



BARG News

Ballarat Amateur Radio Group

Inc. #6953T

October

Monthly Newsletter

Next Meeting

7:30pm, Friday 29th October - Online

All Welcome



Contacting us

You can write to the club at the address below, or e-mail the secretary

The Secretary : B.A.R.G. Inc.
Box 1218
Mail Centre
Bakery Hill Vic. 3354

Or E-Mail : vk3bml@barg.org.au

We're on the web
www.barg.org.au

Presidents May Report

Welcome to the October newsletter. It looks like we are coming to the end of the onerous restrictions that have impacted all of us over the last 18 months. Fortunately the pandemic impact has been limited to lock down restrictions and nobody in the club has actually caught the virus. The relaxing of restrictions has seen the reintroduction of the face to face coffee mornings.

The new committee has met for the first time. We welcome VK3QY, Chris, for the first time. And said thanks again to VK3VBA, Doug, and VK3TXR, Paul.

President: VK3OAK – Malcolm Secretary: VK3DRE – Doug Committee: VK3ALM – Lachlan VK3PWG – Peter VK3KG- Craig	Vice President: VK3NRD – BEN Treasurer: VK3QY – Chris VK3YFD – Ian VK3KQT - David
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We're still looking for a new newsletter editor. I've said I'd keep doing it for another year if nobody else is willing to take it over. But then I'll be stepping down. Let me know if you're interested.

At the last committee meeting we agreed to aim to run the next George Fowler action in March of 2022. I think we agreed on March 13th, but really I should take better notes. Maybe it was March the 6th. Either way, it'll be early in March of 2022.

The committee has discussed the idea of powering some of the radio kit from Solar. Given we only rent the club house we don't want to try and connect to the mains. We're looking for some second hand panels. If you have idea where we might source some from, please let the committee know.

The November meeting will be a face to face Saturday meeting followed by a BBQ and working bee. By then the lawn will need a mow. The bushes will need a trim. The EFHW needs to be put up. The rotator needs to be swapped over on the VHF/UHF tower and the floor inside needs a vacuum. So lots to do.

The October meeting will be a Webex meeting. There's a couple of brief presentations lined up, as well as some social chit chat.

I hope to see you all there.

VK3OAK

VHF and Above for October 2021

Another month has rolled on and still not a great deal to report regarding activity on the higher bands. Seems like the enthusiasts are waiting and hopeful for some lift as the warmer months approach. Given the weather forecast for the East Coast of VK with higher than normal wet weather predicted it's hoped this won't cause too much disruption to this normal active part of the year.

I hear that Paul VK3TXR has a new rotator and keen to get it installed so he can maximise the pointing of his 6 mx antenna which will allow some tweaking during his 6mx meteor activity. Paul you will have to give us a run down on your results etc.

This past month has seen some more tests done on 2.4GHz between Peter VK3PWG, Bob VK3BNC and Ian VK3AXH with some good results. Peter sets up his station at the Sovereign Hill car park and with a small yagi had good signal levels to Bob. Although Ian is in the wrong direction he was getting some reflected signals from Peter and could also hear Bob in and out of the noise which was a first for both stations. Peter now has a grid pack antenna so is keen to do more tests.

This prompted Bob to raise the height of his 2.4G grid pack antenna and the next day tests between Bob and Ian were excellent with 5x9 signals in both directions across Ballarat which is a first for both stations on this band.

The next step for us is weather permitting to test with Chris VK3QY with his 3.4G station. Chris will again setup at One Tree Hill – Ararat which is around 100Km distance to Ballarat and see if we can hook up. It will also be an opportunity for others that have the capability to test their gear on 23cm and well as 2.4G.

Till next time 73 de VK3AXH

For VK3BML club station of Ballarat Amateur Radio Group.

BARG THURSDAY NIGHT NET CONTROLLERS LIST.

DATE	OPERATOR	NAME	BACK UP	NAME
28-Oct-21	VK3DRE	DOUG	VK3MCL	SCOTT
4-Nov-21	VK3MCL	SCOTT	VK3AXH	IAN
11-Nov-21	VK3AXH	IAN	VK3KG	CRAIG
18-Nov-21	VK3KG	CRAIG	VK3TXR	PAUL
25-Nov-21	VK3TXR	PAUL	VK3QY	CHRIS
2-Dec-21	VK3QY	CHRIS	VK3HMV	ANDY
9-Dec-21	VK3HMV	ANDY	VK3DRE	DOUG
16-Dec-21	VK3DRE	DOUG	VK3MCL	SCOTT
23-Dec-21	VK3MCL	SCOTT	VK3AXH	NAME
30-Dec-21	VK3AXH	IAN	VK3KG	CRAIG

FEATURES & REVIEWS.

P12 Advanced Medical & Biometric Imaging - Part 1. Looks at the start of X ray photography out of accidental discoveries in 1785 by William Morgan and a gas discharge tube, and 1888 by Phillip Leonard finding his photographic plates were exposed from a Crookes display tube. Rontgen is acknowledged as having made scanning.] and Magnetic Resonance Imaging [MRI] Other named processes are SPECT {Single Photo Emission Tomography} and Positron Emission Tomography or for deep tissue penetration or move up to 7-18MHz for shallow less tissue but better resolutions.

Television has been used in the process of body investigations and a flexible tube with fibre optics connected to a camera used is used to explore internal organs within the body and called Endoscopy. Final process is a special "pill" designed camera that can be swallowed and its pictures transmit as it passing around and out of the body. Ne4xt month wll continue on with Imagining and applications not with medical use such as archeology, biometrics, engineering defects and contraband detection.

P35 Automated PCB Assembly for Home Constructors. Smaller delicate components not your cup of tea in assembling projects then pay a bit more and have someone else put it together for you at a small charge . There is one requirement though that you need to supply the computer generated Gerber file and that means you have done the board design and layout plans with component listings.

P38 The History of Operation Amplifiers [OpAmp] Was first designed in 1927 by Harold Black on a scrap newspaper on his way to work at Western Electric later Bell Telephone. He thought about using negative feedback to lower distortion in telephone repeater amplifiers which were vacuum valves then. The name Opamp came about in 1940s and with development of the transistor in Dec 1947 leading to miniature amplifiers replacing bulky and hot valves. Burr Brown co made the first was about \$2 and still the LM741 available today. From here the IC Opamp is in regular use. Read on about how it works and the application of Negative feedback is used to make it work. .

P88 El Cheapo Modules: USB-PD Triggers. Jim Rowe again explains how this USB-PD system also has USB-Triggers and they appear to do the same job as the straight USB-PD chargers and there are some that are just used as a decoy. ?? whatever Follow these links further.

USB-C: <https://w.wiki.nto>

USB-PD <https://w.wiki/34dT>

Siliconchip.com.au/link/ab7I

Siliconchip.com.au/link/ab7m

Quick Charge: <https://w.wiki/34dU>

CONSTRUCTIONAL PROJECTS.

P26 Second Generation Colour Maximize 2. – Part 1.

Backwards compatible with four times RAM. 24 bit color and 1920x1080 video and more.

P46 Nano Pong using an 8 -pin PIC.

Very cheap arcade unit on a mini PCB and connects to TV via a RCA cable.

P68 Multi Purpose Battery Manager.

An update to earlier Battery logger and interface the High current Bqattery Balancer Up to four chargers and switch over 20A at 10-60Volts.

P92 Simple Linear MIDI Keyboard. Alternative to the 64 key MIDI Matrix by use of 8 button modules.

YOUR FAVORITE COLUMNS.

P61 The Serviceman's Log. Dave presents a number of varied service jobs and discusses the current practices that involve industrial theft of designs by others and makes it difficult for the legit serve person gaining data about the equipment in use.

P80 Circuit Notebook.

1. Easy build portable amp using modules from the web and giving USB, MP3 Bluetooth, TF/SD, AUX with stereo out and battery monitor tester display.

2. Frequency meter with non contact main reading. Based on an ATMEGA 8A-PU and a 16x2 LCD Module all running from a 9V battery running thru a 7805 Regulator. A selector switch allows sampling the mains freq by an RF input via IC1 an 4024B IC and switched to coax input that allows sensing via a short wire antenna of the mains radiated voltage.

P98 Vintage Radio. Ian Baty Looks at the 1961-65 BUSH VTR103 AM/FM Radio manufactured in the UK. The BUSH company started in 1932 and later became part of the RANK organization and also manufactured TV of which the TV22 was one.

This radio has three bands and coming from the northern hemisphere starts with the long wave 158-280kHz LW band, 526-1605 kHz MW and the 87.5-100MHz FM allocation. .

With a well laid out open design on metal chassis and point to point soldered components and using transistors similarly mounted. Just a bit early for the usage of a printed circuit board here the FM tuner sits in its separate metal box and own antenna input lead. The VHF radio has its own RF coils mounted on a centrally mounted tube in the enclosed box while the HF coils are on a long ferrite stick running down the center of the radio. These styled radios running off a 9Volt battery were very popular with young people down the beach or on picnics in the bush because they were very well designed and had better sensitivity than many sets about today. AM sensitivity was 3.4yVolts for standard 50mW out at 600kHz and 2.4yVolts at 1400kHz for 10dB S/N ratio.



EVERYTHING ELSE.

P2 Editorial

P4 Mailbag

P87 Product showcase

P96 SC Online shop

p107 Ask Silchip

P111 Market place

P112 Notes & errata

P112 Advertising Index.

Notes and Errata

JUL/AUG 2015

Ultra-LD Mk4.4 Amplifier Incorrect values for couple of circuit voltages.

Please read and amend your copies in case you decide to build this unit at later stage.

FEATURES AND REVIEWS.

- P14 DETECTING GRAVITATIONAL WAVES. We have known about magnetics in electronics and map navigation with compasses but what does it mean with respect to space and the wider solar system.? Is there a relationship within the space between planets, Read about the LIGO Interferometer observatory and how it measures variations between two compared light beams.
- P61 El Cheapo Modules. 3.8GHz Digital Attenuator. Back in June 2018 Jim Rowe looked at an earlier version attenuator up to about 1.5GHz with accurate attenuation characteristics. It cost to land here about \$40 but Now Banggood have a better unit available. ID No 1769385 for around \$80 Aus. They now have another module available for \$51 +\$6.70PP ID no 648810 and saying its top end will be “larger” Jim feels that may go up to 6GHz with more smaller attenuation increments.
- P70 Review The PicoScope 6426E USB Oscilloscope. Supplied by Emona this unit is the top of range of nine scopes available. Having four channel inputs with 1GHz analog capacity www.picotech.com/oscilloscope/6000/picoscope-6000-overview Standard supply with it is four 10:1 500MHz probes. A very impressive test and review for this device Price is not given but a call to Emona Instruments on 1800 632 953 will give results for eager readers.
- P82 Review Solder Master ESM -50L Cordless iron. Retailing at \$369 for a hand held battery, non gas iron this would have toone of the most expensive irons around. Coming from Master Instruments it’s a 14.4V 3.45Ahj battery with a universal charger for the mains and a car unit for 12V. With 270 mins run time min it will charge from flat to full in a few hours but only need topping up charges for less than one half hour. Reviewed as perhaps being too hot for some jobs [480C] on lowest setting it was excellent on more heavier jobs. Supplied in nice padded clamshell case with all accessories.

- P90 UT-P 2016 MEMS Woofer. Just what is Micro Electrical Mechanical System and what does it really mean? In May 2020 the author wrote about a miniscule UTP 2017 MEMS Tweeter and what it sounded like. Now for the BASS responder.
The days of big wooden bass reflex speaker boxes are being challenged with these devices. While you cant take a pair of bass boxes on a walk you can have these items fitted into headphones, even ear buds but especially onto glasses and sunnies. While the USound market can provide ready spectacles at around US\$700 the ever ready Asian market has them now at \$75 and the sound effect is considered quite stunning. There is a spec sheet supplied here and shows the CDS-13138 SMT actual size mounted on a perf board matrix.



CONSTRUCTIONAL PROJECTS.

- P30 Telecom an intercom using analog phones. Here is a project [albeit a bit overkill] to use up that pile of old analogue telephones you have salted away as too good to junk just yet. It only runs two stations and if you are an old [sorry Bob & Robert] telephone tech you may wish tohook this up between house and shed just for nostalgic reasons or to hear that the Cadence ring tone is still working. For others there are more simpler and cheaper ways to have an intercom.

- P42 Two or Three way active Stereo cross over Part1. Using active Op amps for frequency determination of cut off frequency means wound inductors [coils] are now things of the past for crossovers and filter designs. This may appeal to a few to read and build.
- P64 Digital Touch screen Preamp and Tone another project for the audio person. control Part 2. This covers the construction and operation and uses a multi use TV style remote control pad to operate.
- P94 Vintage radio. Reinartz 4 valve reaction radio. Using 2.5V heater tubes [three off] and from the junk box the 57 and 47 as the original No 30 and 24A are rare today. The rectifier was four silicon diodes inside an old valve base instead of the old faithful 80 FW rectifier. An interesting return to radios early days with reaction/squegging tuned system.
- P103 Circuit Notebook.
1. Colour recognition uses LEDs and LDR.
 2. Battery charger with WiFi interface.

EVERYTHING ELSE.

- P108 Ask Silchip about problems with projects and receive some help and advice.
- P112 Errata quite large this month
 Sep2021 Tapped Horn Subwoofer.
 Sep2021 Touchscreen Digital Preamp Pt 1.
 Aug 2021 Battery Manager
 Aug 2021 Bush VTR103 Vintage radio.
 July 2021 SilChip Labs FM/AM radio
 Apr2020 7 Band Equaliser .
 May 2013 CLASSIC DAC

If you maintain library copies of this magazine it would be desirable that you make a note on each affected magazines index and direct reader to this page for mods. Ideally a “Cut and Paste” amendment from photo copy sheet would be better idea.

Thanks to VK3KG, Craig, for the Magazine reviews.

An article of interest to WSPR users clipped out of a recent news paper by VK3BNC, Bob.

