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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 4th Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-4)** | **APG19-4/INP-16** |
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Australia

**preliminary views on WRC-19 agenda items 1.13, 1.16, 9.1.1, 9.1.5, 9.1.8**

**Agenda Item 1.13:**

*to consider identification of frequency bands for the future development of International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution****238 (WRC‑15)***

**1. Background**

Agenda item 1.13 considers possible new IMT identifications and mobile service spectrum allocations suitable for delivery of terrestrial wireless broadband in the frequency range between 24.25-86 GHz.

This encompasses the following elements, set out in full in Resolution [**238 (WRC‑15)**](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwisp6nbnp_aAhVHebwKHZlYCsUQFggpMAA&url=https%3A%2F%2Fwww.itu.int%2Fdms_pub%2Fitu-r%2Foth%2F0c%2F0a%2FR0C0A00000C0014PDFE.pdf&usg=AOvVaw2ukZjDRvxSY-gRReFvZAip):[[1]](#footnote-1)

* Spectrum needs for the terrestrial component of IMT
* Sharing and compatibility studies for the following frequency bands:[[2]](#footnote-2)
  + 24.25-27.5 GHz[[3]](#footnote-3), 37-40.5 GHz, 42.5-43.5 GHz, 45.5-47 GHz, 47.2-50.2 GHz, 50.4‑52.6 GHz, 66-76 GHz and 81-86 GHz which have allocations to the mobile service on a primary basis
* 31.8-33.4 GHz, 40.5-42.5 GHz and 47-47.2 GHz which may require additional allocations to the mobile service on a primary basis.

Task Group 5/1 was created as the *responsible* group for conducting the sharing and compatibility studies, in accordance with Resolution **238 (WRC‑15)** and the development of draft CPM text under WRC‑19 agenda item 1.13

Full Terms of Reference (ToR) for Task Group 5/1 are available in Administrative Circular [CA/226](http://www.itu.int/md/R00-CA-CIR-0226/en), *Results of the first session of the Conference Preparatory Meeting for WRC-19 (CPM19-1).*

**Recent ITU-R developments**

Task Group 5/1 met a total of six times before completing its work and being disbanded.

System parameters and propagation models used in sharing and compatibility studies are summarised in Annex 1 to the TG 5/1 Chairman’s Report of the second meeting of TG 5/1 (Document [5-1/287](https://www.itu.int/dms_ties/itu-r/md/15/tg5.1/c/R15-TG5.1-C-0287!N01!MSW-E.docx)). This annex also contains additional clarification on specific parameters as guidance for the studies.

The final version of all studies performed are attached to the Chairman’s Report (Document [5-1/478](https://www.itu.int/md/R15-TG5.1-C-0478/en)).

Studies to date indicate that sharing is likely to be manageable with most incumbent services based on the parameters used.

The draft CPM text is included in the Draft CPM Report. In Section 2/1.13..

**2. Preliminary Views**

Australia supports identifying the 24.25-27.5 GHz, 66-71 GHz and 71-76 GHz frequency bands for IMT. Australian support for the 71-76 GHz band is on the basis that suitable unwanted emission limits are applied to IMT to protect automotive radar operating in the 76-81 GHz band.

Australia is also considering the possibility of an IMT identification in some or all of the 37-43.5 GHz, and 47.2-50.2 GHz frequency bands.

Australia supports ‘no change’ for the 31.8-33.4 GHz band.

Australia only supports an IMT identification of the 45.5-47 GHz and 47-47.2 GHz bands if suitable studies are performed before WRC-19 that show sharing is possible and appropriate regulatory measures are developed as a result.

Australia is still considering its view on the 50.4-52.6 GHz and 81-86 GHz bands.

Australia supports the APT Preliminary View on WRC-19 agenda item 1.13 from the APG19-3 meeting.

**Agenda Item 1.16:**

*to consider issues related to wireless access systems, including radio local area networks (WAS/RLAN), in the frequency bands between 5 150 MHz and 5 925 MHz, and take the appropriate regulatory actions, including additional spectrum allocations to the mobile service, in accordance with Resolution****239 (WRC‑15)***

**1. Background**

WRC-19 agenda item 1.16 (Resolution **239 (WRC-15)**) is considering WAS/RLAN aspects in five frequency bands (5 150-5 250 MHz, 5 250-5 350 MHz, 5 350-5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz). Previous conference decisions at WRC-03 and WRC-12 are reflected in Resolution **229 (Rev.WRC‑12)** for WAS/RLANs in the 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands. Under WRC-15 agenda item 1.1, there was no real support for additional WAS/RLAN allocations in the 5 350-5 470 MHz and 5 725-5 850 MHz segments.

In addition to undertaking sharing and compatibility studies, WP 5A is reviewing the technical characteristics, operational requirements and possible mitigation techniques to potentially allow the use of WAS/RLANs in a number of 5 GHz frequency segments, while protecting incumbent services. It is also examining the possibility of outdoor operation in the 5 150-5 250 MHz segment and reviewing indoor/outdoor restrictions in the adjacent 5 250-5 350 MHz segment, under Resolution **229 (Rev.WRC-12)**.

In the 5 150-5 250 MHz frequency band, Australia operates three major fixed-satellite service Earth-to-space, gateway facilities (in the wider 5 091-5 250 MHz frequency band)[[4]](#footnote-4). Each gateway station is able to access multiple satellites via a number of feeder uplinks. Details of, and history associated with, this system have been provided by Australia to WP 5A in Document [5A/81](https://www.itu.int/md/R15-WP5A-C-0080/en) and [5A/404](https://www.itu.int/md/R15-WP5A-C-0404/en).

Amateur and amateur-satellite services have allocations in the 5 650-5 850 MHz frequency band. At the May 2017 WP 5A meeting, Document [5A/421](https://www.itu.int/md/R15-WP5A-C-0421/en) was submitted by the International Amateur Radio Union (IARU) which outlined the general usage of the band by the amateur and amateur‑satellite services.

In Australia under the [LIPD](https://www.legislation.gov.au/Details/F2016C00432) class licence, WAS/RLANs are authorised to operate in the 5 150-5 350 MHz (max 200 mW e.i.r.p. and indoor restriction), 5 470-5 600 MHz and 5 650-5 725 MHz (max e.i.r.p. 1 W) and 5 725-5 850 MHz (max e.i.r.p. 4 W).

**Recent ITU-R developments**

Agreement on the draft CPM text was completed at the May 2018 meeting of WP5A and is included in the Draft CPM Report in Section 2/1.16.

The frequency bands investigated under this agenda item, i.e. 5 150-5 250 MHz, 5 250-5 350 MHz, 5 350-5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz, are denoted by the letters A, B, C, D, and E, respectively. The following convention has been used for method numbering.

– If multiple Methods are proposed for a particular frequency band, the methods are expressed by the associated letter and a numerical suffix. For example, the four methods proposed for the 5 150-5 250 MHz frequency band are denoted by Method A1, Method A2, Method A3 and Method A4.

– If only one Method is proposed for a particular frequency band, the method is expressed by the associated letter. For instance, the only method proposed for the 5 250-5 350 MHz frequency band is denoted by Method B.

**2. Preliminary Views**

Australia supports Method's B, C, D1 and E, no change, in the respective frequency bands

5 250-5 350 MHz, 5 350-5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz, as sharing and compatibility studies have shown that no regulatory actions are required in these frequency ranges.

Australia also supports Method A1, no change, in the frequency range 5 150-5 250 MHz, as most sharing and compatibility studies undertaken recently indicate that a relaxation of the regulatory conditions of Resolution **229 (Rev.WRC-12),** to accommodate WAS/RLANs in this band, would be unable to ensure protection of incumbent services in accordance with *invites ITU-R b)* of Resolution **239 (WRC‑15)**.

**Agenda Item 9.1.1:**

*Resolution****212 (Rev.WRC‑15)*** *Implementation of International Mobile Telecommunications in the frequency bands 1 885-2 025 MHz and 2 110‑2 200 MHz*

**1. Background**

Resolution **212 (Rev.WRC-15)** invites ITU-R to study possible technical and operational measures to ensure coexistence and compatibility between the terrestrial component of IMT (in the mobile service) and the satellite component of IMT (in the mobile-satellite service) in the frequency bands 1 980‑2 010 MHz and 2 170‑2 200 MHz where those frequency bands are shared by the mobile service and the mobile-satellite service in different countries, in particular for the deployment of independent satellite and terrestrial components of IMT and to facilitate development of both the satellite and terrestrial components of IMT.

**Recent ITU-R developments**

Studies have been performed to evaluate the coexistence and compatibility of terrestrial and satellite components of IMT deployed in neighbouring countries/different concerned countries/adjacent geographical areas across different countries. The studies cover scenarios for IMT satellite systems with different characteristics, and terrestrial IMT deployments in several different environments.

As part of these studies, several technical and operational measures for both the satellite and the terrestrial component of IMT have also been identified and studied. The results of the studies of these technical and operational measures indicate that the compatibility of the terrestrial and satellite IMT component operation in adjacent countries can be achieved through application of some of these technical and operational measures depending on the actual deployment characteristics of the two systems involved.

**2. Preliminary Views**

Australia supports development of appropriate technical and operational measures to ensure coexistence and compatibility between the terrestrial component of IMT (in the mobile service) and the satellite component of IMT (in the mobile service and the mobile-satellite service) in the frequency bands 1 980- 2 010 MHz and 2 170-2 200 MHz in accordance with Resolution **212 (Rev.WRC-15)**.

Australia is of the view that any outcome of this Issue should not result in any changes to the Radio Regulations. Australia is further of the view that this Issue may be addressed by appropriate technical and operational measures in new or revised ITU-R Recommendations or Reports.

**Agenda Item 9.1.5:**

*Resolution****764 (WRC‑15)*** *Consideration of the technical and regulatory impacts of referencing Recommendations ITU‑R M.1638‑1 and ITU‑R M.1849‑1 in Nos.****5.447F*** *and****5.450A*** *of the Radio Regulations*

**1. Background**

WRC-03 allocated the 5 150-5 350 MHz and 5 470-5 725 MHz frequency ranges to the mobile service on a primary basis for the implementation of wireless access systems (WAS) including radio local area networks (RLANs) in accordance with Resolution **229**. Since WRC-03, millions of RLAN devices have been widely deployed worldwide.

Two footnotes, RR No. **5.447F** and RR No. **5.450A,** limit protection criteria certain other services can impose on the Mobile service (MS) in these ranges.

RR No. **5.447F** prevents MS stations operating in the band 5 250-5 350 MHz from claiming protection from the Radiolocation service (RLS), Earth exploration-satellite service (EESS) (active) and Space research service (SRS) (active), and prevents the RLS, EESS (active) and SRS (active) from imposing more stringent protection criteria on the MS than those stated in Recommendations ITU-R M.1638-0 and ITU-R RS.1632-0. RR No. **5.450A** prevents MS stations operating in the band 5 470-5 725 MHz from claiming protection from the Radiodetermination service (RDS), and prevents the RDS from imposing more stringent protection criteria on the MS than those stated in Recommendation ITU‑R M.1638-0.

Recommendation ITU-R [RS.1632](https://www.itu.int/rec/R-REC-RS.1632/en) contains sharing constraints for WAS to protect EESS space borne active sensors in the 5 250-5 350 MHz band. Recommendation ITU-R [M.1638](http://www.itu.int/rec/R-REC-M/recommendation.asp?lang=en&parent=R-REC-M.1638) contains protection criteria for radiolocation, aeronautical radionavigation and meteorological radars operating in the frequency bands between 5 250 and 5 850 MHz. Recommendation ITU-R [M.1849](http://www.itu.int/rec/R-REC-M/recommendation.asp?lang=en&parent=R-REC-M.1849) contains protection criteria for ground-based meteorological radars, including in the band 5 250-5 725 MHz.

During the WRC-15 study cycle, Recommendation ITU-R M.1638-0 was revised with several new radars with different system characteristics added to form Recommendation ITU-R M.1638-1. Technical characteristics and protection criteria for ground based meteorological radars were removed to Recommendation ITU-R M.1849-1.

Under Resolution **27 (Rev.WRC-12)**, reference to an ITU-R Recommendation in the Radio Regulations (RR) continues to apply to the earlier version incorporated by reference until such time as a competent WRC agrees to incorporate a new version. Given the potential impact on the widespread deployment of RLANs in the 5 250-5 350 MHz and 5 470-5 725 MHz frequency ranges, WRC-15 did not reference the revised Recommendation in RR No. **5.447F** and **5.450A**, instead deciding to study this matter further under WRC‑19 agenda item 9.1 issue 9.1.5.

**2. Preliminary Views**

Australia is considering which approach, as outlined in the Draft CPM Report for WRC-19, will provide the most appropriate solution for agenda item 9.1 Issue 9.1.5.

Australia supports a long-term solution that requires less regulation should Recommendations ITU-R M.1638 or M.1849 be updated again in the future, while also ensuring protection of the radiolocation service, and creating no additional constraints to the mobile service.

**Agenda Item 9.1.8:**

*Issue 3) in the Annex to Resolution****958******(WRC‑15)***

**1. Background**

Resolution **958 (WRC-15)** details *Urgent studies required in preparation for the 2019 World Radiocommunication Conference* where Issue 3 in the Annex calls for ‘Studies on the technical and operational aspects of radio networks and systems, as well as spectrum needed, including possible harmonized use of spectrum to support the implementation of narrowband and broadband MTC infrastructures, in order to develop Recommendations, Reports and/or Handbooks, as appropriate, and to take appropriate actions within the ITU Radiocommunication Sector (ITU-R) scope of work’.

**Recent ITU-R developments**

This item is led by WP 5D (which is considering the IMT aspects), with WP 5A focusing on the non-IMT aspects. WP 5D finalised the CPM text at the June 2018 meeting taking into account text contributed by WP5A (Document [5D/920](https://www.itu.int/md/R15-WP5D-C-0920/en)).

**2. Preliminary Views**

Australia is of the view that there is no need to take any regulatory action in the Radio Regulations with respect to specific spectrum for the use of narrowband and broadband machine-type communication applications in the Radio Regulations, consistent with the current Draft CPM Report conclusion.

Australia supports the development of appropriate ITU-R Recommendations, Reports and/or Handbooks on technical and operational aspects of using different radio networks and systems for the implementation of narrowband and broadband machine-type communication infrastructures.

Any future study can be accommodated in the scope of work of the ITU Radiocommunication Sector (ITU-R).

Accordingly number 3) of the Annex to Resolution **958 (WRC-15)** can be suppressed.

Australia supports the APT Preliminary View from the APG19-3 meeting.

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1. Resolution **238 (WRC-15)** - Studies on frequency-related matters for International Mobile Telecommunications identification including possible additional allocations to the mobile services on a primary basis in portion(s) of the frequency range between 24.25 and 86 GHz for the future development of IMT for 2020 and beyond [↑](#footnote-ref-1)
2. Including studies with respect to services in adjacent bands, as appropriate.   [↑](#footnote-ref-2)
3. When conducting studies in the band 24.5-27.5 GHz, to take into account the need to ensure the protection of existing earth stations and the deployment of future receiving earth stations under the EESS (space-to-Earth) and SRS (space-to-Earth) allocation in the frequency band 25.5-27 GHz.   [↑](#footnote-ref-3)
4. RR No. **5.444A** [↑](#footnote-ref-4)