Darling Downs Radio Club Inc.
Newsletter

September 2023

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:VK4SP David Curry
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, Saturday7.30pm
2m on 146.750MHz Toowoomba Repeater. Sunday 10am

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Another net operating in the area:
The Scrub Turkey Net is conducted on the South East Queensland – Area Wide Network (SEQ AWN), and coordinated by Merv, **VK4EM.**
Time: 7:30 pm. every Thursday on 147.050Mhz

Presidents Report 2022/2023 AGM

The Darling Downs Radio Club Incorporated has its AGM to organise its activities for the coming year. This brings members together to report on the 2022 to 2023 activities and to find some members to carry on the next year of activities.
As an Incorporated Association we must report to the Justice Department that the club is financially sound and we have a Management Committee for the year. The Treasurer will be able to report we are financially sound.
This year the DDRCi has held its regular Social/Technical sessions, and VK4WIDparticipated in the John Moyle Memorial Field Day.
The Social/Technical monthly gatherings have kept us in touch and encouraged people, some local and further afield, to join the club.
With the easing of COVid restrictions attendance has increased and coffee and tea should be available for a chat after talks.
The club is always looking for more speakers, and for members willing to organise other activities. Wayne has regularly been a good help with setting up for the John Moyle Memorial Field Day with Bruce, Paul and Sam and more helping.
While there are a few new Amateurs in the area most have studied and obtained their licence with either the Radio Electronics School on-line or through the Border Ranges Club Assessors. It would be good to have someone in or near Toowoomba step up to become an Assessor now the ACMA are to take over the exam process.
Input from members for any of the club positions at the AGM or elsewhere who are willing to assist would be appreciated.
I hope the Club can keep the regular activities going, and perhaps help add some publicity for Amateur Radio and perhaps help organise training for potential new or upgrading Amateurs.
Dougal Johnston President

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DDRCI 2023 AGM – Secretary's Report

I commence this report with the acknowledgement of the helpfulness and practical assistance from our President and Treasurer.
Without your help and support my meagre effort would not have been of benefit to the club.The Darling Downs Radio Club Inc. is in a great position where both membership and finances are quite stable. This is due in no small part to all those who have renewed their membership, and we hereby acknowledge your part. The meetings have been well attended, and the subjects for the social and technical aspect have been varied and interesting.
Of note was Bruce Boardman's presentation on what is involved in tracking weather balloons and recovering the sondes. The inclusion of his own trip to the Giles weather station, with accompanying photos and samples, made the evening very interesting.
Our social lunches have resumed, and although numbers were rather tentative initially, our last lunch saw 9 in attendance at the Blue Mountain Hotel. With good food and good fellowship, we are sure that others, in the future, will also appreciate the camaraderie that this club offers. One comment worthy of note is that we are getting older noticeably, and so it is good to see some younger amateurs getting involved in this club. ⇨⇨⇨ to page 2

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**.

From page 1

Thanks goes to all who took responsibility for the various facilities that this club offers, from the repeaters' maintenance to the 2m and 80m nets which are a regular feature of our activities. Thank you also to those who facilitated the newer licensees in achieving their goal of going 'on air'. I am sure we all recall the thrill of our first contact.

I would also wish the very best to those who are successfully contending for the filling of the various positions which will be vacated this AGM.

The future of the club is in your hands and by being elected to an office, you will hold the future of the club in your collective hands.

Theo Moller (VK4ESK)

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The summer is not far away and one problem amateur operators may be facing during the next few month is thunderstorm activity. Many amateurs have tall masts or towers that maybe could be the target of a lightning strike. Make sure your station is as safe as possibile to avoid a strike and the ruin of your equipment and house

Lightning is a dangerous natural event that can cause a lot of damage to electrical infrastructure and even kill people.

Physical harm from a lightning strike may be devastating. However, mains and data cables might be damaged by voltage spikes induced by a close strike. Voltage surges in mains or data/communications cables are commonly referred to as a "secondary effect" of lightning, and there are three known mechanisms by which these surges are created:

1: Resistive coupling

The ground voltage around a structure spikes dramatically when lightning strikes the ground there. When the ground voltage rises, it can be transmitted back into the building through earthed pipework and other electrical earthing systems, wreaking havoc on the electrical system as it goes. Another way for the currents to spread is through any data or telecommunications cables that connect the damaged building to another building.

2: Inductive coupling

An enormous electromagnetic pulse of energy is produced when lightning strikes a lightning conductor that is part of a building's structural protection system, and this energy can be taken up by surrounding cables as a damaging voltage surge.

3: Capacitive coupling

High-voltage electrical lines that run along the ground are less likely to be struck by lightning than those that run overhead. Large portions of the lightning's energy will flow into the distribution system before being dissipated by inbuilt high voltage surge prevention devices. And because of its high frequency, it will capacitively couple through transformers into the electrical systems of individual buildings, wreaking havoc on whatever electronic equipment it supplies.

How does a lightning protection device work?

An **LPD** provides a safe path for lightning to follow to the ground. Usually, the device is a lightning rod or air terminal at the top of a building that is connected to a conductor that leads to a grounding system. The conductive materials can be copper or aluminium.

Surge protection devices ,SPDs, protect sensitive electrical and electronic equipment from damage caused by voltage and current spikes by detecting them and sending them away from the equipment. Most SPDs protect against surges with metal oxide varistors or gas discharge tubes.

When working normally, these parts are made to have a very high resistance. However, when a voltage surge happens, they quickly become conductive, sending the extra voltage and current away from the equipment.

Some **SPDs** also have filters to cut down on electromagnetic interference **(EMI)** and radio frequency interference **(RFI).** These filters work by blocking unwanted frequencies and allowing only the desired frequencies to pass through.

Wayne **VK4ARW** operating one of the stations set up behind the **Danish Flower Art** in Highfield during the John Moyle field day 2023. A second station maned by **Dougal, Sam** and others operated from the club trailer at the other end of the paddock'

The DDRCi took part in the John Moyle Field Day in the **SIX HOUR PORTABLE OPERATION - MULTIPLE OPERATOR SECTION** using VK4WID and was rewarded by coming in 3rd place. Well done to all that took part.

It is with regret we report the passing of one of the local Amateurs in our area.

Kurt Reinhard Schirm VK4KRS

passed away on the 21-08-2023 after a fall while attending church.

May he rest in peace.

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Darling Downs Radio Club Inc
with the Border Ranges Club
A combined picnic/social get-together

Come along and meet local Amateurs
All Welcome

Sunday 24th September 2023
11:00 am at Leslie Dam, near Warwick
BYO eats and drinks

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Setting up your station

When you are first licensed it may seem bewildering to work out what you need to buy.

Obviously, you need an antenna and a radio transceiver, but what sort? Where do you get them from? And what else do you need?

On the Internet you can find a lot of suggestions and information. As a member of your local Radio Club you will be able to talk to other amateurs and get help about how to go about setting up your new station.

Getting your station set up and knowing what to expect on the bands are the first two steps in becoming an active radio amateur..

First, take some time to listen on the bands to find out how contacts are made.

The best apprenticeship for anyone wanting to use the HF (or indeed VHF/UHF) bands is to spend some time as a short wave listener. There you will learn the general procedures used when making contacts. Soon you will get the hang of it and start making great QSOs around the world.

Latest news from ACMA

- The Australian Maritime College (AMC) had decided not to extend its deed for services related to amateur qualifications and call sign recommendations
- ACMA plans to deliver these services from February 20.
- We would consult on proposed new arrangements for an ACMA-managed scheme in August 2023.
- We are now consulting on proposed arrangements for a new amateur radio qualification framework and assessor accreditation scheme to be managed by the ACMA. We propose to start implementing these arrangements in December 2023, so they are in place when the **amateur class licence begins in February 2024.**
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HOW ANTENNAS WORK.

First of all to work properly the antenna system must be matched to the transmitter. That is, all modern transmitters have an output impedance of 50 ohms. Antenna systems range in impedance of a few ohms to several thousand ohms. There are several ways to match them: pruning the length of the antenna, using an antenna tuner, matching the antenna with a length of transmission line called a matching section, or the use of one of several matching systems at the antenna feed-point.

Simple half-wave dipoles eliminate the need for a matching system because a resonant half-wave dipole has an impedance near 50-ohms.

You must understand **electromagnetism** to understand how antennas work.

If you attach the two poles of a direct current (DC) voltage source to the two ends of a coil of wire, current will flow through the coil of wire and it will become magnetized.

The magnetized coil is known as an electromagnet. Its magnetism will extend out to infinity becoming weaker with distance.

Remove the voltage and the magnetic field collapses back into the coil.

If an alternating current (AC) is connected to the coil, the magnetism moves out and collapses into the coil in step with the frequency of the alternating current source.

The north and south poles of the electromagnet reverse on each half-cycle of the AC voltage. If voltage and current can cause a coil to become magnetized, the reverse is true: A magnetic field can produce a voltage and a current in a coil.

This is known as **Faradays Principle of Magnetic Induction.**

A voltage will be produced at the ends of the coil of wire as you move any permanent magnet close to and parallel to the coil. The difference in this case is the magnet must be kept moving.

Move the magnet in one direction, and current will flow in one direction. Reverse the direction the magnet is moving and the current will flow in the opposite direction. Moving the magnet back and forth produces alternating current.

An AC generator spins a coil of wire between the two poles of a magnetic field. It doesnt matter which one is moving. The coil or the magnet can be moving. Any moving magnetic field can induce current in anther coil. It doesnt have to be a piece of metal we call a magnet.

Imagine a moving magnetic field produced by AC circulating in and out of a coil. If that moving magnetic field passes through a second nearby coil, it will induce an alternating current in the second coil. A **transformer** uses this method to work. Transformers have a continuous iron core running from the inside of one coil through the inside of the second coil to confine the magnetism inside the iron core. This makes the transformer nearly 100% efficient since only a little of the magnetic energy escapes.

A straight wire that has an AC current flowing through it also has a magnetic field surrounding it. But it is a weaker field than is produced by a coil.

The magnetic field from the wire radiates out into space and becomes weaker with distance. The radiating magnetic field from a wire is known as **"electromagnetic radiation"** and a radio wave is one type of it. The wire that radiates becomes the transmitting antenna. Some distance away, a second wire in the path of these waves has current induced into it by the passing electromagnetic waves. This second wire will be the receiving antenna. The voltage in the receiving antenna is many times weaker than the voltage in the transmitting antenna. It may be as weak as one millionth of a volt or less and still be useful.

The receiving antenna feeds that voltage to the amplifiers in the receiver front-end where it is amplified many thousands or millions of times.

The dipole antenna is made of a wire broken in the center and where broken, each half of the wire connects to an insulator that divides the wire in two. Two wires from the voltage source, which is the transmitter, are connected across the insulator. On one side of the dipole, the current in the form of moving electrons flows first from the voltage source toward one end of the dipole. At the end, it reflects toward the voltage source. The same thing occurs on the other half of the wire on the other half cycle of alternating current.

An antenna that is the right length for the current to reach the far end of the wire just as the polarity changes is said to be resonant.

Because electricity travels at 95% the speed of light in a wire, the number of times the polarity changes in one second (frequency) determines how long the wire has to be in order to be resonant.

It is important that the Editor is informed of any event or activity proposed by the commitee. The Editor can only print what he has knowledge of, and would appreciate that copy for inclusion, reach him at least 1 week before the meeting

On the Club's wish list for the next VHF/UHF contest.
https://www.youtube.com/watch?v=2Rh3-K8V4_o

VSWR Stands for **'Voltage Standing Wave Ratio'** and is used to specify the effect of a mismatch presented to a test system signal.

When electric telegraphy was the dominant means of wired communication, the lines used were comprised of bare copper wires suspended on telegraph poles. For insulation the line relied on the large spacing between the wires as well as the wires being mounted on individual glass or ceramic stand-offs.

These lines ran for miles and miles and were prone to damage caused by storms, fallen trees, and partial shorts due to the top of the poles making good nesting sites for large birds.

The lineman sent to locate and correct the fault somewhere along the miles of suspended wires could at least identify the type of fault by examining the standing wave on the line created by the fault.

The lineman would gauge how brightly a light bulb connected across the line would glow as the connection was moved along the line. If the bulb lit brightly at one place on the line and would not light at all further along the line, then he knew to look along the line for an open or short circuit.

If the bulb was fairly bright at one place and somewhat dimmer in another, he knew to look for a partial short across the wires.

This all seems rather primitive, but we should bear in mind that voltage measuring instruments of the day were a delicate mechanism housed in hand-made wooden cases.

This made them expensive and fragile, whereas the light bulb was comparatively cheap and robust.

The method was cleverer than you might at first suppose, since it was a form of bolometer able to indicate the RMS value of the two voltage extremes on the line.

Next Social Lunch is on October 14th 2023

At the Blue Mountain Hotel 11.30 am

Next Club meeting October 9th. 7pm start

Toowoomba City Library