



Founded 1979 Incorporation No A6677 P.O. Box 692, Shepparton 3632

VK3RGV repeaters and transmitter operating frequencies

53.725MHz (1 Meg offset),
146.65MHz (600 kHz offset) (IRLP Node #6992) (Echo link),
439.775MHz (5 MHz offset),
438.650 (7 MHz offset and 91.5 Hz tone access)
438.2MHz (D-Star)

Access to most of the analogue repeaters is by sub-audible 123 Hz tone or noise mute (less sensitive).

Club Network informal on air get together. All welcome. Club call sign VK3SOL:-

Wednesday evening - 3.63 MHz \pm interference 8.30pm. 2mx repeater 8.00pm

Meetings are held at 1 pm on the first Saturday of the month (except January when no meeting occurs) at the Mooroopna Scout/Guide Hall off Echuca Road, Mooroopna. Variations in these times, days and location are normally notified in the preceding newsletter.

Website – www.sadarc.org Face book - www.facebook.com/sadarc.org Info for page contact Denny on denny3782@gmail.com

The local vintage radio club has a get together at 11.00am of a Sunday on the 2 metre repeater. Many of their club members are members of SADARC too, so join in for a chat.

The following repeaters do not belong to our club but provide good signals for many members.

Mount Major VK3RDU repeaters and transmitter operating frequencies.

146.850 MHz and 439.875 MHz

DISCLAIMER. No guarantee is given as to the accuracy of information in this newsletter. Warning: - There is a danger of electrocution or injury when working on electrical/radio gear. You do so at your own risk.

President:- Peter Rentsch	VK3FPSR	pages.cobram@bigpond.com	
Secretary:- Andy Ashley	VK3AJA	andyashley@icloud.com	
Vice-President:- Barrie Halliday	VK3KBY	Treasurer:- Graeme Martin	VK3FCVT
Membership Sec: - Pat O'Shannessy	VK3OV	Webmaster: - Steven Hamer	VK3DP
Station Manager: - Vacant		Publicity Officer: - Vacant	
Communications Managers (External Events):- Bruce (VK3PNF) & Darren (VK3HEN) Glasson			
Technical Committee: - Phil VK3ELV, Ray VK3RW, Geoff VK3ZNA, Kevin VK3BPH & Rodney VK3UG			
Newsletter:- Rodney VK3UG (Editor) rodlynn6@bigpond.com Peter & Andy (Printing/ Distribution)			

Note as at 24/1/18 the following services are operational - two analogue 70cm repeaters (439.775 MHz - 5 MHz frequency split, 123 Hz tone access and noise mute) and a new repeater (438.650 MHz – 7 MHz frequency split, 91.5 Hz tone access). The 2mx, 6mx, D-Star (and UHF CB) repeaters will return as soon as restoration/upgrade is complete, as will the IRLP – maybe by the next meeting, but this depends on having a low temperature day to do the work.

Presidents Report December 2017/January 2018

Another year has passed and I am not really sure where it went. Did I accomplish anything during the year, well a little bit, I must have I seemed to be busy. I hope everybody else can look back on 2017 and say they accomplished something and ticked something off their long list of endeavours.

This Christmas Santa (commonly known as Karen in Koonoomoo) did not surprise me with anything for the shack. This would be the first year in a number of years that Santa did not come up with a new toy of some description. I'll work a little harder on Santa next year and see what I can score.

One of the things that I would like to accomplish this year is to get some more on air activity happening. I know our Secretary Andy is very keen to hear more of us on air, so how do go about making this happen. What stops us now as licensed amateurs from participating in the hobby we enjoy? Is it lack of time, are we mike shy, are we intimidated by those who profess to know more, have we been put off by the bullies? Our reasons may one of the above or a combination of the above but whatever they may be hopefully as a Club we can support each other through these issues. If you have any thoughts on how we as a Club can be more active on air please talk to me or Andy or in fact other Club members about how we can go about this. 40m is improving, 6, 10 and 15m have also been active lately so what's stopping you?

Our **first meeting for the year will be on Saturday February 3rd** and we have Luke Steele coming along as our guest speaker. So I hope to see as many of you as possible along to catch up for a chin wag and listen to Luke.

Cheers & 73

Peter – VK3FPSR President – SADARC

Calendar of Events

February 3rd – Regular Meeting at Mooroopna – 1.00pm
Guest Speaker Luke Steele VK3HJ - Topic **“DXing, from both sides of the pileup”**

March 3rd – Regular Meeting at Mooroopna

March 18th – Get together with BAREC Club at Goulburn Weir – earlier this year to try to pick better weather!

April 7th – Regular Meeting at Mooroopna

Mount Wombat Repeater Site Progress

As members will remember back over two years ago a number of moves occurred that were not of our choosing on Mt Wombat. Amateur Radio Victoria (ARV) which has the lease to the site said that many things had to change for a variety of reasons which I won't go into here. It involved the entry of Austereo into our hut, the installation of a 25 metre self supporting tower, the fitting of new antennas and long term, installation of newer equipment and a complete revamp of the inside of the hut (it was like a dog's breakfast). We negotiated with ARV and Austereo to come to an end result that was satisfactory to all concerned. I might add that very little of this has cost the club anything, so any inconvenience to club members have with the repeaters being off air is a small price to pay for a better repeater site.

The tower was installed and mostly new antennas were installed by Rubicon Industries. The hut had new cables and cable trays installed whilst the inside of the hut was fitted out with 2 x 19" racks for equipment. The installation in the hut and the outside cable trays and coaxial cables by Austereo has been very neatly done and a lot better than how we had it.

Things still to be done

- The antenna pole on the corner of the hut roof to be braced. May not stand a strong storm without damage.
- More earthing straps (hopefully to reduce the effects of any nearby electrical storm activity) to be installed onto the hut rails and the cable tray.
- Block up any holes through the hut wall to prevent any rodents etc. getting into the hut. One hole at least on east wall.
- A DC controller to be built to protect the batteries and the repeaters should the power supply fail unsafe in an electrical storm or when power fails and the batteries are flattened. It protects against over and under voltage conditions. Our last power supply failure caused around \$600 damage.
- 19" rack equipment trays to be obtained and installed to mount the FM828 size repeaters.
- A number of low loss coaxial cables need to be made up and fitted to the repeaters and the cavities.
- Various low voltage cables will need to be made up too, to work with the DC controller.
- Cabling needs to be neatly done to ensure we maintain the look of the site in a professional way.
- Overhaul of the current 2 metre repeater and either install it at this stage or the new to us Tait repeater. Work needed on the controllers and the IRLP facility.
- Obtain additional VK5DJ controllers if need be.
- 6mx repeater and its cavities to be installed as soon as practical. 2mx takes precedence though. Two better cavities are to be worked on to take the place of two of the cavities we have already.
- The Digital Signal Processing (DSP) on the 6 metre repeater needs an audio AGC system built into it. Anyone got a good design?
- Probably fit a DSP unit on the 2 mx repeater as well. These improve the signal to noise ratio on weak signals into the repeater.
- The UHF CB repeater will be re-installed once any problems it may have are ironed out. We treat the UHF CB repeater and the 2 mx repeater as essential services in times of emergency – bushfire etc.

- Once the above items have been done, attention to the D-Star and internet links will occur and later other services.
- **Some of these items are ready to complete once we get some cool weather.**
- We'll keep you up to date with progress.

As can be seen there has been a lot done by Austereo, ARV and Rubicon to make this site a very good site. It is now our responsibility to get it going with some of our existing equipment initially and gradually change to newer and better equipment which has been supplied or will be supplied. We will then have a main repeater plus a cold standby. The cold standby would be put into operation in place of the faulty main unit which would be taken down off the mountain for repair at someone's workshop. It is not practical to do much in the hut. There are a number of individual projects on this list.

The cost is not fully known but is expected over the period of completing each project to add up to between \$500 and \$1000. The committee have been authorised to go ahead with these projects and of course we need to keep others in the committee and the leadership of the club informed of our activities. This is as in any business dealing with other people's money (club's money) that we do account for what we do and spend.

You may be asked to assist with some of these projects by members of the Technical Committee. You would be up on the mountain or doing some things at home under the guiding hand of a member of the committee. **NOTE:** When the repeater was originally installed in 1982 the members doing this work were in the age range 25 to 55 years, now the technical committee range in age with one in his 50s one in his 60s and three in their late 70s! Have we some younger contenders?

Rodney VK3UG 24/1/2018

Keeping your shack system up to scratch.

With the increased complexity of amateur transmitting and receiving equipment it has become difficult to do anything more than the basic maintenance on it, unless you have a great deal of sophisticated equipment and have the know-how on how to operate it to service today's equipment. However, due to technology and the relative simplicity of antennas we still have an area where we can do many things to get the best out of our hardware in the sky (unless it has fallen down).

In the past we have tended to use an SWR bridge to "measure" an antenna's resonate frequency. A low SWR was considered to be the point where the antenna was resonant. In some instances this is true but certainly not universally so. An antenna may be resonant and have a relatively high SWR. The reason for this assuming the antenna is a centre fed half wave antenna is due to its proximity to other things including the earth and other things in the vicinity of the antenna which cause its feed impedance to change, maybe higher or lower than the 75 ohms theoretical impedance of a half wave centre fed antenna.

If the antenna is a yagi or other multi-element antenna the driven element can be resonant but show quite a high SWR if it is fed in the centre as a ½ wave dipole. This is also likely to vary as the antenna is rotated if it is near other structures particularly if they resonate near the antennas operating frequency. Its drive

impedance will be quite a bit lower than 50 ohms. To raise the antenna drive impedance to around 50 ohms some form of matching section is necessary.

The SWR bridge has served us well over the years but newer devices such as the MFJ 259 Antenna Analyser or other even more sophisticated device make testing and adjusting antennas so much easier. As with any of these devices it is necessary to become familiar with their operation and learn how to interpret the readings obtained and then do the adjustments needed, then go through it all again until the antenna works as it should (at least the best possible in the location). However, it must be remembered that amateur antennas on the average domestic home block will always be a compromise as it will rarely be able to get an ideal textbook layout particularly on HF. On VHF and UHF it is more practical to get a reasonable location for the antennas, but keep in mind measurements on these frequencies are much more critical than on HF.

The coax cables going to your antennas are an important part of your antenna system. It is desirable that the cable come away at right angles from the antenna for as far as practical otherwise there will be RF currents on the outside of the braid. There should be little stress on the coaxial cable as where the connectors are is a weak point and in fact coaxial cables should wherever possible be attached to a catenary cable which will take the stresses. Where the coaxial cable attaches to your antenna it should be sealed with a butyl rubber tape (goes under a number of names, self amalgamating tape) to ensure that no water can get into the connection and eventually into the coaxial cable which eventually destroys its performance, the cable loss becomes high. Have you ever noticed that your SWR changes when it rains? If it changes noticeably it is an indication that water is getting into the cable. When it dries out the SWR improves but the system is not as good as when you put it up.

What coaxial cable should you use? This depends on what frequency you want to use, and how long it is between the transceiver and the antenna. For 160-80-40 quite lengthy runs of RG58 can be used. However looking to 30-20-15-10 metres it would be better to run RG213 as it has lower loss. If you are looking at VHF and UHF RG213 and even cables like LDF4-50 would be good to have, The repeater site on Mt Wombat has quite a bit of LDF4-50 and I think even some LDF5-50 cables which are low loss, difficult to handle and expensive. So in the home station wherever possible keep the cable lengths short but not ridiculously short that it makes the operational convenience of the station suffer.

In mobile installations whether HF-VHF-UHF because the distances are short usually no more than about 4 metres of RG58 or other small diameter low loss cables can be used. RG213 or similar is not easy to use in a mobile situation. However don't have heaps of cable lying around in the vehicle because you didn't want to cut it as your signal will be attenuated inwards and outwards! An experiment was done with a typical 4 metre length of RG58 on the UHF CB band and it was found just in that short length of cable 2 dB of signal was lost, in other words the 5 watts from the transmitter became about 3 watts at the antenna. Another example, a friend got a package deal UHF CB mobile set up. The antenna was quite short (about $1/8^{\text{th}}$ wavelength) and the cable used to the set appeared to be RG174U which is quite lossy at UHF. He obtained a range of around 100 metres, so changed his antenna to a much better type with good coaxial cable and now the system works well.

Enough for this epistle, but when you join cables etc make sure that you do not make a pile of dry joints or melt plastics in cables etc. These points and more can possibly be the subject of a few hands on workshops at club meetings into the future.

Editor's Ramblings.

- On the 2nd December 2017 members and their wives, girlfriends etc had a combined end of year luncheon with the North East Vintage Radio Club at the Royal Mail Hotel in Mooroopna. For both clubs this was the end of year meeting with no real business conducted. As last year we had good meals at reasonable prices and a pleasant time talking between ourselves. With the rather heavy rainfall and storms we had a few days beforehand it was expected that numbers would have been lower but very few were put off coming. There were 28 in attendance.
- Peter presented certificates of appreciation to a couple of folk in the club who are not on the committee. Tania Ashley provides afternoon tea at meetings which is appreciated by all. I can say that personally and look forward to whatever goodies Tania has provided. John VK3XPJ has allocated the tables at the last few Hamfests which is appreciated by all. Good job well done John. There are a few other certificates of appreciation to be presented but the recipients were not able to come on the 2nd Dec, so they will be presented at the next meeting they attend.
- The new 70cm repeater installed by Peter Mill of Amateur Radio Victoria on 438.650 MHz has the new commercial frequency split between transmit and receive of **7 megahertz** which will make things awkward for some (like me). By my measurements it is around **11 dB stronger** at my QTH than our existing repeater on 439.775 MHz. An assessment will be done on why the discrepancy in performance is seen. Part of this is due to our existing 439.775 MHz repeater being a much lower powered item at this stage.
- I am endeavouring to put together a history of the club repeater site from 1981 through to the present day. I do have information from 2009 onwards, but for earlier periods I'd like members who have been involved with the repeater site to provide me with information even if only verbal, but preferably in writing. **Please help.**
- If you are a member of the club did you realise that Jaycar in Shepparton on the Goulburn Valley Highway to Melbourne will give you a discount of around 10% when your purchase (most items) exceeds \$10 – provided you ask for it and show your current membership card. So if you are not a current member of the club maybe it is time to join. Jaycar is the only general electronics store still in Shepparton since the closing of Dick Smith.
- Sorry, there are no photographs for this month. Next month is looking more promising with views of the work on Mt Wombat.
- As from now onwards start looking for the Mt Wombat repeaters.
- I would appreciate articles and photos for inclusion in newsletters; after all it is your newsletter.
- Do you want to sell something or buy something – well you can advertise in the newsletter for free if you are a club member.
- Note **Amateur Radio** is only going to be published every second month. The NZART have been doing this with their magazine **Break-In** for a year of two now.
- I know not all members have internet/email, but if you do have it, consider having it delivered this way instead of by snail mail – it is quicker and we can let you know of things of interest promptly not several weeks after an event!
- I wonder what projects each member has been working on in recent times. Is it some new antenna, some ancillary pieces of equipment to make your equipment more useful, upgrading your skills such as becoming proficient in using morse code like Les VK3TEX, some different operating techniques you are trying or just getting on the air as Andy VK3AJA suggests. How about dropping me a line telling me what you have been up to. Maybe an article?