



Radiocommunications (Science and Research) Class Licence 2023

The Australian Communications and Media Authority makes the following class licence under section 132 of the *Radiocommunications Act 1992*.

Dated: 28 August 2023

Adam Suckling
[signed]
Member

Creina Chapman
[signed]
Member/~~General Manager~~

Australian Communications and Media Authority

1 Name

This is the *Radiocommunications (Science and Research) Class Licence 2023*.

2 Commencement

This instrument commences:

- (a) immediately after the *Radiocommunications (Science and Research) Frequency Band Plans Amendment Instrument (No. 1) 2023* commences; or
- (b) at the start of the day after the day it is registered;

whichever is later.

Note 1: The Federal Register of Legislation is available, free of charge, at www.legislation.gov.au.

Note 2: Both of these events must occur before this instrument commences.

3 Authority

This instrument is made under section 132 of the Act.

4 Purpose of instrument

The purpose of this instrument is to authorise the operation of radiocommunications devices for *bona fide*:

- (a) scientific or technological research;
- (b) education;
- (c) demonstrations;
- (d) tests; or
- (e) repair and maintenance of those devices.

5 Interpretation

- (1) In this instrument, unless the contrary intention appears:

ARPANSA standard means:

- (a) the *Radiation Protection Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz (2021)* published by the Australian Radiation Protection and Nuclear Safety Agency; or
- (b) if a later document is published by the Australian Radiation Protection and Nuclear Safety Agency to replace that standard – the later document.

Note: The ARPANSA standard is available, free of charge, from the Australian Radiation Protection and Nuclear Safety Agency's website: www.arpansa.gov.au.

dummy load: see subsection (2).

group of stations means two or more stations transmitting simultaneously on the same or multiple frequencies.

screened room means a room that prevents, or is designed to prevent, the entry or escape of radio emissions from that room.

shielded enclosure means a container or other thing that encloses a space, which prevents, or is designed to prevent, the entry or escape of radio emissions from that space.

Note 1: A number of other expressions used in this instrument are defined in the Act, including the following:

- (a) equipment;
- (b) frequency band;
- (c) frequency band plan;
- (d) operate;
- (e) radiocommunication;
- (f) radiocommunications receiver;
- (g) radiocommunications transmitter;
- (h) radio emission;
- (i) transmitter.

Note 2: Other expressions used in this instrument may be defined in a determination made under subsection 64(1) of the *Australian Communications and Media Authority Act 2005*, including:

- (a) Act;
- (b) EIRP;
- (c) FM;
- (d) harmful interference;
- (e) land station;
- (f) mobile station;
- (g) necessary bandwidth;
- (h) pY;
- (i) station;
- (j) ultra wideband station.

(2) A **dummy load** is a thing that:

- (a) is used, or designed to be used, as a substitute for another thing that is capable of radiating radio signals that are fed to it from a transmitter (**the original thing**); and
- (b) has impedance characteristics that are the same as the impedance characteristics of the original thing; and
- (c) is both:
 - (i) incapable of radio emission; and
 - (ii) designed to prevent radio emission occurring.

Example: A circuit that is connected to the antenna feed point of a radiocommunications transmitter to simulate the effects of a real antenna without allowing radio emissions caused by operation of the radiocommunications transmitter to travel further than the dummy antenna.

(3) In this instrument, unless the contrary intention appears, a reference to a part of the spectrum or frequency band includes all frequencies that are greater than but not including the lower frequency, up to and including the higher frequency.

(4) Unless the contrary intention appears, no condition limits any other condition.

6 References to other instruments

In this instrument, unless the contrary intention appears:

- (a) a reference to any other legislative instrument is a reference to that other legislative instrument as in force from time to time; and
- (b) a reference to any other kind of instrument or writing is a reference to that other instrument or writing as in force, or existing, from time to time.

Note 1: For references to Commonwealth Acts, see section 10 of the *Acts Interpretation Act 1901*; and see also subsection 13(1) of the *Legislation Act 2003* for the application of the *Acts Interpretation Act 1901* to legislative instruments.

Note 2: All Commonwealth Acts and legislative instruments are registered on the Federal Register of Legislation.

Note 3: See section 314A of the Act.

7 Class licence

This instrument authorises a person to operate a station, subject to the conditions in sections 8 to 12 of, and Schedules 1 and 2 to, this instrument.

8 Condition – purpose

- (1) A person must not operate a station under this instrument unless the person operates it primarily to perform one or more of the following:
 - (a) research into radiocommunications;
 - (b) investigation of radiocommunications;
 - (c) instruction in radiocommunications;
 - (d) demonstration of equipment;
 - (e) testing of equipment;
 - (f) trials of new radiocommunications technology;
 - (g) radio propagation path testing;
 - (h) repair and maintenance of the station.

9 Condition – identification

- (1) A person must not operate, under this instrument, a station that is, or includes, at least one radiocommunications transmitter otherwise than in accordance with one of subsections (2) or (3).
- (2) A person operates a station in accordance with this subsection if the person transmits sufficient information about the location and nature of the station to identify the station at the start of each transmission, or at the start of each series of transmissions.
- (3) A person operates a station in accordance with this subsection if the station is operated:
 - (a) to transmit information that is inaudible; or
 - (b) using a mode of transmission such that it is not practicable to identify the station in accordance with subsection (2).

10 Condition – controlled emissions, or uncontrolled emissions on permitted frequencies

- (1) A person must not operate a station under this instrument otherwise than in accordance with one or more of the following:
 - (a) subsection (2);
 - (b) subsection (3);
 - (c) if the station is a land station – subsection (4);
 - (d) if the station is a mobile station – subsection (5);
 - (e) if the station is an ultra wideband station – subsection (6).
- (2) A person operates a station in accordance with this subsection if all emissions of electromagnetic energy from the station that the person intends the station to emit are dissipated into a dummy load.
- (3) A person operates a station in accordance with this subsection if:
 - (a) the station is operated in a screened room or a shielded enclosure; and

- (b) the signal level of the radio emissions caused by the station at each point of the external surface of the screened room or shielded enclosure is not greater than the mean level of ambient radiofrequency noise in the place the screened room or shielded enclosure is located.
- (4) A person operates a land station in accordance with this subsection if:
 - (a) where the station is, or includes, at least one radiocommunications transmitter – the station operates to transmit on a frequency mentioned in column 2 of an item in the table at Schedule 1; and
 - (b) where the station is, or includes, at least one radiocommunications receiver – the station operates to receive on a frequency mentioned in column 3 of an item in the table at Schedule 1; and
 - (c) where the station is, or includes, at least one radiocommunications transmitter and at least one radiocommunications receiver – the item mentioned in paragraph (a) for the station is the same item as mentioned in paragraph (b) for the station; and
 - (d) the station is operated in accordance with the conditions (if any) mentioned in column 4 of the same item as mentioned in paragraph (a), (b) or (c) for the station.
 - (5) A person operates a mobile station in accordance with this subsection if:
 - (a) where the station is, or includes, at least one radiocommunications transmitter – the station operates to transmit on a frequency mentioned in column 3 of an item in the table at Schedule 1; and
 - (b) where the station is, or includes, at least one radiocommunications receiver – the station operates to receive on a frequency mentioned in column 2 of an item in the table at Schedule 1; and
 - (c) where the station is, or includes, at least one radiocommunications transmitter and at least one radiocommunications receiver – the item mentioned in paragraph (a) for the station is the same item as mentioned in paragraph (b) for the station; and
 - (d) the station is operated in accordance with the conditions (if any) mentioned in column 4 of the same item as mentioned in paragraph (a), (b) or (c) for the station.
 - (6) A person operates an ultra wideband station in accordance with this subsection if the station is operated:
 - (a) on a frequency in a frequency band mentioned in column 2 of an item in Table 1 at Schedule 2; and
 - (b) in accordance with the conditions mentioned in column 3 of that item.

11 Condition – harmful interference

A person must not operate a station under this instrument if its operation causes harmful interference to radiocommunications.

12 Condition – public exposure limits

A person must not operate a station, or a group of stations, under this instrument if the electromagnetic energy emitted by the station, or group of stations, exceeds the general public exposure limits specified in the ARPANSA standard.

Schedule 1—Permitted frequencies and additional conditions for land stations and mobile stations

(subsections 10(4) and (5))

Column 1	Column 2	Column 3	Column 4
Item	Permitted frequencies for transmission (land station) or reception (mobile station)	Permitted frequencies for reception (land station) or transmission (mobile station)	Conditions
1	72.225 MHz	74.725 MHz	<ul style="list-style-type: none"> (a) The station must be operated in FM mode. (b) The station must have a maximum radiated power of 83 W pY EIRP. (c) The station must have a maximum necessary bandwidth of 10.1 kHz.
2	162.225 MHz	157.625 MHz	<ul style="list-style-type: none"> (a) The station must be operated in FM mode. (b) The station must have a maximum radiated power of 83 W pY EIRP. (c) The station must have a maximum necessary bandwidth of 10.1 kHz.
3	411.5 MHz	411.5 MHz	<ul style="list-style-type: none"> (a) The station must be operated in FM mode. (b) The station must have a maximum radiated power of 5 W pY EIRP. (c) The station must have a maximum necessary bandwidth of 10.1 kHz.
4	493.5 MHz	498.7 MHz	<ul style="list-style-type: none"> (a) The station must be operated in FM mode. (b) The station must have a maximum radiated power of 83 W pY EIRP. (c) The station must have a maximum necessary bandwidth of 16 kHz.

Schedule 2—Permitted frequencies and additional conditions for ultra wideband stations

(subsection 10(6))

Table 1

Column 1	Column 2	Column 3
Item	Permitted frequency bands	Conditions
1	All frequencies below 3.1 GHz	<ul style="list-style-type: none"> (a) The station must not cause emissions in a frequency band mentioned in column 2 of an item in Table 2 that exceed the field strength mentioned in column 3 of the item, when measured at the distance mentioned in column 4 of the item. (b) The station must not cause emissions in the frequency bands 960 MHz to 1164 MHz or 1240 MHz to 1559 MHz with an EIRP greater than - 65.3 dBm/MHz. (c) The station must not cause emissions in the frequency bands 1164 MHz to 1240 MHz or 1559 MHz to 1610 MHz with an EIRP greater than - 75.3 dBm/MHz. (d) The station must not cause emissions in the frequency band 1610 MHz to 1990 MHz, or above 3100 MHz, with an EIRP greater than - 53.3 dBm/MHz. (e) The station must not cause emissions in the frequency band 1990 MHz to 3100 MHz with an EIRP greater than -51.3 dBm/MHz.
2	3.1 GHz to 10.6 GHz	<ul style="list-style-type: none"> (a) The station must not cause emissions in a frequency band mentioned in column 2 of an item in Table 2 that exceed the field strength mentioned in column 3 of the item, when measured at the distance mentioned in column 4 of the item. (b) The station must not cause emissions in the frequency bands 960 MHz to 1164 MHz or 1240 MHz to 1559 MHz with an EIRP greater than - 75.3 dBm/MHz. (c) The station must not cause emissions in the frequency bands 1164 MHz to 1240 MHz or 1559 MHz to 1610 MHz with an EIRP greater than - 85.3 dBm/MHz. (d) The station must not cause emissions in the frequency band 1610 MHz to 1990 MHz with an EIRP greater than -53.3 dBm/MHz. (e) The station must not cause emissions in the frequency band 1990 MHz to 3100 MHz, or above 10.6 GHz, with an EIRP greater than - 51.3 dBm/MHz. (f) The station must not cause emissions in the frequency band 3100 MHz to 10.6 GHz with an EIRP greater than - 41.3 dBm/MHz.

Column 1	Column 2	Column 3
Item	Permitted frequency bands	Conditions
3	22 GHz to 26.5 GHz	<p>(a) The station must not cause emissions in a frequency band mentioned in column 2 of an item in Table 2 that exceed the field strength mentioned in column 3 of the item, when measured at the distance mentioned in column 4 of the item.</p> <p>(b) The station must not cause emissions in the frequency bands 960 MHz to 1164 MHz or 1240 MHz to 1559 MHz with an EIRP greater than - 75.3 dBm/MHz.</p> <p>(c) The station must not cause emissions in the frequency bands 1164 MHz to 1240 MHz or 1559 MHz to 1610 MHz with an EIRP greater than - 85.3 dBm/MHz.</p> <p>(d) The station must not cause emissions in the frequency band 1610 MHz to 22 GHz, or above 31 GHz, with an EIRP greater than -61.3 dBm/MHz.</p> <p>(e) The station must not cause emissions in the frequency band 22 GHz to 26.5 GHz with an EIRP greater than - 41.3 dBm/MHz.</p> <p>(f) The station must not cause emissions in the frequency band 26.5 GHz to 31 GHz with an EIRP greater than -51.3 dBm/MHz.</p>

Table 2

Column 1	Column 2	Column 3	Column 4
Item	Frequency band	Maximum field strength ($\mu\text{V/m}$)	Distance (metres)
1	9 kHz to 490 kHz	$2400/f$ where f is the frequency (in kHz) for which emissions are being measured	300
2	490 kHz to 1705 kHz	$2400/f$ where f is the frequency (in kHz) for which emissions are being measured	30
3	1705 kHz to 30 MHz	30	30
4	30 MHz to 88 MHz	100	3
5	88 MHz to 216 MHz	150	3
6	216 MHz to 960 MHz	200	3