SADARC
SHEPPARTON & DISTRICT AMATEUR RADIO CLUB
Repeaters: VK3RGV 2m - 70cm - Packet.
Freq: 146.650 - 439.775 - Packet 147.575
Founded 1979
Incorporation No. A6677
P.O Box 692 Shepparton 3632

| | | |
|---|---|---|
| REPEATERS VK3RGV 2m & 70cm | President:- Peter Rentsch | VK3FPSR |
| VK3RGV B D-Star | Vice President:- Ed Roache | VK3BG |
| 2m IRLP Node # 6992 | Secretary:- Alan | VK3AO |
| CLUB CALL SIGN VK3SOL | Treasurer:- Ron Burns | VK3COP |



## Presidents Report July 2012.

To all those that came to the last meeting, thankyou for your attendance. It was a cold start to the day but the heaters in the hall were working and the atmosphere was warm and friendly.

The day started with a Committee meeting followed by a Sausage Sizzle and then our regular meeting. After the meeting we were addressed by Tim Roadley. Tim is the Secretary of the Yarrawonga Canoe Club.

We have been asked by the Yarrawonga Canoe Club to do the Communications for an event they are holding in December. The event known as a Quad consists of a run, a swim, a bike ride and then a Canoe section. The event will start in Yarrawonga and finish in Tocumwal.

It is estimated that between 12 and 15 radio operators will be required to assist on the day. After hearing from Tim and what he felt was necessary the Club members voted in favour of assisting them on the day. So please keep Saturday 15th December free to assist on the day. Further details will follow as we get closer to the event.

This is another great opportunity for the Club to get some exposure to the public whilst assisting another organisation. It is also a great way to get to use your equipment and have some fun as well.

As our next meeting is the second last meeting prior to the Comms Day/ Hamfest there will be a significant amount of time dedicated to discussion on the event. If you have any concerns or have any bright ideas on how we can improve the day please bring them along so as we can discuss them. This is our major event for the year and it is how we raise the money to carry out the works that we do. The equipment and the improvements that have been made to Mt Wombat in the last years would not have been possible were it not for the Comms Day. So, a big effort from all members will make the day much more successful and lighten the load on all.

To those members that have paid there subs, thank you very much for the payment. To those that have not done so as yet please pay as soon as possible. The cut-off date for subs payments is as of the Hamfest. The AGM will be held in November and to be eligible to vote and influence the direction of the Club you must be a paid up member.

In regard to memberships, at the committee meeting held in January it was decided that two honorary memberships be presented this year. Honorary memberships are given to those who contribute to the club and have carried out work beyond the call of duty. They are an annual award expiring when the next lot of subs fall due. Darryl VK3KL was presented with his award at the February meeting and the other award was to Geoff Angus VK3ZNA. Geoff had been hard to pin down but was asked to attend the last Committee meeting to advise on the antenna locations on the tower. I was able to present him at that time with his honorary membership. Thank you to Darryl and Geoff for the extra effort that you put into the Club.

Our next meeting will be on Saturday 4th August commencing at 1.00pm. Following on from the meeting we will have a guest speaker in the guise of Rodney VK3UG. Rodney will give a presentation on interference. Issues covered will be interference from other electrical devices, the different interference rates on different styles of antennas plus many other forms of interference. Please come along and listen to Rodney as he is a wealth of information.

That's it for this time. See you all on the 4th August.

Peter – VK3FPSR
President - SADARC

# Mount Wombat Technical Report July 2012 (27/7/2012)

The situation with all repeaters analog and digital is that they are performing well. Dependent on weather on the mountain the six metre repeater may be taken out of service for a few days whilst some minor upgrades are undertaken by Phil. The queries re the **D-Star** costs for internet connection remain unresolved and Ray is still waiting on the **APRS** modem.
As has been talked about a number of upgrades are planned for the six metre repeater. Most will cost very little except time and ingenuity. A number of these upgrades to get the best out of the repeater are typical amateur radio experimentation and whilst we do expect the electronic upgrades to work well there is no absolute guarantee until they are tried. The only one where we can be 100% sure of success is the addition of another identical antenna to what we already have. This will give the antenna system a gain of 3 dB above what we currently have. The addition of this extra antenna bay is the only part of an upgrade that will cost the club money, if the club approves this part of the upgrade.
It is our opinion that all of the analog repeaters should have similar capabilities.
Our two metre repeater is the one nearest to optimum in performance and this has been done at a reasonable cost to the club with a good high gain antenna, a sensitive receiver and a 50 watt (FM814) output. We have been discussing the use of digital signal processing (DSP) and have found that it works well on noisy weak signals into the six metre repeater, and feel the addition of DSP to the two metre repeater would enhance its performance on weak noisy signals too. DSP in the 6 metre repeater cost $160 (donated), but the price is coming down with the exchange rate between the UK and Australia going in our favour.

The 70 cm repeater will be having a higher gain antenna fitted and the addition of DSP to it may be worthwhile too. More output power may not be practical as desensing may occur with the DStar repeater which is nearby.
To bring the six metre repeater up to the same technical standard of performance as the two metre repeater, a larger antenna, higher power and a more sensitive receiver front end are needed. Projects to Increase the output power and to fit a more sensitive receiver front end are well underway. The purchase of an additional antenna bay and the coupling harness would cost around $700.
Whilst the standby batteries are doing a good job the club will need to put aside money for replacements in the future as those in use at the moment are over 10 years old.
As a committee we like to hear the club member's thoughts on the proposals. It is our aim that our repeaters be used to enhance the club activities and to encourage amateurs in adjoining areas to be able to regularly communicate with our club members due to the high performance of our repeaters.

Rodney Champness on behalf of the Technical Committee.

# WHAT IS SO SPECIAL ABOUT SIX METRES?

Most amateurs use the lower high frequency bands such as 3.5, 7 and 14 MHz and /or the 144 and 432 MHz bands. There are many bands that are rarely used by amateurs for a variety of reasons. The 50 to 54 MHz band is one of these. It is a matter of exploring why this is so. It has only become available in Europe in the last few years, and did not have a worldwide market until recently. Interference to and from analogue TV channels 1 and 0 restricted use in VK/ZL and channels 1 and 2 in the USA suffered the same problems. It will be noticed in the adverts for amateur equipment that is so much easier to get a two metre mobile or even a dual band two metre and 70 centimetre mobile or handheld, but almost impossible to find one which includes the six metre band. Whilst I cannot really give you a definite answer to this, what I want to do is show you that the 50 to 54 megahertz band is definitely worth operating on.

First I want to talk about FM repeaters. Locally we have a 70cm analog repeater, a two metre analog repeater and in the last year a six metre analog repeater. Not many of our members use the 70cm repeater, but it does what it is intended to do well and is less likely to have problems of interference. The two metre repeater is now working well and members are finding that it does all that it is supposed to do with good range and not too many dead spots. It is a good repeater.
Now we have the six metre repeater. There are not many of these around, ours being the only one in Victoria at the moment in a rural environment. What is so special about this repeater? It has a lower power transmission signal and a much lower gain antenna than two metres. Even with these disadvantages it can be heard out to around 160 km to the west on my mobile using a quarter wave antenna. I cannot hear the two metre repeater further out than around 120 to 130 km using a 4.5 dB gain antenna. The reception on six metres becomes weak in some spots within the service area but in the same spots the two metre signal disappears. On the down side, the six metre signal is more affected by interference than two metres whether it is mains noise or other services like traffic lights. Two metres is less affected and 70 cm is hardly affected at all. Six metres goes better in the bush. It penetrates green foliage with less loss than 2 metres and 70cm and the signals tend to "hug the hills" as it performs better in hilly country.

There are moves afoot to improve the performance of the repeater such that the weak reception areas within the service area are almost eliminated, the effect of interference is minimized and the usable range is extended. The ideas being worked on are to use a superior receiver front end to improve the sensitivity and by installing a power amplifier like that in the two metre repeater we will have a better repeater than we already have. Additionally if we couple another antenna of the same type to the existing one we'll improve the performance of the repeater on both receive and transmit by around 3 dB. It will cost a few hundred dollars to do all of these improvements which include an improved receiver, a higher powered transmitter and a higher gain antenna array. If all of these things are done the repeater will have a similar sized antenna, similar transmitter power and receiver performance to the existing two metre repeater and it works well as we know. We will then have a level playing field when comparing the two metre repeater (with DSP fitted) and the six metre repeater. Those who have only used two metre FM repeaters up until this time will be very surprised at the excellent performance that the six metre repeater will give. We (the six metre repeater users) can say this with confidence as already the repeater gives good performance and the proposed improvements can only make it even better.

It could be said why improve the repeater performance beyond what it can already do? If we do this mobile operation in Bendigo and Wangaratta (shielded by the Warby Ranges) will be practical from the results of tests conducted so far. It may even be useable in Albury/Wodonga mobile and more Melbourne stations will be able to operate through it. It will be good for us as a club to be able to talk with fellow amateurs in these areas as it helps to cement our common bond. It will become a repeater that will be able to be worked say into Wagga with slightly extended propagation conditions and certainly we'll hear northern NSW and Queensland stations too. When we hear these it is likely that SSB signals will be coming through from these areas too. When conditions are right in the summer period other states may well be worked through the repeater. We get this very occasionally on two metres but it occurs more regularly on six metres.

Maybe I've convinced you that six metres is a great band, but how do you get on to it? If you are a Foundation level amateur, swot up and upgrade your license level, you'll be glad you did. The antennas are less critical than those on two metres so are easier to build. A 5/8$^{th}$ wavelength two metre antenna may be resonant on six metres – worth a try. Equipment exclusively for six metres is rare but most of the HF multiband mobile size transceivers these days have six metres (multi-mode) built in and some have two and 70 centimetre too. In many cases if you are buying a HF rig it will have at least six metres on it so you don't even have to think about getting a rig exclusively for six. Because you haven't worked on six metres you may have forgotten that your current rig does in fact have six metres on it.

FM isn't the only mode used on six metres with SSB being more likely to be used down the bottom end of the band. If the FM section of the band is open it is very likely that the part of the band where SSB or CW is used will definitely be open interstate and maybe toNew Zealand and places further afield like Japan.

## TRANSCEIVERS FOR USE ON SIX METRES

There are very few six metre only transceivers. Mostly there are multiband transceivers that may go from 1.8 MHz to 450 MHz and all bands in between. If an operator wants all bands and most mode operation a multiband transceiver will be better value (monetarily) than selecting sets that only work on one or a few bands. In a mobile environment it is generally easier to fit one transceiver rather than many.

However, there is only one six metre FM transceiver (Alinco) available at this stage and one quad band set (Yaesu) 10 – 6 – 2 – and 0.7 metres.

Sets that have six metre capability and are suitable for mobile use:-

| | | | | |
|---|---|---|---|---|
| **Alinco** | | | | |
| DR—6T | FM | 6 Metres | 50 watts $350 | |
| **Icom** | | | | |
| IC7000 | AM/FM/RTTY/CW/SSB | 160 metres through to 70cm | 35 to 100 Watt | $1600 |
| IC7200 | Multi mode as above | 160 metres to 6 metres | 100 watts | $1130 |
| **Yaesu** | | | | |
| FT450D | Multi mode | (Base/mobile) 160 to 6 metres | 100 watts $1250 | |
| FT897D | Multimode | 160 metres to 70 cm | 20 to 100 watt | $1300 |
| FT857D | Multimode | 160 metres to 70 cm | up to 100 watts | $1200 |
| FT8900R | FM only | 10 metres to 70 cm | 35 to 50 watts | $600 |
| **Kenwood** | | | | |
| TS480HX | Multimode | 160 to 6 metres | 100 watts+ | $1550 |
| TS480SAT | Multimode | 160 to 6 metres | 100 watts | $1450 |
| TS590SAT | Multimode | 160 to 6 metres | 100 watts | $2000 |

The power outputs quoted are maximums for particular bands (but the bands are not specified in this list). The sizes of the sets in this article are suitable in most cases for mobile/portable use usually with a remote control option. Base type sets have not been included in this list. The prices quoted are in the ball park and you would need to check various suppliers for the actual prices as they will vary. Approximately correct as at 17/1/2012

There are of course many superseded transceivers that will work quite well on six metres. They will be cheaper than new sets and won't have quite as many features as the new ones but will work well just the same. If you are going to work the repeater you will need at least FM capability on six metres. A few superseded sets are the Alinco DX70TH, Yaesu FT680R, and Icom IC706 (variants of the basic model). I don't have a comprehensive list of superseded sets with six metres fitted. Most low band 66 MHz - 88 MHz or 30 MHz - 45 MHz ex commercial radios can be converted to six metres. There is a lot of information around if you can't nut it all out yourself. While some of these conversions can be a little challenging, it can be a very rewarding project and a cheap high performance radio.

Rodney VK3UG with assistance from Phil VK3ELV

# DOMINATOR 6M ANTENNA

## By Les Tatar VK3TEX

Over the last few months I was pondering putting up a 6M antenna to try out our repeater on Mt Wombat and to also get on the band for the first time in this wonderful hobby.

I decided to experiment, as we do, and looked up a design in a wire antenna book that I have in the shack. It was a 5/8$^{th}$ wave vertical design with a coaxial transformer at the base and quarter wave ground plane elements.

I copied the exact dimensions in the book and was very careful about the way I constructed the antenna but over several weekend s and much hair pulling I gave up on trying to tune this antenna in. The nearest I could get it to resonate at was 47Mhz. Nowhere near 50-54Mhz.So I put it aside and I may turn it into a 10M ground plane at some stage….

I was still keen to get on 6M but I am restricted to a fairly low antenna mount and need a bit of gain without going to a beam antenna. So a 5/8$^{th}$ antenna was still on my mind… At the same time I had a lot of family matters to deal with so amateur radio had to take a back seat…

So I got onto the internet to look for some designs and I stumbled across a commercial website which manufactures antennas for the FM broadcast band. They also manufacture a 6M version of their FM unit.

I did some more research on eham.net and read several reviews which were all very favorable to the antenna called the “DOMINATOR” 6M antenna.

The website for Norwalk Electronics which manufactures this antenna is www.fmbroadcastantenna.com so I went ahead and ordered the antenna for a VERY reasonable 199 Dollars US and the postage was only 50 Dollars US. So for a total of 250 Bucks I ordered it and then had to play the waiting game. The great thing is our dollar is at parity with the US Dollar so it’s cheap to order stuff online from the US…

So a week and a half later the package arrived and I unpacked the fairly largish box which contained all the goodies inside… It's amazing it only cost 50 dollars for postage to come halfway around the world…

It came with a very nice set of instructions on how to assemble the antenna and the top element had markings to indicate on which part of the band the antenna is resonant on, which is a great idea to easily adjust and put the antenna up first time.

So after roughly one hour of assembly the antenna was ready to put up on the mount which I had already put up the previous day.

I mounted the radiator first onto the pole because the radials needed to be mounted after because it gets a little awkward to do this on the ground. You don't want to impale yourself or bend an element!..

Once it was up and fully assembled I put the antenna analyzer on it to check the resonance point which was where the mark on the element said it would be ,and I got a very good SWR curve.

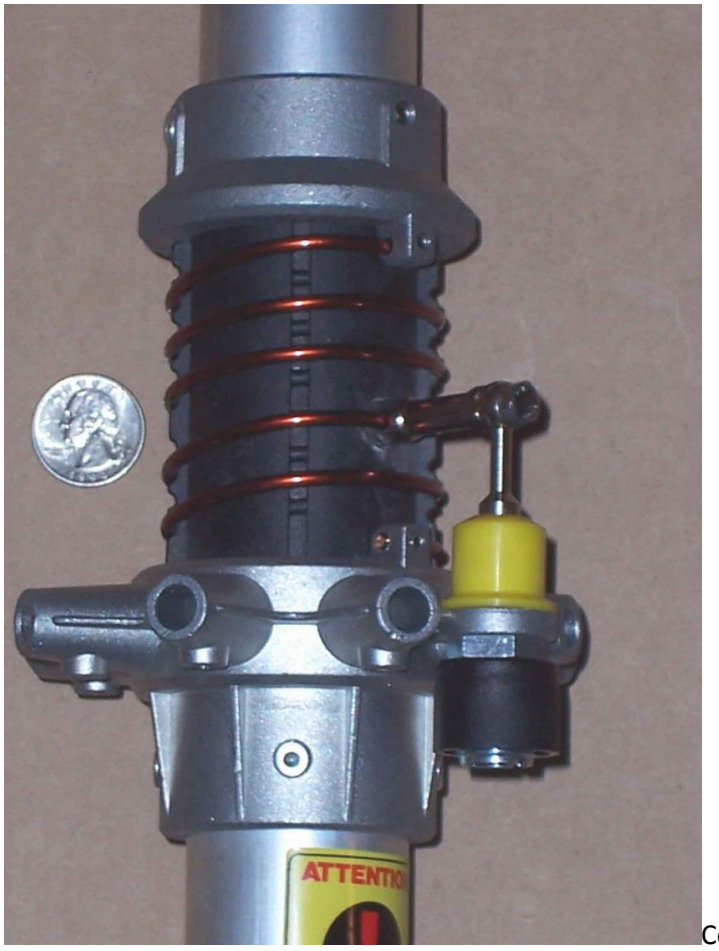
Now the true test was to check the SADRC 6M repeater and get a signal report.

With 100 watts out of the Icom 7700 the repeater sent back a 5x7 signal to my receiver.

I'm very happy with the results from this distance with this antenna and also very pleased with the cost of the DOMINATOR.

It's a commercial quality antenna and I give it a 5 out of 5 for quality and I think it should last a very long time. As with all antennas ,the higher you get it the better your reception will be. Mine is only mounted about 5 metres to the base of the antenna but if I had it higher(not possible at the moment at my QTH)I would get better performance.

 The base of the antenna which the mounting pole fits onto.



Commercial quality coil and mount which is very well engineered and is capable of the USA limit of 1500 watts.

The antenna mounted at the QTH. The elements are quite thick on the radiator to give a wide Bandwidth. The XYL can now hang the washing on the antenna radials!! She's a little disappointed that the radials don't spin around on a windy day…☺

The DOMINATOR mounted on the lower pole and in the background is the main pole at VK3TEX which holds the Diamond 2/70 vertical and the 80M inverted V Dipole.

Technical Specifications:

Model : Dominator 6M
Type : 5/8 Wave Ground Plane
Frequency Range : 50 - 54 MHz
Impedance : 50 Ohm Unbalanced
Radiation (H-plane) : 360 degree onmi
Gain : 2 dBd or 4.15 dbi
Bandwidth @ VSWR 2:1 : 4000 KHz
VSWR @ res. freq. : 1.1:1
Max Power : 1500 Watts
Max Wind Speed : > 85 MPH.
Feed System : Transformer DC-Ground
Connector Type : UHF Female
Height (approx.) : 13 Feet
Weight : 10 Pounds
Mounting Mast : 1-1/4 to 1-1/2 Inch

**Minutes for SADARC**

**Saturday 7 July**

**Meeting Open:** 1300 hrs at the Mooroopna Club Rooms

**Present:**
VK3FPSR Peter, VK3COP Ron, VK3AO Alan, VK3FMAA Mike, VK3PXJ John, VK3OV Pat, VK3TJS Jack, VK3DSF Max, VK3FJHM John, VK3ELV Phil, VK3UG Rodney, VK3TEX Les, VK3XNW Neil and visitor Steven Jones

**Apologies:**
VK3ON Alan, VK3VCE Dave, VK3FALN Alan, VK3HBW Brian, VK3JNC Ian, VK3BG Ed, VK3DAG Steve, VK3ECH Rob, VK3MRO

**Previous Minutes:**
Minutes moved as correct VK3FJHM John
Second: VK3FMAA Michael

**Business arising from minutes:**
Toby has been contacted regarding the cost of the internet connection for DSTAR. Toby replied outlining that the contract expires in December 2012 and SADARC is committed to make FULL payment even if the contract is terminated early. Toby also stated he has attempted other means such as linking but has received little satisfaction due to various reasons

As a motion exists as of Nov 2010 (as recorded in minutes) that SADARC would pay for DSTAR for a period of 2 years, the first year at no charge and the second at $50 per month, and due to expire Dec 2012, it was moved that SADARC honour this contract and investigate other means of reducing the monthly cost

Les suggested that a DSTAR users group was formed, who would contribute towards the ongoing internet costs. The general figure was 50/50 by members and SADARC. Les will report back after contacting those using DSTAR

Phil is to investigate a data link from Mt Wombat to Shepparton

Pat reported the keys to the Hamfest hall will be available for pickup Wed, Thur or Fri prior to the event.
Costs for the hire are:
$400 Hall hire
$300 Bond
$25 Public liability insurance

**Correspondence:**
**Inward:**
Membership payments from:
Norma Forbes, Len Hearnes, Jim Day, David Patterson, Graham Rutter, Duncan Cameron, Max and Norma Matthew.
A letter of thanks from the family of Bill Griffiths
Southern Peninsula ARC with details of their hamfest
Eastern Mountain Districts ARC newsletter
Scout Hall rental invoice
Numerous QSL cards
Letter from Toby regarding DSTAR internet connection (July)

**Outward:**
Letter to Toby Corbet re DSTAR as mentioned above (June)

**Treasurers Report:**
Report was handed to members by Ron VK3COP.
Accepted as correct
Moved: Ron VK3COP
Second: John VK3PXJ
All in favour

**Technical Report:**
Rodney reported on future works at Mt Wombat to include short masts on building to be put in place and reorganise antennas on mast. The batteries that are 12 YO need to be checked Geoff Angus gave ideas on placement of antennas for best coverage/orientation. Thanks Geoff.

The pricing of a 6m antenna was discussed

A Polar 614:

Antenna $420 + GST
Harness $174 + GST
Freight ??

Total ~ $700

Les to contact Rodney with website details for other antennas

Mt Wombat records are to be kept on:

Asset management
Cable ident
Procedure manual

Moved Rodney

Second Max
All in favour

**Comms Day:**
John VK3PXJ reported emails have been dispatched to all potential interested parties. To date 9 tables have been booked
The raffle prizes are yet to be confirmed. Jack has organised these in the past  Peter to contact

**General Business:**

Ron advised after all accounts were paid for the financial year the club has $90 less than the previous year. All outlays considered, a good result

Les has requested any interesting articles that could be included in the newsletter to be forwarded to him

Michael reported on the Kyabram field day held on Sunday 3rd June.
The portable tower worked extremely well. The 2metre home made antenna saved the day and worked well
Overall the day was a great success and SADARC may gain three new members. Thank you Michael (and all those who helped) for your hard work

A letter of thanks to be forwarded to MRC to thank their member who demonstrated CW

Let's all look at future events to promote the hobby

Peter advised the website is WIP (work in progress) although not finalised at this stage

**Guest Speaker:**
Tim Roadley, from the Yarrawonga Canoe Club, gave a talk on the Murray Quad event to be held in Dec 2012. The event comprises of a 3.5km swim, 20.5km run, 90km bike ride and 26km canoe paddle from Cobram to Tocumwal

SADARC was approached to provide the communications for the event requiring about 12 operators in total.
Tim's group will donate $500 to SADARC

The event is expected to commence at 0700 and finish ~ 1800 at Tocumwal

Peter and Michael to contact Darren, who has experience with the Southern 80 communications, to discuss viability and/or operational details

Tim can be contacted on 0417 373 376

Meeting Closed 1500 hrs
Regards
Alan  VK3AO


# AUSTRALIA'S FIRST WQF QUADRATHLON RACE

**Chance to be Australia's First Diamond Man or Woman**

Course includes a 3.5km swim on Lake Mulwala a 20.5km run around Yarrawonga a 90km bike ride from Yarrawonga to Cobram and a 26km paddle on the Murray River from Cobram to Tocumwal

## QUADRATHLON RELAY RACE 140KM

**Open to teams from 2 to 8 people**

Entries open 1st of September 2012
via website only at www.murrayquad.canoe.org.au

Downunder Diamond Man (Must be 20 years of age to enter full distance race)
Relay Races- Team of 2 to 4 (Minimum age 16 years old)
- Team of up to 8 people with legs split accordingly

For more information contact
Tim Roadley from the Yarrawonga Mulwala Amateur Canoe Club - 0417 373 376

**Supporting event also held on the day**

**Entries taken on the day**

FUN MINI TRIATHLON 200m swim / 10km bike / 5km run

Members, If you can assist with the Quadrathlonn (Radio Communications) above please see Peter VK3FPSR.