Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012

Radiocommunications Act 1992

The AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY makes this Plan under section 38 of the *Radiocommunications Act 1992*.

Dated *13th December* 2012

Chris Chapman
[signed]
Member

Richard Bean
[signed]
Member/~~General Manager~~

Australian Communications and Media Authority

Summary of conversion process

In the *Radiocommunications (Spectrum Designation) Notice No. 1 of 2012*, the Minister designated the frequency range 2570-2620 MHz (2.5 GHz Mid-band Gap) in specified geographic areas as part of the spectrum to be allocated by spectrum licences. Holders of existing apparatus licences that authorise the operation of radiocommunications devices in the 2.5 GHz Mid-band Gap will be offered the opportunity to convert their licences to spectrum licences. The general process for converting these existing licences is set out in sections 52-59 of the *Radiocommunications Act 1992* (the Act). The Act also requires the ACMA to prepare a conversion plan that sets out the details of the conversion process (section 38).

A summary of the overall conversion process is as follows:

- After this Conversion Plan has been prepared, the ACMA will prepare a draft spectrum licence to replace each existing apparatus licence in the 2.5 GHz Mid-band Gap (section 53). The draft licences will contain core conditions and conditions relating to other aspects of spectrum use (sections 66-71).
- The ACMA will send a copy of a draft spectrum licence intended to replace the existing apparatus licence to an incumbent licensee (section 54), and invite the licensee to make representations about the draft licence. The licensees will have at least one month to comment on the draft spectrum licence (subsection 54 (2)).
- The ACMA must consider any representations made by a licensee about a draft licence and may change the draft licence after such consideration (section 55). While considering the comments, the ACMA may discuss the comments, and any proposed changes to the draft licence, with the licensee.
- The ACMA will then offer the licensee, in writing, a spectrum licence to replace the licensee's apparatus licence (section 56), and advise the licensee of the amount of spectrum access charge payable (paragraph 56 (2) (b)). A licensee will have at least one month to accept the offer (subsection 56 (3)).
- If a licensee gives the ACMA a written notice accepting the offer and agreeing to pay the spectrum access charge, the ACMA will issue a spectrum licence to the licensee (section 57).
- If a licensee does not accept the ACMA's offer, the ACMA may allocate the spectrum licence to someone else in accordance with section 60 of the Act and the apparatus licence that it replaces will then cease to be in force (subsection 58 (3)).
- The spectrum licences will come into force on the day specified in the licence, and will be in force for the period set out in the licence (section 65). This period may be up to 15 years (subsection 65 (3)). The ACMA intends that all spectrum licences issued in the 2.5 GHz Mid-band Gap be in force for 15 years and have a common expiry date, that is, they will expire at the same time.
- After issuing spectrum licences the ACMA will register collection stations in the Register of Radiocommunications Licences, established under section 143 of the Act. It is proposed that that will be done prior to, or at the commencement of the spectrum licences.
- No new apparatus licences will be issued in the 2.5 GHz Mid-band Gap other than in the circumstances specified in subsection 105 (2) of the Act.

1 Title

This Plan is called the *Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012*.

2 Commencement

This Plan commences on the day after it is registered.

Note All legislative instruments and compilations are registered on the Federal Register of Legislative Instruments kept under the *Legislative Instruments Act 2003.* See http://www.frli.gov.au.

3 Purpose

This Plan sets out the procedures and timetable for converting existing apparatus licences authorising the use of radiocommunications devices in the 2.5 GHz Mid-band Gap to spectrum licences.

4 Interpretation

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

2.5 GHz Band means the spectrum in the frequency ranges 2500-2570 MHz and 2620-2690 MHz.

2.5 GHz Mid-band Gap means the spectrum in the frequency range 2570-2620 MHz within the geographic areas specified under Item 1, Schedule 1, but does not include the geographic areas of exclusion listed under Item 2, Schedule 1.

Acceptance Form means the form that will be approved by the ACMA under section 5 of this Plan.

Act means the *Radiocommunications Act 1992*.

Advisory Guidelines means the following documents made by the ACMA under section 262 of the Act, as in force, amended or replaced from time to time:

(a) *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters — 2.5 GHz Mid-band Gap) 2012*; and

(b) *Radiocommunications Advisory Guidelines (Managing Interference to Receivers — 2.5 GHz Mid-band Gap) 2012.*

collection station means a station located at a fixed point used for the purpose of receiving television outside broadcast services.

draft licence means a draft of a spectrum licence prepared by the ACMA under section 53 of the Act to replace an existing apparatus licence.

EIRP, in relation to a radiocommunications device, means the Equivalent Isotropically Radiated Power of the device.

existing apparatus licence means an existing apparatus licence that authorises the operation of radiocommunications devices:

(a) at frequencies within the 2.5 GHz Mid-band Gap; and

(b) within Australia.

Geocentric Datum of Australia 1994 (GDA94) means the geodetic datum designated as The Geocentric Datum of Australia gazetted in the Commonwealth of Australia Gazette on 6 September 1995.

geographic area, in relation to a spectrum licence, means the area within which operation of a radiocommunications device is authorised under the licence.

harmful interference means interference that:

(a) endangers the functioning of a radionavigation service or other safety services that are operating in accordance with the Radio Regulations; or

(b) obstructs, repeatedly interrupts or seriously degrades a radiocommunication service that is operating in accordance with the Radio Regulations.

horizontally radiated power, for a radiocommunications device, means the sum of:

(a) the maximum true mean power, in dBm per specified rectangular bandwidth at the antenna connector that is located within the frequency band of the licence authorising the operation of the radiocommunications device; and

(b) the antenna gain relative to an isotropic antenna in a specified direction in the horizontal plane containing the phase centre of the antenna used with the device, in dBi.

ITU means the International Telecommunication Union.

licensee means the holder of an existing apparatus licence within the 2.5 GHz Mid-band Gap.

maximum true mean power means the true mean power measured in the specified rectangular bandwidth that is located within a specified frequency band such that the true mean power is the maximum of true mean powers produced.

Note The power within a specified rectangular bandwidth is normally established by taking measurements using either an adjacent channel power meter or a spectrum analyser. The accuracy of measuring equipment, measurement procedure and any corrections to measurements necessary to take account of practical filter shape factors would normally be in accordance with good engineering practice.

mean power means the average power measured during an interval of time that is at least 10 times the period of the lowest modulation frequency.

mobile transmitter means a radiocommunications transmitter established for use while in motion or during halts at unspecified points on land or sea.

nomadic transmitter means a radiocommunications transmitter whose location can change, but for use only while at stationary but unspecified points on land or sea.

Radio Regulations means the 'Radio Regulations' published by the ITU, as in force from time to time.

Note Copies of the Radio Regulations can be obtained from the ITU: www.itu.int.

re-allocation means the re-allocation of spectrum by the issue of spectrum licences in accordance with a spectrum re-allocation declaration.

spectrum map grid means the Australian Spectrum Map Grid (ASMG) defined 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.

television outside broadcast device means a station that:

(a) is operated under a spectrum licence in the frequency range 2570-2620 MHz; and

(b) operates between 2 points for a short period of time; and

(c) is used only for the transmission of television signals and associated signals.

television outside broadcast service means a radiocommunications system that is provided by the operation of 1 or more television outside broadcast devices that are operated:

(a) under a spectrum licence in the frequency range 2570-2620 MHz ; and

(b) anywhere in Australia.

true mean power means:

(a) if an unmodulated carrier is present — the mean power measured while the unmodulated carrier is present; and

(b) if an unmodulated carrier is not present — the mean power measured while transmitted information is present.

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

- ACMA
- apparatus licence
- core condition
- frequency band
- interference
- radiocommunications device
- Register
- spectrum access charge
- spectrum licence
- spectrum re-allocation declaration.

(2) In this Plan, the range of numbers that identifies a frequency band includes the higher, but not the lower, number.

5 Approval of Acceptance Form

The ACMA will approve, in writing, an Acceptance Form for use by licensees when accepting an offer of a spectrum licence.

6 Preparation of draft spectrum licences

(1) The ACMA will prepare a draft spectrum licence to replace each existing apparatus licence in accordance with section 53 of the Act. This will be based on the sample licence in Schedule 2.

(2) The ACMA will send the draft licence to the licensee as soon as practicable after preparing this Plan and invite the licensee to make representations on the draft licence in accordance with section 54 of the Act.

7 Sample spectrum licence

A sample spectrum licence is set out in Schedule 2.

8 Core licence conditions

(1) Section 66 of the Act requires a spectrum licence to contain core conditions that define the parts of the spectrum that can be used under the licence, in terms of:

(a) frequency band; and
(b) geographic area; and
(c) emission limits outside the area; and
(d) emission limits outside the band.

(2) These conditions will be included in the draft licence.

9 Other licence conditions

(1) The spectrum licence will also include conditions about:

(a) payment of charges (section 67 of the Act); and
(b) use by third parties (section 68); and
(c) registration of transmitters (section 69);
(d) residency and other matters (section 69A of the Act); and
(e) other matters that the ACMA thinks fit (section 71).

(2) These conditions will be included in the draft licence.

10 Determination of core licence conditions

To establish the core licence conditions, the ACMA will identify the geographic areas and frequency bands to be included in the proposed replacement spectrum licences to be offered to existing licensees in place of their existing apparatus licences.

11 Emission limits

(1) The emission limits outside the geographic area for all licences are worked out in accordance with Schedule 3.

(2) The emission limits outside the band for all licences are worked out in accordance with Schedule 4.

Note These core conditions may be varied by ACMA with the licensee's written agreement — see section 72 of the Act.

12 Agreements about emission limits

A licensee may enter into an agreement for the purpose of one or more of the following:

(a) paragraph 2 of Part 2 of Schedule 3 (about emission limits outside the geographic area of the licence); or

(b) paragraph 2 of Part 2 of Schedule 4 (about emission limits outside the band of the licence).

13 Extent of operation of devices under replacement spectrum licences

In accordance with section 53 of the Act, in preparing a draft licence, the ACMA will, so far as is practicable, ensure that it authorises the operation of radiocommunications devices to the same extent as, or to a greater extent than, they are authorised under the existing apparatus licence.

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14 Spectrum access charge

(1) A spectrum access charge is payable by a licensee for the issue of a spectrum licence to replace the licensee's existing apparatus licence.

(2) The amount of the spectrum access charge will be determined by the ACMA under section 294 of the Act.

15 Representations about draft spectrum licences

(1) The ACMA will give the licensee:

(a) a copy of the draft spectrum licence; and

(b) a notice inviting the licensee to make representations to the ACMA about the draft spectrum licence on or before the day specified in the notice.

(2) For the purposes of paragraph (1) (b), the licensee will have not less than one month after the day on which the notice is given to the licensee to make representations to the ACMA about the draft spectrum licence.

(3) All representations made by the licensee to the ACMA on or before the day specified in the notice will be considered by the ACMA.

(4) The ACMA, when considering the representations, may discuss any proposed changes to the draft spectrum licence with the licensee if those proposed changes will affect the licensee.

(5) The ACMA will advise the licensee whether or not the ACMA has altered the draft licence as a result of the licensee's representations.

Note 1 Section 54 of the Act requires the ACMA to give a licensee a copy of the draft spectrum licence and a notice inviting the licensee to make representations about the draft spectrum licence.

Note 2 Section 55 of the Act requires the ACMA to give due consideration to the licensee's representations and allows the ACMA, having considered the representations, to alter the draft licence.

16 Formal offer of spectrum licence

(1) For the purposes of section 56 of the Act, the ACMA will, as soon as practicable after the last day for the making of representations, give to the licensee a written offer to issue to the licensee a spectrum licence to replace the licensee's existing apparatus licence.

(2) The offer will:

(a) be made by a letter addressed to the licensee at their last known address;
(b) specify the date by which the offer must be accepted (the ***closing date***) which must be at least one month after the date of the offer;
(c) identify the spectrum licence that the ACMA proposes to issue, including the expiry date; and
(d) specify the spectrum access charge determined by the ACMA under section 294 of the Act.

Note Section 56 of the Act sets out the requirements for any offers to issue a spectrum licence to replace a licensee's apparatus licence.

17 Accepting the offer

(1) A licensee who wants to accept the ACMA's offer must give the ACMA a written notice on or before the closing date specified in the offer.
(2) The notice must be provided in accordance with the Acceptance Form.
(3) The Acceptance Form will contain a clause requiring the licensee to agree to pay the spectrum access charge to the ACMA.

18 Issue of spectrum licence

(1) The spectrum licence to replace the existing apparatus licence will be issued by the ACMA in accordance with section 57 of the Act.
(2) The spectrum licence comes into force on the day specified in the licence.

Note Immediately before it comes into force, the apparatus licence that it is to replace ceases to be in force.

19 Failures to accept offers

If a licensee does not accept an offer, the ACMA may allocate the spectrum licence to another person under the procedures determined under section 60 of the Act.

Note Section 58 of the Act sets out the consequences that follow if a licensee does not accept the offer of a spectrum licence.

20 Duration of spectrum licences

The spectrum licences issued under this Plan will be for fixed terms of 15 years and have an expiry date of 30 September 2029.

Note Section 65 of the Act provides that the maximum duration of a spectrum licence is 15 years.

21 Registration of licences

(1) The ACMA will include details of spectrum licences on the Register.

Note The Register is established under section 143 of the Act.

(2) Each spectrum licence will include a condition that prohibits operation of a transmitter unless the requirements under Part 3.5 of the Act to have the transmitter registered have been met.

(3) Each spectrum licence will include a condition that exempts radiocommunications transmitters of a particular kind from the requirement mentioned in subsection (2).

(4) A transmitter that is part of a group of transmitters may be registered individually or as a group.

Note 1 Details about registration are in the *Radiocommunications (Register of Radiocommunications Licences) Determination 1997*.

Note 2 Under subsection 145 (1) of the Act, the ACMA may refuse to include in the Register details of a radiocommunications transmitter that is proposed to be operated under a spectrum licence if the ACMA is satisfied that operation of the transmitter could cause an unacceptable level of interference to the operation of other radiocommunications devices under that or any other licence.

Note 3 The *Radiocommunications (Unacceptable Levels of Interference — 2.5 GHz Mid-band Gap) Determination 2012* sets out the unacceptable levels of interference for devices operating under spectrum licences in the 2.5 GHz Mid-band Gap for the purposes of section 145 of the Act. Accredited persons will consult that Determination when issuing certificates under subsection 145 (3) of the Act.

22 Re-issue of licences

(1) At the expiry of a spectrum licence, the ACMA may re-issue licences, in accordance with Division 4 of Part 3.2 of the Act.

(2) The ACMA may re-issue a licence to the person to whom it was previously issued if:

(a) the licence was used in the provision of a service included in a class of services specified in a determination under subsection 82 (3) of the Act; or

(b) the ACMA is satisfied that special circumstances exist as a result of which it is in the public interest for that person to continue to hold the licence.

(3) Licenses that are not re-issued to the same licensee may be re-allocated by auction, tender, or pre-determined or negotiated price. In re-allocating the licences, the ACMA will follow the procedures set out in the determinations made under section 60 of the Act that are in force at the time

(4) The fact that a licence is not re-issued to the same licensee will not prevent the licensee from applying for the lot covered by that licence in a subsequent re-allocation process.

Note Under subsection 82 (5) of the Act, the ACMA must notify the licensee in writing if the core conditions of the re-issued licence differ from the core conditions of the licence it replaces.

23 Guidelines

Any guidelines made by the ACMA under section 262 of the Act about interference with radiocommunications may be taken into account in settling interference disputes under Part 4.3 of the Act.

24 Registration of collection stations

The ACMA will include details of the collection stations listed in Schedule 5 on the Register prior to the inclusion on the Register of any other devices under spectrum licences to be issued in the 2.5 GHz Band.

Schedule 1 Geographic area covered by spectrum licences resulting from conversion in the 2.5 GHz Mid-band Gap

(subsection 4 (1))

Description: The geographic area is the area of land in the table described below under the heading "Outer Boundary of Australia", bounded by a line starting at the intersection of the first coordinates listed in the table for the area and then bounded by a line passing sequentially through the intersections of each set of coordinates shown in the table to the point of commencement. The coordinates listed in the tables under the heading "Areas of Exclusion" are excluded from the spectrum licence geographic area.

The datum used for coordinates in this Schedule is the Geocentric Datum of Australia 1994.

1. OUTER BOUNDARY OF AUSTRALIA

Row	° South	° East
1	24.998757	112.001377
2	24.998744	113.001346
3	23.998738	113.001340
4	22.998729	113.001347
5	21.998721	113.001338
6	20.998713	113.001332
7	20.998705	114.001326
8	20.998698	115.001297
9	19.998688	115.001319
10	18.998681	115.001312
11	18.998673	116.001310
12	18.998666	117.001309
13	18.998658	118.001306
14	18.998650	119.001304
15	18.998642	120.001301

Row	° South	° East
16	18.998630	121.001292
17	17.998630	121.001289
18	16.998626	121.001281
19	15.998622	121.001274
20	15.998616	122.001271
21	15.998607	123.001262
22	15.998601	124.001256
23	14.998601	124.001255
24	13.998599	124.001249
25	12.998597	124.001244
26	12.998592	125.001239
27	12.998586	126.001234
28	12.998581	127.001229
29	12.998576	128.001224
30	12.998571	129.001218

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Row	° South	° East
31	12.998580	130.001200
32	11.998567	130.001205
33	10.998568	130.001202
34	10.998567	131.001191
35	10.998568	132.001181
36	9.998561	132.001184
37	9.998558	133.001177
38	9.998554	134.001170
39	9.998550	135.001162
40	9.998546	136.001154
41	9.998543	137.001145
42	9.998539	138.001137
43	9.998535	139.001128
44	9.998532	140.001118
45	9.998528	141.001108
46	9.998510	142.001113
47	9.998506	143.001104
48	10.998494	143.001114
49	10.998513	144.001081
50	11.998507	144.001084
51	12.998499	144.001091
52	13.998493	144.001090
53	13.998490	145.001081
54	13.998488	146.001070
55	14.998483	146.001074
56	15.998478	146.001078
57	15.998474	147.001067
58	16.998469	147.001072
59	17.998465	147.001078

Row	° South	° East
60	18.998465	147.001089
61	18.998456	148.001071
62	18.998451	149.001058
63	19.998451	149.001064
64	19.998441	150.001050
65	20.998438	150.001056
66	20.998432	151.001042
67	21.998429	151.001049
68	22.998434	151.001058
69	22.998420	152.001041
70	23.998428	152.001046
71	23.998411	153.001033
72	23.998405	154.001018
73	24.998402	154.001025
74	25.998401	154.001033
75	26.998397	154.001041
76	27.998398	154.001049
77	28.998397	154.001059
78	29.998395	154.001068
79	30.998395	154.001078
80	31.998395	154.001088
81	31.998405	153.001103
82	32.998404	153.001116
83	32.998415	152.001132
84	33.998414	152.001145
85	34.998416	152.001158
86	34.998426	151.001172
87	35.998427	151.001188
88	36.998431	151.001203

Schedule 1 - Geographic area covered by spectrum licences resulting from conversion in the 2.5 GHz Mid-band Gap

Row	° South	° East
89	37.998434	151.001218
90	37.998444	150.001236
91	37.998457	149.001255
92	38.998459	149.001268
93	39.998464	149.001286
94	40.998469	149.001304
95	41.998475	149.001323
96	42.998481	149.001343
97	43.998488	149.001364
98	43.998499	148.001382
99	43.998511	147.001401
100	43.998522	146.001418
101	43.998534	145.001436
102	42.998527	145.001413
103	41.998522	145.001384
104	41.998531	144.001408
105	40.998524	144.001387
106	40.998536	143.001403
107	39.998529	143.001383
108	38.998522	143.001358
109	38.998534	142.001379
110	38.998546	141.001393
111	38.998557	140.001407
112	37.998545	140.001384
113	37.998562	139.001401
114	36.998554	139.001381
115	36.998567	138.001396
116	36.998578	137.001408
117	36.998590	136.001420

Row	° South	° East
118	35.998576	136.001402
119	35.998595	135.001413
120	34.998583	135.001401
121	33.998570	135.001397
122	33.998586	134.001398
123	32.998580	134.001383
124	32.998595	133.001387
125	32.998608	132.001394
126	31.998594	132.001397
127	31.998606	131.001396
128	31.998614	130.001404
129	31.998623	129.001413
130	32.998642	129.001419
131	32.998653	128.001427
132	32.998664	127.001435
133	32.998675	126.001445
134	32.998686	125.001456
135	33.998699	125.001467
136	33.998715	124.001479
137	34.998719	124.001489
138	34.998731	123.001496
139	34.998749	122.001505
140	34.998756	121.001505
141	34.998769	120.001510
142	34.998788	119.001513
143	35.998793	119.001533
144	35.998806	118.001537
145	35.998819	117.001541
146	35.998832	116.001543

Row	° South	° East
147	34.998831	116.001528
148	34.998841	115.001532
149	34.998846	114.001528
150	33.998836	114.001511
151	32.998821	114.001492
152	32.998823	115.001497
153	31.998805	115.001478
154	30.998801	115.001459
155	30.998798	114.001458
156	29.998789	114.001441
157	28.998773	114.001422
158	28.998787	113.001428
159	27.998776	113.001417
160	26.998768	113.001394
161	25.998754	113.001362
162	25.998767	112.001389
163	24.998757	112.001377

2. AREAS OF EXCLUSION

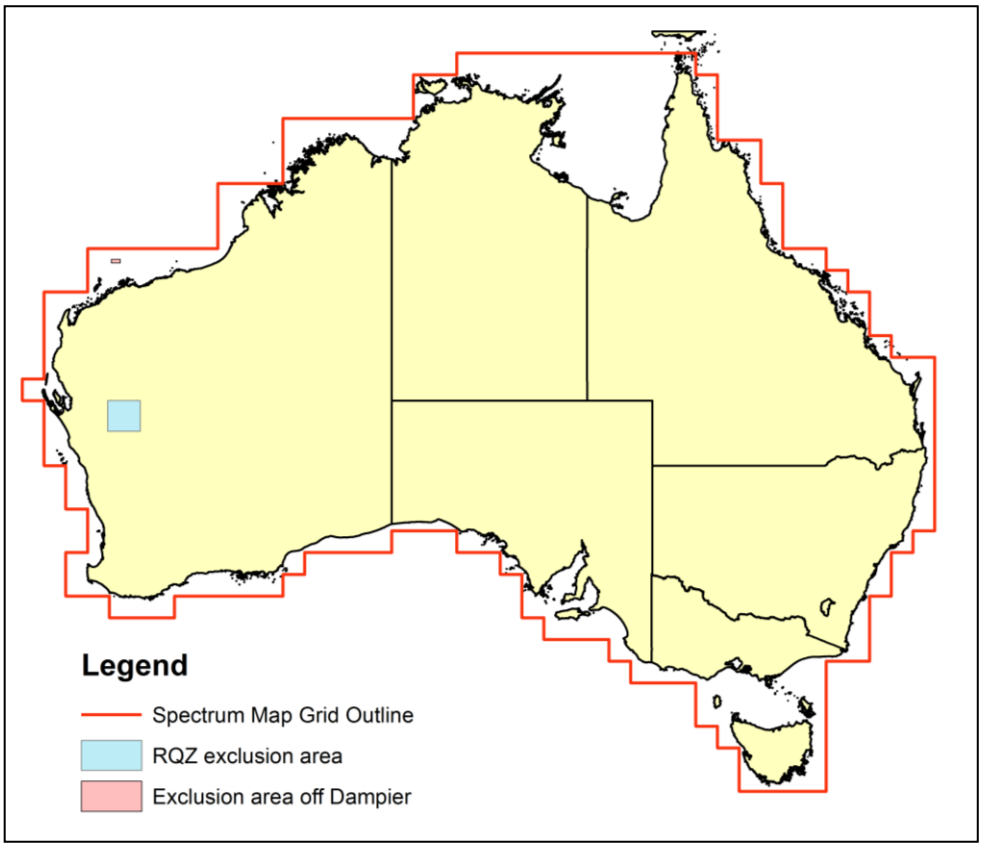
Table 1: The exclusion area for the Mid West Radio Quiet Zone

Row	° South	° East
1	25.998719	115.918031
2	25.998712	116.668032
3	25.998708	117.418029
4	26.665385	117.418042
5	27.415393	117.418053
6	27.415394	116.668053
7	27.415397	115.918054
8	26.665393	115.918047
9	25.998719	115.918031

Table 2: The exclusion area for the North West Shelf Oil &Gas facilities off the coast of Dampier

Row	° South	° East
1	19.498676	116.084648
2	19.498673	116.501314
3	19.665338	116.501313
4	19.665344	116.084649
5	19.498676	116.084648

Figure 1: The exclusion areas of the Mid West Radio Quiet Zone and the North Shelf Oil & Gas Facilities (area off Dampier)



Schedule 2 Sample spectrum licence

(section 7)

COMMONWEALTH OF AUSTRALIA

AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY

Radiocommunications Act 1992

Sample Spectrum Licence for the 2.5 GHz Mid-band Gap

This licence is issued under section 57 of the *Radiocommunications Act 1992* ('the Act') to the person named at Item 1 of 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 to operate radiocommunications devices in accordance with:
   (a) the Act; and
   (b) the core conditions set out in Licence Schedule 2; and
   (c) the statutory conditions set out in Licence Schedule 3; and
   (d) the other conditions set out in Licence Schedule 4.

2. This licence comes into force on the date shown at Item 5 of Licence Schedule 1 and remains in force until the end of the date shown at Item 6 of Licence Schedule 1.

3. Unless the contrary intention appears, terms and expressions used in this licence have the meaning given to them by the *Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012*.

4. Unless otherwise specified, 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.

Licence Schedule 1 Licence details, bands and areas

Part 1 Licence Details

Item	Details	
	Licensee Details	
1	*Name of licensee*	TBD
2	*Address of licensee*	TBD
3	*Client number*	TBD
4	*Band release*	2.5 GHz Mid-band Gap
5	*Date of licence commencement*	1 October 2014
6	*Date of licence expiry*	30 September 2029
7	*Licence number*	TBD
8	*Date of licence issue*	dd/mm/yyyy

Part 2 Frequency Bands

For core condition 1, this licence authorises the operation of radiocommunications devices in the frequency bands that consist of the frequencies between the lower and upper limits where the lower limit is exclusive and upper limit inclusive.

Item	Details	
9	*Lower frequency limit*	2585 MHz
10	*Upper frequency limit*	2595 MHz

Part 3 Geographic Area

For core condition 14, the operation of radiocommunications devices is authorised by this licence in the geographic area described by the sequence of HCIS identifiers in Table 1.

Note The HCIS is described in the *Australian Spectrum Map Grid 2012*[1] based on the spectrum map grid and referenced to the Geocentric Datum of Australia 1994 (GDA94).

[1] Available at: www.acma.gov.au/webwr/_assets/main/lib410188/australian_spectrum_map_grid_28feb2012.pdf

Table 1: Geographic area of this licence

HCIS identifiers
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.

Licence Schedule 2 Core Conditions

Frequency band

1. This licence authorises the operation of radiocommunications devices in the frequency bands 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 spectrum 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 not 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/30kHz,

   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:

   $\mathbf{f_{offset}}$ is the frequency offset from the upper or lower frequency limits set out in Part 2 of Licence Schedule 1.

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

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
0 Hz ≤ f_{offset} <1 MHz	-15	30 kHz
1 MHz ≤ f_{offset} <5 MHz	-10	1 MHz
5 MHz≤ f_{offset} <6 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:

f_{offset} 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, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
0 Hz ≤ f_{offset} <1 MHz	3	30 kHz
1 MHz ≤ f_{offset} < 5 MHz	4	1 MHz
f_{offset} > 5 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:

f_{offset} 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 emissions from high power fixed or nomadic transmitters)

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
$f_{offset} \geq 0$ Hz	-45	1 MHz

9. **Non-spurious emission limits – High power fixed or nomadic transmitters – Emissions outside 2570 MHz to 2620 MHz band but within 2500 MHz to 2690 MHz 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 band 2570 MHz to 2620 MHz but within the band 2500 MHz to 2690 MHz are specified in Table 5.

(2) In Table 5:

f_{offset}: 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, f_{offset}	Radiated maximum true mean power (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/30kHz,

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:

f_{offset}: 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 use registration exempt transmitters)

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
0 Hz ≤ f_{offset} <1 MHz	-15	30 kHz
1 MHz ≤ f_{offset} <5 MHz	-10	1 MHz
5 MHz≤ f_{offset} <20 MHz	-13	1 MHz
f_{offset} ≥20 MHz	-19	1 MHz

Spurious emission limits

11. The licensee must ensure that radiocommunications devices operated under the licence do not 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 specified in Table 7.

Table 7 Spurious emission limits – transmitters

Frequency, f	Radiated mean power (dBm EIRP)	Bandwidth
9 kHz ≤ f <150 kHz	-36	1 kHz
150 kHz ≤ f <30 MHz	-36	10 kHz
30 MHz≤ f <1GHz	-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 emission 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.

Table 8 Spurious emission limits – receivers

Frequency, f	Radiated mean power (dBm EIRP)	Bandwidth
30 MHz ≤ f <1 GHz	-57	100 kHz
1GHz≤ f <12.75 GHz	-47	1 MHz

Geographic area

14. This licence authorises the operation of radiocommunications devices in the geographic areas set out at Part 3 of Licence Schedule 1.

Emission limits outside the area

15. Core conditions 16 to 18 apply in relation to those geographic areas that are outside the geographic areas set out at Part 3 of Licence Schedule 1.

16. Where a written agreement exists between:

(a) the licensee; and

(b) all the affected licensees of frequency-adjacent and area-adjacent spectrum licences;

specifying the maximum permitted level of radio emission for any geographic area described in core condition 15, 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, core condition 18 applies.

18. The maximum permitted level of radio emission for a geographic area described in core condition 14 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) charged 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) the spectrum licence tax.

Third party use

2. (a) The licensee must notify any person authorised to operate radiocommunications devices under the licence of that person's obligations under the Act, in particular of any registration requirements under Part 3.5 of the Act for operation of radiocommunications devices under the licence, and any rules made under subsection 68 (3) of the Act.

   (b) 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 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 included 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;

   (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 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.

Determination of unacceptable interference

5. 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 persons accredited under section 263 of the Act for the purposes of section 145 of the Act.

Note Although not mandatory, the registration of receivers is advised because one of the matters the ACMA will take into account in settling interference is the time of registration of the receiver involved in the interference.

Residency

6. (1) A licensee must not derive any income, profits or gains from operating radiocommunications devices under this licence or authorise any authorised person to do so unless:

(a) the licensee or the authorised person, if relevant, is an Australian resident; or

(b) the income, profits or gains are attributable to a permanent establishment in Australia through which the licensee or the authorised person, if relevant, carries on business.

(2) An authorised person must not derive income, profits or gains from allowing third parties to operate radiocommunications devices under the 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

Scope of licence

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

Interference management

2. In this licence:

"manage 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

3. The licensee must manage:

(a) interference between radiocommunications devices operated under this licence; and

(b) interference between radiocommunications devices operated under this licence and under each other spectrum licence held by the licensee.

Co-sited devices

4. If:

(a) interference occurs between:

(i) a radiocommunications device operated under this spectrum licence; and

(ii) another radiocommunications device 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.

Information for Register

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

International coordination

6. A licensee must ensure that operation of a radiocommunications transmitter under this licence does not cause harmful interference to a receiver that operates in accordance with International Telecommunication Union Radio Regulations and is located in a country other than Australia.

Electromagnetic Energy Requirements (EME)

7. The licensee is subject to section 4 of Part 1 and Parts 2, 3 and 4 of the *Radiocommunications Licence Conditions (Apparatus Licence) Determination 2003* as in force from time to time. For this condition, the reference to a transmitter licence in the definition of ***licence*** in subsection 4 (1) of that determination should be read as if it were a reference to a spectrum licence.

Protection of the Mid-West Radio Quiet Zone

8. Before seeking to register a radiocommunications transmitter for use in or around the RQZ and supplementary RQZ, as defined by the *Radiocommunications (Mid-West Radio Quiet Zone) Frequency Band Plan 2011*, the licensee must follow the procedures set out in *Radiocommunications Assignment and Licensing Instruction (RALI) MS 32* as in force from time to time.

Note RALI MS 32 is available on the ACMA website.

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.

Guidelines

3. The ACMA has issued written Radiocommunications Advisory 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*.

4. The guidelines should be read in conjunction with the *Radiocommunications (Unacceptable Levels of Interference – 2.5 GHz Mid-band Gap) Determination 2012* made under subsection 145 (4) of the Act. This determination sets out the unacceptable levels of interference for the purpose of the registration of transmitters to be operated under this licence. The guidelines should be followed by licensees (and accredited persons) before operating transmitters. The ACMA intends to afford protection to receivers in accordance with the guidelines in the settlement of interference disputes. Copies of the guidelines are available from the ACMA.

The suspension and cancellation of spectrum licences

5. 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

6. 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

7. (a) 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.

(b) 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

8. An application may be made to the ACMA for re-consideration of the ACMA's decisions listed under 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 reconsideration by the Administrative Appeals Tribunal, subject to the provisions of the *Administrative Appeals Tribunal Act 1975*.

Labelling of transmitters

9. Transmitters operated under this licence must be labelled in accordance with the *Radiocommunications (Labelling) Determination 1997*.

Schedule 3 Emission limits outside the geographic area

Subsection 11 (1)

Part 1 Base emission limits

1. This Part applies in those parts of the spectrum for which there is no agreement for the purposes of paragraph 2 of Part 2 of this Schedule 3.

2. The maximum permitted level of radio emission outside the area, caused by operation of a radiocommunications device within the frequency band of the licence is:

   (a) in the band offset 0 Hz to 5 MHz from the lower frequency boundary of the licence a horizontally radiated power of 3 dBm EIRP per 30 kHz; and

   (b) at greater than 5 MHz offset from the lower frequency boundary of the licence a horizontally radiated power of 43 dBm EIRP per 30 kHz.

3. The maximum permitted level of radio emission is to be determined with a level of confidence not less than 95 percent that the true level of emission will always remain below the requirement specified.

4. For the purposes of paragraph 2, the licensee complies, by ensuring that no radiocommunications device is operated under this licence within the frequency band of the licence in excess of 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.

5. For the purposes of paragraphs 2 and 4, the level of emission is to be estimated after taking into account:
   (a) the kind of antenna; and
   (b) the kind of equipment used with the antenna; and
   (c) the location and immediate physical environment in which the antenna operates.

Part 2 Other emission limits

1. This Part applies in the parts of the spectrum for which there is an agreement in force for the purposes of paragraph 2.

2. Where a written agreement exists between:
   (a) the licensee; and
   (b) all the affected licensees of frequency-adjacent and area-adjacent spectrum licences,
   specifying the maximum permitted level of radio emission, then the licensee must comply with that specified maximum permitted level of radio emission.

3. For the purposes of paragraph 2, the specified maximum permitted level of radio emission cannot exceed the base emission limits of 43 dBm EIRP per 30 kHz.

4. The maximum permitted level of radio emission is to be determined with a level of confidence not less than 95 percent that the true level of emission will always remain below the requirement specified.

Schedule 4 Emission limits outside the band

Subsection 11 (2)

Note Emission limits outside the band manage levels of:

(a) modulation and intermodulation products outside the frequency band of the licence associated with:

(i) the transmitted information; and

(ii) switching transient emissions (carrier rise times); and

(iii) multicarrier transmitters; and

(b) transmitter wide band noise; and

(c) transmitter spurious signals from frequency combining processes, including multicoupling of transmitters into an antenna; and

(d) receiver emissions.

Part 1 Base Emission Limits

1. This Part applies in those parts of the spectrum for which there is no agreement in force for the purposes of paragraph 2 of Part 2 of Schedule 4.

2. The maximum permitted level of radio emission is to be determined with a level of confidence not less than 95 percent that the true level of emission will always remain below the requirement specified.

3. **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/30kHz,

the maximum emission limits outside the frequency band of the licence but within the band 2500 MHz to 2690 MHz are specified in Table 3.

(2) In Table 3:

$\mathbf{f_{offset}}$ is the frequency offset from the upper or lower frequency limits of the licence.

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Table 3 Maximum emission limits (non-spurious emissions from low power registration exempt transmitters)

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
0 Hz ≤ f_{offset} <1 MHz	-15	30 kHz
1 MHz ≤ f_{offset} <5 MHz	-10	1 MHz
5 MHz≤ f_{offset} <6 MHz	-13	1 MHz
f_{offset} ≥6 MHz	-19	1 MHz

4. **Non-spurious emission limits – High power fixed or nomadic transmitters (upper frequency limit of 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 2500 MHz to 2690 MHz are specified in Table 4.

(2) In Table 4:

f_{offset} is the frequency offset from the upper frequency limit of the licence.

Table 4 Maximum emission limits – adjacent to the upper frequency limit of the licence (non-spurious emissions from high power fixed or nomadic transmitters)

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
0 Hz ≤ f_{offset} <1 MHz	3	30 kHz
1 MHz ≤ f_{offset} <5 MHz	4	1 MHz
f_{offset} ≥5 MHz	-45	1 MHz

5. **Non-spurious emission limits – High power fixed or nomadic transmitters (lower frequency limit of 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 2500 MHz to 2690 MHz are specified in Table 5.

(2) In Table 5:

f_{offset} is the frequency offset from the lower frequency limit of the licence.

Table 5 Maximum emission limits – adjacent to the lower frequency limit of the licence (non-spurious emissions from high power fixed or nomadic transmitters)

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
$f_{offset} \geq 0$ Hz	-45	1 MHz

6. **Non-spurious emission limits – High power fixed or nomadic transmitters – Emissions outside 2570 MHz to 2620 MHz band but within 2500 MHz to 2690 MHz 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 band 2570 MHz to 2620 MHz but within the band 2500 MHz to 2690 MHz are specified in Table 6.

(2) In Table 6:

f_{offset} is the frequency offset from the upper and lower frequency limits of the band 2570 MHz to 2620 MHz.

Table 6 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, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
$f_{offset} \geq 0$ Hz	-45	1 MHz

7. **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/30kHz,

the maximum emission limits outside the frequency band of the licence but within the band 2500 MHz to 2690 MHz are specified in Table 7.

(2) In Table 7:

f_{offset} is the frequency offset from the upper or lower frequency limits of the licence.

Table 7 Maximum emission limits (non-spurious emissions from high power restricted use registration exempt transmitters)

Frequency offset, f_{offset}	Radiated maximum true mean power (dBm EIRP)	Bandwidth
0 Hz ≤ f_{offset} <1 MHz	-15	30 kHz
1 MHz ≤ f_{offset} <5 MHz	-10	1 MHz
5 MHz≤ f_{offset} <20 MHz	-13	1 MHz
f_{offset} ≥20 MHz	-19	1 MHz

8. 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 specified in Table 8.

Table 8 Radiocommunications transmitter spurious emission limits

Frequency, f	Radiated mean power (dBm EIRP)	Bandwidth
9 kHz ≤ f <150 kHz	-36	1 kHz
150 kHz ≤ f <30 MHz	-36	10 kHz
30 MHz≤ f <1GHz	-36	100 kHz
1 GHz≤ f <12.75 GHz	-30	1 MHz

9. Spurious emission limits – 2.5 GHz Mid-band Gap receivers

For radio emission 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 9.

Table 9 Radiocommunications receiver spurious emission limits

Frequency, f	Radiated mean power (dBm EIRP)	Bandwidth
30 MHz≤ f <1GHz	-57	100 kHz
1 GHz≤ f <12.75 GHz	-47	1 MHz

Part 2 Other emission limits

1. This Part applies in that part of the spectrum for which there is an agreement in force for the purposes of paragraph 2.

2. Where a written agreement exists between:

   (a) the licensee; and

   (b) all the affected licensees of frequency-adjacent and area-adjacent spectrum licences,

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

3. For the purposes of paragraph 2, the specified maximum permitted level of radio emission cannot exceed the base emission limits of Part 1 of this Schedule.

4. The maximum permitted level of radio emission is to be determined with a level of confidence not less than 95 percent that the true level of emission will always remain below the requirement specified.

Schedule 5 Collection stations

Section 24

Queensland

Site Name	Address	Antenna system
Broadcast Australia Mt. Coot-tha	Sir Samuel Griffith Dr, Mt Coot-tha	17 dBi omni-directional array
TXA-T Site	445 Sir Samuel Griffith Dr, Mt Coo-tha	14 dBi omni-directional array
TXA-B Site	560 Sir Samuel Griffith Dr, Mt Coo-tha	26 dBi rotatable antenna
TXA-Q Site	632 Sir Samuel Griffith Dr, Mt Coo-tha	17 dBi omni-directional array
QLD government building	111 George St, Brisbane	14 dBi omni-directional array
Telstra Tower	820 Main St, Woolloongabba	14 dBi omni-directional array
Suncorp Stadium	40 Castlemaine St, Milton	3 dBi omni-directional antenna
Gateway Building	50 Appel St, Surfers Paradise	3 dBi omni-directional antenna
7QLD Office	140 – 142 Horton Pde, Maroochydore	14 dBi omni-directional array
Gold Coast BRdcast Tower	131 Golf Course Rd, Mt Tamborine	17 dBi 180^{o} array
Sunshine Coast Translator site	Off Bald Knob Rd, Bald Knob	14 dBi omni-directional array
Currumbin Translator site	Off Albany Ave, Currumbin	14 dBi omni-directional array
Southern Cross (NRN) Transmitter site	Bilborough Lookout, Springbrook	17 dBi omni-directional array
Brisbane SE Translator site	Vertel Site, Darlington Range	14 dBi omni-directional array
QTQ 9 offices	50 Cavill Ave, Surfers Paradise	14 dBi omni-directional array
Golden Gate	3422 Surfers Paradise Blvd, Surfers Paradise	14 dBi omni-directional array
Mooloolaba / Pt Cartwright	Breakwater Apartments, Buddina	14 dBi omni-directional array
Mooloolaba	Sea FM, 43 Plaza Pde, Mooloolaba	3 dBi omni-directional antenna
Dreamworld	Dreamworld Pkwy, Coomera	3 dBi omni-directional antenna
Gold Coast Convention & Exhibition Centre Entertainment Centre	2684 Gold Coast Hwy, Broadbeach	3 dBi omni-directional antenna
Brisbane Entertainment Centre	Melaleuca Dr, Boondall	3 dBi omni-directional antenna
Brisbane Convention Centre	98 Melbourne St, South Brisbane	3 dBi omni-directional antenna
Townsville Entertainment Centre	2 Entertainment Dr, Townsville	3 dBi omni-directional antenna

Site Name	Address	Antenna system
Cairns Convention Centre	Cnr Wharf St & Sheridan St, Cairns	3 dBi omni-directional antenna
Woolloongabba Cricket Ground	411 Vulture St, Woolloongabba	3 dBi omni-directional antenna
Chandler Aquatic Centre	Cnr Old Cleveland Rd and Tilley Rd, Chandler	3 dBi omni-directional antenna
Gold Coast Sports Arena	Carrara Sporting Complex, Nerang-Broadbeach Rd, Nerang	3 dBi omni-directional antenna
Gold Coast Aquatic Centre and Broadwater Parklands	Marine Pde, Southport	3 dBi omni-directional antenna
Metricon Stadium	Nerang Broadbeach Rd, Carrara	3 dBi omni-directional antenna
Village Roadshow Studios	Entertainment Rd, Oxenford	3 dBi omni-directional antenna
Hinze Dam	Upper Gilston Rd, Advancetown	3 dBi omni-directional antenna
Queensland State Velodrome	Sleeman Centre, Cnr Old Cleveland Rd & Tilley Rd, Chandler	3 dBi omni-directional antenna
RNA Showgrounds	600 Gregory Ter, Bowen Hills, Brisbane	3 dBi omni-directional antenna
Cairns Convention Centre	Corner Wharf St & Sheridan St, Cairns	3 dBi omni-directional antenna
Coolum Golf Course	1 Warran Rd, Yaroomba	3 dBi omni-directional antenna
Merv Craig sporting complex	Galleon Way, Currumbin	3 dBi omni-directional antenna
Belmont Shooting Centre	1485 Old Cleveland Rd, Belmont	3 dBi omni-directional antenna
Runaway Bay sports centre	Morala Ave, Runaway Bay	3 dBi omni-directional antenna
Broadbeach Bowls Club	169 Surf Pde, Broadbeach	3 dBi omni-directional antenna
Keith Hunt Park, Labrador	Musgrave Ave, Labrador	3 dBi omni-directional antenna

New South Wales

Site Name	Address	Antenna system
TEN 10 Studios	1 Saunders St, Pyrmont	3 dBi omni-directional antenna
Broadcast Australia	221 Pacific Hwy, Gore Hill	26 dBi rotatable antenna
TX Australia Tower	192-196 Hampden Rd, Artarmon	17 dBi omni-directional array and a 26 dBi rotatable antenna
MLC Centre	Level 54, 19 – 29 Martin Pl, Sydney	17 dBi omni-directional array
Centre Point Tower	112 Market St, Sydney	17 dBi omni-directional array
SCG	Driver Ave, Paddington	3 dBi omni-directional antenna

Schedule 5 – Collection stations

Site Name	Address	Antenna system
ANZ Stadium	Edwin Flack Ave, Sydney Olympic Park, Homebush	3 dBi omni-directional antenna
TXA Willoughby	24 Artarmon Rd, Willoughby	17 dBi omni-directional array and a 26 dBi rotatable antenna
ATN 7	Colonial Centre 52 Martin Pl, Sydney	17 dBi omni-directional array
ATN 7	Lot 33 Border Rd, Horsley Park	26 dBi rotatable antenna
ATN 7	8 Central Ave, Eveleigh	14 dBi omni-directional array
2GB	33-35 Saunders St, Pyrmont	17 dBi omni-directional array
Crown Castle Tower	246 Burralow Rd, Kurrajong	14 dBi omni-directional array
Razorback Translator Site	Mt. Hercules Rd, Razorback	14 dBi omni-directional array
Level 29 (Tower 2), Westfield Shopping Centre	500 Oxford St, Bondi Junction	14 dBi omni-directional array
Airport Hilton Hotel Rooftop	20 Levey St, Arncliffe	14 dBi omni-directional array
Stamford Hotel	Cnr Robey & O'Riorden St, Mascot	14 dBi omni-directional array
Rural Fire Service	15 Carter St, Lidcombe	14 dBi omni-directional array
NBN Tx	Mt Sugarloaf Rd, Mt Sugarloaf	14 dBi omni-directional array
Opera House	2 Macquarie St, Sydney	3 dBi omni-directional antenna
ACER Arena	Sydney Olympic Park, Olympic Blvd, Homebush	3 dBi omni-directional antenna
Sydney Football Stadium	Moore Park Rd, Paddington	3 dBi omni-directional antenna
Sydney Entertainment Centre	35 Harbour St, Darling Harbour	3 dBi omni-directional antenna
WIN Entertainment Centre	Crown St, Wollongong	3 dBi omni-directional antenna
Newcastle Entertainment Centre	Brown Rd, Broadmeadows	3 dBi omni-directional antenna
Fox Studios	38 Driver Ave, Moore Park	3 dBi omni-directional antenna
Parramatta Stadium	O'Connell St, Parramatta	3 dBi omni-directional antenna
Campbelltown Oval	Cnr Rose Payten Dr and Pembroke Rd, Leumeah	3 dBi omni-directional antenna
Brookvale Oval	Pittwater Rd, Brookvale	3 dBi omni-directional antenna
Toyota Stadium / Endeavour Field	Captain Cook Dr, Woolooware	3 dBi omni-directional antenna
Leichardt Oval	Cnr Mary St & Glover St, Lilyfield	3 dBi omni-directional antenna
WIN / Kogarah Oval	Princes Hwy, Kogarah	3 dBi omni-directional antenna
Penrith Centrebet Stadium	Mulgoa Rd, Penrith	3 dBi omni-directional antenna

Site Name	Address	Antenna system
Showgrounds	Sydney Olympic Park, 1 Showground Rd, Homebush	3 dBi omni-directional antenna
Mt Panorama Racing Circuit	Mt Panorama, Bathurst	3 dBi omni-directional antenna
Eastern Creek International Raceway	Cnr Brabham Dr & Ferrers Rd, Eastern Creek	3 dBi omni-directional antenna
Bluetongue Central Coast Stadium	Central Coast Highway, Gosford	3 dBi omni-directional antenna
Energy Australia Stadium	Turton Rd, New Lambton	3 dBi omni-directional antenna
Kurrajong	Miles Comms Site 2, 246 Burralow Rd, Kurrajong Heights	14 dBi omni-directional array
Randwick Race Course	Randwick Alison Rd, Randwick	3 dBi omni-directional antenna

Victoria

Site Name	Address	Antenna system
Celsius House	167 Lonsdale St, Melbourne	17 dBi omni-directional array and a 26 dBi rotatable antenna
Channel 9 Docklands	717 Bourke St, Docklands	10 dBi omni-directional antenna with 2° down tilt
HSV 7	120 Harbour Esplanade, Docklands	14 dBi omni-directional array
Broadcast Australia NTL/ABV2 Tower	2-6 Eyre Rd, Mt Dandenong	26 dBi rotatable antenna
ABV2 Studios	8 Gordon St, Elsternwick	26 dBi rotatable antenna
ATV 10 Studios	Como Centre, 620 Chapel St, South Yarra	3 dBi omni-directional antenna
TXA Ornata Rd (GTV9 Ant)	12 Ornata Rd, Mt Dandenong	17 dBi omni-directional array and a 26 dBi rotatable antenna
TXA Eyre Rd	8 Eyre Rd, Mt Dandenong	17 dBi omni-directional array and a 26 dBi rotatable antenna
TXA Observatory Rd	22 Observatory Rd, Mt Dandenong	17 dBi omni-directional array and a 26 dBi rotating antenna
Rialto Tower	525 Collins St, Melbourne	17 dBi omni-directional array and a 26 dBi rotatable antenna
101 Collins Street	Level 60, 101 Collins St., Melbourne	17 dBi omni-directional array
BlueScope Steel Centre	120 Collins St, Melbourne	17 dBi omni-directional array and a 26 dBi rotatable antenna
MCG	Brunton Ave, Richmond	3 dBi omni-directional antenna
Police & Ambulance Site	Ballan - Geelong Rd, Mt Anakie	17 dBi omni-directional array and a 26 dBi rotatable antenna
Ceres Lookout	Wondana Dr, Wondana Heights Geelong	17 dBi omni-directional array
State Parliament House	Spring St, Melbourne	3 dBi omni-directional antenna

Site Name	Address	Antenna system
Air Services Australia Tower	22 Steane Ave, Arthurs Seat	17 dBi omni-directional array
Etihad Stadium	740 Bourke St, Docklands	3 dBi omni-directional antenna
Docklands Studios	476 Docklands Dr, Docklands	17 dBi omni-directional array
Rod Laver Arena	Batman Ave, Melbourne	3 dBi omni-directional antenna
Hisense Arena	Swan St, Melbourne	3 dBi omni-directional antenna
AAMI Park	Olympic Blvd, AAMI PARK	3 dBi omni-directional antenna
Crown Casino	Crown Entertainment Complex, 8 Whiteman St, Southbank	3 dBi omni-directional antenna
Melbourne Exhibition Centre	2 Clarendon St, South Wharf	3 dBi omni-directional antenna
Phillip Island Racing Circuit	Back Beach Rd, Phillip Island	3 dBi omni-directional antenna
Central Park Stawell	Main St, Stawell	3 dBi omni-directional antenna
Skill Stadium	Moorabel St, Geelong	3 dBi omni-directional antenna
Australian Formula One	220 Albert Rd, South Melbourne	3 dBi omni-directional antenna
Flemington Race Course	500 Epson Rd, Flemington	3 dBi omni-directional antenna
Caulfield Race Course	Station St, Caulfield East	3 dBi omni-directional antenna
Moonee Valley Race Course	81-85 Wilson St, Moonee Ponds	3 dBi omni-directional antenna
Sandown Park Raceway	591-659 Princes Hwy, Springvale	3 dBi omni-directional antenna

South Australia

Site Name	Address	Antenna system
Broadcast Australia NTL Tower	Summit Rd, Mt Lofty	26 dBi rotatable antenna
ABS 2	85 North East Rd, Collinswood	17 dBi omni-directional array
ADS Studio Tower	80 Hutt St, Adelaide	3 dBi omni-directional antenna
Westpac Building	91 King William St, Adelaide	17 dBi omni-directional array
Seven Studios	40 Port Rd, Hindmarsh	17 dBi omni-directional array and a 26 dBi rotatable antenna
State Parliament House	North Ter, Adelaide	3 dBi omni-directional antenna
TXA Crafers	115 Mount Lofty Summit Rd, Crafers	17 dBi omni-directional array and a 26 dBi rotatable antenna
Adelaide Entertainment Centre	Port Rd, Hindmarsh	3 dBi omni-directional antenna
ETSA Park	155 Railway Ter, Mile End South	3 dBi omni-directional antenna

Site Name	Address	Antenna system
Adelaide Arena	44a Crittenden Rd, Findon	3 dBi omni-directional antenna
SA Aquatic and Leisure Centre	443 Morphett Rd, Oaklands Park	3 dBi omni-directional antenna
Rundle Mall	7 James Pl, Adelaide	3 dBi omni-directional antenna
SA Water	Angus St, Adelaide	3 dBi omni-directional antenna
Adelaide Show Grounds	Goodwood Rd, Wayville	3 dBi omni-directional antenna
AAMI Stadium	West Lakes Blvd, West Lakes	3 dBi omni-directional antenna
Adelaide Oval	War Memorial Dr, North Adelaide	3 dBi omni-directional antenna
Distinctive Homes Hockey Stadium	State Sports Park, Main North Rd, Gepps Cross	3 dBi omni-directional antenna
Hindmarsh Stadium	Holden St, Hindmarsh	3 dBi omni-directional antenna
Memorial Drive Tennis Centre	War Memorial Dr, North Adelaide	3 dBi omni-directional antenna
Santos Stadium	145 Railway Ter, Mile End	3 dBi omni-directional antenna
WIN Mt Lofty	Summit Rd, Crafers	26 dBi rotatable antenna
NWS Studios	Tynte St, North Adelaide	3 dBi omni-directional antenna

Northern Territory

Site Name	Address	Antenna system
Mitchell Centre Building	55-59 Mitchell St, Darwin	17 dBi omni-directional array
ABC Studio	1 Cavenagh St, Darwin City	17 dBi omni-directional array
NTD 8 Studios	Blake St, Gardens Hill Darwin	14 dBi omni-directional array
Delorane Road Transmitter Site	Deloraine Rd, Knuckey Lagoon	14 dBi omni-directional array
Marrakai Appartments	93 Smith St, Darwin	14 dBi omni-directional array

Western Australia

Site Name	Address	Antenna system
ABW 2	30 Fielder St, East Perth	3 dBi omni-directional antenna
Central Park Tower	170 Georges Ter, Perth	14 dBi omni-directional array
TXA Carmel	255 Welshpool Rd, Carmel	17 dBi omni-directional array and a 26 dBi rotatable antenna
TXA Bickley	10 Television Rd, Bickley	26 dBi rotatable antenna
TVW 7 Studios	Off Dianella Dr, Dianella	17 dBi omni-directional array and

		a 26 dBi rotatable antenna
Bank West Tower	Cnr William and St Georges Ter, Perth	26 dBi rotatable antenna
Western Australian Newspapers	50 Hasler Rd, Osborne Park	3 dBi omni-directional antenna
Subiaco Oval	Subiaco Road, Subiaco	3 dBi omni-directional antenna
WACA Cricket Ground	Cnr Hale St & Nelson Cres, East Perth	3 dBi omni-directional antenna
NEW 10 Studios	Cottonwood Cres, Dianella Heights	26 dBi rotatable antenna
Fremantle Hospital	Cnr South Ter and Alma St, Fremantle	17 dBi omni-directional array
Burswood Dome	Great Eastern Hwy, Burswood	3 dBi omni-directional antenna
Challenge Stadium	Stephenson Ave, Mt Claremont	3 dBi omni-directional antenna
WIN Parliament House	Harvest Ter, Perth	17 dBi omni-directional array
STW Studio Site	9 Gay St, Dianella	26 dBi rotatable antenna

Tasmania

Site Name	Address	Antenna system
ABT 2 Broadcast Centre	1-7 Liverpool St, Hobart	17 dBi omni-directional array
BA/NTA Tower Hobart transmitter site	Pinnacle Rd, Mt Wellington	17 dBi omni-directional antenna
Southern Cross Studios	36 Watchorn St, South Launceston	3 dBi omni-directional antenna
Southern Cross Studios	34 Argyle St, Hobart	3 dBi omni-directional antenna

Australian Capital Territory

Site Name	Address	Antenna system
ACTEW	Mt Ainslie Dr, Mt Ainslie	17 dBi omni-directional array
Prime Television	363 Antill St, Watson	3 dBi omni-directional antenna
Parliament House	Parliament House, Capital Hill Canberra	3 dBi omni-directional antenna
Bruce Stadium	Battye St, Bruce	3 dBi omni-directional antenna
Telecom Tower	100 Black Mountain Dr, Black Mountain	14 dBi omni-directional array
Manuka Oval	Manuka Cir, Griffith	3 dBi omni-directional antenna
National Exhibition and Convention Centre	31 Constitution Ave, Canberra	3 dBi omni-directional antenna