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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 toDocument 92-E** |
|  | **4 October 2019** |
|  | **Original: English** |
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| India (Republic of) |
| 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)**;

# 1 Background

Resolution **236 (WRC-15)** invites 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 (RSTT), within existing mobile service allocations. The evolving radiocommunication technologies facilitate the railway transportation, which contributes to global economic and social development, especially for developing countries. As one of the core infrastructures, RSTT are vital to provide improved railway traffic control, passenger safety and improved security for train operations. The implementation of RSTT varies in different countries, leading to high operational costs for international railway transportation. International standards and harmonized spectrum will improve interoperability of RSTT, reducing the railway infrastructure investment and providing for economies of scale.

# 2 Views

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 of the CPM Report, with no change to the Radio Regulations (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 of the CPM Report. 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 of the CPM Report.

# 3 Proposal

NOC IND/92A11/1#49716

ARTICLES

NOC IND/92A11/2

APPENDICES

SUP IND/92A11/3#49720

RESOLUTION 236 (WRC-15)

Railway radiocommunication systems between
train and trackside

ADD IND/92A11/4#49721

Draft new RESOLUTION [IND/B111-Method C] (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 applications 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 3GPP, UIC, ETSI, 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 many 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,

recognizing

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

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

*c)* that the most recent version of Recommendation ITU‑R M.[RSTT\_FRQ] contains harmonized RSTT frequency ranges as well as frequency bands of individual administrations;

*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,

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 being deployed for train radio and train remote applications in some countries;

*b)* that Report ITU‑R M.2442 indicates that several particular frequency bands are in common use for train radio applications of RSTT by many administrations and this may form the basis for global or regional spectrum harmonization for the train radio applications;

*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;

– the need and timing of availability as well as the conditions of usage of the bands used for RSTT, including those covered in this Resolution and in Recommendation ITU‑R M.[RSTT\_FRQ], in meeting specific regional or national situations; and

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

resolves

to encourage administrations to use harmonized frequency bands for RSTT to the extent possible, by considering the frequency bands within the frequency ranges[[1]](#footnote-1)1 or parts thereof, which are listed in the most recent version of Recommendation ITU‑R M.[RSTT\_FRQ], for achieving the global and/or regional frequency harmonization for RSTT, in particular for train radio applications, within existing mobile service allocations,

invites ITU-R

1 to continue technical studies and to make recommendations concerning technical and operational implementation of RSTT, taking into account the spectrum needs and the evolution of RSTT, to facilitate the implementation of this Resolution in a timely manner;

2 to review and update Recommendation ITU‑R M.[RSTT\_FRQ] and other relevant ITU‑R Recommendations and ITU‑R Reports, 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 International Union of Railways (UIC) and other relevant international and regional organizations.

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1. 1 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-1)