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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-12** |
| 17 – 21 July 2017, Bali, Republic of Indonesia | **21 July 2017** |

Working Party 6

**PRELIMINARY VIEWs on WRC-19 agenda item 9.1 (Issue 9.1.6)**

**Agenda item 9.1**

*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;*

*9.1.6 Issue 1) in the 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.*

1. **Background**

Wireless power transmission (WPT) technologies are being developed worldwide to support many applications and WPT for electric vehicles (EVs) is one of the promising applications. However, since the WPT for Electric Vehicles (EVs) requires relatively high power, it should be developed not to cause harmful interference to radiocommunication services.

WRC-15 adopted Resolution 958, which identified studies on WPT for EVs as urgent studies in preparation of WRC-19. The following were listed as study subjects:

*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.*

The CPM19-1 identified the studies on WPT for EVs as Issue 9.1.6 under Agenda Item 9.1

Studies on WPT have been conducted by ITU-R SG 1 since 1997. ITU-R SG 1 approved Report ITU-R SM.2303 ‘Wireless power transmission using technologies other than radio frequency beam’ in 2014 and revised it in 2015 and June 2017. With some acceleration by the Resolution 958 (WRC-15), studies have been progressed to update the information in the Report. The latest version of the Report contains various results of technical studies on the impact of WPT, including WPT for EVs, on radiocommunication services.

The ITU-R SG 1, at its June 2017 meeting, agreed to apply PSAA procedure for the adoption and approval of Recommendation ITU-R SM.[WPT] ‘Frequency ranges for operation of non-beam Wireless Power Transmission (WPT) systems’ for mobile/portable devices only. SG 1 is progressing studies in order to recommend a frequency range or ranges for WPT for EVs.

As a responsible group for Issue 9.1.6, Working Party 1B initiated its work for a draft CPM Text on this issue, and also prepared a working document towards preliminary draft new Report ITU-R SM.[WPT-SPEC-MNGM] “Methodology for spectrum management of wireless power transmission (WPT)”.

**2. Documents**

* Input Documents APG19-2/INP-13(Rev. 1) (KOR), 33 (AUS), 44 (INS),   
  54 (CHN), 60 (J) and 65 (J)
* Information Documents APG19-2/INF-01 (Chairman, APG), 07(ATU), 14 (CEPT),   
  04 (CITEL), 05 (RCC), 02 (ICAO), 06 (IARU)

**3. Summary of Discussions**

**3.1 Summary of Members’ view**

**3.1.1 Republic of Korea**

The Republic of Korea supports the ITU-R studies in accordance with Resolution 958 (WRC‑15) to assess impacts of WPT for electric vehicles on radiocommunication services and to achieve harmonization of frequency ranges to minimize those impacts, to the extent possible.

**3.1.2 Australia**

Monitor ITU-R studies.

**3.1.3 Indonesia**

Indonesia supports the studies carried out by ITU-R concerning Wireless Power Transmission (WPT) for electric vehicles (EV) in accordance with Resolution 958 (WRC-15).

**3.1.4 China (People’s Republic of)**

* China supports harmonization of frequency ranges which would minimize the impact on radiocommunication services from WPT for electrical vehicles.
* China is considering the 79 kHz - 90 kHz band for harmonization of WPT for electric vehicles

**3.1.5 Japan**

Concerning the WPT for EVs, Japan is of the view that the frequency range 79 - 90 kHz should be designated and that necessary addition or modification to the provisions of the Radio Regulations (RR) should be approved.

However, it is difficult to predict the progress of studies of ITU-R SG 1 at this stage, and therefore Japan proposes the following as APT preliminary views at this stage:

* the results of the ITU-R studies on WPT for EVs should be respected,
* a recommendation of ITU-R on the frequency ranges for WPT for EVs, if approved, should be respected, and necessary provisions should be added in the RR.

**3.2 Key points raised during the meeting**

* Necessity of APT Members’ participation in the ITU-R studies on WPT for EVs to prevent harmful impact of WPT for EVs on the radiocommunication services.
* Necessity of APT Members’ participation in the ITU-R studies on treatment of one of the question items of Question 210-3/1 “Under what category of spectrum use should administrations consider WPT: ISM, or other?”

**4. APT Preliminary Views**

APT Members support the studies carried out by ITU-R in accordance with Resolution **958  (WRC‑15)** to assess the impacts of WPT for electric vehicles on radiocommunication services and to study suitable harmonized frequency ranges which would minimize the impact on radiocommunication services from WPT for electrical vehicles.

**5. Other Views**

Some APT Members are considering the frequency range 79 kHz - 90 kHz for harmonization of WPT for electric vehicles. Some other APT Members are waiting for the completion of ITU-R studies on this matter.

**6. Views from Other Organisations**

**6.1 ASMG Position** (Source: Information Documents APG19-2/INF-01)

* Follow up and support the current studies to assess the impact of (WPT) for electric vehicles on radiocommunication services; and to study suitable harmonized frequency ranges which would minimize the impact on radiocommunication services from (WPT) for electrical vehicles.
* Ensure the protection of the incumbent services and not add any additional constraints on these services.
* Request ASMG administrations to identify their current and future uses in the frequency bands proposed in order to ensure the protection of these services in these bands.

**6.2 ATU Position** (Source: Information Documents APG19-2/INF-07)

No preliminary position on this agenda item yet.

**6.3 Preliminary CEPT Position (approved by CPG19#4)** (Source: Information Documents APG19-2/INF-14)

* CEPT supports the studies concerning Wireless Power Transmission (WPT) for electric vehicles (EV) in particular, assessing the impact of WPT for electric vehicles on radiocommunication services. CEPT also supports the studies to find regionally or globally harmonised frequency ranges for use by WPT for EV which will serve to the aim of minimising the impact of WPT for EV.
* CEPT is also of the opinion that the standards, being developed in various fora, such as ETSI, International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO) and the Society of Automotive Engineers (SAE), intended to facilitate global and regional harmonization of WPT technologies for EV, should be taken into account in the studies to be conducted on WRC-19 AI 9.1 Issue 9.1.6.
* CEPT is still in discussion over its initial preliminary position on potential candidate bands considered for WPT for EV, noting that there are no studies available yet.
* CEPT is of the view that no further regulatory action to the RR will be required.

**6.4 CITEL Preliminary Views** (Source: Information Documents APG19-2/INF-04)

TBD

**6.5 RCC** (Source: Information Documents APG19-2/INF-05)

**Preliminary Position on Issue 9.1.6**

* The RCC Administrations are in favour of harmonizing frequency bands to be used for Wireless Power Transmission (WPT) for electric vehicles, which could be implemented by the development of relevant Recommendation ITU-R.
* The RCC Administrations support the development of conditions for use of the frequency bands 19‑21 kHz, 59‑61 kHz, 79‑90 kHz and 100‑300 kHz by WPT devices, which would provide protection to stations of radiocommunication services from possible interference, and which have relevant allocations in the Radio Regulations on a primary or secondary basis.
* The RCC Administrations do not oppose harmonizing the frequency band 6 765‑6 795 kHz for WPT devices.

**Proposal on AI 9.1**

* Understanding that studying the issues under agenda item 9.1, which modify the Radio Regulations, has no direct relation to the Report of the Director of the Radiocommunication Bureau, such issues should not be included into agenda item 9.1 related to the Director’s Report and should be considered as individual agenda items of the next WRC.

**6.6 ICAO Position** (Source: Information Documents APG19-2/INF-02)

* To ensure that the protection of aeronautical systems is appropriately taken into account during the studies called for in response to Resolution 958 (WRC-15).

**6.7 IARU Preliminary View** (Source: Information Documents APG19-2/INF-06)

* The IARU is of the view that radio frequency emissions resulting from any kind of Wireless Power Transmission (WPT) must be confined to the frequency ranges already identified for equipment used for industrial, scientific, and medical (ISM) applications or if found necessary, to frequencies below 100 kHz.
* Since WPT for vehicles involves very large amounts of RF power and a WPT installation involves components connected together in a system with associated power supplies and control equipment, the spurious emissions from all these system parts must be carefully controlled in order to avoid degrading the radio spectrum and causing interference to other radiocommunication systems or services in accordance with RR 15.12 and RR 15.13.
* IARU regards cooperation between ITU and Standards organisations to be essential in the evolution of standards and frequencies for WPT operation.

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

Further contributions are invited, taking into account of the progress of ITU-R studies.

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