Update to the Australian Radiofrequency Spectrum Plan

Summary of and response to submissions

December 2016

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# Introduction

Following each International Telecommunication Union (ITU) World Radiocommunication Conference (WRC), the Australian Communications and Media Authority (the ACMA) typically updates the *Australian Radiofrequency Spectrum* *Plan* (the Spectrum Plan). The ACMA released the discussion paper [Proposed update to the Australian Radiofrequency Spectrum Plan](http://www.acma.gov.au/theACMA/proposed-update-to-the-australian-radiofrequency-spectrum-plan) on 19 September 2016 along with a marked-up version of the Australian Radiofrequency Spectrum Plan 2013 and a Draft Unspecified Services Policy Statement and case studies. Seventeen[[1]](#footnote-2) submissions were received to the consultation package from the following organisations:

* Alan Hughes
* Bureau of Meteorology (BoM)
* Christopher Meagher
* Department of Defence (Defence)
* Free TV Australia
* Gogo
* Intelsat
* Julian Sortland
* Marcus Berglund
* NBN Co Limited (nbn)
* New Skies Satellites Australia
* Nigel Holmes
* Richard Jacobsen
* Telstra
* ViaSat
* Wireless Institute of Australia (WIA)

WICEN NSW Inc. Northern Rivers Region.

This document gives a brief summary of each issue raised by respondents and feedback from the ACMA on each of these issues. A summary of the additional changes to be made to the Spectrum Plan as a result of the feedback received is given at the end of the document.

# Responses to submissions

## General comments

One respondent suggested that a comprehensive review of the Spectrum Plan should be undertaken given the current review of the spectrum legislative framework. The ACMA acknowledges that such a review may be necessary and if so will act accordingly, but such a review cannot be undertaken until any changes to the legislative framework have been finalised.

## Chapter 1—General information

Comments were received from one respondent (Defence) in regards to Chapter 1—General information.

### Changes to section 11

Section 11 of the *Australian Radiofrequency Spectrum Plan 2013* (‘ARSP’) regarding Defence use of spectrum lists a number of bands where there is Defence interest in all or a portion of the band. The following frequency ranges have been added to this list to improve visibility of Defence use:

1350–1400 MHz, 1785–1805 MHz, 3100–3400 MHz and 21.5–22 GHz.

No other comments were received on proposed changes to Chapter 1. The proposed changes will be implemented as per the consultation package.

## Chapter 2—Part 1: Introductory

### Proposed new subsection 10(9)

As part of the consultation it was proposed that subsection 10(9) be added to allow the authorisation of mobile earth station receivers in bands allocated for fixed-satellite receivers (space-to-Earth). This proposal received some support; however concerns were raised that this provision would apply to all FSS bands. It was suggested that the subsection should be redrafted to apply to specific FSS bands where the change is necessary and that these bands should all be below 24.25 GHz so as not to undermine global consideration of candidate 5G bands above 24.25 GHz.

This provision is intended to remove a regulatory barrier (i.e. add flexibility to the type of devices that can be used to receive satellite transmissions) and improve the alignment with international practices that typically have more flexibility in the licensing of earth station receivers. As the proposed subsection applies only to receivers, it is considered that there is no increased risk of interference with other services. The transmitting satellites, which are the potential interferers in the system, will have completed (or be in the process of completing) the ITU satellite coordination process, as usual. It is also noted that while the clause only applies to receivers, any arrangements to allow for the use of any band for mobile earth station receivers will be the subject of planning consideration and consultation. As such, it is considered that the flexibility provided by clause 10(9) will not undermine consideration of candidate 5G bands above 24.25 GHz.

In light of the comments received and the responses outlined above, the proposed clause 10(9) will be implemented as proposed in the consultation package with a slight modification. The modification has been made to avoid regulatory ambiguity with the term *mobile earth station* which has a specific meaning in the Radiocommunications (Interpretation) Determination 2015. The use of the new text ‘earth station receivers in motion’ also better conveys the intent of the clause to support the use of earth stations in motion in bands allocated to the FSS. The final form of clause 10(9) will be:

*A frequency band may be used by an earth receive station in a frequency band allocated for the fixed-satellite service (space-to-Earth) where that station is in motion, or in a stationary position at an unspecified point on land, on water or in the air.*

### Proposed new subsection 10(10)

As part of the consultation it was proposed that subsection 10(10) be added to provide greater flexibility for spectrum uses not contemplated at the time the Spectrum Plan was made. The proposed subsection would allow radiocommunication services to operate in frequency bands not allocated for those services, in circumstances where the ACMA is satisfied that the subject service is unlikely to cause harmful interference to another service. A draft policy document that sets out how the ACMA will exercise its power under this proposed provision was also provided as part of the consultation, along with case studies illustrating situations where this new clause could potentially be used.

While there was a degree of support for the proposal, some concerns were raised with the proposed new subsection 10(10) with a number of respondents noting that use of the subsection should be subject to public consultation and should not result in any detrimental interference, nor impact on existing assignments. The draft policy document showed that the ACMA will commit to consultation with potentially affected parties to ensure any unspecified services would not cause any adverse effects to existing licensees or services.

One respondent expressed concern that the proposed new subsection 10(10) is too broad in that it applies across all bands. It was requested that the agreement of the relevant licensee(s) be obtained before considering the authorisation of unspecified services in a frequency range under spectrum licensing. It is noted that protection of the rights of spectrum licensees is provided for under the *Radiocommunications Act 1992* (specifically, sections 105 and 153P). Additional text will be included in the final policy document to acknowledge that there are additional obligations under the Act that would need to be complied with when considering new services under subsection 10(10).

One respondent noted that the draft policy document states that subsection 10(10) ‘would not normally be used if there are other mechanisms that could or should be used to accommodate a new system’. They submitted that the practicality of these other mechanisms, including their costs relative to the costs of licensing pursuant to subsection 10(10), is a relevant matter, and that subsection 10(10) should be used in preference to other mechanisms that could be, but should not be, used to accommodate a new system. The ACMA notes that the intention of the proposed new subsection 10(10) is not to lower the costs of licensing, and that this would not ordinarily be a matter that would be taken into account in consideration of the potential use of subsection 10(10).

One respondent submitted that where appropriate, an assignment made to an unspecified service could also be given protection from future assignments for unspecified services. Additional text to this affect will be included in the final version of the policy document.

One respondent raised concerns about the use of SmallSats in Australia under subsection 10(10). It should be noted that the SmallSats case study was included as a hypothetical example only and in no way implies that the ACMA has developed plans to allow SmallSats under subsection 10(10). If or when arrangements for SmallSats in Australia are considered, subsection 10(10) may be required. However, planning, coordination and licensing of specific devices would be considered in the usual way.

In light of the comments received and the responses outlined above, the proposed clause 10(10) will be implemented as proposed in the consultation package with the aforementioned changes made to the policy document.

Chapter 2—Part 2: Table of frequency band allocations

### **Column 1: ITU Radio Regulations table of allocations**

These changes, agreed to in principle by Australia at WRC-15 in November 2015, are now subject to consideration by Parliament as well as the Joint Standing Committee on Treaties (JSCOT) and the Federal Executive Council. Stakeholder consideration of the various issues reflected in the changes occurred prior to WRC-15, as part of developing Australian positions on WRC-15 agenda items.

### Column 2: Australian table of allocations

A number of comments were received in support of various specific changes proposed.

Two respondents requested extension of the amateur allocation in the band 1800–1875 kHz to 1900 kHz, or even to around 1999 kHz, to bring Australia into line with the international allocation to 2000 kHz. There is significant use of this band above 1900 kHz. Therefore, any expansion of amateur operations would require investigation into the effect on adjacent band services. As this analysis has not yet been undertaken, the allocation to the amateur service in the 1800–1875 kHz band will not be expanded at this time.

One respondent proposed an extension of the amateur allocation in the 3776–3800 kHz band above 3800 kHz. There is significant use of this band above 3800 kHz. Therefore, any expansion of amateur operations would require investigation into the effect on these services. As this analysis has not yet been undertaken, the allocation to the amateur service in the 3776–3800 kHz band will not be expanded at this time.

One respondent proposed a new amateur allocation in the 5167–5171 kHz band. There is no allocation to the amateur service in or around this band in Regions 1, 2 or 3. Therefore, a new amateur service allocation in this band will not be included in the final version of the ARSP.

A number of respondents supported the proposed amateur allocation in the frequency band 5351.5–5366.5 kHz however considered that the limit of 15 W ERP proposed in the Radio Regulations was too low and that a limit of 50 W ERP would be more appropriate. These and other service planning issues are not within the scope of the ARSP, but they will be considered the next time arrangements for the use of this band are reviewed.

Two respondents suggested removal of the allocation to the broadcasting service in 7100–7200 kHz. At this stage the ACMA has not identified an adequate case to remove the allocation. The broadcasting service allocation in the 7100–7200 kHz band will be therefore be retained in the final version of the ARSP, recognising that further investigation may identify a case for removal of this allocation, and that if so it may be reviewed by the ACMA with a view to possible removal of the allocation in the next update to the ARSP.

One respondent proposed the use of the 47–50 MHz and 57–68 MHz bands for Digital Radio Mondiale Plus (DRM+). One respondent proposed removal of the broadcasting allocation in the 50–52 MHz band and another proposed changing the amateur allocation in this band from a secondary to a primary allocation. As noted in the ACMA’s Five-year spectrum outlook 2015–2019, the ACMA intends to conduct a review of VHF broadcasting service bands. Therefore, it is not considered appropriate to make any changes to the allocations in the ARSP in these bands at this time.

A number of respondents suggested an amateur service allocation be made at or near 70 MHz to allow technical investigations into a band that traditionally has been available to wide area land mobile and television services. There is no allocation to the amateur service in or around this band in Regions 1, 2 or 3. Therefore, a new amateur service allocation at or near 70 MHz will not be included in the final version of the ARSP.

It was noted by one respondent that 694–820 MHz was shown in Column 2 of the draft as being allocated to the broadcasting service. Footnote 317A was also unintentionally omitted from the draft. The following amendments have been made in the final version of the ARSP to rectify these matters:

* change the status of the fixed and mobile services in the 694–820 MHz band
* add footnote 317A to the mobile allocation
* remove the broadcasting allocation as the band is no longer part of the broadcasting services band (as reflected in Section 12 of Chapter 1 of the ARSP)

remove the frequency boundary at 820 MHz as the 694–820 MHz and 820–850 MHz frequency segments now have the same service allocations with the same status.

A number of respondents suggested an amateur service allocation be made in the 915–928 MHz band to allow experimentation with frequencies close to the current mobile phone frequencies. There is no allocation to the amateur service in this band in Regions 1 or 3. Further, the ACMA completed a comprehensive review of the 803–960 MHz band in November 2015, during which no interest was expressed for amateur use of the 915–928 MHz band. Additionally, amateur use of this band, consistent with the Low Interference Potential Devices Class Licence is already supported. For these reasons, a new amateur service allocation in the 915–928 MHz band will not be included in the final version of the ARSP.

## Chapter 2—Part 3: Australian footnotes

### Addition of defence footnotes in some bands

In consultation with the Department of Defence the following changes will be implemented in the final version of the ARSP:

* Pre-existing Australian footnote AUS58, allowing fixed and mobile services to be used for the purposes of defence so long as they do not cause harmful interference to other services, will be added to the 15.1365–15.35 GHz band.

Pre-existing Australian footnote AUS101A on the radiolocation allocation in the 3300–3400 MHz band will be changed to AUS100A.

### Proposed deletion of footnote AUS105

One respondent proposed the deletion of footnote AUS105 as they considered it did not meet the original intention. The respondent considered that this footnote represented an unacceptable risk to the effective operation of the S-Band meteorological radars, by stipulating that they are not protected from harmful interference from services operating under spectrum licences in adjacent bands.

AUS105 was created in response to a request to the previous update of the ARSP that the radiolocation service in the 2700–2900 MHz band be upgraded from secondary to primary status. Respondents provided in principle support provided the change was limited to ground-based radars used for meteorological purposes and that primary status should not apply to all radiolocation services operating in the band.

The ACMA decided to upgrade radiolocation to primary with a footnote (AUS105) stating that it is for meteorological and aeronautical surveillance radar on condition that potential harmful interference is accepted from services operating in adjacent bands in accordance with a spectrum licence.

While the proposed deletion was supported by some stakeholders, agreement could not be obtained from all affected parties. As such footnote AUS105 will remain in its current form. The ACMA will continue to monitor the issue and will liaise with interested parties to determine if and changes are warranted at a later stage.

### Proposed new footnotes AUS106 and AUS106A

Proposed new footnotes AUS106 and AUS106A were added to support an existing treaty between the Australian and United States governments mentioned in the footnote. Under this treaty, space operation, space research and Earth exploration-satellite services in the 2 025–2 110 MHz and 2 200–2 290 MHz bands are used in the reverse sense (for example, space-to-Earth rather than Earth-to-space) for the purpose of tracking space vehicles. These proposed new footnotes allow use of reverse sense services for stations operating in support of the treaty.

One respondent proposed that the new Australian footnotes AUS106 and AUS106A be applied to the entire bands 2025–2110 MHz and 2200–2290 MHz respectively, rather than only to the space operation service. Another respondent noted that the services named in the treaty operated within a specific frequency range and suggested this should be reflected in the footnote. The proposed new Australian footnotes apply to the space operation, space research and Earth exploration-satellite services in the reverse sense. These operations are outside the scope of the existing allocations. It is considered appropriate that the new Australian footnotes be applied as a footnote to the band rather than to a specific service allocation in the band. However, it is also considered appropriate that only the frequency range used be reflected in the footnote. Changes to this effect have been included in the final version of the ARSP.

One respondent questioned why footnotes were not included to reflect other international treaties. It is noted that the stations operating under the treaty in question are operating with reverse sense (for example, Earth-to-space rather than space-to-Earth), which is outside of the allocations allowed in the ARSP. Systems which operate under other treaties operate within the ARSP allocations and as such do not require specific provisions or recognition in the ARSP.

The final versions of the footnotes will be:

AUS106 The band 2103.406–2109.406 MHz may be used by the space operation (space-to-Earth), space research (space-to-Earth) and Earth exploration-satellite (space-to-Earth) services to support the operation of the Bilateration Ranging Transponder System earth station facility near Alice Springs (latitude 23° 45' 25.3" S, longitude 133° 52' 58.2" E)

AUS106A The band 2284.5–2290.5 MHz may be used by the space operation (Earth-to-space), space research (Earth-to-space) and Earth exploration‑satellite (Earth-to-space) services to support the operation of the Bilateration Ranging Transponder System earth station facility near Alice Springs (latitude 23° 45' 25.3" S, longitude 133° 52' 58.2" E)

## Chapter 2—Part 4: International footnotes

One respondent proposed removal of Australia from International footnotes 168 and 176. It should be noted that International footnotes are part of the ITU Radio Regulations and are reviewed at the World Radiocommunication Conference. Therefore, changes to these footnotes are unable to be made until the next World Radiocommunication Conference in 2019.

No other comments were received on proposed changes to Part 4. The proposed changes will be implemented as per the consultation package.

# Summary of changes

The following changes to the Australian Radiofrequency Spectrum Plan from the draft provided for public consultation have been made:

### Clause 10(9)

The text of clause 10(9) has been modified to avoid regulatory ambiguity with the term *mobile earth station* which has a specific meaning in the Radiocommunications (Interpretation) Determination 2015. The use of the new text ‘earth station receivers in motion’ also better conveys the intent of the clause to support the use of earth stations in motion in bands allocated to the FSS. The final form of clause 10(9) will be:

*A frequency band may be used by an earth receive station in a frequency band allocated for the fixed-satellite service (space-to-Earth) where that station is in motion, or in a stationary position at an unspecified point on land, on water or in the air.*

### AUS106 and AUS106A footnotes

AUS106 and AUS106A have been amended to reflect actual frequencies used. They have also been applied as band footnotes not as service specific footnotes, and footnote AUS106A has been applied to the band 2290-2300 MHz. The amended footnotes are:

AUS106 The band 2103.406-2109.406 MHz may be used by the space operation (space-to-Earth), space research (space-to-Earth) and Earth exploration‑satellite (space-to-Earth) services to support the operation of the Bilateration Ranging Transponder System earth station facility near Alice Springs (latitude 23° 45' 25.3" S, longitude 133° 52' 58.2" E)

AUS106A The band 2284.5–2290.5 MHz may be used by the space operation (Earth-to-space), space research (Earth-to-space) and Earth exploration‑satellite (Earth-to-space) services to support the operation of the Bilateration Ranging Transponder System earth station facility near Alice Springs (latitude 23° 45' 25.3" S, longitude 133° 52' 58.2" E)

Extracts from the table of frequency band allocations are below, showing the changes to Column 2:

|  |  |
| --- | --- |
| **2 025 – 2 110** SPACE OPERATION (Earth-to-space) (space-to-space)  EARTH EXPLORATION–SATELLITE (Earth-to-space) (space-to-space)  FIXED  MOBILE 391  SPACE RESEARCH (Earth-to-space) (space-to-space)              392 | **2 025 – 2 110**  SPACE OPERATION (Earth-to-space) (space-to-space) ~~AUS106~~  EARTH EXPLORATION–SATELLITE (Earth-to-space) (space-to-space)  FIXED  MOBILE 391  SPACE RESEARCH (Earth-to-space) (space-to-space)  392 AUS106 |

|  |  |
| --- | --- |
| **2 200 – 2 290** SPACE OPERATION (space-to-Earth) (space-to-space)  EARTH EXPLORATION–SATELLITE (space-to-Earth) (space-to-space)  FIXED  MOBILE 391  SPACE RESEARCH (space-to-Earth) (space-to-space)              392 | **2 200 – 2 290**  SPACE OPERATION (space-to-Earth) (space-to-space) ~~AUS106A~~  EARTH EXPLORATION–SATELLITE (space-to-Earth) (space-to-space)  FIXED  MOBILE 391  SPACE RESEARCH (space-to-Earth) (space-to-space)  392 AUS87 AUS106A |
| **2 290 – 2 300** FIXED  MOBILE except aeronautical mobile  SPACE RESEARCH (deep space) (space-to-Earth) | **2 290 – 2 300**  FIXED  MOBILE except aeronautical mobile  SPACE RESEARCH (deep space) (space-to-Earth)  AUS87 AUS93 AUS106A |

### 694–820 MHz band

The following amendments have been made to the 694–820 MHz band:

* changed the status of the fixed and mobile services to primary
* added footnote 317A to the mobile allocation
* removed the broadcasting allocation, as the band is no longer part of the broadcasting services band (as reflected in Section 12 of Chapter 1 of the ARSP)

removed the frequency boundary at 820 MHz as the 694–820 MHz and 820–850 MHz frequency segments are now exactly the same.

See the extract of the table below for corresponding changes to Column 2:

|  |  |  |  |
| --- | --- | --- | --- |
| **470 – 694**  BROADCASTING  149 291A 294 296 300 304 306 311A 312 |  |  |  |
|
| **520 – 694**  BROADCASTING  Fixed  Mobile  149 306 311A AUS103 AUS104 |
| **585 – 610**  FIXED  MOBILE 296A  BROADCASTING  RADIONAVIGATION  149 305 306 307 |
| **608 – 614**  RADIO ASTRONOMY  Mobile–satellite except aeronautical mobile–satellite (Earth-to-space) |
| **610 – 890**  FIXED  MOBILE 296A 313A 317A  BROADCASTING  149 305 306 307 311A 320 |
| **614 – 698**  BROADCASTING  Fixed  Mobile  293 308 308A 309 311A |
| **694 – 790**  MOBILE except aeronautical mobile 312A 317A  BROADCASTING  300 311A 312 | **694 – 850~~20~~**  BROADCASTING  ~~Fixed~~FIXED  ~~Mobile~~MOBILE 313A 317A  311A 320 AUS103 |
| **698 – 806**  MOBILE 317A  BROADCASTING  Fixed  293 309 311A |
| **790 – 862**  FIXED  MOBILE except aeronautical mobile 316B 317A  BROADCASTING  312 319 |
| **~~820 – 850~~**  ~~FIXED~~  ~~MOBILE 317A~~  ~~320 AUS103~~ |
| **806 – 890**  FIXED  MOBILE 317A  BROADCASTING  317 318 |
| **850 – 890**  FIXED  MOBILE 317A  Radiolocation AUS29 AUS101A  320 AUS103 |
|  |

### Defence-related changes

In consultation with the Department of Defence, the following changes will be implemented in the final version of the ARSP:

* Australian footnote AUS58 will be added to the 15.15–15.341 MHz band

Australian footnote AUS101A on the radiolocation allocation in the 3300–3400 MHz band will be changed to AUS100A.

The following frequency ranges have been added to the list in Section 11 of Chapter 1 to improve visibility of Defence use:

* 1350–1400 MHz, 1785–1805 MHz, 3100–3400 MHz (by way of expanding the existing 2700–3100 MHz range in the list) and 21.5–22 GHz (an expansion of the existing 21.2–21.5 GHz).

1. Two of these submissions were provided confidentially. [↑](#footnote-ref-2)