



# GATEWAY

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

## ***March 2014 From The President***

Those of you that came along to the prac night this month would have been exposed to some applications that microprocessors can be used for. Rob was displaying some simple programs that can be written and run in minutes to provide a visual alert for a given input. Albert has already displayed his talents for using microprocessors and last month's talk by Ian Jackson on the tire pressure monitoring and control system that he has designed shows what can be done with these tiny devices. I brought along some of my recently constructed projects to stimulate some discussion.

I know that other members have been busy at home making QRP transceivers and lots of other devices to have fun with amateur radio and related activity. There is a lot of expertise in the Club and we want to encourage all members to fire up their creative streaks to make your idea a reality. To get the ball rolling, the Committee would like you to bring along something you have built for a show and tell at the March GM.



*Bruno Tonizzo*

Rob, VK3BRS has offered to be a "Prac Night Facilitator" to help people get their projects started and to assist with any knowledge gaps that may pop up during construction. The Committee endorsed Robs initiative and values his offer of assistance.

Please listen out for me on 145.450 MHz via echo link as I will be away and will miss the March and April Club meetings. See you when I get back.

*Bruno VK3BFT*

# **CONTENTS**

<i>Around the traps</i>	<b>3</b>
<i>Space Invaders</i>	<b>4-5</b>
<i>Lightning In The Shack</i>	<b>6-7</b>
<i>February General Meeting Minutes</i>	<b>8-9</b>
<i>Club Information</i>	<b>10</b>

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## **Event Queue from March 2014**

March 21<sup>st</sup> – Friday Night. General Meeting at the Guide Hall  
From 2000hrs Show us your Projects

April 4<sup>th</sup> – Friday Night. Prac Night at the Club Shack  
From 1930hrs

April 11<sup>th</sup> – Friday Night. General Meeting at the Guide Hall  
From 2000hrs No Talk meeting followed by our AGM

April 11<sup>th</sup> – 13<sup>th</sup> Fri-Sun. PR4 Amateur Radio Expo  
WIA Promotion Expo for the Growth of Amateur Radio

April 25<sup>th</sup> – Friday . Anzac Day  
Try using AM & CW Modes used during the early days of Warfare

May 2<sup>nd</sup> – Friday Night. Prac Night at the Club Shack  
From 1930hrs

May 16<sup>th</sup> – Friday Night. General Meeting at the Guide Hall  
From 2000hrs Talk to be Announced

## Around the Traps



*Ron VK3FRDL took this photo of the Mt Matlock Tower While Camping in the Area*



*Hard at Work On the IRLP Computer*



*IRLP Node Computer*

## General Meeting Guest Speakers

We are always on the look out for people within the club or outside of the club to give a talk at our General meetings. If you have a talk you can give or know of someone that is in to a particular area of Ham radio or electronics that would be willing to give a talk please see a member of the committee to help arrange this.

**Thanks from the Committee.**

# Space Invaders

## When Electronics attack the neighbour

A federal agent who shows up unannounced at a building along a Texas highway might be looking for any number of things: illicit drugs or immigration violations, say, or illegal firearms. Or fluorescent lights. The lights were violating communications regulations.

The agent had used signal-tracking equipment to home in on the offenders and told the owner, Ronald Bethany, that his lights interfered with a mobile phone tower. This violated Federal laws protecting the licensed air waves. The agent determined. Mr. Bethany didn't have a license to operate on that frequency, the FCC agent told him his fixtures needed to go.

"I told them 'OK, but who is going to pay for this?' " Mr. Bethany says. "I've got to use the lights."

The mixed signals aren't always so weighty. In recent years, the FCC has issued warning letters directing people to stop operating cordless phones, television sets and wireless cameras. The FCC can demand fines up to \$16,000 a day or \$112,500 an incident from people who aren't FCC licensees. Offenders usually rectify problems, the FCC says, often working them out with whomever is complaining.

Managing the radio spectrum "has been part of our core mission since the inception of the FCC in 1934," says Julius Knapp, head of the agency's Office of Engineering and Technology. Most anything electrical can violate. "Incidental radiators," in FCC lingo, are devices like electric motors that aren't built to generate radio signals but do anyway. "Unintentional radiators" are designed to generate signals within devices like computers but aren't supposed to broadcast. "Intentional radiators" like cordless phones can transgress when they transmit outside intended frequencies.



Agents arrived at Shelton's Auto Lube and Auto Wash in Fortuna, Calif., in 2008 looking for signals disrupting AM broadcasts. They traced them to Shelton's car wash equipment. "I didn't know anyone listened to AM radio any more," says owner Odell Shelton. The FCC told him a driver complained about car-radio reception. It took a few days to find and fix the problem.

The government doesn't much care why interference happens. To the FCC, noise is noise.

In a 2013 letter, the FCC wrote to the owner of a plasma TV set after a ham-radio operator complained to the agency of interference. "Continued operation of the television," warned the letter, from which the TV owner's identification is redacted, "is not legal under FCC rules."

It doesn't matter how far bad signals extend. The FCC pressed Perfect Fit Industries into a consent decree in which the Charlotte, N.C., bedding maker agreed to develop a compliance plan and pay a \$7,000 fine in 2005 after some of its electric blankets caused interference, FCC documents show. Perfect Fit didn't respond to inquiries. "Just because it doesn't go very far," says the FCC's Mr. Knapp, "doesn't mean that we don't need to fix it."



Ham-radio operators are a frequent source of complaints. A 2012 FCC letter told a resident to stop using a well pump that conflicted with amateur-radio frequencies. A 2009 letter warned an Animal Sanctuary, that its electric fence was causing interference for a ham-radio operator and noted it had been warned before.

"We didn't want our rambunctious, dark-colored, 2,000-pound steers pushing down the fence, wandering onto the adjacent state road and causing a deadly accident," says sanctuary co-founder Doug Abel. "Right next door, our ham-radio-loving neighbor has a 60-foot high antenna that would allegedly pick up a clicking sound from our fence." He installed hardware to damp the signals.

Private signal sleuths, too, hunt down errant emissions. Radio hobbyist Tom Thompson of Boulder, Colo., last year tracked a signal using a home made contraption. After knocking on the suspects door, he traced it to ballasts on marijuana grow-room lights. He says he built a filter that the grower agreed to use. Ballasts are frequent offenders. Makers of the components, which regulate electricity to bulbs, test them for FCC compliance. Some interfere anyway.

# Lightning in the Shack

I had a lightning strike in my vicinity a few weeks ago I sat down to analyse what had happened to cause damage to my equipment. The strike was close in to my QTH but it did not hit power lines as there was no interruption to the power supply, not even a flicker of the lights.

The strike was close enough to cause my hairs to stand up a fraction of a second before the strike occurred. Maybe 500ms later the strike occurred. Testing by scientists have detected induced surge in power lines and antennas in the order of 1 to 2 KV at up to 3 kilometres from the strike.

Obviously there was not a direct strike to my antenna system as much more damage would have occurred and I would most likely not be typing this as I was in the shack and would have been at the short end of a very high voltage surge.

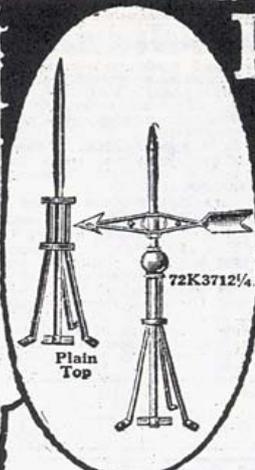


So failed equipment consisted of a fried Voice over Internet (VOIP) phone adaptor located inside as well as my cordless phone wont ring but still makes outgoing calls, my 8 port switch for the shack was running really slow and dropping in and out and my audio mixing desk let out some of the magic smoke. I say some as there are multiple audio paths in the mixer and some work and some don't.

Okay so the mixing desk fried one side of the cross-fader, that's where the smoke got out, some of the LED VU meters have blown LED's some have LED's stuck on and the VU meter for the strip that the 70cm and 2mt rig was connected to is completely dead. Also the fader for that strip is really scratchy now, it wasn't noisy before the strike.

The cross fader channel A is the one that the rigs fed through and the other side B was PC and TV, so it looks like my Dual band vertical for 2 and 70 picked up induced current from the proximity of the strike. This came down the feed-line to the rigs that are 13.8VDC and are connected to a floating power supply with 400 amps worth of lead acid batteries on the supply.

# Protect Your Buildings Before Lightning Strikes



**Why risk loss of life or property by lightning when you can obtain this protection at so low a cost?**

**Lightning causes more loss by fire on the farm than any other agency, yet practically all fires caused by lightning could be avoided by the use of lightning rods properly installed.**

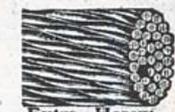
**Anyone can easily put up his own outfit.** No expert needed. Our lightning rods are made of pure copper wires woven in a manner to give fullest electrical carrying capacity. Copper tube uprights are seamless, full No. 20 gauge with point and lower coupling complete.

**Our standard cable is suitable for small farm buildings or residences, but for larger buildings requiring three or more groundings, and in sections where storms are especially severe the use of heavy and extra heavy cables is advised.**

**Prices of cable include copper clips, nails and connectors.** In ordering state whether connectors are wanted for branch line or to connect two straight lines. Prices of cable do not include ornaments or tops. These are extra at prices shown. **All lightning rods and equipment shipped from our store.**



Standard



Extra Heavy

A complete lightning rod outfit, with cable and tops, weight, packed for shipment, from  $\frac{3}{4}$  to 1 pound to the foot.

<p><b>72K3700</b><math>\frac{1}{4}</math>—Standard Copper Cable, about <math>\frac{3}{8}</math> inch in diameter. Per foot.....<b>8c</b></p>	<p><b>72K3696</b><math>\frac{1}{4}</math>—Heavy Copper Cable, about <math>\frac{1}{2}</math> inch in diameter. Per foot.....<b>9c</b></p>	<p><b>72K3695</b><math>\frac{1}{4}</math>—Extra Heavy Copper Cable, about <math>\frac{3}{8}</math> inch in diameter. Per foot.....<b>11c</b></p>
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<p><b>72K3718</b><math>\frac{1}{4}</math>—Complete Chimney Top, including supporting band and copper tube upright with coupling. We furnish a galvanized steel band with long draw bolt which encircles the chimney at top, and holds the copper tube upright firmly in place, close to the chimney—the approved method.</p> <p>6 feet high.....<b>\$1.30</b></p> <p>8 feet high.....<b>\$1.45</b></p> <p>10 feet high.....<b>1.75</b></p>	<p><b>72K3698</b><math>\frac{1}{4}</math>—Complete, plain top.....<b>\$1.10</b></p> <p><b>72K3702</b><math>\frac{1}{4}</math>—Complete top, with animal figure and glass ball. State figure, whether horse, cow, pig, sheep or rooster and color of ball, opal, blue, silver or gold.....<b>\$2.50</b></p> <p><b>72K3712</b><math>\frac{1}{4}</math>—Complete top, with arrow vane and glass ball. State color of glass ball.....<b>\$2.10</b></p>
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Now the surge needed to find the path of least resistance to earth and as it turned out this was via the audio leads to the mixer then via the mixing desk through the cross fader circuitry. Due to the multiple audio paths there was enough isolation to not completely destroy the mixer. I am guessing the induced voltage on the feed-line was in the order of a couple of hundred to maybe a kilovolt but that is solely based on the lack of total destruction of connected equipment as all the rigs still work.

Now why did the Ethernet switch Cordless phone and Voice over Internet (VOIP) phone adaptor fail if the strike was on the antenna system? Well the CAT6 Ethernet cable to the shack runs parallel with the 2mt/70cm feed-line for about 2-3 meters, so excess voltage appeared on the LAN via inductive coupling, the ATA's are prone to power surges as I have had quite a few fail over the years due to power fluctuations and the switch was also a cheap one.

So silly me I did not have a lightning arrestor fitted to my feed-lines which I will have to do, it may not protect all my gear from a full on strike to my antennas but would have certainly worked here by shunting the excess voltage to earth before it got to the audio desk. So all in all I lost an \$800 mixing desk, a \$50 VOIP ATA and a \$50 8 port switch, how much is a lightning arrestor? A lot less I am guessing....

Mark VK3PKT

# **General Meeting 21<sup>st</sup> February 2014**

**Location:** Guide Hall Cranbourne  
**Start Time:** Meeting commenced at 2000 hrs.  
**Chairperson:** Bruno VK3BFT  
**Minutes taken:** Graeme VK3BXG  
**Present and Guests:** As per attendance sheet.  
**Apologies:** As per attendance sheet

**Correspondence in:-** Shire of Casey Re. a fund-raising workshop on Thursday 27<sup>th</sup> February Robert Broomhead WIA re pr4 amateur radio weekend activation in April. Moorabbin & District Radio Club re a SOTA activation this weekend Saturday 22<sup>nd</sup> February. NERG news (e-mail) link. EMDRC news letter. Rotarua email news letter. ACMA for the VK3RDD renewal.

**Correspondence out:-** None

**Treasurers Report:-** The books are done on the 15<sup>th</sup> of the month. The Bendigo Investment account is at \$9,612.44; Bendigo cheque account \$2161.76 and the Quickbooks balance also at \$2161.76 Total income for the month was \$2.21 whereas expenses were \$473.84 making a loss of \$471.63 for the month. Moved Ian VK3BUF, seconded Russ, VK3MWR, all in favour, carried.

**Previous Meeting minutes** as per our January "Gateways" magazine distributed. Read over by Bruno VK3BFT accepted, seconded Mark VK3PKT, all in favour, carried.

## **Business from the Previous Minutes.**

**Repeater reports** by Albert VK3BQO that VK3RWD is working well – its total cost was \$1725.66 but it had a temporary problem of closing down when hot. The voltage was down on the very hot days so the trickle charge may not be holding up and therefore will to be replaced on a trial basis. VK3RDD has been off air three times in six months for reasons unknown but nothing suspicious.

**John Moyle Field Day**, Bruno VK3BFT reports that weekend 15<sup>th</sup> March there is an invitation to a field day at Yea for those members who are interested.

**Barbeque**, Bruno reports that the new knobs melted and now looking for an alternative type of knob.

**Hamfest**, Bruno **VK3BFT** has volunteered as an interim coordinator but needs help for someone else to learn to be a coordinator.

Booking are coming in already with 58% booked in two days. Ian **VK3BUF** reports that table hire price has been raised from \$20 to \$22 to cover rising hall hire costs.

**IRLP**, Mark **VK3PKT** reports that the hardware has now been assembled and it works. All that now has to be done is for it to be configured at Steve's **VK3EGD** place.

## **New Business**

**New Barbeque** Russ **VK3MWR** suggested that a new one be purchased. Bruno stated the current one works well and all that was needed was heat resistant knobs. Ian **VK3BUF** reiterated that the current one is working well and has a large cooking area so should be repaired.

**Items for Discussion** - presented by Bruno **VK3BFT**.

(i) **WIA's "pr4ar"** public demonstrations being sought and ideas for discussion are needed.

(ii) **Guest speakers** being sought and are there any members with ideas?

(iii) **Weekends away** – Labour Day, Anzac Day, Queens Birthday weekend. Are there any ideas?

(iv) **Mid-year dinner** – a short list of venues may be an idea.

**Microwave Beacons** Rob **VK3BRS** inquired as to where they were and at what stage of repair. Bruno **VK3BFT** suggested a meeting next week with Rob, Phil **VK3VB** and himself.

Rob **VK3BRS** reported that the 1.2 Ghz beacon is "just" working, probably a problem with the antenna and this needs to be rebuilt reusing the material as much as possible.

**SOTA** Wayne **VK3XF** reports the invitation from Moorabbin Club for tomorrow 22<sup>nd</sup> February for the club to join in 10 am to 12 noon on 7.090 Mhz.

**Prac-night**, Rob **VK3BRS** asked as to if the club would be interested in running a prac-night with a facilitator and an objective, that is a prac-night with a project?

Discussion arose with consensus largely in favour of the idea.

Bruno suggested a start by building a 4:1 balun for example.

**Meeting closed at 0855pm.**

**Next General Meeting Friday 21<sup>st</sup> February.**

This evening's talk was by Ian **VK3BUF** on Tyre Inflation Systems.



## **Club Information**

Meetings 2000hrs on third Friday of the month at the Cranbourne  
Guide Grant Street Cranbourne

Prac nights first Friday in the Peter Pavey Clubrooms Cranbourne 1930hrs  
Visitors are always welcome to attend

### **Office bearers**

President	Bruno Tonizzo	VK3BFT	Repeater Officer	Albert Hubbard	VK3BQO
Admin Sec	Graeme Brown	VK3BXG	Web Master	Stephen Harding	VK3EGD
Treasurer	Ian Jackson	VK3BUF	Magazine Editor	Mark Clohesy	VK3PKT
General 1	Mark Clohesy	VK3PKT	Property Officer	Bruno Tonizzo	VK3BFT
General 2	Wayne Cooke	VK3XF	Secretary	Ian Jackson	VK3BUF

## **Call in Frequencies, Beacons and Repeaters**

- The Club Station **VK3BJA** operates from the Cranbourne Clubrooms.
  - 6m Repeater Cockatoo **VK3RDD** In 52.575, Out 53.575 CTCSS 91.5
- 70cm Repeater Cranbourne **VK3RLP** In 434.475 Out 439.475 CTCSS 123Hz  
**VK3RLP** Repeater supports Remote Internet access (IRLP) Node 6794.
- 70cm Repeater Drouin **VK3RWD** In 433.575 Out 438.575 CTCSS 91.5Hz
  - Simplex VHF - 145.450 MHz FM • Simplex UHF - 438.850 MHz FM
  - **VK3RLP** Beacons 1296.532 MHz & 2043.532 MHz

## **Membership Fee Schedule**

Standard Member rate \$40.00 Junior Member rate \$25.00

Pension Member rate \$25.00 Extra Family Member \$20.00

- Fees can be paid by EFT to **BSB 633000** - Account **146016746**.
  - Always identify your EFT payments.
- Membership Fee's Are Due at each April Annual General Meeting.

Magazine Articles to [editor@ggrec.org.au](mailto:editor@ggrec.org.au) or [pockets@twistedsouls.com](mailto:pockets@twistedsouls.com)

All other Club correspondence to: [secretary@ggrec.org.au](mailto:secretary@ggrec.org.au)

or via Snail Mail : PO Box 1098, Cranbourne 3977

GGREC Web Site & Archive may be viewed at: [www.ggrec.org.au](http://www.ggrec.org.au)

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