF." It allows for real-time, text-based chatting over HF, combining the efficiency of digital modes with the conversation style of analogue.
- **WSPR (Weak Signal Propagation Reporter):** This mode continues to revolutionize low-power (QRP) experimentation, allowing operators to map their signals globally for under $50.

The Shift to "Field Radio" (QRP) and Compact Gear

- **Sub-$300 QRP SSB Radios:** Highly portable, versatile, all-mode radios (like the (tr)uSDX and QRP Labs QMX) have become incredibly popular, enabling global communication with very little power.
- **SOTA (Summits on the Air) & POTA (Parks on the Air):** The explosion of these activities has spurred a surge in innovation for compact, efficient, and rugged portable antennas and radios.

Open-Source SDR and "SDR Handies"

- **Hermes Lite II & Radioberry:** Open-source SDR projects are producing receivers that perform better than commercial units from a few years ago. The $140-$200 range for high-performance, open-source SDR is changing the game.
- **SDR Handies:** New, highly sophisticated handheld radios featuring built-in, low-noise DSP (Digital Signal Processing) and touchscreen interfaces are starting to emerge.

HamSCI and Citizen Science

- **Personal Space Weather Station (PSWS):** Amateur radio operators are now actively measuring and modeling the Ionosphere in collaboration with NASA and academic institutions. These stations allow hams to contribute to ionospheric research, studying phenomena like Traveling Ionospheric Disturbances (TIDs).

High-Altitude Ballooning & Imagery (Project Horus)

- **Wenet Imagery:** Amateurs are using high-altitude balloons to send live images from the edge of space to web browsers. This combines amateur radio with high-speed data telemetry (e.g., 434.200 MHz/443.5 MHz).

Geostationary Satellites (QO-100)

- **QO-100/FutureGEO:** The Qatar-Oscar 100 satellite continues to be a massive success, providing a stable, high-performance geostationary link for Europe, Africa, and Asia, which is now being expanded upon by the "FutureGEO" concept supported by AMSAT-DL.

New Antenna Technology (Digital Materials)

- **Compact Phased Arrays:** Amateurs are increasingly experimenting with compact, computer-controlled phased array antennas for superior signal directivity, even in restricted spaces.

High-Performance Field Radios

A new generation of ultra-compact, high-performance transceivers is dominating the market in 2026

- **Yaesu FTX-1 Field**

  A long-awaited multi-mode field radio designed to replace aging portable models, featuring advanced interference rejection and a robust, compact body.

- **Ultra-Affordable QRP SSB:** Devices like the **(tr)uSDX** and **QRP Labs QMX** have brought SSB (Single Sideband) capability to sub-$300 and even sub-$200 price points, enabling global communication from a pocket-sized radio.

Software-Defined Radio (SDR) Evolution

SDR technology has transitioned from expensive niche equipment to the standard for both entry-level and professional-grade stations:

- **RTL-SDR Blog V4**

  Released with improved filtering and the R828D tuner, this low-cost dongle ($38–$90 AUD) allows users to scan 500 kHz to 1.7 GHz with high precision using standard computers or Raspberry Pies.

- **Open Source SDR Boards:** Platforms like the **Hermes Lite II** and **Radioberry v2** (Pi hats) are enabling advanced features like diversity reception and PureSignal predistortion through open-source software like **Thetis**.

Space-Based Initiatives

Amateur radio is expanding beyond terrestrial limits with new satellite and deep-space projects:

- **futureGEO:** A major initiative supported by the European Space Agency (ESA) to launch a dedicated amateur radio payload on a Micro-GEO satellite, providing continuous wide-area coverage for education and research.

- **CubeSat SSTV Events:** In early 2026, the **Space-π** mission is actively transmitting Slow Scan Television (SSTV) images from the **UMKA-1 (RS40S)** CubeSat, allowing hams to receive space-based imagery with simple equipment.

- **WSPR and FT8:** These "weak signal" modes remain the gold standard for long-distance communication with minimal power. Research continues through the **HamSCI Speaker Series**, which in early 2026 is exploring the spectral width of WSPR to better model the Sun-Earth system.

- **M17 Project:** This open-source digital voice protocol is gaining traction as a transparent alternative to proprietary systems, recently testing **cryptographic transmission signing** to prevent repeater jamming without violating "no encryption" rules.

Regulatory & Community Shifts

- **DARC Remote Project:** Officially launching in 2026, this project allows licensed operators to control high-end remote stations via the internet, eliminating the need for personal antenna systems in restricted living spaces.

- **Australian Band Plan Review:** A comprehensive review is currently underway in Australia (Q1 2026) to modernize how frequencies are allocated and presented to simplify operations for new users.

More interesting information about the future of Amateur Radio can be found here > https://daily.hamweekly.com

BACK TO BASICS DTMF

Same as CTCSS , DTMF is old tech- Yes, still around- Yes, leaving us anytime soon – Nope, here to stay.

DTMF (Dual-Tone Multi-Frequency) is still widely used today, especially in interactive voice response (IVR) systems, call centers for menu navigation (press 1 for sales), voicemail, and some two-way radio systems, repeater control systems, IRLP and Echolink, working reliably alongside newer digital tech and bridging legacy systems with cloud-based platforms. While voice recognition offers alternatives, DTMF remains crucial for consistent, scalable, and error-resistant numeric input in automated phone services.

Where DTMF is Still Essential

- **IVR Systems & Call Centers:** For routing calls ("Press 2 for support") and self-service options.
- **Voicemail:** Navigating messages (play, delete, save) with keypad inputs.
- **Legacy Infrastructure:** Connects older phone systems with modern VoIP and cloud services.
- **Two-Way Radio & Amateur Radio:** For selective calling, station ID, and repeater control.
- **Specialized Applications:** Some video systems use DTMF for duplication info, and remote control functions.

Why it Persists

- **Reliability:** It's a robust, proven technology for sending numeric data over voice channels.
- **Compatibility:** Works across both analog and digital networks.
- **Simplicity:** Easy to implement and offers faster, more accurate input than voice in some noisy situations.

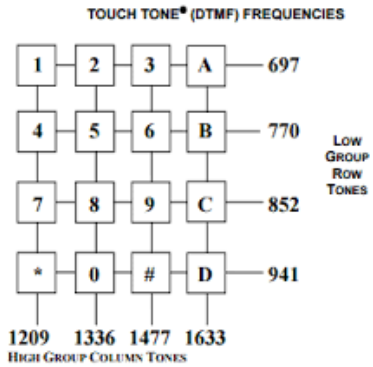
In short, even as AI grows, DTMF remains a foundational "behind-the-scenes" technology for many common phone interactions, ensuring smooth operation for businesses and users.

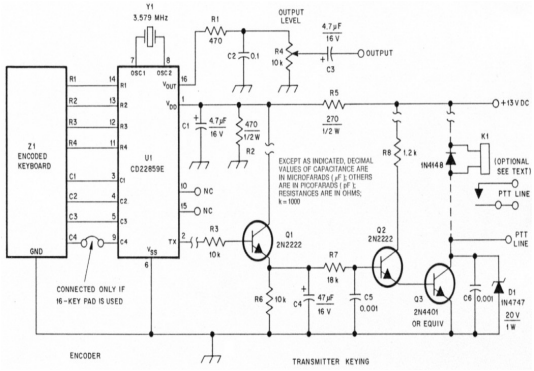
How does it work?

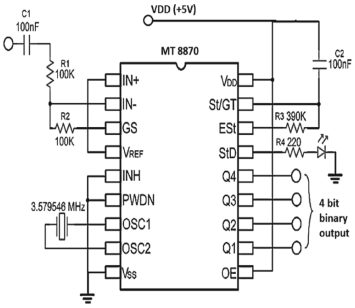
The DTMF system uses two sets of four frequencies in the voice frequency range transmitted in pairs to represent sixteen signals, representing the ten digits and six additional signals identified as the letters A to D, and the symbols # and *.

As the signals are audible tones, they can be transmitted through line repeaters and amplifiers, and over radio and microwave links.

The DTMF keypad is laid out as a matrix of push buttons in which each **row** represents the **low-frequency component** and each **column** represents the **high-frequency component** of the DTMF signal. The commonly used keypad has four rows and three columns, but a fourth column is present for some applications. Pressing a key sends a combination of the row and column frequencies. For example, the *1* key produces a superimposition of a **697 Hz** low tone and a **1209 Hz** high tone. Initial pushbutton designs employed levers, enabling each button to activate one row and one column contact. The tones are decoded by the switching center to determine the keys pressed by the user.







Decoding DTMF

DTMF was originally decoded by tuned electrical filter banks. By the end of the 20th century, digital signal processing became the predominant technology for decoding.
DTMF decoding algorithms typically use the Goertzel algorithm, although application of the MUSIC algorithm to DTMF decoding has been shown to outperform Goertzel and being the only possibility in cases when the number of available samples is limited.
As DTMF signaling is often transmitted in-band with voice or other audio signals present simultaneously, the DTMF signal definition includes strict limits for timing (minimum duration and interdigit spacing), frequency deviations, harmonics, and amplitude relation of the two components with respect to each other.

- Amateur radios transmit standard DTMF tones (0-9, *, #, A-D) from their keypads.
- These tones are often sent simultaneously with the PTT press, and the repeater or receiving station decodes them.
- The tones are reliable because they use distinct audio frequencies, making them less prone to interference than voice alone.

The IARS uses DTMF to control the repeater systems at Knights Hill and Maddens Plains.

It consists of a key code and then an instruction tone that can either turn something on or off or even change receivers or transmitters.

DTMF (Dual-Tone Multi-Frequency) tones can be used to interact with certain systems on the International Space Station, specifically the amateur radio equipment during designated operations. This is part of the amateur radio (ham radio) capabilities available to licensed operators on Earth.

DTMF Use with the ISS Amateur Radio System

The primary use of DTMF is for controlling specific functions or sending pre-encoded messages to the onboard radio systems, particularly in the Russian Service Module.

- **System Control**: The onboard Kenwood D700/D710 radios can be configured to respond to DTMF commands for tasks like selecting different preloaded messages or operating the packet radio system.

- **Encoded Messages**: DTMF strings can be used to send encoded, standardized two-digit message numbers (00 to 99) to select from preloaded messages on the spacecraft.

- **Specific Frequencies**: A specific uplink frequency in the 1260 MHz band is dedicated to using DTMF signals, acting as a backup system for other communication bands.

- **Packet Radio**: DTMF is used in conjunction with packet radio operations, where tones can control the digipeater (digital repeater) functionality that allows ground operators to relay messages through the station.

Common DTMF Encoder Chips

- **HT9200A (or HT9200):** A popular 8-pin DTMF generator IC that uses a low-cost 3.579 MHz crystal for generating 16 standard DTMF tone pairs. It is commonly found in DIY and hobbyist applications, such as the DTMF Generator Click board.
- **MT91214B (or 91214B):** A single-chip, CMOS IC with an on-chip oscillator, often used with a 3.58 MHz crystal for generating DTMF tones from a 4x3 matrix keyboard.
- **MK5087N (Mostek):** An older, classic 16-pin DTMF encoder chip that is still available from some surplus or specialty vendors.
- **TCM5089, TP5089:** Other common DTMF generator ICs often mentioned in reference designs.
- **CMX865A:** A more advanced DTMF codec (encoder/decoder combo) chip used in commercial products that require both generation and detection of DTMF signals, as well as FSK data transmission.

Common DTMF Decoder Chips

- **MT8870:** The most common chip, often found on breakout modules, which decodes 16 DTMF tones into 4-bit binary data and includes a "Data Available" (STQ/SDQ) signal.
- **MC145436:** Another recognized DTMF decoder IC, available from electronics suppliers.
- **PSB4500P:** A variant of the decoder IC, often found in DIP packages.

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Handy On Line Calculators

Send us your favourite handy calculator link so we can post it here!

Ladder line calculator www.smrcc.org.uk/tools/OpenWire.htm

Cavity Filter designer https://www.changpuak.ch/electronics/Coaxial_Tank_VHF_Filter_Designer.php

Cavity resonance calculator https://learnemc.com/ext/calculators/cavity_resonance/index.html

COAX LOSS Calculator https://kv5r.com/ham-radio/coax-loss-calculator/

Impedance ….. https://www.omnicalculator.com/physics/rlc-impedance

Wavelength …. https://www.omnicalculator.com/physics/wavelength

PI attenuator values …… https://www.omnicalculator.com/other/pi-attenuator

Xc …… https://www.omnicalculator.com/physics/capacitive-reactance

XL …… https://www.omnicalculator.com/physics/inductive-reactance

Cut Off ….. https://www.omnicalculator.com/physics/cutoff-frequency

VSWR …… https://www.omnicalculator.com/physics/vswr-voltage-standing-wave-ratio

LM317 Regulator resistor selector ….. https://www.omnicalculator.com/other/lm317

Resistor Colour code calculator….. https://www.digikey.com.au/en/resources/conversion-calculators/conversion-calculator-resistor-color-code

Resistor Heat rise ……. https://calculator.academy/resistor-heat-calculator/

Volt Drop Calculator AC and DC …….. https://www.rapidtables.com/calc/wire/voltage-drop-calculator.html

Helix antenna calculator ……. https://sgcderek.github.io/tools/helix-calc.html

Parabolic dish calculator ……. https://www.everythingrf.com/rf-calculators/parabolic-reflector-antenna-gain

We are looking for more handy on-line calculators, if you have one that isn't listed above, please share with us so that more amateur radio enthusiasts can benefit ☺

OR

If you have any links to handy hints or information, please send it to us!

How many of these can you still answer correctly?

Question 1. The approximate forward bias value for a germanium transistor is:

a) 0.2 volt
b) 0.6 volt
c) 0.9 volt
d) 1 volt

Question 2. The RF signal normally applied to the balanced modulator of an SSB transmitter is generated by the:

a) heterodyne oscillator
b) variable frequency oscillator
c) intermediate frequency oscillator
d) carrier oscillator

Question 3. RF radiation from transmitting equipment:

a) increases in danger with increase in frequency,
b) can cause tissue damage in the short term
c) can cause cumulative eye damage
d) all of the above

Question 4. The frequency of an electromagnetic wave which has a single cycle duration of 2.25 nanoseconds is approximately:

a) 28 MHz
b) 54 MHz
c) 144 MHz
d) 444 MHz

Question 5. In satellite communications, Doppler effect causes an apparent:

a) frequency increase as the satellite moves towards the ground station
b) frequency decrease as the satellite moves towards the ground station
c) frequency doubling at the point of closest approach
d) frequency increase as the satellite moves away from the ground station

Question 6. The standard colour code used to identify the earth conductor of a flexible 3-core AC power cord is:

a) green/yellow
b) red/yellow
c) brown
d) blue

Answers next propagator ☺

Answers to the last propagator questions … Q1 = A ; Q2 = B; Q3 = A ; Q4 = D; Q5 = A ; Q6 = B

How well did you do, will you still pass the Amateur Radio test?

THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY
PO BOX 1838 WOLLONGONG NSW 2500

VOLUME 84, NUMBER 1 FEBRUARY 1984
Registered by Australia Post Publication No. NBH1491

MEETINGS ARE HELD ON THE SECOND MONDAY OF EACH MONTH (EXCEPT JANUARY) AT 7.30 P.M. IN THE CONGREGATIONAL HALL, CORNER OF COOMBE AND MARKET STREETS, WOLLONGONG. VISITORS ARE WELCOME TO ATTEND MEETINGS.

NOTICE OF MEETING

The next meeting of the Illawarra Amateur Radio Society will be held in the Congregational Hall, Coombe Street, Wollongong, on February 13th 1984 at 7.30 p.m.

REMINDER TO MEMBERS

The I.A.R.S. "Kilometre Kontest" is now in progress.
For details see the December Propagator.

THE DECEMBER MEETING

The last meeting for 1983 was held on Monday 12th December, attendance at some 40-odd being down a bit on the usual, no doubt due to the imminent Christmas holiday break. There was one visitor, VK2PEX, who received the customary welcome.

Among General Business, President Dave VK2DFL congratulated Geoff VK2PBU on behalf of the meeting for his upgrade to full call VK2EWJ, and extended birthday greetings to Roy VK2KO.

Graeme VK2CAG reminded members of the availability of I.A.R.S. Tee Shirts (see the December Propagator), but said that only size 16 was in the Club Store. Other sizes could be ordered.

On display was a model of the 'Unidyne', the "1920's style 1-valve Wireless Set" which is described in Electronics Australia for November 1983. This nicely finished model had been constructed by Dave VK2YKQ from a kit supplied by Technicraft, 388 Katoomba Road, Katoomba. Current price for the kit is now $84.50 which is inclusive of postage.

Macelec Pty. limited Professional and Industrial Electronics

99 Kenny Street, Wollongong
P.O. Box 1755, Wollongong. 2500
Telephone (042) 29 1455
Telex AA29232

AMATEUR RADIO EQUIPMENT PRICES - FEB '84.

Most of these prices have been genuinely reduced and are available for the month of February or while stocks last.

Icom.

IC730 10-80 Mtr 100 Watt (12VDC) Transceiver with SM5 Desk Microphone, HM7 Fist Mic, FL54 c/w Filter, P515 Pwr Supply and ICSM5 Base Station extension Speaker.

This system has been used on air for approx 2 hours. It is as new and carries full warranty. Normal Price $1,450.00
Reduced to only.....$1,150.00

Icom.

IC2A 2 Mtr Hand Held 800 CH with Nicad Batteries and Charger.....$285.00

BC31E Icom Rapid Charger.....$44.00

HM9 Ext Spkr.Mic suit IC2A/4E.....$20.00

BP5 HD Battery Pack.....$50.00

MB16 Mobile MTG Bracket suit IC2A/4E.....$10.00

CP1 Cigarette Lighter Plug/Cord.....$6.00

GC-4 Icom World Clock.....$120.00

Kenwood.

MC50 Dual Impedance Desk Mic.....$60.00

MC355 Fist Mic.....$33.00

SW-100B Swr/Pwr meter for 140 to 450 MHZ.....$58.00

MB430 Mobile Mtg Bracket for TS430.....$20.00

AT130 80-10 Mtr Antenna Tuner.....$120.00

Daiwa.

CNA-1001 Automatic Antenna Tuning Unit.....$275.00

CS-201 2 position Coax Switch.....$45.00

We also have a wide range of Kenwood and Icom Products available.

THE ILLAWARRA AMATEUR RADIO SOCIETY - P. O. BOX 1838 WOLLONGONG 2500

Meetings: Second Monday of every month except January at 7.30 p.m. in the Congregational Church Hall, Coombe Street, Wollongong. Committee Meeting - 3rd Monday of each month.

Repeaters: VK2RAW - 6850 VHF Mount Murray. VK2RIL - 7275 VHF Sublime Point.
VK2RUW - 8225 UHF Hill 60 Port Kembla. VK2RIL - 8725 UHF Sublime Point.

Broadcasts: On Sunday night prior to Club Meeting - 7.00 p.m. RTTY on 6850 VHF Repeater; 7.15 p.m., Voice on 6850 VHF, 7275 VHF and by relay on 3.562 Mhz. Call backs after the WIA relay at 7.30 p.m.

W.I.A. Relay: On 6850 VHF at 11.00 a.m. and 7.30 p.m. weekly on Sunday.

Club Nets: 3562 Khz SSB on Sunday at 8.00 p.m. and slow morse net on 28.440 Mhz on Tuesday at 8.00 p.m.

Newsletter: "The Propogator", published monthly to reach financial members in week prior to meeting. All articles, ads etc. to the editor, Leo Kleeborn, VK2YJK at 33 Lombard Avenue, Fairy Meadow 2519. Telephone 84.9751. Copy deadline 3rd Tuesday each month.

Membership: The Secretary, I.A.R.S. P. O. Box 1838, Wollongong 2500. Full membership is $7.00 per annum; students and pensioner concessional members $4.00 per annum.

QSL's: For financial members who are also financial members of the W.I.A. ONLY.
Inwards: Mike Keech VK2DFK, QTHR; Outwards: Ian Callcott VK2EXN QTHR.

Awards: The award of the I.A.R.S. is "The Lawrence Hargrave" award. VK stations require 10 contacts with I.A.R.S. members; overseas stations require 5 contacts with I.A.R.S. members or contact with the Club station VK2AMW is sufficicnet in itself for the award. Band details - time, day, date, frequency, station worked + $2.00 or 4 I.R.C.'s to Award Manager, I.A.R.S., P. O. Box 1838, Wollongong 2500. No QSL cards required.

Store: The Club store operates at each Club meeting.

Committee: President - Dave Myers VK2DFL, 78 Highlands Pde., Bulli.
Vice President - Keith Curle VK2OB, 24 Beach Drive, Woonona.
Secretary - Murray McConnell VK2MY, 62 Ramah Avenue, Mt. Pleasant.
Treasurers - Geoff Cuthbert VK2ZHU, 2 Nioka Avenue, Keiraville.
Richard Fox VK2ERF, P. O. Box 1120, Wollongong.

General Committee: Mike Keech VK2DFK, Ian Callcott VK2EXN, Ray Ball VK2XCC Morry Van-De-Vorstenbosch VK2EMV, Jim Mead VK2EJM, Jock Taylor VK2JT, Roy Parton VK2KO.

Repeater Chairman: Graeme Dowse VK2CAG.

Repeater Committee: Mike Keech VK2DFK, Morry Van-De-Vorstenbosch VK2EMV, Ian Callcott VK2EXN, Dave Colless VK2EZY.

Broadcast Officers: Denis McKay VK2DMR, Paul Gardiner VK2ZQT.

QSL's: Mike Keech VK2DFK and Ian Callcott VK2EXN.

Propogator Editor & Staff: Leo Kleeborn, Editor VK2YJK, Ken Frost VK2DOI, Cartoonist Brian Wade VK2AXI.

Storepersons: Kitty and Kel Smith VK2PSK, VK2PSI.

Life members: Graeme Dowse VK2CAG Keith Curle VK2OB

Will share more oldies next month.

To read more information about this old propagator and others, use the link below

https://www.iars.org.au/wp-content/uploads/2020/09/1984-02-February.pdf

Keith's Garage by Ned VK2AGV

From the ever-unfolding imagination of our resident word-wizard, the one and only Ned VK2AGV, comes yet another chapter. Having already survived the trolls lurking beneath the driveway bridge, and artfully disguised half-buried UFO among the grapevines (which, naturally, conceal the *real* antennas), Ned's mind now wanders deeper into the beating heart of the QTH — the Garage… also known as man's cave.

As foretold, these tales are rich with wandering RF signals, questionable contraptions, and power cables that seem to appear only when you're not looking. Strictly speaking, they may not be amateur-radio related — but the sheer entertainment Ned delivers on our morning commute makes them far too good *not* to share.

*A word of warning, though: choose your comments wisely around Ned. Listen carefully… because next time, the story might be about **you**.*

In previous episodes we have seen the engineering wonders of Keith's driveway and his back yard. Now it's time to examine the complexities of his garage.

As we already know, Keith's wife has herds of horses, so there is about thirty tons of hay stored in the garage. Add to this something like forty saddles, associated tack, veterinary supplies and specialised feed for the nags and so on and there is quite some volume of stuff there, so the garage is necessarily large.

The massive enclosed volume actually works to Keith's advantage, allowing him plenty of room for storage of various items, including banks of washing-machines for the horse-blankets etc, a fleet of ride-on lawn-mowers, several dozen bicycles of different and occasionally exotic designs and tools, consumables etc for maintaining these items.

So, once you have worked your way past all these items, those who manage to stay the course will find the entrance to Keith's workshop.

To say the workshop is cavernous is slightly understating the case. The entrance appears nondescript enough, just a heavy oak-beam door, with old medieval cast-iron hinges and bindings. Think of the entrance to a dungeon and you get the idea. But once you are through those unassuming yet darkly portentous doors you enter a huge space which Keith deprecatingly refers to as his workshop.

The "workshop" is truly massive. Excavated into the bedrock of the hill where Keith's house is built, it stays at a steady eighteen degrees Celcius year-round. It is so quiet and stable Keith leases out a small portion of the floor-space to the local university which has installed extremely sensitive seismometers to detect minute earth-tremors as Keith's location is the only one where they are not influenced by traffic, train movements etc.

In his workshop Keith has his magnificent collection of Tektronix oscilloscopes, Rohde & Schwarz spectrum-analysers and signal generators from Marconi, Hewlett-Packard, Rumpel Stross and Grundfoss-Schussnig (before they merged to become Grundig). All are working, and the valve-powered units are kept permanently turned on to maximise valve-life and ensure they are ready for use at short notice. Over fifty magnificent units are available for Keith to use whilst he repairs various items of amateur and commercial equipment.

High quality vintage HF receivers are also found here, including Drake R7s, Hammarlund, Heathkit, Racal and Collins valve-receivers, plus some more recent solid-state units from military-grade makers such as Thales, Barrett, L3Harris, DTC and Hilberling, with more hobbyist-grade classic receivers including the Icom R70, Yaesu FRG-7 and FRG-

7000 units, several Kenwood R-100s and some JRC receivers, the NRD-515, 535 and 545 models being especially well-represented.

Pride of place goes to his Watkins-Johnson WJ-8711A military-grade HF receiver, which he uses when working DX in his amateur-radio station. He has three of these, two of which are under restoration and one is fully-functional except the main CPU chip was damaged so he substituted one from an HF-1000 receiver (almost identical) so it comes up as an HF-1000 receiver when it powers up but it works like any other 8711A. Because of the HF-1000 CPU chip, the maximum IF filter bandwidth is restricted to 8Khz rather than the native 16Khz of the WJ-8711A.

Due to the superior audio recovery of this receiver, Keith is able to work stations well down into the noise-floor, giving him a significant advantage in contests.

The vault of transmitters is likewise impressive, with several former merchant-marine transmitters which have been re-worked for the amateur bands. Models include the Marconi Marine Conqueror HS, Challenger and the older Globespan and Oceanspan models (sharing much circuitry with the radio transmitters fitted to Lancaster bombers in World War Two). They all work extremely well with maximum output powers of up to 400W on MF and 1Kw on HF, extremely useful for working CW.

However, Keith eschews the American ITT-Mackay Marine "Senator" solid-state transmitters as their auto-tuning doesn't tune anything except a large dummy-load (on a good day), their frequency stability is poor and the phase-locked loop is more of a phase-loss loop. Keith has two and uses them as anvils for those times when horses need re-shoeing or wrought-iron work has to be performed.

When extra "grunt" is needed, a custom-built 50kW linear amplifier is called into use, but before he can fire this beast up he has to start the emergency genset supplying 3-phase power to the garage or there is a genuine danger of taking out the transformer mounted on the power-pole about a kilometre away from his house and the street lights actually flicker with the modulation.

Once Keith keys up and feeds it into one of the Beveridge antennas, nearby wildlife (birds, rabbits, foxes, and the occasional hapless koala) are in serious danger of RF burns. Wildlife within a few hundred metres is automatically placed on the endangered list.

Lastly there are the "amenities", comprising a fully tiled ensuite featuring white porcelain tiles with gilt trimming set in purest imported Italian grout. The taps work automatically by proximity sensors, and with the right combinations of hand-movements, an effect similar to playing a Theremin can be obtained as differing water-velocities in the pipework

activates musical notes of carefully chosen pitches in the Lydian and Mixolydian musical modes.

Truly, a visit to Keith's garage is an unforgettable experience.

A true poet among us, if you would like to hear Ned personally think up all these weird and wonderful things, tune in every morning on 146.850Mhz at around 6.30am for some interesting takes on life!

News & Upcoming contests

Ross Hull Memorial VHF/UHF Contest

Ross Hull Memorial VHF/UHF DX Contest (Marathon)

Contest Manager

Peter Freeman VK3PF

We look forward to a successful and rewarding Ross Hull Memorial VHF/UHF+ Contest (Marathon).
Logs email to: rosshull@wia.org.au

Contest Introduction

The Ross Hull Contest is a VHF/UHF++ DX contest, with points awarded for distances worked. There are also band multipliers to encourage activity on the higher bands.

Ross A. Hull 1902 - 1938

Information link https://www.wia.org.au/members/contests/rosshull/

Australia Day Contest

AUSTRALIA DAY CONTEST

Contest Manager

Diane Main VK4DI

Contest Introduction

New distance based rules and FT8/4 for 2023+

This contest is to encourage Amateur Radio promotional Activity around the world and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the Australia Day Public Holiday that being the 26th of January.

Information link https://www.wia.org.au/members/contests/australiaday/

WIA Election for Directors

Date : 08 / 01 / 2026
Author : WIA returning Officer

Update for the 2026 Election of Directors of the WIA

As you are aware there were four nominations received for the three Director roles that will be vacant at the end of the WIA AGM in May 2026.

Therefore in accordance with the Election Regulations, an election will be held by Ballot.

I have announced that the candidates for election are:

- Chris Dimitrijevic VK3FY
- Klaus Illhardt VK3IU
- Lee Moyle VK3GK
- Justin Giles-Clark VK7TW

Information link https://www.wia.org.au/newsevents/news/2026/20260108-1/index.php

World First Amateur Networking Project

Date : 04 / 01 / 2026
Author : Robert Broomhead - VK3DN

Networking Engineers have implemented a world first with the introduction of the VK Yaesu System Fusion IMRS Network in Australia.

The network is a first of its kind, carrier grade build for Australia and the world

KernWi-Fi, an NBN Provider based in South Australia has partnered with Australian amateur radio enthusiasts to design and deploy an enterprise grade, secure IP network for Yaesu's Internet linked Multi site Repeater System (IMRS) — bringing carrier class routing, segmentation and compliance practices to community radio infrastructure.

Information link https://www.wia.org.au/newsevents/news/2026/20260104-1/index.php

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Ballarat Amateur Radio Group (BARG) Hamvention
Club: Ballarat Amateur Radio Group Callsign: VK3KQT

State: VK3

Brief Description : BARG Hamfest 1st Feb 2026 10.00am

Full Details : The Ballarat Amateur Radio Group (BARG) will hold its annual Hamvention on Sunday the 1st of February 2026 in the Ballarat Polo-Crosse facility 207 Airport Rd, Mitchell Park VIC 3355. Doors open for traders at 8am and general access is at 10am. Entry is $10 and tables are $20.
Full details and booking is at www.barg.org.au

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PICTON HAMFEST

Will be back in May 2026 , watch this space for more details

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23cm Fun day on the 23rd of EVERY MONTH !!

If you are interested in 23cm or higher communications, the local IARS members are getting together with the MSCARC members on the 23rd of every month to have a fun day around the Illawarra area.

The SHF team are even looking at 13cm fun day on the 13th of every month, for more information please contact the SHF organiser Rob Heyer VK2XIC at **vk2xic@gmail.com**

Amateur radio news from around the world!

Use these handy links if you would like to see what is going on around the amateur radio world.

Radio Society of Great Britain https://rsgb.org/main

American Radio league https://www.arrl.org

Amateur Radio Germany https://www.darc.de/der-club/referate/ausland/english-version/

South African Radio League www.sarl.org.za

Italian Amateur Radio https://www.ari.it

Amateur radio France https://www.radioamateurs-france.fr

Amateur radio Russia https://srr.ru/sbory24_6/

Amateur Radio Japan https://www.jarl.org/English/

DX ATLAS DOWNLOAD https://dxatlas.com/Download.asp

https://daily.hamweekly.com

Communications Satellites

Status information and latest updates >>> https://www.amsat.org/two-way-satellites/

https://amsat-uk.org/satellites/frequencies-of-active-satellites/

https://ararm.org/status.html

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Upcoming IARS meeting presentations …….

Please note the changes to the meeting schedule.

There isn't a general or committee meeting every month, but that doesn't mean we skip the fun! "

Even when there's no official meeting scheduled, we still get together every month except January.

(See the schedule below — presentation topics may change.)

Doors open at 6:30pm, giving you time to settle in, but presentations and general meetings kick off after 7:30pm. The Snowball draw happens every month, except January when there are no gatherings.

Members are very welcome to arrive from 6:30pm to enjoy a cuppa and catch up with friends in the foyer before things get underway.

We need to wrap up and be out by approximately 9:30pm, so please lend a hand on your way out by popping empty cups in the correct bin and straightening your chair or putting it back if you have moved it.

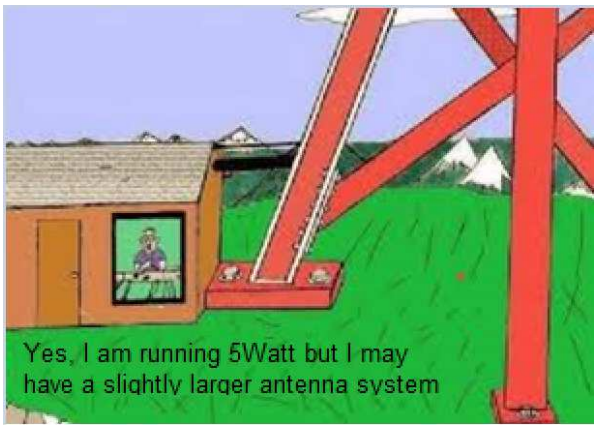
Thanks for helping keep things tidy!

- **February 2026** : Committee meeting starts at 6.30pm, followed by the general meeting at 7.30pm
  Presentation after general meeting is a Show and Tell, bring along your project
- **March 2026** : No committee or general meeting. Doors open 6.30pm.
  7.30pm presentation Roger VK2VRK
- **April 2026** : No committee meeting, doors open 6.30pm. General meeting starts 7.30pm
  Presentation after the general meeting is Project Mania with Simon VK2KU
- **May 2026** : Committee meeting at 6.30pm. No General meeting
  IARS Trivia with Ka-Hoot starts at 7.30pm, prizes for the top two contenders FFF
- **June 2026** : No Committee meeting, doors still open 6.30pm, General meeting starts 7.30pm
  Presentation Testing using low cost and home brew test equipment Keith VK2KQB
- **July 2026** : No committee or general meeting. Doors open 6.30pm.
  7.30pm, Ned VK2AGV, Secret presentation .. We know how good these are 😊
- **August 2026** : Doors open 6.30pm **AGM** starts at 7.30pm with new committee members elected.
- **September 2026** : No committee or general meeting. Doors open 6.30pm
  7.30pm, Show And Tell, bring along your project to share with us
- **October 2026** : No committee meeting, doors open 6.30pm. General meeting starts 7.30pm
  Presentation starts after general meeting. Topic TBA
- **November 2026** : Committee meeting at 6.30pm. No General meeting.
  IARS Annual Auction with Simon VK2XQX. Doors open at 6.30pm for sellers for looking to sell their gear. Equipment must be booked in before the auction starts at 7.30pm. Please NO latecomers.
- **December** : No committee or general meeting. Doors open 6.30pm 
  IARS year end Christmas function

Fun Corner

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

Thanks to all that sent in funnies.



The **IARS needs YOUR input and support,** any technical items, amateur radio news, any projects you would like to share, in fact any AR related goings on are welcomed.

Feedback is also very important for us as it helps maintain a good read, if you would like to see more of something, or would like to see a subject added. Please let us know iars.keithb@gmail.com

That's all for now, hopefully catch you all at the

Blue Scope visitors centre on the 10th February 7.30pm,

73

Keith VK2KQB

IARS Secretary

IARS, Amateur Radio in the Illawarra since 1948

Next Propagator and meeting will be for March 2026