
Radiocommunications Assignment and Licensing Instruction

WIRELESS AUDIO DEVICES: APPARATUS LICENSING FREQUENCY COORDINATION PROCEDURES

Note: Typically the operation of wireless audio devices is authorised under the Radiocommunications (Low Interference Potential Devices Class) Licence and that operation is not affected by the arrangements outlined in this document. The class licence should be referred to first before considering apparatus licensing. For information on spectrum that is available under class licence see the ACMA's [online channel finder and factsheets](#).

The arrangements outlined in this document are intended to provide additional spectrum options for scenarios that are not covered by the class licence, but operation can otherwise be technically configured so not to cause interference to other services supporting. Possible applications include providing additional spectrum options and flexibility in the use of wireless devices audio at major events or by professional users.

RADIOCOMMUNICATIONS ASSIGNMENT AND LICENSING INSTRUCTIONS**DISCLAIMER**

The Australian Communications and Media Authority (ACMA) advises that these instructions reflect the current policies of the ACMA.

Prospective applicants for licences should take all necessary steps to ensure that they have access to appropriate technical and other specialist advice independently of ACMA concerning their applications, the operation of radiocommunications equipment and services, and any other matters relevant to the operation of transmitters and services under the licences in question.

The policies of ACMA and the laws of the Commonwealth may change from time to time, and prospective licensees should ensure that they have informed themselves of the current policies of ACMA and of any relevant legislation (including subordinate instruments). Prospective applicants for licences should not rely on statements made in these instructions about the policies that may be followed by other government authorities or entities, nor about the effect of legislation. These instructions are not a substitute for independent advice (legal or otherwise) tailored to the circumstances of individual applicants.

Radiocommunications Assignment and Licensing Instructions are subject to periodic review and are amended as ACMA considers necessary. To keep abreast of developments, it is important that users ensure that they are in possession of the latest edition.

No liability is or will be accepted by the Minister or the Department of Broadband, Communications and the Digital Economy, ACMA, the Commonwealth of Australia, or its officers, servants or agents for any loss suffered, whether arising directly or indirectly, due to reliance on the accuracy or contents of these instructions.

Suggestions for improvements to Radiocommunications Assignment and Licensing Instructions may be addressed to The Manager, Spectrum Engineering, ACMA at PO Box 78, Belconnen, ACT, 2616, or by e-mail to freqplan@acma.gov.au. It would be appreciated if notification to ACMA of any inaccuracy or ambiguity found be made without delay in order that the matter may be investigated and appropriate action taken.

Amendment History

Date	Comments
February 2015	Initial release. Refer IFC 54/2014 Proposed frequency coordination procedures for apparatus licensed wireless audio devices

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WIRELESS AUDIO DEVICES: APPARATUS LICENSING FREQUENCY COORDINATION PROCEDURES

1 Introduction

1.1 Purpose

The purpose of this Radiocommunications Assignment and Licensing Instruction (RALI) is to provide information on the frequency coordination arrangements supporting the apparatus licensing of wireless audio devices. It is expected that the apparatus licensing of wireless audio devices will be mostly used for major events or by professional users.

Note: Typically the operation of wireless audio devices is authorised under the Radiocommunications (Low Interference Potential Devices) Class Licence 2000¹ (the LIPD class licence) and operation under the class licence is not affected by the arrangements outlined in this document. The LIPD class licence should be referred initially to determine whether the intended operation is covered under the LIPD class licence before considering the option of authorisation under a land mobile apparatus licence. For information on spectrum that is available under class licence see the ACMA's [online channel finder and factsheets](#)². For information about class licences is available on the ACMA website³.

The arrangements outlined in this document are intended to provide additional spectrum options for scenarios that are not covered by the class licence, but operation can otherwise be technically configured so not to cause interference to other services supporting. Possible applications include providing additional spectrum options and flexibility in the use of wireless devices audio at major events or by professional users

The information in this document reflects the ACMA's statement of current policy in relation to frequency coordination arrangements for wireless audio devices apparatus to be operated under a land mobile apparatus licence. In making decisions, accredited frequency assigners and ACMA's officers should take all relevant factors into account and decide each case on its merits. Issues relating to this document that appear to fall outside the enunciated policy should be referred to the Manager, Spectrum Engineering Section, PO Box 78, Belconnen, ACT, 2616, or by e-mail to freqplan@acma.gov.au.

1.2 Scope

This RALI details the frequency coordination requirements for proposed apparatus licensed wireless audio devices.

The arrangements in this RALI are intended to provide additional spectrum options when operation of wireless audio devices in the frequency range 520-694 MHz under the conditions set out in the LIPD class licence is unable to be achieved, but operation can be technically configured so not to cause interference to other services. These arrangements are intended to support wireless audio devices operating in the frequency range 520-694 MHz, outdoors, co-

¹ See comlaw <http://www.comlaw.gov.au/Series/F2005B00339>

² See <http://acma.gov.au/Industry/Suppliers/A-Type-of-equipment/WirelessMicrophones/frequency-finder-tools>

³ See <http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Class-licences/class-licences>

channel and in the coverage area of a broadcast television service (which is not supported by the LIPD class licence). In such cases the approval of the co-channel broadcast television licensee is required to demonstrate the operation can be achieved without causing interference to broadcast television reception.

Also supported is the optional apparatus licensing of wireless audio devices in 520-694 MHz where operation would typically be authorised under the LIPD class licence (i.e. where operation is in accordance with the condition of the LIPD class licence). The apparatus licensing of such wireless audio devices could be used to provide visibility of spectrum usage at a major events to assist coordination with other wireless audio devices.

The RALI also provides a framework to consider the apparatus licensing of wireless audio devices in other bands on a case-by case basis.

Note that interference between wireless audio devices is not considered by the ACMA and coordination between wireless audio devices is a matter for the operators to manage.

1.3 Frequency bands considered

Arrangements in this RALI are primarily concerned with the frequency range 520-694 MHz. However, where there is no impact on existing services consideration of operation in frequency bands other than 520-694 MHz can be considered on a case by case basis.

Relevant scenarios and frequency bands include:

- Major events, particularly of international significant, can result in requests for short term access to spectrum that is not identified in Australia for wireless audio devices but is supported in other countries.
- Use of 694-703MHz, 748-758 MHz and 803-820 MHz on an interim basis. Longer term planning arrangements of these segments have yet to be determined, hence any use by wireless audio devices will be interim in nature. Any licence issued authorising operation in these bands will be short term and may not be renewed when the licences expires. Advisory note BL will be applied to all licences issued in this these bands. Advisory note BL states *"This frequency band is currently under review to accommodate changes in technology. This review may lead to a requirement to change frequency or to cease transmission"*.
- Use of 1785/6-1790 MHz subject to restrictions to minimise the risk of interference to adjacent band services. The ACMA is currently (as at December 2014) reviewing class licence arrangements for wireless audio devices with a view of extending existing provisions in 1790-1800 MHz to align with European arrangements⁴.

While frequency bands other than 520-694 MHz (e.g. those outlined above) can be considered, any request will need to be accompanied by an assessment of the likelihood of interference to existing services, measures that will be used to minimise the potential for interference and justification as to why a licence should be issued. In considering such requests the ACMA will give regard to the applicable regulatory framework and planning activities.

⁴ The ACMA is considering class licensing indoor use in 1786-1790 MHz, with 1785-1786 MHz being a 1 MHz guard band between adjacent band 1.8 GHz mobile broadband services (apparatus & spectrum licence in 1710-1785 MHz). See IFC 60/2014 [Proposal to remake the LIPD Class Licence with variations](#) (17 Dec, closes 6 Mar 2015)

2 Background

2.1 Wireless audio devices and apparatus licensing

[Apparatus licences](#)⁵ are issued under Part 3.3 of the Radiocommunications Act. They are issued to a person⁶ and authorise the operation of specified radiocommunications devices (transmitters or receivers) or other devices of a kind specified under the Act. The ACMA uses a system of apparatus licence types to apply common licence conditions and fee structures to categories of radiocommunications. Most licence types have associated licence options suitable for specific purposes. Fees charged vary according to licence options.

Apparatus licences can be either assigned or non-assigned. Assigned licences are issued where frequency assignment (coordination) is required. Non-assigned licences are issued when individual frequency assignment is not required.

Wireless audio devices meeting the requirements of this RALI will be authorised under a land mobile assigned licence (wireless audio system or ambulatory station). An ambulatory station licence authorises the operation of one station (transmitter) on a specified frequency. A wireless audio system licence authorises the operation of more than one station (transmitter) within the frequency range specified on the licence.

A *wireless audio system*⁷ is defined as meaning a system, consisting of more than one land mobile station, that:

- (a) is operated under a land mobile licence;
- (b) is operated primarily to transmit audio information between land mobile stations;
- (c) has an emission bandwidth greater than 100 kHz;
- (d) uses assigned frequencies within a range of frequencies specified in the land mobile licence; and
- (e) operates at a power not exceeding 250 mW EIRP.

For more information see the ACMA information papers on the apparatus licence system⁸ and land mobile licences.⁹

To apply for a licence requires completion of the following application forms:

- Application for apparatus licence(s) (RO57); and
- Additional station information (RO77) – this is not required if using an accredited person to perform the frequency coordination and the accredited person has completed a frequency assignment certificate.

These forms are available on the ACMA website¹⁰.

⁵ See <http://acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/apparatus-licensing-overview>

⁶ A 'person' is defined, by subsection 22(1) of the [Acts Interpretation Act 1901](#), to mean an individual, a body politic (i.e. a government) and a body corporate (for example, a 'company', a 'statutory corporation', or an 'incorporated association')

⁷ See *Radiocommunications (Transmitter Licence Tax) Determination 2003 (No. 2)* and *Radiocommunications (Charges) Determination 2007*

⁸ See <http://acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/apparatus-licensing-system-acquire-a-licence-acma>

⁹ See <http://www.acma.gov.au/theACMA/land-mobile-licences-guidelines>

¹⁰ See <http://www.acma.gov.au/theACMA/Library/Corporate-library/Forms-and-registers/radiofrequency-spectrum-forms>

2.2 Wireless audio devices in broadcasting services bands

To support wireless audio devices operating in broadcasting services bands, in 2006 the ACMA made a determination under section 31 of the Radiocommunications Act¹¹ that allows the ACMA to issue land mobile apparatus licence for the purposes of operating a wireless audio transmitter not exceeding 250 mW EIRP on a no interference no protection basis in the 520-820 MHz part of the spectrum.

No similar determination has been made for other broadcasting bands (e.g. 88-108 MHz and 170-230 MHz) and the arrangements described in this RALI are not applicable in these broadcasting services bands.

Note, on a case-by case basis, spectrum in broadcasting services bands may be made available for radiocommunications services under section 34 of the [Broadcasting Services Act 1992](#) – colloquially known as 'drop-through'. Drop-through arrangements are not considered in this RALI.

For more information see the ACMA information paper on radiocommunications services in broadcasting bands.¹²

2.3 Apparatus licence tax and fees

Information on the type of fees applicable to apparatus licences are can be found in the ACMA information paper on apparatus licence fees¹³. In summary there are two types of fees applicable to apparatus licences:

- administrative charges to recover the direct costs of spectrum management (issue fees and renewal fees) ; and
- annual licence taxes to recover the indirect costs of spectrum management and provide incentives for efficient spectrum use.

Taxes and fees for wireless audio devices can be found in the apparatus licence fee schedule.¹⁴ Note different issue fees apply if the licence application is submitted with a frequency assignment certificate from an accredited person. See division 9 of the apparatus licence schedule.

2.4 Licence period and renewal

Licence period

Information of apparatus licence periods is contained in the ACMA information paper on apparatus licence periods.¹⁵ Apparatus licenses for wireless audio devices will be issued for a maximum period of 1 year. Due to legal reasons or re-planning activities a shorter licence period may be specified.

Apparatus licences for wireless audio devices in the frequency range 520-694 MHz will be

¹¹ The Radiocommunications (Wireless Audio Transmitters) Determination. See http://acma.gov.au/webwr/lib286/rad_wat06.pdf

¹² See <http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/radiocommunications-services-in-broadcasting-bands>

¹³ See <http://acma.gov.au/theACMA/About/Making-payments/Apparatus-licence-fees/apparatus-licence-fees-acma>

¹⁴ See <http://www.acma.gov.au/theACMA/About/Making-payments/Apparatus-licence-fees/apparatus-licence-fees-acma>.

¹⁵ See <http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/apparatus-licence-periods-apparatus-licensing-acma>

issued for a maximum period of 1 year. Licences periods in other bands will be considered on a case-by-case basis in light of any relevant regulatory framework and replanning activities. For example, a licence might be issued in a band subject to replanning activities, but the licence period would be limited so as to not constrain the replanning of the band and would contain an advisory note to this effect (that is advisory note BL).

Licence renewal

Renewal of licence is to be in accordance the ACMA's policy on apparatus licence tenure (see information on licence periods). Except in special cases, the ACMA's standard renewal practice is to send renewal notices and instalment quotations to licensees around eight weeks prior to their expiry, and to renew all apparatus licences for which an application is made and approved by the ACMA with the correct fee paid no later than 60 days after the expiry of the licence.

Licences issued for a year will be renewed in accordance with the arrangements outlined above except in cases where:

- the law prevents the ACMA from renewing the licence; or
- policy, legal or other reasons require special consideration by the ACMA of the merits of the renewal.

Licences issued for periods less than a year will not be renewed as outlined above, however a licensee may request that the licence be renewed before it expires. Where possible (where there are no legal reasons or re-planning activities) the ACMA will accommodate such requests though the licence period might be reduced and additional conditions might apply.

In particular, no expectation of renewal should be made for licences authorising use of 694-703MHz, 748-758 MHz or 803-820 MHz when the licences expire.

2.5 Licence conditions & advisory notes

As set out in the ACMA land mobile licence information paper the operation of radiocommunications equipment authorised by a land mobile licence is subject to:

- conditions specified in the [Radiocommunications Act 1992](#), including an obligation to comply with the Radiocommunications Act;
- a condition that any radiocommunication device operated under the licence must comply with all the standards applicable to it;
- conditions specified in and determinations made by the ACMA under paragraph 107(1)(f) of the Radiocommunications Act
- conditions specified in the licence; and
- any further conditions imposed by the ACMA under section 111 of the Radiocommunications Act.

Consistent with circumstance for issuing a licence as described in the determination made by the ACMA under section 31 of the Radiocommunications Act in 2006 (see section 2.2), a wireless audio device will operate under the licence condition that it will not cause interference to a licenced radiocommunications service and no protection will be given from a licenced radiocommunications services. Accordingly special condition 27 will be applied to all licences authorising the operation of wireless audio devices. Special condition 27 states:

No interference shall be caused to any radiocommunication station or service and no protection from interference by such stations or services shall be afforded.

The use of 694-703MHz, 748-758 MHz and 803-820 MHz on an interim basis by wireless audio devices will include an advisory note to the effect that spectrum arrangements are under review and that licence might not be renewed when the licences expires. That is, there is no presumption of renewal and operation may have to cease when the licence expires. Accordingly advisory note BL will be applied to all licences authorising the operation of wireless audio devices in the bands 694-703MHz, 748-758 MHz and 803-820 MHz. Advisory note BL states:

This frequency band is currently under review to accommodate changes in technology. This review may lead to a requirement to change frequency or to cease transmission

2.6 Standards

A wireless audio device operated under an apparatus licence must comply with the relevant ACMA standard or standards applicable to the device on its device compliance day, as in force on that day unless:

- (a) the person operates the transmitter in accordance with a permit (for non-standard transmitter); or
- (b) the transmitter:
 - (i) is imported into Australia solely for use in connection with a significant event;¹⁶
 - (ii) if there is a requirement that the transmitter is tested or inspected before it is used in Australia – meets the requirement;
 - (iii) if there is a condition or requirement imposed on the use of the transmitter in Australia – complies with that condition or requirement;
 - (iv) is used in Australia only at the location of the significant event; and
 - (v) is used in Australia only for the duration of the significant event.

Applicable standards include:

- The Radiocommunications (Electromagnetic Radiation-Human Exposure) Standard 2014¹⁷;
- The Radiocommunications (Short Range Devices Standard) 2014¹⁸ unless the technical parameters of wireless audio device do not appear in the standard.

More information on ACMA standards is on the ACMA website¹⁹. Where there is no applicable ACMA radiocommunications performance standard, wireless audio devices are to meet relevant industry standards such as ETSI standards EN 301 840, EN 301 357 or EN 300 422²⁰.

2.7 Coordination, sharing and interference managements principles

Wireless audio devices operate on the condition that they do not cause interference to other services and are not afforded protection from interference caused by other services. This requirement is implemented by the following coordination and interference management principles.

Class licensed devices:

It is the responsibility of the licensee to assess and manage the potential for interference with other class licensed devices including wireless audio devices operating under the LIPD class

¹⁶ See <http://www.acma.gov.au/theACMA/significant-events-exemption-from-regulatory-arrangements>

¹⁷ See <http://www.comlaw.gov.au/Series/F2014L00960>

¹⁸ See <http://www.comlaw.gov.au/Series/F2014L01253>

¹⁹ <http://www.acma.gov.au/Industry/Suppliers/Supplier-resources/Technical-standards>

²⁰ See <http://www.etsi.org/standards-search>

licence.

Wireless audio devices:

Coordination between wireless audio devices is not considered by the ACMA and it is a matter for the operators of wireless audio devices to manage, this includes devices operating under the LIPD class licence.

Wireless audio devices operate on a shared basis and the ACMA would not refuse to issue a licence because of an existing licence for a wireless audio device. That is, there could be multiple licences authorising operation at one location and it is a matter for licensees to self-manage usage.

Coordination requirements (with other services) requires knowledge of where wireless audio devices will be operated and hence wireless audio devices will only be licensed to operate at a specific location. Use of area wide licences (where individual operating locations are not recorded on the licence) is not supported as this licensing approach does not support coordination with other services or licensee self-management of wireless audio device usage.

Other apparatus and spectrum licensed devices:

If interference is caused to another apparatus or spectrum licenced service operating in accordance with conditions of licence and associated technical requirements, then steps will be need to be taken by the licensee (of the wireless audio device) to mitigate the interference caused. If the interference cannot be resolved, then the transmitter(s) causing the interference might need to be switched off. This requirement does not apply if the other licensed service is for operation of wireless audio devices.

3 Coordination criteria

3.1 520-694 MHz

The coordination criteria for wireless audio devices operating in the frequency range 520-694 MHz is whether interference would be caused to the reception of licensed broadcast television services operating in the same band. This criteria is deemed to be successful if:

- the operation of a wireless audio devices would otherwise be authorised by the LIPD class licence; and/or
- the operation of the wireless audio devices is in the coverage area of a co-channel broadcast television service and has the approval of the co-channel broadcast television licensee.

Licence applications are to be accompanied by information that demonstrates that the assessment criteria are satisfied. Licence applications without such information will not be assessed. If the ACMA is unable to validate the information provided the licence application will be refused.

Reference information that might assist licence applicants in the coordination of a wireless microphone device is available in Annex A.

Note as outlined in section 2.7, coordination requirements (with other services) requires knowledge of where wireless audio devices will be operated and hence wireless audio devices

will only be licensed to operate at a specific location.

3.2 Other bands

In frequency bands other than 520-694 MHz any request will need to be accompanied by assessment of the likely of interference to existing services, measures that will be used to minimise the potential for interference and justification as to why a licence should be issued.

4 RALI Authorisation

[Approved - 23/02/2015]

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Annex A: Reference information

A1. Low interference potential devices class licence

The LIPD class licence supports the operation of wireless audio devices in the frequency range 520-694 MHz with a 100 mW eirp subject to the conditions of the class licence. The key condition being that interference is not caused to broadcast television reception. There are additional conditions such operation is not in the coverage area of a broadcasting (or datacasting) station or the transmitter is only operated indoors.

The LIPD class licence defines coverage area of a broadcasting or datacasting station in terms of specified median field strength at 10m above the ground. For commercial television broadcasting service or community television broadcasting service coverage area is limited to the licence area. That is, operation in areas of fortuitous reception (areas of reception outside the licence area) is allowed in respect to a commercial television broadcasting service or community television broadcasting service.

The specified median field strength varies depending on frequency band and broadcasting service (radio or television) and is defined with respect to the median field strength E(50,50) from a transmission made by a broadcast station. The relevant values are:

- (a) for a transmission in the band 174-230 MHz, in respect of a television broadcasting service: 44 dBuV/m;
- (b) for a transmission in the band 174-230 MHz, in respect of a radio broadcasting service: 63 dBuV/m;
- (c) for a transmission in the band 520-610 MHz: 50 dBuV/m;
- (d) for a transmission in the band 610-694 MHz: 54 dBuV/m.

Meeting the coordination criteria that operation is in accordance with the LIPD class licence requires meeting the above criteria including the requirement not to cause interference to broadcasting television reception. Note, while not specified, implicit in the LIPD requirements is that the wireless audio device is operated by a person at ground level at average ground height, as a handheld device or equivalent. If operating under an apparatus licence in a different environment (e.g. on top a building or high site) then additional assessment might be required.

For wireless audio device operating in accordance the LIPD class licence (including the assumptions about operation as a hand held device by a person at ground level) the ACMA's channel finder²¹ and regional fact sheets²² on spectrum availability can be used to determine if the conditions of the LIPD class licence are met.

²¹ See <http://www.acma.gov.au/Industry/Suppliers/A-Type-of-equipment/WirelessMicrophones/frequency-finder-tools>

²² See <http://www.acma.gov.au/Industry/Suppliers/A-Type-of-equipment/WirelessMicrophones/fact-sheets-and-faqs>