



GATEWAY

**The Official Magazine of the Gippsland
Gate Radio & Electronics Club Inc.**

March 2016 From The President

There are a number of important things to talk about this month.

Firstly, Pat Pavey is going to shave her hair off to support the Leukemia Foundation World's Greatest Shave event and in memory of Peter Pavey. If you haven't already sponsored Pat, there is still time to donate at <http://my.leukaemiafoundation.org.au/patriciapavey>. Pat has also asked that we support her at the March General Meeting by wearing a beanie so that she is not the only person in the room with a beanie on.

Antennapalooza 19th and 20th March is a GGREC premier event and needs your support. Ian Jackson VK3BUF still has one or two short openings in the program if you would like to give a presentation on the Saturday or Sunday. Please contact Ian to book your spot. This year we will be erecting a huge rhombic antenna that will give us a massive signal from the property in Drouin and I can't wait to see and hear how it performs.

The April General Meeting and Annual General Meeting is only a month away. We are looking for new enthusiastic members to join the committee for the 2016 – 2017 Club year. This is your chance to make a difference and to contribute to your Club's ongoing success.

Home Brew Competition judging will be held at the March GM with the trophy presented at the April GM so don't forget to bring along your project and entry form so that it can be included in the judging. Many thanks to Mike VK3KTO and Nils VK3FLYS for being this year's judges.

GGREC now has a new postal address so don't send any mail to our P.O Box as it will soon be cancelled. GGREC's new postal address is :-

GGREC
C/O Ian Jackson
408 Old Sale Rd
Drouin West 3818

Thank you to Bryan VK3FOAB, Mike VK3KTO and Paul VK3TGX for coming to the working Bee on the 20th of February. We vacuumed, dusted and cleaned up a lot of the shack and throwing out a lot of unwanted items. The antennas and radios were tested and a faulty connector was found on the log periodic coaxial cable where it screws into the back of the HF rig. The connector was fixed and the Log periodic is performing well.

And Lastly, we have approached Cathie West to audit the club's books for the last financial year as Tom Wilson VK3DTW is not in a position to audit our books this year. Tom, a life member of GGREC, has been our auditor for around 30 years and we are very grateful for his valued support. Cathie's appointment as our auditor will need to be approved by way of a member's vote at this month's GM.



See you at the GM,

See you at the GM,

Bruno Tonizzo VK3BFT

President GGREC Inc.

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Event Queue

March:

- | | |
|-------------------------------------|--|
| 4 th | Prac Night |
| 6 th | Club Net 8.00 pm local |
| 13 th | Club Net 8.00 pm local |
| 14 th | Labor Day Holiday (Vic.) |
| 18 th | General Meeting, Guide Hall, Cranbourne commencing at 8.00 pm. |
| 19 th – 20 th | Antennapalooza 2016, Drouin West. |
| 20 th | Club Net 8.00 pm local |
| 25 th | Good Friday |
| 27 th | Easter Sunday |
| 27 th | Club Net 8.00 pm local |
| 28 th | Easter Monday |

From The Editor

Well this month has been rather hectic at the TGX QTH, a fair bit of that has been in repairing my caravan, with fond hopes (Marianna permitting) of me attending the Antennapalooza gathering at Ian's. (And to try out my new MDT radio kit)

The rear window of my caravan is powder coated, then glued onto the back roof section. All good, except the powder coating was done on the cheap and has been peeling off for quite a while, unfortunately, when the window was glued on, the gluing was to the powder coat finish, not bare metal, as in the powder coat that is coming off!

The next project was my take on those product teardown's you find on the internet, from the likes of Ifixit (<https://www.ifixit.com/Teardown>). I came across a very cheap Cannon inkjet printer/scanner/copier, these I have seen for sale at just \$40, How low can they go? So I ripped apart the one I picked up for \$0 to see how they do it, complete with half a dozen pictures. Problem is the resultant article is not really suitable for this magazine (The whole point of the exercise) as it would take up heaps of pages, so maybe I'll finish it and put it on my website and put a link in here. – Anyone interested?



Then there is QR codes – a kind of 3D bar code. Recently I had a look at the Ubuntu (Linux) web store and they had featured a program called RNcoder which takes text (weblinks etc) and turns it into a QR code graphic. What you do with these is point your smart phone/tablet's camera at it, and it should immediately take you to the website they are advertising.

A lot easier than trying to copy cryptic url's with pen & paper, one misinterpreted comma etc. and the whole thing is broken and useless.

The big question is how many club members can use them?, All you need, apart from a tablet etc is to download some free software from your phones app store. If you like them I could start using them in the magazine.

It all depends on how you read the magazine, if you read it on a computer etc then all you need is the regular web links, (QR codes are then pointless) However if you prefer a paper copy then the printed web links are not that much use, so maybe QR codes might fit the bill.



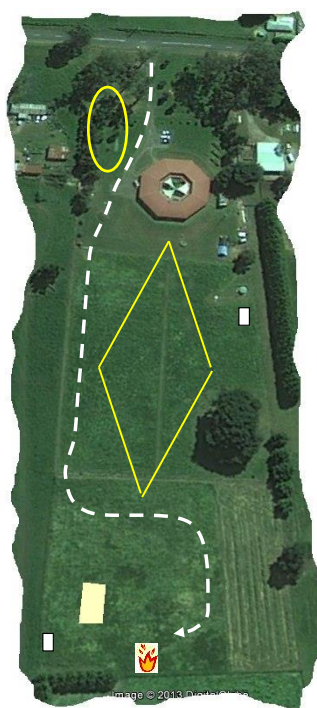
I have seen many a whacker complaining about printed paper weblinks, 'Useless' they say as they 'click' (stab) at them with their finger.

Paul VK3TGX

Antennapalooza

2016

We are pleased to announce that there will be another antenna field weekend at Drouin West. This will be on **Saturday March 19 and Sunday March 20**. (the weekend before Easter) Members and friends of members are welcome to come along stay for a day, or set up camp for the weekend. If you wish to come along earlier to help set up the wire antenna, then that's ok too.



We shall continue with the theme of short lectures on antennas and interesting topics to be spread over the two days. Visitors are welcome to set up antennas of their own and operate as a portable station.

The Club Station and field kit will be in operation, with its 12 metre mast and Off-centre fed Dipole and the Club's IC706 transceiver.

For experimentation and discussion, we intend to erect a temporary Rhombic antenna on 40 metres to see how well it compares with more conventional wire antennas. (The Rhombic is a very large antenna requiring a lot of space. Ours will be a relatively small one of about 130 metres in length and sixty metres wide, mounted on four guyed poles. (shown left) It will be erected the day before the event. It will be the topic of one of the lectures over the weekend.

There will also be a demo session of the SARK antenna analyser by Marc VK3OHM of the EMDRC club.

On the Saturday afternoon, we will have a military Humvee with original comms equipment on display during the event and its owner will tell us a little about what makes these vehicles so special.



On display at Antennapalooza 2016

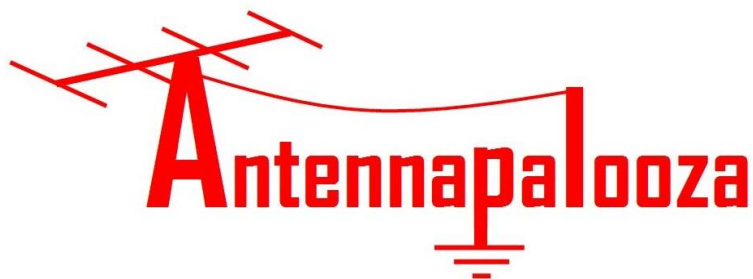
Fire ban days permitting, we shall continue the tradition of a campfire on the Saturday night.

No bookings are required in advance. It is a free event, but visitors will need to bring their own tent or caravan if they intend to stay over. The Club barbecue and coffee making facilities will be available all weekend. As before, an invitation shall be extended to members of other Amateur Radio clubs in our region.

More details will be publicised as the event draws near. The full event guide may be downloaded from: <http://ggrec.org.au/Files/Antennapalooza2016.pdf>

We still have some slots for interesting lectures on the Saturday and Sunday. If you have a topic of interest you'd like to share, contact Ian, VK3BUF on 5625 2545.

If you want a reminder of what we got up to last year, take a look on You-tube using the link: <https://www.youtube.com/watch?v=hUhxYctA3RU> Or just do a search for **antennapalooza**



Schedule for talks & demos

TWO MINUTE WARNING

Each talk or demo shall be heralded by a blast of air horns 2 minutes before it starts.

SATURDAY March 19

Topic	Speaker	Time slot
Humvee vehicle inspection	TBA	1:00 – 1:30pm
David Bush imported and restored this vehicle that saw service in the Gulf War. There are very few of these in Australia. This is a chance to take a close look at this formidable 6.2 litre, 4WD military machine.		

Sark Antenna analyser	Marc Hillman VK3GB	2:30 – 3:00pm
The SARK antenna Analyser was designed by the Spanish amateur EA4FRB. Today it is one of the highest regarded analysers on the market. Mark will provide an overview to reveal what makes these devices so special, Using live antenna feeds.		

Field Antenna comparison	Roy Seabridge VK3GB	3:30 – 4:00pm
Comparing the lightweight Doublet antenna with the Double-Bazooka Used on the 20 metre band		

Log Periodic Antenna Overview	Ian Jackson VK3BUF	4:30 – 5:00pm
A guided tour of the large demonstration antenna set up for this event for the 40 Metre band. It has over 300 metres of wire in the air. This includes a viewing of the receiver that Phil VK3YB will be using to monitor aircraft telemetry for his talk on the Sunday.		

SUNDAY March 20

Topic	Speaker	Time slot
IFR1200 Guided Tour	Albert Hubbard VK3BQO	10:30 – 11:00am
Albert will demonstrate this Spectrum Analyser equipment and how he uses it for Amateur Radio		

Monitoring Aircraft traffic	Phil Pavey VK3YB	11:30 – 12:00
Phil will show us the extraordinary pastime of monitoring aircraft telemetry and how a simple receiver attached to a PC can monitor commercial aircraft movements in real time for much of the country.		

The GGREC portable field kit	Rob Streater VK3BRS	1:30 – 2:00pm
The GGREC has put together an extensive field kit of antennas Power supplies and radio equipment. Rob will take us through The best way to take advantage of this facility.		

Antenapalooza poem

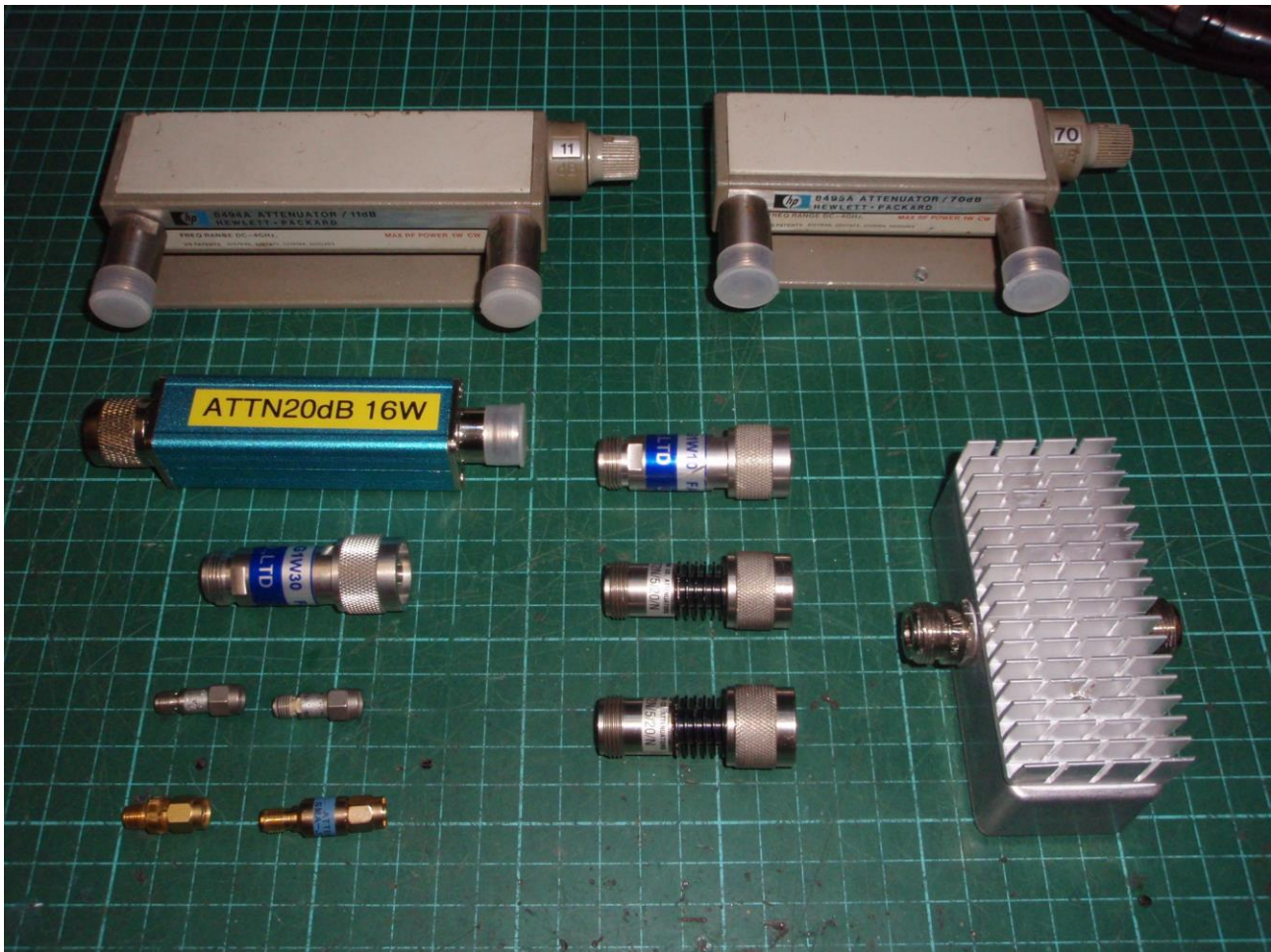
By Dianne Jackson VK3JDI

**Now Antennapalooza is here
Gather up, all your gear
Take it down to Drouin West
Come along, be our guest
Make yourself a cup of tea
See a left hand drive Hum Vee
Listen to the speakers now
Or just sit back and watch the cows
See a Rhombic made with wire
Sit around a cosy fire
Stay the day or pitch a tent
Whatever you choose, your times well spent.**



Can you turn it down a bit please?

Attenuators are a handy piece of kit when working on circuits ranging from audio up to RF and beyond. Being the sort of person who always has something on the go I have acquired a collection of attenuators that I regularly use when taking measurements of radios and test gear and will discuss one that I built for a fraction of the cost of purchasing something new.



At the top of the picture are 2 HP step attenuators that give me a range of 0db to -81 dB in 1 dB steps. These are rated from DC to 18 GHz so for accurate testing these are used quite a bit. They are rated up to 1 Watt each which is good but, what if I am working with a radio that develops 4 watts ? Simple, I put another attenuator in front of the stepped attenuators. In the picture above there are 2 “N” type attenuators with the black finned center, both are rated at 5 watts and offer 20 dB of attenuation. I picked them up at a Hamfest a few years ago for \$5 each. So if I run say a 4 watt signal into the 20 dB 5 watt attenuator before the stepped attenuators this will reduce the 4 watts down to 40 milliwatts, a level the HP's can handle quite easily. Sounds good you say, what if I want to run 100 watts into a power meter that can only handle a few milliwatts, something like a HP 432 ? Again insert another attenuator in front of the 20 dB 5 watt attenuator to reduce the RF power to an acceptable level. Just make sure it is rated for the power which it will be dissipating, in this case 100 watts.

This was the situation I was faced with the other day, I needed a portable and accurate power meter with the capability of reading up to 100 watts, and I didn't want to have to pull my bench apart again, what to do?

I had some RF dummy load and attenuator chips left over from when I was building the dummy loads last year so I had a look and found a 20 dB, 150 Watt attenuator chip in the parts box.

The difference between an attenuator and a dummy load chip is one tang. The dummy load chip has one tang (lead) to solder to and the other side of the chip is "earthed" to something like a heatsink. With the attenuator chip there are 2 tangs or leads, one input and one output from the chip (at the specified attenuation) and the mounting is earthed as well.

I remember a conversation with a broadcast Mate many years ago discussing the "dark arts of RF" and I remember something he told me about any RF construction in general.... This was to "keep the leads short".

I scrounged up a pair of panel mount N connectors and a jiffy box and built the attenuator. I checked it out on the bench, the results were at least surprising...

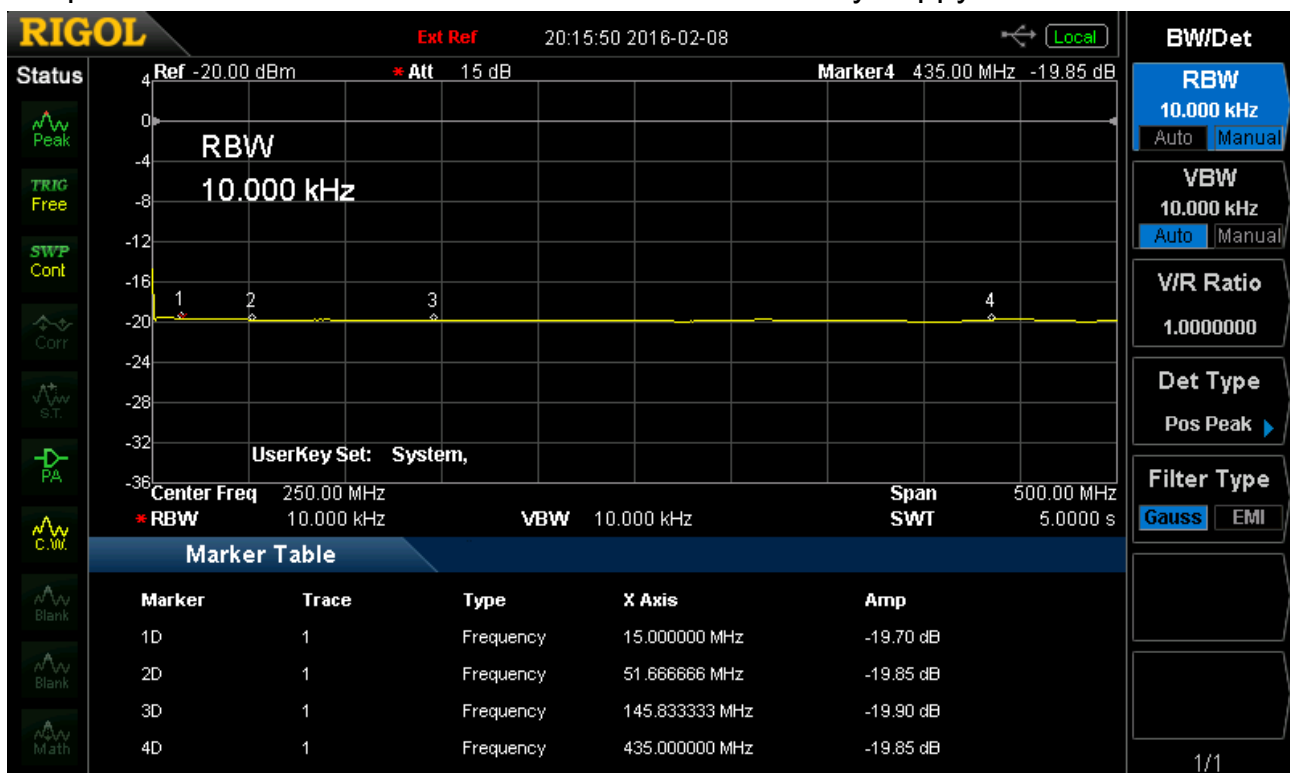


As you can see the attenuator chip sits on a bed of copper that is mounted onto the back of the case. I chose copper for it's heat transfer capabilities. Directly underneath the copper and the back of the box I have mounted a small heat sink with plenty of heat transfer compound. Either side of the box are mounted 2 panel mount N connectors with a nut each side of the box for the adjustment of the depth of the N connectors into the box. This was necessary as the two connectors were too close together inside to fit the attenuator chip between so I had to space them out a bit. I think the picture tells the rest of the story :-)



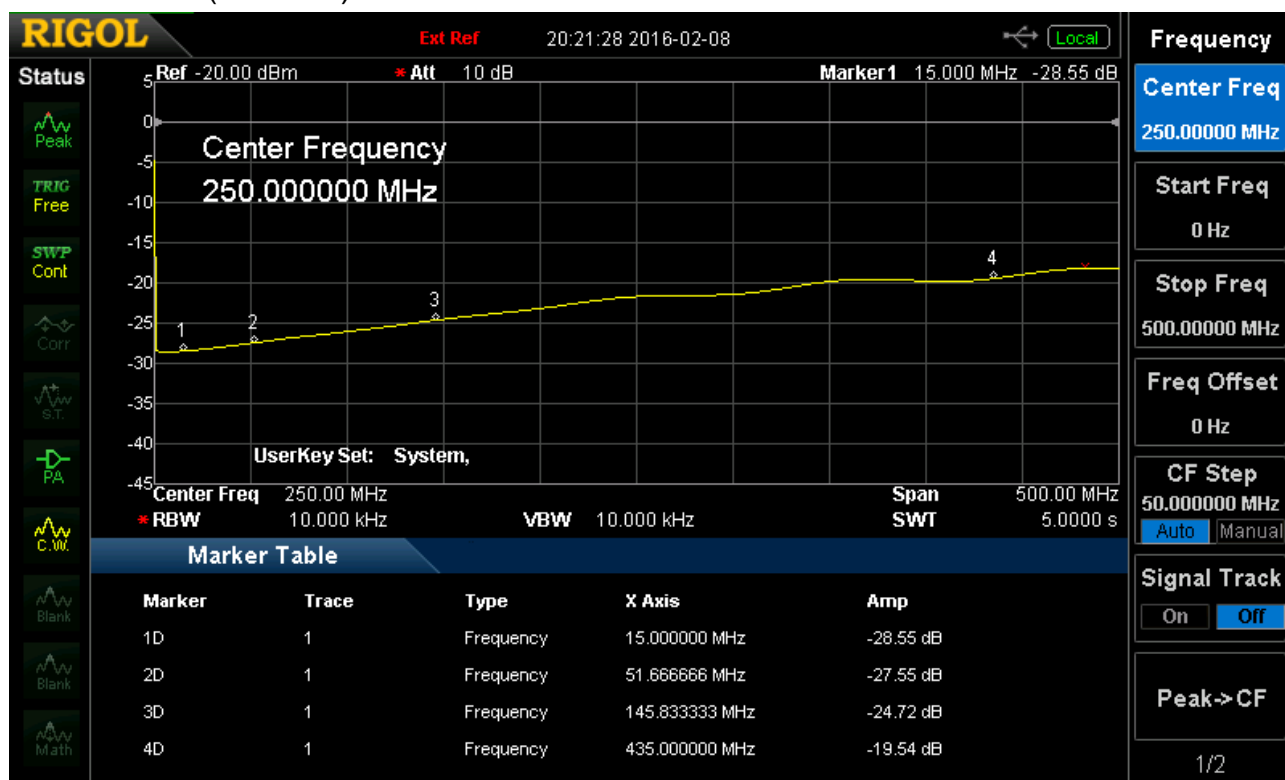
So how did it measure up ?

The first test was to check the frequency response of the attenuator over 500 MHz to see how flat the attenuation was. In a perfect world the attenuation (in this case, 20 dB) would be ruler flat from DC to 500 MHz but as we all know not many things are perfect.... I took some measurements and was very happy with the results...



You can see that I was getting a 0.2 dB variation across 500 MHz and was off the magic 20 dB mark by only 0.3 dB at the worst case. These are quite good results for a “homebrew” attenuator and I was encouraged for the next test, input VSWR.

As the attenuator would be connected directly to the output of a transmitter I needed to find out what sort of impedance it would present to the transmitter. So with a 50 ohm precision termination on the output of the attenuator I swept the input for Return Loss (VSWR) and these are the results that I achieved.



At 15 MHz I measured a VSWR of 1.08 to 1, at 52 MHz I measured a VSWR of 1.09 to 1, at 146 MHz I measured a VSWR of 1.12 to 1 and at 435 MHz I measured a VSWR of 1.24 to 1.

Any transmitter would be happy transmitting into these VSWR's !

The chip is rated at 150 watts but I doubt I could run that sort of power for any length of time as the heatsink is too small for that sort of RF level. I have run 50 watts into the attenuator for a minute and I could still pick it up in my hand so I am happy with that. Short term peaks over 100 watts are fine with a bit of safety margin as well.

The other bonus with this is the cost, the RF attenuator chip was \$ 15, case \$ 4, N connectors \$ 10 and a few bits and pieces laying around. Total cost for the project was roughly \$30. I had a look on that famous auction site starting with “E” and I was looking at over \$100 for something similar and second hand... not bad at all!

All in all a successful project and a useful one too!

The next project is a 100 ohm dummy load to test VSWR meters :-)

Cheers and 73,

Rob VK3BRS

Notices



Just a reminder that my shave will happen on March 18th, so at the meeting that night you will all be able to see the result. I am hoping you will bring along your wallets to support me in my effort to make a difference in the lives of others suffering the effects of Leukaemia as Peter and our family did ten years ago.

See you then, Pat VK3OZ

On the weekend of the John Moyle Field Day (and Antennapalooza), Ian Branch VK3YEA and a group of amateurs will be conducting experiments using NVIS (Near Vertical Incidence Skywave) from Yea.

Not sure what NVIS involves?

Have a look at <http://www.qsl.net/wb5ude/nvis/> or <http://www.vk4ion.com.au/envis.html>

The activity is still in the planning stages, but Ian suggests that they start the day on 3600 kHz, and perhaps move to 7075 kHz around midday. If you're interested, please contact Ian direct using the details in the WIA callbook.

Bryan

Hi all,

Of course you would be aware that we approach our Antennapalooza field weekend.

Preparations are going well. A bulletin will be sent about midweek detailing what time the various talks will be taking place.

This email is all about what we hope to achieve on the Thursday and Friday before the event, for those who may be in a position to help out.

Some of this work has already been done...

- The grass has been cut in the bottom paddock and the forest area.
- The toilet has been cleaned and moved into position.
- A sufficient quantity of firewood has been cut and is already in position.

Thursday, (17th), from 10:30am

Stand up and guy four 12 metre high masts for the large Rhombic antenna

This is made from sections of PVC pipe, to be guyed to short star pickets using nylon rope

- Brackets and ropes have already been organised.
- The first stage will be stood up and guyed from ground level.
- The second stages will be added using the boom lift
- Erect a 3m x 3m shelter at the base of the feedpoint pole for radio equipment etc. and add a folding trestle table to it.

Lay out the fireplace area with some square concrete pavers.

- A small amount of spade work will be necessary to define a fire pit area.
- We must also set up and test firefighting equipment.

(As we are still within the summer period, fireplaces are permissible provided reasonable precautions are taken)

Friday (18th), from 10:30am

Haul the Rhombic antenna into the air

- We have 300 metres of steel/copper antenna wire to unroll, mount and test.

Stand up wooden stakes with bunting flags

- There are two sections to set up that will guide visitors down the hill. One near the the top gate to guide people down the hill
and another near the bottom gate to dissuade people from driving straight down the very steep section
- There will be a number of laminated signs to staple up as well

Stand up & guy GGREC Field Antenna & mast

- this will be the 12 metre aluminium mast and of-centre Fed dipole, to be placed near the lecture marquee.
- A second 3 x 3 metre shade structure and trestle table will be needed at the base of this

Erect large marquee

- Some time on the Friday afternoon the local Scout leader will arrive with our meeting area marquee. We need to stand this one up.
- Normally it is done with just 2 or 3 people and it takes about 30 minutes.

None of these tasks are too difficult to achieve, but i would like to spread the work around a bit, so that we can focus on having an easy time on the weekend

If you are able to help out for a few hours on just one of these days, it would be appreciated.

If it looks like you can make it, please send an email to ianjackson@dcsl.net.au and indicate the day that you can attend.

Cheers, VK3BUF

General Meeting Minutes 19/02/2016

Start time: 8.00pm

Location: Club rooms.

Chairperson: Bruno

Minute Taker: Bryan

Present: As per attendance sheet

Visitors: Allan VK3FHRT, Chris Chapman VK3QB

Apologies: As per attendance sheet.

Correspondence received:

1. WIA News.
2. Invoice from VentralP for club website hosting.
3. Breakout magazine for January 2016 from NZ.
4. Advice notice from Energy Australia re. decreased electricity costs for the club.
5. Payment confirmation from VentralP.
6. EMDRC Jan-Feb Newsletter & Feb meeting details
7. Email detailing updated email address for Cranbourne Guides.
8. Prac Night notice from Rob VK3BRS for 5 Feb.
9. NERG News Feb 2016
10. RARC Newsletter Feb 2016
11. YVARG Hamfest notification
12. NERG News Winery Open Day 28 Feb 2016.
13. Feb 2016 notice from Steve Ireland re. repeater listing updates.
14. WIA Board News for Jan 2016.
15. Gateways magazine for Feb 2016.
16. Notification from Graeme VK3BXG re. availability of 2016 Call books for \$25.
17. Numerous emails re. continued use of club PO Box.

Correspondence sent:

1. Yaesu Fusion System explained.
2. QRP by the Bay 6 Feb 2016.
3. Breakout Magazine Jan 2016.
4. Notice re. Oz QRP kits for prac night from Rob VK3BRS
5. EMDRC Jan-Feb 2016 Newsletter & Feb meeting details.
6. Notice re. 2016 VK3 SOTA Conference.
7. NERG News Feb 2016.
8. RARC Feb 2016 Newsletter
9. Yarra Valley ARG Sunday 17 April 2016.
10. NERG News update
11. WIA Board Newsletter, Jan 2016.
12. Notice from Albert VK3BQO re. IRLP Node 6794 operating again.
13. Notice re availability of 2016 Call books.

Treasurer's report: Graeme presented the financial report for the period 16/1-15/2/2016. Members wishing to receive a personal copy of the report should contact him directly. BPay hopefully is up and operational.

Read: Graeme VK3BXG **Moved:** Graeme VK3BXG **Seconded:** Helmut VK3DHI **Carried:** Yes

New Callsigns: Nil.

Previous Minutes: As circulated in the latest edition of the club magazine

Business arising from the previous minutes:

1. The Big Shave. Sponsorship is now open. See Pat VK3OZ for full details.
2. Hamfest 2016 – Brian VK3FLEX is coordinating. Hall is booked for 16/7/16. Nils VK3FLYS is assisting.
3. Food handlers Course – paperwork for Wayne. We still need to have people complete the course. Bruno will follow this up.
4. Mid-Year Dinner – Graeme VK3BXG checked with Wild Dog as a possible venue, but felt that it lacked variety/choice and was rather expensive. Plan B required.
5. Working Bee tomorrow – de-cluttering, and repair work. Checking antennas, and 7 Summit SOTA activation. 10.00 am start.
6. Committee nominations – please give consideration to this. Most positions will be vacated.
7. Home Brew Award – details in the mag. Assessors have been chosen. That will occur at the March GM. Trophy to hold onto for 12 months.
8. Aus Day BBQ went very well for those that attended.
9. On 17 May International Telecommunications Day, we can use the AX callsign prefix.
10. Call books – are available from Graeme VK3BXG. \$25 if you've ordered one.
11. Door lock repairs: Fob reader – Ian VK3BUF has sourced a different reader, which is working well. We also have spares.
12. Auditing of assets – needs to be done
13. New member's kits – still in process.

New business:

1. IRLP – Now operational and Reg VK3UK can contact us on the repeater. Big thanks to Mark VK3PKT for the work that has done in getting it up and running. Old interface board still works; new interface board will be kept for spare. Might work with new computer.
2. VK3RLP – Some discussion about changeover. Open source would be preferable (DMR) , but hold off on DStar/Fusion. Albert VK3BQO is working with Dave VK3JL on the possibility of moving RWD to Mt Worth. Will do some signal strength tests over the next month. Possible 13 March/14 March for the testing to be done. Covering Dandenong to Traralgon. Albert will send out an email for support. Need at least 5 vehicles. It might enable VK3RDD to be relocated to Graeme's QTH, which would better service the Gippsland/LV area.
3. Club's 40th anniversary for 2017 -- how do we celebrate? who we celebrate with etc.? Contact committee if you have any ideas. July/Aug might be a suitable date.
4. Sunday night net – Only limited numbers of people participating; do you want to pause it or go to a new day? 8.00/8.30 on Sunday nights. Will leave it to the AGM, and if numbers don't improve, we'll pull the pin.
5. Classes – Thanks to Graeme. Next one is first weekend in April. One candidate passed 100%.
6. MERC Hamfest – Very good effort. Did not have a large amount of space. Good variety of gear, and well supported.
7. EMDRC Hamfest on Sunday 28th. Feb 22-28 is Antarctic Activity week.
8. Antennapalooza – one month from today. Looking good so far. Scout marquee booked. Humvee. Marc VK3OHM is giving a talk on the SARK antenna analyser. Still slots available so talk to Ian if you would like to present on the day. Putting up demo rhombic antenna on 12 m masts. Want to try to get it into position prior to the event, so that it can be operational on the weekend. (Thurs 17th/18th for putting the gear up if you can help.)
9. Upcoming Events – John Moyle Field Day 19-20 March; Harry Angel 80m Sprint 2 May; International Telecommunications Day 17 May (AX prefix may be used); Trans-Tasman 3rd Weekend in July; RD Contest 13/14 Aug; Oceania DX – First & second weekend in October.
10. Name tags – see Bryan if you want to order one.

11. PO Box – Discussed last year and we left it as previously. Cost has gone up to \$200 pa. Ian suggested mail go to his place. Comparatively small amounts of mail being received. Would be GGREC C/- Ian. Need to inform people that we've changed our addresses. Suggested that it be sent to two email addresses, so that we cover the contingency of an ISP going down etc. Moved Bruno that PO Box be shut down, and sent to Pres and Treasurer via email. Seconded Yarn VK3NOV. Rob suggested that we try to add a second email. Passed.
12. Ian and Graeme met at Bank and added payees to the BPay list, which is sent via email for the second signature. As per our club rules, payments still require two signatures and the BPay system allows for this.

Meeting closed: 8:55 pm

Next Committee Meeting: 01/03/2016

Next Prac Night: 04/03/2016

Next General Meeting: 18/03/2016





Club Information



Meetings 2000hrs on third Friday of the month at the
Cranbourne Guide Grant Street Cranbourne
Prac nights first Friday in the Peter Pavey Clubrooms Cranbourne 1930hrs
Visitors are always welcome to attend

Office bearers

President	Bruno Tonizzo	VK3BFT	Repeater Officer	Albert Hubbard	VK3BQO
Admin Sec	Acting- Bryan Simm	VK3FOAB	Web Master	Mark Clohesy	VK3PKT
Treasurer	Graeme Brown	VK3BXG	Magazine Editor	Paul Stubbs	VK3TGX
General 1	Rob Streater	VK3BRS	Property Officer	Bruno Tonizzo	VK3BFT
General 2	Vacant	VK3XF	Secretary	Ian Jackson	VK3BUF

Call in Frequencies, Beacons and Repeaters

The Club Station VK3BJA operates from the Cranbourne Clubrooms.
6m Repeater VK3RDD – Currently de-commissioned until further notice - *sorry*
70cm Repeater Cranbourne VK3RLP In 434.475MHz Out 439.475MHz CTCSS 91.5Hz
VK3RLP Repeater supports Remote Internet access (IRLP), Node 6794.
70cm Repeater Drouin VK3RWD In 433.575MHz Out 438.575Mhz CTCSS 91.5Hz
Simplex VHF - 145.450MHz FM • Simplex UHF - 438.850MHz FM
VK3RLP Beacons 1296.532MHz & 2403.532MHz

Membership Fee Schedule

- Pension Member rate \$25.00 Extra Family Member \$20.00
Standard Member rate \$40.00 Junior Member rate \$25.00
Fees can be paid by EFT to BSB 633000 - Account 146016746.
• Always identify your EFT payments.
• Membership Fee's Are Due at each April Annual General Meeting.

Magazine Articles to editor@ggrec.org.au or vk3tgx@gmail.com
All other Club correspondence to: secretary@ggrec.org.au
or via Snail Mail : GGREC, C/O Ian Jackson, 408 Old Sale Rd, Drouin West 3818
GGREC Web Site & Archive may be viewed at: www.ggrec.org.au
Website errors, contact web master via email webmaster@ggrec.org.au
Facebook Page www.facebook.com/GippslandGate