World Radiocommunication Conference (WRC-19)
Sharm el-Sheikh, Egypt, 28 October – 22 November 2019

PLENARY MEETING

Addendum 6 to Document 6189(Add.21)-E
29 August 2019
Original: English

Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 9.1(9.1.6)

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:

9.1 on the activities of the Radiocommunication Sector since WRC-15;

9.1 (9.1.6) Resolution **958 (WRC-15) -** Annex item 1) Studies concerning Wireless Power Transmission (WPT) for electric vehicles: a) to assess the impact of WPT for electric vehicles on radiocommunication services; b) to study suitable harmonized frequency ranges which would minimize the impact on radiocommunication services from WPT for electrical vehicles. These studies should take into account that the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO) and the Society of Automotive Engineers (SAE) are in the process of approving standards intended for global and regional harmonization of WPT technologies for electric vehicles;

BACKGROUND

Wireless power transmission (WPT) technologies are being developed worldwide to support many applications to transfer power without employing any wired connection. WPT for electric vehicles (WPT-EV) applications are part of the WPT development efforts. The objectives of WPT-EV developments are to reduce EV battery size, reduce pollutants, increase the driving distance between charging, and improve the practicality by making EV charging stations more available and accessible for consumers, governments, and other public transit authorities.

The World Radiocommunication Conference 2015 (WRC-15) adopted Resolution 958 (WRC-15) to examine the possible impact of WPT-EV charging on the radiocommunication services, and Annex item 1 of the resolution requests, as a matter of urgency, that ITU-R study the impact of WPT-EV on radiocommunication services and study suitable harmonized frequency ranges that would minimize this impact. The ITU-R Working Party 1B was in charge of addressing Agenda Item 9.1, Issue 9.1.6.

The Radiocommunication Sector of the International Telecommunication Union (ITU-R) identified two frequency ranges for WPT-EV charging that might be suitable for harmonization: the 79-90 kHz frequency range for medium power and 19-25 kHz for high power. ITU-R conducted a number of impact studies between WPT-EV and radiocommunication services to assess the potential interference impact of WPT-EV applications operating within the 19-25 kHz and 79-90 kHz frequency ranges. These analyses are included in Report ITU-R SM.2303, [the working document towards a preliminary draft new] Report SM.[WPT_SPEC_MNGM], and [the preliminary draft revision of] Recommendation ITU-R SM.2110. Upon approval of these documents, the urgent studies requested in Resolution 958 (WRC-15) Annex 1 (b) will have been addressed.

WPT-EV technologies may be categorized as Industrial, Scientific and Medical (ISM) applications, as short range devices (SRD), or as a combination of both. As such, WPT-EV should not be categorized as an application under a radiocommunication service, and RR Nos. 15.12, 15.12.1, 15.13, 15.13.1 apply to ensure that electrical apparatus of any kind do not cause harmful interference to a radiocommunication service. Recommendation ITU-R SM.2110 provides further information on the regulatory status of WPT.

Some studies within ITU-R indicate that WPT-EV compatibility is not feasible in certain frequency bands because existing radio services would be affected by harmful interferences. Adequate technical constrains need to be developed for other potential frequency ranges in order to ensure there would be no harmful interference from unwanted emissions, including spurious emissions and harmonics.

According the CPM Report, many of the limits used in existing ITU-R studies do not necessarily ensure the protection of radio services. The exact limits and mitigation techniques, operational constraints, as well as potential other matters, need to be defined through further studies in ITU-R. Limits on unwanted emissions, including spurious emissions and harmonics, are expected to be specified in a new ITU-R Recommendation.

The results of the work in ITU-R indicate there is no need to modify the RR at WRC-19. The technical, operational and mitigation techniques for the use of WPT-EV to avoid harmful interference and mitigatethe impact of WPT-EV on radiocommunication services must be assessed through the course of work in the ITU-R Study Groups.

NOC **IAP/6189A21A6/1**

ARTICLES

Reasons: The existing regulatory framework in Nos. **15.12, 15.12.1, 15.13, 15.13.1,** and regional and national administration´s requirements, guided by applicable ITU-R Recommendations, can be applied for WPT-EV. Therefore, no changes are necessary to the Radio Regulations. However, as wireless power transmission technology for electric vehicles continues to evolve, the protection of the existing, planned, and future radiocommunication services against harmful interferences, including unwanted emissions and harmonics, must be ensured. This can be achieved through further studies and the development or update of applicable ITU-R Recommendations and Reports.

NOC **IAP/6189A21A6/2**

APPENDICES

Reasons: The existing regulatory framework in Nos. **15.12, 15.12.1, 15.13, 15.13.1,** and regional and national administration´s requirements, guided by applicable ITU-R Recommendations, can be applied for WPT-EV. Therefore, no changes are necessary to the Radio Regulations. However, as wireless power transmission technology for electric vehicles continues to evolve, the protection of the existing, planned, and future radiocommunication services against harmful interferences, including unwanted emissions and harmonics, must be ensured. This can be achieved through further studies and the development or update of applicable ITU-R Recommendations and Reports.

RESOLUTION 958 (WRC-15)

Urgent studies required in preparation for the 2019 World Radiocommunication Conference

SUP **IAP/6189A21A6/3**

ANNEX TO RESOLUTION 958 (WRC-15)

Urgent studies required in preparation for the 2019 World Radiocommunication Conference

1) Studies concerning Wireless Power Transmission (WPT) for electric vehicles:

a) to assess the impact of WPT for electric vehicles on radiocommunication services;

b) to study suitable harmonized frequency ranges which would minimize the impact on radiocommunication services from WPT for electrical vehicles.

These studies should take into account that the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO) and the Society of Automotive Engineers (SAE) are in the process of approving standards intended for global and regional harmonization of WPT technologies for electric vehicles.

2) Studies to examine:

a) whether there is a need for possible additional measures in order to limit uplink transmissions of terminals to those authorized terminals in accordance with No. **18.1**;

b) the possible methods that will assist administrations in managing the unauthorized operation of earth station terminals deployed within its territory, as a tool to guide their national spectrum management programme, in accordance with Resolution ITU-R 64 (RA-15).

3) 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 machine-type communication 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

Reasons: The existing regulatory framework in Nos. **15.12, 15.12.1, 15.13, 15.13.1,** and regional and national administration´s requirements, guided by applicable ITU-R Recommendations, can be applied for WPT-EV. Therefore, no changes are necessary to the Radio Regulations. However, as wireless power transmission technology for electric vehicles continues to evolve, the protection of the existing, planned, and future radiocommunication services against harmful interferences, including unwanted emissions and harmonics, must be ensured. This can be achieved through further studies and the development or update of applicable ITU-R Recommendations and Reports.