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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY | **Document:** |
| **The 2nd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-2)** | **APG19-2/OUT-24** |
| 17 – 21 July 2017, Bali, Republic of Indonesia | **21 July 2017** |

Working Party 2

**preliminary views on WRC-19 agenda item 1.16**

**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**

**Resolution 239 (WRC-15)** “Studies concerning Wireless Access Systems including radio local area networks in the frequency bands between 5 150 MHz and 5 925 MHz”

*resolves to invite the 2019 World Radiocommunication Conference*

to consider the results of the ITU-R studies and take appropriate actions,

*invites ITU‑R*

to conduct and complete the following in time for WRC‑19:

*a)* to study WAS/RLAN technical characteristics and operational requirements in the 5 GHz frequency range;

*b)* to conduct studies with a view to identify potential WAS/RLAN mitigation techniques to facilitate sharing with incumbent systems in the frequency bands 5 150-5 350 MHz, 5 350‑5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz, while ensuring the protection of incumbent services including their current and planned use;

*c)* to performsharing and compatibility studies between WAS/RLAN applications and incumbent services in the frequency band 5 150-5 350 MHz with the possibility of enabling outdoor WAS/RLAN operations including possible associated conditions;

*d)* to conduct further sharing and compatibility studies between WAS/RLAN applications and incumbent services addressing:

i) whether any additional mitigation techniques in the frequency band 5 350-5 470 MHz beyond those analysed in the studies referred to in *recognizing a)* would provide coexistence between WAS/RLAN systems and EESS (active) and SRS (active) systems;

ii) whether any mitigation techniques in the frequency band 5 350-5 470 MHz would provide compatibility between WAS/RLAN systems and radio determination systems;

iii) whether the results of studies under points i) and ii) would enable an allocation of the frequency band 5 350-5 470 MHz to the mobile service with a view to accommodating WAS/RLAN use;

*e)* to also conduct detailed sharing and compatibility studies, including mitigation techniques, between WAS/RLAN and incumbent services in the frequency band 5 725-5 850 MHz with a view to enabling a mobile service allocation to accommodate WAS/RLAN use;

*f)* to also conduct detailed sharing and compatibility studies, including mitigation techniques, between WAS/RLAN and incumbent services in the frequency band 5 850-5 925 MHz with a view to accommodating WAS/RLAN use under the existing primary mobile service allocation while not imposing any additional constraints on the existing services,

ITU-R Working Party 5A (WP5A) was designated as the responsible group for the Agenda Item 1.16 at CPM19-1. The latest WP5A meeting was held from 22 May to 1 June 2017 in Geneva, Switzerland. In the draft CPM text, Method A (NOC) has been agreed to be the only applicable method for the frequency band 5 350-5 470 MHz due to no feasible mitigation techniques available to ensure sharing between WAS/RLAN and incumbent services in this band. However, other frequency bands are still open for any method.

*Due to lack of time, it was not possible to have detailed discussion with every proposed edit on the working documents towards a preliminary draft new Report ITU-R M.[RLAN SHARING], and Editor’s Notes have been inserted into the document to clearly indicate the status of the discussion for each item.*

Relevant ITU-R and APT Reports/Recommendations and ongoing studies are as follows,

* Recommendation ITU-R M.1450 - Characteristics of broadband radio local area networks
* Recommendation ITU-R M.1739 - Protection criteria for wireless access systems, including radio local area networks, operating in the mobile service in accordance with Resolution 229 (WRC-03) in the bands 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz
* Recommendation ITU-R M.1652 - Dynamic frequency selection in wireless access systems including radio local area networks for the purpose of protecting the radiodetermination service in the 5 GHz band
* Annexes 25, 27, 28, 29 to Working Party 5A Chairman’s Report (Doc. 5A/469)
* **2. Documents**
  + - Input Documents:

APG19-2/INP-09(KOR), APG19-2/INP-21(NZL), APG19-2/INP-29(AUS), APG19-2/INP-35(IRN), APG19-2/INP-40(INS), APG19-2/INP-45(VTN), APG19-2/INP-50(CHN), APG19-2/INP-56(J)

* + - Information Documents:

APG19-2/INF-01(Chairman, APG-19), APG19-2/INF-02(ICAO), APG19-2/INF-04(CITEL), APG19-2/INF-05(RCC), APG19-2/INF-06(IARU), APG19-2/INF-07 (ATU), APG19-2/INF-14 (CEPT)

**3. Summary of Discussions**

**3.1 Summary of Members’ view**

**3.1.1 Korea**

The Republic of Korea does not support the use of WAS/RLAN in the band 5 350-5 470 MHz unless results of ITU-R studies show that sharing and compatibility can be achieved with existing services including radiolocation.

The Republic of Korea supports the worldwide use of the band 5 725-5 850 MHz for mobile service taking into account RR **No.5.453**.

**3.1.2 New Zealand**

New Zealand supports the ITU-R studies undertaken in accordance with Resolution **239 (WRC-15)** as this work could potentially enable a contiguous block of spectrum in the 5 GHz band for the implementation of wireless access systems, including radio local area networks (RLAN).

New Zealand also supports the review of existing regulatory framework applicable to the bands 5 150–5 350 MHz and 5 470–5 725 MHz, as contained in Resolution **229 (Rev. WRC-12)**.

New Zealand is of the view that the possible use of 5 875–5 925 MHz, or parts thereof, for RLAN purpose should be thoroughly investigated for its technical compatibility and interoperability with respect to Intelligent Transport System (WRC-19 Agenda item 1.12).

**3.1.3 Australia**

Australia supports ITU-R sharing and compatibility studies, and subject to study conclusions, identification of appropriate regulatory actions to address the considerable growth and demand for wireless access systems, including radio local area networks (WAS/RLAN) in the frequency ranges identified in Resolution **239 (WRC-15)**.

Australia notes, under invites ITU-R b) of the Resolution that studies in the frequency ranges are to ensure ‘the protection of incumbent services including their current and planned use’.

**3.1.4 Iran**

Referring to the related ongoing activities of WP 5A and the wide use of other services that the relevant frequency bands were already allocated, this Administration is in view of:

• Any mitigation technique proposed under AI 1.16 as a possible measure to facilitate compatibility between RLAN and FSS should be accompanied by a clear implementation step a) to ensure its efficiency, effectiveness and its practicality of use, b) such technique should be implementable without any technical, logistical and operational burden to the Administrations/Operators of incumbent services/applications to which the bands are allocated. Administration operates RLAN should undertake due diligence to fully respect the above mentioned conditions and course of action.

• Use of the band 5 850-5 925 MHz, should not impose any unacceptable constraints on existing services such as FSS (particularly space station receivers) and other existing applications under the mobile service such as ITS.

Based on the ongoing activities in the ITU-R and studies being carried out, the above preliminary views may be updated, modified as well as amended.

**3.1.5 Indonesia**

Indonesia is of the view to follow up the studies in WAS/RLAN technical characteristics and operational requirements in the 5 GHz frequency range, including studies with a view to identify potential WAS/RLAN mitigation techniques to facilitate sharing with incumbent systems in the frequency bands 5 150-5 350 MHz, 5 350-5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz, while ensuring the protection of incumbent services including their current and planned use.

**3.1.6 Viet Nam**

Viet Nam Administration supports studies being undertaken by ITU-R on this issue and is of the view that:

- Viet Nam has allocated the frequency bands 5 150-5 250 MHz, 5 250-5 350 MHz and 5 725-5 850 MHz to RLAN systems to adapt the demand for mobile broadband services for many years.

- Viet Nam supports in seeking additional spectrum in the 5 GHz frequency range and the technical requirements for this kind of systems as stated in the Resolution **239 (WRC-15)** in order to meet increasing demands on mobile traffic consumption.

**3.1.7 China**

- Unless the mitigation techniques can be shown to provide co-existence with existing services, China does not support relaxing the access conditions applicable to WAS/RLANs in the 5 150-5 350 MHz band.

- Since there is still no feasible mitigation techniques available to ensure sharing between WAS/RLAN and incumbent EESS (active), Radiolocation and Radionavigation services, China does not support allocation to the mobile service in the frequency band 5 350-5 470 MHz with a view to accommodate WAS/RLAN use.

**3.1.8 Japan**

Japan supports studies being conducted in ITU-R in accordance with Resolution **239 (WRC-15)**. Japan also is of the view that appropriate protection of the other existing services is an important issue. On the other hand, it would be desirable to consider outdoor operations of WAS/RLAN in the frequency band 5 150-5 250 MHz.

**3.2 Key points raised during the meeting**

None

**4. APT Preliminary View(s)**

* APT Members support studies being conducted in ITU-R in accordance with Resolution **239 (WRC-15).**
* APT Members are of the view that the protection of incumbent services including their current and planned use in the frequency bands 5 150-5 350 MHz, 5 350-5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz should be ensured, without any unacceptable constraints on these services.

**5. Other Views**

* Some APT Members do not support allocation of the band 5 350-5 470 MHz to mobile service and the use of WAS/RLAN in the band 5 350-5 470 MHz unless results of ITU-R studies show that sharing and compatibility can be achieved with existing services.
* Some APT Members support the worldwide use of the band 5 725-5 850 MHz for mobile service taking into account RR **No.5.453**.
* Some APT Members are of the view that it would be desirable to consider outdoor operations of WAS/RLAN in the frequency band 5 150-5 350 MHz.

**6. Views from Other Organisations**

* ASMG
* Follow-up studies.
* Do not support the identification of new bands for WAS / RLAN, unless the studies show possibility of coexistence with current services.
* Ensure protection of the existing services without adding any new restrictions on them.
* ATU

No preliminary position on this agenda item yet.

* CEPT
* CEPT supports studies to be performed under Agenda item 1.16 in accordance with Resolution **239 (WRC-15).**
* In the 5 150-5 350 MHz band, CEPT would support relaxing the access conditions applicable to WAS/RLANs, if results of studies show that sharing and compatibility can be achieved with EESS, radars, MSS feeder links, aeronautical radionavigation and aeronautical telemetry (see **No 5.446C**). However, CEPT noted that the current studies have shown difficulties in achieving co-existence with some incumbent services.
* In the 5 350-5 470 MHz band, CEPT supports no change to the RR in this band.
* In the 5 725-5 850 MHz band, CEPT would support a new mobile allocation to accommodate WAS/RLANs use if sharing and compatibility studies can demonstrate the effectiveness of any new proposed interference mitigation techniques to ensure the protection of radars, fixed service (see **No 5.455**) and FSS space station receivers. It is to be noted that CEPT will take into account compatibility studies between RLAN and specific applications within CEPT (e.g. road tolling systems).
* In the 5 850-5 925 MHz band, CEPT is still in discussion over its initial preliminary position for this band, taking into account the need to not impose any additional constraints on existing services such as FSS (particularly space station receivers) and existing applications under the mobile service such as ITS. However, CEPT noted that the current studies have shown difficulties in achieving co-existence with incumbent services.
* CITEL
* Brazil: The Brazilian Administration supports the necessity for studies to consider possible additional spectrum allocation to be mobile service, including radio local area networks (WAS/RLAN), while ensuring the protection of the C band uplink and of all existing services in the candidate bands.
* Canada: Canada is of the view that only the specific frequency bands 5 150 - 5 350 MHz, 5 350 - 5 470 MHz, 5 725 - 5 850 MHz and 5 850 - 5 925 MHz listed in the resolves and invites ITU-R of Resolution 239 (WRC-15) are to be considered and/or studied under WRC-19 agenda item 1.16 and not the entire 5 GHz frequency range (5 150 - 5 925 MHz). Canada is assessing and may contribute to studies listed under invites ITU-R of Resolution **239 (WRC - 15).**
* Mexico: WAS/RLANs have promoted the development of broadband access and have been deployed license - exempt, pursuant to the provisions of CITEL and ITU-R, in the frequency bands 5150 - 5250 MHz, 5250 - 5350 MHz, 5470 - 5600 MHz, 5650 - 5725 MHz, and 5725 - 5850 MHz. However, it is considered that a potential additional allocation to the mobile service should be based on evidence of spectrum saturation in existing bands, growth projections, and the non-affectation/degradation of any existing services that might operate in the potential additional spectrum.
* RCC
* The RCC Administrations are in favour of necessary protection from potential WAS/RLAN interference for all the services having allocations in the considered frequency bands, first of all for systems in radiolocation and aeronautical radionavigation services used for the safety of flights.
* The RCC Administrations consider that reducing restrictions for the use of WAS/RLAN in the frequency bands 5150-5250 MHz and 5250-5350 MHz is possible only when efficient new mitigation methods ensuring sharing between outdoor WAS/RLAN and the systems in existing services would be identified in the considered frequency bands.
* The RCC Administrations consider that the use of WAS/RLAN in the frequency bands 5350−5470 MHz, 5725−5850 MHz and 5850−5925 MHz is possible only when methods for sharing between WAS/RLAN and the systems in existing services would be identified in the considered frequency bands.
* ICAO

To ensure, on the basis of agreed ITU-R studies, that any new provisions, or changes to existing regulatory provisions, in the frequency bands/ranges 5 150 ‒ 5 250 MHz, 5 350 ‒5 470 MHz and 5 850 ‒ 5 925 MHz do not adversely impact aviation systems.

* IARU

The IARU is of the view that there is growing interest among radio amateurs in experimentation, investigation of propagation phenomena, point-to-point communication and space communication in this band, and existing and future amateur use in this band is protected with special attention to the bands 5 760 to 5 765 MHz and 5 830 to 5 850 MHz.

**7. Issues for Consideration at Next APG Meeting**

* APT Members are encouraged to contribute to the next APG meeting on the Agenda Item 1.16, taking into account the studies of ITU-R WP5A.

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