REPEATERS VK3RGV 2m
& VK3RGV 70cm
CLUB CALL SIGN VK3SOL

**Volume 5, Issue 4,
June 2008**

SADARC

SHEPPARTON & DISTRICT AMATEUR RADIO CLUB

RADIO AUSTRALIA VISIT

The Newsletter is now available at

http://www.sadarc.org/news.html

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Newsletter
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A WORD FROM THE PRESIDENT

Presidents Report for June 2008

Hi Everyone,

Earlier this month we had a visit to Radio Australia, spread over 2 days, it was most interesting and enjoyable, a special thanks to the team at Radio Australia who conducted the personalized tour.

Next meeting is on Saturday the 5th July 2008, the meeting will consist of a Video of the MFJ Factory in the USA, the video will go for approx 50mins, a must see for everyone, during the next 12 months we have a series of Videos to provide during our meetings.

Comms day is fast approaching; Daryl VK3KL has already received some early advance bookings, we need your support. More discussion at the next meeting.

73s For now Roger

GET WELL SOON

S.A.D.A.R.C. and it's members would like to wish Hilton VK3AHY Younger all the best for a speedy recovery after recent surgery.

June Club Meeting

No club meeting was held this month. Instead, 30 club members and visitors participated in conducted tours of the Radio Australia HF transmitting station in Shepparton. One visit was conducted on Thursday 5 June and another on Saturday 7 June. Initial reports from those members who attended were very positive and indicated that the visits were well received.
Duncan VK3DCX
Secretary

S - Meters and how to use them

One S-unit is a change of 6dB in signal strength, which corresponds to double the VOLTAGE or four times the POWER at the receiver input.

HANDY-DANDY S-METER CHART

S Meter reading	Voltage at receiver input (microvolts)	Power (dBm)
S9+20dB	500	- 53
S9+6dB	100	- 67
S9	50	- 73
S8	25	- 79
S7	12.5	- 85
S6	6.2	- 91
S5	3.1	- 97
S4	1.6	-103
S3	.77	-109
S2	.39	-115
S1	.19	-121

(dBm is power expressed as decibels relative to one milliwatt)

An S-METER is calibrated by connecting a signal generator to the antenna terminal and setting the output power to 50uV, or -73dBm, and adjusting the S-meter calibration pot for a reading of S-9. Since the S-meter is usually derived from the receiver AGC line, it *is* relatively linear from about S3-S4 and upward (since a good AGC usually "kicks in" around -100 to -105dBm). This linearity is also due to the diodes used for the AGC detector, once they are conducting in the linear region (again, around S3-S4). Statements that "S-meters are totally worthless" or "a change in 2 S-units means nothing" are thus actually quite incorrect. An S-meter *is* a fairly good RELATIVE power indicator for received signal strengths and noise levels.

SO WHAT-THE-HECK IS AN S-METER GOOD FOR?

The purpose of an S-meter is not to provide any absolute indication of power or voltage, but a RELATIVE indication between received signal strengths ... such as between two different signals, or between a signal and the "noise floor" of the band.

Example: On 40M, typically the "noise" will be S4, or about -103dBm. If your receiver has an MDS (minimum detectable signal) of -133dBm, it means you're loosing 30dB of your dynamic range to the noise! (133-103=30dB). In this case, the S-meter is more-or-less giving you an absolute power DIFFERENCE between it's MDS and the noise floor, in dB.

Example: A station claims his beam antenna has 12dB gain over his dipole. So he switches between the two and asks you for an "A-B" comparison. His signal goes from S7 to S8 ...a 6dB change. That ain't 12dB! 12dB should have shown 2 S-units of change. (I'm assuming his beam antenna *was* properly pointed at you -hi). Likewise, YOU are comparing two antennas at your shack. You are LISTENING to a QSO in progress, switching between the two antennas. One antenna causes the S-meter to rise about 1/2 S unit. Well, that's 3dB, and that's not bad for most wire antennas. Or ... you are switching between two antennas and notice that the noise seems to be much less on one, in fact, the S-meter drops from S4 to S3. You have a problem with the antenna with the higher noise. If the noise drops 2 S-units, you have a BIG problem with that antenna! Obviously, you want to use the antenna with the lowest noise, because an S5 signal will be an S5 signal on the same receiver. The difference, is if one antenna has an S4 to S5 noise, you'll be digging that S5 signal "out of the mud." With an antenna at S3 noise level, that S5 signal now has a 2 S-unit (12dB) improvement in signal-to-noise, and will obviously be much easier to work.

An S-meter also makes it convenient to make internal tuning adjustments to your receiver, such as peaking any IF cans, filters, etc. You can tune to a carrier or QSO in the S8 range, then tune above and below and mark the frequency where the S-meter drops 1 S-unit (6dB), 2 S-units (12dB), etc. to make a rough graph of your overall selectivity/filtering of your receiver. If your receiver claims the RF amplifier, when kicked in, provides 12dB of gain, well, you should clearly see about a 2 S-unit change. Or if the 3dB filter BW is 300Hz, then you should clearly see a 1 S-unit change over about twice that, huh? You can do the same with a DVM on your audio output, but an S-meter sure makes it more convenient, and quite easy to verify some of the specs and claims the rig/kit vendor is claiming. Or to check for a change in performance later on for troubleshooting purposes. It is ALWAYS beneficial to do some of these basic measurements when you put a new rig on-line, so you have a baseline to check performance later on if troubles begin. A simple S-meter is all you need to record some of these important specs.

WHAT ABOUT THIS QRO vs QRP THING?

You have to QUADRUPLE (X4) your signal to DOUBLE your signal strength at the receiver end. Likewise, if you drop your power by one-fourth, your received signal strength will be one-half less, or 1 S-unit. You are working a station running 100W and he is S8. If he drops his power to 1/4th, or 25W, his signal strength should drop about 1 S-unit, or to S7. If he drops another 1/4th, to about 6W, he should drop another S unit, or to about S6. Therefore, the difference between 100W and 5W QRP is about 2 S-units. Big deal. Dropping to 1W is about another S-unit, then to 250mW another S-unit, etc. OK, now you're getting down into the S4 noise level on 40M. Now you're hoping the guy on the other end has only a S3 noise level on his end :-) Hopefully this answers some of the questions raised about S-meters and how to use them.

PHOTOS FROM RADIO AUSTRALIA VISIT

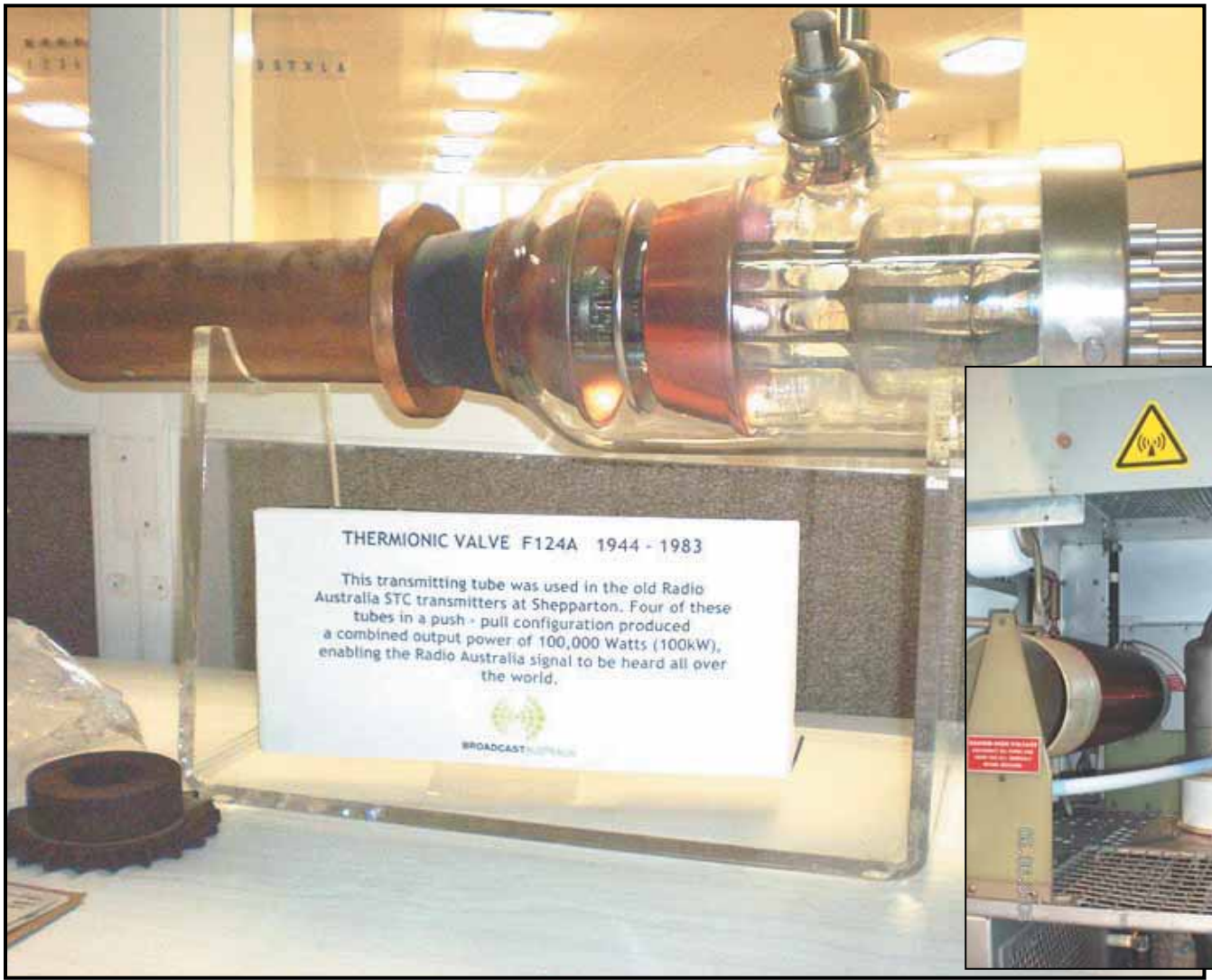
Club Members enjoyed a tour of the second largest Radio Transmitter Station in Australia, transmitting Continuous Short Wave Broadcasts around the world consisting of News and Information fed from the ABC, to form a combined transmitted air time of 144 Hours on a daily basis since mid 1944.
Some 15 members from SADARC and MARC (Midland Amateur Radio Club) toured on the Thursday of the two dates proposed while a good attendance on the following Saturday was also reported.
Tour guides were Terry Fahey from Shepparton and Rodney Champness (VK3UG) from Mooroopna who gave a very in-depth explanation of the facility located 6km North of Shepparton on the 620 acre site.In it's heyday, a total of 35 antennas were used to cover all points of the globe and with changes in programming and upgrades to the antennas, only 13 antenna arrays are in use today.

LEFT: Luke Steele (VK3HJ from Benloch) Inspects a Practice Transmitter, used for Training purposes.
BELOW LEFT: Tour Guide Terry Fahey, explains the Transmitter upgrade during the 1980's.
BELOW: Terry demonstrates how the computer is used for an Antenna-Changeover

PHOTOS FROM RADIO AUSTRALIA VISIT

BELOW: Rodney (VK3UG) Explains how the Satellite Feed Receiver works.
BOTTOM: An SW100 100kW Harris Transmitter

PHOTOS FROM RADIO AUSTRALIA VISIT



PHOTOS FROM RADIO AUSTRALIA VISIT

SWAN HILL TRIP

18-20th July, 2008

A Social & Relaxing Weekend.

Cabin accommodation is available also powered and un-powered sites for the campers.

Please contact Roger VK2RO direct for any further information.