



BARG News

Ballarat Amateur Radio Group

Inc. #6953T

July

Monthly Newsletter

Next Meeting

Friday 26th @ 7:30pm

At the B.A.R.G. Club House, Ballarat Airport

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

2019 AGM – Presidents Report

Another successful year for the Ballarat Amateur Radio Group has drawn to a close. The club continues to be active in a broad range of Amateur Radio activities. Members have participated in the various field days and contests through the year. There's been interest in DMR, resulting in many of the members getting radios, making up hot spots, and recently starting a monthly Saturday DMR group at the club. DMR's a good example of the variety with in the hobby of amateur radio.

It's not just digital modes though. There's quite a few members who are pursuing microwave contacts, making the most of the UHF field days. And of course there's activity on the repeaters and HF too.

Through the year we've had presentations from VK3HRA on portable work, VK3ARM on the VKS-737 radio network, VK3TXR on Reverse Engineering For Radio Amateurs, as well as a range of other topics.

We also had the WIA presented, talking about the changes that the WIA and the hobby have been working through. At the time the the examination services had not long been moved away from the WIA, disappointingly despite having move 6 months ago, the new provider is still coming up to speed. Since then the ACMA has requested feedback on potentially very significant changes to the regulations for the Australian Amateur license holders. I know that all members will be watching this over the coming months and years.

The investments in equipment continue to pay dividends, with the capabilities of the Remote Base continuing to be expanded with the addition of a second tower to hold VHF and UHF yagi's which are currently being constructed as a Monday night project.

The club membership continues to evolve, with eight new members joining over the last 12 months, VK3LTL, VK3JF, VK3FEUG, VK3FITW, VK3ZAZ, VK3FHSJ, VK3FSPN and Greg Jacob with no call yet. We close the year with more than 60 members on the books, of which most are reasonably active.

The regular large events in the BARG calendar, the George Fowler Auction, the Hamvention and the more social activities like the Christmas Dinner continue to be well attended and successful.

I must thank the committee for their services through the year, in particular Doug, VK3DRE, for his services as secretary. And Ian, VK3AXH, for his work as treasurer.

Thank you to all the members. The club is only as good as we make it. We're fortunate to be part of an active group with a broad range of skills and interests.

73

Malcolm, VK3OAK



VHF and above for July 2019

With the winter weather there has been a mixed bag of propagation conditions over the past month. The usual group of regulars continue to be heard on the lower end of 2mx and if propagation allows then the higher bands are tried.

This past month has seen the Winter Field Day come and go with some participation from local stations VK3LTL, VK3AIG and VK3AXH all operating from home. Andrew VK3LTL achieved a fairly good score and was right up there in terms of points scored.....well done Andrew.

Also this month we have seen additional activity on the SSB end of 2mx with Bernard VK3FITW using a 5 element yagi making some contacts. Given the power levels he has been able to contact VK5TN in Mt Gambier which is a great achievement. Eugene VK3FEUG has also made an appearance and with the completion of his club project antenna will also be making noises on this part of the band.

On Wednesday last David VK3KQT was heard also using the 8 element 2mx LFA antenna on the 144.150 Wednesday night net and receiving good reports so well done David.

Some of the Melbourne microwave group are looking to have a test day prior to the Spring Field Day so watch this space for info on likely dates and times.

Three members of BARG VK3KG, VK3KQT and VK3AXH attended the annual GippsTech Conference at Churchill run by the Eastern Zone AR Club where there were approx 110 attendees from all over VK. This event is a forum where amateurs present technical information about their experiences in the VHF/UHF and Microwave Bands.

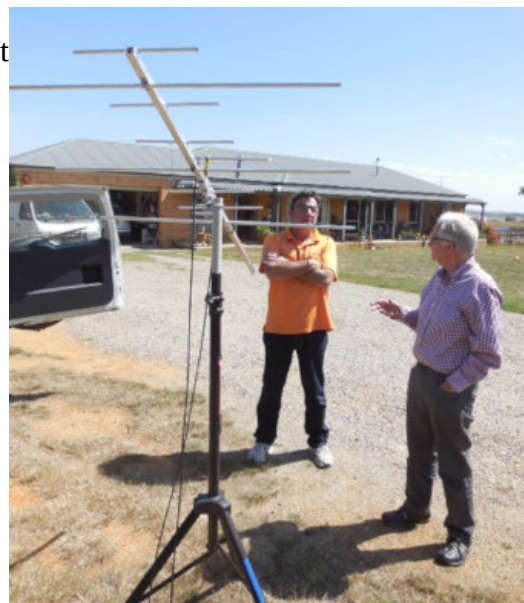
We have amongst our ranks some very clever amateurs and we are always amazed at the achievements being made. There is a trend to get the microwave enthusiasts to embrace 122 GHz where considerable advancements have been made over the past year.

Rex VK7MO gave an excellent presentation of how the world distance record EME was achieved on 10GHz from New Zealand to England and the challenges involved most of which was the very small window of opportunity to get the result.

Remember if you have something that's of interest in this area of our hobby please drop be me a note or direct to the Editor.

Till next time 73....VK3AXH

VK3CWF and VK3AXH with a satellite tracking system earlier this year



EDUCATION:

- P10 Kids coding.
- P54 Exploring 3D



PROJECTS:

- P27 Part 2. Slap shot ! DIY Air Hockey.
- P46 Part 2. Google assistant.
- P67 Two Way communication with LoRa.
- P82 Kids Basics
- P4 Editors More Mainstream Makers.
- P8 Moon Shots, Government subsidies. For electronic vehicles.

VK3BML club station of Ballarat Amateur Radio Group.

HF NET: Every Thursday Night at 8 pm on 3.608 MHz - VK3BML

DATE	OPERATOR	NAME	ALTERNATIVE OP.	
25-Jul-19	VK3AXH	Ian	VK3GGG	Mick
1-Aug-19	VK3TXR	Paul	VK3EXE	Chris
8-Aug-19	VK3GGG	Mick	VK3KQT	David
15-Aug-19	VK3EXE	Chris	VK3DRE	Doug
22-Aug-19	VK3KQT	David	VK3AXH	Ian
29-Aug-19	VK3DRE	Doug	VK3TXR	Paul
5-Sep-19	VK3AXH	Ian	VK3GGG	Mick
12-Sep-19	VK3TXR	Paul	VK3EXE	Chris
19-Sep-19	VK3GGG	Mick	VK3KQT	David
26-Sep-19	VK3EXE	Chris	VK3DRE	Doug
3-Oct-19	VK3KQT	David	VK3AXH	Ian
10-Oct-19	VK3DRE	Doug	VK3TXR	Paul
17-Oct-19	VK3AXH	Ian	VK3GGG	Mick
24-Oct-19	VK3 TXR	Paul	VK3ESE	Chris
31-Oct-19	VK3GGG	Mick	VK3KQT	David
7-Nov-19	VK3EXE	Chris	VK3DRE	Doug
14-Nov-19	VK3KQT	David	VK3AXH	Ian
21-Nov-19	VK3DRE	Doug	VK3TXR	Paul
28-Nov-19	VK3AXH	Ian	VK3GGG	Mick
5-Dec-19	VK3TXR	Paul	VK3EXE	Chris
12-Dec-19	VK3GGG	Mick	VK3KQT	David
19-Dec-19	VK3EXE	Chris	VK3DRE	Doug
26-Dec-19	VK3KQT	David	VK3AXH	Ian
2-Jan-20	VK3DRE	Doug	VK3TXR	Paul
9-Jan	VK3AXH	Ian	VK3GGG	Mick
16-Jan-20	VK3TXR	Paul	VK3EXE	Chris
23-Jan-20	VK3GGG	Mick	VK3KQT	David
30-Jan-20	VK3EXE	Chris	VK3DRE	Doug
6-Feb-20	VK3KQT	David	VK3AXH	Ian

8. SILICON CHIP REVIEW. AUGUST 2019

FEATURES AND REVIEWS.

- P14 Fluid Logic. Fluidics & Microfluidics.
- P27 We visit the new “Maker hub” concept by Jaycar.
- P42 Canberra’s Vintage Radio “Megafest”
- P68 First Look: the new Raspberry Pi 4B.
- P78 Quantum-dot Cellular Automata.

CONSTRUCTIONAL PROJECTS.

- P30 Micromite LCD Backpack Ver 3.0
- P48 “HEY ! The sign says NO JUNK MAIL”
- P70 Radio Head unit Dimmer Adaptor.
- P84 Discrete Logic Random Number Generator.

YOUR FAVOURITE COLUMNS.

- P62 Servicemans Log. Remaking guitar FX pedal.
- P90 Circuit Note Book. Five various circuits.
- P96 Vintage Radio. 1924 RCA AR-812 Superhet.

EVERYTHING ELSE.

- | | | | |
|------|---------------------|------|--------------------|
| P2 | Editorial | P106 | Ask Silicon Chip |
| P4 | Mailbag & Feedback. | P111 | Market Centre. |
| P61 | Product showcase. | P112 | Advertising Index. |
| P104 | Online Shop. | P112 | Notes and Errata |

Club Library

The club library has an excellent selection of technical books and magazines. Unfortunately we have some material that doesn’t seem to have been signed out and has not yet been returned.

Currently missing are the follow editions of QST magazine. If you have these can you please return them soon.

- 2012 NOV .
- 2017 AUG & SEPT.
- 2018 MAR, MAY, JUNE, JULY.
- 2019 FEB & MARCH.

REVIEW OF QST Magazine for JUNE 2019.

- P9 The second Century. Field Day thoughts from the CEO WB2ITX.
- P13 Member Spotlight Christian Cudnik, K0STH.
- P24 Correspondence Letters.
- P30 Compact 20M vertical dipole for Stealth and Portable operations.
- P33 A mini Antenna for 630 Metres.
- P37 A 3D Printed Fixture simplifies Ground Plane antenna Construction.
- P39 HF Magnetic Loop for 80 thru 20Meters.
- P43 Double topped Flagpole Antenna. 80 to 10M less 30M.
- P47 Review: Kenwood TS-890S HF and 6M Transceiver.
- P55 Review: SharkRF open SPOT2 Multimode Digital Hotspot.
- P57 Review: Precise RF-HG-1 Magnetic Loop Antenna.
- P60 The Doctor: Answers Q on current drawings, Antenna/coax runs, ground mounted verticals.
- P62 Hints & Hacks. Ext speakers for Fd day, Antenna sleeves for HTT's, Battery pack holders and protect your ant support rope from wildlife.
- P65 Close up and see crimp style coax connectors.
- P66 Eclectic Technology looks at ARM radio for SDR.
- P67 Amateurs supporting public activity functions, Carriage driving.
- P70 Kids day at the Outfitters. June 15th activities.
- P73 24th Scouts Jamboree. Scout Mondial North America. July 22 to August 1.
- P74 Electric Power Vehicle for ARRL Field day
- P78 QEX Morse Input Design challenge.
- P79 Happenings around. New Volunteer program.
- P80 Defence dept using WWV/WWVH for announcing military communications exercises.
- Former astronaut Owen Garriott W5LFL died 15 April.
- P82 Public Service: The Cornerstone Exercises.
- p84 Classic Radio: The Hallicrafters S-76 Receiver. 535kHz-1.58MHz & 1.720-32MHz. and produced from 1961-1954 with a double conversion IF to 50kHz. Model continued with the SX101 and the SX-117. A collectors dream radio.
- P90 Nine element vertical on 160M.
- P93 How's DX? The South Orkney Islands. Not the ones off Scotland though.!
- P95 World above 50 MHz. The Quiet Sun roared. A C4 solar flare on March 24.
- P102 100, 50 and 25 years ago in QST.
- P142 QST Index of Advertisers.



Until next month. 73.

Craig, VK3KG

2019 GIPPSTECH

The 2019 GIPPSTECH was held at Morwell on the 13/14 July and there were three members from the BARG club attended. They were Ian VK3AXH, David VK3KQT and myself Craig VK3KG.

Departing from Ballarat on the Friday afternoon together we arrived at Morwell motel to settle in and meet people as they arrived at the local hotel for dinner. This is the way every year starts as people arrive from all over the country and some years from overseas.

The actual sessions are held in the university theatre at nearby Churchill. This year it wasn't as cold as some years and there wasn't that over spread of fog to be found mixed with smoke from the boiler houses of the power generators.

This year the presentations covered a range of topics that covered a reasonable spectrum of interest for V/UHFers, Microwaves, Moonbouncers and those with an interest in the control of antennas for accurate location of stations. Time and its correction took the floor as well.

Topics in order of listings were:-

Epic VK Microwave DXpedition. VK5Q.

Repeater VK4RBB is now mixing it up. Peter VK4EA.

An automatic satellite ground station for satellite telemetry by Dale VK1DSH.

Using the ZLPLL to GPS lock a white box transverter. Justin VK7TW

The LEAP second and status of UTC. By Peter VK2EMR.

Extending the 10GHz EME world record by Rex VK7MO.

Are we there yet? [refers to the solar cycle rise. Roger VK2ZRH.

The K3NG based AZ/EL GPS rotator for 10 GHz EME. Justin VK7TW

GPS Disciplined Freq Reference- Traps for Young and not so young players by George VK4AMG.

IC9700 Instability problem solving. Glenn VK1XX

Grid Squares by Wayne VK5APN

[The Eastern Zone club](http://www.vk3bez.org/gippstech.html) produces book copies of each year's presentation including pictures, graphs and other data presented by each author and these can be purchased with a CD ROM from the club. <http://www.vk3bez.org/gippstech.html>

Look up the club's web page if interested in back copies.

Craig, VK3KG

PROPOSED CHANGES TO AMATEUR LICENCE CONDITIONS

In June 2019 the Australian Communications and Media Authority (ACMA) issued a consultation paper seeking submissions from the Amateur Radio Service (ARS). The following is a summary based on my submission to ACMA, informed by my own experience, views, and those of other informed sources within the ARS, many of whom are privy to in-depth knowledge about these matters. President Mal requested this brief to assist and encourage others to make a submission to ACMA by 9 August 2019, which I endorse.

What is clear from the paper and discussions with ACMA is it is looking for cost reductions. The ARS costs ACMA more to administer than it receives in licence fee revenue. If full cost recovery were to be applied, I expect our licence fees would be in the order of several hundred dollars per annum. Radio amateurs should be mindful of this when writing submissions.

The following should be read after inwardly digesting the paper, available at

www.acma.gov.au/theACMA/proposed-changes-to-amateur-licence-conditions

Peak Bodies

The Wireless Institute of Australia (WIA), the longest established ARS peak body in the world, is Australia's sole representative to the International Amateur Radio Union (IARU), which is affiliated with the International Telecommunication Union (ITU) that is a United Nations body. The WIA manages a wide range of matters for the ARS domestically and internationally. It is currently expending considerable resources to provide representation at the World Radiocommunication Conference 2019 where such things as the French proposal to share the two metre band with the aeronautical mobile service will be raised, and opposed by ARS peak bodies present.

The WIA provides a full suite of services to its members for fees ranging from \$35-\$95 per annum. On the other hand, the Radio Amateur Society of Australia (RASA) cherry picks a handful of issues and claims to represent an unaudited or verified number of financial members for \$8 per year. It is notable that many of ACMA's proposals align with WIA recommendations, but are opposed by RASA.

From a political stance, the ARS in Australia (some 15,000 licences in a population of approximately 25B people) is a mere dust speck on government RADAR screens. Splitting representation of the ARS in Australia merely dilutes our impact to retain conditions and effect positive change while creating an issue for ACMA. Governments prefer to deal with a representative peak body rather than disparate groups and prefer not to play the role of umpire where differences of opinions are extant.

REALLOCATION OF THE 3.6 GHZ BAND

I have chosen to support the view of the WIA on this matter. Not being active on the band I am not able to offer anything worthwhile to this discussion. Others within BARG may be in a better position to comment. The WIA are well placed to deal with this matter and have volunteers well versed in investigating frequency allocations tables and conditions, dissecting these and writing responses for a government audience.

ALTERNATIVE APPROACHES TO QUALIFICATION

The ARS is a hobby. Writing as an experienced and tertiary qualified vocational education and training practitioner I see little, if any value in having ARS qualifications shackled to the Australian Qualification Framework or under the arduous administrative platform of the Australian Quality Training Framework. The WIA lost out to the Australian Maritime College (AMC) that was awarded the contract by ACMA to deliver ARS exams and manage callsigns significantly, it appears, due to AMC being a Registered Training Organisation (RTO), which the WIA is not nor would I support it becoming one.

The AMC case appears to have been supported by RASA. The two AMC ‘advisors’ are Glenn Duncan VK4DU and Andrew Smith VK6AS, both of whom are RASA officials and founders. I understand that both are compensated for their roles. AMC charges are significantly higher than those being previously charged by the WIA, the number of certificates of proficiencies issues is considerably less than for the same period last year, and AMC is having difficulty attracting invigilators resulting in many parts of Australia not having ready access to ARS exam services.

ASSESSMENT OF REQUESTS FROM THE AMATEUR COMMUNITY

There is a strong case to give Foundation Licence (FL) holders access to digital modes. There was a rationale behind not doing so when the FL was established, however matters have progressed and it is timely that this be reviewed. FL should have a three letter callsign in an exclusive block, which should not be in the QAA-QZZ block. An alternative approach could be to use a different prefix for FL within prefixes the ITU allocates to Australia. I support FL being able to assemble transmitters from commercially available kits and use these on-air. I do not support access to additional bands for FL and Standard Licensee. There needs to remain some incentive to upgrade to Advanced Licence standard.

I am of the view that power levels should be adjusted as follows: FL 50w PEP; Standard Licence 400w PEP; Advanced Licence 1.5kW PEP. To suggest that 1.5kW is excessive is to also suggest that RF energy in Australia is more dangerous than it is in other countries that have the privilege of such a power level. Is ACMA suggesting the governments of New Zealand and USA, for example, are not concerned about the health and welfare of their citizens by permitting radio amateurs in these countries from using such a power level?

During the 1kW power trial in 2013 my then neighbour in Ballan (former QTH) complained to ACMA about TVI (of which I was totally absolved, and he was advised to replace his outdated TV antenna and masthead preamplifier) I spent an entire afternoon with two ACMA field officers testing my equipment and that of the complainant. During that time, it became plain to me, based on blatant advice from the field officers, that the trial would not continue nor would the 1kW power limit remain extant as ACMA did not have the resources to deal with what it anticipated would be a rise in EMI complaints from consumers.

This, based on other information, suggests to me that the EMR hazard concerns of ACMA, while having some legitimacy, was of far less concern than its lack of budget to employ sufficient staff to deal with what it saw as a flood of complaints by consumers.

I understand there are several extant services within the 5MHz band in the allocation some in the ARS are seeking that would prove problematic to both ACMA and the commercial services affected. While I support, in principle, an allocation that aligns with other countries that have access to this band, I realise this is unlikely in Australia in the medium term. The other issue is the 15w ERP power limit. How many amateurs understand how to correctly calculate this power limit? I expect I could count them on one hand, relatively.

REQUESTS MANAGED UNDER THE ACMA’S FIVE YEAR SPECTRUM OUTLOOK

While supporting a four metre ARS allocation I think that a segment from 70.050 – 70.150MHz is more realistic as I understand there is only one service in that frequency range that is open to an approach to relocate to an alternative frequency. As there is no commercially made ARS gear available for this band it would encourage home brewing. Wide band modes should not be permitted.

I support the extension of the 3776–3800 kHz DX window to above 3800 kHz to align with other developed countries with access to this part of the 80M band. I also support 50–52 MHz being a primary amateur allocation in the Australian radiofrequency spectrum plan and expansion of the 160M band from 1800–1875 kHz up to 2000 kHz.

AMATEUR LICENSING ARRANGEMENTS

The extant three level arrangement is cumbersome. My preference is to move to a two-level arrangement with retention of the FL with expanded privileges as articulated above. Merge the Standard and Advanced Licences into one. Currently, the differences between the two are widely considered to be minimal.

The New Zealand licence appears to be an excellent one to model on or indeed replicate except for making it the only licence grade in Australia. The FL has proven to have much merit and must be retained in an updated and relevant format.

Options to Minimise Transaction Costs Faced by Licensees (and ACMA): Consider a ten year licence with an application fee.

Consider adopting the USA licencing and assessment system in its entirety. It works; is effective; has high quality online study options in addition to hard copy materials; is highly cost effective with costs to the consumer lower than can ever be achieved in Australia due to the size of the USA market; assessments are available online by accredited assessors globally; USA qualifications are globally recognised sans CEPT or HAREC; would reduce costs to ACMA, candidates and licensees, instead leveraging off one of the largest ARS markets in the world with commensurate cost saving to all parties.

It is my understanding that Australia would not be the first country to adopt the USA ARS licencing and assessment system. Given that the Australian ARS population is about 15,000 vis-a-vis the USA with approximately 823,000, to my mind the case for utilising the system from such an ally as the USA makes compelling economic sense.

Self Regulation: I am opposed to the ARS being self regulated. I have seen too many examples of industries being self regulated. I am yet to see one where this occurs satisfactorily. How would the ARS being self regulated work in practice?

e.g. A rogue radio amateur is in consistent breach of the regulations using excessive power; breaching their licence class conditions; using offensive language; talking about subject matter inappropriate on ARS frequencies in breach of regulations. I understand such a case was dealt with, in a fashion, by ACMA in New South Wales recently.

Who does the regulating? Who does the enforcing? How are the regulations to be enforced? By what legal authority would the non-ACMA regulator enforce the regulations (law)? Would BARG establish a vigilante squad armed with baseball bats and cattle prods to dispense summary justice to offenders?

MAKING A SUBMISSION

I encourage BARG members to make a submission. The above is food for thought. Submissions can be posted online at the above link or mailed to The Manager, Spectrum Licensing Policy Section, Australian Communications and Media Authority, PO Box 78, Belconnen ACT 2616. I would urge members to copy the WIA on their submission for information.

73

Bruce Kendall

VK3WL