**SHEPPARTON & DISTRICT AMATEUR RADIO CLUB**

**Founded 1979   Incorporation No A6677    P.O. Box 692, Shepparton 3632**

## VK3RGV repeaters and transmitter operating frequencies

**53.725MHz (1 Meg offset), Operational.**

**146.65MHz (600 kHz offset), Off-air (being refurbished).**

**438.2MHz (D-Star) Off-air (to be re-installed).**

**438.650 (7 MHz offset and 91.5 Hz tone access), Operational.**

**439.775MHz (5 MHz offset), Off-air (to be refurbished).**

**Access to most of the analogue repeaters is by sub-audible 123 Hz tone or noise mute (less sensitive).**
**Club Network informal on air get togethers - Wednesday evenings.  All welcome. Club call sign VK3SOL:-**
**2mx repeater 8.00pm (On 146.850 MHz at the moment), 3.63 MHz ± interference 8.30pm.**
**Meetings are held at 1 pm on the first Saturday of the month (except January when no meeting occurs) at**
**the Mooroopna Scout/Guide Hall off Echuca Road, Mooroopna. Variations in these times, days and**
**location are normally notified in the preceding newsletter.**
**Website – www.sadarc.org    Face book - www.facebook.com/sadarc.org        Info for page contact Denny**
**on    denny3782@gmail.com**

**The local vintage radio club has a get together at 11.00am of a Sunday on the 2 metre repeater. Many of**
**their club members are members of SADARC too, so join in for a chat.**
**The following repeaters do not belong to our club but provide good signals for many members.**
**Mount Major VK3RDU repeaters and TX operating frequencies, 146.850 MHz and 439.875 MHz**
**UHF CB Repeater Mt Wombat Channels 3- 33**

| | | |
|---|---|---|
| President:- Peter Rentsch | VK3FPSR | pages.cobram@bigpond.com |
| Secretary:- Andy Ashley | VK3AJA | andyashley@icloud.com |
| Vice-President:- Barrie Halliday | VK3KBY | |
| Treasurer & Webmaster:- Graeme  Martin , | VK3FCVT | biftek@gmail.com |
| Membership Sec: - Pat O'Shannessy | VK3OV | |

Station Manager: - Vacant                           Publicity Officer: - Vacant

Communications Managers (External Events):- Bruce (VK3PNF) & Darren (VK3HEN) Glasson

Technical Committee: - Phil VK3ELV, Ray VK3RW, Geoff VK3ZNA, Kevin VK3BPH & Rodney VK3UG

Newsletter:- Rodney VK3UG (Editor)  rodlynn6@bigpond.com      Peter & Andy (Printing/ Distribution

## New Repeater Protocol

Last month I wrote about repeaters and tone access. Please have another read of that. The new Tait repeater for 2 metres has tone access on 123 Hz at this stage, no carrier mute. So if it is functioning (and we hope it will be before the next meeting) and you can't get into the repeater, it means we only have tone access at this time until means to introduce carrier operated mute is able to be fitted. It has very complicated circuitry hence some of the delays on getting the 2 Metre repeater back on air. It is a very good piece of equipment which with the older Philips FM814 repeater will give us good service for many years. We are sorry about the delays in recommissioning the two metre repeater system, but other personal commitments that the technical committee have, has caused the delay.

If you don't have tone access on your transceiver and still want to use it, the fitting of a tone board may be an easy way to overcome the problem. I have tone access fitted to two of my rigs, a 6 mx FT680R and an Icom IC22S. Back in 2014 The Hunter Radio Group developed an add on CTCSS tone access board which can be fitted to most transceivers. The two sub audible tones normally used 91.5 Hz and 123 Hz can be switch selected. The board is 45mm x 30mm and the cost in 2014 was $18 plus $7.95 postage. If you are interested in this well made fully assembled board I'd suggest you contact Rodney Prout VK2CN  raprout21@gmail.com the secretary/treasurer of the Hunter Radio Group. If there is enough interest a bulk order could be made to the Hunter Radio Group – save on postage at least.

Any reasonable assistance will be provided to help with modification of your pre tone transceiver. Let us know if you need assistance.


## Presidents Report April 2018

To all those that attended out last meeting, thanks for making the effort. We had a good roll up and a great guest speaker. Thank you John for the time and effort you put into your presentation. Well done. I found John's presentation to be most interesting and it never ceases to amaze me at the ingenuity of man and what he develops. The person that came up with the thought of the electronic switch's by sending current through ferrite to create magnetic ferrite memory was a clever individual. Man's ability to invent, create, develop, build and then continue to improve on the idea is something that is innately human. Thanks John.

I mentioned at our meeting about guest speakers and if you have any topics or specific guest speakers that you would like to hear please let us know. I can hardly say I was overwhelmed with suggestions. Please, if you have any thoughts let John VK3KJB or I know and we will follow it up.

I thought that as we did not have a BBQ in April it would be good to do so in May. For those who were at the March BBQ we had a bit of a problem with Paper Wasps around the BBQ area. Bill fixed the issue in a very inventive way. It obviously worked as there was none to be seen when we there a couple of weeks ago. As the weather is now supposedly cooler the Wasps should not be an issue. So, our next meeting will be a BBQ starting at 11.00AM followed by our regular meeting at 1.00PM.

That's it for me for this month.

Till next time,     Cheers & 73

Peter – VK3FPSR          President – SADARC

**Calendar of Events**

# May 5<sup>th</sup> – BBQ at 11.00am followed by our regular meeting at Mooroopna 1.00pm

June 2<sup>nd</sup> – BBQ at 11.00 am followed by our regular meeting

June 9 & 10 – Steam Rally in Echuca – coordinator Bruce VK3PNG

July 7<sup>th</sup> – Regular Meeting at Mooroopna 1.00pm (note President Peter will be away at Gippstech)

# SADARC meeting 7/04/2018

Clubrooms Mooroopna

In attendance: VK3PXJ John, VK3PNG Bruce, VK3HEN Darren, VK3PGK Graham, VK3ZE Huntly, VK3NMK Mike, VK3FPSR Peter, VK3UG Rodney, VK3KBY Barrie, VK3OV Pat, VK3FMAA Mike, VK3ZNA Geoff, VK3KJB John, VK3YMB Ray, VK3TJS Jacek, VK3AJA Andy, VK3BPH Kevin, VK3XNW Neil, VK3EB Dallas.

Apologies: VK3DSF Max, VK3FALN Alan, VK3TEX Les.

Minutes from last meeting,
Read by Peter. moved by John, Second by Bruce.

Inwards;
Insurance invoice from WIA.      Email from someone interested in gaining Licence.

Outwards;      Insurance invoice to Treasurer.

Financial report: Treasurer did not show.

Tech. report;  Read by Geoff,  Rodney and Ray Gardiner.   Moved by Michael second by Geoff.

General Business;

Michael VK3FMAA read some info Radio Australia Site.
Bruce VK3PNG spoke about Echuca Steam Rally.
Hamfest on again, all agreed.
John VK3KJB spoke about getting guest speakers.
Peter VK3FPSR mentioned new clubroom.
Rodney VK3UG spoke about Vintage Radio club looking for new rooms also.
New Technology and electronics was mentioned by Kevin VK3BPH and perhaps this could be helpful in looking for new rooms/funding.
Barrie VK3KBY mentioned Sale of all sorts of old stuff.
Micheal VK3FMAA mentioned John Moyle field day for next year.
Andy VK3AJA mentioned Mills activation and will report back.

A Motion was moved to reinstate D-Star repeater Moved by Kevin second by Jacek.
Motion passed.
Meeting Closed      2:00 pm.

# Mainframe Computers in the 1960's (John Blackman VK3KJB)

The 1960's were the decade of the large mainframe computer, the main companies were Control Data, IBM, Univac, Honeywell, Burroughs and ICL

I worked for Control Data from 1968 to 1974 on the 3000 and 7600 series systems.

In those days the computers ran 24 hours 7 days a week, so we engineers worked shift work maintaining the systems.
The mainframes all used core memory for storage with magnetic tape, disk and drum memory. Most programs were loaded through punch card or tape. Operators loaded the cards into card readers, loaded and unloaded magnetic tape reels and ensured the programmers received the printouts from their runs.

 The mainframes all consisted of rows of single sided printed circuit boards with two logic elements on them i.e. an inverter with and/or gates and flip flops. These cards plugged into sockets which had single or twisted pair wires to the next socket. The larger systems had two circuit boards with the discrete components strung between and were cooled by cold plates, these were call core bit modules. The racks of cards were cooled by chilled air from below the false floor being blown through the rows of cards, or in the case of the core bit modules refrigeration The power supplies were DC plus and minus 20volts derived from transformers which were fed with 208volts 400 cycle motor generators.
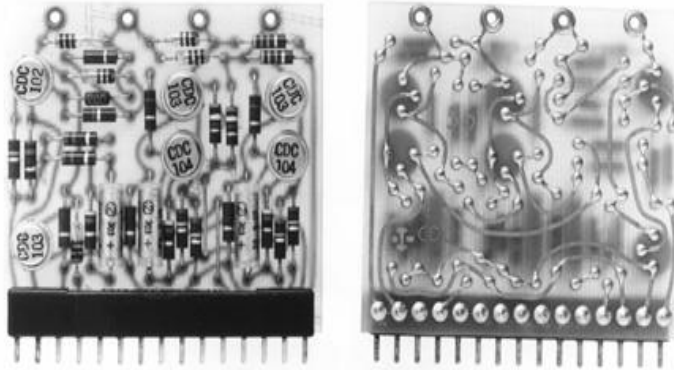


Control Data 3600 Bureau Census Canberra (48bit machine)

 Core memory was used to store program instructions fed by magnetic tape, disk drives, drum memories, punch cards or paper tape.
The core memory had a read write cycle time of 2.5 microseconds. Most systems had 32 or 64K of memory i.e. the word width which was 24 or 48 bits wide.

The operating systems were in the early days a system call tape scope and MSOS (Mass Storage Operating Systems) when disk drives became available this was much faster.



Circuit Cards

How technology changes the average smart phone is now about 100 times faster than the old mainframes, all this in 50 years!



Control Data 3300 Bureau Census Canberra (24 Bit machine)

## Editors Rambling's

- Congratulations on reaching the 93 years milestone Max (VK3DSF). Your birthday was on the last meeting day but you were off celebrating so we missed your cheery presence. Note one or two other members are in the same league, over 90. We appreciate your input over the years.
- I'm gradually getting information together on the history of our repeater system on top of Mt Wombat, including the UHF CB repeater. Any information you have (no matter how little) would be appreciated. I do have information from 2009 onwards, but for earlier periods I'd like members who have been involved with the repeater site to provide me with information even if only verbal, but preferably in writing. Some have put up their hand but the more info the better. I need your info this month . **Please help.**
- Bruce VK3PNG is getting things organised for the Queen's Birthday weekend at the Echuca Steam Rally. Any help would be appreciated. The Vintage club is likely to be with us on the site.
- Congratulations to Michael VK3MAA and Mia his wife for donating hay to farmers in the South West of the state after the recent devastating fires.

## TTN Gateway

Ray VK3YNV spoke at the last meeting on a TTN gateway that he would like to place on Mt Wombat. This is not a subject I know anything about so Ray has provided information to assist us with what he is proposing. Note although the claimed range is 5 to 10 KM the range from Mt Wombat is much greater.

TTN Gateway for Mt Wombat

Q1 What is it?                                   A1 It's a free global network.

Q2 What can it do?              A2 It will allow anyone within range to connect devices to the internet.

Q3 Who is behind this project?                   A3 It's a non-profit community based effort.

Q4 What does the equipment cost?                 A4 The equipment is being donated free of charge.

Q5 Are there any access fees?         A5 Access to the network is free.  No SIM card or access fees.

Q6 What sort of coverage is expected?        A6 Coverage map prediction is attached.

### What is the idea behind Lora, e.g. LPWAN?

LPWAN (Low Power Wide Area Network) offers low power sensors and applications that need to send small amounts of data over long distances a few times per hour and need to last long time on a single battery, theoretically for years. Comparison of LPWAN to LAN and Cellular is given next
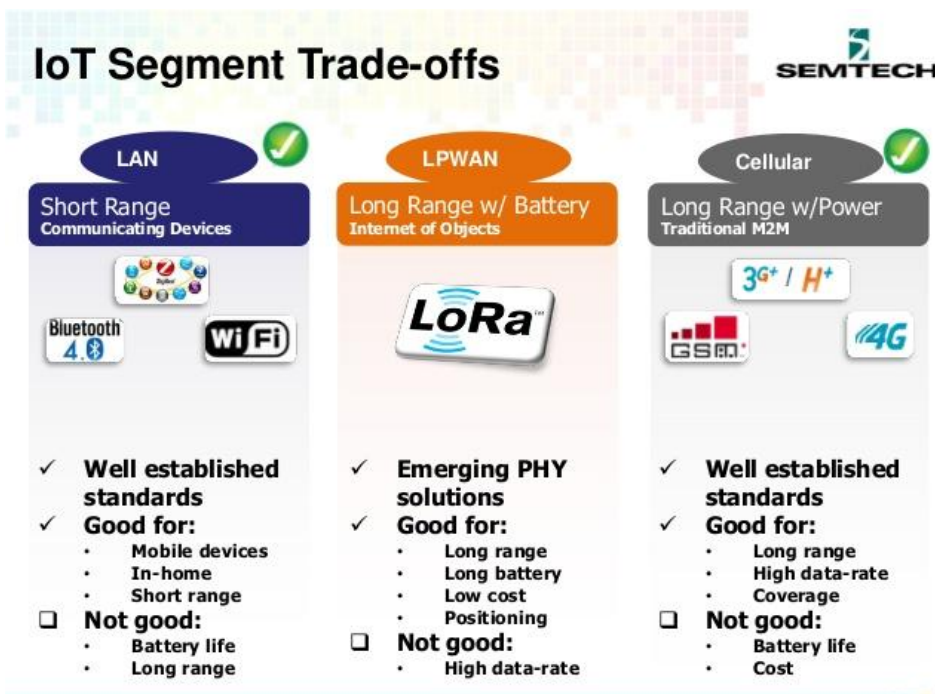
As it can be seen LPWAN technologies are useful for applications that require

- Long range 2-5km in urban areas  5-10km in rural areas
- Long battery life.  Some applications can run for years on batteries.
- Low Cost
- Positioning

However LPWAN are not designed for high data transmission capabilities. It is expected that LPWAN technologies will cover almost 50% of IoT communications in the future as shown in the following table.

| Local Area Network Short Range Communication | Low Power Wide Area (LPWAN) Internet of Things | Cellular Network Traditional M2M |
|---|---|---|
| 40% | 45% | 15% |
| Well established standards In building | Low power consumption Low cost Positioning | Existing coverage High data rate |
| Battery Live Provisioning Network cost & dependencies | High data rate Emerging standards | Autonomy Total cost of ownership |
| Bluetooth 4.0  WiFi | LoRa | GSM  3G+ / H+  4G |

**Some links for more information.**

Lora in five questions

https://daghanacay.github.io/iot/2016/11/15/TTNFaq.html

The community.

https://www.thethingsnetwork.org/community

**Some examples of uses**

https://www.thethingsnetwork.org/forum/c/use-cases

**Some examples of locations**

Launceston	http://www.abc.net.au/news/2018-01-07/long-range-wifi-to-track-dementia-patients-and-help-farmers/9308296

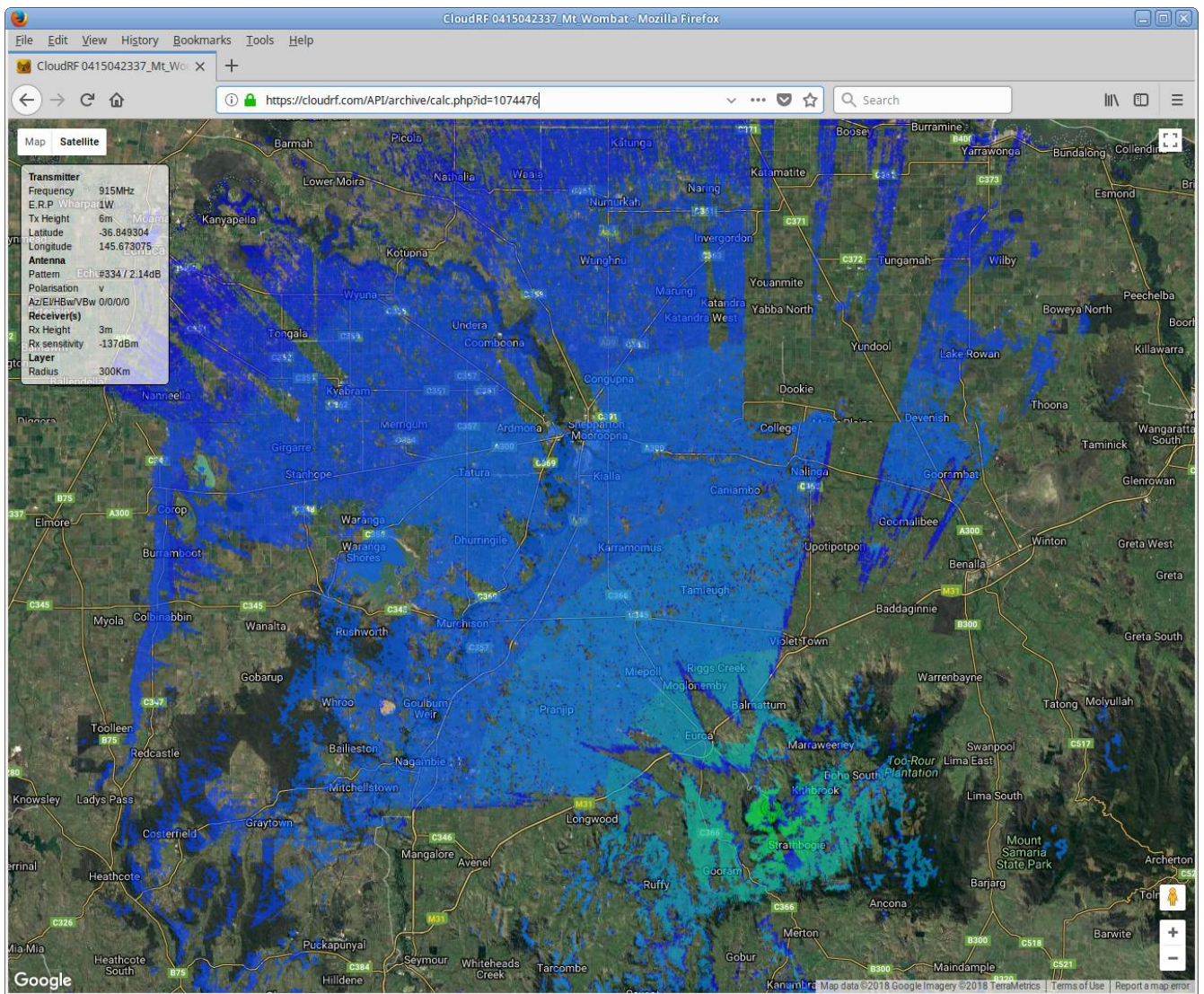Wollongong	https://www.iothub.com.au/news/wollongong-to-get-city-wide-lorawan-network-463043

Melbourne	https://www.thethingsnetwork.org/community/melbourne/

Australian Commercial LoRaWAN networks	https://www.nnnco.com.au/	https://geowan.io/

Coverage Map

https://cloudrf.com/API/archive/calc.php?id=1074476

Predicted coverage based on receive dipole at 3M. Darkest blue colour is -120 dBm, which is the lowest value I could enter, however the receiver sensitivity can be -137 dBm