**UNITED STATES OF AMERICA**

PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 9.1 (Issue 9.1.5)

Agenda Item 9.1/Issue 9.1.5: 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

**Introduction**

The global demand for Radio Local Area Networks (e.g. Wi-Fi) is evidenced by widespread adoption of devices, increasing connection speeds, data traffic volumes and other metrics. More than half or the world’s total internet traffic and over 60% of the mobile data traffic will be carried via Wi-Fi. The surging popularity of Wi-Fi means that Wi-Fi is an essential component of the global telecom infrastructure that requires a stable regulatory framework to continue to bring users the benefits of spectrum access and functionality. According to [Cisco VNI](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html), by the year 2020, up to 3 billion Wi-Fi devices per year will be shipped, with almost all devices equipped with 802.11ac (i.e., 5 GHz band). The operations of many RLANs in the 5 GHz band are provided under Mobile allocation and consistent with RR Nos. 5.447F and 5.450A.

RR No. 5.447F In the frequency band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU‑R M.1638‑0 and ITU‑R RS.1632‑0.     (WRC-03)

RR No. 5.450A In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU‑R M.1638‑0.     (WRC-03)

During the WRC-15 study cycle, Recommendation ITU-R M.1638-0 was revised. In this revision process, several new radars with different system characteristics were included in Recommendation ITU-R M.1638-1 and M.1849-1.[[1]](#footnote-1) In light of proposals to modify Nos. 5.447F and 5.450A to replace the reference to ITU‑R M.1638‑0 with ITU‑R M.1638-1 and M.1849-1, WRC-15 adopted agenda item 9.1.5 and associated Resolution **764 (WRC-15)** with the objective to investigate the technical and regulatory impacts on RLANs that would result from changing these references. It is important to emphasize that WRC-15 explicitly sought to ensure that no undue constraints are imposed on the Mobile service (i.e., RLANs) as the result of this modification (see Resolution **764 (WRC-15)**, *resolves 1 and 2*).

In preparation for WRC-15 and WRC-19, ITU-R has carried out a significant amount of work to study coexistence between RLANs and new radar systems (not included in Recommendation ITU-R M.1638-0), in particular bi-static radars and fast frequency-hopping radars which operate in 5250-5850 MHz range. The results of these studies indicate that there are no viable mitigation techniques that RLANs can implement to protect some of these new radar systems.[[2]](#footnote-2) In the absence of any identified viable mitigation techniques, the requirement to protect new radar systems specified in ITU-R M.1638-1 can be achieved only by precluding RLAN operations in the 5 GHz band. The aim of the agenda item and the associated Resolution 764 (WRC‑15), however, is to ensure that no undue constraints are imposed on the services referenced in Nos [5.447F](file:///C:\Users\TRISTANT\Documents\A-TRAVAIL\WRC-19\Agenda\5.447F.docx) and [5.450A](file:///C:\Users\TRISTANT\Documents\A-TRAVAIL\WRC-19\CPG\CPG-PTD\PTD-2%20(Helsinki%20Janv%202017)\Contribution%20EUMETNET\5.450A.docx) footnotes.

Considering that by the year 2020, up to 3 billion 5 GHz enabled RLAN devices will be shipped per year and that functionality of all these devices is entirely dependent on access to 5 GHz, obviously, precluding RLAN operations in the 5 GHz band would be an undue and unacceptable constraint.

Hence, ITU-R studies confirm that the technical and regulatory impacts of requiring the mobile service to protect new radars types such as bistatic radars would impose undue constraints on RLAN operation in the 5250-5350 MHz and 5470-5725 MHz frequency ranges. The reference to ITU‑R M.1638‑0 should not be updated to ITU‑R M.1638‑1 in footnotes RR Nos. **5447F** and **5.450A**.

Recommendation ITU‑R M.1849‑1 provides technical and operational aspects of ground-based meteorological radars. This recommendation clarifies that, “It should be noted that ground meteorological radars can theoretically operate in the whole frequency range 5 250‑5 850 MHz, but their operation is, in general, limited to the frequency range 5 430‑5 725 MHz. Most of these radars operate within the frequency band 5 600-5 650 MHz.”[[3]](#footnote-3) The comparison of the meteorological radar characteristics given in Recommendations ITU-R M.1638-0 and M.1849-1, operating in the frequency band 5 470-5 725 MHz indicates that both Recommendations require essentially the same protection requirements. Adding a new reference to ITU‑R M.1849‑1 in addition to ITU-R M.1638-0 in RR Nos. **5447F** and **5.450A** would be redundant and unnecessary.

ARTICLE 5

Frequency allocations

**Section IV – Table of Frequency Allocations**

**NOC** **USA/9.1.5/1**

5.447F In the frequency band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU‑R M.1638‑0 and ITU‑R RS.1632‑0.     (WRC-03)

**Reason**: Referencing ITU R M.1638-1 instead of ITU‑R M.1638‑0 would preclude RLAN operations in the 5 GHz band resulting in undue and unacceptable constraint on the Mobile service. Given that both ITU-R M.1638-0 and M.1849-1 recommendations require essentially the same protection requirements, adding a new reference to ITU‑R M.1849‑1 is redundant and unnecessary.

**NOC** **USA/9.1.5/2**

5.450A In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU‑R M.1638‑0.     (WRC-03)

**Reason**: Referencing ITU R M.1638-1 instead of ITU‑R M.1638‑0 would preclude RLAN operations in the 5 GHz band resulting in undue and unacceptable constraint on the Mobile service. Given that both ITU-R M.1638-0 and M.1849-1 Recommendations require essentially the same protection requirements, adding a new reference to ITU‑R M.1849‑1 is redundant and unnecessary.

**SUP** **USA/9.1.5/3**

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**

**Reason**: Consequential: consideration of the subject issues has been completed.

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1. Consistent with the provisions of Resolution **27 (WRC-07)**, the reference in the Radio Regulations shall continue to apply to the earlier version incorporated by reference until such time as a competent WRC agrees to incorporate the new version. [↑](#footnote-ref-1)
2. ITU-R Doc. 5a/298, Annex 24 and Annex 27; *also see* Report of CPM to WRC-15, section 1/1.1/4.1.11.2 [↑](#footnote-ref-2)
3. ITU-R M. 1849-1, Annex 2, Section 2 [↑](#footnote-ref-3)