



# GATEWAY

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

## September 2012 - From the President ...

VK3JDI



Dianne Jackson

Earlier this month, Graeme VK3BXC ran a foundation class, I am pleased to report that three of the candidates were successful in achieving their foundation licenses. Rob Streater, a new member, with an F call, attempted and passed his, advanced certificate of proficiency. Well done Rob.

At this months meeting there will be talks on soldering. The topics to be covered are, types of soldering equipment, de-soldering, soldering with surface mount parts, and the best way to solder a coax connector.

The radio shack clean up and barbecue lunch, held on the 25<sup>th</sup> of August, was a success. The day was well attended and that ensured that all the necessary tasks got done before lunch, of a delicious sausage sizzle, cooked and consumed by those who attended. There will be another working bee, at the Peter Pavay Club rooms, on the 13<sup>th</sup> of October. This will be to make sure that all rigs and antennas are working and tuned to the appropriate frequencies.

JOTA is set for Saturday the 20<sup>th</sup> of October. Graeme VKBXC is our JOTA co-ordinator, so if you can spare some time to help the girl guilds to get on the air and talk to other guide groups, your help would be appreciated. Staring at 1200 hrs and going until 1800 hrs.

Thanks to Mark VK3FWSP, GGREC is now on Google maps. If you are look at a map of Cranbourne and zoom in on the race course, the location of the club shack comes up.

In an effort to make our prac nights a little more interesting, we will be introducing Prac Night themes. The October prac night will be a CRO night. If you have an Oscilloscope, bring it along. If you don't have one, come anyway and see different ways that they may be used. At the November Prac Night, we plan to have a Slow Scan TV (SSTV) play night.

An order will be placed soon for more Club name badges. These are the red text on yellow that you may have seen around the meetings. Name badges are a great way for old and new members to get to know each other and put a face to a callsign!

I'm looking forward to seeing you all at the September meeting.

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**Quick Quiz: What year was the first mobile "Phone" featured in a short film ?**

## GGREC Event Queue from September 2012

September 21<sup>st</sup> – Friday Night. General Meeting at the Cranbourne Guide Hall  
2000 hrs Mini Talks on Soldering.

October 5<sup>th</sup> – 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 (CRO Night)

October 19<sup>th</sup> – 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 13<sup>th</sup> – Saturday. Shack Clean-up at the Peter Pavey Clubrooms  
From 1000 hrs BBQ Provided

October 20<sup>th</sup> – 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

November 2<sup>nd</sup> – 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 11<sup>th</sup> – Sunday. Yarra Valley Hamfest  
Gary Cooper Pavilion 16 Anzac Avenue Yarra Glen From 1000 hrs

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

November 24<sup>th</sup> & 25<sup>th</sup> – 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 25<sup>th</sup> – Sunday. Rosebud Hamfest  
Eastbourne Primary School Auditorium, Allambi Avenue, Rosebud, Victoria  
Contact [markybradio@gmail.com](mailto:markybradio@gmail.com) or phone 0407844063

# LIFE IS SIMPLE



## Data Collection at the LHC



*CMS Detector*

The Large Hadron Collider is undertaking a mammoth task to discover the sub atomic particles that make up the universe. With all the focus being on the discovery of a possible candidate for the Higgs Boson and the huge detectors used to observe the collisions of particles in the particle accelerator not much has been mentioned on the systems it takes to process this information.

It all starts with the raw data coming from the detectors or experiments as they are known. At any given time there can be as many as 600 million collisions per second happening in the Collider with over a petabyte a second of raw data coming in, that is over a million gigabytes per second.

This data is sent to one of the real time "Trigger Farm's" each made up of thousands of computers (One farm per detector) where filtering of the data decides if the data can be thrown away or needs to be kept. The "Trigger Farm's" have about 25 nanoseconds to decide if the data needs to be kept or thrown, the trigger farms do not store any of the data but just filter it for further processing.

The next step is to send that filtered data of about 1 gigabyte a second (imagine filing a 32GB memory stick every 30 seconds) to a Tier Zero data centre located at the LHC site. Here it is actually recorded and stored. For the first time in physics there was too much data to actually process on site so it is sent straight from the Tier Zero data centre to eleven Tier One data centres around the world, these provide the long term curation storage of the data and this also happens in real time.

When the LHC was being developed it was believed that following Moore's law, speeds of about 620Mbps a second would be possible for data transmission but by the time the LHC was designed and built and with the deregulation of the telecommunications industry this actually became speeds measured in gigabits a second instead, this allows for the real time storage off site.

The third step is to send the data from the Tier One data centres to over 150 Tier Two data centres world wide, these supply CPU processing power and disk storage for the simulations and analysis of the data by the researchers. These form the grid that researchers use.

With the grid a researcher says I want to analyse data set XYZ they send a request to the grid, the grid automatically works out which of the Tier Two centres have the data and which have spare CPU power, the request is then placed in the queue to be processed.

By using a grid there is always more than one copy (not including the master at CERN) on the system, the researcher doesn't need their own super computer to run an experiment or simulation and it is all transparent to them. They just send out the request and CPU and Disk space is allocated for the task and then the results are sent back to them when it is finished running.

It is the fact that the researcher doesn't see which server or system is used, that they just submit a job and the system takes care of it somewhere on a worldwide basis is what makes it a grid, jobs are literally flying all over the world.

By using the grids distributed power researchers have been able to go from raw data to press release or presentation in very short time frames, anything from a few days after the experiment to a few weeks, in the past this was unheard of and it was not uncommon for results to take months or even years before they could be published or presented to the public.

# The MUTER

**'Hang on while I turn the volume down on the other radio'**

**Albert – VK3BQO**

Like many amateurs, I have several radios listening on different frequencies while I am in the shack. Also like many amateurs, I turn the volume down on other radios while using one of them. Then like many amateurs, I forget to turn the volume up again. Not any more; I built a microprocessor controlled muting module which connects between a radio and external speaker and when muted will automatically time out and return the radio to listening mode.



*Five radios with Muter Modules attached*

What started out as a simple project had several other features added to it along the way. The core of this project is an AVR - ATtiny85 – 8 pin micro-processor. It determines what the module is doing and how long it should do it for. My first thoughts were to build a central control panel with multiple radios plugged into it but this soon became infeasible as there would be lots of wires criss-crossing the operating bench.

Alternatively I built individual modules for each radio and linked them together via easy to obtain computer patch leads which come in varying lengths as required. Being a phone technician and data cabler by trade helped me to make this decision.

I now have five radios mounted at the operating position with modules. Each module is controlled by its own cheap (~\$5) micro. They are daisy chained together with a patch lead that carries the power and data between each of the modules. Being connected together enables me to push a button on one module which mutes all other modules and vice versa.

All modules are individually programmable for the mute time and whilst in mute mode, an adjustable amount of audio can still pass to the speaker if desired. Since all the above could have been done without the use of a micro, I decided there should be more to the project.

Therefore I added another feature which by detecting the audio from the radio would turn on an LED to show that audio was received at some time in the recent past few minutes. Then I could return to the operating position knowing which radio had recent audio.



*Front of a Muter Module*

This brought up an interesting point in that if I heard a call on a radio when I was in another room but came back to find two radios with LED's on, which radio did my call come from. So now the module with the most recent audio has a flashing LED and the other modules simply have an LED lit. The amount of time that the lights are lit is also programmable on an individual basis.

What happens while two radios have audio received together? Well, it looks a bit like a light show as the flashing swaps from one module to another and back again. Thus adds another feature; if audio is received while a radio is muted, the LED flashes rapidly to make you aware of it. Actually the LED is multi-coloured and uses red for mute mode and blue for recent audio.

So there you have it, a radio muting audio indicator module.



*Rear of the Muter Module*

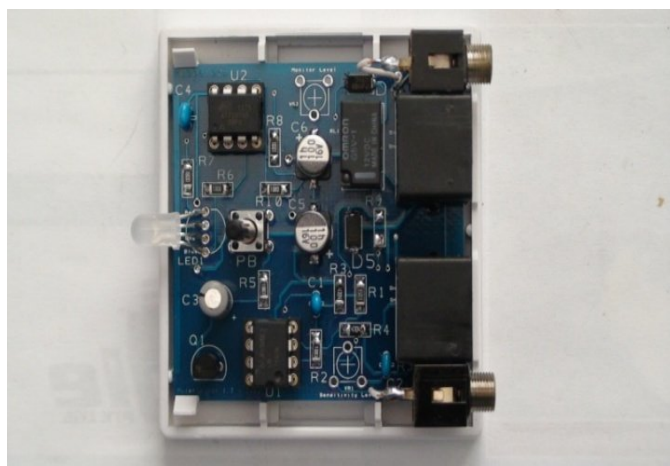
I chose a plastic data block (of course) as an enclosure as it already has a PCB with two RJ45 sockets soldered onto it. I simply removed the sockets and inserted them in my own PCB and reinstalled it with a couple of 3.5mm audio jacks for the speaker connections. A nice small cheap enclosure with sockets supplied. Of course to keep the PCB size down I needed to use surface mount components as much as I dared but each unit took only about an hour to get going.

In the photos you can see the push button protruding through the top of the enclosure and a multi coloured LED on the front. At the rear there are two RJ45 sockets for the daisy chain connections and two 3.5mm audio jacks for the speaker and rig connections.

Power is supplied to the first RJ45 socket in the chain and is passed on to all other modules.

I intended this project for my own use but have had two other amateurs show interest in a module or two. I had more PCB's made than I needed because they were cheaper by the dozen and I quite often mess up the first couple in prototyping so if there is any more interest, I can probably make the PCB available. I suppose I can also supply the micro pre-programmed and the enclosure shown in the photos. Just in case these enclosures become unavailable, the PCB can be installed in any other suitable plastic box.

Email me if interested. [vk3bqo@ggrec.org.au](mailto:vk3bqo@ggrec.org.au)



*Internal Shot Showing the PCB and the SMD Components*



## "Wanted"

### 12.5 KHz crystal filter to suit a Philips PRM80

I am looking for a 12.5 KHz crystal filter FL403b, 21F7.5BB NDK49 for a Philips PRM80 series radio or a faulty PRM8030 radio with the filter for parts, I am happy to pay someone to find something for me. Please contact me by email at [robdot0@gmail.com](mailto:robdot0@gmail.com) or catch up with me at a club meeting. Rob Streater

# Eve's Wireless

## a Newsreel from British Pathé



British Pathé is one of the oldest names in the motion picture industry with its roots lying in Paris starting in the 1890's. The company was founded as Société Pathé Frères (Pathé Brothers Company) by Charles Pathé, who pioneered the development of the moving image. The Pathé company in America composed a veritable Who's Who in the motion picture industry. The main stay of the company was its newsreels.

Pathé eventually stopped cinema newsreels in 1970 as they could no longer compete with television. Over its 80 year lifetime, it accumulated over 3,500 hours of filmed history, 90,000 news items and 12 million stills. In 2002, the entire archive was digitised. Eve's Wireless is one of those films.

It was filmed in 1922 and shows two ladies using a HF Mobile 'Phone' I have included a few stills from the newsreel and a link to the online movie, so if you have Internet access it is worth checking out and only runs for a few minutes, the link is below. So the first 'Mobile' was in 1922...



*Connecting the Earth to a Fire Hydrant*



*Eve Using the 'Phone'*



*Spiral Antenna on Umbrella*



*Operator Playing Music over the air from a Wind-up Phonograph*

It's Eve's portable wireless 'phone — and won't hubby have a time when he has to carry one!

If you would like to watch the newsreel it is at <http://www.britishpathe.com/video/eves-wireless>

# Wi-Fi Radar

Being able to see through walls has been a super hero activity for a while now. Now however from an article featured in Popular Science, we learn that researchers Karl Woodbridge and Kevin Chetty at the University College of London have created a device that can detect movement through solid walls using surrounding Wi-Fi signals.

Similar technology has been around for a little while now but required a lot of wireless nodes, however they have built a unit about the size of a suit case that is able to do the same job as its larger brethren with less radio signals.

Working similar to active radar which was discovered by accident in the 1930's by navy radio operators, this unit also works on the Doppler effect. This is the effect that when radio waves reflect off a moving object they change frequencies. A radio receiver with two antennas and a digital signal-processing unit monitors the baseline of a Wi-Fi signal in the area for any changes that would indicate movement.

In testing by the team, the unit determined a moving object or persons speed, location and direction through a 30cm solid brick wall. This technology has the potential to be used in applications ranging from scanning buildings during combat by the military to surveillance by police during hostage situations, it could also be used to monitor a young child or the elderly and disabled.

The team also believe that with more work they will be able to detect subtle movements of someone's chest moving as they breathe allowing for the detection of people staying still as well as being used in hospitals to monitor a patient's breathing.

Another team in Utah have already done this with an active system of twenty low power transmitters around a bed, and they are working on refining this to use a more passive RF approach and also to compensate for a person's body movements.

And of course as the new technology doesn't emit any radio signals of its own it is passive, so it can't be detected by the bad guys.

## How it All Works...

1. The suspect or object behind the wall moves.
2. Wi-Fi Signals are transmitted by local Internet devices such as routers, laptops and even some mobile phones.
3. The first antenna picks up the baseline signal not being reflected by moving objects.
4. The second antenna picks up the reflected signals for comparison.
5. The computer unit processes the signal and a map of the moving objects is created and displayed to the user.



*Image from Popular Science*

## August Working Bee Report.



Well, the wet weather stayed away and a number of members came out to help with the working bee. After a hot cup of coffee, the mowers were cutting away the overgrown grass and the whipper snipper was making short work of the weeds. A masked man with a chainsaw was tackling some of the more serious pruning jobs with great gusto. When you have so much power in your grip it's hard to stop cutting!!

The dual bander was left on the shack mast but the 6m antenna was replaced by the 6/2/70cm tri-band vertical. The new antenna installation has now been connected to the Club's tri-band radio. This makes the old RT85 surplus to our needs. The squeaky air conditioner was de-squeaked and the batteries in the remote were replaced. The roof of the shack was given a good clean up with the removal of leaves and branches that had built up over the last year.

The outside light on the side of the Guide Hall was removed for repair and should be back to normal operation soon. Inside the shack, more rubbish was removed and the existing books, radios and test gear tidied up. The floor was vacuumed and mopped down at the end of the day.

With lunch time fast approaching, the BBQ was washed down and pressed into action. It must be very comfortable under the BBQ cover as a possum had set up residence there over winter. Sausages and burgers were soon sizzling away as members chatted about the days achievements and what needed to be done at the next working bee.

The fresh air and hard work must have given everyone a good appetite as there were no left overs to worry about.

Thanks to Albert, Wayne, Rob, Graeme Wheatley and Graeme Brown, Bryan, Max, Mike Ide, Ian, Pat Pavey, Paul and Yarn for coming out to clean up inside, on top of, and around the shack. It was great to see the newer members coming along as they have a lot to contribute to the Club not only with their help but also with their comments, ideas and observations. It was a very productive day and something to be proud of.

Please don't forget the next working bee Saturday 13<sup>th</sup> October 2012 starting at 1000 hrs so if you can spare a bit of time we would love to see you there.

Bruno Tonizzo **VK3BFT**

## Wink at the Moon

*Neil Armstrong 5/8/1930–25/8/2012* an American astronaut and the 1<sup>st</sup> person to walk on the Moon. He was an aerospace engineer, Navy pilot, test pilot, & uni professor. He served in the Korean War. He was a test pilot at the Dryden Flight Research Centre, and logged over 900 flights. Armstrong joined NASA's Astronaut Corps in 1962, and made his 1<sup>st</sup> space flight as command pilot of Gemini 8, becoming the 1<sup>st</sup> civilian to fly in space and performed the 1<sup>st</sup> manned docking of 2 spacecraft.



His last space flight was as commander of the Apollo 11 moon landing in 1969. Armstrong was awarded the Presidential Medal of Freedom, the Congressional Space Medal of Honour, and the Congressional Gold Medal. Armstrong died in Cincinnati aged 82 due to complications from blocked coronary arteries.

His family paid the tribute "For those who may ask what they can do to honour Neil, we have a simple request. Honour his example of service, accomplishment and modesty, and the next time you walk outside on a clear night and see the moon smiling down at you, think of Neil Armstrong and give him a wink." So remember him next time you do a Earth-Moon-Earth contact....

# General Meeting of 17<sup>th</sup> August 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.

## Correspondence received:

AR magazine,  
EMDRC news letter,  
Wansarc news e-mail link.  
Nerg news e-mail link.  
Mr Con Poulidakis, e-mail requiring foundation licence information.  
W5KUB e-mail link regarding this weekend's hamfest.  
WIA letter regarding link updates from clubs and a media release example templates for WIA and Amateur Radio.

## Correspondence sent.

to Con Poulidakis, foundation licence information

## Treasurer's Report

Tabled. Total income \$3,213.12, total expenses \$1,322.79, net income \$1,890.33.  
Moved accepted Ian VK3BUF, seconded Mark VK3FWSP, all in favour, carried.

## Previous Minutes, as per July 2012 Gateways.

Moved accepted, Dianne VK3JDI, seconded Russell, all in favour, carried.

## Business from the Previous Minutes.

**Hamfest**, Dianne VK3JDI reports a very successful hamfest and thanked all those involved especially Bruno VK3BFT for his work and coordination for the hamfest. Naree gave special thanks to Ian VK3BUF for the full financial report on the hamfest that night following the hamfest.

**Repeaters** nothing to report this month.

**Kidney Car Rally** Albert VK3BQO reports that Michael VK3GHM has left Albany WA but the APRS has failed and updates are being done on the 'phone net work but next week Michael hopes to be on 20 meters for contacts.

**Shack Clean-up** Bruno VK3BFT reports that a list of jobs has been drawn-up for Saturday 25<sup>th</sup> August and these include swapping the duo-band 2 and 70cm vertical antenna for a tri-band 6, 2 and 70cm. The shack floor needs vacuuming and the grass cut. The gas bottles are empty and Ian, VK3BUF volunteered to take them and have them filled. For the second clean-up on 13<sup>th</sup> October, Bruno reports he will do a stock take and check the integrity of the coaxial cables. Start time for the clean-ups is 100 hrs with a barbecue lunch.

**JOTA** 20<sup>th</sup> October Dianne VK3JDI reports volunteers are needed even if only for one or two hours. Start time will be at 1200 hrs in order to set up and finish time will be 1800 hrs.

## New Business

**A Foundation Licence Short Course**, Graeme VK3BXG reports that it will be held on Saturday 1<sup>st</sup> September at the club shack starting at 0930 hrs followed by lunch – hopefully a barbecue with the examinations and assessments starting about 1330 hrs. There are three candidates. Rob VK3FABJ asked if he could try for a Standard exam – this has now been included.

**WIA** links and information needs to be changed with the change of committee. Chris VK3QB reports that GGREC information has not been upgraded since 2009. Suggestion is to let Steve VK3EGW know to see if he has the password for access to upgrade.

**Shack Insurance** Ian VK3BUF reports that the insurance company's description was incorrect, but it has now been updated and value increased with no increase in premiums.

**Noel** VK3CJJ, Albert VK3BQO reports he is again back in hospital under observation and he did receive the card from the club.

**Guide Hall**, Ian VK3BUF reports that this year is 20 years with the Guides at Cranbourne and hence the article in August Gateways reminiscing the problems with installing the "Nally" mast on the premises.

Meeting ended 2030 hrs

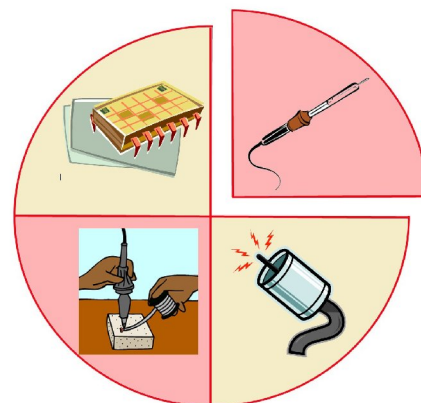
Next meeting 21<sup>st</sup> September 2012

This evening's talk was given by Ian VK3BUF on video editing.

## Four different aspects of soldering

This Friday night at the general meeting we are going to try something different. Four of our club members are going to each demonstrate four soldering related topics. Their presentation's will be magnified and projected onto the big screen for all of us to observe.

We have not tried a multiple-presenter format before, so we are keen to try it out. The entire session should last just over an hour, plus a little time for questions. There may be an opportunity after the talk to have a go for yourself. See you there!



- |   |        |        |
|---|--------|--------|
| • Types of soldering equipment          | Graeme | VK3BXC |
| • Working with surface mount components | Paul   | VK3TGX |
| • De-soldering techniques               | Albert | VK3BQO |
| • Soldering coax connectors             | Brian  | VK3BSN |

The holidays are here.



It is coming up on that time of the year, we are now taking donations for the clubs Christmas hamper with only three meetings to go before the annual club Christmas party.

We are looking for donations of non perishable food goods, or electronics related items for the hamper if you have something please bring it along to add to this years hamper.

We are also looking for a venue to host the Christmas party, if you have an idea or would like to offer your place as the venue please see one of the committee members. We will discuss a date for the Christmas party at this months meeting.

## GGREC Cloth Patches, Badges & Stickers Available



Cloth Patches (Sew On) Suitable for hats and jackets laptop bags Just about anywhere you can sew a badge on to We still have some of these in stock. First in 'best dressed' They are available for \$2 each. The Patches are 7.5cm across and are black on yellow.

GGREC Bumper Stickers We also have some bumper stickers in stock These are also Black on Yellow and are 24cm by 5cm in size.



An order for plastic Membership Badges will also be placed within a few weeks. These are a good quality badge for \$11 each with a pin on back or \$13 with a magnetic back and feature the club logo and text of your choice.

See the Treasurer, Ian VK3BUF next meeting to buy these items.



# 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:  
All other Club correspondence to:  
or via Snail Mail :

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[secretary@ggrec.org.au](mailto:secretary@ggrec.org.au)  
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**GGREC Web Site** & Archive may be viewed at: [www.ggrec.org.au](http://www.ggrec.org.au)

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