



A Guide for VK Amateur Radio Operators

August 2024



Australian Amateur Radio Regulations Handbook

August 2024

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INTRODUCTION

This handbook is a guide to the regulations governing the hobby of amateur radio in Australia. It is a joint publication of the Radio Amateur Society of Australia and the Radio and Electronics School (RES).

The Foundation exam uses a subset of the full regulations detailed in this handbook. You should be guided by the Foundation syllabus and any course of instruction you may be undertaking to determine the appropriate regulatory elements to learn. RASA's Foundation Level Study Guide provides this information in detail: [Foundation Level Study Guide – The Radio Amateur Society of Australia Inc. \(vkradioamateurs.org\)](https://www.vkradioamateurs.org/foundation-level-study-guide)

Like all RASA resources, this is provided at no charge to the amateur radio community.

In February 2024 Amateur Radio Licencing in Australia underwent a major transformation. The ACMA transitioned the Amateur Radio Service from a Non-Assigned Licence model to a Class Licence.

These changes are reflected in this version of the VK Regulations Handbook.

There are now two types of Amateur Radio Licence:

- a Class Licence – [Federal Register of Legislation - Radiocommunications \(Amateur Stations\) Class Licence 2023](https://www.federalregister.gov/?collection=60489)
- assigned apparatus Licences:
 - to operate a repeater
 - to operate a beacon

Who administers Amateur Radio in Australia?

In Australia, amateur radio is administered by the Australian Communications and Media Authority (ACMA). ACMA also manages examinations and the issue of callsigns.

The main amateur radio page on the ACMA website is:

<https://www.acma.gov.au/amateur-radio>

Minimum age for an amateur licence

There is no minimum age for an amateur licence in Australia.

Reciprocal licencing

Amateurs who are licenced in another country may be granted authorisation to operate in Australia, provided their licence is recognised by the ACMA as equivalent to an Australian licence.

More information may be found on the ACMA website at:

<https://www.acma.gov.au/overseas-amateurs-visiting-australia>

Or, if the link has changed, search on “overseas amateurs”.

ACMA Callsign Database

The ACMA maintains an on-line database which stores and reports the status of all callsigns: allocated or available.

Where callsigns are in use, the database indicates the Qualification Level of the callsign holder. No personal information is published.

This register may be accessed via this link:

<https://www.acma.gov.au/are-you-looking-amateur-call-sign>

Unqualified Operators

Unqualified people (sometimes referred to as a second operator) may operate a station under the direct supervision of a Qualified operator. The Unqualified operator is not permitted to exceed power levels, modes and frequencies allocated to the Qualified, supervising operator.

THE ETHOS AND ETHICS OF AMATEUR RADIO

Like many hobbies, Amateur Radio has traditions, jargon and practices that are not always apparent to the newcomer.

Your licence entitles you to get on the air and transmit, but, as a newcomer, you need to familiarise yourself with the way the hobby works operationally before transmitting.

Getting to know how amateur radio stations operate will provide a smooth and stress-free entry to this great hobby of ours.

Have a listen around the bands before you first transmit (if you haven't already) – monitor typical amateur QSOs (conversations). This will give you a feel for on air practices.

Once you start transmitting, steer well clear of controversial topics, including:

- religion;
- politics;
- business (you can talk about your profession/trade, but you cannot advertise your services or those of anyone else);
- derogatory remarks/observations/jokes directed at any group (gender, ethnic, religious, political, sexual orientation, etc.); and
- off-colour humour.

Above all, **apply common sense and good taste.**

Remember, you are also prohibited from transmitting any form of entertainment.

Do NOT use CB jargon – you will annoy your fellow amateurs and will be ostracised at best or roundly criticised on air at worst... Amateur and CB radio are different hobbies, with different operating practices.

This hobby has many participants with many differing views.

Amateurs, like all radio licensees in Australia, are governed by The Radiocommunications Act.

Section 108 (2) (d) of the Act prescribes that a person:

must not operate, or permit operation of, a transmitter:

(i) in a way that would be likely to cause reasonable persons, justifiably in all the circumstances, to be seriously alarmed or seriously affronted; or

(ii) for the purpose of harassing a person

The Radio Amateur's code

The American Radio Relay League has, for many years, published a guide for new amateurs, known as The Amateur's Code:

The Radio Amateur is:

CONSIDERATE...He/she never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...He/She offers loyalty, encouragement and support to other amateurs.

PROGRESSIVE...He/She keeps his/her station up to date. It is well-built and efficient. His/Her operating practice is above reproach.

FRIENDLY...He/She operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.

BALANCED...Radio is a hobby, never interfering with duties owed to family, job, school or community.

(adapted from the original Amateur's Code, written by Paul M. Segal, W9EEA, in 1928)

OPERATING PROCEDURES

The ACMA Website covers amateur operating procedures in detail at:

Australian Communications and Media Authority
25 July 2024 Amateur radio operating procedures
(<https://www.acma.gov.au/amateur-radio-operating-procedures>)

This chapter is a cut and paste of the ACMA information at the link above.

Amateur Radio Operating Procedures

Amateurs should know on-air conventions, technical information and regulations when operating. This information may help you study for amateur exams.

What amateur stations can be used for

Amateur stations are used for:

- self-training in and technical investigations of radiocommunications
- communicating with other amateurs
- transmitting news and information about the operation of amateur radio stations.

Amateurs must:

- comply with requirements in the [Radiocommunications Act 1992](#).
- comply with conditions in:
 - for holders of non-assigned and assigned amateur licences – [Radiocommunications Licence Conditions \(Amateur Licence\) Determination 2015](#) (the Amateur LCD) and the [Radiocommunications Licence Conditions \(Apparatus Licence\) Determination 2015](#)
 - for all other amateur operators – [Radiocommunications \(Amateur Stations\) Class Licence 2023](#) (the class licence).

Amateurs must not:

- use a station for financial gain or reward
- transmit advertising or any form of entertainment.

Control and identification of amateur stations

Identifying your station using call signs

You should use your call sign:

- every time you start a transmission
- every time you finish a transmission
- at least once every 10 minutes during a transmission that lasts for more than 10 minutes.

Once communications have been established with another station (known as a series of transmissions), it is not necessary to use call signs every 'over' – call signs must be used every 10 minutes.

You can identify by voice (using the English language), by visual image or by an internationally recognised code (for example, Morse).

Emergency services operations or training exercises

If you operate your station for emergency services operations or training exercises, you must transmit your call sign:

- every time you start a transmission
- every time you finish a transmission
- at least once every 30 minutes during a transmission or series of transmissions that lasts for more than 30 minutes.

If you are participating in an emergency services exercise (for example, Wireless Institute Civil Emergency Network), operational call signs, like mobile 1, base 2, are often used.

Operating portable

When operating your amateur radio station portable, you may add the numeral of the state or territory you are operating in to the end of your call sign.

For example: *VK6HR portable 8*.

If you operate your station in a vehicle, a boat/ship or an aircraft, you normally add the following suffixes after your call sign, respectively:

- mobile
- maritime mobile
- aeronautical mobile.

Encryption/scrambling

Transmissions from an amateur station must not be encrypted or scrambled, except for signals used to control a satellite, signals used to control a remote amateur station or by stations participating in emergency services operations or exercises.

Re-transmission

If you re-transmit another station's transmission, you must have the other station's permission and indicate it is a retransmission.

Passing messages on behalf of a non-amateur (third-party traffic)

You must not transmit a message on behalf of a non-amateur (third-party traffic) unless the message relates to a disaster.

For example, you can pass a message on behalf of a member of the public if there is a bushfire, a flood, a cyclone or similar disaster. Messages from survivors to their friends/relatives can be sent via a different amateur station.

These messages can be from overseas amateur stations.

Amateur radio operators are not normally allowed to transmit on nonamateur frequencies (for example, fire, police, marine), even in a disaster.

Club call signs

Amateur radio clubs or groups can apply for club call signs. Club call signs are associated an advanced qualification.

A club call sign may also be used by an amateur with a standard or foundation qualification, provided they operate in accordance with their respective licence conditions (including frequencies and power levels).

Stations connected to the internet

If you connect your station (including a repeater station) to the internet (including via an Amateur Internet Linking System), you must have measures in place to ensure that it cannot be operated by unlicensed persons.

Keep your contact details current

Amateur call sign holders should keep their contact details up-to-date with the ACMA. This allows us to contact you when your call sign needs to be reconfirmed or you need to have your call sign reassigned.

If your details are incorrect and we can't contact you, your call sign may be cancelled.

Operating from different locations – when you need to give updated details

Amateur operators with assigned or non-assigned licences who want to operate an amateur station from a location different to the one on their licence must provide an updated address to the ACMA if they intend to operate for a continuous period of more than:

- for an amateur beacon or an amateur repeater station – 7 days
- for a non-assigned station – 4 months.

** Clarification from the editor - this does not apply to class licences – there is no requirement to notify ACMA of a change of address or portable operation if you are operating under the new class licence system.*

Spectrum for amateur use

The radio spectrum is divided between primary and secondary users.

Primary users are the principal users of that segment of the radio spectrum.

Secondary users share the spectrum segment with primary users, but they must not cause harmful interference to primary users and cannot claim protection from harmful interference caused by primary users.

Harmful interference is defined in the International Telecommunications Union (ITU) Radio Regulations as interference that:

- endangers the functioning of a radionavigation service or other safety services that are operating in accordance with the Radio Regulations; or
- obstructs, repeatedly interrupts or seriously degrades a communications service operating in accordance with the Radio Regulations.

Amateurs have primary use status in most HF bands, the 52–54 and 144–148 MHz bands and some SHF and EHF bands.

Amateurs should check the [Australian Radiofrequency Spectrum Plan](#) for full details.

Emission modes and emissions

Emission limits

Emission designator codes are used mainly by assigned frequency amateur stations such as repeater stations and beacon stations.

The ITU has developed a system of letters and numbers to identify different radio transmission types. They provide an internationally recognised standard by which to specify, accurately and concisely, the significant characteristics of a transmission.

Examples of commonly used amateur transmissions and the corresponding emission classifications are listed below.

Purpose of transmission	AM	SSB	FM	PM
Morse	A1A A1B	J2A J2B	F1B	G1B
Speech	A3E	J3E	F3E	G3E
Data (packet)	A2D A1D	J2D	F1D F2D	G1D G2D
RTTY	A2D	J2D	F2D	G2D
Facsimile	A2C	J2C	F2C	G2F
FSTV	C3F A3F	J3F	F3F	G3F
SSTV	A2F	J2F J3F	F2F F3F	G2F G3F

AM = amplitude modulated

SSB = amplitude modulated and uses a single-sideband, suppressed carrier

FM = angle modulated and uses frequency modulation and

PM = angle modulated and uses phase modulation.

Use examples are:

- Single sideband (SSB) suppressed carrier is represented by: 2K80J3E

The first 4 letters/numbers represent the necessary bandwidth of the signal, '2K80' means two thousand, eight hundred Hz, or 2800 Hz.

The final 3 letters/numbers represent the modulation used, 'J' means the carrier is amplitude modulated, '3' means single channel analogue and 'E' means telephony (speech).

- FM is represented by: 16K0F3E

‘16K0’ means 16 kHz bandwidth, ‘F’ means Frequency modulation, ‘3’ means single channel analogue and ‘E’ means telephony.

A full description of the ITU system can be found at Appendix 1 of the ITU Radio Regulations—Classification of emissions and necessary bandwidths, available on the [ITU’s website](#).

Permitted frequency emission modes are outlined in the Schedule 2, 3 and 3A in the [Amateur LCD](#), and Schedule 2 in the [class licence](#).

Spurious emission limits

Spurious emissions from an amateur station can cause interference to other stations and services.

You must operate within the maximum permitted spurious emission power levels specified in Section 7A of the [Amateur LCD](#), and Section 15 of the [class licence](#).

Distress and safety procedures

Distress signal

A distress signal indicates that a person is threatened by grave and imminent danger and requires immediate assistance.

The distress signal is the word 'mayday'.

Distress call and message

The distress call consists of:

- the distress signal 'mayday' sent 3 times
- the words 'this is'
- the call sign or other identification of the station in distress sent 3 times.

The distress message consists of, in addition to the above:

- the position of the station in distress
- the nature of the distress and the kind of assistance required
- any other information which might be of assistance.

Obligation to accept distress traffic

A distress call or message has priority over all other transmissions and may be heard on any frequency.

When a distress call is heard, you must:

- immediately cease all transmissions
- continue to listen on the frequency
- record full details of the distress message.

If a distress message is received, wait for a short while to see if the message is received by a station better placed to help.

If the distress message is not acknowledged within a reasonable time, the amateur operator is obliged to respond.

Notifying the appropriate authority

After acknowledging or attempting to acknowledge receipt of the distress message, you must immediately forward details of the distress situation to:

- for land-based distress situations – the police via 000
- for air or sea-based distress situations – the Rescue Co-ordination Centre, Canberra, ACT, for:
 - **aviation rescue services telephone 1800 815 257**
 - **maritime rescue services telephone 1800 641 792.**

You should resume listening and keep the respective authority informed of any developments.

Assistance should be given until cessation of distress traffic is announced (with the phrase 'seelonce feenee'), or until you are advised that assistance is no longer required.

Urgency signals

In cases where the use of the distress signal is not fully justified, the urgency signal may be used.

The urgency signal is 'pan pan'.

The urgency signal is repeated 3 times before the call.

The urgency signal has priority over all other transmissions except distress. All stations hearing an urgency signal must:

- ensure that they do not cause interference to the transmission of the message that follows
- be prepared to assist if required.

Authority contact details are the same as for distress messages.

International use of radiocommunications in the event of natural disasters

In natural disasters, normal communications systems may be overloaded, damaged, or completely disrupted, and the rapid establishment of communication to facilitate world-wide relief actions is essential.

Amateur bands are well adapted for short-term use in emergency situations. The amateur service, with its widespread distribution and demonstrated capacity to assist, may assist in communications until normal communications are restored.

Amateur involvement is limited to the duration of the emergency and to the specific geographical area of the emergency, as defined by the responsible authority of the affected country.

Any communications shall be carried out only with the consent of the administration of the country in which the disaster has occurred.

Voice operating procedures

This guidance may vary depending on the mode and frequency of operation employed.

Listen first

Always listen before transmitting to ensure that the frequency is not already in use.

Calling another station

Repeat the call sign of the station being called a maximum of 3 times, then the words 'this is', followed by your call sign repeated a maximum of 3 times, ending with 'over'.

For example: *VK6ZZ VK6ZZ VK6ZZ, this is VK2KO VK2KO VK2KO, over*

This call may be modified as conditions permit. For example, if you are using an FM repeater, it is not necessary to repeat the call signs 3 times, and 'this is' and 'over' can be dropped.

For example: *VK6ZZ (brief pause) VK2KO*

General 'CQ' call

A general call to any other amateur station (that is, you are looking for a contact with any other station) may be made by substituting the signal 'CQ' in place of the called station's call sign.

For example: *CQ CQ CQ, this is VK9YZ VK9YZ VK9YZ, over*

CQ calls are not normally made on repeaters – just announce that you are listening.

For example: *VK7AB listening*

Replying

Again, use the other station's call sign, followed by 'this is' (if required) and then your call sign followed by 'go ahead' and 'over'.

For example: *VK2KO, this is VK6ZZ, go ahead, over*

Breaking into an existing QSO (contact)

If you wish to break into an existing contact between 2 stations, wait for a pause and announce your call sign only. Do not talk over the top of the stations.

Other modes

Calling procedures using other transmission modes are typically tailored to the mode in use. For example, an amateur operator using a text-based digital transmission mode should (at a minimum) indicate the amateur station that is being called and the call sign of the amateur operator's station.

Test transmissions

Test transmissions should be made using an artificial antenna (also known as a 'dummy load').

If it is necessary to radiate test transmissions to air, minimum power should be used, and the frequency must be monitored to ensure you will not cause interference.

Test transmissions must be identified using your call sign and should indicate that they are for testing purposes.

Phonetic alphabet

The phonetic alphabet is used to spell words when radio conditions are poor and signals are weak.

Phonetic alphabet

	Word	*Spoken as
A	ALFA	AL FAH
B	BRAVO	BRAH VOH
C	CHARLIE	CHAR LEE
D	DELTA	DELL TAH
E	ECHO	ECH OH
F	FOXTROT	FOKS TROT
G	GOLF	GOLF
H	HOTEL	HOH TELL
I	INDIA	IN DEE AH
J	JULIET	JEW LEE ETT
K	KILO	KEY LOH
L	LIMA	LEE MAH
M	MIKE	MIKE
N	NOVEMBER	NO VEM BER
O	OSCAR	OSS CAH
P	PAPA	PAH PAH
Q	QUEBEC	KEH BECK
R	ROMEO	ROW ME OH
S	SIERRA	SEE AIR RAH
T	TANGO	TANG GO
U	UNIFORM	YOU NEE FORM
V	VICTOR	VICK TAH
W	WHISKY	WISS KEY
X	X-RAY	ECKS RAY
Y	YANKEE	YANG KEY
Z	ZULU	ZOO LOO

Using the phonetic alphabet

Use the phonetic alphabet to spell your call sign and name. For example, if your call sign is VK2KO and your name is Colin:

Victor Kilo 2 Kilo Oscar, and my name is Colin, I spell Charlie Oscar Lima India November.

Note that you use the phonetic alphabet to spell your call sign completely. Do not use a mixture of plain language and the phonetic alphabet, as that will lead to confusion.

The phonetic alphabet is normally used on HF when conditions are poor. It is not normally necessary on repeaters.

Q codes

Q codes are 3 letter codes sent using Morse Code to abbreviate standard questions and answers. They may be sent as a question, with a question mark, or as an answer to a question.

For example:

- *QTH?* – What is your location?
- *QTH Sydney* – My location is Sydney
-

Some amateurs use these codes during telephony contacts.

Q code/s	Question/response
QRK1-5	The intelligibility of your signals is: 1 Bad, 2 Poor, 3 Fair, 4 Good, 5 Excellent
QRM1-5	I am being interfered with: 1 Nil, 2 Slightly, 3 Moderately, 4 Severely, 5 Extremely
QRN1-5	I am troubled by static: 1 Nil, 2 Slightly, 3 Moderately, 4 Severely, 5 Extremely
QRO	Increase power
QRP	Decrease power
QRT	Stop sending
QRX?	When will you call me again?
QRX	I will call you again at ... hours (on ... kHz or MHz)
QRZ	Who is calling me?
QSA1-5	The strength of your signals (or those of ...) is: 1 Scarcely perceptible, 2 Weak, 3 Fairly good, 4 Good, 5 Very Good
QSB	Your signals are fading
QSL?	Can you acknowledge receipt?
QSL	I am acknowledging receipt
QSO	I can communicate with ... direct (or by relay through ...)
QSP?	Will you relay to ...?
QSP	I will relay to ...
QSY	Change to transmission on another frequency (or on ... kHz or MHz)
QTH?	What is your location?
QTH	My location is ...

CALLSIGNS

Every amateur station is issued with a callsign.

Callsigns are constructed as follows: (Prefix) (number) (suffix)

For example:

VK2ABC

Prefix

Callsign prefixes are allocated internationally by the ITU – Australia is allocated the following prefix blocks:

AXA-AXZ VHA-VNZ VZA-VZZ

Most Australian amateur stations use the VK prefix. There are special prefixes for competition stations (VJ, VK, VL), the AX prefix is used for national days, and the AX and VI prefix may be used for special event stations.

Numeric prefix

The numeric prefix indicates the State/Territory of the station when first licenced, as follows:

Numeral	State/Territory
0	Antarctica
1	ACT
2	New South Wales
3	Victoria
4	Queensland
5	South Australia
6	Western Australia
7	Tasmania
8	Northern Territory
9	External Territories

Suffixes

The callsign suffix indicates the station's licence class, as follows:

Suffix	Licence class
A-Z	Contest stations (use VJ, VK and VL prefix) Issued to Advanced and for use in contests only.
AA-ZZ	Advanced
AAA-ZZZ	Advanced, Standard, Foundation
FAAA- FZZZ	Foundation (no new callsigns are issued from this block)
RAA-RZZ	Repeaters and beacons*

** Editor's note: some legacy advanced callsigns have been issued from this block, but it is only used for repeaters and beacons now.*

Examples:

VJ4A – contest callsign
 VK1XX – Advanced
 VK6ABC – Any class
 VK8RAA – Repeater or beacon

The AX callsign prefix

The AX callsign prefix is used to commemorate days of national significance. It may be substituted for the VK prefix on:

- 26 January (Australia Day);
- 25 April (ANZAC Day); and
- 17 May (World Telecommunications Day)

For example, VK2ABC becomes AX2ABC.

Note that this does not apply to repeaters, beacons or contest callsigns.

Special event stations

Special event stations commemorate an event of special significance to amateurs or the Australian population generally.

Special event callsigns may use a combination of letters and numbers outside the normal callsign structure, such as:

VI100ANZAC VK100MARCONI, etc.

ACMA callsign policy

The full ACMA callsign policy document may be found here:

[Amateur radio call signs | ACMA](#)

TECHNICAL REQUIREMENTS

Amateur frequency allocations and bandwidth requirements, per licence class

Class			Band	Frequency	Necessary Bandwidth (note 1)
A			2200m	135.7-137.8 kHz	No greater than 2.1 kHz
A			630m	472-479 kHz	No greater than 2.1 kHz
A			160m	1800-1875 kHz	Where the necessary bandwidth exceeds 8 kHz, the maximum power spectral density from the transmitter must not exceed 1 watt per 100 kHz.
A	S	F	80m	3500-3700 kHz	As above
A			80m	3776-3800 kHz	No greater than 2.8 kHz (note 2)
A	S	F	40m	7000-7100 kHz	Where the necessary bandwidth exceeds 8 kHz, the maximum power spectral density from the transmitter must not exceed 1 watt per 100 kHz.
A	S	F	40m	7100-7300 kHz	No greater than 8 kHz
A			30m	10100-10150 kHz	No greater than 8 kHz
A	S		20m	14000-14350 kHz	Where the necessary bandwidth exceeds 8 kHz, the maximum power spectral density from the transmitter must not exceed 1 watt per 100 kHz.
A			17m	18068-18168 kHz	As above
A	S	F	15m	21000-21450 kHz	As above
A			12m	24890-24990 kHz	As above
A	S	F	10m	28000-29700 kHz	Where the necessary bandwidth exceeds 16 kHz, the maximum power spectral density from the transmitter must not exceed 1 watt per 100 kHz.
A	S		6m	50-52 MHz	No greater than 100 kHz
A	S		6m	52-54 MHz	No restriction
A	S	F	2m	144-148 MHz	No restriction
A	S	F	70cm	430-450 MHz	No restriction (note 3)
A			23cm	1240-1300 MHz	No restriction
A	S		12cm	2300-2302 MHz	No restriction
A			13cm	2400-2450 MHz	No restriction
A	S		9cm	3.3-3.6 GHz	No restriction (note 4)
A			6cm	5.650-5.850 GHz	No restriction
A			3cm	10-10.5 GHz	No restriction
A			12mm	24-24.250 GHz	No restriction
A			6mm	47-47.2 GHz	No restriction
A			4mm	76-81 GHz	No restriction
A				122.250-123 GHz	No restriction
A				134-141 GHz	No restriction
A				241-250 GHz	No restriction

Notes:

1. Any emission mode allowed within bandwidth constraints
2. Technically 8 kHz is allowed, however this would exceed band limits.
3. Wideband emissions above 430 MHz must not interfere with other (non-amateur)

services

4. The 3.4-3.6 GHz band is used for 5G mobile telephony. Amateur stations are restricted from operation in most of this band in capital cities and many regional areas. Refer to the ACMA LCD, Schedule 5 (p26).

Maximum output power – Advanced Qualification

135.7-137.8 kHz – 1 watt effective radiated power

472-479 kHz – 5 watts effective radiated power

All other bands:

400 watts Peak Envelope Power (PEP – also known as P_x) for the following modes:

- (a) analogue television; or
- (b) Single Side Band (SSB) voice, suppressed carrier; or
- (c) SSB voice reduced carrier.

For all other modes (including digital modes – e.g. FT8) – maximum output power 120 watts mean power (also known as P_y).

Maximum output power – Standard Qualification

Maximum output power 100 watts PEP for the following modes:

- (a) SSB voice suppressed carrier; or
- (b) SSB voice reduced carrier.

For all other modes (including digital modes) – maximum output power 30 watts mean power.

Maximum output power – Foundation Qualification

Maximum output power 10 watts PEP for all modes.

Causing interference

You must install and maintain your amateur radio station correctly, so that you do not cause interference. The ACMA has the right to restrict the operation of an amateur station if it is causing interference.

If interference is occurring to another licensed radiocommunication service, even if it is not your fault, you must stop transmitting until the problem is resolved.

If interference is not to a licensed radiocommunication service, such as a television, then you should exercise diplomacy and common sense to resolve the problem.

Spurious limits

Spurious emissions from an amateur station must be attenuated by the following amounts:

For frequencies less than 30MHz: 5W and above output power – 50 dB

Below 5 W use the following formula: $43 + 10 \log (\text{PEP}) \text{ dB}$

For frequencies 30MHz and above:

Because the required level of spurious emission attenuation (below 500W) changes with Mean Power (P), the maximum permitted spurious emission is independent of Mean Power and is fixed at **0.05mW** (i.e. **-13dBm**) for all transmissions above 30MHz.

REPEATERS AND BEACONS

Tone systems used in amateur radio

There are two tone systems used in amateur radio: Continuous Tone Coded Squelch System (CTCSS) and Dual Tone Multi Frequency (DTMF).

CTCSS tones are sub audible (cannot be heard) and are primarily used on repeater systems to prevent non-amateur radio emissions from operating the repeater's receiver. If a device causes interference to the repeater's receiver then the repeater will ignore the interference since it does not have the CTCSS tone present.

DTMF uses audible tones. These tones are the ones you hear when dialling a number on your telephone. The tones are used to connect and disconnect (link) repeaters in an ad-hoc manner to extend the range of communications; for example, with the IRLP system.

DTMF tones can also be used to control and interrogate a repeater's operating parameters. Repeater equipment can be remotely polled to report on its power, temperature, etc.

Repeater stations

Repeaters and repeater radio links must only transmit when either receiving a signal on the input frequency or transmitting their identification.

Repeaters and repeater radio links must transmit their call sign every ten minutes of operation.

A Foundation or Standard station must not use a repeater which transmits on frequencies they are not authorised to use – for example, a Foundation station can not use a repeater that transmits on 52 MHz, even if it receives on a band the Foundation station can use, like 146 MHz.

If repeaters are operating cross band, they must incorporate an access control system to prevent Standard and Foundation licencees being retransmitted on bands they are not authorised to use.

The access control system normally uses CTCSS.

Internet linking of repeaters is permitted provided the operators of the service take measures to prevent non-unauthorised (non-amateur) users.

Repeater stations may only be operated portable for 7 days.

Beacon stations

A beacon station must transmit its call sign every 10 minutes.

Beacon stations may only be operated portable for 7 days.

ANNEX A – ELECTROMAGNETIC COMPLIANCE

Electromagnetic radiation

Electromagnetic radiation (EMR) is the mechanism by which radio waves are emitted and propagated.

Exposure to high levels of EMR can be dangerous for humans. ACMA regulates levels of human exposure to EMR through their Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015, which calls up the following Australian standard:

Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields—
3 kHz to 300 GHz

The standard is published by the Australian Radiation Protection and Nuclear Safety Agency.

Compliance levels for Amateur stations

The standard sets out two compliance levels for the operation of radio transmitters:

Compliance level 1

Compliance level 1 applies to stations where:

- the **average** total power supplied by the transmitter is not more than 100 W; and
- each antenna fed by the transmitter is installed so that it is inaccessible to a member of the general public.

or

- the bottom of the lowest antenna fed by the transmitter is at least 10 m above ground level; and
- the **average** total equivalent isotropically radiated power (EIRP) of all antennas fed by the transmitter is not more than 3200 W in any direction.

Compliance level 1 also applies to a mobile station for which the average total power is not more than 100 W.

Standard and Foundation stations comply with level 1 automatically, as long as their antennas are behind a fence.

For Advanced stations, given that the average power produced by a 400W SSB transmitter is less than 100W, if you operate at no more than 100W on FM or any other mode with a carrier or high duty cycle (FT8, for example) and your antenna is behind a fence, you will comply with level 1.

If your station complies with level 1, there is no requirement to keep records. However, for Advanced stations, if you are using high gain antennas (stacked yagis on VHF, for example), with an EIRP of 3.2 kW or more, and the antennas are less than 10m above the ground, your station does not meet the level 1 requirements.

Compliance level 2

If your station does not meet level 1 requirements, it is classified as level 2. You are required to prove that your station complies with the Australian standard and maintain records to this effect.

ACMA calculator

ACMA have produced a simple RF exclusion zone calculator. The exclusion zone is an area where EMR levels may exceed the Australian standard.

The calculator may be found at the bottom of this page on the ACMA website:

<https://www.acma.gov.au/our-rules-eme>

ANNEX B – BIBLIOGRAPHY

Australian Radio Frequency Spectrum Plan, ACMA 2017.

Commonwealth of Australia, Radiocommunications Act, 1992

No.174, 1992

Compilation No. 71

Compilation date: 1 July 2018

Includes amendments up to: Act No. 25, 2018

Registered:14 August 2018

ITU Radio Regulations, Edition of 2020.

Radiocommunications Licence Conditions (Amateur Licence) Determination 2015

Made under paragraph 107(1)(f) of the Radiocommunications Act 1992.

Compilation No. 3

Compilation date: 29 April 2020

Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015

Made under paragraph 107(f) of the Radiocommunications Act 1992

Compilation No. 1

Compilation date: 19 November 2019

Includes amendments up to: F2019L01478

Radiocommunications (Amateur Stations) Class Licence 2023 – [Legislative Instrument]
The Australian Communications and Media Authority makes the following class licence under section 132 of the Radiocommunications Act 1992.

Dated: 7 December 2023

ACMA Website (pertaining to Amateur Radio:)

<https://www.acma.gov.au/amateur-radio>