



Darling Downs Radio Club Inc.

Newsletter

Toowoomba April 2024

CLUB INFORMATION

Postal address: PO Box 3257

Toowoomba QLD 4350

Email address

secretary@ddrci.org.au

Web Site: www.ddrci.org.au

-EXECUTIVE COMMITTEE:

President Dougal Johnston
VK4EKA

Vice President: David Curry VK4SP

Secretary: Theo Moller VK4ESK

Treasurer: Wayne Richter VK4ARW

- STEERING COMMITTEE:

Sam Pascoe VK4SAM;
Cameron Scarvell VK4CSS;
Robert Hosking VK4FRH;
Bruce Boardman VK4MQ.

REPEATER COMMITTEE

Chairman Bruce Boardman VK4MQ

Members: Paul Stevens VK4CPS;

Cameron Scarvell VK4CSS;

Rod Webb VK4ZJ

Station Manager: Theo Moller

VK4ESK

2 Metre Net Convenor

Kevin Crandell VK4VKX

80 Metre Net Convenor

Theo Moller VK4ESK

CLUB MEETINGS:

2nd Monday of the month.

Start 7pm.

First half hour business matters, then
social meeting incl a lecture.

Meeting place:

Community Venues, Level 3 City

Library

Victoria St. Toowoomba

CLUB NETS:

80m on 3.650MHz, Saturday 7.30pm

2m on 146.750MHz VK4RDD

Sunday 10am

Other Regular Nets:

Monday: UHF Net on 438.025MHz
7.30pm

Tuesday: The new Horizons Net
on 147.050 MHz 7.30pm

Thursday: Scrub Turkey Net on
147.050MHz 7.30pm.

Friday: VK4 Friendship Net on
3.587MHz at 7.00pm



A note from the President

Summary of Management Meeting Minutes for March 2024

We had 11 present for the talk and management meeting, including John Maizels VK4JPM, who is moving to Toowoomba and has now joined us.

All the usual business was sorted (previous minutes confirmed, mail sorted and accounts checked), there is still over \$6000 available. Paying the club insurance and mailbox account will

drop that a little. The new antenna for the 2 metre repeater is still to be installed.

The DDRCi will be at the Danish Flower Farm for the John Moyle Memorial Field Day.

We will book a table at the REDFEST on 6th April, Warren will bring some of his Australian and New Zealand sounders and morse keys collection to display at the next Social/Tech talk after the 8th April Management Meeting.

Terry is looking to produce some new publicity leaflets, and Sam is willing to train a couple of members to help keep the Web Page active.

The next lunch is at the Southern Hotel on the 13th April.

Addendum: Five days later we had 3 bands active for the John Moyle Memorial Field Day !

Management Committee Meeting Minutes.

Monday, 11/03/2024 .

From Secretary Theo VK4ESK

OPENING: 7:02pm welcome all present.

ATTENDANCE: Dougal VK4EKA, Wayne VK4ARW, Rod VK4ZJ, Sam VK4SAM, Terry VK4KTP, Len VK4BLZ, Bernie VK4AWJ, Kevin VK4VKX, Bruce Boardman VK4 MQ, Dave Curry VK4SP,

APOLOGIES: Mark VK4AMS, Norman VK4LD, Theo VK4ESK, Philip Webb VK4AWP,

Cameron Scarvell VK4CSS, Alan Nuttley VK4AAN

VISITORS: John Maizels VK4TPM Welcome John

MINUTES: As circulated then shown at the meeting.

MOTION: That the Minutes of the 12th February 2024 meeting are a true and correct record. Moved: Dave
Seconded: Wayne. Carried.

Business from 12th February 2024 Minutes:

1) No further info on possible Andrew Chapman repeater at Mt England.

2) Len no thoughts on names for the DDRCi newsletter

3) Paul and Dougal will go to Red Fest. Motion: That DDRCi book a table at Red Fest.

Moved: Wayne Seconded: Sam Carried

CORRESPONDENCE: As per Mail Record for February 2024.

MOTION: That the Inwards be received and the Outwards endorsed.

Moved by: Dougal Seconded by: Dave. Carried

Business from correspondence: Club Insurance info received and a Quote requested.

DDRCi Mail Box Account received. ELECTIONS: NIL

FINANCIAL REPORT: Previous balance Income Expenses Final Balance

S21 \$ 1866.73 \$50.00 \$30.00 \$1886.73

S26 \$ 4471.03 \$12.26 \$4483.29

MOTION: That the Financial report be adopted, the Post Box account paid and the Club insurance when the Quote comes in be paid.

Moved: Wayne. Seconded: Rod. Carried

REPORTS: from committees & members: 2m repeater working.

Andrew Chapman's 10 metre repeater is working (29.680MHz a 123 Hz CTCSS needed)

Business from the reports:

Bruce will co-ordinate with Andrew re antenna installation at RDD

Next Social Tech Evening: 8th April. Warren to show sounder and morse keys,

For future meetings possible include Kit building, sounders? Emergency Services?

MEMBERSHIP APPLICATIONS. John Maizels filled in an application

Motion: John be accepted as a member

Moved: Dougal Seconded: Bruce Carried

GENERAL BUSINESS

1. Further discussed the John Moyle Field Day 2024.

Motion: The DDRCi operate with VK4WID at the Danish Flower Farm 16th March.

Moved: Dougal Seconded: Wayne Carried

2. Terry looking at the DDRCi publicity leaflets

3. Sam will try to add a couple more to the "able to edit" list for the webpage.

Dougal to try to put out a request for those interested for Sam to Tutor.

4. Next lunch 13th April at Southern Hotel.

Next Management Meeting 7:00pm 8th April 2024. Community Rooms Above

TRC Library Victoria St Toowoomba

CLOSING. 7:22 PM followed by a talk and video on antenna safety and quad antennas.

CLUB REPEATERS.

Both VHF and UHF repeaters are co-sited and have the same call identifier: **VK4RDD** 146.750 Mhz, negative offset, no access tone required; **VK4RDD** 439.275 Mhz, negative offset, 91.5 Hz, access tone required. **VK4WID** is the club's call sign for all nets on HF, VHF and UHF, as well as all contests. Please note that during contests which conflict with our regular net times, the contest has priority over the net in so far as the club call sign is concerned. The nets will then be conducted under the convener's call sign instead of **VK4WID**.

Education

If you would like to register for a Foundation License Course, or contest any of the exam levels available, please contact Steven Dudley who may be contacted:

steve@vk4fi.net.au
Mob0403 910 087,

or you may also contact Philip Webb from the Border Ranges Club via email philip01@scisat.com

Assistance

Assistance to those in need. This radio club offers assistance to those in need of physical work involved in the maintenance of their antennas etc. If you require assistance, please contact the club secretary via email on secretary@drci.org.au and we will organise your assistance.

Garden City Award.

The DDRC also has an award worthy of adorning the walls of your shack. This is the Garden City Award. Please check the web page for details.

Lithium-ion battery fires have become a major concern. The problem of thermal runaway and subsequent fire risk in batteries can be contained with the use of a recently developed self-extinguishing electrolyte.

A new type of rechargeable lithium battery replaces the highly combustible lithium salt- and organic solvent-based electrolyte fluid with a fluorinated liquid and a non-polar solvent commonly used in commercial fire extinguishers.

Researchers from Hunan University (China), Clemson University, Central South University (China) and Sun Yat-sen University (China) used a modified version of 3M's Novec 7300 non-flammable heat transfer and coolant fluid to construct self-extinguishing potassium-ion and lithium-ion batteries.

The re-engineered units were subjected to nail penetration tests, demonstrating their capacity to withstand such damage and prevent the occurrence of fire.

The modified electrolyte also performed well across a temperature range of -70° to +80° C, effectively transferring heat away from the batteries and dousing any internal fires that arose.

Potassium-metal batteries equipped with the electrolyte sustained cycling for more than 12 months, while lithium-ion cells retained a 96% capacity after cycling more than 200 times.

Source: New York City Fire Department

When the load of an antenna system does not match the source and the impedance is high, the load will not draw power from the source and high RF voltages will be present at the output of the final transistors.

In this case, high RF voltages can damage the output transistors of the transmitter. When the impedance of the load is low, too much of the power may be dissipated across the internal resistance of the transmitter possibly destroying the output transistors.

These are the two reasons why transceivers "fold back" their power when the SWR is high.

It is a myth that the dipole part of an antenna has to be resonant to be efficient.

When power reaches the radiating part of the antenna system, it obeys the "**The Law of Conservation of Energy.**" The Law of Conservation of Energy states, "**Energy can neither be created nor destroyed. Only its form can be changed.**" (What is important is to get the power to the dipole itself, because in some systems power is lost in the feed-line, especially when using coax with high SWR)

The miniscule amount of power in the dipole that does not radiate is changed into heat, another form of energy. Because the dipole part of an antenna system is made of conductors with low loss resistance, 99% or more of the power reaching it will radiate regardless of its length if that length is reasonable.

The loss resistance of the conductors of the radiating part of most antenna system is so low it can be ignored. (Short mobile HF antennas are an exception because they may be lossy because of the very high current flowing in them.)

The John Moyle 2024 fieldday was conducted by the Club at "**The Danish Flower Art**" farm near Highfield on the 16th of March. The Club took part in the 6 hour segment of the contest.



Wayne set up at one end of the field



All the comforts of home



Dougal and Sam busy operating from the other end of the field.

How does an inductor work?

Whenever an electric current travels through an inductor, energy is stored in the form of a magnetic field. It is based on the principles of electromagnetic induction, namely Faraday's law.

Let's get into details of how it works.

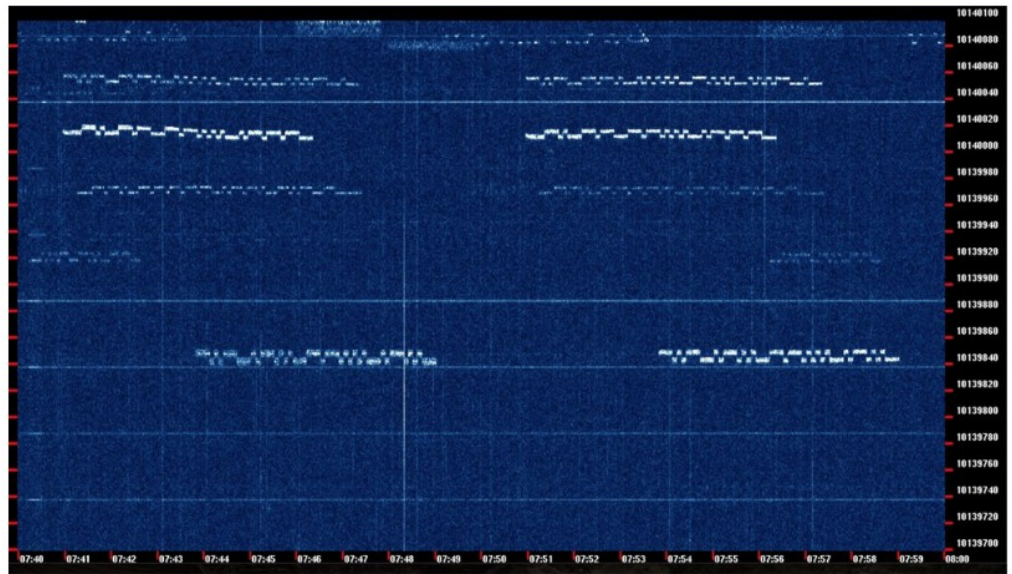
An **inductor** is a coil of wire that produces a magnetic field when an electric current travels through it. An electromotive force (EMF) or voltage is induced in a coil when the magnetic field around it changes, as stated by Faraday's law. At first, as the current begins to flow, a magnetic field is created around the coil. Current flow variations are met by resistance from the inductor. For as long as it can, the inductor will resist any rise in the rate of change of current as the magnetic field strengthens.

The **inductor** stores electrical energy in the form of magnetic energy within its coil. The amount of energy stored is proportional to the square of the current flowing through the inductor. Whenever there is a shift in the current passing through the inductor, the magnetic field weakens and induces a voltage in the opposite direction. When this induced voltage is applied in opposition to the resulting change in current, the stored energy is returned to the circuit. The rate at which an inductor responds to changes in current is characterized by its time constant. A larger inductance or a higher number of coil windings increases the time constant, making the inductor more resistant to rapid changes in current.

How does a capacitor work?

A **capacitor** is a crucial part of every electronic device because of its ability to store and release electrical charge. Electrostatics and the storage of electric charge are fundamental to its functioning. A capacitor has a pair of conducting plates separated by a layer of dielectric. Metal can be used for the plates, whereas ceramic, plastic or liquid electrolyte can be used for the dielectric. When a voltage is applied across the capacitor's terminals an electric field is generated between the capacitor's plates. One plate acquires a net positive charge as a result of electron repulsion. The other plate acquires a net negative charge as electrons are drawn to it from the first. A voltage is produced across a capacitor when its charges are separated.

The **capacitor** stores electrical energy in its electric field. The amount of stored energy is directly proportional to the applied voltage and the capacitance of the capacitor, which is a measure of its ability to store charge. The dielectric between the plates is quite important. The capacitor's ability to hold a charge for a long time is made possible by the insulation between the plates. Capacitance, voltage capacity and operating temperature range are only a few of the features of a capacitor that are affected by the dielectric. Capacitors store energy until they are connected into a circuit, at which point they discharge. An electric current is produced when electrons from the negatively charged plate travel across the circuit to the positively charged plate. The capacitor's discharge rate is proportional to the product of its capacitance and the circuit's resistance.



The SLOW life by Alan VK4AAN

It's a rainy afternoon here so there's a good excuse to check and see if I have any response to my last over with one of the Knights group of keen slow-speed Morse code warriors.

I started about two years ago displaying my callsign looking for a call-back. There have been several clear responses on the initial calling frequency on 30-meters and, like any normal QSO, there has been the to-and-fro of an involved contact – tweaking antennas, shifting frequency to avoid interference and even changing band when conditions have completely disappeared!

But I am happy to say that I now have four (4) confirmed contacts entirely using the QRSS mode! The average time to complete a contact is about 6 months, and I have quite a few that are yet to 'complete' even after 18 months – maybe I should give up on them?

Why so long to 'complete a contact'? Because the morse is sent at not just a slow speed, not even very slow speed, but blazingly SLOW speed – equivalent to around 0.2 to 0.3 words per minute. Oh! And there is another little wrinkle about QRSS – its generally accepted that high-power is anything above 10 milliWatts, and 100 milliWatts and above is only for Texans ('cos in Texas everything is BIGGER!).

This mode of transmitting is a challenge for the very patient but has a number of spin-offs I will chat about in due course. But this is just a quick introduction to this mostly unheard-of mode which also happens to be mostly unheard by amateurs.

At such low power levels, it is unusual to even hear the keying of the slow morse code, so to make it easier to find stations, international 'gentleman's agreement' has set aside the 200-400Hz immediately below the agreed WSPR (pronounced, 'whisper') allocations in each high-frequency band.

You would be very hard-pushed to 'read' QRSS signals by ear even if you could hear it so computer processing is used to retrieve the signals and allow decoding by eye from a graph of the slice of radio spectrum containing the signal(s). [I will have more about this in a later article]. Basically; audio from your receiver/transceiver is fed into the sound card of your computer and software processes it into a display of frequency vs. time.

The same core-software is used for any number of digital modes – WSPR and FT8 modes for instance – so if you use these modes you will immediately recognise the output from a QRSS programme.

Bearing in mind that sending your 6-character callsign in QRSS can take 5, 10, or 30-minutes depending on how slow you go, you are not under anything like the pressure of an FT8 contact (thank goodness for automatic QSO's in FT8, I hear you say).

So if you download an appropriate programme from the short list below, let it run for half an hour and see what picks up.

BUT: If you want to get a good picture of what signals are around, please load the following web site into your browser and have a look at what is being "seen" around the world.

While at this site, read the information pages about the QRSS Knights.

Until the next article, 73 de Alan VK4AAN

Software suitable for 'seeing' QRSS -

Linux – LOPORA - <https://www.qsl.net/pa2ohh/11lop.htm>

PC – FSKView - <https://sw Harden.com/software/FSKview/>

Faraday's law of induction (or simply Faraday's law) is a law of electromagnetism predicting how a magnetic field will interact with an electric circuit to produce an electromotive force (emf). This phenomenon, known as electromagnetic induction, is the fundamental operating principle of transformers, inductors, and many types of electric motors, generators and solenoids.

REDFEST: 2024

9:00am - Saturday 6th April
2024.

\$5 Admission.

Greetings from the Redcliffe & Districts
Radio Club VK4RC.

Right here in South East Queensland!
9:00am Saturday the 6th April. Please
mark the date in the calendar on your
mobile phone.

You'll find us at: St. Michael's College,
Caboolture. On the Bruce Highway,
take Exit 152, then Bribie Island Rd.
Turn left at the lights onto Old Toorbul
Point Rd.

St Michael's College is well sign posted
on the right. On site parking.

Catering: Breakfast is served from
8:00am.

Don't miss out on Doug's famous egg
and bacon roll. We'll have a new
speciality café open all morning,
with a tempting range of cakes, slices
and cookies. Served with tea, coffee and
soft drinks.

It'll be a good day out. We look forward
to seeing you.

Next meeting of Darling Downs Radio Club

Meeting and Talk 2nd Monday only
Management Committee Meeting

April 8th 2024 7:00 pm

Community Rooms Level 3

Toowoomba Library, Victoria St

If you have any matters to raise please

bring them to the attention of
the Management Committee

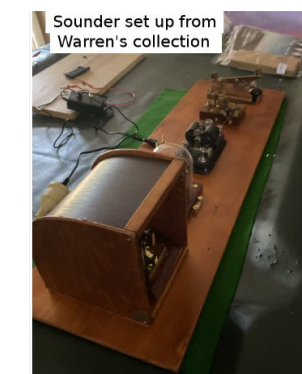
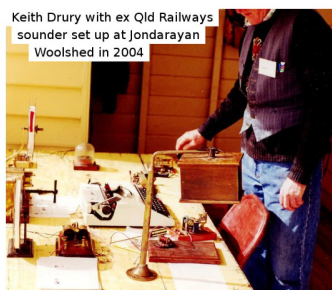
or Steering Committee members

Warren Fritz VK4FJ will display

Australian

and New Zealand sounders and

morse keys from his collection Can you
read Morse Code senon the sounder ?



Visiting the Club's 2m and 70cm repeater station. Burnie VK4AWJ and Len VK4BLZ with Rod VK4ZJ as our guide went and had a look at the Club repeater station. Very interesting to see how our precious words get picked up, treated and then send on to the ears of whoever is listening. Nice layout and well looked after by the Club members that are volunteering to keep the repeaters on air.

Extract from ACMA's newsletter "Engage" N° 140.

High-Power Amateur Radio Operation

In September 2022, we consulted on a proposal for a staged implementation of high-power authorisation for amateur radio. That is, implementing scientific licensing for amateur high-power experimentation, and, in the medium-term, considering the establishment of a mechanism by which high-power use-cases, not enabled under scientific licensing, can be authorised.

In March 2023, in the draft FYSO 2023–28 we noted our intention to publish information to support the use of scientific-licensing arrangements for advanced amateur higher-power experimentation (from 1 July 2023). The Scientific apparatus licences: Guidelines, were published in late August 2023 and include information to support the consideration of applications for assigned scientific licences to authorise certain higher-power experimentation uses by amateurs.

The guidelines aim to assist applicants understand the matters we will take into account when assessing an application and the type of information that should accompany an application. In August 2023, we also released the response to submissions to the September 2022 consultation, which reiterated that amateur operators may apply for assigned scientific licences for certain experimentation uses, including for activities such as reflecting signals from a celestial body, and inter-continental ionospheric and trans-equatorial propagation experiments. It also outlined that we intend to work through mechanisms and arrangements that could be put in place for a medium-term high-power authorisation, and would communicate next key milestones and proposed timing in the draft FYSO 2024–29.

Activities planned for 2024–25

Due to competing priorities and a suitable scientific licensing pathway being in place for high-power operation by amateurs, we do not plan to consult on the medium-term proposal in 2024–25. We will update consultation timings in a future FYSO

Assigned amateur beacons and repeaters

Submissions to the review of non-assigned amateur and outpost licensing arrangements noted that the assigned amateur beacon and repeater licensing process could be streamlined. Currently, applicants are required to obtain a letter of endorsement from the Wireless Institute of Australia before approaching an accredited person or applying for their licences directly through the ACMA. This requirement can introduce delays to the licensing process.

To improve the transparency of technical coordination arrangements that underpin the licensing of assigned amateur beacon and repeater apparatus licences, we plan to publish technical guidance material for coordination and licensing of amateur beacons and repeaters.

Activities planned for 2024–25

In Q2 2024, we plan to consult on this amateur beacon and repeater guidance with amateur operators and Accredited Persons.

Following consideration of consultation feedback, we plan to finalise and publish the technical guidance material for coordination and licensing of amateur beacons and repeaters in Q4 2024.