

Our last meeting 13th August 2024



The IARS AGM was concluded at the last meeting and the new committee elected for 2024/2025.

The lucky committee members are :

- President Tony Stone VK2TS
- Vice President Rob McKnight VK2MT
- Treasurer John Lawler VK2EJL
- Secretary Keith Bradshaw VK2KQB
- Committee member Simon Ryan VK2KU
- Committee member Mal St Clair VK2DXM
- Committee member Simon Ferrie VK2XQX
- Committee member Rob Heyer VK2XIC
- Committee member Adam Moylan VK2AEV
- Committee member Shane Sorgsepp VK2HCO

No surprises here 😊, they must all love their jobs else they wouldn't be back again!

(unless they are buggers for punishment 😊)

Welcoming new committee member Adam VK2AEV and our newest club member Dennis Fielding VK2VCC.

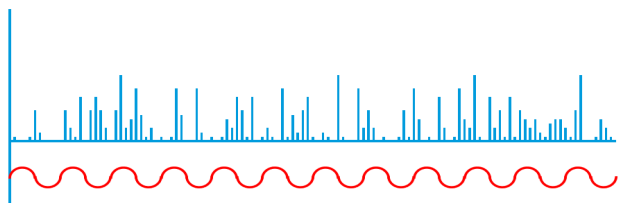
Make sure you listen out for Dennis on the air and make him feel welcome to the hobby.

It was a very relaxing meeting with no scheduled presentations, although we had Barry VK2ADQ and Ned VK2AGV explaining the technology behind the GPS system we take for granted every day. Thanks for the stocking fillers guys and looking forward to the actual presentation by Barry on GPS systems early next year.

Coffee, tea and biscuits was the order of the day with a great chinwag afterwards.

NEXT MEETING

Detecting Signals in Noise



Now that must get you interested, detecting signals in the noise!

IARS Society member Ciaran will be sharing a rather interesting subject with us. We all suffer for the dreaded QRM and even QR Nellie sometimes, and wouldn't it be good if we could all detect the QSO among the QRM and give a QSL 😊.

Maybe we can!

Ciaran's presentation will cover the fundamentals of sampling (Nyquist Shannon) and basic signals processing, and will be sharing some details of techniques he has developed to accomplish this.

Sounds like something you don't want to miss!

As always, and after the brain cells settle down, there will be some refreshments to be had and of course the awesome catchup and chat with your mates.

Looking forward to seeing you all at the next meeting at 7.30pm, Blue Scope Visitors Centre on the 10th September 2024.

Disposables Donation Table

Don't forget to bring along any old and unused items for the shack, from old valves, transistors, capacitors, resistors and anything you think someone may have a use for. So instead of it collecting dust, bring it along to the next meeting, someone will give it a new lease of life.

All it costs is a gold coin donation when you help yourself, all proceeds go to the IARS.

We have been getting plenty support for the table lately, with at least a couple of boxes of goodies every meeting.

The IARS would like to thank all the bringers and takers 😊



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 was drawn and was won by our newest committee member Adam VK2AEV who walked away with a whopping \$135.00

Make sure you are present and have a valid ticket to win some cash.

Membership fees

Most members have paid their membership fees, a very big thank you. There are still a few membership payments outstanding, and we are hoping that they can be paid ASAP.

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



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 jars.keithb@gmail.com

Keith VK2KQB is on the bum again ! 😊 looking for old electronics parts that may be attached to old electronic cards laying around your shack. Bring your box of old pcb's to the next meeting and see if we can get some older obsolete parts off them for a second life.

Electronic component and service suppliers

Need a quick PCB in a hurry to put that latest project on, JLCPCB

https://jlcpcb.com/?from=VGB&gad=1&gclid=EAlaIqobChMInOC0_9K1gQMVGw17Bx3qLAN0EAAYASAAEgLOV_D_BwE

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<https://www.digikey.com.au>

Minikits

<https://www.minikits.com.au>



<https://core-electronics.com.au>



<https://www.wagneronline.com.au>



<https://littlebirdelectronics.com.au>



<https://www.altronics.com.au/virtualtour/nsw/auburn/>



<https://amateurradiosupplies.com.au>



<https://www.elitecommunications.com.au/mobile-communications-category/communication-equipment/amateur-radio/amateur-radio-accessories/>



<https://www.vkradio.com.au>



<https://dxing.com.au>

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

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



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

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

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GPS disciplined Frequency reference



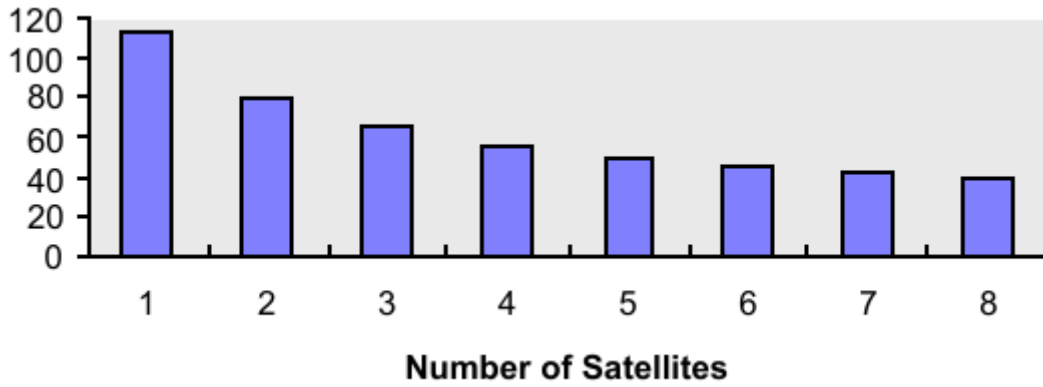
Who can remember working with the calibration of Rf equipment using a Rubidium Atomic clock and oscillator. Those devices cost a fortune and was way out of reach for most service technicians or amateur radio enthusiasts, who wanted to repair and calibrate their own gear without the expense of the atomic oscillator.

The GPS system has a little side function that we can now tap into, and it won't break the bank.

Most users think of GPS as a means of determining position, but the constellation of 30+ satellites is also an excellent timekeeper.

Each satellite contains **two Rubidium and two Cesium atomic clocks**.

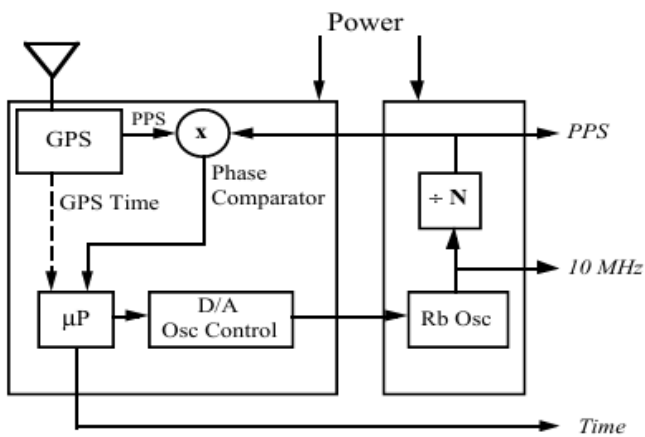
These are monitored against atomic clocks on the ground, and the whole system is continuously calibrated against the worldwide time standard, Universal Coordinated Time, Radionavigation signals such as GPS are naturally constructed as a time signal, so it is straightforward to use GPS as our "atomic clock in the sky."



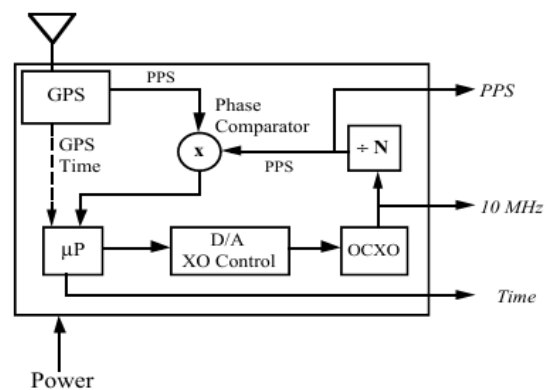
The signal from each satellite is very accurate. The precision of measurement is better than a nsec. Atmospheric modelling errors can account for 50 nsecs of error.

By far the largest source of error is Selective Availability (SA). The Department of Defence intentionally degrades GPS accuracy by forcing the GPS signal clock to drift slowly in frequency. With SA, each satellite's signal experiences a timing error of about 100 nsec and a frequency error of about one part in 10^8 .

Without SA, the timing errors would be at best about 10 nsec and the frequency error almost one part in 10^{10} . A multi-channel GPS receiver can average the SA errors over seven or eight satellites if clear view of the sky is available, reducing the effect of SA by almost a factor of three



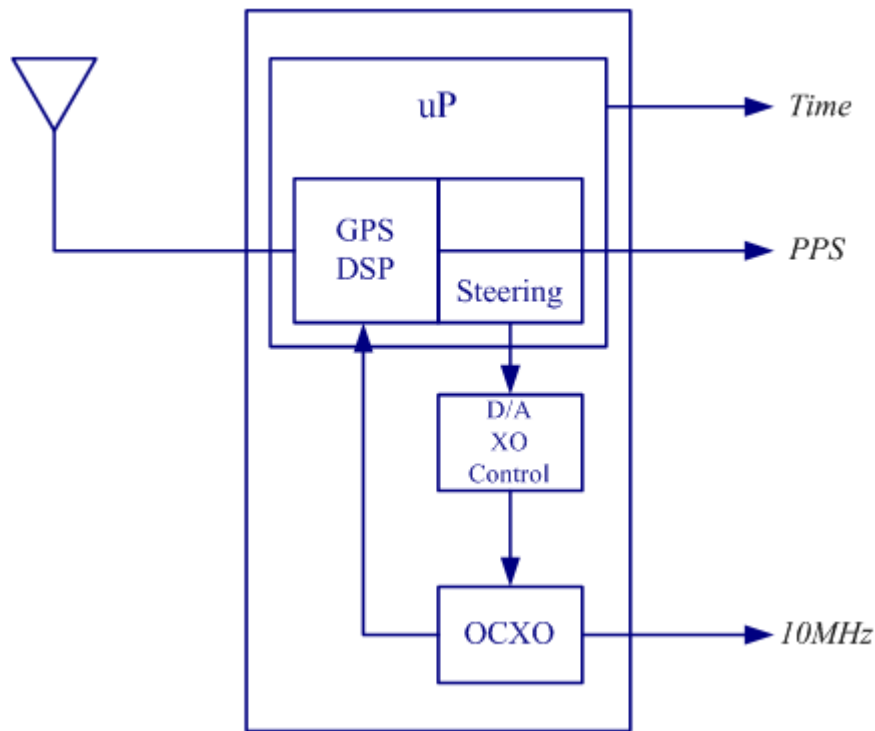
First Generation GPSDO



Second Generation GPSDO

Like the first-generation GPS Clock, the second-generation clock uses an autonomous GPS receiver that outputs a PPS signal. This PPS is compared with a PPS derived from the output of the OCXO and the difference from the phase comparator is used by a microprocessor to steer the OCXO

This is a competent design, but there is a better way to build this mouse trap



The Third Generation GPSDO

The third generation of GPS Clocks continues the cost reduction profile. In the third -generation design shown above, the OCXO and GPS receiver are now tightly integrated onto a single printed circuit board. The 10 MHz frequency from the double-oven quartz oscillator is used directly as the timing source for the GPS' digital signal processor and RF front end chip. Moreover, a single microprocessor runs both the GPS receiver and the clock steering functions. In the first- and second-generation designs, the precision of the PPS output signal (40 to 100 nsec) and put limits on the GPS.

Clock accuracy, in third-generation designs, the oscillator is directly compared to the GPS signal without using the PPS, allowing accuracy to approach theoretical limits.

What does that mean for us ?

The amateur radio enthusiast can test their own gear and even feel confident to calibrate the reference oscillator in their gear by using a GPS based frequency reference, **and yes, it won't break the bank** 😊



If you have anything interesting to share with us, please send to iars.keithb@gmail.com

Handy On Line Calculators

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



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>

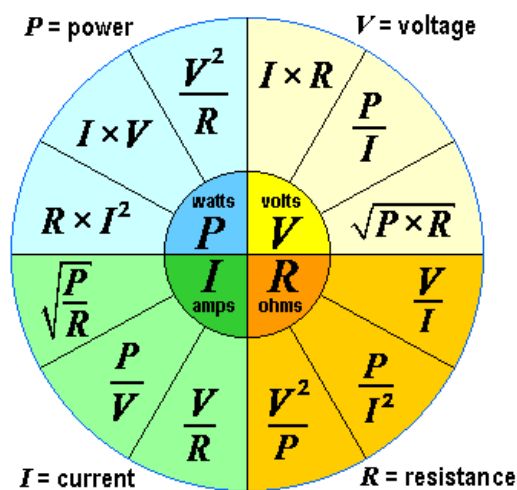
Resistor Colour code calculator..... <https://www.digikey.com.au/en/resources/conversion-calculators/conversion-calculator-resistor-color-code>

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>

NEW >>>> Helix antenna calculator <https://sgcderek.github.io/tools/helix-calc.html>

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





How many of these can you 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) beat frequency oscillator
- d) carrier oscillator

Question 3. 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 4. If the voltage across a resistor is tripled the power dissipated is multiplied by:

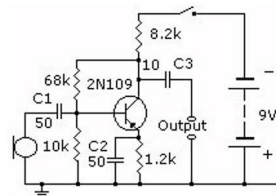
- a) 2
- b) 3
- c) 4
- d) 9

Question 5. The sensitivity of a meter with a full scale deflection (FSD) of 300 V and an internal resistance of 300,000 ohms is:

- a) 100 ohms/volt
- b) 300 ohms/volt
- c) 1,000 ohms/volt
- d) 3,000 ohms/volt

Question 6. In this audio amplifier C3 acts as a:

- a) low-pass filter element
- b) coupling capacitor
- c) bypass capacitor
- d) high-pass filter element



Answers next month 😊

Answers to last month's questions ... (Q1 = B ; Q2 = A ; Q3 = A ; Q4 = A ; Q5 = D ; Q6 = A)

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

Send your answers to iars.keithb@gmail.com to go into the draw for a prize at the end of the year



OLD
PROPAGATOR
MEMORIES

THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY.

P.O. Box 1838. WOLLONGONG. N.S.W. 2500.

I.A.R.S. is a Member Club of the Wireless Institute of Australia.

<u>PRESIDENT.</u>	<u>SECRETARY.</u>	<u>EDITOR.</u>
Jim Potts, VK2BBG, 14 John St., WOONONA. 2517.	Brian Boseley, VK2BCI, 111 Bellevue Rd., FIGTREE. 2525.	Ian Bowmaker, VK2ASN, 15 Akuna St., KEIRAVILLE. 2500.

MONTHLY MEETING. Held on the Second Monday of each Month,
at 7.30 pm., at the Wollongong Town Hall Meeting Room.

CLUB STATION - VK2AMW. CLUB REPEATER - VK2RAW, 2m, Channel 5.

I.A.R.S. MONTHLY BROADCAST.

The Monthly Broadcast takes place on the Sunday preceeding
the Meeting Night each month, at 1900 Hours EAST.

Frequency used by VK2AMW for the broadcast is -
Repeater Channel 5, or Simplex Channel 40.
Relay by Brian, VK2BCI, on 28.460 MHz.

I.A.R.S. CLUB NETS.

6 Metre. 9.30 am Sunday, 52.525 MHz FM.
10 Metre. 8.00 pm Sunday, 28.460 MHz USB.

SEPTEMBER 1978

Members are advised that the Monthly Meeting of the Illawarra
Amateur Radio Society will be held at the Wollongong Town Hall
Meeting Room at 7.30 pm on Monday 11th September, 1978.

Visitors are most welcome to attend.

TRADE DISPLAY for SEPTEMBER MEETING.

A wide range of new items from TRIO-KENWOOD will be on display.
On hand to demonstrate the equipment will be Sandy Bruce-Smith,
VK2AD, the National Sales Manager (Communications), Trio-Kenwood,
as well as a staff member of MACELEC.
Unfortunately, due to other commitments, Barry Hartley, VK2FE, of
MACELEC will not be able to be present.

A very worthwhile display has been promised, and we are grateful
that Barry and MACELEC are able to put on the display for us.

AS USUAL THERE WILL BE THE RAFFLE WITH WORTHWHILE ITEMS AS PRIZES.

FUTURE MEETINGS FOR 1978

9th October, FILM.

13th November, Talk by John Milton, District Radio Inspector.

11th December, Auction Night. Members to provide items for sale.

QSL CARDS.

A new batch of QSL cards has arrived. Anybody waiting (?) for
cards should contact Gerry, VK2APG.

CONGRATULATIONS.

Our best wishes and congratulations to Graeme, VK2CAG, on the arrival of First Harmonic. We understand the happy event was on 25th August, and that mother and daughter are fine.

STORE.

Sales at the last meeting were an all time record, and we are pleased to note that members were co-operative with the request to refrain from handling the components.

The Store Sub-committee has suggested that members wishing to make purchases might write out a list of items that they require on a sheet of paper and hand the list to the Store operators. This procedure will reduce the numbers of persons crowding around the table and make the handling of purchases much easier for everybody.

Again we ask members to note that the Store is in operation at Meetings and also by mail order. We regret that sales can not be made at other times, unless prior arrangements are made with a member of the Store Sub-committee.

JAMBOREE OF THE AIR , 1978.

The 21st JOTA is to be held on the weekend of 21st and 22nd October 1978.

As in previous years, we are seeking the services of members to assist the Scouts and Guides in their activities.

Any member who is able to assist, either by loan of equipment, available to operate their own station, or available as a spare operator, please contact the Secretary, Brian, VK2BCI, as soon as possible so that arrangements can be made with the Scouting groups.

Our efforts are greatly appreciated by the Scouting Officials, so let's keep up the effort again this year.

VK2AMW will be operating Portable from the Scout Hall at Figtree.

Novice Operators - this is your chance to do some Full operating. We also need full calls as well as limited calls to act as relief operators. If you are able to spare even a brief period of time, please contact Brian, VK2BCI, so that some sort of a roster of operators may be drawn up for the weekend.

THE WIRELESS INSTITUTE OF AUSTRALIA

- INFORMATION
- EDUCATION
- FREE MONTHLY MAGAZINE "AMATEUR RADIO"
- VALUABLE MONEY-SAVING SERVICES:
 - Components, disposals, surplus gear — Magazines and books
 - QSL Bureaux — Sales and exchange facilities
- Modest membership target is 8000 for WARC 79.
- REPRESENTATION
- ADVICE
- SOCIAL ACTIVITIES
- CONTESTS
- AWARDS

GET WITH IT — GET FACTS NOW

KENWOOD SM220 Station Monitorscope.....	\$310.00
KENWOOD BS5 or BS8 Adaptor for Panoramic display.....	\$ 57.00
KENWOOD TS820S - The Ultimate -	\$1175.00
KENWOOD TS520S - Most Popular -	\$699.00
KENWOOD TR7500 2 Metre P.L.L. Mobile.....	\$275.00
S.B.E. "Sidebender" 10 Metre Mobile.....	\$199.00
KENWOOD R300 All Bank Communications Receiver.....	\$260.00
KENWOOD AT200 Antenna Coupler - S.W.R. - Power Meter- Coax Switch.....	\$173.00
KENWOOD TS700SP Digital 2 metre Allmode.....	\$812.00
QUAD 2 Elements for 10 and 15 Metres - 8db Gain - 50 ohm Input.....	\$ 95.00
HANSEN Transformer Coupled Power Meter Reads True P.E.P. and R.M.S. to 200 watts.....	\$ 82.00
HI-GAIN TH3JR 10/15/20M 3EL. Beam.....	\$229.00
NAGARA V5JR Trap Vertical 80-10M.....	\$139.00
CUSHCRAFT ARX-2 2 Metre Ringo Ranger.....	\$ 49.00
HANSEN Dummy Load 30 watts up to 150 MHZ.....	\$ 15.00
DAIWA FD30LS Low Pass Filter Cut Off Frequency 32MHZ - 3 Stages - Top Quality.....	\$ 20.00
HI-MOUND HK708 Morse Key.....	\$ 21.00
KENWOOD DG5 Digital Display for TS520S.....	\$187.00
KENWOOD TS600 6 Metre All Mode Transceiver.....	\$620.00
* We now represent VICOM in Wollongong and have access to the full range of VICOM AMATEUR EQUIPMENT.	
ROYCE SWR-Power Meter Dual Meters 0-10watt and 0 -100W F.S.D.....	\$ 35.00

Will share more oldies next month.

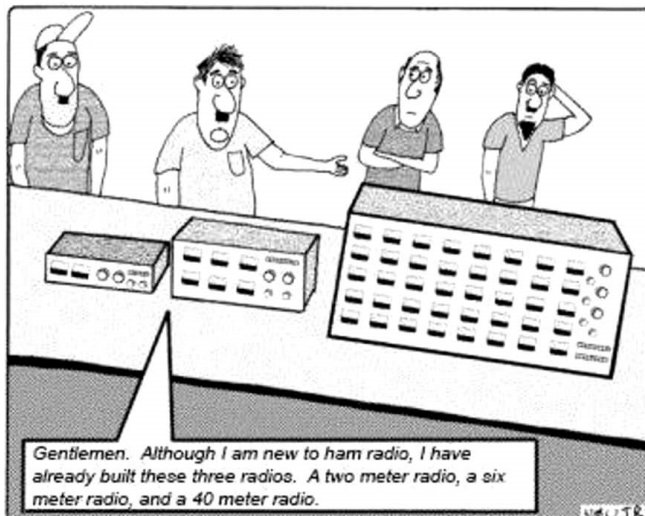
To read more information about this old propagator and others, use the link below

<https://www.iars.org.au/wp-content/uploads/2020/09/1978-09-September.pdf>

Fun Corner

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

Thanks to all that sent in funnies.



@PEANUTSSPECIALS



TEN COMMANDMENTS FOR SENIORS

1. Talk to yourself. There are times when you need expert advice.
2. "In style" are the clothes that still fit.
3. You don't need anger management. You need people to stop irritating you.
4. Your people skills are just fine. It's your tolerance for idiots that needs work.
5. The biggest lie you tell yourself is: "I don't need to write that down. I'll remember it."
6. "On time" is when you get there.
7. You've noticed people your age are much older than you.
8. Ageing has slowed you down, but it hasn't shut you up.
9. You still haven't learned to act your age and I hope you never will.
10. "One for the road" means peeing before you leave the house.



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 of September 7.30pm

73
 Keith VK2KQB
 IARS Secretary

IARS, Amateur Radio in the Illawarra since 1948