

EXPLANATORY STATEMENT

Approved by the Australian Communications and Media Authority

Radiocommunications Act 1992

Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 26 GHz Band) 2020

Authority

The Australian Communications and Media Authority (**the ACMA**) has made the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 26 GHz Band) 2020 (the instrument)* under section 262 of the *Radiocommunications Act 1992 (the Act)*.

Section 262 of the Act provides that the ACMA may make written advisory guidelines about any aspect of radiocommunication or radio emissions.

Purpose and operation of the instrument

A spectrum licence permits a licensee, subject to specified conditions, to operate radiocommunications devices within spectrum space defined by a frequency band and a geographic area. Interference occurring between adjacent spectrum licences consists of in-band interference, across the geographic boundaries, and out-of-band interference, across the frequency boundaries. Interference can also occur between spectrum licensed services and services operating under apparatus and class licensing arrangements.

The purpose of the instrument is to provide information to spectrum licensees to assist in managing the potential for interference to radiocommunications receivers operating in, or adjacent to, the 25.1 GHz–27.5 GHz band (**the 26 GHz band**) from radiocommunications transmitters operated under a spectrum licence in the 26 GHz band.

This instrument is part of a set of legal instruments which will give effect to the spectrum licence technical framework applicable to the 26 GHz band, including the following:

- > *Radiocommunications (Spectrum Re-allocation — 26 GHz Band) Declaration 2019*;
- > *Radiocommunications Spectrum Marketing Plan (26 GHz Band) 2020*;
- > *Radiocommunications (Unacceptable Levels of Interference — 26 GHz Band) Determination 2020*;
- > *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 26 GHz Band) 2020*.

Receivers of other licensed services have operated in the 26 GHz band and in frequency-adjacent bands since before the *Radiocommunications (Spectrum Re-allocation–26 GHz Band) Declaration 2019* was made, and continue to do so. The types of services operated in and adjacent to the 26 GHz band include:

- > earth receive stations operating in the frequency range 25.5 GHz – 27 GHz;
- > space receive stations operating in the 26 GHz band;
- > services authorised by an area-wide apparatus licence operating in and adjacent to the 26 GHz band;
- > class licensed services in the 26 GHz band; and

- > fixed services, such as point-to-point links authorised under apparatus licences and operating in the frequency range 27.5 GHz–29.5 GHz.

Potentially, these radiocommunications receivers could suffer interference from radiocommunications transmitters operated under a spectrum licence in the 26 GHz band.

The instrument attempts to manage interference to receivers operating in and adjacent to the 26 GHz band by setting out the technical parameters that spectrum licensees should use to assist in mitigating interference to receivers operating in or adjacent to the 26 GHz band.

The ACMA will also take the instrument into account when determining whether a spectrum licensee is causing interference to a licensed receiver that is operating in accordance with its licence conditions.

The instrument does not limit the actions of a spectrum licensee in negotiating operating or protection arrangements with another licensee.

A provision-by-provision description of the instrument is set out in the notes at **Attachment A**.

The instrument is a disallowable legislative instrument for the purposes of the *Legislation Act 2003* (the **LA**).

Documents incorporated by reference

Subsection 314A(2) of the Act provides that an instrument under the Act may make provision in relation to a matter by applying, adopting or incorporating (with or without modifications) matter contained in any other instrument or writing as in force or existing at a particular time or from time to time. The instrument incorporates the following documents by reference, as in force or existing from time to time:

- the Australian Spectrum Map Grid 2012, published by the ACMA, and available free of charge from its website at <http://www.acma.gov.au>;
- the International Telecommunication Union (ITU) Radiocommunications Sector (ITU-R) resolution *ITU-R Resolution 242 (WRC-19)*. This resolution was made by decisions at the World Radiocommunications Conference 2019. This resolution is available, free of charge, from the ITU's website: www.itu.int;
- the Radio Regulations, published by the ITU. The Radio Regulations contain Articles, Appendices, Resolutions and Recommendations of the ITU relating to international radiocommunications coordination. The Radio Regulations are available, free of charge, from the ITU's website: www.itu.int;
- Radiocommunications Assignment and Licensing Instruction (RALI) FX 3, Microwave Fixed Services Frequency Coordination (RALI FX 3). RALI FX 3 provides technical policy, guidelines and useful information for the coordination and licensing of microwave fixed services. RALI FX 3 is available, free of charge, from the ACMA's website: www.acma.gov.au;
- Radiocommunications Assignment and Licensing Instruction MS 46, Licensing and coordination procedures for area-wide apparatus licensed services in the 26/28 GHz band (RALI MS 46). RALI MS 46 sets out the procedures to be followed when issuing area-wide apparatus licences in the frequency range 24.7 GHz–30 GHz and managing co-existence between these devices and with other services. RALI MS 46 is available from the ACMA's website: www.acma.gov.au; and

- three recommendations published by the ITU-R, which are available, free of charge, from the ITU's website: www.itu.int:
 - Recommendation ITU-R P.452 Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz;
 - Recommendation ITU-R P.1144 Guide to the application of the propagation methods of Radiocommunication Study Group 3;
 - Recommendation ITU-R SA.509 Space research earth station and radio astronomy reference antenna radiation pattern for use in interference calculations, including coordination procedures, for frequencies less than 30 GHz.

The instrument also incorporates the following Acts and legislative instruments (including by the adoption of definitions), or otherwise refers to them, as in force from time to time:

- > the Act;
- > the *Acts Interpretation Act 1901*;
- > the *Australian Radiofrequency Spectrum Plan 2017*;
- > the LA;
- > the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 26 GHz Band) 2020*;
- > the *Radiocommunications (Body Scanning – Aviation Security) Class Licence 2018*;
- > the *Radiocommunications (Interpretation) Determination 2015*;
- > the *Radiocommunications (Low Interference Potential Devices) Class Licence 2015*;
- > the *Radiocommunications (Spectrum Re-allocation – 26 GHz Band) Declaration 2019*;
- > the *Radiocommunications (Unacceptable Levels of Interference – 26 GHz Band) Determination 2020*.

Each of these Acts and legislative instruments are available, free of charge, from the Federal Register of Legislation: www.legislation.gov.au.

Consultation

Before the instrument was made, the ACMA was satisfied that consultation was undertaken to the extent appropriate and reasonably practicable, in accordance with section 17 of the LA.

In November 2019, the ACMA set up a short-term industry technical liaison group (TLG) to support the development of a technical framework to support the introduction of 5th generation wireless broadband services in the 26 GHz band.

The TLG was asked to consider and provide advice to the ACMA on technical aspects required for the development of the spectrum licence technical framework in the 26 GHz band. These included:

- the development of the core conditions of the spectrum licensed band in accordance with section 66 of the Act;
- the development of the determination on unacceptable levels of interference made under section 145 of the Act;
- the development of any associated advisory guidelines to be made under section 262 of the Act, including the instrument;
- the development of a draft spectrum licence; and

- the development of a minimum contiguous bandwidth for spectrum licences in the 26 GHz band.

The ACMA developed papers which outlined its proposed approach to the spectrum licensing framework for the 26 GHz band. These papers were made available by the ACMA to the TLG members for comment. These papers can be found on the ACMA's website. The ACMA had regard to the views expressed by the TLG members when preparing the instrument.

A draft version of the instrument was released for public consultation on 9 July 2020, together with the consultation paper *26 GHz band spectrum licence technical framework*. Consultation closed on 10 August 2020.

The ACMA consultation sought stakeholder views on the proposed spectrum licence technical framework. The ACMA received 11 written submissions in response to this consultation paper, 9 of which provided comment in relation to the instrument.

The majority of comments related to providing additional protection to incumbent services or to increased deployment flexibility for new wireless broadband services. The ACMA considered this feedback and made a number of changes to the instrument in response, in relation to the protection requirements for earth receive stations and space receive stations detailed in Parts 3 and 4 of the instrument respectively.

Regulatory impact assessment

A preliminary assessment of the proposal to make the instrument was conducted by the Office of Best Practice Regulation (**OBPR**), based on information provided by the ACMA, for the purposes of determining whether a Regulation Impact Statement (**RIS**) would be required. OBPR advised that a RIS would not be required because the proposed regulatory change is minor or machinery in nature – OBPR reference number 24947.

Statement of compatibility with human rights

Subsection 9(1) of the *Human Rights (Parliamentary Scrutiny) Act 2011* requires the rule-maker in relation to a legislative instrument to which section 42 (disallowance) of the LA applies to cause a statement of compatibility with human rights to be prepared in respect of that legislative instrument.

The statement of compatibility set out below has been prepared to meet that requirement.

Overview of the instrument

Section 262 of the Act permits the ACMA to make advisory guidelines about any aspect of radiocommunication or radio emissions. The purpose of the instrument is to provide guidance to assist with the management of interference to radiocommunications receivers operating under an apparatus licence in or adjacent to the 26 GHz band.

Human rights implications

The ACMA has assessed whether the instrument is compatible with human rights, being the rights and freedoms recognised or declared by the international instruments listed in subsection 3(1) of the *Human Rights (Parliamentary Scrutiny) Act 2011* as they apply to Australia.

Having considered the likely impact of the instrument and the nature of the applicable rights and freedoms, the ACMA has formed the view that the instrument does not engage any of those rights or freedoms.

Conclusion

The instrument is compatible with human rights as it does not raise any human rights issues.

Notes to the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 26 GHz Band) 2020*

Part 1—Preliminary

Section 1 Name

This section provides for the instrument to be cited as the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 26 GHz Band) 2020*.

Section 2 Commencement

This section provides for the instrument to commence at the start of the day after the day it is registered on the Federal Register of Legislation.

The Federal Register of Legislation may be accessed free of charge at www.legislation.gov.au.

Section 3 Authority

This section identifies the provision of the Act that authorises the making of the instrument, namely section 262 of the *Radiocommunications Act 1992 (the Act)*.

Section 4 Definitions

This section defines a number of key terms used throughout the instrument.

A number of other expressions used in the instrument are defined in the Act, the *Radiocommunications (Unacceptable Levels of Interference – 26 GHz Band) Determination 2020* or the *Radiocommunications (Interpretation) Determination 2015*.

Section 5 References to other instruments

This section provides that in the instrument, unless the contrary intention appears:

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

Part 2—Overview

Section 6 Background

This section provides general information about unwanted emissions and interference issues that may arise in relation to receivers operating in and adjacent to the 26 GHz band, from transmitters operated under a 26 GHz spectrum licence.

Section 7 Purpose

This section provides a general overview of the purpose of the instrument and a list of radiocommunications services, interference to which is dealt with by the instrument. The section also recommends ITU-R Recommendation P.1144 as a guide to be followed for the suitable propagation model for determining path loss for planning transmitters to minimise the risk of interference to receivers covered by the instrument. This section explains that the ACMA, in the absence of separate criteria being agreed between affected licensees, will take this instrument into account in determining whether interference has occurred from a radiocommunications transmitter operating under a 26 GHz band spectrum licence to a radiocommunications transmitter operating under another licence.

Part 3—Earth receive stations

Section 8 Background

This section outlines that, when the instrument was made, there were two earth receive stations operating in the frequency range 25.5 GHz–27 GHz. These earth stations are referred to as the Canberra Deep Space Communications Complex and the New Norcia Deep Space Ground Station.

Section 9 Protection requirements

This section outlines the protection requirements for earth receive stations. This includes setting the maximum aggregate interference level, which is only applicable to certain transmitters located within 200km of either of the earth stations, and the propagation model to be used. This section also outlines the earth receive station antenna pattern (from ITU-R Recommendation SA.509) and the elevation angles which are to be used in calculations for the purposes of determining whether relevant emissions exceed the maximum aggregate interference level.

Part 4—Space receive stations in the 26 GHz band

Section 10 Background

This section outlines that the ITU-R Radio Regulations and the spectrum plan provide allocations for the fixed satellite service (FSS) and inter-satellite service in parts of the 26 GHz band on a co-primary basis with terrestrial radiocommunications services. This section also mentions that ITU-R Resolution 242 (WRC-19) contains a number of conditions applying to international mobile telecommunications base stations in the range 24.25 GHz–27.5 GHz, to protect space receive stations.

At the time the instrument was made, there were FSS gateway uplinks operating on frequencies which overlap the 27 GHz–27.5 GHz frequency range at 10 locations across Australia.

Section 11 Protection requirements

This section outlines the protection requirements for space receive stations as follows:

- spectrum licensees are to adhere to specified parts of ITU-R Resolution 242 (WRC-19) for deployments in the frequency range 25.1 GHz to 27.5 GHz.
- a series of requirements that would prevent the operation of some classes of radiocommunications transmitters with a total radiated power level that exceeds a defined limit, unless the operation complied with specified additional requirements. The additional requirements relate to radiated maximum true mean power limits above the horizontal plane and antenna pointing restrictions. The radiated power limits are specified in a 200 MHz

bandwidth; logarithmic scaling can be used to find the appropriate level in alternative bandwidths. Different requirements apply depending on the frequency range that the radiocommunications transmitter is operating in, and if it is located inside an “inner-footprint area”, inside an “outer-footprint area” or located outside both areas. Inner-footprint areas and outer-footprint areas are described in Schedules 1 and 2 to the instrument, respectively (see below).

Some of these requirements apply in relation to base stations. A base station generally:

- communicates with equipment operated by an end user of a radiocommunications service, or with other base stations;
- is capable of acting as a repeater to extend the coverage of a service or to link other base stations together;
- is located higher above ground level than the stations it communicates with;
- provides control and signalling information to other stations.

Part 5—Services authorised by an area-wide licence

Section 12 Background

This section outlines that radiocommunications devices are authorised to operate under area-wide licences in the frequency ranges 24.7 GHz–25.1 GHz and 27.5 GHz–29.5 GHz Australia wide, and in the 26 GHz band outside of the geographic areas subject to 26 GHz band spectrum licensing. Frequency assignment instructions and technical arrangements for area-wide licences are set out in RALI MS 46.

Section 13 Recommended preliminary coordination procedures

This section provides a guide to the management of both adjacent-area and adjacent-band interference from radiocommunications transmitters operated under a spectrum licence in the 26 GHz to receivers that are receiving communications from transmitters operated under an area-wide licence in or adjacent to the 26 GHz band and are located in the geographic area authorised by the area-wide licence. The ACMA will take the application of these procedures into account when resolving any interference disputes.

Part 6—Class licensed services

Section 14 Background

This section notes that, when the instrument was made, the *Radiocommunications (Body Scanning – Aviation Security) Class Licence 2018* and the *Radiocommunications (Low Interference Potential Devices) Class Licence 2015* each permitted the operation of a number of different types of radiocommunications transmitters in the 26 GHz band.

Section 15 Protection requirements

This section outlines that devices operated under the *Radiocommunications (Body Scanning – Aviation Security) Class Licence 2018* will be afforded protection from harmful interference caused by a radiocommunications transmitter operated under a spectrum licence in the 26 GHz band.

Receivers operating in accordance with the *Radiocommunications (Low Interference Potential Devices) Class Licence 2015* will generally not be afforded protection from interference caused by other radiocommunications devices.

Part 7—Fixed services

Section 16 Background

This section outlines that, when the instrument was made, there were apparatus licensed fixed services operating in the frequency range 27.5 GHz–29.5 GHz which were licensed in accordance with the frequency assignment criteria detailed in RALI FX 3.

Section 17 Protection requirements

This section outlines the protection requirements for fixed services. This includes setting the levels of out-of-band and in-band protection for fixed services based on those detailed in RALI MS 46.

Schedule 1 Inner-footprint areas

Schedule 1 describes the areas defined as the *inner-footprint areas* using HCIS identifiers. HCIS identifiers describe a geographic area in the hierarchical cell identification scheme or HCIS. The HCIS is the cell grouping hierarchy scheme used to describe geographic areas in the Australian Spectrum Map Grid 2012, published by the ACMA, and available free of charge from its website at <http://www.acma.gov.au>.

Schedule 2 Outer-footprint areas

Schedule 2 describes the areas defined as the *outer-footprint areas* using HCIS identifiers.