Conditions for area-wide licences in the frequency range 24.7 GHz to 29.5 GHz

[The conditions detailed in this document are proposed to be included in a licence conditions determination (LCD). The specific LCD that these proposed conditions would be included into will be determined pending a decision on the apparatus licence type to be used for wireless broadband services in the 26/28 GHz band. Future editorial changes will be needed accordingly]

1. Conditions

For paragraph 107(1)(f) of the Act, every area-wide licence in the frequency range 24.7 GHz to 29.5 GHz is subject to the conditions in this [Part/Schedule].

1. Maximum total radiated power

(1) The licensee must not operate a radiocommunications transmitter with a total radiated power greater than 30 dBm/200MHz.

1. Unwanted emissions
   1. The licensee must not operate a radiocommunications transmitter if it exceeds the unwanted emission limits in the Schedule.
2. Operating at fixed locations
   1. The licensee must not operate a radiocommunications transmitter in the frequency range 27.5-29.5 GHz while it is in motion on land, on water or in the air, unless it is located indoors.
3. Recording devices in the Register

(1) Subject to 5(2), a licensee must not operate a radiocommunications transmitter under this licence unless;

(a) the requirements under Part 3.5 of the Act relating to registration of the transmitter have been met; and

(b) the transmitter complies with the details about it that have been entered in the Register.

(2) Subsection (1) does not apply to the following kinds of radiocommunications transmitters:

(a) a transmitter that operates with a maximum total radiated power of less than or equal to 23 dBm per occupied bandwidth; or

(b) a transmitter which has its antenna located indoors.

1. Power flux density at the geographic boundary

(1) Subject to 6(2) and 6(3), the licensee must ensure that emissions from the operation of radiocommunications transmitters which are not exempt from registration under section 5(2) do not exceed an aggregate power flux density of -82.7 dBW/m2, measured at a height of 5 metres above the ground at the boundary of the geographic area authorised by the licence.

(2) For radiocommunications transmitters operating in the frequency range 25.1 GHz to 27.5 GHz, subsection 6(1) does not apply to the parts of the boundary of the geographic area authorised by the licence which are directly adjacent to the geographic areas listed in the *Radiocommunications (Spectrum Re-allocation—26 GHz Band) Declaration 2019.*

(3) For radiocommunications transmitters operating in the frequency range 25.5 GHz to 27 GHz, subsection 6(1) does not apply to the parts of the boundary of the geographic area authorised by the licence which are directly adjacent to HCIS cells MW4H6 or BV2A3.

1. Synchronisation requirement

(1) If:

(a) interference occurs between:

(i) a radiocommunications device (the ***first device***) operated under this licence; and

(ii) a radiocommunications device (the ***other device***) operated under another area-wide licence in the frequency range 24.7 GHz to 29.5 GHz or a 26 GHz band spectrum licence (the ***other licence***);

(b) the level of interference to the first device or to any other device exceeds the compatibility requirement set out in the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 26 GHz Band) 2020,* as in force from time to time;

(c) either the licensee or the holder (or authorised third party) of the other licence wishes to resolve the interference; and

(d) no agreement between the licensee and each person operating one or more other devices can be reached on how to manage the interference;

then the licensee is required to manage the interference by:

(e) either:

(i) operating the first device with a frame structure that uses [TBD]; or

(ii) operating the first device using a sequence and duration of radio emissions that is consistent with those configurations (disregarding any time at which the device is not making a radio emission); and

(f) synchronising the timing of the frame structure or other sequence of radio emissions of the first device with the timing of the frame structure or other sequence of radio emissions of each of the other devices (disregarding any device at a time at which the device is not making a radio emission).

Note: The synchronisation requirement only applies when an interference issue occurs and where there is no other measure agreed to between the licensees to resolve the interference. This means synchronisation can be done on a site/cell specific basis. During any period in which the licensee and other licensee are taking steps to resolve the interference issue or synchronise, the ACMA will generally give priority to the device registered first in time in any interference dispute, meaning that the device or devices registered later-in-time will generally be required to accept any interference or cease causing interference during this time.

1. Co-sited devices

(1) If:

(a) interference occurs between a radiocommunication device:

(i) operated under this licence; and

(ii) operated under another licence (the ***other licence***);

when the measured separation between the phase centre of the antenna used with each device is less than 200 metres; and

(b) that interference is not the result of operation of a radiocommunications device in a manner that does not comply with the conditions of the relevant licence; and

(c) either the licensee or the holder (or authorised third party) of the other licence wishes to resolve the interference;

the licensee of this licence 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.

1. Responsibility to manage interference

(1) The licensee must manage interference between:

(a) radiocommunications devices operated under this licence; and

(b) radiocommunications devices operated under this licence and under another licence held by the licensee.

1. Harmful interference
   1. The licensee must ensure that the operation of a radiocommunications transmitter that is a kind included in 5(2) does not cause harmful interference to other radiocommunications devices operated under a different spectrum or apparatus licence.
2. Co-existence with fixed satellite service gateway uplinks
   1. A radiocommunications transmitter operated under this licence must not direct its antenna beam to within 1.5 degrees of the geostationary orbit, if it:

(a) is directing its antenna beam to an elevation angle greater than or equal to 3 degrees above the horizon;

(b) is a fixed transmitter;

(c) operates with a total radiated power of less than or equal to 23 dBm per occupied bandwidth;

(d) is connected to an antenna which is not located indoors; and

(e) operates in either:

(i) the frequency range 27-27.5 GHz and is located inside an area subject to additional conditions specified in Schedule 1 of the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 26 GHz Band) 2020,* as in force from time to time; or

(ii) the frequency range 27.5-29.5 GHz.

* 1. A radiocommunications transmitter operated under this licence which is not exempt from registration under section 5(2) must not:

(a) operate with a total radiated power exceeding 25 dBm/200MHz;

(b) be connected to an antenna which has its highest gain directed above the horizon when the antenna is not being electrically steered; or

(c) direct its antenna beam via electrical steering to an elevation angle greater than 5 degrees above the horizon for more than 5 percent of time.

If:

(d) the radiocommunications transmitter operates in the frequency range 27.5-29.5 GHz; or

(e) the radiocommunications transmitter operates in the frequency range 27-27.5 GHz and it is located inside an area subject to additional conditions specified in Schedule 4 of the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 26 GHz Band) 2020*, as in force from time to time.

1. Co-existence with space research earth stations
   1. The licensee must not operate a radiocommunications transmitter in the frequency range 25.5-27 GHz if it is located in any of the following HCIS: BU7K, BU7L, BU7O, BU7P, BU8E, BU8F, BU8G, BU8I, BU8J, BU8K, BU8L, BU8M, BU8N, BU8O, BU8P, BV2B, BV2A1, BV2A2, BV2A4, BV2A5, BV2A6, BV2A7, BV2A8, BV2A9, MW4H1, MW4H2, MW4H4, MW4H5, MW4H7, MW4H8, MW4D7, MW4L2.
2. Co-existence with body scanners
   1. A radiocommunications transmitter operated under this licence must not cause harmful interference to a device operated under the *Radiocommunications (Body Scanning – Aviation Security) Class Licence 2018*, as in force from time to time.

Note:  A radiocommunications receiver operated under this licence is not afforded protection from interference by a device operated under the Radiocommunications (Body Scanning – Aviation Security) Class Licence 2018, as in force from time to time.

**Schedule        Unwanted emission limits for area-wide licences for devices in the frequency range 24.7 GHz to 29.5 GHz**

(1) The licensee must not operate a radiocommunications transmitter that is not a kind included in 5(2) of Part 3 if its unwanted emissions exceed the limits in subsections (5), (6), (7) and (8).

(2) The licensee must not operate a radiocommunications transmitter that is a kind included in 5(2) of Part 3 if its unwanted emissions exceed the limits in subsections (9) and (10).

(3) The licensee must not operate a radiocommunications transmitter that is located indoors if its unwanted emissions exceed the limits in subsections (11).

(4) The licensee must not operate a radiocommunications transmitter that is a kind included in 5(2)(a) of Part 3 and is not located indoors if its unwanted emissions exceed the limits in subsections (12) and (13).

(5) The unwanted emission limits in Table 1 apply:

(a) at the frequencies outside the upper or lower frequency limits set out on the licence; and

(b) offset from the upper and lower frequency limits set out on the licence;

where:

Foffset: is the frequency offset from the upper or lower frequency limit on the licence. The closest -3dB point of the specified bandwidth to the upper and lower frequency limits of the licence is placed at foffset.

|  |  |  |
| --- | --- | --- |
| **Frequency range**  **(foffset)** | **Total radiated power**  **(dBm)** | **Specified Bandwidth** |
| 0 MHz ≤ foffset ≤ 40 MHz | -5 | 1 MHz |

**Table 1: Radiocommunications transmitter unwanted emission limits for registered devices**

(6) Subject to (7), the unwanted emission limits in Table 2 apply at frequencies inside the 23.6 GHz to 24 GHz frequency range, measured over the specified bandwidth for the relevant frequency range.

(7) If a radiocommunications transmitter operates over more than one frequency segment within the range 24.7-25.1 GHz as specified in Table 2, the unwanted emission limit inside the 23.6 GHz to 24 GHz range is the highest unwanted emission limit specified for the frequency ranges over which the transmitter operates.

|  |  |  |
| --- | --- | --- |
| **Transmitter operating frequency range (f)** | **Total radiated power**  **(dBm)** | **Specified Bandwidth** |
| 24.7 GHz ≤ f < 24.8 GHz | 2 | 200 MHz |
| 24.8 GHz ≤ f < 24.9 GHz | 1 | 200 MHz |
| 24.9 GHz ≤ f < 25 GHz | -1 | 200 MHz |
| 25 GHz ≤ f < 25.1 GHz | -3 | 200 MHz |
| 25.1 GHz ≤ f < 27.5 GHz | -7 | 200 MHz |
| 27.5 GHz ≤ f ≤ 29.5 GHz | -13 | 1 MHz |

**Table 2: Radiocommunications transmitter unwanted emission limits inside the 23.6 GHz to 24 GHz frequency range for registered devices**

(8) The unwanted emission limits in Table 3 apply:

(a) at frequencies greater than 40 MHz offset from the upper or lower frequency limits set out on the licence; and

(b) outside the frequency range 23.6 GHz to 24 GHz,

measured over the specified bandwidth for the relevant frequency range.

|  |  |  |
| --- | --- | --- |
| **Frequency range (f)** | **Total radiated power**  **(dBm)** | **Specified Bandwidth** |
| 30 MHz ≤ f < 1 GHz | -13 | 100 kHz |
| 1 GHz ≤ f ≤ 59 GHz | -13 | 1 MHz |

**Table 3: Radiocommunications transmitter unwanted emission limits for registered devices**

(9) The unwanted emission limits in Table 4 apply:

(a) at the frequencies outside the upper or lower frequency limits set out on the licence; and

(b) offset from the upper and lower frequency limits set out on the licence; and

where:

Foffset: is the frequency offset from the upper or lower frequency limit on the licence. The closest -3dB point of the specified bandwidth to the upper and lower frequency limits of the licence is placed at foffset.

|  |  |  |
| --- | --- | --- |
| **Frequency range**  **(foffset)** | **Total radiated power**  **(dBm)** | **Specified**  **Bandwidth** |
| 0 MHz ≤ foffset ≤ 40 MHz | -5 | 1 MHz |

**Table 4: Radiocommunications transmitter unwanted emission limits for devices exempt from registration**

(10) The unwanted emission limits in Table 5 apply:

(a) at frequencies greater than 40 MHz offset from the upper or lower frequency limits set out on the licence; and

(b) outside the frequency range 23.6 GHz to 24 GHz,

measured over the specified bandwidth for the relevant frequency range.

|  |  |  |
| --- | --- | --- |
| **Frequency range**  **(f)** | **Total radiated power**  **(dBm)** | **Specified**  **Bandwidth** |
| 30 MHz ≤ f < 1 GHz | -36 | 100 kHz |
| 1 GHz ≤ f < 12.75 GHz | -30 | 1 MHz |
| 12.75 GHz ≤ f < 23.6 GHz | -13 | 1 MHz |
| 24 GHz ≤ f ≤ 59 GHz | -13 | 1 MHz |

**Table 5: Radiocommunications transmitter unwanted emission limits for devices exempt from registration**

(11) The unwanted emission limits in Table 6 apply at frequencies inside the 23.6 GHz to 24 GHz frequency range, measured over the specified bandwidth.

|  |  |
| --- | --- |
| **Total radiated power**  **(dBm)** | **Specified**  **Bandwidth** |
| -13 | 1 MHz |

**Table 6: Radiocommunications transmitter unwanted emission limits inside the 23.6 GHz to 24 GHz frequency range**

(12) Subject to (13), the unwanted emission limits in Table 7 apply at frequencies inside the 23.6 GHz to 24 GHz frequency range, measured over the specified bandwidth for the relevant frequency range.

(13) If a radiocommunications transmitter operates over more than one frequency segment within the range 24.7-25.1 GHz as specified in Table 7, the unwanted emission limit inside the 23.6 GHz to 24 GHz range is the highest unwanted emission limit specified for the frequency ranges over which the transmitter operates.

|  |  |  |
| --- | --- | --- |
| **Transmitter operating Frequency range (f)** | **Total radiated power**  **(dBm)** | **Specified Bandwidth** |
| 24.7 GHz ≤ f < 24.8 GHz | 6 | 200 MHz |
| 24.8 GHz ≤ f < 24.9 GHz | 5 | 200 MHz |
| 24.9 GHz ≤ f < 25 GHz | 3 | 200 MHz |
| 25 GHz ≤ f < 25.1 GHz | 1 | 200 MHz |
| 25.1 GHz ≤ f < 27.5 GHz | -3 | 200 MHz |
| 27.5 GHz ≤ f ≤ 29.5 GHz | -13 | 1 MHz |

**Table 7: Radiocommunications transmitter unwanted emission limits for devices exempt from registration**