COMMONWEALTH OF AUSTRALIA AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY



Radiocommunications Act 1992

SPECTRUM LICENCE FOR THE 2.5 GHz MID-BAND GAP

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 of this licence.

- 1. The person named at Item 1 of 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:
 - (a) the Act;
 - (b) the core conditions set out in Licence Schedule 2;
 - (c) the statutory conditions set out in Licence Schedule 3; and
 - (d) the ACMA conditions set out in Licence Schedule 4.
- 2. This licence comes into force on 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 6 of Part 1, Licence Schedule 1.

Definitions

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

Act means the Radiocommunications Act 1992.

area-adjacent licences mean the spectrum licences that authorise the operation of radiocommunications devices in the geographic areas adjacent to the geographic areas described in Part 2 of Licence Schedule 1 of this licence.

frequency-adjacent licences mean the spectrum licences that authorise the operation of radiocommunications devices in the frequency bands adjacent to the frequency bands described in Part 2 of Licence Schedule 1 of this licence.

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

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

Note: The Australian Spectrum Map Grid 2012 is available 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: Copies of the ITU Radio Regulations can be obtained from the ITU: www.itu.int

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
- · spectrum licence
- 4. Unless the contrary intention appears, terms and expressions used in this licence have the meanings given to them by the *Radiocommunications Spectrum Conversion Plan* (2.5 GHz Mid-band Gap) 2012.
- 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) the range of numbers that identify a frequency band includes the higher, but not the lower, number.

Licence Schedule 1 Licence details, bands and areas

Part 1 Licence Details

Item	Licensee Details	
1	Name of licensee	Nine Network Australia Pty Ltd
2	Address of licensee	PO Box 27 WILLOUGHBY NSW 2068
3	Client number	1201931
	Licence Details	
4	Band release	2.5 GHz Mid Band Gap
5	Date of licence effect	01/10/2014
6	Date of licence expiry	30/09/2029
7	Licence number	9445342
8	Date of licence issue	18/06/2021

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.

The 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 of this licence

Identifier (column 1)		Geographic		Frequency bar	nds (column 3)	
		areas	Lower band (MHz)		Upper band (MHz)	
(column 1)	(column 1)	(column 2)	Lower limit	Upper limit	Lower limit	Upper limit
	A	1	2595	2605		
	В		2595	2605		
	C		2595	2605		

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

Table 2: Description of the geographic areas of this licence

Note: The HCIS is described in the Australian Spectrum Map Grid 2012. The Australian Spectrum Map Grid 2012 is available on the ACMA website at: www.acma.gov.au. Copies are also available from the ACMA.

Frequency band and geographic areas

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

Emission limits outside the frequency band

- 2. Core Conditions 3 to 13 apply in relation to those frequencies that are outside the frequency bands set out in Part 2 of Licence Schedule 1.
- 3. Where a written agreement exists between:
 - (a) the licensee; and
 - (b) all the affected licensees of frequency-adjacent and area-adjacent licences;

specifying the maximum permitted level of radio emission for frequencies described in Core Condition 2, 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, Core Conditions 5 to 13 apply.

Non-spurious emission limits

5. The licensee must ensure that radiocommunications devices operated under the licence do exceed the non-spurious emission limits in Core Conditions 6, 7, 8, 9 and 10.

6. Non-spurious emission limits - Low power registration exempt transmitters

- (1) For radio emission that is:
 - (a) not spurious emission; and
 - (b) caused by a radiocommunications transmitter:
 - (i) operating in the band 2570 MHz to 2620 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap; and
 - (ii) with a radiated true mean power less than 13 dBm/30 kHz,

the maximum emission limits outside the frequency band of the licence but within the band 2500 MHz to 2690 MHz are specified in Table 2.

(2) In Table 2:

forfset: is the frequency offset from the upper or lower frequency limits set out in

Table 2: Maximum emission limits (non-spurious emissions from low power registration exempt transmitters)

Frequency offset range (f _{offset})	Radiated maximum true mean power (dBm EIRP)	Specified Bandwidth	
$0 \text{ Hz} \leq f_{\text{offset}} < 1 \text{ MHz}$	-15	30 kHz	
$1 \text{ MHz} \leq f_{\text{offset}} < 5 \text{ MHz}$	-10	1 MHz	
$5 \text{ MHz} \leq f_{\text{offset}} < 6 \text{ MHz}$	-13	1 MHz	
f _{offset} ≥ 6 MHz	-19	1 MHz	

7. Non-spurious emission limits - High power fixed or nomadic transmitters (upper frequency limit of the licence)

- (1) For radio emission that is:
 - (a) not spurious emission; and
 - (b) caused by a radiocommunications transmitter operating in the band 2575 MHz to 2615 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap,

the maximum emission limits outside the frequency band of the licence but within the band 2570 MHz to 2620 MHz are specified in Table 3.

(2) In Table 3:

foffset: is the frequency offset from the upper frequency limit set out in Part 2 of Licence Schedule 1.

Table 3: Maximum emission limits - adjacent to the upper frequency limit of the licence (non-spurious emissions from high power fixed or nomadic transmitters)

Frequency offset range	Radiated maximum true mean power	Specified	
(\mathbf{f}_{offset})	(dBm EIRP)	Bandwidth	
$0 \text{ Hz} \leq f_{\text{offset}} < 1 \text{ MHz}$	3	30 kHz	
$1 \text{ MHz} \leq f_{\text{offset}} < 5 \text{ MHz}$	4	1 MHz	
$f_{offset} > 5 \text{ MHz}$	-45	1 MHz	

- 8. Non-spurious emission limits High power fixed or nomadic transmitters (lower frequency limit of the licence)
 - (1) For radio emission that is:
 - (a) not spurious emission; and
 - (b) caused by a radiocommunications transmitter operating in the band 2575 MHz to 2615 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap,

the maximum emission limits outside the frequency band of the licence but within the band 2570 MHz to 2620 MHz are specified in Table 4.

(2) In Table 4:

forfiset: is the frequency offset from the lower frequency limit set out in Part 2 of Licence Schedule 1.

Table 4: Maximum emission limits - adjacent to the lower frequency limit of the licence

non-spurious enissions from high power fixed or nomadic transmitters) power		Specified
(\mathbf{f}_{offset})	(dBm EIRP)	Bandwidth
$f_{offset} \ge 0 \text{ Hz}$	-45	1 MHz

9. Non-spurious emission limits - High power fixed or nomadic transmitters - outside 2570 MHz to 2620 MHz band but within 2500 MHz to 2690 MHz

Emissions band

- (1) For radio emission that is:
 - (a) not spurious emission; and
 - (b) caused by a radiocommunications transmitter operating in the band 2575 MHz to 2615 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap,

the maximum emission limits outside the frequency band 2570 MHz to 2620 MHz but within the band 2500 MHz to 2690 MHz are specified in Table 5.

(2) In Table 5:

foffset: is the frequency offset from the upper or lower frequency limits of the band 2570 MHz to 2620 MHz.

Table 5: Maximum emission limits - outside the 2570 MHz to 2620 MHz band but within the 2500 MHz to 2690 MHz band (non-spurious emissions from high power fixed or nomadic transmitters)

Frequency offset range	Radiated maximum true mean power	Specified
(\mathbf{f}_{offset})	(dBm EIRP)	Bandwidth
$f_{offset} \geq 0 \; Hz$	-45	1 MHz

10. Non-spurious emission limits - High power restricted use registration exempt transmitters

- (1) For radio emission that is:
 - (a) not spurious emission; and
 - (b) caused by a radiocommunications transmitter:
 - (i) operating in the band 2575 MHz to 2615 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap; and
 - (ii) with a radiated true mean power less than 19 dBm/30 kHz,

the maximum emission limits outside the frequency band of the licence but within the band 2500 MHz to 2690 MHz are specified in Table 6.

(2) In Table 6:

foffset: is the frequency offset from the upper or lower frequency limits set out in Part 2 of Licence Schedule 1

Table 6: Maximum emission limits (non-spurious emissions from high power restricted

userequeration of seaptargemi	tters) Radiated maximum true mean power	Specified	
(f _{offset})	(dBm EIRP)	Bandwidth	
$0 \text{ Hz} \leq f_{\text{offset}} < 1 \text{ MHz}$	-15	30 kHz	
$1 \text{ MHz} \leq f_{\text{offset}} < 5 \text{ MHz}$	-10	1 MHz	
$5 \text{ MHz} \leq f_{\text{offset}} < 20 \text{ MHz}$	-13	1 MHz	
$f_{\text{offset}} \geq 20 \text{ MHz}$	-19	1 MHz	

Spurious Emission Limits

11. The licensee must ensure that radiocommunications devices operated under the licence do exceed the spurious emission limits in Core Conditions 12 and 13.

12. Spurious emission limits - 2.5 GHz Mid-band Gap transmitters

For radio emission that is:

- (a) spurious emission; and
- (b) caused by a radiocommunications transmitter operating in the band 2570 MHz to 2620 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap,

the maximum emission limits outside the frequency band 2500 MHz to 2690 MHz are

Table 7: Spurious emission limits - transmitters

Frequency range (f)	Radiated mean power (dBm EIRP)	Specified Bandwidth
9 kHz ≤ f < 150 kHz	-36	1 kHz
$150 \text{ kHz} \le f < 30 \text{ MHz}$	-36	10 kHz
$30 \text{ MHz} \leq f < 1 \text{ GHz}$	-36	100 kHz
1 GHz ≤ f < 12.75 GHz	-30	1 MHz

13. Spurious emission limits - 2.5 GHz Mid-band Gap receivers

For radio emissions that is:

- (a) spurious emission; and
- (b) caused by a radiocommunications receiver operating in the band 2570 MHz to 2620 MHz under a spectrum licence issued in the 2.5 GHz Mid-band Gap,

the maximum emission limits outside the frequency band 2500 MHz to 2690 MHz are specified in Table 8.

Frequency range Radiated mean power (dBm EIRP)		Specified Bandwidth	
$30 \text{ MHz} \leq f < 1 \text{ GHz}$	-57	100 kHz	
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	-47	1 MHz	

Emission Limits outside the area

- 14. Core Conditions 15 to 17 appy in relation to those geographic areas that are outside the geographic areas set out at Part 2 of Licence Schedule 1.
- 15. Where a written agreement exists between:
 - (a) the licensee; and
 - (b) all the affected licensees of frequency adjacent and area-adjacent licences;

specifying the maximum permitted level of radio emission for any geographic area described in core condition 14, the licensee must comply with that specified maximum permitted level of radio emission.

- 16. Where there is no written agreement for the purposes of Core Condition 15 in force, Core Condition 17 applies.
- 17. The maximum permitted level of radio emission for a geographic area set out in Part 2 of Licence Schedule 1 caused by operation of a radiocommunications transmitter under the licence must not exceed a radiated maximum true mean power of:
 - (a) 3 dBm EIRP per 30 kHz in the band offset 0 Hz to 5 MHz from the lower frequency boundary of the licence; and
 - (b) 43 dBm EIRP per 30 kHz at greater than 5 MHz offset from the lower frequency boundary of the licence.

Licence Schedule 3 Statutory Conditions

Liability to pay charges

- 1. The licensee must comply with all its obligations to pay:
 - (a) charges fixed by determinations made under section 60 of the *Australian Communications and Media Authority Act 2005*;
 - (b) the 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 the licence (if applicable); 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 the licence must comply with rules made by the ACMA under subsection 68(3) of the Act.

Radiocommunications transmitter registration requirements

- 3. The licensee must not operate a radiocommunications transmitter under this licence unless:
 - (a) the radiocommunications transmitter has been exempted from the registration requirements under Statutory Condition 4 below; or
 - (b) both:
 - (i) the requirements of the ACMA under Part 3.5 of the Act relating to registration of the radiocommunications transmitter have been met; and
 - (ii) the radiocommunications 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 the 2.5 GHz Mid-band Gap with a

radiated maximum true mean power of less than or equal to 13 dBm EIRP per 30 kHz.						

Licence Schedule 3 Statutory Conditions (cont)

- 4. (b) a radiocommunications transmitter that operates on frequencies only within the band 2575 MHz to 2615 MHz, to a single fixed receiver, with a radiated maximum true mean power of less than or equal to 35 dBm per 30 kHz and an antenna height that is always less than 12 metres above ground;
 - (c) a radiocommunications transmitter that operates on frequencies only within the band 2575 MHz to 2615 MHz, to a single receiver, with a radiated maximum true mean power that:
 - (i) is always less than or equal to 19 dBm per 30 kHz with a vehicle mounted antenna with a height always less than 4 metres above the local ground or roadway; or
 - (ii) is always less than or equal to 15 dBm per 30 kHz with an airborne antenna but always located greater than 145 kilometres from the geographic licence boundary;
 - (d) a radiocommunications transmitter that operates on frequencies only within the band 2575 MHz to 2615 MHz, to a single receiver, with a radiated maximum true mean power that is always less than or equal to 25 dBm per 30 kHz, with an airborne antenna with a height at least 340 metres above the local ground height; but
 - (i) at or below an altitude (above sea level) of 1000 metres and at or greater than 145 km from the geographic licence boundary; or
 - (ii) at or below an altitude (above sea level) of 2000 metres and above 1000 metres and at or greater than 195 km from the geographic licence boundary; or
 - (iii) at or below an altitude (above sea level) of 3000 metres and above 2000 metres and at or greater than 235 km from the geographic licence boundary; or
 - (iv) within any distance of a geographic licence boundary that is the outer boundary of the Australian Spectrum Map Grid.

Residency

- 5. (1) The licensee must not derive any income, profits or gains from operating radiocommunications devices under this licence, or from authorising an authorised person 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.

Licence Schedule 3 Statutory Conditions (cont)

- 5. (2) An authorised person must not derive income, profits or gains from operating radiocommunications devices under this licence, or from allowing third parties to operate 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.
 - (3) In this condition:

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

authorised person means a person authorised under section 68 of the Act by the licensee to operate radiocommunications devices under this licence.

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*.

Licence Schedule 4 Other Conditions

Interference management

1. In this licence Schedule 4:

communal site has the same meaning as in the *Radiocommunications* (*Interpretation*) *Determination 2015* as in force from time to time.

managing interference includes but is not limited to:

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

Responsibility to manage interference

- 2. (1) 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-sited devices

- 3. If:
 - (a) interference occurs between a radiocommunications device:
 - (i) operated under this spectrum licence; and
 - (ii) operated under another 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 third party authorisee) 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 (EME) Energy Requirements

6. The licensee must comply with Parts 2, 3 and 4 of the *Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015*, 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* should be read as if it means a spectrum licence.

Record Keeping - transmitters located at communal sites

- 7. (1) If the licensee operates a radiocommunications transmitter under the licence, and the transmitter:
 - (a) is located at a communal site; and
 - (b) is not exempt under Statutory Condition 4 of Licence Schedule 3,

the licensee must comply with sub-conditions 7(2) and 7(3).

- (2) In relation to each transmitter, the licensee must keep a record which includes the following information:
 - (a) the transmitter's device registration number as specified in the Register;
 - (b) the licence number of the licence;
 - (c) the transmitter's geographic location;
 - (d) if the licensee owns the transmitter, the licensee's name and address;
 - (e) if the licensee does not own the transmitter, the owner's name and address;
 - (f) the transmitter's centre frequency;
 - (g) the transmitter's emission designator;

(h) details of the transmitter's antenna including the manufacturer, model, type, gain, polarisation, azimuth and average ground height:						

Licence Schedule 4 Other Conditions (cont)

7. (3) If the ACMA requests a copy of a record kept under sub-condition 7(2), the licensee must comply with the request as soon as practicable.

Scope of licence

8. This licence only authorises the operation of radiocommunications devices for the purpose of the provision of a television outside broadcast service.

Licence Schedule 5 Licence Notes

Variation to licence conditions

- 1. The ACMA may, with the written agreement of the licensee, vary a licence by including one or more further conditions, or revoking or varying any conditions of the 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 a licence by including one or more further conditions or revoking or varying any non core conditions of the licence provided that the licence as varied complies with the requirements of Subdivision C of Division 1 of Part 3.2 of the Act.

Determination of Unacceptable Interference

3. The ACMA has made the *Radiocommunications (Unacceptable Levels of Interference - 2.5 GHz Mid-band Gap) Determination 2012* 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: Although not mandatory, the registration of receivers is advised because one of the matters ACMA will take into account in settling interference is the time of registration of the receiver involved in the interference.

Guidelines

- 4. The ACMA has issued written Radiocommunications Advisory Guidelines (the *guidelines*) under section 262 of the Act about:
 - (a) co-ordinating the operation of transmitters under this licence with radiocommunications receivers operated under other licences:
 - Radiocommunications Advisory Guidelines (Managing Interference from Transmitters - 2.5 GHz Mid-band Gap) 2012;
 - (b) co-ordinating the operation of receivers operated under this licence with transmitters operated under other radiocommunications licences:
 - Radiocommunications Advisory Guidelines (Managing Interference to Receivers - 2.5 GHz Mid-band Gap) 2012;
- 5. The guidelines should be read in conjunction with the *Radiocommunications* (*Unacceptable Levels of Interference 2.5 GHz Mid-band Gap*) *Determination 2012* (see Licence Note 3). Licensees (and authorised persons) should follow the guidelines before operating radiocommunications transmitters under this licence. The ACMA

Licence Schedule 5 Licence Notes (cont)

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.

Re-issue

- 7. A spectrum licence will not be reissued to the same licensee without a price based allocation procedure unless:
 - (a) the ACMA is satisfied under subsection 82 (1) of the Act that special circumstances exist as a result of which it would in the public interest for that licensee to continue to hold that licence; or
 - (b) the licence was used to provide a service of a kind determined by the Minister under subsection 82 (3) of the Act for which reissuing licences to the same licensees would be in the public interest.

Trading

- 8. (1) A licensee may assign or otherwise deal with the whole or any part of a spectrum licence provided that this 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 licence that involves any change to a licence does not take effect until the Register has been amended to take it into account.

Appeals

9. An application may be made to the ACMA for re-consideration of the ACMA's decisions listed in section 285 of the Act. A person affected by and dissatisfied with an ACMA decision may seek a re-consideration of the decision by the ACMA under subsection 288(1) of the Act. This decision can be subject to further re-consideration by the Administrative Appeals Tribunal, subject to the provisions of the *Administrative Appeals Tribunal Act 1975*.

Labelling of transmitters

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