

COMMONWEALTH OF AUSTRALIA
AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY



Radiocommunications Act 1992

SPECTRUM LICENCE FOR THE 800 MHz BAND

This licence is issued under Part 3.2 of the *Radiocommunications Act 1992* ('the Act') to the person named at Item 1 of Part 1, Licence Schedule 1.

1. The person named at Item 1 of Part 1, Licence Schedule 1 of this licence ('the licensee'), or a person authorised under subsection 68 (1) of the Act, is authorised, under this licence, to operate radiocommunications devices in accordance with the following:
 - (a) the Act;
 - (b) the core conditions set out in Licence Schedule 2;
 - (c) the statutory conditions set out in Licence Schedule 3;
 - (d) the other conditions set out in Licence Schedule 4.
2. This licence comes into force at the start of the date shown at Item 5 of Part 1, Licence Schedule 1 and remains in force until the end of the date shown at Item 7 of Part 1, Licence Schedule 1.

Definitions

3. In this licence, unless the contrary intention appears:

AAS means an antenna system where the amplitude and/or phase between multiple antenna elements is continually adjusted, resulting in an antenna pattern that varies in response to short term changes in the radio environment.

Act means the *Radiocommunications Act 1992*, as in force from time to time.

area-adjacent spectrum licences means spectrum licences that authorise the operation of radiocommunications devices in the geographic areas adjacent to each of the geographic areas described in Tables 1 and 2 of Part 2 of Licence Schedule 1.

frequency-adjacent spectrum licences means spectrum licences that authorise the operation of radiocommunications devices in the frequency bands adjacent to each of the frequency bands described in Table 1 of Part 2 of Licence Schedule 1.

harmful interference has the same meaning as in the spectrum plan made under subsection 30 (1) of the Act, as in force from time to time.

HCIS identifier means an identifier used to describe a geographic area in the HCIS.

Hierarchical Cell Identification Scheme or HCIS means the cell grouping hierarchy scheme used to describe geographic areas in the *Australian Spectrum Map Grid 2012* published by the ACMA, as existing from time to time.

Note: The *Australian Spectrum Map Grid 2012* can be accessed, free of charge, on the ACMA website at: www.acma.gov.au.

ITU Radio Regulations means the Radio Regulations published by the International Telecommunication Union, as in force from time to time.

Note: The Radio Regulations can be accessed, free of charge, on the ITU website at: www.itu.int.

Licence Schedule means a Schedule to this licence.

mean power, in relation to a radiocommunications transmitter, means the average power of the transmitter measured during an interval of time that is at least 10 times the period of the lowest modulation frequency.

Definitions (cont)

non-AAS receiver means a radiocommunications receiver without AAS.

non-AAS transmitter means a radiocommunications transmitter without AAS.

occupied bandwidth, in relation to a radiocommunications transmitter, means the bandwidth of a frequency band, having fixed upper and lower frequency limits, that is necessary to contain not less than 99% of the true mean power of the transmitter's radio emission at any time.

total radiated power is the integral of the power transmitted in different directions over the entire radiation sphere. It is measured considering the combination of all radiating elements on an antenna panel or individual device.

upper or lower frequency limits, in relation to a geographic area, means the maximum and minimum frequencies, respectively, specified in Part 2 of Licence Schedule 1 for that geographic area.

4. Unless the contrary intention appears, terms and expressions used in this licence have the meaning given to them by any determination made under section 64 of the *Australian Communications and Media Authority Act 2005*, as in force from time to time.

Note: A number of terms used in this licence, are defined in the Act and have the meanings given to them by the Act, including:

- ACMA
- core condition
- frequency band
- radiocommunications device
- radiocommunications receiver
- radiocommunications transmitter
- radio emission
- Register
- renewal application period
- renewal application period statement
- renewal decision-making period
- renewal decision-making period statement
- renewal statement
- spectrum licence
- spectrum plan

Definitions (cont)

5. Unless the contrary intention appears, in this licence:
 - (a) the value of a parameter in Licence Schedules 2 and 3 must be estimated with a level of confidence not less than 95% that the true value of the parameter will always remain below the requirement specified; and
 - (b) a reference to a part of the spectrum, a frequency band or a frequency range includes all the frequencies that are greater than but not including the lower frequency, up to and including the higher frequency.

Licence Schedule 1 Licence details, bands and areas

Part 1 Licence Details

<i>Item</i>	<i>Licensee Details</i>	
1	<i>Name of licensee</i>	Vodafone Hutchison Australia Pty Limited
2	<i>Address of licensee</i>	Attn Paul Kinnane PO Box 1113 NORTH SYDNEY NSW 2060
3	<i>Client number</i>	1136980
	<i>Licence Details</i>	
4	<i>Band release</i>	800 MHz Band
5	<i>Date of licence effect</i>	18/06/2013
6	<i>Date of licence expiry</i>	17/06/2028
7	<i>Licence number</i>	9263429
8	<i>Date of licence issue</i>	27/01/2023

Part 2 Frequency bands and geographic areas

For Core Condition 1, this licence authorises the operation of radiocommunications devices in the frequency bands specified in column 3 and within the corresponding geographic areas specified in column 2 of Table 1.

Each frequency band consists of the bandwidth between the lower and upper frequencies, where the lower frequency limit is exclusive and upper frequency limit is inclusive. The geographic areas in column 2 of Table 1 are described by the sequence of HCIS identifiers in Table 2.

Licence Schedule 1 Licence details, bands and areas (Cont)

Table 1: Frequency bands and geographic areas for this licence

Identifier (column 1)	Geographic areas (column 2)	Frequency bands (column 3)			
		Lower band (MHz)		Upper band (MHz)	
		Lower limit	Upper limit	Lower limit	Upper limit
A	1	825	835	870	880
B	2	825	835	870	880
C	3	825	835	870	880
D	4	825	835	870	880
E	5	825	835	870	880
F	6	825	830	870	875
G		825	830	870	875
H		825	830	870	875

Licence Schedule 1 Licence details, bands and areas (Cont)

Table 2: Description of the geographic areas for this licence

Geographic areas (column 1)	HCIS identifiers (column 2)
1	IW3J, IW3K, IW3L, IW3N, IW3O, IW3P, IW6B, IW6C, IW6D, IW6F, IW6G, IW6H, IW3E5, IW3E6, IW3E8, IW3E9, IW3F4, IW3F5, IW3F6, IW3F7, IW3F8, IW3F9, IW3G4, IW3G5, IW3G6, IW3G7, IW3G8, IW3G9, IW3H4, IW3H5, IW3H6, IW3H7, IW3H8, IW3H9, IW3I2, IW3I3, IW3I5, IW3I6, IW3I8, IW3I9, IW3M2, IW3M3, IW3M5, IW3M6, IW3M8, IW3M9, IW6A2, IW6A3, IW6A5, IW6A6, IW6A8, IW6A9, IW6E2, IW6E3, IW6E5, IW6E6, IW6E8, IW6E9, JW1E4, JW1E7, JW1I1, JW1I4, JW1I7, JW1M1, JW1M4
2	NT9, NT8C, NT8D, NT8G, NT8H, NT8K, NT8L, NT8O, NT8P, NU3A, NU3B, NU3C, NU3D, NU3F, NU3G, NU3H, NT5O4, NT5O5, NT5O6, NT5O7, NT5O8, NT5O9, NT5P4, NT5P5, NT5P6, NT5P7, NT5P8, NT5P9, NT6M4, NT6M5, NT6M6, NT6M7, NT6M8, NT6M9, NT6N4, NT6N5, NT6N6, NT6N7, NT6N8, NT6N9, NT6O4, NT6O5, NT6O6, NT6O7, NT6O8, NT6O9, NT6P4, NT6P5, NT6P6, NT6P7, NT6P8, NT6P9, NU2C1, NU2C2, NU2C3, NU2D1, NU2D2, NU2D3, NU2D5, NU2D6, NU2D8, NU2D9, NU2H2, NU2H3, NU3E1, NU3E2, NU3E3, NU3E5, NU3E6, NU3E8, NU3E9, NU3I2, NU3I3, NU3J1, NU3J2, NU3J3, NU3K1, NU3K2, NU3K3, NU3L1, NU3L2, NU3L3
3	KX3J, KX3K, KX3L, KX3N, KX3O, KX3P, KX6B, KX6C, KX6D, KX6F, KX6G, KX6H, KX6J, KX6K, KX6L, LX1I, LX1M, LX1N, LX1O, LX4A, LX4B, LX4C, LX4E, LX4I, KX3F7, KX3F8, KX3F9, KX3G7, KX3G8, KX3G9, KX3H4, KX3H5, KX3H6, KX3H7, KX3H8, KX3H9, KX3M6, KX3M8, KX3M9, KX6A2, KX6A3, KX6A5, KX6A6, KX6A8, KX6A9, KX6E2, KX6E3, KX6E5, KX6E6, KX6E8, KX6E9, KX6I2, KX6I3, KX6I5, KX6I6, KX6I8, KX6I9, LX1E4, LX1E7, LX1E8, LX1E9, LX1J1, LX1J4, LX1J5, LX1J6, LX1J7, LX1J8, LX1J9, LX1K4, LX1K7, LX4F1, LX4F2, LX4F4, LX4F5, LX4F7, LX4F8, LX4J1, LX4J2, LX4J4, LX4J5, LX4J7, LX4J8
4	BV1I, BV1J, BV1K, BV1L, BV1M, BV1N, BV1O, BV1P, BV2I, BV2J, BV2M, BV2N, BV4A, BV4B, BV4C, BV4D, BV4E, BV4F, BV4G, BV4H, BV4I, BV4J, BV4K, BV4L, BV5A, BV5B, BV5E, BV5F, BV5I, BV5J, BV1E7, BV1E8, BV1E9, BV1F7, BV1F8, BV1F9, BV1G7, BV1G8, BV1G9, BV1H7, BV1H8, BV1H9, BV2E7, BV2E8, BV2E9, BV2F7, BV2F8, BV2F9, BV4M1, BV4M2, BV4M3, BV4N1, BV4N2, BV4N3, BV4O1, BV4O2, BV4O3, BV4P1, BV4P2, BV4P3, BV5M1, BV5M2, BV5M3, BV5N1, BV5N2, BV5N3
5	MV9I, MV9J, MV9K, MV9L, MV9M, MV9N, MV9O, MV9P, MW3C, MW3D, MW3G, MW3H, MW3K, MW3L, NV4N, NV4O, NV4P, NV5M, NV5N, NV5O, NV5P, NV7B, NV7C, NV7D, NV7E, NV7F, NV7G, NV7H, NV7I, NV7J, NV7K, NV7L, NV7M, NV7N, NV7O, NV7P, NW1A, NW1B, NW1C, NW1D, NW1E, NW1F, NW1G, NW1H, NW1I, NW1J, NW1K, NW1L, MV9D6, MV9D9, MV9E4, MV9E5, MV9E6, MV9E7, MV9E8, MV9E9, MV9F4, MV9F5, MV9F6, MV9F7, MV9F8, MV9F9, MV9G4, MV9G5, MV9G6, MV9G7, MV9G8, MV9G9, MV9H3, MV9H4, MV9H5, MV9H6, MV9H7, MV9H8, MV9H9, MW3B2, MW3B3, MW3B5, MW3B6, MW3B8, MW3B9, MW3F2, MW3F3, MW3F5, MW3F6, MW3F8, MW3F9, MW3J2, MW3J3, MW3O1, MW3O2, MW3O3, MW3P1, MW3P2, MW3P3, NV4I5, NV4I6, NV4I8, NV4I9, NV4J4, NV4J5, NV4J6, NV4J7, NV4J8, NV4J9, NV4K4, NV4K5, NV4K6, NV4K7, NV4K8, NV4K9, NV4L4, NV4L5, NV4L6, NV4L7, NV4L8, NV4L9, NV4M2, NV4M3, NV4M5, NV4M6, NV4M8, NV4M9, NV5I4, NV5I5, NV5I6, NV5I7, NV5I8, NV5I9, NV5J4, NV5J5, NV5J6, NV5J7, NV5J8, NV5J9, NV5K4, NV5K5, NV5K6, NV5K7, NV5K8, NV5K9, NV5L4, NV5L5, NV5L6, NV5L7, NV5L8, NV5L9, NV7A2, NV7A3, NV7A4, NV7A5, NV7A6, NV7A7, NV7A8, NV7A9, NW1M1, NW1M2, NW1M3, NW1N1, NW1N2, NW1N3, NW1O1, NW1O2, NW1O3, NW1P1, NW1P2, NW1P3

Licence Schedule 1

Licence details. bands and areas (Cont)

Geographic areas (column 1)	HCIS identifiers (column 2)
6	BR, BS, BT, BU, CR, CS, CT, CU, CV, DQ, DR, DS, DT, DU, DV, EP, EQ, ER, ES, ET, EU, FP, FQ, FR, FS, FT, FU, GP, GQ, GR, GS, GT, GU, HO, HP, HQ, HR, HS, HT, HU, IO, IP, IQ, IR, IS, IT, IU, IV, JO, JP, JQ, JR, JS, JT, JU, JV, KQ, KR, KS, KT, KU, KV, KW, LR, LS, LT, LU, LV, LW, LY, MS, MT, MU, AR8, AR9, AS2, AS3, AS5, AS6, AS8, AS9, AT1, AT2, AT3, AT5, AT6, AT8, AT9, AU2, AU3, AU6, AU9, AV9, AW3, BV3, BV6, BV7, BV8, BV9, BW1, BW2, BW3, BW5, BW6, CW1, CW2, CW3, CW4, DW1, DW2, DW3, EV1, EV2, EV3, EV4, EV5, EV6, EV7, FV1, FV2, FV3, FV4, FV5, GO3, GO4, GO5, GO6, GO7, GO8, GO9, GV1, GV2, GV3, GV6, HV1, HV2, HV3, HV4, HV5, HV6, HV8, HV9, HW3, HW6, IW1, IW2, IW4, IW5, IW7, IW8, IW9, JW2, JW3, JW4, JW5, JW6, JW7, JW8, JW9, JX1, JX2, JX3, JX5, JX6, KO1, KO4, KO5, KO7, KO8, KP1, KP2, KP4, KP5, KP6, KP7, KP8, KP9, KX1, KX2, KX4, KX5, KX8, KX9, KY2, KY3, KY6, LP4, LP7, LQ1, LQ2, LQ4, LQ5, LQ7, LQ8, LX2, LX3, LX5, LX6, LX7, LX8, LX9, LZ1, LZ2, LZ3, MR1, MR4, MR5, MR7, MR8, MR9, MV1, MV2, MV3, MV4, MV5, MV6, MV7, MV8, MW1, MW2, MW4, MW5, MW6, MW7, MW8, MW9, MX1, MX2, MX3, MX4, MX7, MY1, MY4, MY7, MZ1, NS4, NS7, NS8, NS9, NT1, NT2, NT3, NT4, NT7, NU1, NU4, NU5, NU6, NU7, NU8, NU9, NV1, NV2, NV3, BV1A, BV1B, BV1C, BV1D, BV2A, BV2B, BV2C, BV2D, BV2G, BV2H, BV2K, BV2L, BV2O, BV2P, BV5C, BV5D, BV5G, BV5H, BV5K, BV5L, BV5O, BV5P, IW3A, IW3B, IW3C, IW3D, IW6I, IW6J, IW6K, IW6L, IW6M, IW6N, IW6O, IW6P, JW1A, JW1B, JW1C, JW1D, JW1F, JW1G, JW1H, JW1J, JW1K, JW1L, JW1N, JW1O, JW1P, KX3A, KX3B, KX3C, KX3D, KX3E, KX3I, KX6M, KX6N, KX6O, KX6P, LX1A, LX1B, LX1C, LX1D, LX1F, LX1G, LX1H, LX1L, LX1P, LX4D, LX4G, LX4H, LX4K, LX4L, LX4M, LX4N, LX4O, LX4P, MV9A, MV9B, MV9C, MW3A, MW3E, MW3I, MW3M, MW3N, NT5A, NT5B, NT5C, NT5D, NT5E, NT5F, NT5G, NT5H, NT5I, NT5J, NT5K, NT5L, NT5M, NT5N, NT6A, NT6B, NT6C, NT6D, NT6E, NT6F, NT6G, NT6H, NT6I, NT6J, NT6K, NT6L, NT8A, NT8B, NT8E, NT8F, NT8I, NT8J, NT8M, NT8N, NU2A, NU2B, NU2E, NU2F, NU2G, NU2I, NU2J, NU2K, NU2L, NU2M, NU2N, NU2O, NU2P, NU3M, NU3N, NU3O, NU3P, NV4A, NV4B, NV4C, NV4D, NV4E, NV4F, NV4G, NV4H, NV5A, NV5B, NV5C, NV5D, NV5E, NV5F, NV5G, NV5H, BV1E1, BV1E2, BV1E3, BV1E4, BV1E5, BV1E6, BV1F1, BV1F2, BV1F3, BV1F4, BV1F5, BV1F6, BV1G1, BV1G2, BV1G3, BV1G4, BV1G5, BV1G6, BV1H1, BV1H2, BV1H3, BV1H4, BV1H5, BV1H6, BV2E1, BV2E2, BV2E3, BV2E4, BV2E5, BV2E6, BV2F1, BV2F2, BV2F3, BV2F4, BV2F5, BV2F6, BV4M4, BV4M5, BV4M6, BV4M7, BV4M8, BV4M9, BV4N4, BV4N5, BV4N6, BV4N7, BV4N8, BV4N9, BV4O4, BV4O5, BV4O6, BV4O7, BV4O8, BV4O9, BV4P4, BV4P5, BV4P6, BV4P7, BV4P8, BV4P9, BV5M4, BV5M5, BV5M6, BV5M7, BV5M8, BV5M9, BV5N4, BV5N5, BV5N6, BV5N7, BV5N8, BV5N9, IW3E1, IW3E2, IW3E3, IW3E4, IW3E7, IW3F1, IW3F2, IW3F3, IW3G1, IW3G2, IW3G3, IW3H1, IW3H2, IW3H3, IW3I1, IW3I4, IW3I7, IW3M1, IW3M4, IW3M7, IW6A1, IW6A4, IW6A7, IW6E1, IW6E4, IW6E7, JW1E1, JW1E2, JW1E3, JW1E5, JW1E6, JW1E8, JW1E9, JW1I2, JW1I3, JW1I5, JW1I6, JW1I8, JW1I9, JW1M2, JW1M3, JW1M5, JW1M6, JW1M7, JW1M8, JW1M9, KX3F1, KX3F2, KX3F3, KX3F4, KX3F5, KX3F6, KX3G1, KX3G2, KX3G3, KX3G4, KX3G5, KX3G6, KX3H1, KX3H2, KX3H3, KX3M1, KX3M2, KX3M3, KX3M4, KX3M5, KX3M7, KX6A1, KX6A4, KX6A7, KX6E1, KX6E4, KX6E7, KX6I1, KX6I4, KX6I7, LX1E1, LX1E2, LX1E3, LX1E5, LX1E6, LX1J2, LX1J3, LX1K1, LX1K2, LX1K3, LX1K5, LX1K6, LX1K8, LX1K9, LX4F3, LX4F6, LX4F9, LX4J3, LX4J6, LX4J9, MV9D1, MV9D2, MV9D3, MV9D4, MV9D5, MV9D7, MV9D8, MV9E1, MV9E2, MV9E3, MV9F1, MV9F2, MV9F3, MV9G1, MV9G2, MV9G3, MV9H1, MV9H2, MW3B1, MW3B4, MW3B7, MW3F1, MW3F4, MW3F7, MW3J1, MW3J4, MW3J5, MW3J6, MW3J7, MW3J8, MW3J9, MW3O4, MW3O5, MW3O6, MW3O7, MW3O8, MW3O9, MW3P4, MW3P5, MW3P6, MW3P7, MW3P8, MW3P9, NT5O1, NT5O2, NT5O3,

Licence Schedule 1

Licence details. bands and areas (Cont)

Geographic areas (column 1)	HCIS identifiers (column 2)
	NT5P1, NT5P2, NT5P3, NT6M1, NT6M2, NT6M3, NT6N1, NT6N2, NT6N3, NT6O1, NT6O2, NT6O3, NT6P1, NT6P2, NT6P3, NU2C4, NU2C5, NU2C6, NU2C7, NU2C8, NU2C9, NU2D4, NU2D7, NU2H1, NU2H4, NU2H5, NU2H6, NU2H7, NU2H8, NU2H9, NU3E4, NU3E7, NU3I1, NU3I4, NU3I5, NU3I6, NU3I7, NU3I8, NU3I9, NU3J4, NU3J5, NU3J6, NU3J7, NU3J8, NU3J9, NU3K4, NU3K5, NU3K6, NU3K7, NU3K8, NU3K9, NU3L4, NU3L5, NU3L6, NU3L7, NU3L8, NU3L9, NV4I1, NV4I2, NV4I3, NV4I4, NV4I7, NV4J1, NV4J2, NV4J3, NV4K1, NV4K2, NV4K3, NV4L1, NV4L2, NV4L3, NV4M1, NV4M4, NV4M7, NV5I1, NV5I2, NV5I3, NV5J1, NV5J2, NV5J3, NV5K1, NV5K2, NV5K3, NV5L1, NV5L2, NV5L3, NV7A1, NW1M4, NW1M5, NW1M7, NW1M8

Note: The HCIS is described in the *Australian Spectrum Map Grid 2012*. The *Australian Spectrum Map Grid 2012* can be accessed, free of charge, on the ACMA website at www.acma.gov.au.

Licence Schedule 2

Core Conditions

Frequency bands and geographic areas

1. This licence authorises the operation of radiocommunications devices in the frequency bands and within the geographic areas set out in Part 2 of Licence Schedule 1.

Emission limits outside the frequency bands

2. Core Conditions 3 to 15 apply in relation to those frequencies that are outside each of the frequency bands set out in Part 2 of Licence Schedule 1. For a frequency band set out in Part 2 of Licence Schedule 1, Core Conditions 3 to 15 apply within the geographic area specified for the frequency band.
3. Where a written agreement specifying the maximum permitted level of radio emission for frequencies described in Core Condition 2 exists between:
 - (a) the licensee; and
 - (b) all the affected licensees of frequency-adjacent spectrum licences and area-adjacent spectrum licences;

the licensee must comply with that specified maximum permitted level of radio emission.

4. Where there is no written agreement for the purposes of Core Condition 3 in force, or where Core Condition 3 does not apply, the licensee must comply with Core Conditions 5 to 15.

Unwanted emission limits outside the frequency bands

5. (1) The licensee must ensure that a radiocommunications transmitter that is operated under this licence in the frequency range 870 MHz-890 MHz does not exceed the unwanted emission limits in Core Conditions 6 to 9.
- (2) The licensee must ensure that a radiocommunications transmitter that is operated under this licence in the frequency range 825 MHz-845 MHz does not exceed the unwanted emission limits in Core Condition 10 and 11.

Licence Schedule 2

Core Conditions (cont)

- (3) The licensee must ensure that a radiocommunications receiver that is operated under this licence does not exceed the unwanted emission limits in Core Conditions 12 to 14.

Radiocommunications transmitters operating in 870 MHz-890 MHz

6. The unwanted emission limits in Table 1, measured over the measurement bandwidth, apply to non-AAS transmitters operating in the frequency range 870 MHz-890 MHz from emissions falling into the frequency range 849 MHz-900 MHz:

where:

f_{offset} is the frequency offset from the upper or lower frequency limits for the spectrum licence. The closest -3 dB point of the specified bandwidth closest to the upper and lower frequency limits for the spectrum licence is placed at f_{offset} .

Table 1: Unwanted emissions limits in 849 MHz to 900 MHz for transmitters operating in 870 MHz to 890 MHz - non-AAS transmitters

Frequency offset measurement filter -3 dB point from upper/lower limit of licence	Mean power per transmitter port (dBm)	Measurement bandwidth
$0 \text{ MHz} \leq f_{\text{offset}} \leq 5 \text{ MHz}$	-7 dBm - $7/5 (f_{\text{offset}}/\text{MHz}) - 0.05$ dB	100 kHz
$5 \text{ MHz} \leq f_{\text{offset}} \leq 10 \text{ MHz}$	-14	100 kHz
$f_{\text{offset}} \geq 10 \text{ MHz}$	-16	100 kHz

7. The unwanted emission limits in Table 2, measured over the measurement bandwidth, apply to radiocommunications transmitters with AAS operating in the frequency range 870 MHz-890 MHz from emissions falling into the frequency range 849 MHz-900 MHz:

where:

f_{offset} is the frequency offset from the upper or lower frequency limits for the spectrum licence. The closest -3 dB point of the specified bandwidth closest to the upper and lower frequency limits for the spectrum licence is placed at f_{offset} .

Table 2: Unwanted emissions limits in 849 MHz to 900 MHz for transmitters operating in 870 MHz to 890 MHz - transmitters with AAS

Frequency offset measurement filter -3 dB point from upper/lower limit of licence	Total radiated power per cell/sector (dBm)	Measurement bandwidth
$0 \text{ MHz} \leq f_{offset} < 5 \text{ MHz}$	$2 \text{ dBm} - 7/5 (f_{offset}/\text{MHz}) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq f_{offset} < 10 \text{ MHz}$	-5	100 kHz
$f_{offset} \geq 10 \text{ MHz}$	-7	100 kHz

8. The unwanted emission limits in Table 3, measured over the measurement bandwidth, apply to non-AAS transmitters operating in the frequency range 870 MHz-890 MHz from emissions falling into the frequency range 849 MHz-900 MHz.

Table 3: Unwanted emissions limits outside 849 MHz to 900 MHz transmitters operating in 870 MHz to 890 MHz - non-AAS transmitters

Frequency range (f)	Mean power per transmitter port (dBm)	Measurement bandwidth
$9 \text{ kHz} < f \leq 150 \text{ kHz}$	-36	1 kHz
$150 \text{ kHz} < f \leq 30 \text{ MHz}$	-36	10 kHz
$30 \text{ MHz} < f \leq 1 \text{ GHz}$	-36	100 kHz
$1 \text{ GHz} < f \leq 12.75 \text{ GHz}$	-30	1 MHz

Licence Schedule 2**Core Conditions (cont)**

9. The unwanted emission limits in Table 4, measured over the measurement bandwidth, apply to radiocommunications transmitters with AAS operating in the frequency range 870 MHz-890 MHz from emissions falling into the frequency range 849 MHz-900 MHz:

Table 4: Unwanted emissions limits outside 849 MHz to 900 MHz for transmitters operating in 859 MHz to 890 MHz - transmitters with AAS

Frequency range (f)	Radiated maximum true mean power (dBm EIRP)	Measurement bandwidth
$9 \text{ kHz} < f \leq 150 \text{ kHz}$	-27	1 kHz
$150 \text{ kHz} < f \leq 30 \text{ MHz}$	-27	10 kHz
$30 \text{ MHz} < f \leq 1 \text{ GHz}$	-27	100 kHz
$1 \text{ GHz} < f \leq 12.75 \text{ GHz}$	-21	1 MHz

Radiocommunications transmitters operating in 825 MHz-845 MHz frequency range

10. The unwanted emission limits in Table 5, measured over the measurement bandwidth, apply for radiocommunications transmitters operating in the frequency range 825 MHz-845 MHz, at $f_{\text{offset}} \leq 25 \text{ MHz}$:

where:

f_{offset} is the frequency offset from the upper or lower frequency limits for the spectrum licence. The closest -3 dB point of the specified bandwidth closest to the upper and lower frequency limits for the spectrum licence is placed at f_{offset} .

Table 5: Unwanted emission limits for transmitters operating in 825 MHz to 845 MHz - frequency offset less than or equal to 25 MHz

Frequency offset measurement filter -3 dB point from upper/lower limit of licence	Mean power per transmitter port (dBm)	Measurement bandwidth
$0 \text{ MHz} \leq f_{\text{offset}} \leq 1 \text{ MHz}$	-13	50 kHz
$1 \text{ MHz} \leq f_{\text{offset}} \leq 5 \text{ MHz}$	-10	1 MHz
$5 \text{ MHz} \leq f_{\text{offset}} < 20 \text{ MHz}$	-13	1 MHz
$20 \text{ MHz} \leq f_{\text{offset}} \leq 25 \text{ MHz}$	-25	1 MHz

11. The unwanted emission limits in Table 6, measured over the measurement bandwidth, apply for radiocommunications transmitters operating in the frequency range 825 MHz - 845 MHz at $f_{\text{offset}} > 25$ MHz:

where:

f_{offset} is the frequency offset from the upper or lower frequency limits for the spectrum licence. The closest -3 dB point of the specified bandwidth closest to the upper and lower frequency limits for the spectrum licence is placed at f_{offset} .

Table 6: Unwanted emissions limits for transmitters operating in 825 MHz to 845 MHz - frequency offset greater than 25 MHz

Frequency range (f)	Mean power per transmitter port (dBm)	Measurement bandwidth
$9 \text{ kHz} < f \leq 150 \text{ kHz}$	-36	1 kHz
$150 \text{ kHz} < f \leq 30 \text{ MHz}$	-36	10 kHz
$30 \text{ MHz} < f \leq 1 \text{ GHz}$	-36	100 kHz
$1 \text{ GHz} < f \leq 12.75 \text{ GHz}$	-30	1 MHz

Radiocommunications receivers

12. Subject to Core Condition 13, the unwanted emissions limits in Table 7, measured over the measurement bandwidth for the relevant frequency range, apply to non-AAS receivers:
- for all receivers operating in the frequency range 870 MHz-890 MHz;
 - for receivers operating in the frequency range 825 MHz-845 MHz - outside the frequency range 849 MHz-900MHz.

Licence Schedule 2

Core Conditions (cont)

13. For a radiocommunications receiver mentioned in Core Condition 12(b), where the antenna or transceiver array boundary connectors support both radiocommunications receiver and a radiocommunications transmitter:
- (a) the unwanted emission limits in Table 7 do not apply; and
 - (b) the unwanted emission limits in Table 3 apply, measured over the measurement bandwidth, for receivers operating in the frequency range 825 MHz-845MHz, outside the frequency range 849 MHz-900 MHz.

Table 7: Unwanted emissions limits for non-AAS receivers

Frequency range (f)	Total radiated power (dBm)	Measurement bandwidth
$30 \text{ MHz} < f \leq 1 \text{ GHz}$	-57	100 kHz
$1 \text{ GHz} < f \leq 12.75 \text{ GHz}$	-47	1 MHz

14. The unwanted emissions limits in Table 4, measured over the measurement bandwidth for the relevant frequency range, apply to radiocommunications receivers with AAS operating in the frequency range 825 MHz-845 MHz, outside the frequency range 849 MHz-900 MHz.

Emission limits outside the geographic areas

15. Core Conditions 16 to 19 apply in relation to those areas outside the geographic areas set out in Part 2 of Licence Schedule 1.
16. Where a written agreement specifying the maximum permitted level of radio emission for areas described in Core Condition 15 exists between:
- (a) the licensee; and
 - (b) all the affected licensees of frequency-adjacent spectrum licences and area-adjacent spectrum licences;
- the licensee must comply with that specified maximum permitted level of radio emission.
17. Where there is no written agreement for the purposes of Core Condition 16 in force, or where Core Condition 16 does not apply, the licensee must comply with Core Conditions 18 and 19.

Unwanted emissions limits outside the geographic areas

18. The licensee must ensure that the maximum permitted level of radio emission for an area outside the geographic area within which the licence authorises the operation of radiocommunications devices, caused by the operation of radiocommunications transmitters with AAS under the licence, does not exceed a total radiated power, per registered device, of 42 dBm per 30 kHz.
19. The licensee must ensure that the maximum permitted level of radio emission for an area outside the geographic area within which the licence authorises the operation of radiocommunications devices, caused by the operation of non-AAS transmitters under the licence, does not exceed a total conducted power of 33 dBm per 30 kHz.

Licence Schedule 3

Statutory Conditions

Liability to pay charges

1. The licensee must comply with all its obligations (if any) to pay:
 - (a) charges fixed by determinations made under section 60 of the *Australian Communications and Media Authority Act 2005*; and
 - (b) spectrum access charges fixed by determinations made under section 294 of the Act; and
 - (c) amounts of spectrum licence tax.

Third party use

2. (1) The licensee must notify any person whom the licensee authorises, under section 68 of the Act, to operate radiocommunications devices under this licence of that person's obligations under the Act, in particular:
 - (a) the registration requirements under Part 3.5 of the Act for operation of radiocommunications devices under this licence; and
 - (b) any rules made by the ACMA under subsection 68(3) of the Act.
- (2) Any person other than the licensee who operates a radiocommunications device under this licence must comply with rules made by the ACMA under subsection 68(3) of the Act.

Radiocommunications transmitter registration requirements

3. A person must not operate a radiocommunications transmitter under this licence unless:
 - (a) the transmitter has been exempted from the registration requirements, under Statutory Condition 4 below; or
 - (b) both:
 - (i) the requirements under Part 3.5 of the Act relating to registration of the transmitter have been met; and
 - (ii) the transmitter complies with the details about it that have been entered in the Register.

Exemption from registration requirements

4. The following kinds of radiocommunications transmitters are exempt from the registration requirement in Statutory Condition 3:
- (a) a radiocommunications transmitter that operates in frequency band listed in schedule 1 Table 1 with a radiated power of less than or equal to 30 dBm EIRP per 1 MHz; and
 - (b) a radiocommunications transmitter that operates in a frequency listed in Schedule 1 Table 1 as part of a group of radiocommunications transmitters, each of which has a radiated power always less than or equal to 30dBm EIRP per 1 MHz.

Note: 'Group of radiocommunications transmitters' is defined in the Radiocommunications (Unacceptable Levels of Interference - 850/900 MHz Band) Determination 2021. This can be accessed, free of charge, on the Federal Register of Legislation at www.legislation.gov.au.

Residency

5. (1) The licensee must not derive any income, profits or gains from operating radiocommunications devices under this licence, or from authorising others to do so, unless:
- (a) the licensee is an Australian resident; or
 - (b) the income, profits or gains are attributable to a permanent establishment in Australia through which the licensee carries on business.
- (2) A person (the ***authorised person***) authorised under section 68 of the Act in relation to this licence must not derive income, profits or gains from operating radiocommunications devices under this licence, unless:
- (a) the authorised person is an Australian resident; or
 - (b) the income, profits or gains are attributable to a permanent establishment in Australia through which the authorised person carries on business.

Residency (cont)

(3) In this condition:

Australian resident has the same meaning as in the *Income Tax Assessment Act 1997*.

permanent establishment has the same meaning as in:

- (a) if the licensee or authorised person (as appropriate) is a resident of a country or other jurisdiction with which Australia has an agreement within the meaning of the *International Tax Agreements Act 1953*-that agreement; or
- (b) in any other case-the *Income Tax Assessment Act 1997*.

Definitions

1. In this Licence Schedule 4:

managing interference includes but is not limited to:

- (a) investigating the possible causes of interference;
- (b) taking all steps reasonably necessary to resolve disputes about interference;
- (c) taking steps (or requiring persons authorised to operate radiocommunications devices under this licence to take steps) reasonably likely to reduce interference to acceptable levels;
- (d) negotiating with other persons to reduce interference to acceptable levels.

Responsibility to manage interference

2. The licensee must manage interference between:

- (a) radiocommunications devices operated under this licence; and
- (b) radiocommunications devices operated under this licence and under each other spectrum licence held by the licensee.

Co-site radiocommunications devices

3. If:

- (a) interference occurs between: :
 - (i) a radiocommunications device operated under this licence; and
 - (ii) another radiocommunications device operated under another licence (the *other licence*);when the measured separation between the phase centre of the antenna used with each device is less than 200 metres; and
 - (b) that interference is not the result of operation of a radiocommunications device in a manner that does not comply with the conditions of the relevant licence; and
 - (c) either the licensee or the holder (or authorised third party) of the other licence wishes to resolve the interference;
- the licensee must manage interference with:
- (d) the holder of the other licence; or
 - (e) if a site manager is responsible for managing interference at that location, that site manager.

Licence Schedule 4

Other Conditions (cont)

Information for Register

4. The licensee must give the ACMA all information as required by the ACMA from time to time for inclusion in the Register.

Note: Licensees should assist the ACMA in keeping the Register accurate and up to date by informing the ACMA of changes to device registration details as soon as possible.

International coordination

5. The licensee must ensure that operation of a radiocommunications transmitter under this licence does not cause harmful interference to a radiocommunications receiver that operates in accordance with the ITU Radio Regulations and is located in a country other than Australia.

Electromagnetic energy (EME) requirements

6. The licensee must comply with Parts 2, 3 and 4 of the *Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015*, or any instrument that replaces that determination, as in force from time to time. For the purpose of compliance with this condition, the definition of **licence** in subsection 4(1) of the *Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015*, or in the interpretation section of the replacement instrument, is to be read as if it referred to a spectrum licence.

Note: The *Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015* can be accessed, free of charge, on the Federal Register of Legislation at www.legislation.gov.au.

Coordination with the Mid-West Radio Quiet Zone (RQZ)

7. Before seeking to register a radiocommunications transmitter for use in or around the RQZ and supplementary RQZ, the licensee must follow the procedures set out in Radiocommunications Assignment and Licensing Instruction (RALI) MS 32, as in existence from time to time.

Note: RALI MS 32 can be accessed, free of charge, on the ACMA website at www.acma.gov.au.

Licence Schedule 4

Other conditions (cont)

8. In Condition 7 of this Licence Schedule 4, **RQZ** and **supplementary RQZ** have the same meaning as in:
- (a) the *Radiocommunications (Mid-West Radio Quiet Zone) Frequency Band Plan 2011*, as in force from time to time; or
 - (b) if another instrument replaces that band plan - the other instrument, as in force from time to time.

Harmful interference

9. The licensee must ensure that operation of a radiocommunications transmitter that is exempt from registration under Statutory Condition 4 of Licence Schedule 3 does not cause harmful interference to other radiocommunications devices operated under a different spectrum licence or an apparatus licence.

Variation to licence conditions

1. The ACMA may, with the written agreement of the licensee, vary this licence by including one or more further conditions, or by revoking or varying any conditions of this licence, provided that the conditions, as varied, still comply with the requirements of Subdivision C of Division 1 of Part 3.2 of the Act.
2. The ACMA may, by written notice given to the licensee, vary this licence by including one or more further conditions (other than core conditions), or by revoking or varying any conditions (other than core conditions) of this licence, provided that the conditions, as varied, still comply with the requirements of Subdivision C of Division 1 of Part 3.2 of the Act.

Determination of unacceptable levels of interference

3. The ACMA has made the *Radiocommunications (Unacceptable Levels of Interference - 850/900 MHz Band) Determination 2021* that sets out the unacceptable levels of interference for the purpose of registering radiocommunications transmitters to be operated under this licence, and which is to be used for the issuing of certificates by accredited persons under subsection 145(3) of the Act.

Note 1: Although not mandatory, the registration of receivers to be operated under this licence is recommended because one of the matters ACMA will take into account in settling interference is the time of registration of the receiver involved in the dispute.

Note 2: The *Radiocommunications (Unacceptable Levels of Interference - 850/900 MHz Band) Determination 2021*, can be accessed, free of charge, on the Federal Register of Legislation at www.legislation.gov.au.

Guidelines

4. The ACMA has issued written Radiocommunications Advisory Guidelines (the *guidelines*) under section 262 of the Act about the following:
 - (a) coordinating the operation of radiocommunications transmitters under this licence with radiocommunications receivers operated under other licences: see the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters - 850/900 MHz Band) 2021*; and
 - (b) coordinating the operation of radiocommunications receivers operated under this licence with radiocommunications transmitters operated under other licences: see the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers - 850/900 MHz Band) 2021*.

Licence Schedule 5

Licence Notes (cont)

Note: These guidelines can be accessed, free of charge, on the Federal Register of Legislation at www.legislation.gov.au.

5. The guidelines should be read in conjunction with the *Radiocommunications (Unacceptable Levels of Interference - 850/900 MHz Band) Determination 2021* (see Licence Note 3). That determination sets out the unacceptable levels of interference for the purpose of registration of radiocommunications transmitters to be operated under this licence. The guidelines should be followed by licensees (and accredited persons) in the planning of services and the resolution of interference cases. The ACMA will consider these guidelines during the settlement of interference disputes. Each case will be assessed on its merits.

Suspension and cancellation of spectrum licences

6. The ACMA may by written notice given to a licensee, suspend or cancel a spectrum licence in accordance with Division 3 of Part 3.2 of the Act.

Renewal

7. The ACMA may renew spectrum licences in accordance with Division 3A of Part 3.2 of the Act.
8. A person must apply for renewal in accordance with section 77A of the Act. The renewal application period for this licence is the period specified in subsection 77A(3) of the Act.
9. The ACMA may request further information in connection with an application for renewal, in accordance with section 77B of the Act.
10. The ACMA must not renew a spectrum licence for a period of 10 years or longer unless satisfied that is in the public interest to do so.
11. If the ACMA renews a spectrum licence, the conditions of the new spectrum licence need not be the same as those of the licence it replaces.
12. If the ACMA has the discretion to renew the licence, it also has the discretion to refuse to renew the licence. The ACMA must make its decision within the period set out in paragraph 286(1)(a) of the Act. If it does not, it is taken to have refused to renew the licence (subsection 286(2)).

Trading

13. (1) A licensee may assign or otherwise deal with the whole or any part of a spectrum licence provided that it is done in accordance with any rules determined by the ACMA under section 88 of the Act.
- (2) An assignment under section 85 of the Act of the whole or any part of a spectrum licence that involves any change to a spectrum licence does not take effect until the Register has been amended under Part 3.5 of the Act, to take it into account.

Appeals

14. An application may be made to the ACMA for reconsideration of a decision of a kind listed in section 285 of the Act. A person affected by and dissatisfied with any ACMA decision may seek a reconsideration of the decision by the ACMA under subsection 288(1) of the Act. This decision can be subject to further review by the Administrative Appeals Tribunal, subject to the provisions of the *Administrative Appeals Tribunal Act 1975*.

Labelling of radiocommunications transmitters

15. Licensees should affix identification labels containing the name and address of the licensee on all fixed transmitters operated under this licence.

Note: An example of an identification label would be one containing the following statement: "This device is the property of 'name'".

No protection from existing radiocommunications transmitters

16. The ACMA does not intend to afford protection to a radiocommunications device operated under this licence (***relevant device***) from:
- (a) radiocommunications transmitters operated under spectrum licences, which were already in force before this licence was issued, that were registered on the Register before the relevant device was registered on the Register; or
 - (b) any other radiocommunications device operated under an apparatus licence and registered on the Register before the relevant device was registered on the Register, that is operating in accordance with the conditions of the apparatus licence.