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| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Addendum 11 to Document 24-E** |
|  | **20 September 2019** |
|  | **Original: English** |
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| Asia-Pacific Telecommunity Common Proposals | |
| PROPOSALS FOR THE WORK OF THE CONFERENCE | |
|  | |
| Agenda item 1.11 | |

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)**;

Introduction

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.

Proposals

ADD ACP/24A11/1#49721

Draft new RESOLUTION [ACP-A111] (WRC-19)

Harmonization of frequency bands for railway radiocommunication systems between train and trackside (RSTT)

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

considering

*a)* that railway transportation contributes to global economic and social development, especially for developing countries;

*b)* that the term “railway radiocommunication systems between train and trackside (RSTT)” refers to radiocommunication systems providing improved railway traffic control, passenger safety and improved security for train operations;

*c)* that the main categories of applications of RSTT are train radio, train positioning information, train remote and train surveillance;

*d)* that the devices used in train positioning information applications may be based on short-range devices (SRDs) using frequency bands contained in the most recent version of Recommendation ITU-R SM.1896;

*e)* that spectrum harmonization of train radio application of RSTT may have priority among the four categories of RSTT applications, because train radio applications provide for train dispatching, train control and other important railway services which is used to ensure the safety for train operations and passenger, and require high reliability and high quality of services;

*f)* that there may be a need to integrate different technologies across multiple bands in order to facilitate various functions, for instance dispatching commands, operating control and data transmission, into railway train and trackside systems to also meet the needs of a high-speed railway environment;

*g)* that the technologies for RSTT are evolving and international or regional organizations such as the 3rd Generation Partnership Project (3GPP), the International Union of Railways (UIC), the European Telecommunications Standards Institute (ETSI), the European Union Agency for Railways (ERA), etc. are developing specifications for technologies and new functions to evolve RSTT;

*h)* that the implementation of future RSTT needs to take account of the development of the railway industry;

*i)* that the evolving safety-related applications of railway transportation may require more spectrum;

*j)* that the harmonization of frequency bands for RSTT does not preclude the use of these bands by any applications of the primary services to which they are allocated;

*k)* that administrations wish to facilitate RSTT interoperability in particular for cross-border operations, for effectively using spectrum resources and for minimizing the risk of interference;

*l)* that deployment of RSTT requires significant long-term investment and a stable radio regulatory environment;

*m)* that international standards and global/regional harmonized spectrum facilitate deployment of RSTT based on readily available cost-effective technologies that would help to provide economies-of-scale for the railway industry;

*n)* that in Region 3, the frequency bands within following frequency ranges (or parts thereof) are being considered for spectrum harmonization for RSTT, in particular for train radio applications: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[[1]](#footnote-1), 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 102-109.5 GHz,

recognizing

*a)* that Report ITU R M.2418 provides the generic architecture, main applications, current technologies and generic operating scenarios of RSTT;

*b)* that Report ITU R M.2442 provides detailed characteristics of RSTT and also provides spectrum usage of current and planned RSTT by some administrations;

*c)* that ITU-R is studying on the relevant ITU-R Recommendation(s) which may contain frequency ranges and some countries’ specific frequency bands for RSTT to achieve spectrum harmonization of RSTT;

*d)* that RSTT are composed of categories of applications and systems which operate in various frequency bands not limited to mobile service allocations;

*e)* that radiocommunication systems for train radio and train remote applications are widely deployed in the frequency bands below 1 GHz, and higher frequency bands such as millimetric bands are used for train radio and train surveillance applications of RSTT in some countries;

*f)* that some countries use frequency bands for RSTT that are outside of the ranges listed in *resolves* 1 of this Resolution, and that these frequency bands are expected to continue to be used to support railway operations in the future,

noting

*a)* that among various technologies, two global standardized technologies, namely GSM R and TETRA, are currently widely used for RSTT train radio applications, and that LTE-based RSTT is also used for train radio and train remote applications in some countries;

*b)* that Report ITU R M.2442 provides technical and operational characteristics, and the spectrum usage, of current and future RSTT in some countries, and this Report has formed the basis for global or regional spectrum harmonization for RSTT;

*c)* that some administrations in Region 1 have already implemented several harmonized frequency bands for some applications of RSTT;

*d)* that lower frequency bands are generally preferred for those RSTT applications requiring large coverage areas, while higher frequency bands could provide inter alia higher capacity for high data volume applications of RSTT,

emphasizing

that flexibility must be afforded to administrations to determine:

– how much spectrum to make available at national level for RSTT from the ranges in the *resolves* part of this Resolution in order to meet their particular national requirements;

– whether existing RSTT systems using other bands will continue in operation and require ongoing support,

resolves

1 to encourage administrations in Region 3 to consider frequency bands within the frequency ranges[[2]](#footnote-2), or parts thereof, listed in the *considering n)*, with the view to achieve regional frequency harmonization for RSTT, in particular for train radio applications, within existing mobile service allocations on a primary basis;

2 to encourage administrations to consider frequency bands within the frequency ranges (or parts thereof) specified in *resolves*1 and other possible future frequency ranges, as well as countries’ specific frequency bands for RSTT, within existing mobile service allocations on a primary basis, which are listed in the relevant ITU-R Recommendation(s) on RSTT spectrum harmonization, with the view to achieve global/regional spectrum harmonization for RSTT, in particular for train radio applications,

invites ITU-R

1 to continue technical studies and to develop relevant ITU-R Recommendation(s) / Report(s) concerning technical and operational implementation of RSTT, taking into account the evolution of RSTT, to facilitate the implementation of this Resolution in a timely manner;

2 to conduct further studies towards ITU-R Recommendation(s) to improve the spectrum harmonization for RSTT, taking into account the frequency ranges listed in the *considering n)*;

3 to review and update the relevant ITU-R Recommendation(s) and ITU-R Report(s), as appropriate,

invites administrations

to encourage railway agencies and organizations to utilize relevant ITU‑R publications in implementing technologies and systems supporting RSTT,

invites Member States, Sector Members, Associates and Academia

to participate actively in the study by submitting contributions to ITU‑R,

instructs the Secretary-General

to bring this Resolution to the attention of the UIC, 3GPP and other relevant international and regional organizations.

**Reasons:** A new WRC Resolution specifying frequency ranges for RSTT can provide a stable regulatory framework to guide the frequency harmonization process, especially for Region 3. At the same time, the relevant ITU-R Recommendation(s) can recommend possible global/regional harmonization of frequency ranges for RSTT, and referring to the ITU-R Recommendation(s) can provide flexibility to Administrations when further considering the future possible frequency bands for harmonization for RSTT.

SUP ACP/24A11/2

RESOLUTION 236 (WRC-15)

Railway radiocommunication systems between   
train and trackside

**Reasons:** No longer required after WRC-19.

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1. Note: The frequency band 470-520 MHz is within the preliminary agenda item for WRC-23, therefore the decision of WRC-23 on this matter should not be pre-judged. [↑](#footnote-ref-1)
2. In the context of this Resolution, the term “frequency range” means a range of frequencies over which radio equipment is envisaged to be capable of operating but limited to specific frequency band(s) according to national conditions and requirements. [↑](#footnote-ref-2)