



GATEWAY

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

November 2020



High Altitude Balloon Experiment

Uniden Wireless Mic

Coffee Morning

And More

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Note: - club meeting minutes are on the club website

Event Queue

November:

- 20th General meeting – 8:00, **via video link, see club emails**
- 28-29th CQ WW DX CW – courtesy WIA

December:

- 4th Prac/Natter night, **via video link, see club emails**
No General meeting in December

March:

- 10th Train & Hobby show 2021

<p>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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President's Paragraph, Postulation or Preamble.



Hello members and welcome to a free(?) November. As I write this – we (Victoria) have had 17 zero-zero days which is great news. The various borders are starting to open, with NSW on the 23rd November. We can go and visit repeaters etc. too. This maybe the last President's report for 2020.

The 10am morning coffee chat is still happening on 70cm and so is the virtual Natter/Prac night. Please try and join us on the first Friday of December. We will send out an email with the G Meet link as the date gets closer.

The Train and Hobby show planning, which will be held on the Labour Day weekend in March 2021 at Sandown, is progressing. More info at the General November meeting.

I would like to congratulate Lee Moyle VK3GK, on behalf of the club, for putting his hand up. Lee is now the Vice President of the WIA of which our club is affiliated. Well done Lee.

Congratulations must also go to Robbie Xin VK3XIN, who with his school has now launched two balloons with various payloads, using APRS for tracking. Read about the students' and Robbie's achievement in Robbie's article in this magazine. Paul, our editor, again produced another wonderful edition last month. Thank you, Paul. If you have any articles for the magazine/newsletter, please send them to the committee@ggrec.org.au

Christmas is just around the corner. We are planning on having a Covid safe get together as a Christmas breakup. Subject to health regulations etc. This will be discussed at the virtual general meeting. So please try and join us on the 20th Nov, when Bruno sends out the G meeting link. The intention is to have the breakup outside in the grassed area behind the shack. We will discuss the Christmas hamper too.

Your committee is moving towards Covid safe return of face to face (not too close) meetings, Natter/tech nights and working bees. There is a bit of maintenance to be done around the shack and repeaters. This will all be articulated to members when we know what we can and can't do. I recommend that members do this short online Covid course <https://www.health.gov.au/resources/apps-and-tools/covid-19-infection-control-training> it takes about 10-15 mins and is simple and straight forward. You do have to register but it is a Commonwealth Govt. site and they don't spam you. Don't forget to save the certificate when you complete it.

If there is anything that you would like to try or have a suggestion, please contact the committee.

That is all for now. 73s

Michael

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From The Editor



Microphone Anyone?

Recently I mentioned a wireless radio mic that I had, and was promptly asked for information on it. Well did that spark a deep search of my shack! I had the actual mic but the base was alluding me big time. Unlike a regular mic where the clip you hang it on is all but a bit of bent metal etc., no this one is somewhat fatter and contains quite a bit of electronics to make the whole system work. Without it the actual mic is not much more than a desk ornament.

So I started digging in all the regular places and I unearthed a few more microphones than I thought I had, along with two brand new unused curly cords for a remote head Philips FM900.

I had not long finished fixing a club members mic that had a dead curly cord before unearthing this lot, maybe I should have just tossed his mic and gave him another one.

There is a bit of a catch here, the amount of use a mic gets does not seem to affect the cord anywhere as much as time does, there are a few examples in there of mic's with little to no use, yet their curly cords are dying. It appears to be a slow chemical reaction in the plastic/rubber that they are made of.



Many years ago I bought a Yaesu FT897 & matching MH-36 DTMF mic, it didn't take long for the rubber boot where the cord enters the mic to start crumbling – very poor Mr Yaesu.

On the other hand I have much older AWA 25M 'carphones' with curly cords still in a servicable condition.

On a brighter note, we finally had a physical club outing to a park in Emerald, quite a bit of driving from my QTH for a cup of coffee, but well worth

it to finally attend a club function. If things keep going this way Christmas may be a possibility.

Whilst there Bruce VK3BRW informed me that the next installment of his SDR series will not make it in time for this months magazine.

Paul VK3TGX

Real World STEM Learning – High Altitude Balloon Experiment

On 22nd of Oct. 2020, St. Margaret's School Year 7 students launched their first High Altitude Balloon (HAB) at school ground, as part of their learning journey about types of forces. The author hopes the launch of HAB not only provide opportunity for students to apply their understanding of forces from online learning and extend their knowledge from forces to telecommunication technologies such as APRS and GPS satellite communication, but also fuse the activity with a lot of fun to get them out of the heavy lockdown mode.

2020 is a very unusual year for everyone, bushfire, flooding and covid-19. It is special year for Year 7 students who just transited into secondary schooling. According to school data, Year 7 students just attended school physically 11 weeks for the first three term at St. Margaret's school. Meantime, Year 7 students, like every other year level, have to adapt to online learning for the duration of lockdown. The extended long period of heavy lockdown make our mood much different from normal routine.

The idea of launching of HAB comes out of author's question "Students are learning types of forces, what makes a good activity to motivate them?". I happened to watch online presentations from US ham expo in August. Student from Georgia explained her experience of launching HAB. Also the designer of Skytracker Bill Brown WB8ELK presented in the expo as well. This intrigued author's interest to explore more of this project and integrate into students' learning.

After an extended period of lock down, finally we are back to classroom.

The first lesson of HAB:

To prepare students to launch before we launched the HAB, we designed an activity to balance the latex balloon with 99% purity of helium. Students found it was very difficult to balance the balloon. To get lift and gravity right is challenging. This is exactly the experience I want students to own.

Student Siya wrote her experience to balance the balloon: "I have learned that there is a lot of trialing and erroring when trying to balance a balloon, it was really frustrating because the balloon would eventually always drift upwards or downwards no matter what you did. "



The launch day: 22nd of Oct.

At the start of the lesson, an ex-NASA engineer, Bill Brown from Alabama, US. presented to student about his design of skytracker board and shared his experiences of balloon projects he has done in the past. Bill has also introduced NASA will use moon as a spring board to get to Mars. From a real NASA engineer, the message is convincing. Yes. Human is going to Mars...



Students calibrate the balloon:



Group photo before the launch



Science in Action:



Student Siya wrote her reflection about the experience:

Launching the balloon was a very exciting and new experience. It was really surprising how balloons are used to get information that we need in our every day lives such as knowing the temperature. It was a challenge trying to balance the balloon and trial and error with the how much helium the balloon needed. I learnt before doing any experiments, you need to make sure to get all your facts and information right such as where the wind was going and where the best area is to launch the balloon. It was definitely a thrill to cooperate with a person from NASA. To improve this experiment, I would suggest that maybe the whole class could work together to help get everything done quicker as only a few people from the class were getting included in the experiment. Since, it took us a very long time balancing and getting the helium out of the balloon, we could try to ask for more help to fasten the process.

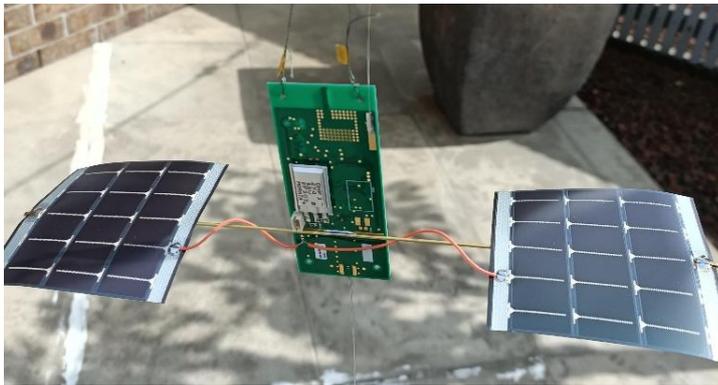
Student Senara's reflection:

I thought how it was very extraordinary that we could launch a balloon with a GPS unit to travel around the world, because I didn't know that there would be balloons big enough to hold all of that helium, and all of the weight, and i didn't know there was a GPS small and light enough to hang onto a balloon. I also found that it was a great opportunity to work with someone from NASA, because I am very interested and eager to learn, when it comes to space (and things such as the balloon prac, since it is also linked to NASA, because of the satellites, etc.)

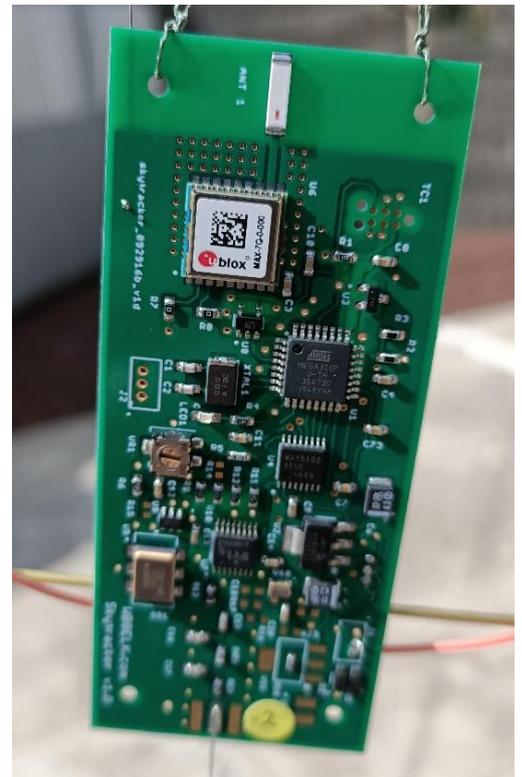
The launch was successful according to data collected from APRS database. The last data reported the balloon was at the east of Tasmania after a night's travelling. The beauty of using solar panel instead of battery is a very unique design that makes it a perfect example of using renewable energy. The interesting question coming from students after days is "Where is our balloon?" :-)

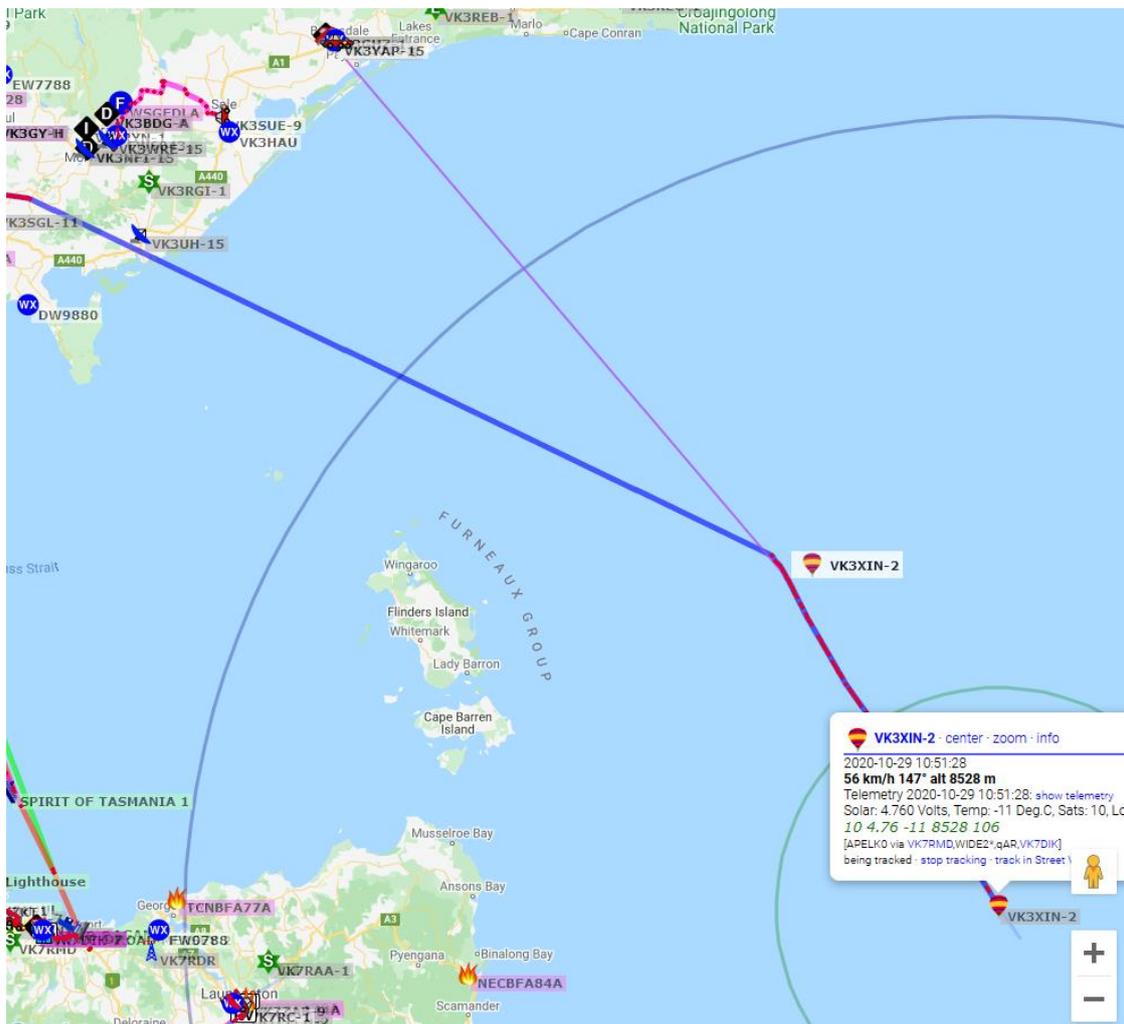
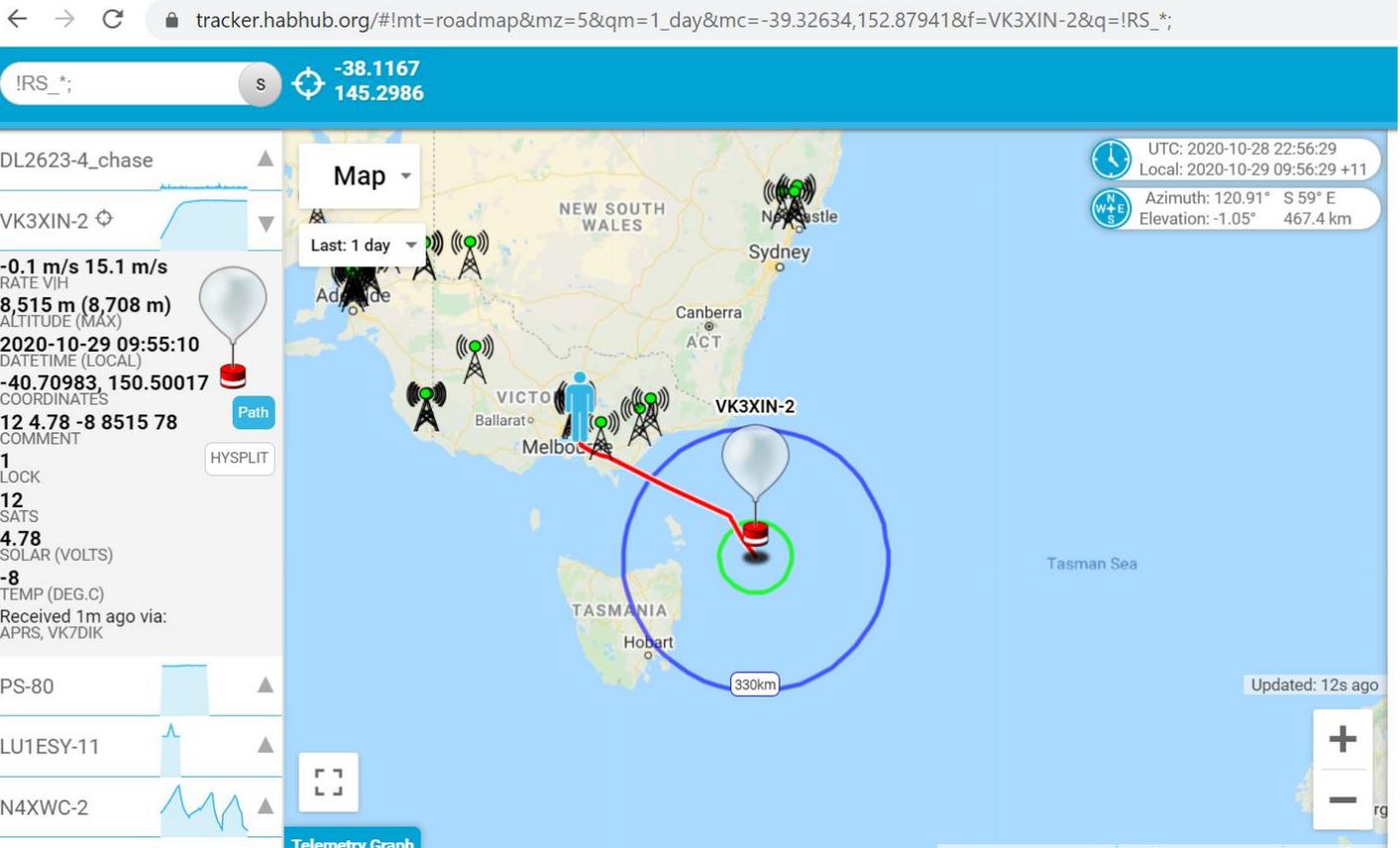
Profession Menk replied "It's a marvellous experiment and a lot of fun. I see the balloon is already over 8,300 m altitude, at -4 deg C. Amazing. Should be some interesting data to look at as well."

The skytracker designed by Bill Brown is more of art than science. The entire payload is only 13 grams. This makes it possible for a Qualartex balloon to lift it up between 8000m and 9000m altitude. Amazing!

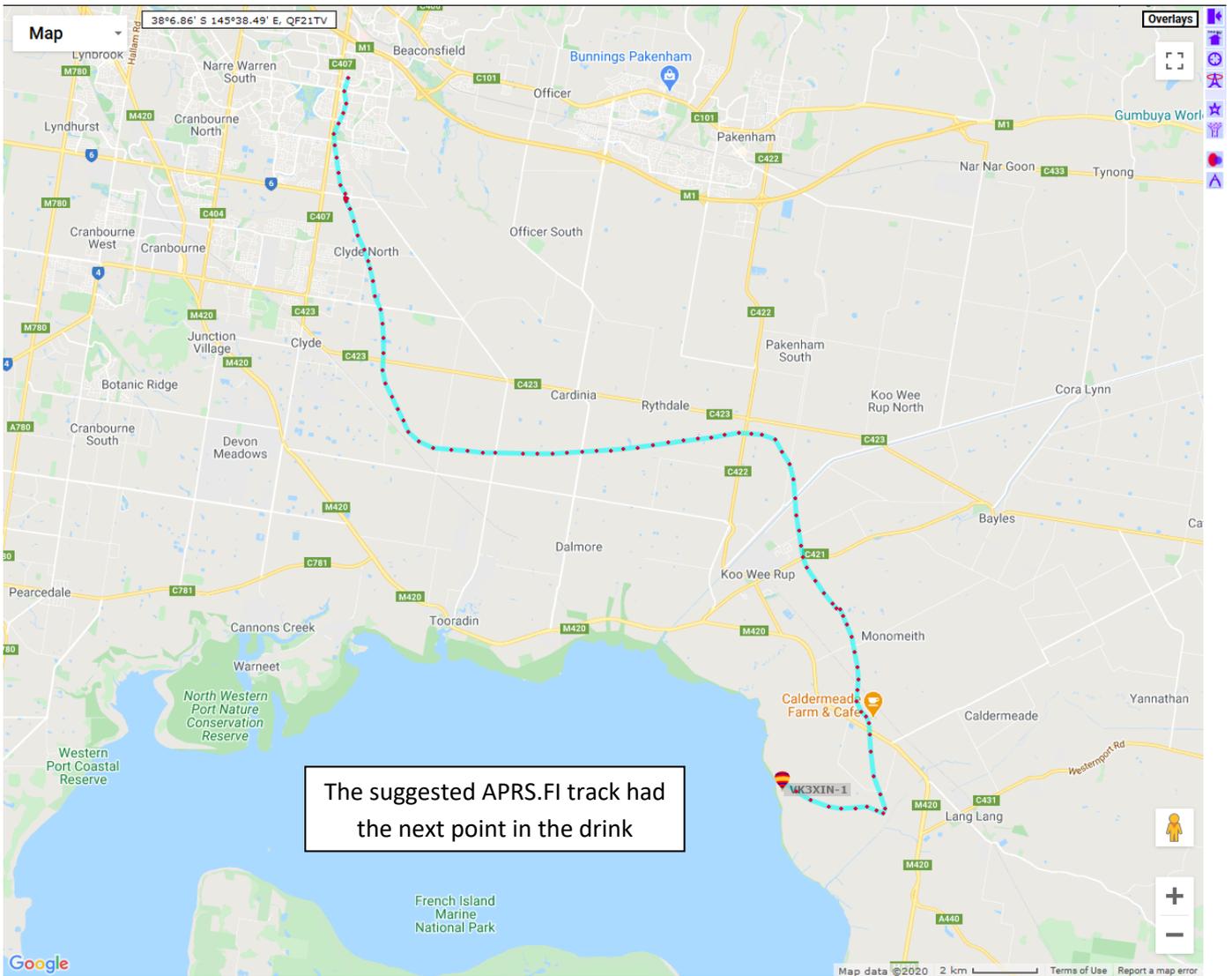


I would like to take this opportunity to thank Professor Fred Menk from New Castle University, my wonderful colleagues Laurie MacDonald, Science department teachers, Sally-Anne Battye and lab tech, Vernier foundation's sponsorship and CGREC club members who has given me a lot of encouragement and support in many different ways. It made this STEM learning experience successful to students.

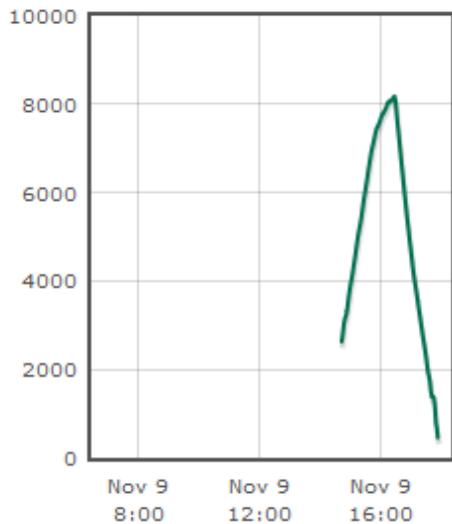




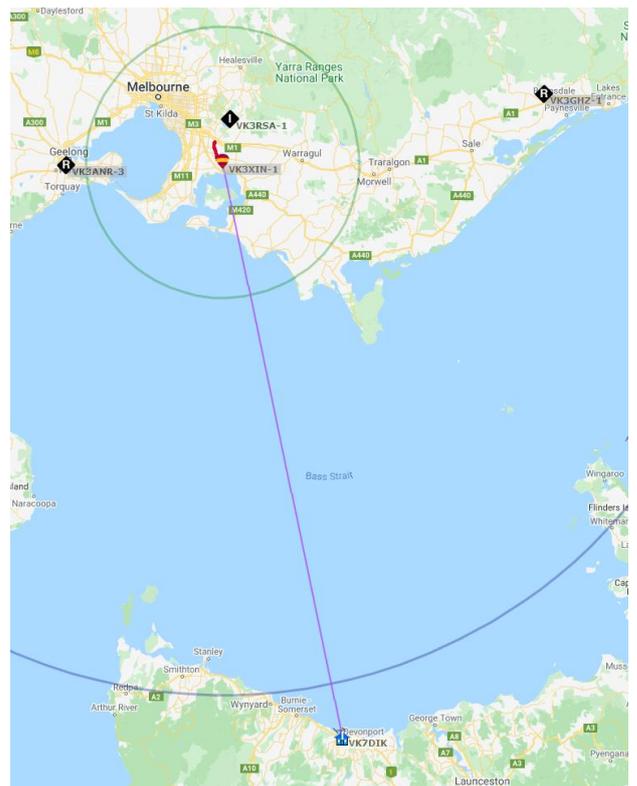
Balloon Launch #2 - 9/11/2020



Altitude of VK3XIN-1 2020-11-07 18:00:00
m - Reported altitude



The rise and fall of the XIN (mk2)



Great radio performance

Uniden Wireless Mic, MK800W



These Uniden wireless mic's can be quite a handy addition to your station as it allows you to talk & listen well outside your shack walls, like 100 meters away. It uses the same technology that Uniden (and others) use in modern cordless phones – DECT, or 'Digital enhanced cordless telecommunications', 1800 - 1900MHz, started in 1987 and which has basically replaced everything else in the cordless phone market. As Uniden are quite active in this market it seems only obvious that they also use this tech in their other market – UHF CB radio.

This kit was initially intended for use on one of their UHF CB radios, however it has proven really easy to adapt to my other radios.

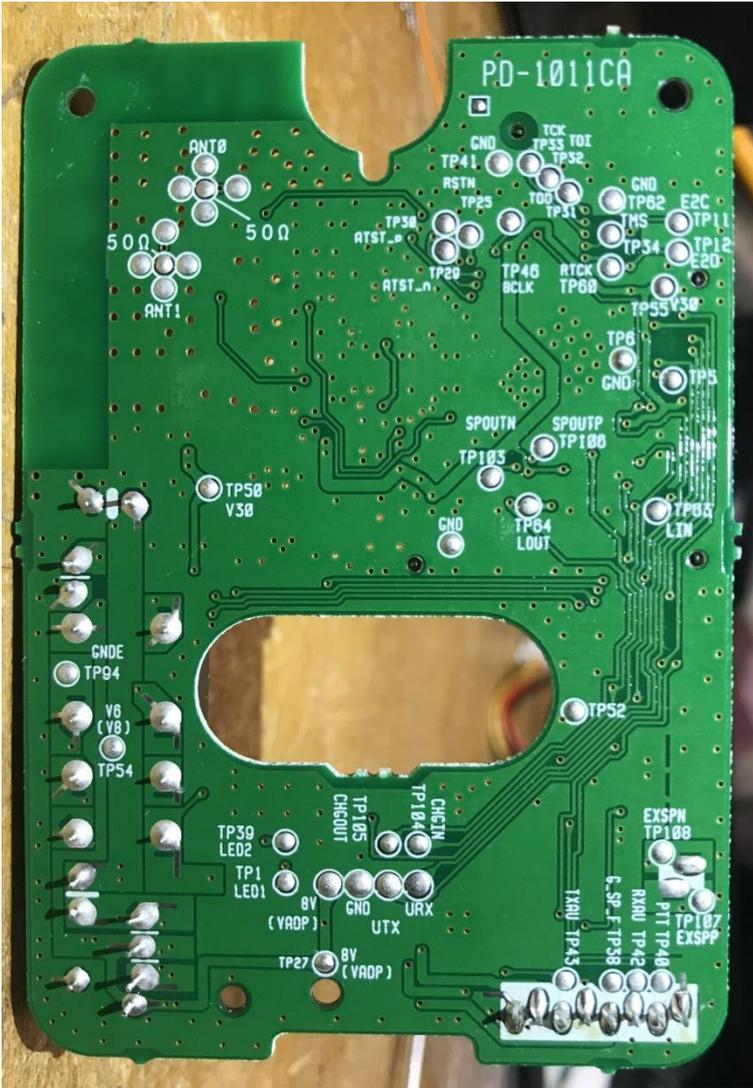


Uniden unfortunately is rather poor when it comes to circuit diagrams and service manuals; however the silkscreen on the base's circuit board is very informative.



This being the pinouts for the radio

connection lead – the one that should go to your radios microphone socket – or maybe an auxiliary socket on the back of your radio.



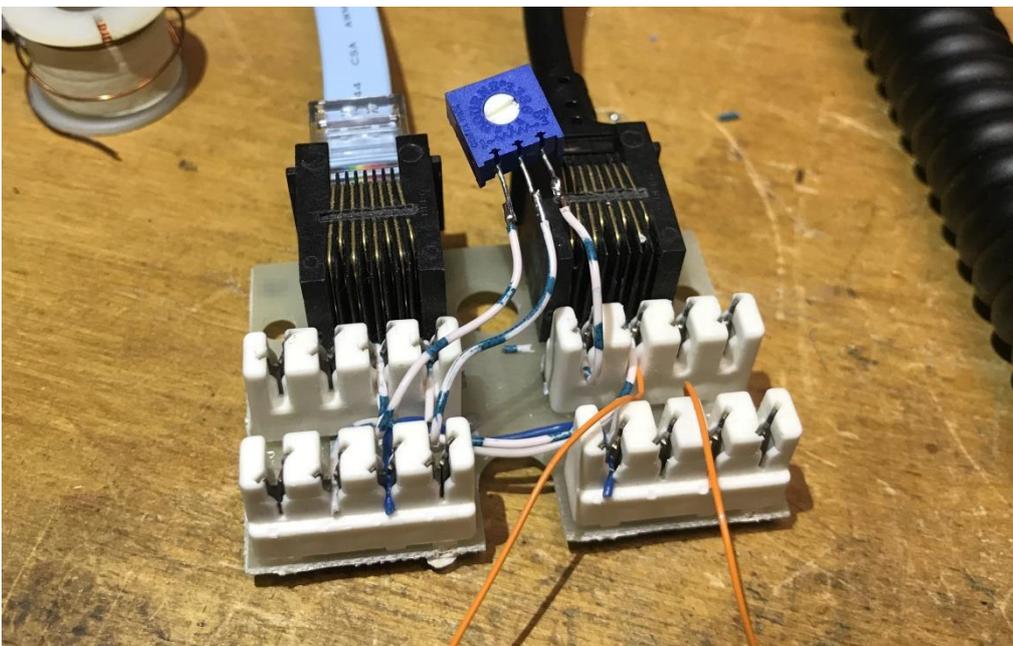
The only other info I needed was what supply voltage to feed to this set, again the silkscreen overlay came to the rescue – on the backside this time.

Down the bottom, 8V, and in brackets what Uniden call it 'VADP', which is on the list for the 'mic cord', Pin 7, and in this case the red wire in the supplied curly cord. So we have :-

- 1 – GND, earth return
- 2 – PTT, Push To Talk, Yellow
- 3 – RXAU, Receive Audio, Orange
- 4 – GSPF
- 5 – GNOE
- 6 – TXAU, Transmit Audio, Brown
- 7 – VADP, 8V DC power, Red
- 8 – GND, earth return, Black

I never chased up what pins 4 & 5 were used for, maybe auxiliary PTT contacts off the double pole PTT relay?, I had enough with the 5 wires I knew for me to get it all working, so I didn't investigate further.

One rather peculiar 'feature' of this kit was the supplied curly cord – a cord normally reserved for a fist mic, but rather pointless when it does not go to the actual mic, just it's mounted base.



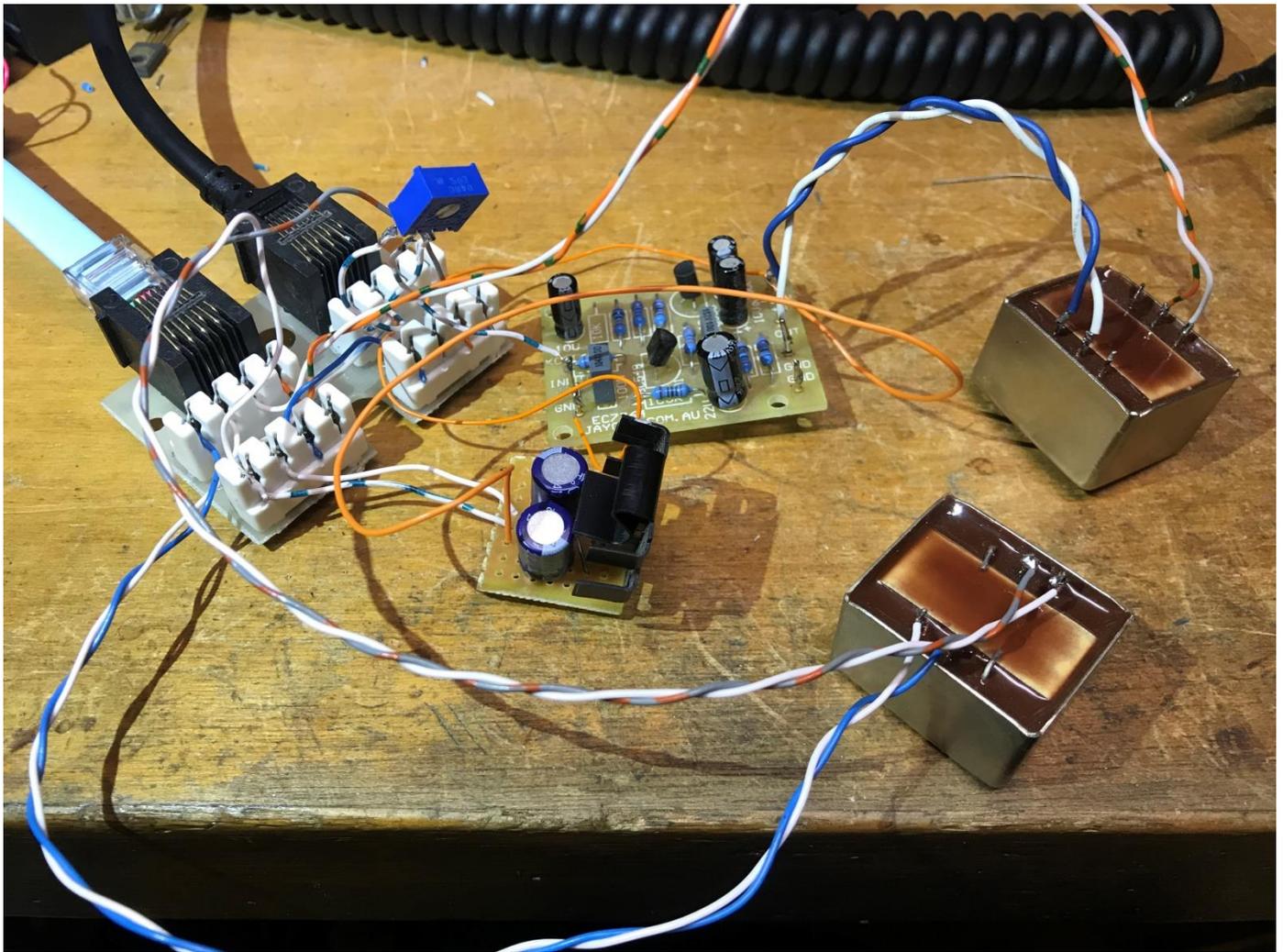
As the supplied lead of this mic, and my FT897 both use RJ45 plugs, it seemed logical for me to do my first lash-up using a twin RJ45 LAN socket. I had the required punch down tool & enough solid core telecom's wire, so why not.

I struck two issues, first off the audio out from the mic was quite hot, on my scope I was getting about 0.2V, so

that explains the trimmer pot in the above pic, the other one was the '897 only supplies 5V to the mic socket, not enough for the Uniden, so I ran it off a variable bench supply for this test. However this gave me a rather bad earth loop, as this setup was now earthed to both the '897's

mic circuitry and my 240V mains earthed bench supply. A quick and crude fix was to disconnect the negative side of the bench supply and let the radio shacks earth system take over.

In the end I didn't use the '897 as the rig of choice, however if I did I would have had to get power from the back of the rig, alongside receive audio, as this Uniden mic is a speaker mic.



This is my final lash-up before doing a proper build in a suitable box. I'll probably lose the curly cord and that double RJ LAN socket. In my shack I devised a 'universal' radio interface years ago, it's based on Cat5 network cable – it's cheap, used by many devices, and can go a long way. With this Cat5 LAN cable setup, I can remotely drive my radio's that live in my radio shack at the back of my QTH, from anywhere in my house. I currently have 3 radios setup to use this system. It uses balanced audio for both Tx and Rx, hence the two transformers on the right, above.

The other two boards are an 8V regulator to power the Uniden & a Jaycar amplifier kit to boost the Tx audio up to 1V to drive my system. For most users you will only need the 8V regulator; however you may need an isolation transformer if there is no Rx audio at your mic socket. Some radios don't like earth from the back side of the radio connected to the front side mic socket earth. Generally a radios mic input is quite sensitive, so you have to earth your audio input to that point, lest you have extremely noisy Tx (as I did on my '897). The problems start when you mix wires (speaker/Aux audio & power) from the rig's back with these sensitive circuits up front. The Yaesu FT-897D does have audio in and out on the back panel, meaning I could use this radio with the Uniden, however in normal voice modes the radio will only accept audio from the front panel mic socket, to use the back panel you have to select a digital mode – rather confusing and illogical if you are not actually doing digital, but plain voice modes. AM being a peculiar one as there is no digital version, so no back panel AM. (Yes, no great loss)

One day I'll lid this radio (again) and 'fix it'

Paul VK3TGX

Interesting YouTube Videos



Синтезатор Arduino Mega 2560 + 3.2" TFT LCD + Si5351
Oops, it's in Russian, but it sure looks nice!

<https://youtu.be/YtR1NCEbrHs>



Meet Joe, and his amazing DIY horn speakers

<https://youtu.be/EFoCVw2AJRc>

Coffee Morning

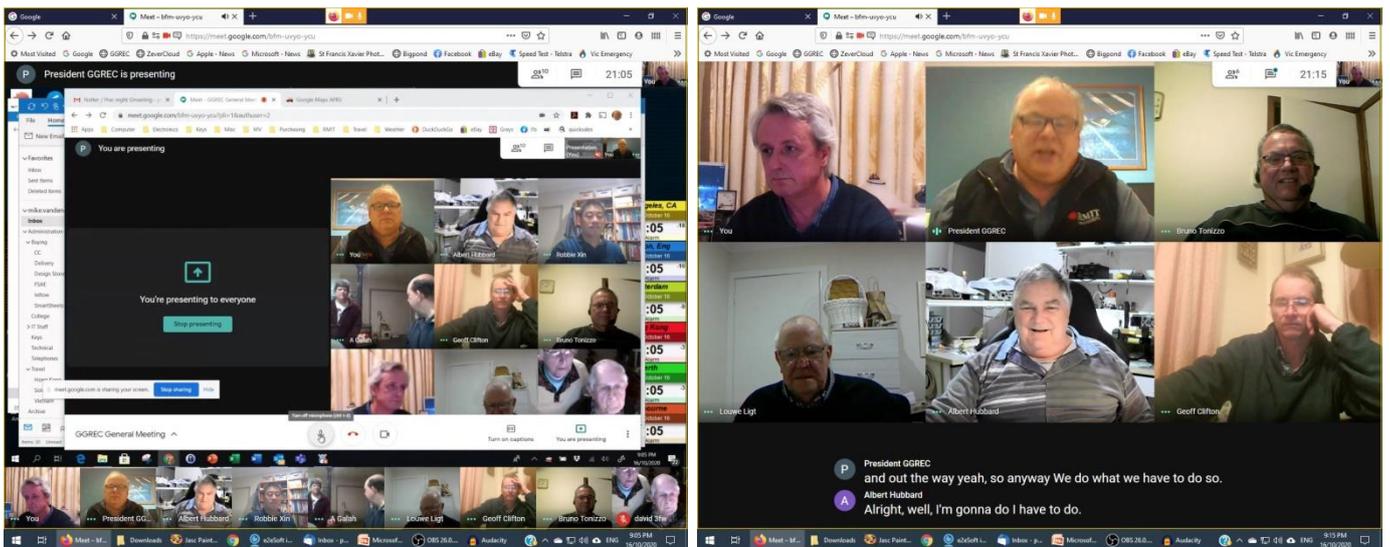
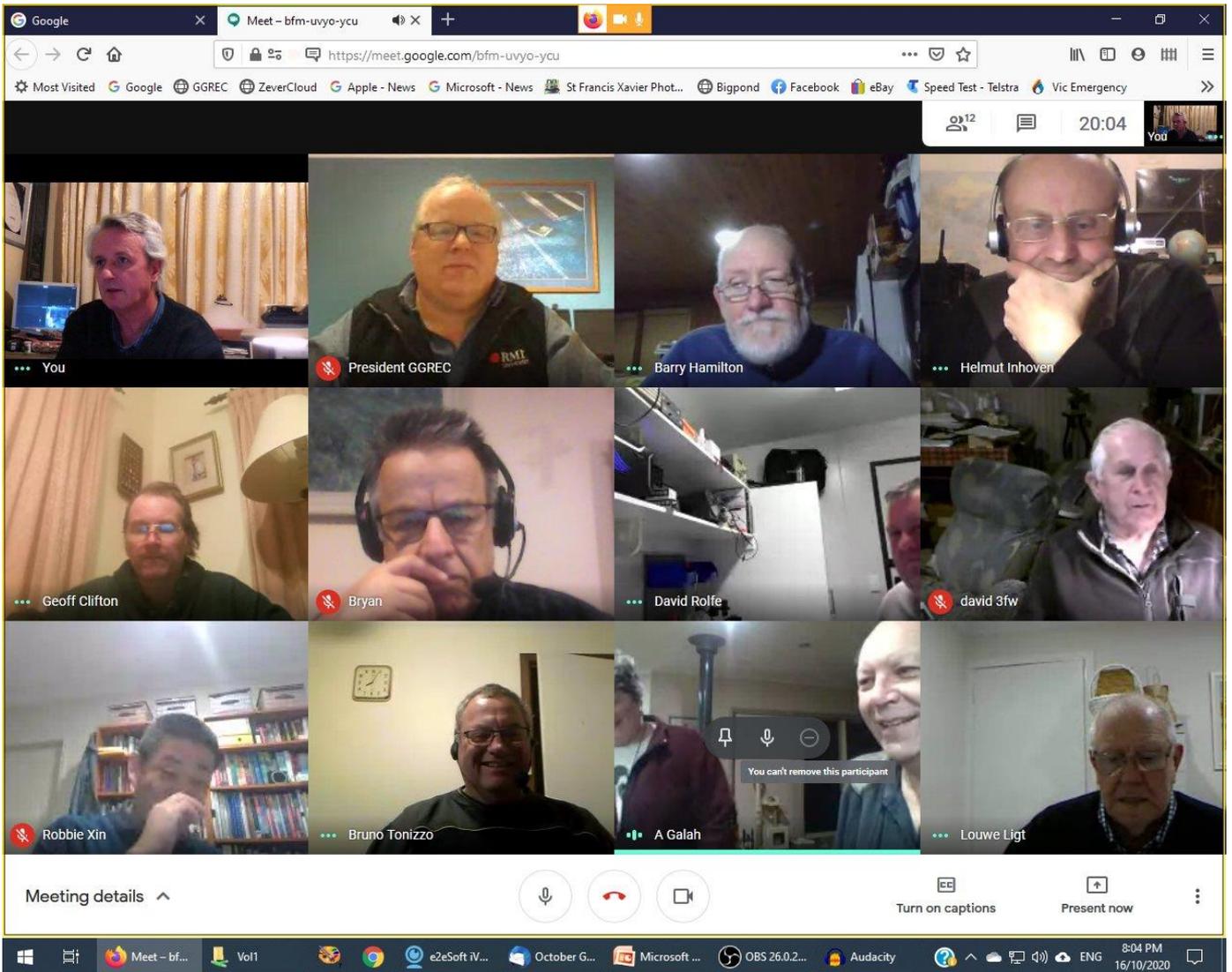
On the 17th of November a small group of club members met up at the Emerald Bakery Café and surrounding parkland for a 'back from Covid' get together.



Hopefully the days of zero Covid19 cases will continue and club meetings will be allowed to resume. Keep an eye out for the "Member Update" emails, for details of club activities especially as Christmas is rapidly approaching, and the club finds an allowable option for a breakup doo.

As Seen on Google Teleconference

16/10/2020



Keep an eye out for the club emails with links to the online meetings.
If you have interesting shack happenings, point your camera at them and share the fun.

Meeting 6/11/2020

Albert Hubbard is presenting

8 20:18 You

YouTube

Changes to amateur radio call sign policy

We've made some administrative changes to give amateurs more options and flexibility and a more active role in self-managing call signs.

NEWS

We're also clarifying call sign arrangements for amateurs who change where they live.

0:01 / 4:07

Australia introduces amateur radio callsigns for life

1,801 views · Premiered Jul 29, 2020

112 0 SHARE SAVE

SHOW CHAT REPLAY

Up next

AUTOPLAY



Albert Hubbard is presenting

Changes to call signs

We are making changes that will facilitate access to a wider range of digital modes for foundation licensees, and provide a 'call sign for life' for all licensees by:

- allowing all amateurs to obtain a three-letter call sign
- removing the association between call sign suffixes and qualifications.

If you have a foundation, standard or advanced licence, you can apply to the AMC for any available three-letter call sign.

You can also keep your current call sign if you wish, including if you get a new qualification (for example, going from foundation to standard, or standard to advanced).

Two-letter call signs remain available to advanced licensees only.



Albert Hubbard is presenting

Rob, VK5SW's remotely controlled solar Amateur Radio Station located in the Australian Bush.

Now, Radio Communications

Into the Universe

1:10

0:38 / 24:37





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.~~

All physical meetings suspended due to the coronavirus restrictions

Office bearers

President	Micheal Van Den Acker	VK3GHM	Web Master	-	-
Admin Sec	Bruno Tonizzo	VK3BFT	Magazine Editor	Paul Stubbs	VK3TGX
Treasurer	Albert Hubbard	VK3BQO	Property Officer	'committee'	
General 1	Bruce Williams	VK3BRW	Assoc. Secretary	Bruno Tonizzo	VK3BFT
General 2	Paul Stubbs	VK3TGX			

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 434.475MHz Out 439.475MHz CTCSS 91.5Hz
 VK3RGW Repeater supports Remote Internet access (IRLP), Node 6794.
 70cm Repeater Seaview VK3RWD, In 433.575MHz Out 438.575MHz CTCSS 91.5Hz
 Simplex VHF - 145.450MHz FM, Simplex UHF - TBA
 VK3RLP Beacons 1296.532MHz & 2403.532MHz (currently inactive)

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)

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