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| **The 5th Meeting of the APT Conference Preparatory****Group for WRC-19 (APG19-5)** | **APG19-5/OUT-26****(Rev.1)** |
| 31 July – 6 August 2019, Tokyo, Japan | 5 August 2019 |

Working Party 1

**APT VIEW AND PRELIMINARY APT COMMON PROPOSAL**

**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 has published two ITU-R Reports related to WRC-19 agenda item 1.11. One is Report ITU-R M.2418 ‘*Description of Railway Radiocommunication Systems between Train and Trackside*’. The other is Report ITU-R M.2442 ‘*Current and future usage of railway radiocommunication systems between train and trackside*’. The ongoing study within ITU-R 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*’.

The AWG has published APT Report APT/AWG/REP-78 ‘*APT Report on System Description, Technologies and Implementation of RSTT*’ and APT/AWG/REP-94 ‘*APT Report on System Deployment and Relevant Testing Studies of Railway Radiocommunication System between Train and Trackside (RSTT) in APT Countries*’.

The CPM19-2 approved the CPM Report. Three Methods had been proposed to satisfy WRC-19 agenda item 1.11:

* **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) specifying frequency ranges for RSTT and referencing the most recent version of Recommendation ITU-R M.[RSTT\_FRQ] and consequently suppress the Resolution 236 (WRC-15);
* **Method C**: Add a new Resolution [B111-METHOD C] (WRC-19) without specifying frequency ranges for RSTT, while referencing the most recent version of Recommendation ITU-R M.[RSTT\_FRQ] and consequently suppress the Resolution 236 (WRC-15).

**2. Documents**

* Input Documents: APG19-5/INP-07(AWG), 24(BGD), 42(AUS), 49(INS), 62(CHN), 64(CHN, MNG), 74(J), 93(LAO), 102(THA), 111(MLA), 117(VTN), 127(KOR), 133(IND); APG19-4/OUT-15(APG 19-4).
* Information Documents: APG19-5/INF-01(WMO), 02(ICAO), 03(IARU), 18(CEPT), 19(ATU), 20(CITEL), 22(RCC).

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Bangladesh (People’s Republic of) - Document APG19-5/INP-24**

Bangladesh supports ‘Method B’ for the global or regional harmonization of spectrum for the RSTT.

**3.1.2 Australia - Document APG19-5/INP-42**

Australia supports Method A in the CPM Report (no change to the Radio Regulations) as harmonization of radiocommunication applications should not be a mandatory requirement via the Radio Regulations. Any future ITU-R studies on technical and operational characteristics for RSTT should not be restricted to, or preclude, any particular relevant technology or delivery model.

**3.1.3 Indonesia (Republic of) - Document APG19-5/INP-49**

Indonesia is of the view that:

1. Method B is supported to satisfy Agenda Item 1.11 of WRC-19;
2. Administrations are encouraged to consider the following frequency ranges, or parts thereof, for achieving the global frequency harmonization for RSTT, in particular for train radio applications, within existing mobile service allocations on a primary basis: 148–149.9 MHz, 150.05–156.4875 MHz, 156.5625–156.7625 MHz, 156.8375–161.9625 MHz, 161.9875–162.0125 MHz, 162.0375–174 MHz, 335.4–399.9 MHz, 406.1–430 MHz, 440–470 MHz, 873–902 MHz and 928–960 MHz;
3. Administrations are encouraged to consider the following frequency ranges, or parts thereof, for achieving frequency harmonization for RSTT in Region 3, in particular for train radio applications, within existing mobile service allocations on a primary basis: 142–144 MHz, 146–149.9 MHz, 150.05–156.4875 MHz, 156.5625–156.7625 MHz, 156.8375–161.9625 MHz, 161.9875–162.0125 MHz, 162.0375–174 MHz, 335.4–399.9 MHz, 406.1–430 MHz, 440–470 MHz, 703–748 MHz, 758–803 MHz, 873–915 MHz, 918–960 MHz, 1 770–1 880 MHz, 43.5–45.5 GHz, 92–94 GHz, 94.1–100 GHz and 102.5–109.5 GHz;
4. 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;
5. The current and future ITU-R studies on RSTT should not be restricted to, or preclude, any particular relevant technology or delivery model.

Indonesia also provides proposals for the PACP on Agenda Item 1.11: The APT Members support to establish a new WRC-19 Resolution in order to satisfy the Agenda Item 1.11 of WRC-19, for encouraging administrations to use harmonized frequency bands for RSTT to the extent possible in achieving the globally and regionally spectrum harmonization of RSTT. The proposed new WRC-19 Resolution should consider the frequency ranges for harmonization as mentioned in Views above. 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.

**3.1.4 China (People’s Republic of), Mongolia - Document APG19-5/INP-64**

The Administration of China (People’s Republic of) and Mongolia are of the view that:

1. the proposed new WRC-19 Resolution in Method B to the CPM report on agenda item 1.11 could be modified (see proposals below) to satisfy this agenda item accordingly, i.e. the modified Method B is supported;
2. Administrations are encouraged to consider the following frequency ranges, or parts thereof, for achieving the global frequency harmonization for RSTT, in particular for train radio applications, within existing mobile service allocations on a primary basis: 148-149.9MHz, 150.05-156.4875MHz, 156.5625-156.7625MHz, 156.8375-161.9625MHz, 161.9875-162.0125MHz, 162.0375-174MHz, 335.4-399.9MHz, 406.1-430MHz, 440-470MHz, 873-902 MHz and 928-960 MHz;
3. Administrations are encouraged to consider the following frequency ranges, or parts thereof, for achieving frequency harmonization for RSTT in Region 3, in particular for train radio applications, within existing mobile service allocations on a primary basis: 142-144MHz, 146-149.9MHz, 150.05-156.4875MHz, 156.5625-156.7625MHz, 156.8375-161.9625MHz, 161.9875-162.0125MHz, 162.0375-174MHz, 335.4-399.9MHz, 406.1-430MHz, 440-470MHz, 703-748 MHz, 758-803 MHz, 873-915 MHz, 918-960 MHz, 1 770-1 880 MHz, 43.5-45.5 GHz, 92-94GHz, 94.1-100GHz and 102.5-109.5GHz.

The Administration of China (People’s Republic of) and Mongolia also provide proposals for the PACP on Agenda Item 1.11: The APT Members support to establish a new WRC-19 Resolution in order to satisfy the WRC-19 Agenda Item 1.11, for encouraging administrations to use harmonized frequency bands for RSTT to the extent possible in achieving the global or regional spectrum harmonization of RSTT.

**3.1.5 Japan - Document APG19-5/INP-74**

Japan is of the view that harmonization of frequency bands for RSTT is crucial and further technical studies should be continued by ITU-R and/or regional telecommunication organizations. Therefore Japan proposes to add a new Resolution which shows the importance of the global and/or regional frequency harmonization. The new Resolution encourages administrations to use harmonized frequency bands for RSTT and also invites ITU-R and/or regional telecommunication organizations to continue their studies and to make recommendations.

Japan proposes to develop a Preliminary APT Common Proposal as embedded below. The newly proposed resolution is based on METHOD C in the CPM report for WRC-19. The differences between METHOD C and the newly proposed resolution are shown by track changes.

**3.1.6 Lao PDR - Document APG19-5/INP-93**

According to the result of ITU-R studies, Lao PDR supports both Method B and Method C.

**3.1.7 Thailand - Document APG19-5/INP-102**

Thailand supports to consider frequency bands (or parts thereof) within the tuning ranges of 138-174 MHz, 335.4-470 MHz, 873-915 MHz and 918-960 MHz, within the existing mobile service allocations, as parts of global and regional harmonized frequency bands in Region 3 to support RSTT.

Thailand is of the view that neither ITU-R Recommendations/Reports nor APT Recommendations/Reports have been developed to sufficiently facilitate global or regional harmonized frequency bands to support RSTT. Therefore, in order to satisfy WRC-19 agenda item 1.11, Thailand supports a WRC-19 Resolution to facilitate global or regional harmonized frequency bands to support RSTT within existing mobile service allocations.

Thailand is also of the view that 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.

**3.1.8 Malaysia - Document APG19-5/INP-111**

Malaysia is of the view that harmonization of global or regional frequency bands for RSTT through the development of relevant ITU-R Recommendations and/or Reports and without specifying frequency ranges in the Radio Regulations.

**3.1.9 Viet Nam (Socialist Republic of) - Document APG19-5/INP-117**

It is recognized that spectrum currently used for RSTT varies among administrations. Study results on RSTT showed that required frequencies for train radio and train remote applications are already allocated to the mobile service in the Radio Regulations.

Referring to other radiocommunication systems, there are relevant ITU-R Recommendations and Reports which providing framework to facilitate the harmonized use of frequency bands, as well as technical and operational characteristics for such systems across regions or global.

Therefore the existing regulatory frameworks are considered sufficient to provide for improved railway traffic control, passenger safety and improved security for train operations.

Viet Nam is of the view that harmonization of frequencies for RSTT use can be achieved through the course of ITU-R study group work by applicable ITU-R Recommendations and/or Reports (e.g. Recommendation ITU-R M.[RSTT\_FRQ]), not necessary to request specific action of a WRC to harmonize spectrum for RSTT or No changes to the Radio Regulations. Therefor method A is supported and consequently the suppression of Resolution 236 (WRC-15) is proposed.

**3.1.10 Republic of Korea - Document APG19-5/INP-127**

The Republic of Korea proposes that taking into account the above and the APT Preliminary View developed at APG19-4 meeting for agenda item 1.11, the APT Views for this agenda item would be as follows:

APT Members support ITU-R 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 the relevant ITU-R Recommendations/Reports.

APT Members are of the view that:

* The implementation of harmonized frequency arrangements of RSTT shall not impose any additional constraints on other services to which these frequency bands are already allocated on a primary basis.
* Harmonized frequency arrangements of RSTT can support cross-border railway operations.
* There is no need to change the current Radio Regulations except suppression of Resolution **236 (WRC-15)**. Therefore, Method A is supported.

**3.1.11 India (Republic of) - Document APG19-5/INP-133**

A new WRC Resolution can provide a regulatory framework to guide the harmonization process through reference to the most recent version of Recommendation ITU-R M.[RSTT\_FRQ] which recommends possible global and/or regional harmonization of frequency ranges for RSTT. In the resolves part of the new Resolution, no specific frequency band is mentioned.

While Method A, with no change to the RR can offer flexibility and is finding support in some countries; India believes that a better outcome can be achieved through a resolution providing guidance on the development of the recommendation referred to in Method C. We understand that global harmonization of spectrum for RSTT is difficult at this juncture but it should be possible to reach Regional Harmonization through proposed recommendation referred to in Method C.

India supports Method C and proposes resolution of Method C.

**3.2 Summary of issues raised during the meeting**

During the APG 19-5 meeting,

(1) Frequency ranges for consideration to achieve spectrum harmonization for RSTT in Region 3 was discussed and agreed by consensus;

(2) APT views on WRC-19 agenda item 1.11 was discussed and agreed by consensus;

(3) Preliminary APT Common Proposals (PACP) on WRC-19 agenda item 1.11 was discussed and agreed by consensus;

(4) Frequency ranges for consideration to achieve global spectrum harmonization for RSTT has been discussed and listed for consideration by other regional groups.

**4. APT Views**

APT Members encourage that frequency bands (or parts thereof) within the ranges of 70-74.8 MHz, 75.2-88 MHz, 142-144 MHz, 146-149.9 MHz, 150.05-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-161.9625 MHz, 161.9875-162.0125 MHz, 162.0375-174 MHz, 335.4-399.9 MHz, 406.1-430 MHz, 440-470 MHz, 470-520 MHz, 703-748 MHz, 758-803 MHz, 873-915 MHz, 918-960 MHz, 1770-1880 MHz, 43.5-45.5 GHz, 92-94 GHz, 94.1-100 GHz and 102-109.5 GHz, within the existing mobile service allocations on primary basis, are to be considered with the view to achieve spectrum harmonization for RSTT in Region 3, in particular for train radio applications.

Note: the frequency band 470-520 MHz is within the preliminary agenda item 2.5 for WRC-23, therefore the decision of WRC-23 on this matter should not be pre-judged.

APT Members also invite other regional groups to consider frequency bands (or parts thereof) within the ranges of 148-149.9 MHz, 150.05-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-161.9625 MHz, 161.9875-162.0125 MHz, 162.0375-174 MHz, 335.4-399.9 MHz, 406.1-430 MHz, 440-470 MHz, 873-902 MHz and 928-960 MHz, within the existing mobile service allocations on primary basis, for achieving global frequency harmonization for RSTT, in particular for train radio applications.

APT Members agree to propose a draft new WRC-19 Resolution on the spectrum harmonization for railway radiocommunication systems between train and trackside (RSTT).

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;
* when implementing RSTT, in particular for cross-border operations, administrations should take reasonable steps to effectively use the spectrum resources and minimize the risk of interference;
* The current and future ITU-R studies on RSTT should not be restricted to, or preclude, any particular relevant technology or delivery model.

**5. Preliminary APT Common Proposal(s)**

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