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|  | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 4th Meeting of the APT Conference Preparatory****Group for WRC-19 (APG19-4)** | **APG19-4/OUT-15** |
| 7 – 12 January 2019, Busan, Republic of Korea | 11 January 2019 |

Working Party 1

**PRELIMINARY VIEWs on WRC-19 agenda item 1.11**

**Agenda Item 1.11:**

*To take necessary actions, as appropriate, to facilitate global or regional harmonized frequency bands to support railway radiocommunication systems between train and trackside within existing mobile service allocations, in accordance with* ***Resolution 236 (WRC-15)****;*

**1. Background**

Resolution **236 (WRC-15)** invites the WRC-19, based on the results of ITU-R studies, to take necessary actions, as appropriate, to facilitate global or regional harmonized frequency bands, to the extent possible, for the implementation of railway radiocommunication systems between train and trackside, within existing mobile-service allocations.

ITU-R WP 5A had approved two ITU-R Reports with respect to agenda item 1.11. One is Report ITU-R M.2418 ‘Description of Railway Radiocommunication Systems between Train and Trackside (RSTT)’. Another one is Report ITU-R M.2442 ‘Current and future usage of railway radiocommunication systems between train and trackside’.

The ongoing study within WP 5A is the working document towards a preliminary draft new Recommendation ITU-R M.[RSTT\_FRQ] ‘Harmonization of frequency bands for railway radiocommunication systems between train and trackside’. In order to finalize the work on the above ongoing study at the next WP 5A meeting (May 2019), WP 5A sent liaison statements to all regional groups seeking information on the frequency bands that they are considering for possible spectrum harmonization within the existing mobile service allocations to support RSTT.

The AWG had finished an APT Report APT/AWG/REP-78 ‘APT Report on System Description, Technologies and Implementation of RSTT’. Another relevant ongoing study is ‘Document towards an APT Report on System Deployment and Relevant Testing Studies of RSTT in APT Countries’, which will hopefully be finalized by AWG-25.

The current draft CPM text of agenda item 1.11 provides three methods to satisfy this agenda item:

– Method A: No change to the RR except suppression of Resolution **236 (WRC‑15)**;

– Method B: Add a new Resolution **[A111-METHOD B] (WRC-19)** and consequently suppress Resolution **236 (WRC-15)**;

– Method C: Add a new Resolution **[B111-METHOD C] (WRC-19)** with references to the Recommendation ITU-R M.[RSTT\_FRQ] and consequently suppress the Resolution **236 (WRC-15)**.

**2. Documents**

* Input Documents: APG19-4/INP-14(ITU-R WP 5A), INP-15(AUS), INP-29(THA), INP-53(MLA), INP-57(MNG), INP-59(J), INP-65(J), INP-73(KOR), INP-90(SNG), INP-100(CHN), INP-103(CHN), INP-108(BGD), INP-117(IND), INP-118(INS).
* 2.2Information Documents: APG19-4/INF-02(WMO), INF-03(IARU), INF-04(ICAO), INF-22(CITEL), INF-23(CEPT), INF-24(RCC), APG19-4/INP-09R1(APG Chairman)

**3. Summary of discussions**

## 3.1 Summary of APT Members’ views

**3.1.1 Australia - Document APG19-4/INP-15(AUS)**

Australia supports potential harmonisation of frequency bands in existing land mobile service allocations for RSTT in accordance with Resolution **236 (WRC-15)**.

Australia is of the view that no change to the Radio Regulations is required under this agenda item and supports development of a new ITU-R Recommendation [RSTT\_FRQ] through Study Group 5 listing relevant global and regional harmonised frequency ranges for use by future train and trackside systems (supporting train operations only) for consideration by administrations. Australia therefore supports Method A of the current draft CPM Report text.

Australia encourages further ITU-R studies on technical and operational characteristics for RSTT to be accommodated through ITU-R Recommendations and Reports. These current and future ITU-R studies on RSTT should not be restricted to, or preclude, any particular relevant technology or delivery model.

A new WRC Resolution that explicitly lists the global and regional harmonised frequency ranges for use by future train and trackside systems (as per Method B in the current draft CPM text) is not supported, as harmonisation of radiocommunication applications should not be a mandatory requirement via the Radio Regulations.

**3.1.2 Thailand - Document APG19-4/INP-29**

Thailand supports studies towards global or regional harmonized frequency bands to support RSTT within existing mobile service allocations, in accordance with Resolution **236 (WRC-15)**, and is of the view that international standards and global/regional harmonized spectrum would facilitate the current and future development of RSTT.

Thailand is also of the view that the implementation of harmonized frequency bands of RSTT shall not impose additional constraints on any applications of the primary services to which these frequency bands are already allocated.

Thailand supports the list of frequency bands proposed for global harmonization for RSTT in the Draft CPM Report.

**3.1.3 Malaysia - Document APG19-4/INP-53**

Malaysia is of the view that no change to the Radio Regulation is needed in response to WRC-19 agenda item 1.11 (Method A). Global or regional frequency harmonization for RSTT can be achieved through ITU-R Recommendations/Reports.

**3.1.4 Mongolia - Document APG19-4/INP-57**

Mongolia supports studies towards global or regional harmonized frequency bands within existing mobile service allocations, in accordance with Resolution **236 (WRC-15)**.

Mongolia’s point of the view that international standards and global/regional harmonized spectrum could be facilitate the current and future development of RSTT.

Mongolia supports the global harmonization for RSTT in the Draft CPM Reports Method B to add a new Resolution **[A111-METHOD B] (WRC-19)** and consequently suppress Resolution **236 (WRC-15)**.

**3.1.5 Japan - Document APG19-4/INP-59**

Japan supports ITU-R studies to consider the global or regional harmonized frequency ranges, based on comprehensive harmonized frequency ranges approach by which every frequency used for the current and future deployment of RSTT could be included.

**3.1.6 Korea - Document APG19-4/INP-73**

The Administration of Korea (Republic of) proposes the following views based on the APT Preliminary View adopted by APG19-3 meeting:

APT Members support studies towards global or regional harmonized frequency bands to support RSTT within existing mobile service allocations, in accordance with Resolution **236 (WRC-15)**, and are of the view that international standards and global/regional harmonized spectrum would facilitate the current and future development of RSTT through ITU-R Recommendations/Reports.

APT Members are also of the view that:

* The implementation of harmonized frequency arrangements of RSTT shall not impose additional constraints on other primary services to which these frequency bands are already allocated.
* ITU-R studies on RSTT should not be restricted to, or preclude, any particular relevant technology.
* Harmonized frequency arrangements of RSTT can support cross-border railway operations.
* There is no need to change the Radio Regulations except suppression of Resolution **236 (WRC-15)**.

**3.1.7 Singapore - Document APG19-4/INP-90**

Similar to the previous APG, Singapore supports the regional and global harmonization of spectrum for RSTT within the existing mobile service allocation as it can facilitate the development of rail transport. In view of this, Singapore supports Method C to facilitate the harmonization of frequency bands/ranges. Furthermore, Singapore proposes modifications to Chapter 1 of the Draft CPM Report relating to WRC-19 agenda item 1.11.

**3.1.8 China - Document APG19-4/INP-100**

Global or regional harmonized frequency bands of RSTT will facilitate interoperability of railway operations and provide for economies of scale in railway transportation, by reducing the cost of cross-border operations and by using commercial off the shelf equipment, regionally and internationally.

Although global or regional spectrum harmonization for supporting RSTT could be achieved through relevant ITU-R Recommendation which could be of flexibility by regular revisions in ITU-R study group level; however it should be highly recognized that deployment of RSTT requires magnificent long term investment and a stable radio regulatory environment for RSTT is vital for railway industry, while adding a new WRC-19 Resolution specifying frequency bands for achieving global/regional spectrum harmonization for RSTT will directly provide guidance to administrations when making their frequency plans for RSTT.

Train Radio application of RSTT directly provide for train dispatching, train control and other important railway services which require high reliability and high QoS, ensuring passenger safety and security for train operations, therefore the harmonization of frequency bands for Train Radio application of RSTT may have the top priority.

**3.1.9 Bangladesh - Document APG19-4/INP-109**

Bangladesh administration supports ‘Method B’ for the global or regional harmonization of spectrum for the RSTT. In this regard, a new WRC Resolution is required for RSTT to provide a regulatory framework for global and/or regional harmonization, and provides guidance to administrations when making frequency plans for RSTT.

**3.1.10 India - Document APG19-4/INP-117**

Rail transport is recognized as an energy-efficient means of transporting goods and passengers on land. In Region 3, like many other countries, India is developing high speed rail to connect major cities for inter-city and intra-city links. As such, regional and global harmonization of spectrum for RSTT can facilitate the development of rail transport in this region.

Rail networks require large capital investments to develop and long periods to build out. The economies of scale that is enabled by harmonized spectrum will be beneficial to the development of RSTT networks, especially in developing countries.

In view of this India proposes Method C.

**3.1.11 Indonesia - Document APG19-4/INP-118**

Indonesia supports studies towards global or regional harmonized frequency bands to support RSTT within existing mobile service allocations. The harmonized use of frequency bands by RSTT within existing mobile service allocations shall minimize the potential interference to the existing mobile service applications/systems already identified/deployed in these frequency bands.

In Indonesia, the following frequency bands are planned and currently used for RSTT: 165.025-173.000 MHz; 360.050-366.725 MHz; 380-400 MHz; 876-960 MHz; 2400.0-2483.5 MHz; and 5725-5825 MHz.

Indonesia is of the view that the bands mentioned below can be considered as possible candidate bands for global or regional harmonized frequency bands to support RSTT within existing mobile service allocations: 138-174 MHz; 335.4-470.0 MHz; 873-915 MHz; and 918-960 MHz.

The potential harmonized spectrum usage of RSTT could be further accomplished through a new WRC Resolution specifying frequency ranges for RSTT and it can also be extended to have an ITU-R Recommendation specifying details of frequency arrangements for RSTT.

## 3.2 Summary of issues raised during the meeting

Two key issues had been discussed during the meeting:

* Issue 1: discussion on the harmonized frequency bands for RSTT;
* Issue 2: discussion on the modifications to the method(s) to satisfy this agenda item.

For the First issue, the meeting discussed and agreed the APT preliminary views on the harmonized frequency bands for RSTT, in particular for train radio applications, for Region 3 and on global basis respectively. The meeting also developed a reply liaison statement to the ITU-R WP 5A and also copy to ASMG, ATU, CITEL, CEPT, RCC for information, for providing the above-mentioned views.

For the Second issue, APT Members introduced their reasons for supporting the Methods in the current draft CPM Report on agenda item 1.11. APT Members did not reach consensus on which Method to be supported. A new Method D was provided by some APT Members which proposes to add a new Resolution with references to the Recommendation ITU-R M.[RSTT\_FRQ]. No specific frequency band was mentioned in the resolves part of the new Resolution. The meeting agreed to add this Method D into the Draft CPM Report. The meeting agreed to develop a document, based on the input documents and the meeting discussions, for modifying the current Draft CPM Report on agenda item 1.11, for further consideration by CPM 19-2.

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

APT Members are of the view that frequency bands (or parts thereof) within the ranges of 138-174 MHz, 335.4-470 MHz, 703-748 MHz, 758-803 MHz, 873-915 MHz, 918-960 MHz, 1 770-1 880 MHz, 43.5-45.5 GHz and 92-109.5 GHz, within the existing mobile service allocations, could be considered as potentially harmonized frequency bands for Region 3 for RSTT, in particular for train radio applications.

APT Members invite other regional groups to consider frequency bands (or parts thereof) within the ranges of 138-174 MHz, 335.4-470 MHz, 873-915 MHz and 918-960 MHz, within the existing mobile service allocations, as global harmonized frequency bands for RSTT, in particular for train radio applications.

APT Members agreed to add a new Method D to the draft CPM text for consideration by CPM 19-2.

APT Members are also of the following views:

* International standards and global/regional harmonized frequency bands could facilitate the current and future development of RSTT.
* Deployment of RSTT requires significant long term investment and a stable radio regulatory environment is important for the railway industry.
* As Train Radio application of RSTT directly ensures passenger safety and security for train operations, harmonization of frequency bands for Train Radio application may have the priority among the four categories of RSTT applications.
* The implementation of RSTT in the harmonized frequency bands shall not impose additional constraints on other primary services to which these frequency bands are already allocated.
* The current and future ITU-R studies on RSTT should not be restricted to, or preclude, any particular relevant technology or delivery model.

**5. Other Views from APT Members**

Some APT Members support Method A of the current draft CPM Report on agenda item 1.11, considering that no change to the Radio Regulations is required under this agenda item and Recommendation ITU-R M.[RSTT\_FRQ] listed relevant global and regional harmonized frequency ranges for consideration by administrations.

Some APT Members support Method B or Method C of the current draft CPM Report on agenda item 1.11, are of the view that a new WRC Resolution is needed to provide regulatory certainty and guidance to administrations when making their frequency plans for RSTT. APT Members who support Method C also are of the view that a new WRC Resolution referring to Recommendation ITU-R M.[RSTT\_FRQ] can potentially provide flexibility.

Some APT Members support a new Method D. This new Method D proposes a new Resolution with references to the Recommendation ITU-R M.[RSTT\_FRQ], where no specific frequency band is mentioned in the resolves part of the new Resolution.

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

APT Members are encouraged to further consider which Method satisfies the agenda item 1.11, taking into account the outcomes of CPM 19-2, for achieving the PACPs.

**7. Views from Other Organisations**

## 7.1 Regional Groups

**7.1.1 ASMG - Document APG19-4/INP-09Rev1**

ASMG follows up the studies about railway radio systems between the train and trackside within the current allocations of the mobile service, ensuring protection of the existing services without imposing any new restrictions on them. ASMR conducted a questionnaire for Arab administrations about railway radiocommunication systems.

**7.1.2 ATU - Document APG19-4/INP-09Rev1**

ATU support Method C which entails a new WRC Resolution to provide a regulatory framework to guide the harmonization process, with references to the Recommendation ITU-R M.[RSTT\_FRQ] for possible global and/or regional harmonization of frequency arrangements for RSTT to provide flexibility. This method provides support for global or regional harmonization of frequency bands for use by RSTT within the existing mobile service allocation so that no additional constraints are imposed on services to which these frequency bands are already allocated.

**7.1.3 CEPT - Document APG19-4/INF-23**

The harmonized use of frequencies for RSTT within existing mobile service allocations serves current and future demands of railway organizations on all operational levels. No change to the RR is needed in response to WRC-19 Agenda item 1.11, except suppression of Resolution **236 (WRC-15)**.

Harmonization of frequencies for RSTT can be achieved through the course of ITU-R study group work by an applicable ITU-R Recommendation and/or Reports (e.g. non-mandatory Recommendation ITU-R M.[RSTT\_FRQ] containing regional harmonization measures). In this regard, CEPT highlights its existing framework for RSTT train radio on the basis of GSM-R, which serves interoperable cross-border railway operations. CEPT recognizes that there are other standards/technologies and frequency bands providing for RSTT. In addition, CEPT is of the view that agenda item 1.11 does not cover the provision of public communication services for passengers. RSTT systems considered by CEPT: train radio, train positioning, train remote, train surveillance

**7.1.4 CITEL - Document APG19-4/INF-22**

No Change to the regulations. Identification of spectrum for applications can be addressed via ITU Reports and Recommendations.

**7.1.5 RCC - Document APG19-4/INF-24**

No changes to the Radio Regulations are necessary under WRC-19 agenda item 1.11 (Method A). It is reasonable to harmonize frequency bands within existing mobile service allocations at global or regional level through the development of ITU-R Recommendations and Reports. 

Harmonized use of frequency bands by railway transportation systems shall not impose additional constraints on services to which these frequency bands are already allocated, and provided interference to systems for government communication is avoided.

## 7.2 International Organisations

**7.2.1 ICAO - Document APG19-4/INF-04**

To ensure, on the basis of agreed ITU-R studies, that any regulatory actions within existing mobile-service bands do not impact existing aeronautical systems operating in accordance with the Radio Regulations.

Ensure that any reference to “existing mobile-service bands” applies only to existing frequency bands where the land mobile service is allowed (i.e., does not apply to bands that are allocated for example only to the aeronautical mobile service).

**7.2.2 WMO** - **Document APG19-4/INF-02**

Since no specific frequency bands have currently been proposed for study, WMO does not have a specific concern on this agenda item. Consideration of frequency bands used for meteorological operations would increase WMO concerns.

**7.2.3 IARU R3- Document APG19-4/INF-03**

The IARU is of the view that satisfying the spectrum needs for railway radiocommunication systems between train and trackside can be achieved within the existing mobile service allocations that are not co-allocated to the amateur service and therefore, the IARU supports a No change to the RR except suppression of Resolution **236 (WRC‑15)**.

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