



GATEWAY

The Official Magazine of the
Gippsland Gate Radio & Electronics Club Inc.
Incorporation Number A0016893M

October 2012 - From the President ...

VK3JDI



Dianne Jackson

This month's Oscilloscope themed practical night was well attended. There were a variety of CRO's to play with, including one that interfaces with a computer. Don't forget that next month's practical night we will be focusing on Slow Scan TV.

Jamboree Of The Air is also happening this month. JOTA will be held on Saturday the 20th of October, the day after our October club meeting. Graeme VK3BXG is the JOTA coordinator this year, so if you can spare some time to man the radios and help the guides understand and appreciate amateur radio, your help will be appreciated. Contact Graeme at the October meeting to work out the best time to be there.

For those of you who were not at the September general meeting, we have finally received the new floor mats for our club room floors. There are two mats per room with one additional mat for the kitchen floor. These new mats will make it easier to mop the floors in the shack, because they can be easily lifted up and replaced afterward.

This year's Christmas party has been set for Saturday the 8th of December. Write the date into your calendars and diaries now as this is usually well attended and lots of fun. At the party we will be drawing the winner of the Christmas hamper. Donations to the hamper will be gladly accepted at the October and November meetings.

And lastly, it is with some sadness that we learned of the death of Michael Owen, VK3KI the President of the W.I.A. Michael had been the W.I.A President for the past eight years and had been instrumental in the organisation of the modern Foundation License class.

I'm looking forward to seeing you all at the October general meeting. This will be a special 'Portable Equipment' night, so bring along your hand held & field transceivers, plus any associated bits of hardware.

Item	Page
Event Queue	2
The teacher	3
A Cheap Simple Coax Switch for HF	4
Why We Need a Supercomputer on the Moon	5-6
R.I.P. Michael J. Owen VK3KI	6
September Meeting Minutes	7
Information for Members	8

GGREC Event Queue from October 2012

October 19th – Friday Night. General Meeting at the Cranbourne Guide Hall
2000 hrs Portable Equipment Show & Tell Bring along your portable
Gear (Antenna's, Rigs etc) for others to look at.

October 20th – Saturday. JOTA/JOTI
From 1200 hrs Jamboree of the air at the Shack/Guide Hall
contact Graeme **VK3BXC** for more details or to volunteer to help out

October 21st – Sunday. Ballarat Hamvention
From 1000 hrs contact Ian McDonald VK3AXH via email
igm@vic.chariot.net.au for information

November 2nd – Friday Night. Prac Night at the Peter Pavey Clubrooms
From 1930 hrs come along to socialise and have a chin wag
or use the clubs transceivers for a QSO (SSTV Night)

November 11th – Sunday. Yarra Valley Hamfest
Gary Cooper Pavilion 16 Anzac Avenue Yarra Glen From 1000 hrs

November 16th – Friday Night. General Meeting at the Cranbourne Guide Hall
2000 hrs Talk to be on feed-line reflectometry.

November 24th & 25th – Sat & Sun. Spring VHF/UHF Field Day
See the WIA contest page at the website for more information
<http://www.wia.org.au/members/contests/vhfuhf/>

November 25th – Sunday. Rosebud Hamfest
Eastbourne Primary School Auditorium, Allambi Avenue, Rosebud, Victoria
Contact markybradio@gmail.com or phone 0407844063

December 8th – Saturday. GGREC Christmas Party
Pakenham From 1100 hrs

January 4th – Friday Night. Prac Night at the Peter Pavey Clubrooms
From 1930 hrs come along to socialise and have a chin wag
or use the clubs transceivers for a QSO

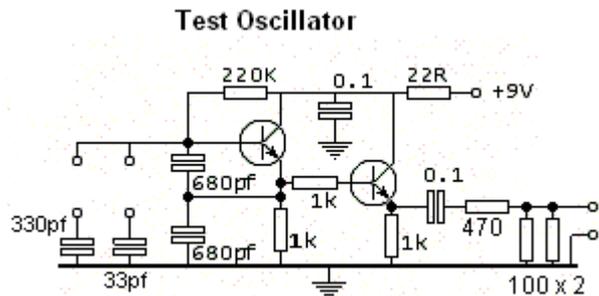
Remember that this months meeting is a 'Portable' equipment night. Bring along your portable equipment including hand helds, mobiles, laptops with HAM software, antennas or anything else that you use in the field in your HAM radio endeavours.

The Teacher

"In time, you may recognise your electronics workbench as your greatest teacher. Bench experiments involve us thinking about and measuring our circuits so we know what's happening instead of relying too much on folklore, guessing and copying others. Designing and/or simulating circuits with software can enhance your learning but does not prevent the need to spend time in the trenches with meters, wires and solder." VE7BPO

The idea is to learn, you do this by understanding what you build and building what you understand. By 'understand' I mean, being able to measure. Here is what I suggest, buy yourself some 2N3904's resistors and caps. then build the circuit to the right.

This is an oscillator. If you plug in a coil between the open ends, it becomes a VFO, if you plug in a crystal, it becomes a crystal oscillator. You can check your frequency oscillator to see the frequency it is oscillating at. With this you have mastered the first of the three blocks that make up almost every radio circuit. Next make another test instrument a power meter.



Most ham's start out with a simple RF probe. While this was fine in its day, we can do much much better now. We can make a very accurate power meter that enables us to measure power as well as anybody in this business. W7ZOI has designed a simple power meter. It is available as a kit. You can find about it here <http://kangaus.com/documentation.htm> by clicking on the **AD8307 Power Meter** link near the bottom of the page. With the power meter you can now measure the power levels coming out of any circuit with great accuracy.

You can then build a single stage feedback amplifier on a copper clad board. Using the test oscillator as an input, you can measure how much gain the amplifier has (measure the oscillator output, then connect the oscillator to the amp and measure the amp output. The, amp output minus the oscillator output = amp gain). Of course, while building both these blocks, you will discover what voltages to expect at which junction of components in both these blocks.

Next you can build a step attenuator which is a really simple thing and of immense value in the home lab. Here is a design <http://www.arrl.org/files/file/Technology/tis/info/pdf/9506033.pdf> or you can buy it in a kit form from <http://www.qrpkits.com/attenuator.html>

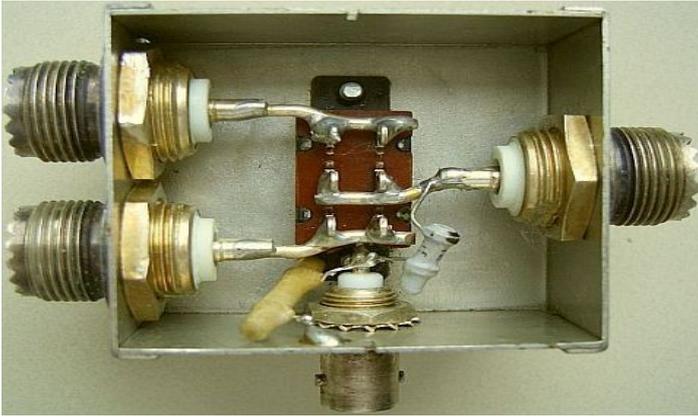
Finally you can build a simple signal generator: <http://www.phonestack.com/farhan/siggen.html> this will allow you change frequencies and measure what a circuit does at those frequencies. You can use this to test how the filters are doing and get them to the spot where you want them.

So, there you have it, a signal generator, a power meter, step attenuator, test oscillator, four very simple test instruments that you can build yourself. They will give you one great education in radio. and within weeks, you will understand and start building things on your own!!



Based on a post by Farhan

A Cheap Simple Coax Switch for HF



The image to the left shows an inexpensive home-made antenna selection switch. If you question the use of a cheap slide switch and SO239 coax sockets, read on.

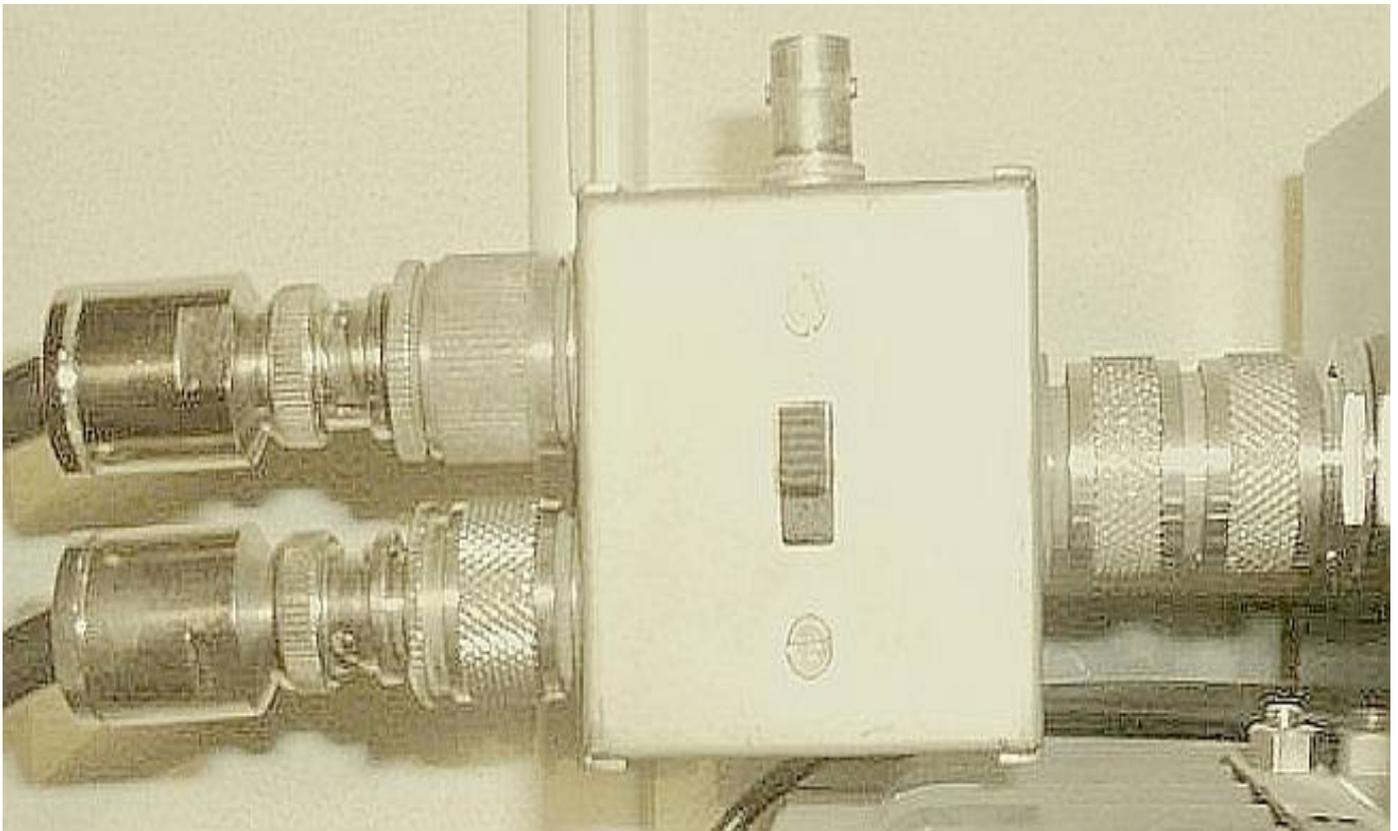
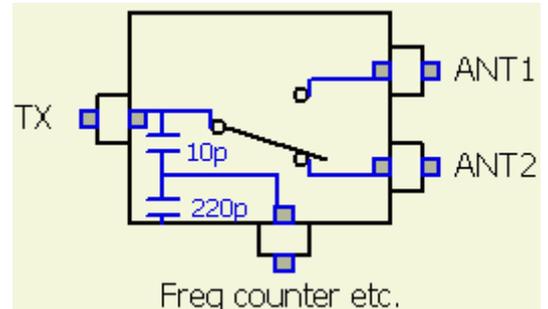
Measurements in a physics lab showed there to be practically no reflection on HF and even on 70 cm the SWR was below 1.3 : 1

The reason for this is the contacts in the slide switch have larger contact surfaces than many bought coaxial switches and the wiring and switch contacts between the top and bottom of

the metal case act as the centre conductor of coax very close to the required 50 Ω .

It is built in to a box measuring 54 × 50 × 26 mm (l × w × h) and the wiring between the switch and the coax sockets is done with 2 mm silver plated wire. If the switching is done with TX power off the switch can stand up to 800 W. I have used this switch for more than 15 years and with up to 1500 W and there have been no problems.

While building this switch, you might as well add a test point to connect a 'scope' or frequency counter. The capacitors of 10 and 220 pF make a capacitive voltage divider and the extra loading, 9.6 pF, does not affect performance on HF. In fact, on 10m it improves the SWR as a result of the extra capacitance, in combination with the wiring it makes a filter which favours that frequency.



Article and design by PA0FRI

Should we build a supercomputer on the moon?

It would be a mammoth technical undertaking, but a University of Southern California graduate student thinks there's a very good reason for doing this: It would help alleviate a coming deep-space network traffic jam that's had NASA scientists worried for several years now.

Ouliang Chang floated his lunar supercomputer idea a few weeks ago at a space conference in Pasadena, California. The plan is to bury a massive machine in a deep dark crater, on the side of the moon that's facing away from Earth and all of its electromagnetic chatter. Nuclear-powered, it would process data for space missions and slingshot Earth's Deep Space Network into a brand new moon-centric era.

The Deep Space Network is a network of 13 giant antennas located in the U.S., Australia, and Spain that gather data and talk to spacecraft in, well, deep space. These space missions are already fighting for bandwidth on this overloaded network and most of the data has to get back to Earth for processing. With a lunar supercomputer, Chang says, that could change.

His supercomputer would run in frigid regions near one of the moon's poles. The cold temperatures would make cooling the supercomputer easier, and allow it to use super-efficient superconductive materials to move around electricity. Although it's not clear how much water could be found on the moon's poles, Chang envisions a water-cooled supercomputer.

How much would this Lunar supercomputer cost? Well, Chang and Thangavelu say it costs about \$50,000 per pound to ship materials to the moon. Add to that the cost of digging out and building out the sub-lunar supercomputer center, cooling system and nuclear power generator, and you can easily envision a project in the \$10 billion to \$20 billion range, never mind the cost of building a lunar base station. That would easily make it the most expensive supercomputer ever built.

The lunar computer would communicate with spaceships and earth using a system of inflatable, steerable antennas that would hang suspended over moon craters, giving the Deep Space Network a second focal point away from earth.

Some at NASA agree that there's a coming Deep Space Network traffic jam. Back in 2006, the agency's top networking gurus warned that over the next three decades there will be an "order-of-magnitude increase in data to and from spacecraft and at least a doubling of the number of supported spacecraft."



Space scientists are worried that the existing Deep Space Network hardware is obsolete and just not up to the job of transmitting the growing workload of extra-terrestrial data.

The U.S. space agency is going to have to come up with a plan, the scientists said.

In fact, Chang isn't the first person to propose putting a big data processing facility on the moon. Back in 2004, researchers at Space Systems Loral described something called the Lunar Data Cache — an extraterrestrial backup system that would keep businesses online in the event of a Sept. 11, 2001-type terrorist strike somewhere on Earth. The Loral proposal also described a few way-out moneymaking ideas such as lunar rover-deployed billboards, robotic rock-heaving contests, robot wrestling, and rover races piloted by NASCAR drivers.

Clearly, the business of dreaming up supercomputers in space is not for those who think small.

Still, after being reported in the New Scientist, Chang's work has caught the interest of the space community because it addresses a very real and pressing space problem. And that's something that could give future lunar missions a very clear and exciting sense of purpose, says his USC's Thangavelu. "For now, it is piquing the mind of the policy makers," he says.

"Even though far-out," Chang's paper "does excite the imagination," says Kul Bhasin, a system engineer and formulation manager with NASA Glenn Research Center. He agrees that there is a growing problem with outer space networking.

Bhasin works on designing advanced space networking technologies, and he says that there are some promising alternative communications technologies — Laser-based networking, for example — that could break the Deep Space Network bottleneck.

Next year, researchers at MIT's Lincoln Laboratory will test out a 622 megabits per second Laser network that will speed up earth to moon communications fivefold.

The supercomputer-on-the-moon idea was pretty much a natural for Chang, who describes himself as a super-computing geek. "My PhD thesis is about doing one of the largest space plasma turbulence simulation in the world," he says. "I just put two popular concepts — space exploration and cloud computing — together."

So, will there ever be a supercomputer on the moon? Though NASA's Bhasin finds it interesting, he's really not sure it will ever happen. "Your guess is as good as mine," he says.

wired.com



R.I.P. Michael J. Owen VK3KI

It is with deep sadness that we report the sudden and unexpected passing of WIA President, and IARU Region 3 Chairman, Michael Owen VK3KI after suffering a medical condition at his home on the afternoon of Saturday the 22nd of September.

Michael was immensely influential in shaping the hobby of Amateur Radio since the 1960s both in this country and internationally. He will be very sadly missed by a great number of people.

Through Michael, the WIA became highly regarded by government agencies and the ACMA for its professionalism and efficiency, especially in relation to the WIA examination and call sign management service.

Michael's shoes will be very difficult to fill.

General Meeting of 21st September 2012

Location: Guide Hall Cranbourne.
Start Time: Meeting commenced at 2005 hrs
Chairperson: President Dianne VK3JDI.
Minutes taken: Graeme VK3BXG.
Present: As per attendance sheet.
Visitors and Guests: As per attendance sheet
Apologies: As per attendance sheet.
New Members: Ron Lacy VK3FRDL
New Call signs: Rob VK3BRS, Bryan Simms VK3FOAB and Tristan Clifton VK3FNAB.

Correspondence received:

EMDRC news letter, Wansarc news e-mail Link, Nerg news e-mail link, South-East Water re. billing account change, (No sign of AR magazine this month), Email from Ryan Unsworth VK3FAAR requesting help with JOTA/JOTI at Frankston.

Correspondence sent.

Email to Ryan Unsworth VK3FAAR offering help with JOTA/JOTI at Frankston.
To Google Maps, submitted by Mark VK3FSWP, the club shack location.

Treasurer's Report

As tabled. Total income for the month was \$29.44 with total expenses of \$382.28 making a loss of \$352.84 for the month. Moved Ian VK3BUF, seconded David VK3XMF, all in favour, carried.

Previous Minutes, as per September 2012 Gateways.

Business from the Previous Minutes.

Foundation Course VK3BXG reported that there were three successful foundation candidates as a result and Rob , formerly VK3FABJ is now VK3BRS as a result of sitting for the Advanced examination on the day. I especially thanked Wayne VK3ZWC, Geoff VK3HGG and Rob now VK3BRS for their assistance and for preparing the barbeque lunch.

Repeater report Albert VK3BQO report that VK3RDD is now back on air following some minor problems and that VK3RLP's ILRP went down because of a power failure and failed therefore to reset. This has been fixed. The Microwave beacon is now being repaired in Cranbourne by the Microwave group.

Shack carpets Dianne VK3JDI reports that the carpets have arrived from China. There are two lengths per room with a smaller one at the kitchen entrance. The price was very good at \$216 total.

Coffee cups, have now been ordered Ian VK3BUF reports, and Michael VK3GMH is now to organise.

Koo Wee Rup plaque Dianne VK3JDI reports that it needs to be presented to the Koo Wee Rup Historical Society for installation in their museum. The plaque is currently in the procession of Steve VK3EGW who has been notified of the decision.

New Business

JOTA There is another working bee scheduled for the 13th October for shack clean-up, radios, antennas and equipment to be checked and the grass cut again. A reminder that volunteers for JOTA are needed.

Christmas Hamper, Donation requests for items for the next general meeting, Dianne VK3JDI reports.

Christmas BBQ Dianne VK3JDI requested for date and venue suggestions. Leigh Findlayson offered his premises at Pakenham for the event on 8th December. By consensus all were in agreement.

Practical Nights for October and November, Ian VK3BUF suggested a CRO night for October and slow-scan TV for November – first Friday night of the month for new member information.

Cup Weekend Camping Pat VK3OZ reports will be camping at Kilcunda if there are others interested in joining in.

Peter Pavey's photograph is now to be hung in the club's radio room Ian VK3BUF reports, it is long overdue.

Cranbourne Hall Committee, Bruno VK3BFT reports that we need an answer from them as to if our bond is to be returned and or what do we owe if any for repairs to the scuff marks left on the floor? Secretary, by consensus was instructed to write to the Hall Committee in relation to the matter.

Shack VHF/UHF radio, Noel VK3CJJ reports was not answered last prac-night despite members being present. It was turned right down for the foundation exams and may not have been turned back up. Discussion centred on Albert's VK3BQO "muter" as the possible solution to the problem. Dianne VK3JDI proposed that Albert's muter be installed onto the VHF/UHF radio, seconded Geoff VK3ZGW, majority in favour; passed.

Vote of thanks, from Rob VK3BLS to Lee Moyle VK3LK and VK3BXG for running the foundation course and assessments.

Recognition of Members Formal recording needs to be done for non committee members who have held positions over the years, Dianne VK3JDI reports. The holders of the non-executive positions need some form of perpetual recognition – to be done and recorded on our web-site.

Meeting ended 2030 hrs

Next meeting 19th October 2012

This evening's talk is on soldering and de-soldering



Information for Club Members



General Club meetings held at 2000 hrs on the third Friday of each month at the **Cranbourne Girl Guide Hall in Grant Street, Cranbourne.**

Prac nights are held on the first Friday night in the **Peter Pavey clubrooms**, (at the rear of the Guide Hall) they commence around 1930 hrs.

Visitors are always welcome to attend.

Office bearers

President:	Dianne Jackson	VK3JDI
Secretary:	Graeme Brown	VK3BXG
Treasurer:	Ian Jackson	VK3BUF
General Members:	Michael Van Den Acker	VK3GHM
	Mark 'Pockets' Clohesy	VK3FWSP
Public Officer:	Ian Jackson	VK3BUF
Distribution Email :	Graeme Brown	VK3BXG
Property Officer:	Bruno Tonizzo	VK3BFT
Repeater Officer:	Albert Hubbard	VK3BQO
Web Master:	Stephen Harding	VK3EGD
Magazine Editor:	Mark 'Pockets' Clohesy	VK3FWSP

Call in Frequencies, Beacons and Repeaters

- The Club Station is **VK3BJA** which operates from the Cranbourne Clubrooms.
- 6m Repeater at Cockatoo is **VK3RDD** : Freq. In **52.575** MHz, Out **53.575** MHz
The 6m Repeater requires CTCSS tone access of **91.5 Hz**
- 70cm Repeater Cranbourne is **VK3RLP** Freq. In **434.475** MHz, Out **439.475** MHz
The 70cm Repeater requires CTCSS tone access of **123 Hz**
The 70cm Repeater supports Remote Internet access (**IRLP**) **Node 6794**.
- Simplex VHF - **145.450** MHz FM
- Simplex UHF - **438.850** MHz FM
- VK3RLP** Beacons **1296.542** MHz & **2043.532** MHz (2.04Ghz Beacon inactive for repairs)

Membership Fee Schedule

Standard Member rate	\$37.00	Junior Member rate	\$22.00
Pension Member rate	\$22.00	Extra Family Member	\$17.00

- 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.

Please direct all magazine articles to:

editor@ggrec.org.au

All other Club correspondence to:

secretary@ggrec.org.au

or via Snail Mail :

PO Box 1098, Cranbourne 3977

GGREC Web Site & Archive may be viewed at: www.ggrec.org.au

Disclaimer. The opinions expressed in this publication do not necessarily reflect the official view of GGREC Inc
The Club cannot be held responsible for incorrect information published.

The deadline for magazine items is the Tenth day of each month.

Commercial Advertising in Gateways is \$10 full A4 Page or \$5 ½ A4 Page per edition
Ad Copy to be sent by email to editor@ggrec.org.au by the First of the month in PDF, JPG, PNG, ODT or DOC