



GATEWAY

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

November 2021



Antennapalooza 2021

Fighting with 'C'

Back to in person meetings!

And More



Cover photo, A bit of nostalgia from 2004, at the suggestion of Bruno – club president
(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

November:

- 5th Prac/Natter night, [see club emails](#)
- 19th General meeting, [see club emails](#)

December:

- 3rd Prac/Natter night
Note :- No General meeting in December
- 4-5th Antennapalooza, see pages 11 & 12
- 11th GGREC Christmas party

<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>
--

GGREC President's Message

President's Message

2021 is quickly coming to an end as we try to catch up with family and friends that we have not seen for many months. We will be holding our November General Meeting in the Guide Hall on Friday the 19th of November and this will be the last General Meeting for the year.

It will be great to finally get the Club together for a General Meeting and we have organised for Bruce Williams VK3BRW to present Part 2 of the VNA series of talks. More details further in the Newsletter.

The Christmas hamper will be at the General Meeting so bring along some Christmas gifts to add to the hamper. The hamper will be raffled off at the Club Christmas party on the 11th of December; will you be the lucky winner?

The Club rooms and Guide Hall seem to have survived the recent storms but the surrounding large Gum trees have had branches broken off by the strong winds. Our Club antennas are in good shape but the door access computer needed to be re-booted following the extended power outage.

The Committee will be commencing out long overdue stocktake of Club assets. If you have borrowed any Club property, please let the Committee know so that it can be included in the stocktake.

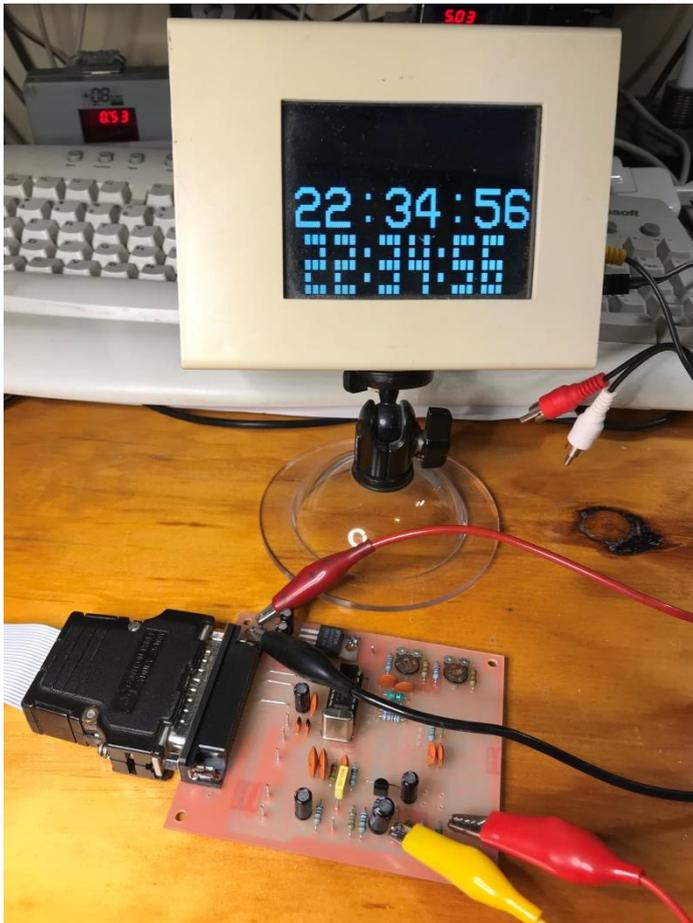
See you at the November General Meeting,

Bruno Tonizzo VK3BFT.

President GGREC Inc..

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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If there is an issue with copyright please contact the editor

From The Editor



Video & GPS,

These days everyone uses HDMI for their TV's, on computers there is a few other options, most notably DisplayPort. These modern display connections are all digital, with multiple pairs of twisted wire used to send Gigabits of data to the display, along with a pile of ancillary signals like audio, USB, & Ethernet.

Long cables are a problem, try getting HDMI from one end of your house to the other!, you'll probably need a repeater or a \$\$\$ converter to use some other medium, like Cat 6 twisted pair network cable, or even optical fibre.

The biggest problem to me is that it is quite hard, as a hobbyist, to do much with these modern formats. You are basically tied to commercial products; even making your own cables is a problem. So if you want to run HDMI through your house walls, you're going to have to pull a premade cable, complete with plugs, through the walls – and any excess length is just going to end up coiled up in your roof space etc.

The other day I was contemplating generating video from an Arduino project. The best I've seen done is to use VGA, however you tend to be pushing things, the resolution is not that great, and my favourite, the Arduino Nano is kind of out, unless your expectations are not that high. In my case black & white composite was all I desired, no home hacker unfriendly multi pair cables, and easy to extend from one end of my place to the other. Composite (PAL) video monitors are starting to get scarce – unless you know where to look, however I have plenty on hand, both CRT & LCD, so no problem for me.

This project started when I went to reset my master time source, I used to just ring up the time service Telstra had, wait for the third beep, then hit the seconds reset button on my 'clock'. However they decided it was time to retire that service... So what are my options? My best is a Trimble GPS based reference in my radio shack; it is connected to a PC out there and sure makes for a flash clock.

Trouble is it's out there, most appropriate as its main output, 10MHz, is of most use there. I can remote into the shack computer and see the clock inside my house; however I'm not that happy with the latency involved. I tried OBS studio and its NDI plugin to link video from that PC to my study PC, however I later found my clock was now 2 and a bit seconds slow. Now you are probably all now screaming 'so what', however the GPSDO in the shack is good to parts per million accuracy, and my reference time source has an oven stabilized oscillator as its timing source, so relatively speaking, 2 seconds really sucks.

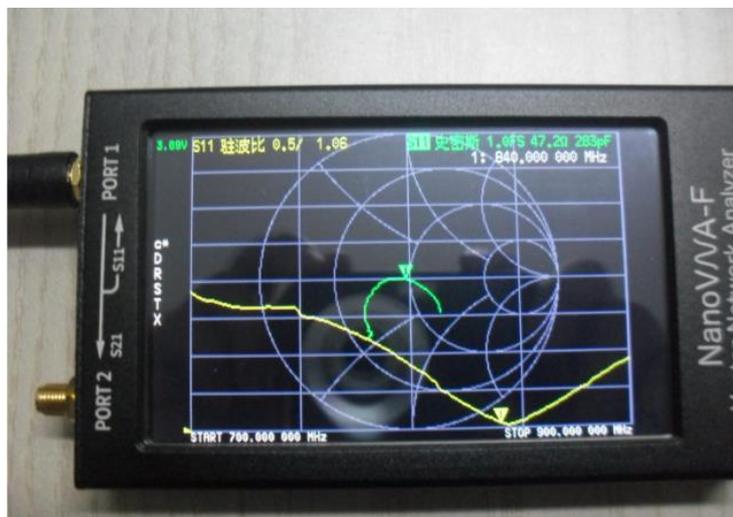
Later on I repeated it all using TeamViewer, much better, however it has got me thinking of making another of my Arduino clocks, however instead of using the Arduino's timers (driven by a crappy resonator) to generate a 1pps/1Hz signal, use the 1pps output from the Trimble GPS, then as a display, use a composite video monitor. That way I can just patch it into an existing video line back into the house and see it basically everywhere.



GGREC Club Activity and News

Vector Network Analyser Part 2

Bruce Williams VK3BRW, will be presenting Part 2 of the Vector Network Analyser (VNA) at the November General Meeting. Bruce will showing how to use the VNA to test antennas and feedlines. To assist Bruce, bring along a small vertical antenna or small beam to be tested on the night. Also, bring along your VNA so that you can get some good hands on practice and guidance from Bruce.



GGREC Christmas Party and Christmas Hamper

It has been some time since we met socially so make sure you come along to your Club's Christmas party on November the 11th. It will be a BYO everything lunch and please bring something to share with others on the day.



New GGREC Club Banner

The Committee have ordered a new GGREC Banner that will be used to promote GGREC at various events. The original banner was hand made by Dianne Jackson VK3HDI over 30 years ago and has served the Club very well over that time. The new banner is 1 meter by 3 meters in size and will do a great job promoting GGREC. Thanks to Ian Jackson for creating the artwork and placing the order. It will proudly be on display at Antennapalooza 2021.



Looking for a bargain?

At the November General Meeting we will be auctioning /selling off some of the items donated to the Club. Please bring a wallet full of money as some expensive items will be sold off for a fraction of the new price. There is some junk and lots of treasure, so don't miss out!



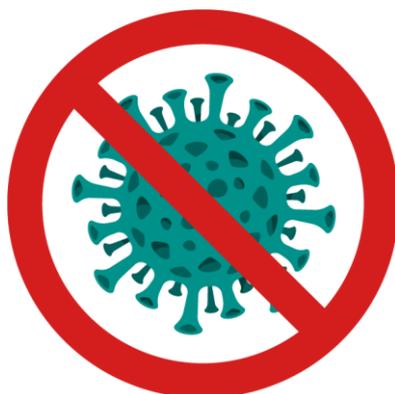
Fun Fund Raising.

In 2022, we will be looking to raise some funds so that we can keep membership fees as low as possible while providing you with value for your membership dollar. With your support we will start work on the 2022 Hamfest, aim to run a Bunnings sausage sizzle and other fund raising opportunities that may arise. So, please get ready to raise your hand when your Committee asks you for your support.



Covid Safe Meetings.

To help stop the spread of Covid we encourage members wear a mask indoors, bring your own coffee cup, check-in to the Club shack and Guide Hall by using the QR codes. Hand sanitiser will be available for you to use at the meeting.



GGREC welcomes the following new members and past members that have returned to the Club.

Callsign	Name	Suburb	Joined date
VK3PTT	Stephen Algar	Pakenham	October 2021
VK3DCQ	Trevor Haines	Mulgrave	September 2021
	Alexander Knapik	Cranbourne	July 2021
VK3NOV	Jan Oncken	Hampton Park	April 2021
VK3JMP	Peter Holliday	Drouin	November 2021

Klaus Illhardt VK3IU,
Treasurer GGREC

ICM7208 Counter Project, Pt2



I was almost going to title this article "Hell from C land" or something like that, for the amount of bother getting what I regarded as stable C / Arduino code working, was a major pain...

Quite a way's back I wrote some code to take a serial date & time stream and use it to synchronise a clock. This code then got recycled a few times into things like a Nixie tube clock, and a binary clock, that have appeared in this magazine.

However that code when compiled now gave errors, and was rather unstable. It looks like the underlying 'C' compiler used for the Arduino system had had a few updates that are now breaking my once stable code.

The original clock was built in answer to the 'build something' question in an Arduino course run by the club a few years back. That clock is still hanging on the wall in my kitchen, and hasn't really missed a beat. I had ideas for a tweak or two to the code, however that now appears impossible as that code will no longer compile. I will have to do a fairly extensive re-write to fix an anomaly, probably introducing a few new bugs in the process – Blast you Mr 'GCC'

I spent many hours trying to get that code to work, but eventually gave up and re-wrote the offending sections from scratch. The main culprit appears to be the serial library; however without pulling that apart, I cannot definitively say where the issue(s) lies.

I have on many occasions, in documentation, seen the term 'function deprecated', some bright spark has decided that 'xxxx' is no really needed and they are in the process of deleting it. However there will inevitably be someone who is using this function, and severely changing it, or deleting it is going to break things, trouble was it was my turn to cop the issues.

A few years back, a version of Microsoft's PowerPoint was given the option of saving a presentation as a video file – I found this quite handy. However the next version didn't have it. Then came the explanation, apparently they had used some code (Quick time?) from Apple to make it happen, however that option was no longer available, so they dropped the video function (Now why on earth was Microsoft using Apple code, and not their own..... crazy). So it's not just the little fry like me, the big boys get caught as well. Maybe this is one reason why Microsoft ditches Windows etc. every few years and kind of starts from scratch, saying the old code was getting too hard to maintain. (I remember them saying this when they dropped Windows XP)

The next problem I had was an intermittent glitch what made the display go a tad crazy as it re-wrote the contents of the display again and again in rapid succession. In my code was a small routine that checked to see if the time 'had gone backwards', this should only occur once a day, i.e. from 235959 to zero as time rolls over into the new day. The ICM7208 counter IC has no concept of time, and that the number it has cannot exceed 235959, so there has to be some Arduino code to handle this exception. I was kind of suspecting this code was getting called when it shouldn't have been, so I slipped a 'tone(12,800,50);' command into that routine, this generates an 800Hz beep, lasting 50ms. And sure enough every time the display 'jumped' I received a beep (or is that a bip, as it was so short).

This bug is the reason for the "Tower of terror" picture above. I had that old netbook hooked up capturing data from the Arduino for several days straight as I tried to get on top of the bug. For whatever reason, two variables, that should equal one another intermittently didn't, so the display routine thought the clock had gone backwards. This was causing the display routine to clear & reset/rewrite the display, (the 'jump' mentioned before) then seemingly get stuck 'somewhere' for a few moments. Then all of a sudden all was well again, probably for a few hours.

Initially I thought I was doing something wrong with the various, math routines, and how I was converting one variable type to another. The actual time is kept in three single byte variables, Hours, Minutes, and Seconds; however as the ICM7208 only talk's one big 7 digit number, then these time bytes need to be combined into one big number. To hold a number this big entailed the use of a 'Long' integer type, and somewhere in all this things were intermittently going awry, or so I thought.

```
1 17:19:57, 0 Advances, 2 Retards, 1 resets
1 17:19:58, 0 Advances, 2 Retards, 1 resets
1 17:19:59, 0 Advances, 2 Retards, 1 resets
#B=1900 ,DisMins=19, lMins=20, lmins2=20, LngTim=171900, 1 17:20:00, 0 Advances, 2 Retards, 1 resets
1 17:20:01, 0 Advances, 2 Retards, 1 resets
1 17:20:02, 0 Advances, 2 Retards, 1 resets
1 17:20:03, 0 Advances, 2 Retards, 1 resets
```

This is a sample of the text log being acquired by the laptop, DisMin (Display Minutes) should always equal 'lMins' (Local Minutes), as the code was 'displayminutes = (byte)lminutes;', so how on earth were they not equal when the 'Has time gone backwards' check was made!

Thoughts ranged from math bugs in 'C' , to a byte in ram getting changed by a called 'C' function that was assuming a multi-byte number rather than a single byte, to power glitches corrupting things. Some of these theories were easy to dismiss, while others took a lot longer to dismiss.

And of course when all were dismissed, I was left banging my head against a wall saying 'WHY'!!!

In this software there are two 'threads' running, the main loop that keeps checking for incoming time and date strings, and updating things etc., and a second interrupt driven 'time of day clock' routine that also sets a flag to say to the main routine that time has changed, do something about it. The incoming serial data & time does not occur precisely every second, and can see pauses of several minutes, so the local time routine fills in the voids and keeps the display updates constant and smooth.

```
.
displayhours = (byte)lhours;
displayminutes = (byte)lminutes;

if (onesectick){

    LongTime = (long)displayhours*(long)10000 + (long)displayminutes*(long)100 + (long)lseconds;
.
}
```

So here is the offending code (finally!) – can you see what I did wrong?

It looked all right to me, until I had a moment of realisation as to what was going on and why it hadn't reared its ugly head in the past.

The main program loop first checks to see if there is any serial data & time info in the serial receive buffer, it then copies the (local) time (as opposed to remote serial time) into a 'display' version in preparation for a switch selectable 24/12 hour conversion (the incoming serial T&D is 24Hr), then if we have rolled over into the next second of time, then the display module is updated.

My mistake was in thinking of this as a single pass at a time, and not as something that is repeated in a loop as fast as the Arduino can do it.

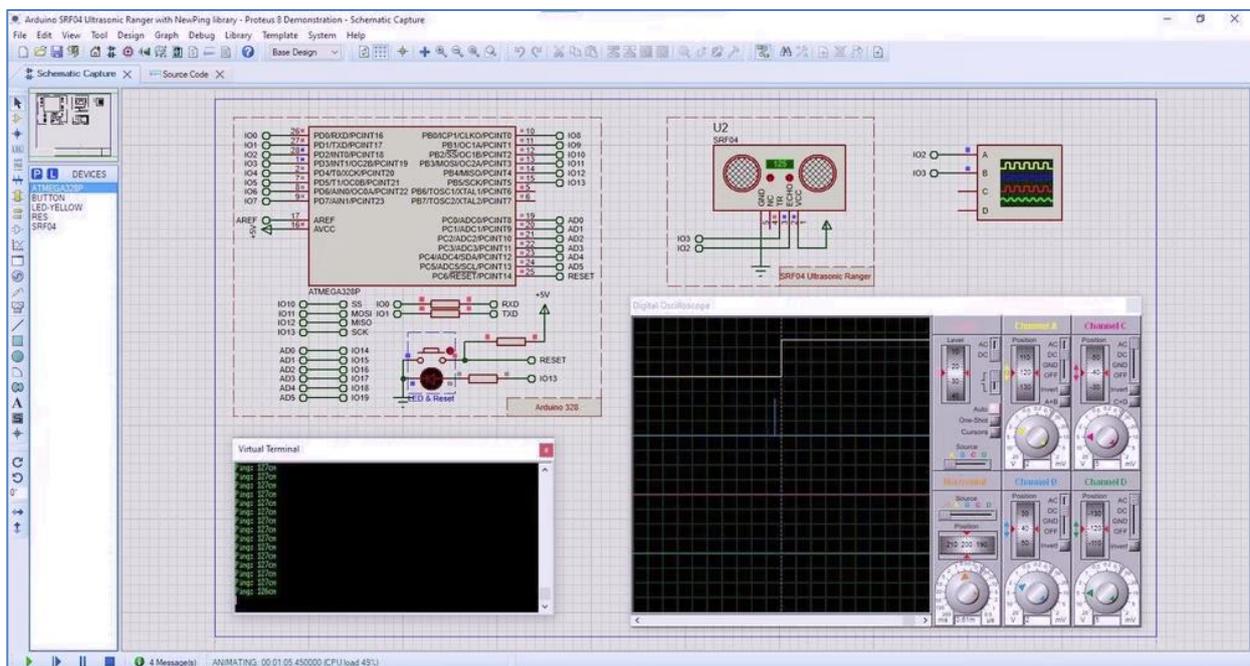
The only part of this code that gets executed in sync with reality is the part after 'if (onesectick){', this gets run at the start of each second, and has a whole second to get through it.

However, if the one second timer interrupt occurs immediately after 'displayminutes = (byte)lminutes;' then the value 'displayminutes' will now be old and no longer equal to 'lminutes', and will subsequently trip the 'has time gone backwards' routine.

In my past clocks, this 'display...' time was the actual variable read out over a hundred times a second to refresh the LED displays, this programming glitch would at most effect only one, possibly two refresh cycles – meaning it would be on the display for only a milliseconds, all but invisible to the naked eye – which would also be distracted by other digits changing as the clock ticked over.

However this particular clock is unique in that the time is sent to the display only once at the start of a new second, not multiplexed hundreds of times a second, so it was capturing the glitch – ouch.

After moving both displayhours, & displayminutes assignments inside the 'if (onesectick){' area, all the troubles disappeared as this section executes at the start of a new second, i.e. in sync with the seconds, so changes don't occur mid code. Boy what a pain to find – I really miss being able to single step code & set brake points etc.



Maybe what I need is a good simulator so I can step through my code, pity I haven't found a good one so far, this one is \$248 (US?), so I'm not going to even download the free test as its well outside my budget. Being able to add your own components & enter any code you desire seems outside what is available at the moment. Maybe I need to go back to Microchips AVRstudio etc. although catching this particular bug will probably challenge them all, how do you capture the unknown....



Antennapalooza 2021

Antennapalooza, now in its 7th year, will return to Drouin West on December 4 & 5

The theme for 2021 will be Working Mobile with Amateur Radio. It will include talks and demo's on different aspects of setting up a mobile station in vehicles.

Visit: <http://antennapalooza.net.au/>

Set in a 6 acre field, 50km due East of Dandenong, visitors can bring their tent or caravan for the weekend, or just stay for the day. Set up an antenna and have a play on-air, or take in the demonstrations on dealing with interference. Entry is Free. Bookings are not essential, but please email a registration with your **name** and **callsign** so we can plan logistics. Let us know if you plan to camp or just stay for the day. Email us at: sparky@dcsl.net.au

The website <http://antennapalooza.net.au/> will provide info on how to find the venue, what to expect when you get here and list the short lectures that will feature on the Saturday and Sunday.



Free tea, coffee & barbecue facilities will be on hand. Toilet facilities are provided. In the evening a warming fire will be lit in the Treed Area. (if no fire danger alerts are pending)

Experienced Amateurs can try their field equipment, meet old friends and throw some snags on the barbie. Visitors, who have heard a little about Amateur Radio, but want to know more, will benefit from this event. The brief lectures in the central pavilion will help both new and established operators resolve difficulties associated with setting up HF/VHF/UHF communications in your vehicle.

Several clubs have been invited to both participate and inform their members:

GGREC FAMPARC EMDRC SPARC MDRC NERG SHERBROOK & the Eastern Zone group.

See you there!

The logo for Antennapalooza 2021 features a stylized antenna structure in red and black. The word "Antennapalooza" is written in a large, bold, black sans-serif font, with the antenna structure integrated into the lettering. To the right of the main text, the year "2021" is written in a bold, red, sans-serif font.

To nearby VK3 Club Committee,

This is a preliminary notice about the return of **Antennapalooza**, for its 7th year, in 2021. This year it will take place on the weekend of the **4th & 5th** of December, subject to Covid restrictions at that time. As before, it will be staged on a 7 acre property in Drouin West. Property hosts are Ian Jackson VK3BUF and Dianne VK3JDI

We wish to invite your Club and your Members to attend this event. It is a true inter-club activity. As before, this invitation is being extended to **GGREC, FAMPARC, EMDRC, SPARC, MDRC, NERG, Eastern Zone group** and the **Sherbrook Community Radio Club (SCARC)**

It is a free event, so guests will not be required to pay to attend. However, there are some costs involved. We must erect a Pavilion, hire a porta-loo and provide some consumables. (eg. BBQ gas tea/coffee/milk, rubbish disposal etc.). If some of your members choose to attend, we request that your club make a small contribution to help cover these costs. (It is being carried out on a not-for-profit basis and upon its conclusion; full costing details would be provided to contributing clubs) This contribution is would not exceed \$80 for any one club and may be less. The Radio Amateur Society of Australia (RASA) has also agreed to donate \$100 towards funding the event. Due to the volatile nature of staging an event in a Covid 19 year, No fee would be payable until after the event has concluded.

Clubs electing to contribute is completely voluntary and their members are welcome regardless. Clubs willing to share costs would have their name and logo added to the website and information sheets. They would also be invited to put up their Club banner at the event.

As before people are invited to stay for the Friday, Saturday and Sunday, set up a campsite or caravan. Perhaps put up some antennas and have some on-air fun. On both days there will be some short lectures in the central pavilion. The topic this year will be **Going Mobile with Amateur Radio**. Presentations will focus on different aspects of fitting Amateur Radio to vehicles. (If any of your members have a positive experience on this topic, then we'd love to include them on the program for a 20-30 minute presentation)

A properly constructed fireplace is on-site and (provided there are no fire restrictions on that weekend) there would be a night-time campfire. A full plan, including facilities and site map has been posted to a new website <http://www.antennapalooza.net.au/> .

What we need now is agreement in principle from leaders of clubs choosing to contribute, as soon as possible, so that we can include all names on promotional material for the event.

A covid plan and contact registration would be in place. Of course, these dates are contingent upon sufficient relaxation of restrictions to gatherings for the event to occur.

This is a rare occasion for radio amateurs to mix at an event that is not about the buying and selling of parts, but meeting others, learning more about the hobby and enjoying a fun weekend. We do hope you can join us.

Ian Jackson VK3BUF. sparky@dcsi.net.au 5625 2545

Interesting YouTube Videos



STOP using Serial.print in your Arduino code! THIS is better.

<https://youtu.be/--KxxMaiwSE>

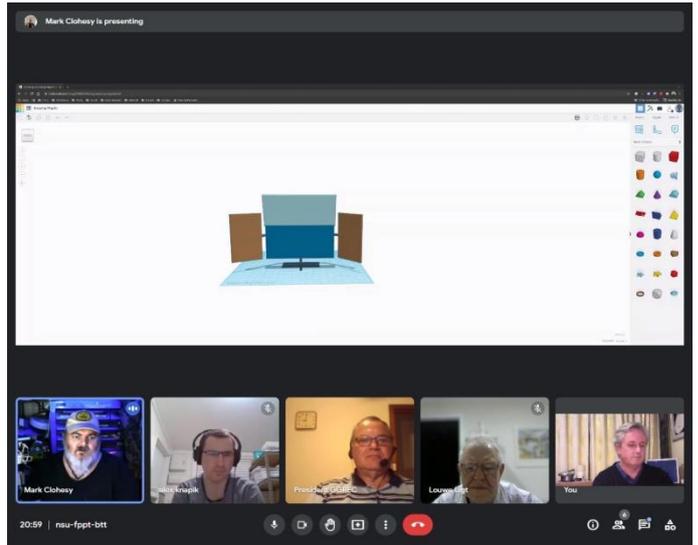
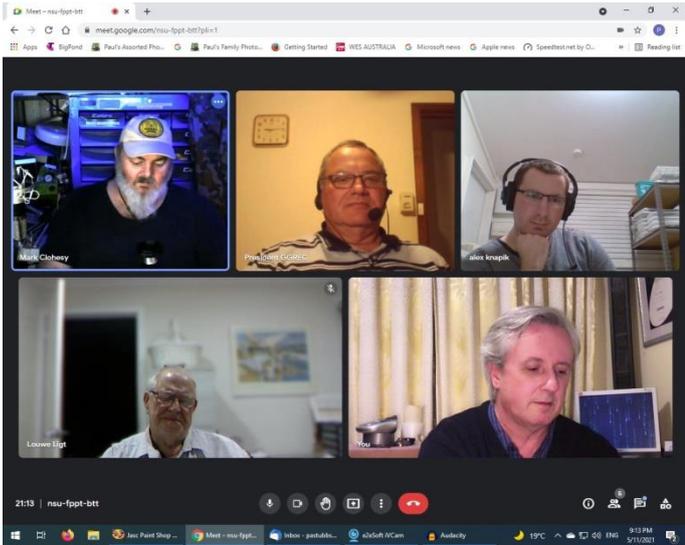


EEVBlog 1436 - The TOP 5 Jellybean OPAMP's

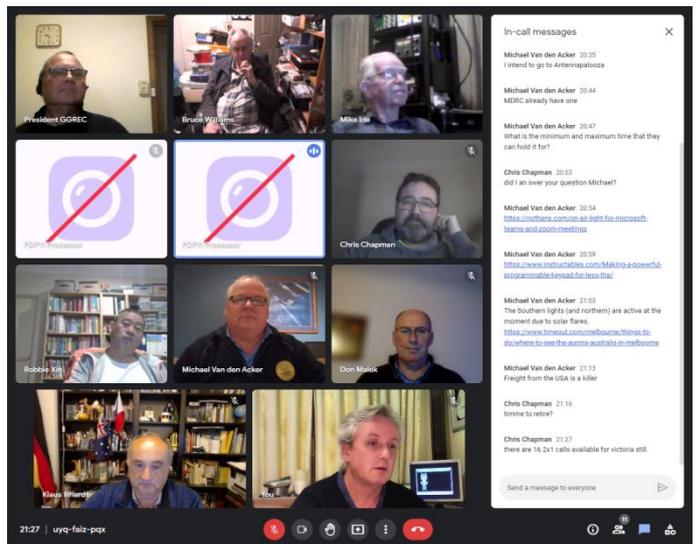
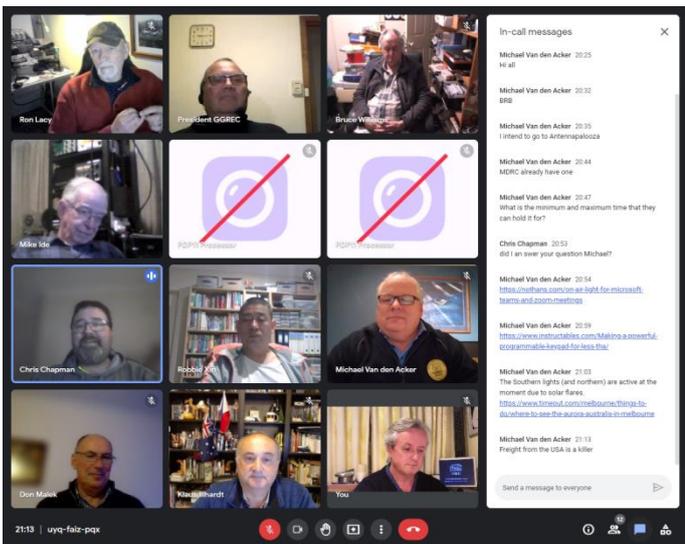
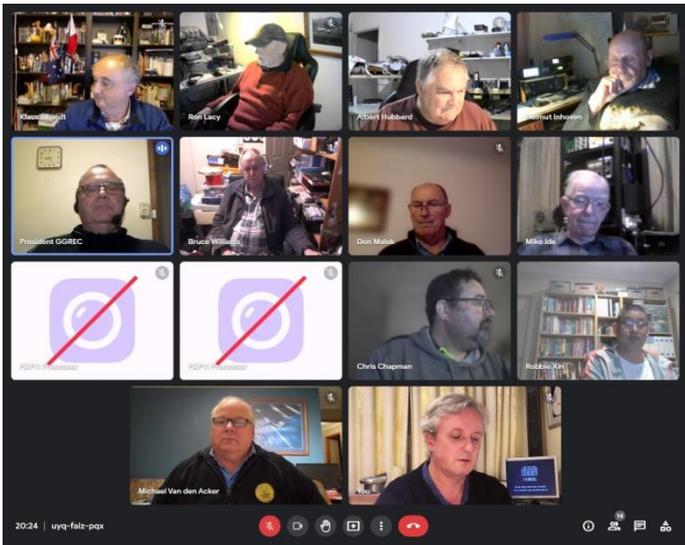
<https://youtu.be/uq1DMWtjL2U>

Meetings on Google

Virtual Prac/Natter night on 5/11/2021



And now some from our meeting on 15/10/2021



Hopefully we will be meeting in person, this Friday, baring power outages, Covid scares etc...



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The GGREC is an affiliated club of the WIA

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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	Web Master	Mark Clohesy	VK3PKT
Admin Sec	Miguel Vaca	VK3CPU	Magazine Editor	Paul Stubbs	VK3TGX
Treasurer	Klaus Illhardt	VK3IU	Property Officer	'committee'	
General 1	Bruce Williams	VK3BRW	Assoc. Secretary	Miguel Vaca	VK3CPU
General 2	Leigh Findlay	VK3FACB			

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