



GATEWAY

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

May 2022



Computer Resurrection – Terminals

News from the treasury

Service Awards

And More



Cover photo, Antenna talk on 6/05/2022.

(If you have any good photos, please send them in)

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Note: - club meeting minutes are now via a link in club emails sent out by the secretary.

Event Queue

May:

- 6th 7:30 Prac Night
- 20th 8:00 General Meeting - Buy Swap and Sell night

June:

- 3rd 7:30 Prac Night - TBA
- 17th 8:00 General Meeting - FLEX RADIO Live stream presentation.
- 18th 12:00 Mid-Year Lunch - La Porchetta Pakenham (To be confirmed).

<p style="text-align: center;">Club run events are only possible with the involvement of ALL members. Without volunteers to coordinate and participate in club events the club will fail to prosper</p>
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GGREC President's Message

President's Message May 2022.

Hi GGREC Members,

Well it looks like you are stuck with me as President of GGREC for one more year and I plan to make it the best. Thank you to everyone that came along to the AGM and voted in the new Committee.

The Committee will be facilitating the opening of the Clubrooms on weekends when possible, allowing more members to use the Club equipment.

IRLP and Echolink.

We will be looking to re-activate our IRLP and Echolink equipment, directly connected to VK3RGW. This project was delayed by years of lockdowns and isolation but, with your help, we aim to get it working soon. Thanks must go to Ian Jackson VK3BUF for operating the IRLP equipment from his home for quite some time.

Mid-Year Lunch.

If you haven't already done so, please book your seats for the Mid-Year Lunch which will be held at La Porchetta restaurant in Pakenham on Saturday the 18th of June. Our last Mid-Year Lunch was a great success and I would like to see this year's lunch be even better. To book, email secretary@ggrec.org.au with your name and number of people attending.

Buy, Swap and Sell Night.

The May General Meeting will incorporate a buy, swap and sell night so bring along your surplus amateur radio gear to sell to other GGREC members. If you are in the market to purchase items, make sure you bring sufficient money to enable a purchase (and to pay your membership fees).

Jamboree Of The Air – JOTA.

This year, the Girl Guides are very keen to have GGREC provide radio communications activities for the Guides and invited Scout groups. Last time GGREC participated in JOTA, and made excellent contacts by using DMR radio. At the time, HF propagation was non-existent and DMR radio filled the gap nicely, by providing good quality audio contacts for the Guides. This year, we look like having a good HF season so we will complement that with DMR. JOTA is scheduled for the 14th to 16th of October, but our involvement will be for four hours on the Saturday only. This is not a huge commitment so let's get organised well in advance.

Membership fees are now due.

I encourage all members to pay their membership fees as soon as possible as the cut-off date is just over two weeks away. After that, you will miss out on event invitations, Club benefits and activities.

Visit to the Australian Synchrotron.

Work is currently in progress to organise a tour of the Australian Synchrotron in Clayton. The next available tour is scheduled for November but we may be able to get in earlier than this. Please register your interest by contacting me, president@ggrec.org.au and get your name on the list of attendees. Numbers are limited to 15 and the cost is expected to be around \$15.00. The tours fill up very quickly so contact me ASAP. You must be a financial member to attend.

Club Merchandise.

The Committee is currently exploring the different types of GGREC merchandise suitable for sale at Club meetings and to replenish stocks of currently held items. More news on this initiative as it comes to hand.

Long Boom Cross Beam VHF Yagi.

Sitting on top of the Club shack are two long boom cross beam Yagi's. At a previous general meeting a proposal was passed to dispose of the two antennas as their condition had deteriorated and they were a hazard to the public in strong winds. So if you are interested, send in your offer to secretary@ggrec.org.au and they may be yours if your offer is accepted. All offers will be considered. Cut-off date for bids is the June general meeting, 16/06/2022. The successful bidder will be required to provide a suitable transport vehicle/trailer to take the antennas away.



Gateway is the official journal of the Gippsland Gate radio & Electronics Club.
It is published in good faith for its members and other interested parties. The articles here in do not necessarily represent the views of the committee or the membership.
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From The Editor



This month I'm pumped!

Or is it that I am full of bilge?

Well both actually, you see a fellow parishioner was having trouble with a pump at his house, I'm not sure why he needs one, however it died.

He ended up at a marine supplier and bought a 12V bilge pump, he then found himself at Jaycar where he purchased a 3A multi voltage plug pack. The bloke at Jaycar told him to just cut the plug off and use some screw

terminal strip to connect it to the pump. – Kind of makes it hard to get a refund...

First problem, the pump had three wires, black, red, & blue. A mate connected the red and black wires to the plug pack, but it only gave a quick pulse then stopped. So I was then roped into looking at it, mainly as I showed concern during a Zoom call that he was confused between a red wire (DC in my book), and a blue wire (240V mains neutral in my book), so I suggested I have a look before he electrocutes himself. So we met in the church carpark and I acquired his tub of troubles.

All was kind of right, except the 3A plugpack didn't want to have a bar of this pump. I swapped the plugpack for a 7AH battery – and promptly tried to drown myself. I had put some water into his tub, so the pump would not be running dry, trouble was the flow rate was way higher than I had anticipated.

I connected an ammeter, and with my fingers over the outlet, to give it some load, and prevent another tsunami, the current peaked at 7A – no wonder that 3A supply was unhappy.

The pumps lid does say 3A, and the instructions say to use a 5A fuse.....

Otherwise, I've been busy playing with floppy disk drives, I was all ready to write up some words for this magazine, however I was told some other material was on its way, so the disks can wait for next month.

I then headed off to my first hamfest, in what seems like an eternity; often they are on the wrong day for me (Sunday), or lately, buried in Covid19 concerns. I have a few fairly susceptible people I interact with, so I'm trying to stay clean. I don't want to go to a funeral where the only thought on my mind was 'did I do that'



Paul VK3TGX

NEWS FROM THE TREASURY

Some insight about our finances from Klaus VK3IU

As there was great excitement about the financial report during our AGM, I thought to make it more interesting. While we closed the last financial year with a slight plus there is no reason to relax when it comes to our funds. The main reason we have done well in last FY

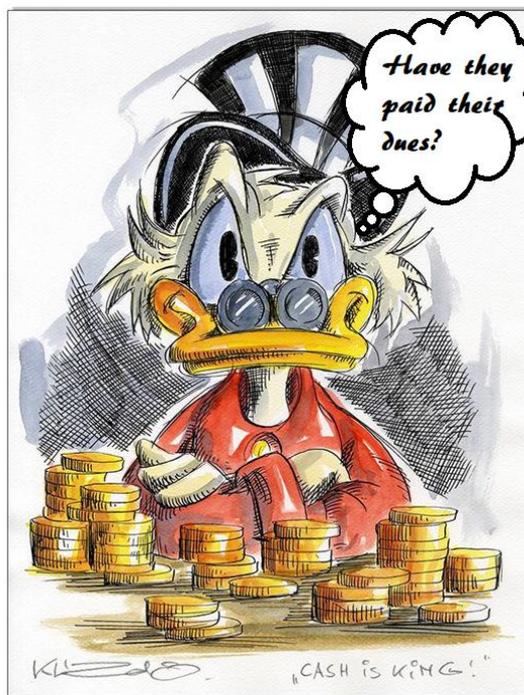
- a) Changed electricity provider
 - a. Got a refund for the network outage of one week
- b) We did not had to pay for the guide hall use last year 2021
- c) Increase in memberships

So as for this year it want be that easy and we may not break even if we don't work together on this.

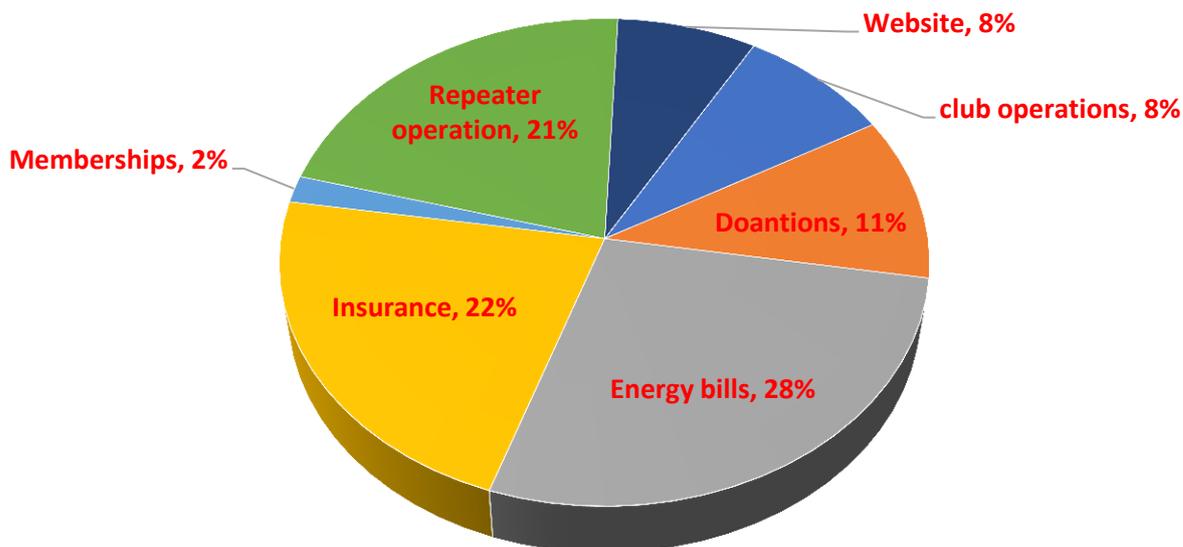
This year we have to pay for the guide hall usage, we also doubling the usage of the guide hall, from monthly to twice monthly, conducting the PRAC night also in the guide hall (previously done in the club shack)

We also will open our shack for more operation use, this will impact our operating cost mainly the electricity. When you there take it easy on the aircon.

So here a graphical overview of our last year expenses, I left some minor items off the list.



GGREC expenses last FY

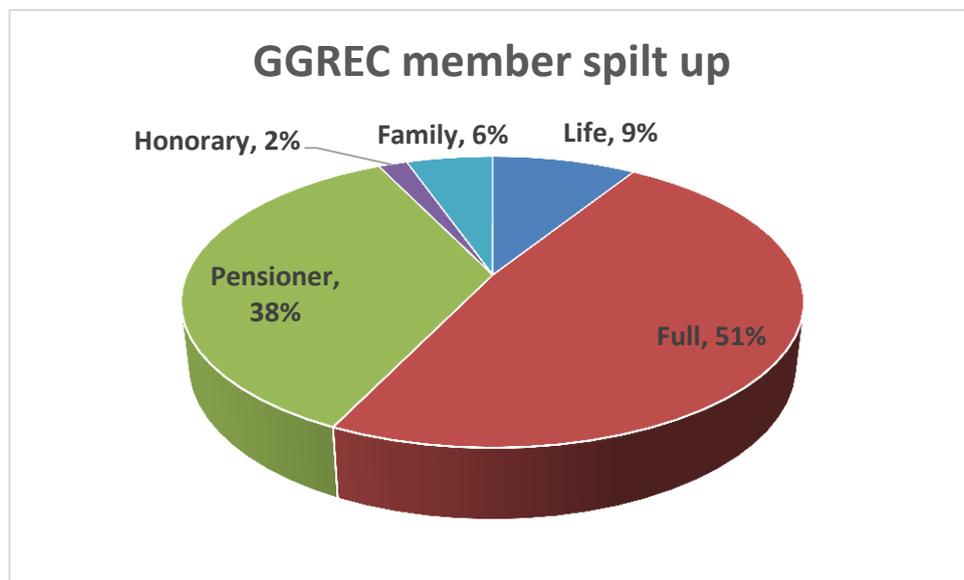


As you can see our fix cost is ¼ of our total expenditure, our total expenses are >2,500\$. This year I will expect that our energy cost will increase due to the opening of our shack after the two year corona shut down and the twice monthly use of the guide hall.

Or in terms of memberships, our current membership number will not cover the cost for this financial year. We should have at least two fund raising activities to cover our cost and put some cash on the side for greater acquisitions and club activities. If we run towards a loss, we may have to increase the membership fees, which the committee would like to avoid.

Our current membership profile below.

Luckily, we were able to attract several new members, which we welcomed into our club on our last AGM. Thanks for joining, put your hand up to volunteer for the upcoming activities.



Fund raising activities

The committee is working on a Bunnings sausage sizzle and we will be submitting our application soon, we target the spring to early summer days.

A hamfest might be on the agenda again. For all these we rely on volunteers, which is **YOU**.

So don't sit back and complain that nothing happened. Come and join the activities which we plan and support your club.



Name Tag order

We are collecting now orders for name tags, please contact our president Bruno to place your order.

The name tag cost are 20\$ pick up during the club meetings, mailing of name tags is possible, but we will have to ask you to cover the packing and mailing cost for 10\$.

Advanced payment will be required.

Membership fees

For those of you who haven't paid their member ship dues please do so by the end of May 2022.

After this date we may remove member benefits. Members who require more time or are in financial distress, please contact our president Bruno to discuss this in confidence. We don't like to lose member and always will find a way to support you.

Please pay with electronic fund transfer to

GGREC BSB 633000 - Account 146016746 always identify your EFT payments with your call sign or for SWL with your last name.

I will confirm your payment by email within one week. If you have paid and not received a payment confirmation from me, please contact me by eMail treasurer@ggrec.org.au

Your treasurer

Klaus VK3IU



Computer Resurrection

Terminals



In the beginning....

They needed a way to talk to their new creations. They actually started with modified typewriters; however machines like this ASR33 TeleType soon became available.

Alongside the development of computers was the mechanization of the Morse code network, so telex machines came along, then later with these ASCII machines. Whilst I never really saw these in Australia, the US was a different story, they were expensive, but if

you were super keen, they could be had. I had a look at a few early home computer boards and was surprised that none could work with an ITA2/Baudo telex machine. They did current loop comms, but that's as close as they came. So this kind of demonstrated the Aus/US difference.

In the amateur radio scene, telex machines & RTTY was the next step up from CW, so the machines were fairly plentiful, just never making it to the computer scene. Strange.



About this time, 1973, this device, a 'TV Typewriter' appeared in 'Radio-Electronics' magazine in the US, it was quite a large and complicated project for its time, being spread out over several editions of that magazine.

Many, many sets of plans were ordered by enthusiastic constructors. With many follow-up articles also.

But what did it do?, very little actually, it just let you type text onto your TV's screen, and that was it.

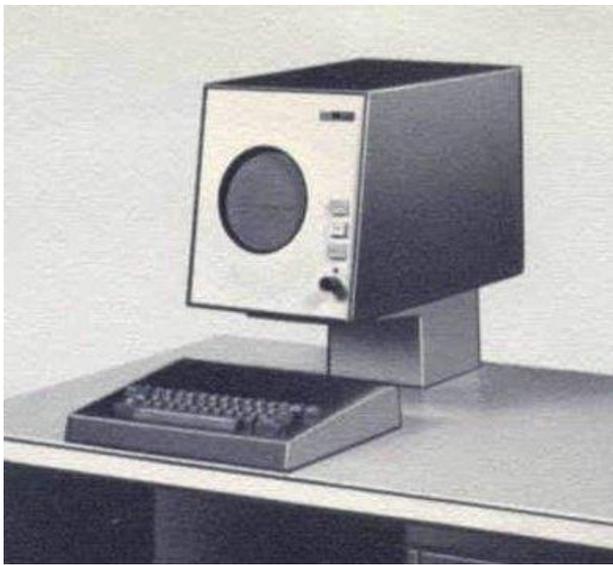
It didn't talk to anything, and had no way to save your text when the power was switched off. In this modern era, nobody would give this a second look, but back in the day, this was BIG. – Well big to those into electronics etc.

It didn't take long for them to get it talking serial, to time share computers at colleges etc. and as a terminal for the just emerging home computers, computers that before this, mostly only talked binary though front panel switches and lamps.

This concept of a computer and a separate terminal persisted for quite a while, those aspiring to get into computers saw all the 'news' from the big boys, like IBM, Control Data, Cray, Honeywell, etc., they wanted to be in that scene, a scene of terminals talking to big boxes.

Even Apples first computer pretty much followed this formula. Whilst it was a 'modern' single board computer, it actually had two sections, the computer proper, and a terminal. The 6502 micro could only send text to the terminal section, it had no access to the video memory, so putting text at a certain location on the screen was out. If you wanted to display a totally new screen of data, you had to re-send everything, so that the old stuff would just scroll off the top of the screen! Animation was strictly text scrolling up the screen – no 'space invaders' here.

Video memory was not even ram, but a pile of shift registers...



In the very early days, memory (ferrite core) was incredibly expensive, far too expensive for putting into a terminal. The very first CRT based terminals used storage tubes, you'd write something on the screen and it would stay there, on a storage mesh in the tube, until you erased the whole screen.

This IBM 1015 enquiry terminal retained its text on screen until the operator pressed the erase button, a function that takes 6 seconds.

To me this SO looks like they bought a storage screen oscilloscope, ripped out most of its scope bits and turned it into this...

The next generation, in 1964, was the IBM 2260, it looked a lot more 'modern', but was basically just a video screen and keyboard. It connected to a massive big controller that could handle 24 of these terminals, all the on screen text was held in that controller, an IBM 2848, in acoustic delay lines – again, no memory as such. (Usually magnetic core back then) If the controller was subjected to a mechanical shock (door slammed, heavy feet) then the screens could easily get corrupted. The only answer was to request the mainframe update your screen.

Back to the home scene, the 'TV typewriter' type terminal had evolved, getting more and more complex, until they had their own processor, this greatly simplified their design.

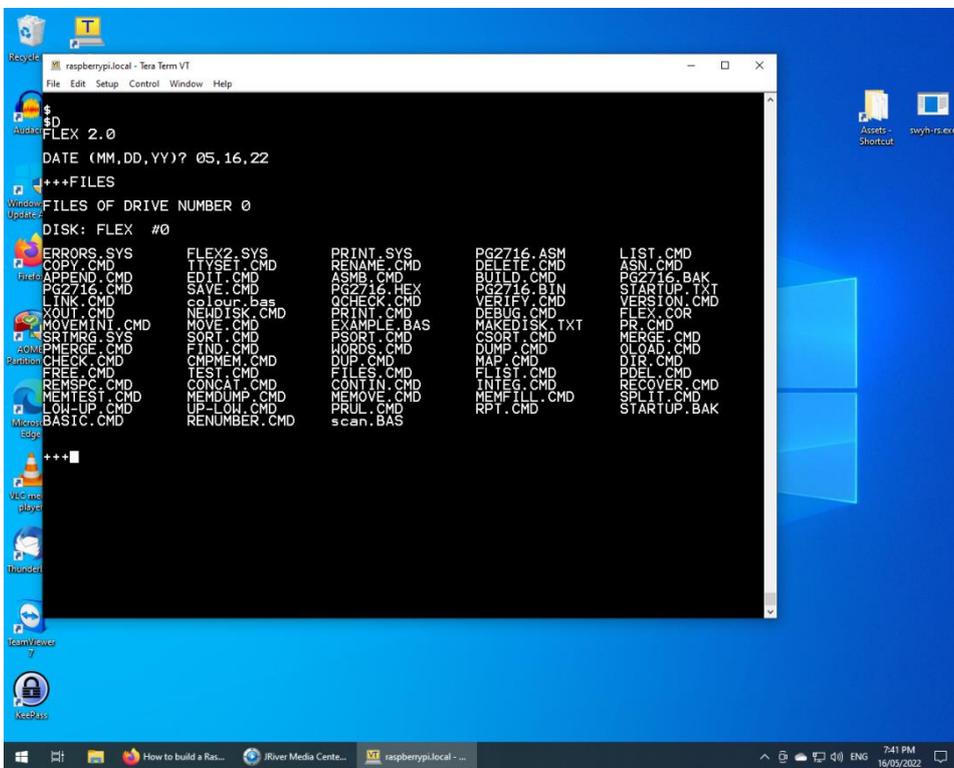
Eventually, someone realised that a video board could be built into the computer itself, with the computers processor having direct access to the video ram. Enter the Tandy TRS-80, the Apple 2, and the Commodore PET. Now computers are really affordable and the PC race we know today was finally really underway. All we needed now was for IBM to release their PC.

So if you want to get one of these old 'boat anchors' up and running, you need a terminal. Pretty much any modern PC can be used, if you are lucky it will have an RS232 port, however these are mostly now gone, so you'll probably have to add one, either with an expansion card, or more commonly (and usually poorly done) via a USB to serial adapter.

Unfortunately, most of these USB adapters don't even have the required +- 12V supplies, even with IC's like the MAX232 out there, that can generate these rails from the 5V supplied by the USB port, no that's too expensive. They just pinch these supplies from the device plugged into the RS232 side of the adapter. This means that if your box's serial port is a bare bones 3 wire job, that has just enough volts to make it go, by the time this (usually just the Tx pin) setup is milked there is not enough juice going around, and the whole comms system fails to start.

One possible fix is to take any non implemented hand-shake lines, like CTS & DSR, and put 12V on them. This hopefully will keep your adapter happy. Doing so should also keep fully implemented RS232 systems happy, as they will just see the 12V as tied high handshake lines, and as such you won't have to fiddle with your comms software settings trying to stop hardware handshaking from stopping things. The data should just flow if these lines stay high.

As a test, plug your USB adapter into your computer, then test the RS232 port pins with a multimeter, there should be at least 9V on the output pins with respect to ground, pin 5 on a 9pin, or pin 7 on a 25pin plug. Best of luck here!



Then all you need is a terminal program to run on your PC.

Here I am using TeraTerm, a freebie from the web for Windows computers.

For Linux setups, Minicom is a good solution. On Linux it's almost confusing, as any searches for 'terminal' just offers a pile of alternatives to access the Linux command line, not the serial port!

In the beginning I was looking at ways to get a period authentic terminal

going, however real proper full function terminals from back then, like the ADM3A, are really expensive and rare. In the end I realised the best way is to just use your 'everyday driver' PC, that way you have the web & google etc. at your fingertips, you can be reading online tutorials, then copy and paste the examples straight into your vintage box. WAY easier than reading from your PC then typing it into a terminal sitting alongside, yeah it would look nice, but...



Another option is to use a 'Console Server', or 'Terminal Server' these are usually used in network centres etc., where lots of equipment has serial ports, so instead of physically visiting them with a laptop etc., you remotely Telnet into the terminal server, which usually has a pile of ports, and talk to the box in question. I do have just such a unit, from an old 2G? mobile phone base station, However, for

here I am doing it with a Raspberry pi. This is one of the first pi models, now all but useless, however fine for this job. All you need is to install a copy of 'ser2net'

Have a look at this link, it turns that serial port into a Telnet accessible device on your network.
<https://www.jpaul.me/2019/01/how-to-build-a-raspberry-pi-serial-console-server-with-ser2net/>



Here I am accessing it via WiFi using my Apple phone, Yes it works, but the screen is a tad small.

So all you mobile phone warriors out there should now be happy, although I'd choose something with a bigger screen, that's if you value your eyesight

If you don't like the lack of security with Telnet, then access the 'pi with SSH, then run the above mentioned minicom on the 'pi.

Paul VK3TGX



GGREC Service Awards

For many years, Albert Hubbard VK3BQO, Rob Streater VK3BRS and Ian Jackson VK3BUF have worked hard in many aspects of Club life to educate members, install and maintain our repeaters and to facilitate the growth of GGREC. On many occasions, the costs associated with this work had not been passed on to the Club. They have also helped many members by offering assistance with their antennas, radio shacks and radio equipment. The GGREC Service award recognises the outstanding effort contributed by Albert, Rob and Ian and their valued contribution to GGREC. I called into Drouin to present Ian and Dianne with their Years of Membership awards and also presented Ian with his Service award.

Bruno Tonizzo



Lime SDR

Here is my new radio setup. It is a Full-size Raspberry Pi with a DMR MMDVM on it on the left side of the board, by having a full-size Pi I can swap SD cards and run other things off it. On the right is a Lime SDR a dual TX/RX Duplex Board with 6 RX paths and 4 TX paths in a MIMO config. Here are the specs and some uses bearing in mind it only transmits about 25mW

I am really looking forward to playing around with the SDR to see what it can do.

Features & Specifications

- **RF Transceiver:** Lime Microsystems LMS7002M MIMO FPRF
<https://github.com/myriadrf/LMS7002M-docs>
- **FPGA:** Altera Cyclone IV EP4CE40F23 – also compatible with EP4CE30F23
- **Memory:** 256 MBytes DDR2 SDRAM
- **USB 3.0 controller:** Cypress USB 3.0 CYUSB3014-BZXC
- **Oscillator:** Rakon RPT7050A @30.72MHz
<https://www.rfmw.com/datasheets/rakon/e62011f.pdf>
- **Continuous frequency range:** 100 kHz – 3.8 GHz
- **Bandwidth:** 61.44 MHz
- **RF connection:** 10 U.FL connectors (6 RX, 4 TX)
- **Power Output (CW):** up to 10 dBm
- **Multiplexing:** 2x2 MIMO
- **Power:** micro USB connector or optional external power supply
- **Status indicators:** programmable LEDs
- Radio astronomy
- RADAR
- 2G to 4G cellular base station
- Media streaming
- IoT gateway
- HAM radio
- Wireless keyboard and mice emulation and detection
- Tire pressure monitoring systems
- Aviation transponders
- Utility meters
- Drone command and control
- Test and measurement



Mark VK3PKT

Moorabbin Hamfest



The hamfests are back! Courtesy of the MDRC



Not many lemons....
(Yes, they had real lemons for sale)

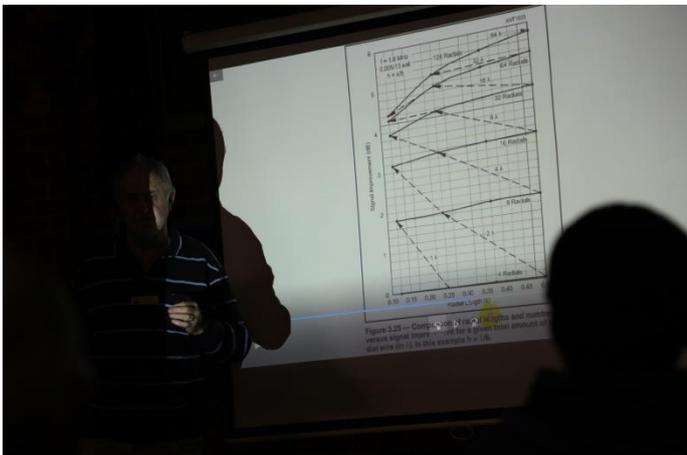
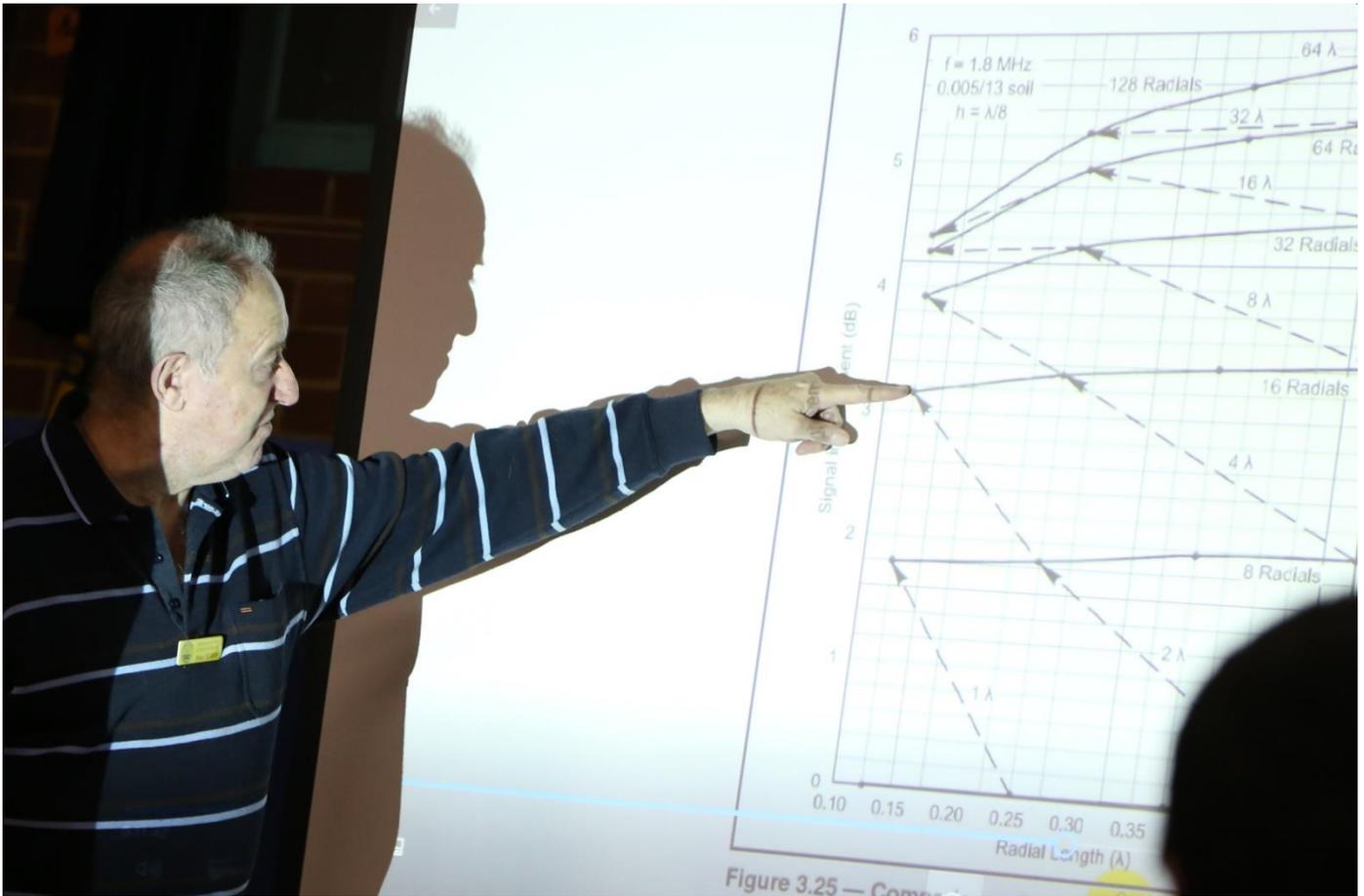
- I had to get a pic of these....
mind you, on looking back at the pic, the
copper basket would have been a good buy

These boxes caught my attention, 9 pin
serial type connectors & SMA RF
connectors – however there were no RF
bits inside – pity

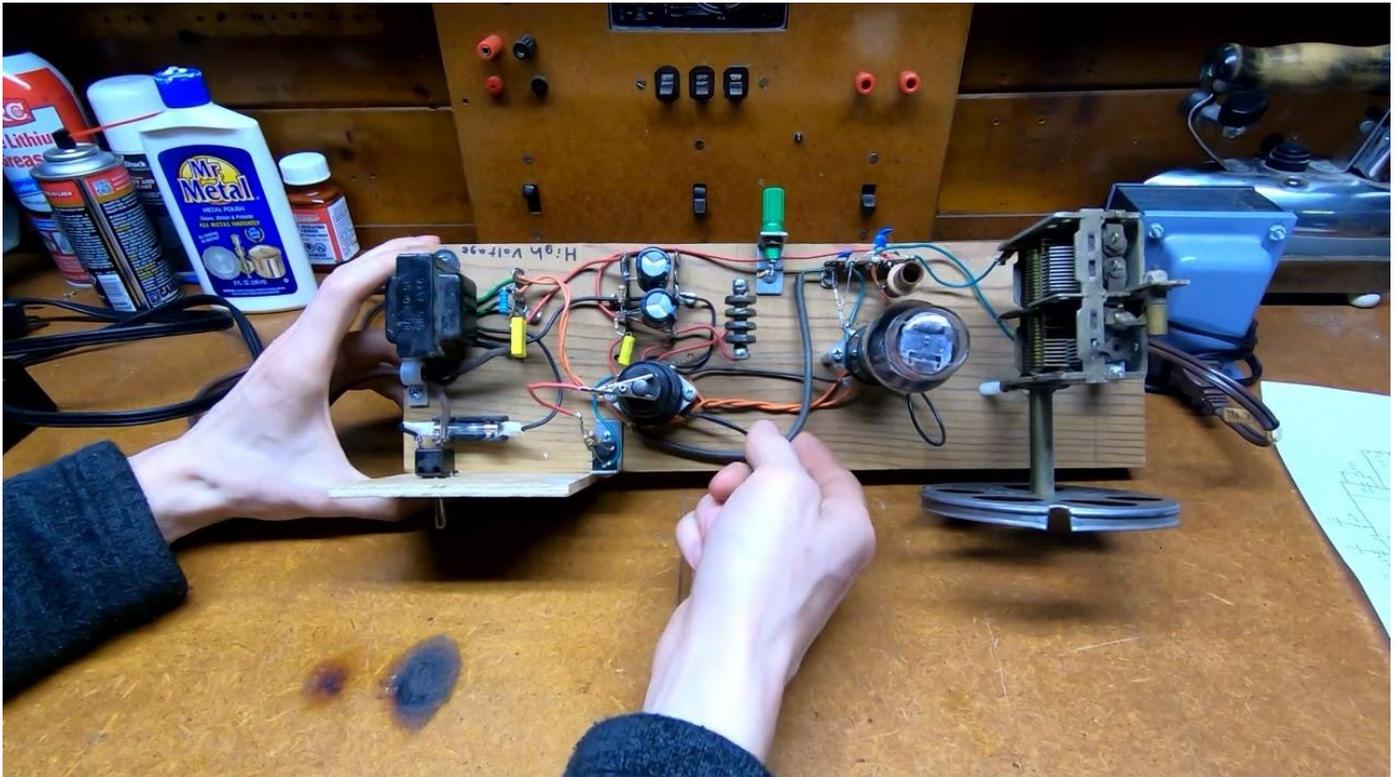
Paul VK3TGX



Antenna Talk



Interesting YouTube Videos



AM Transmitter from Junk Parts (💀Live Chassis death-trap! 💀)

<https://youtu.be/90QCw2xh-IU>

A thermophotovoltaic cell is shown being tested with a hammer. The cell is a square, dark, textured surface mounted on a copper frame. Two copper strips are attached to the frame. A hammer is positioned to strike the cell. The background is dark, and the lighting highlights the metallic components.

**30X
CHEAPER
than lithium-ion**

**JUST
have a
THINK**

Thermophotovoltaic cell achieves record 40% efficiency!

Grid Scale Energy Storage 30x cheaper than Lithium-ion!

<https://youtu.be/Gn7pFYKB7DA>



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The GGREC is an affiliated club of the WIA

WIA Affiliated Club

We also give Thanks to



For their generous support over the years



Club Information



Meetings 20:00hrs on third Friday of the month at the
 Cranbourne Guide hall, Grant Street Cranbourne
 Prac/Natter nights first Friday in the Peter Pavey Clubrooms Cranbourne 19:30hrs
 Visitors are always welcome.

Office bearers

President	Bruno Tonizzo	VK3BFT	General 3	Bruce Williams	VK3BRW
Admin Sec	Mike Pearton	VK3TDK	Web Master	Mark Clohesy	VK3PKT
Treasurer	Klaus Illhardt	VK3IU	Magazine Editor	Paul Stubbs	VK3TGX
General 1	Yarn Onken	VK3NOV	Property Officer	'committee'	
General 2	Helmut Inhoven	VK3DHI	Assoc. Secretary	Miguel Vaca	VK3CPU

Call in Frequencies, Beacons and Repeaters

The Club Station VK3BJA operates from the Cranbourne Clubrooms.
 6m Repeater Cranbourne VK3RDD, In 52.575 Out 53.575 CTCSS none
 70cm Repeater Cranbourne VK3RGW, In 431.425MHz Out 438.425MHz CTCSS 91.5Hz
 VK3RGW Repeater supports Remote Internet access (IRLP), Node 6794 **offline**.
 70cm Repeater Seaview VK3RWD, In 431.575MHz Out 438.575MHz CTCSS 91.5Hz 'Testing'
 Simplex VHF - 145.450MHz FM, Simplex UHF - TBA
 VK3RLP Beacons 1296.532MHz & 2403.532MHz (currently offline)

Membership Fee Schedule

- Pensioner member rate \$40.00, Extra family member \$20.00
- Standard member rate \$50.00, Junior member rate \$25.00
- Fees can be paid by EFT to BSB 633000 - Account 146016746
 - Always identify your EFT payments
- Membership fees are due by each April Annual General Meeting (AGM)

Magazine Articles to editor@ggrec.org.au Cut off, 10th of the month
 All other Club correspondence to: secretary@ggrec.org.au
 or via post : GGREC, 408 Old Sale Rd, Drouin West 3818
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