

Explanatory Statement

Australian Communications and Media Authority Act 2005

Australian Communications and Media Authority (Radiocommunications Licence Conditions—3.4 and 3.6 GHz Bands Interference Management) Direction 2018

Issued by the Authority of the Minister for Communications

Authority

The *Australian Communications and Media Authority (Radiocommunications Licence Conditions—3.4 and 3.6 GHz Bands Interference Management) Direction 2018* is made by the Minister for Communications under subsection 14(1) of the *Australian Communications and Media Authority Act 2005*. Subsection 14(1) of the *Australian Communications and Media Authority Act 2005* (ACMA Act) enables the Minister to direct the ACMA in the performance of its functions or the exercise of its powers, including in relation to the conditions of licences issued under the *Radiocommunications Act 1992* (Act).

Purpose

The purpose of this instrument is to direct the Australian Communications and Media Authority (ACMA) to impose, or to consider imposing, certain interference management conditions on apparatus licences and spectrum licences respectively in the 3400 to 3575 MHz band (3.4 GHz band). These conditions would require persons operating devices under those licences to take certain steps to manage interference with radiocommunications in the wider 3400 to 3700 MHz band (3.4-3.7 GHz band). These steps include:

1. adopting a frame structure using uplink-downlink configuration number 2 and special subframe configuration 6 in the 3GPP LTE technical specification (or an equivalent pattern of radio emissions, e.g., under the 5G technical specification); and
2. to synchronise the timing of the frame structure or equivalent pattern of radio emissions with other users in the band.

These conditions would not take effect until 30 March 2020 because that is the time when licenses to be issued in the 3.6 GHz band are expected to commence.

Background

The ACMA intends to re-allocate spectrum in the 3.6 GHz band by auction. In March 2018, the Minister made the *Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Adelaide and Eastern Metropolitan Australia) Declaration 2018*, the *Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Perth) Declaration 2018* and the *Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Regional Australia) Declaration 2018* (the Declarations), which declared spectrum in the 3.6 GHz band as subject to re-allocation by issuing spectrum licences, in order to enable the ACMA to conduct this auction.

In order to achieve maximum efficiency across the broader 3.4-3.7 GHz band, the ACMA is proposing that all licensees, including existing 3.4 GHz licensees and future 3.6 GHz licensees, adopt a synchronised 6:2:2 frame configuration for their devices. A synchronised frame configuration promotes the effective and efficient use of the spectrum because it

manages the interference between different devices using the spectrum. The direction requires the ACMA to have regard to these benefits when considering imposing conditions on 3.4 GHz licences. Synchronised frame configurations allow licensees to deploy networks using standard ‘off the shelf’ equipment, and generally does not require guard bands or additional filtering to manage interference.

This instrument is a legislative instrument for the purposes of the *Legislation Act 2003*. However, this instrument is not subject to disallowance or sunset, as it is a direction by a Minister to a person or body (see item 2 of the table in section 9 and item 3 of the table in section 11 of the *Legislation (Exemptions and Other Matters) Regulation 2015* respectively).

Impacted licensees in the 3.4 GHz band have been consulted about this direction.

Notes on Sections

Section 1 – Name of instrument

Section 1 provides that the name of the instrument is the *Australian Communications and Media Authority (Radiocommunications Licence Conditions—3.4 and 3.6 GHz Bands Interference Management) Direction 2018* (the Direction).

Section 2 - Commencement

Section 2 provides for the commencement of the Direction. The Direction will commence on the day after it is registered on the Federal Register of Legislation.

Section 3 – Authority

Section 3 provides that the Direction is made under subsection 14(1) of the *Australian Communications and Media Authority Act 2005*.

Section 4 – Interpretation

Subsection 4(1) defines the expressions used in the Direction. Some of these terms are defined by reference to the document entitled “LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (3GPP TS 36.211 version 14.6.0 Release 14)” (the *technical specification*). Some concepts from the technical specification (*special subframe configuration 6* and *uplink-downlink configuration 2*) are incorporated by reference as at the time the instrument was made, in accordance with paragraph 14(1)(b) of the *Legislation Act 2003*. At the time this instrument was made, a copy of the technical specification was available for free download at https://portal.etsi.org/webapp/workprogram/Report_WorkItem.asp?WKI_ID=54618.

The *Hierarchical Cell Identification Scheme* or *HCIS* is defined to mean the Hierarchical Cell Identification Scheme used as part of the Australian Spectrum Map Grid 2012 (ASMG) document published by the ACMA on its website, as the document existed at the time the Direction was made. The ASMG is a system used by the ACMA to define geographic areas for radiocommunications licensing. HCIS codes are used in section 8 of the Direction in order to identify the *relevant area* where the interference management conditions would apply.

The concept of a *compatibility requirement* is incorporated from the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 3.4 GHz*

Band) 2015, which is a disallowable legislative instrument, as in force from time to time. In this case, the incorporation is in accordance with paragraph 14(1)(a) of the *Legislation Act 2003* and a copy of this instrument is available on the Federal Register of Legislation.

Subsection 4(2) provides that the lower number in a reference to part of the spectrum is not included in that part of the spectrum for the purposes of the Direction, while the higher number is included. This is to prevent frequency band overlap.

Section 5 – Direction—conditions of 3.4 GHz spectrum licences

Section 5 deals with conditions of spectrum licences in the 3.4 GHz band.

Subsection 5(1) directs the ACMA to take all reasonable steps to ensure that a person operating a radiocommunications device under a spectrum licence in the 3.4 GHz band will be required to manage interference with others operating radiocommunications devices under another spectrum licence or a PTS licence in the wider 3.4-3.7 GHz band. The direction states this is to be done, unless otherwise agreed, by ensuring that the devices are required to be operated using a frame structure using both uplink-downlink configuration 2 and special subframe configuration 6 (or equivalent), or that the devices are operated using a sequence and duration of radio emissions that is consistent with those configurations. This frame structure or other sequence of radio emissions of the device must then be synchronised with the timing of the frame structure or other sequence of radio emissions of each of the other devices in the band.

This is only intended to apply to the operation of transmitters in the relevant area (defined in section 8). The relevant area is the area where transmitters will be operated in both the 3.4 and 3.6 GHz bands (i.e. the areas subject to re-allocation in the 3.6 GHz band by the Declarations), as well as some areas excised from re-allocation from the 3.6 GHz band.

Subsection 5(2) directs the ACMA to consider performing its functions and exercising its powers to impose conditions on spectrum licences in the 3.4 GHz band to give effect to subsection 5(1). The ACMA will be required to consider the inclusion of such a condition on each relevant spectrum licence in accordance with the merits of each individual case, subject to subsection 5(3), and in accordance with the requirements of the Act. This direction does not require the ACMA to consider imposing a condition that is identical to subsection 5(1), but merely to consider imposing a condition that achieves the effect in that subsection.

Subsection 5(3) directs the ACMA to have regard to the following matters when performing functions or exercising powers in accordance with a direction in subsection (2) or (3), with significant weight to be given to paragraph (a):

- (a) the impact the requirement to manage interference in the manner mentioned in subsection (1) may have on:
 - (i) reducing interference to radiocommunications of the users of the relevant band; and
 - (ii) maximising the overall public benefit derived from using the relevant band by ensuring the efficient allocation and use of the relevant band; and
- (b) any other matter that the ACMA considers relevant.

Section 6 - Direction—apparatus licence conditions determination

Section 6 deals with conditions of apparatus licences in the 3.4 GHz band.

Subsection 6(1) directs the ACMA to determine a condition for all PTS transmitter licences that would give effect to subsection (2), and to take all reasonable steps to ensure that the condition is in force on and after 30 March 2020. A condition determined in accordance with this direction would be by way of legislative instrument determined by the ACMA under paragraph 107(1)(f) of the Act.

Subsection 6(2) requires the condition to ensure anyone operating a device under a PTS transmitter licence in the 3.4 GHz band on or after 30 March 2020 to manage interference with other radiocommunications devices in the band that are operated under either a spectrum licence or another PTS transmitter licence in the wider 3.4-3.7 GHz band. The direction states this is to be done, unless otherwise agreed, by ensuring that the devices are required to be operated using a frame structure using both uplink-downlink configuration 2 and special subframe configuration 6 (or equivalent), or that the devices are operated using a sequence and duration of radio emissions that is consistent with those configurations. This frame structure or other sequence of radio emissions of the device must then be synchronised with the timing of the frame structure or other sequence of radio emissions of each of the other devices in the band.

This condition would only apply to the operation of transmitters in the relevant area (defined in section 8). The relevant area is the area where transmitters will be operated in both the 3.4 and 3.6 GHz bands (i.e. the areas subject to re-allocation in the 3.6 GHz band by the Declarations), as well as some areas excised from re-allocation from the 3.6 GHz band.

This direction does not require the ACMA to determine a condition that is identical to subsection 6(2), but merely to determine a condition that achieves the effect in that subsection.

Section 7

Section 7 states that this direction does not require the ACMA to perform a function or exercise a power under the *Radiocommunications Act 1992* in a manner than would be inconsistent with the requirements of that Act or any other law of the Commonwealth.

Section 8

Section 8 provides that the relevant area is the composite of the areas described using identifiers from the Hierarchical Cell Identification Scheme set out in column 1 of the table included in the subsection.