ORGANIZACION DE LOS ESTADOS AMERICANOS
ORGANIZATION OF AMERICAN STATES

Comisión Interamericana de Telecomunicaciones
Inter-American Telecommunication Commission

30 MEETING OF PERMANENT CONSULTATIVE COMMITTEE II: RADIOCOMMUNICATIONS
November 27 to December 1, 2017
Barranquilla, Colombia

OEA/Ser.L/XVII.4.2.30
CCP.II-RADIO-30/doc. 4356-1-16/17
30 November 2017
Original: English

PRELIMINARY VIEWS FOR WRC-19

AGENDA ITEM 1.16

(Item on the Agenda: 3.1 (SGT-1))

(Document submitted by CITEL Member States)

SGT-1

Coordinator: Luciana CAMARGOS – B – lcamargos@gsma.com

Vice-Coordinador: José COSTA – CAN - jose.costa@ericsson.com

Agenda Item Rapporteur: TBD

Agenda Item Vice-Rapporteur: Jayne STANCAVAGE-USA- jayne.stancavage@intel.com

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)****.*

BACKGROUND

RLANs have proven to be a success in providing affordable and ubiquitous broadband access to the Internet. Introduced by some administrations in the 2.4 GHz band and subsequently expanded into some of the 5 GHz frequency bands, RLANs, specifically Wi-Fi devices, now carry approximately half of all global Internet Protocol (IP) traffic.[1] In fact, mobile carriers have increased their reliance on Wi-Fi offload, voice-over-Wi-Fi (VoWiFi), and similar technologies.[2] Wi-Fi in the 5 GHz band and elsewhere has also generated billions of dollars of economic value, as well as innumerable consumer benefits.

Much of this recent growth reflects a significant increase in the use of 5 GHz bands for RLANs, both to alleviate congestion in the 2.4 GHz band and satisfy consumer demand for higher-speed wireless access.

CITEL Recommendation **PCC.II/REC. 11(VI-05)** recommends the use of the 5 150 – 5 350 MHz, 5 470-5 725 MHz and 5 725-5 825 MHz frequency ranges by WAS including RLANs.

The bands 5 150-5 350 MHz and 5 470-5 725 MHz were made available to the mobile service for the implementation of wireless access systems (WAS) including radio local area networks (RLANs) by WRC-03. Based on studies carried out by the ITU-R, WRC-03 adopted footnote **5.446A** and the associated Resolution **229 (Rev. WRC-12)** that specifies technical and operational limits on RLANs to ensure compatibility with other services in the same frequency range (e.g.,in the band 5 150-5 250 MHz the Resolution restricts WAS/RLAN implementation to indoor use). In addition, the ITU-R adopted several ITU-R Recommendations[3] dealing with the sharing between the mobile service and other services in the 5 GHz frequency range. The frequency band 5 350 to 5 470 MHz was not considered at WRC-03.

In the frequency band 5 350 to 5 470 MHz there are no primary mobile allocations. Earth exploration-satellite service (EESS) (active) allocations in the frequency bands 5 350-5 460 MHz and 5 460-5 470 MHz are essential for Earth-observation programs and the data these provide is vital for reliable and up-to-date information on how our planet and its climate are changing. In addition, the band 5 350-5 460 MHz is also allocated to the aeronautical radionavigation service (ARNS) and the Radiolocation service on a primary basis.

Since 2003, there has been considerable growth in the demand for WAS/RLAN applications with multimedia capabilities; WAS/RLAN also complement licensed commercial mobile networks (i.e., offloading) and fixed wireline networks. As technology evolves to meet increasing performance demands, and traffic on broadband WAS/RLAN increases, the use of wider bandwidth channels in order to support high data rates may create a need for additional spectrum.

---

[1] Cisco Systems, Inc., *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2015-2020*, 24-25 (3 Feb. 2016), http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.pdf.

[2] *Id.* at 25.

[3] Including Recommendation ITU-R M.1652-1, Recommendation ITU-R RS.1632, and Recommendation ITU-R M.1653.

WRC-15 examined the possibility of additional global allocations to the mobile service in the frequency bands 5 350-5 470 MHz and 5 725-5 850 MHz to facilitate contiguous spectrum for WAS/RLAN, thereby enabling the use of wider channel bandwidths to support higher data throughput. The compatibility studies performed by ITU-R in preparation for WRC-15 indicated that when assuming the use of WAS/RLAN mitigation measures limited to the regulatory provisions of Resolution **229 (Rev.WRC-12)**, sharing between WAS/RLAN and the EESS (active) systems in the frequency bands 5 350 to 5 470 MHz would not be feasible, as well as being insufficient to ensure protection of certain radar types in this frequency band. For these cases, sharing may only be feasible if additional WAS/RLAN mitigation measures are implemented. However, no agreement was reached on the applicability of any additional WAS/RLAN mitigation techniques. No studies were also carried out for the frequency band 5 725-5 850 MHz. As such, WRC-15 concluded no change (NoC) for these frequency bands.

Nevertheless, considering that adequate and timely availability of spectrum and supporting regulatory provisions are essential to support future growth of WAS/RLAN applications and that harmonized worldwide bands that support future growth of WAS/RLAN applications are highly desirable in order to achieve the benefits of economies of scale, Resolution **239 (WRC-15)** *resolves* to invite the ITU-R to conduct and complete 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 perform sharing 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;

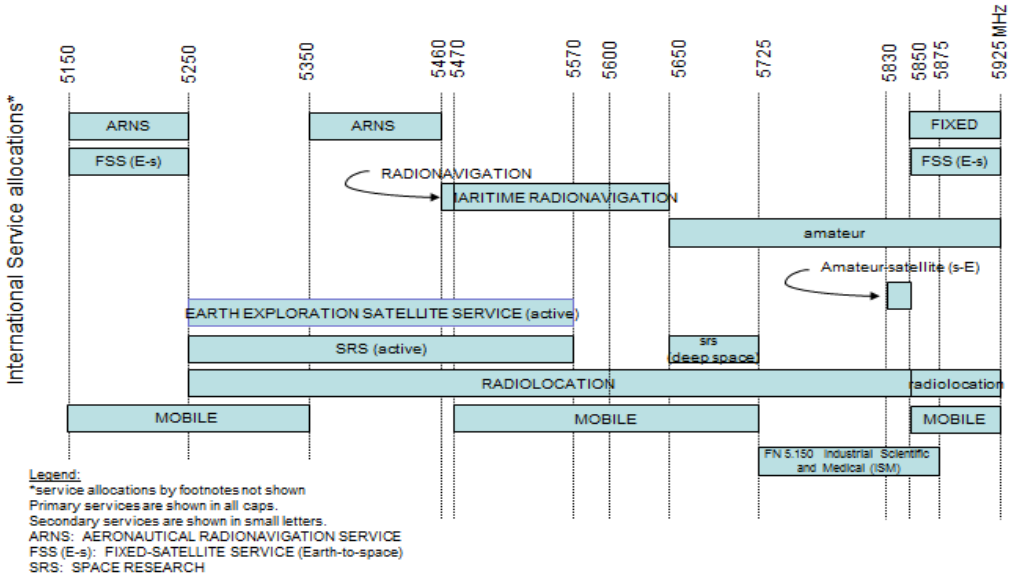
iii) whether the results of studies under points i) and ii) would enable an allocation of the frequency band 5 350-5 470 MHz to the mobile service with a view to accommodating WAS/RLAN use;

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,

FIGURE 1

Summary of international allocations in the 5 GHz range



ITU-R WP5A is the responsible working party for this agenda item. The first WP5A meeting for this study cycle was held from May 10-19, 2016 in Geneva, Switzerland. There are seven output documents related to this agenda item attached to the WP5A Chairman's Report (see Annexes 10-11 and 22-26 of Document 5A/114). Liaison statements were also sent to other groups seeking information for sharing and compatibility studies (see Annex 2 of Document 5A/114).

ISSUES

In the different frequency bands within the 5 GHz range in Resolution 239:

- Determination of mitigation techniques to protect incumbent primary services (including their current and planned use) from a possible new allocation to the mobile service or potential relaxation of technical and operational restrictions for WAS/RLAN operating in the mobile service.
- Determination of potential technical and operational restrictions for WAS/RLAN operating in the mobile service to facilitate sharing with systems of incumbent services.
- Modelling of RLAN deployment, technical and operational characteristics (e.g., LTE-U/LAA not considered during WRC-15)
- Addressing linkages between WRC-19 agenda item 1.16 and issue 9.1.5 regarding updating of reference to the 5 GHz ITU-R Recommendation; and take into account any action in the ITU-R ITS (Intelligent Transport Systems) in the 5 GHz range.
- The candidate bands 5 850-5 925 MHz for WAS/RLAN are portions of the unplanned bands allocated to Fixed Satellite Services. In Brazil, the frequency bands 5 850-6 925 MHz are used for uplink of the C band and the use of C band is widespread in Brazil. Studies are necessary with the view to ensure protection of the C band uplink and of all existing services in the candidate bands.

- Some countries in Region 2 authorized RLAN operations that extend beyond current Radio Regulations including:
    - removing the indoor only restriction and increasing the permitted power for the 5 150-5 250 MHz frequency band;
    - modifying compliance measures to protect Terminal Doppler Weather Radar (TDWR) and other radars operating in the 5 250-5 350 MHz and 5 470-5 725 MHz frequency bands from harmful interference;
    - and authorizing RLAN operations in the 5 725-5 850 MHz frequency band.

PRELIMINARY VIEWS

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.

_____