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India (Republic of)

PROPOSED REVISION OF RECOMMENDATION ITU-R M.2121 ON “HARMONIZATION OF FREQUENCY BANDS FOR INTELLIGENT TRANSPORT SYSTEMS IN THE MOBILE SERVICE”

1 Introduction

ITU-R Working Party 5A meeting that concluded in October 2023 proposed a revised new ITU-R Question which was approved in the Radio Assembly 2023 as Question [ITU-R 264/5](#) on “Studies related to Intelligent Transport Systems, including Connected Automated Vehicles and future applications”. This revised question merged the scope of two ITU-R Questions that are now suppressed, Question [ITU-R 205/6](#) “Intelligent Transport Systems” and Question [ITU-R 261/5](#) “Radiocommunication requirements for connected automated vehicles (CAV)”. Additionally, the new Question ITU-R 264/5 also decided to revise and update the relevant ITU-R Reports and Recommendations.

ITU-R Working Party 5A and 5D also completed their work on Reports [ITU-R M.2520](#) and [ITU-R M.2534](#) in the previous study cycle 2019-2023.

India, updated its National Frequency Allocation Plan (NFAP-2022)¹, permitting the usage of frequency band 5 875-5 925 MHz for ITS/V2X through footnote IND 29.

“IND 29: Subject to not constraining the use of the frequency band 5 875 to 5 925 MHz by the services to which it has been allocated in the RR, the band may also be considered for V2X technologies/Intelligent Transport Systems.”

Further, Indian Administration has published a Technical Report on “Technologies and Standards for Intelligent Transport Systems” Rel 3.0² dt. 23 October 2023.

2 Proposal

The existing Recommendation ITU-R M.2121 may be revised to reflect the recent developments in India. India proposes to revise Recommendation ITU-R M.2121 to include additional information as per the edits in track changes and **highlights**.

¹ National Frequency Allocation Plan – 2022

<https://dot.gov.in/sites/default/files/NFAP%202022%20Document%20for%20e-release.pdf>

²

https://tec.gov.in/public/pdf/M2M/TR_Technologies%20and%20Standards%20for%20Intelligent%20Transport%20System.pdf

Attachment: ITU-R Recommendation M.2121 with edits.

ATTACHMENT

RECOMMENDATION ITU-R M.2121-1

Harmonization of frequency bands for Intelligent Transport Systems in the mobile service

(Question ITU-R 205-6/5)

(2019-2023)

Scope

This Recommendation provides guidance on harmonized frequency bands to be used by intelligent transport systems (ITS) pertaining to the exchange of information to improve traffic management and to assist safe driving. The Recommendation encourages administrations to use harmonized frequency bands throughout the ITU-R Regions for those ITS applications. Examples of the relevant frequency bands are provided in the Annex to this Recommendation.

Keywords

Intelligent Transport Systems (ITS)

Abbreviations

CEPT European Conference of Postal and Telecommunications Administrations

FSS Fixed satellite service

ITS Intelligent transport systems

Related ITU Recommendations and Reports

Recommendation ITU-R M.1452 – Millimetre wave vehicular collision avoidance radars and radiocommunication systems for intelligent transport systems applications

Recommendation ITU-R M.1453 – Intelligent transport systems – Dedicated short range communications at 5.8 GHz

Recommendation ITU-R M.1797 – Vocabulary of terms for the land mobile service

Recommendation ITU-R M.2084 – Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications

Report ITU-R M.2228 – Advanced intelligent transport systems (ITS) radiocommunications

Report ITU-R M.2444 – Examples of Arrangements for Intelligent Transport Systems deployments under the mobile service

Report ITU-R M.2445 – Intelligent transport systems (ITS) usage

The ITU Radiocommunication Assembly,

considering

a) that the growing radiocommunication needs of national and international road management can be satisfied through evolving intelligent transport systems (ITS);

- b) that national spectrum planning for ITS requires cooperation with other concerned administrations, in order to facilitate greater levels of spectrum harmonization;
- c) that usage of the same frequencies of the same service will enable administrations to benefit from harmonization while continuing to meet national planning requirements;
- d) the benefits of cooperation between countries providing effective transportation operations;
- e) that the use of ITS applications could improve traffic management, assist safe driving and support automated driving;
- f) that the benefits of spectrum harmonization for ITS are:
- increased potential for transportation operations, especially cross-border;
 - a broader manufacturing base and increased volume of equipment resulting in economies of scale and expanded equipment availability;
 - improved spectrum management and planning;
- g) the need for the development of harmonized frequency bands for the purposes of implementing ITS;
- h) that the designation of those harmonized frequency bands or parts thereof for ITS does not preclude the use of these bands/frequencies by any other application of the services to which they are allocated and does not establish priority in applying and using the Radio Regulations;
- i) that other land mobile systems may effectively complement ITS;
- j) that ITS is not intended to provide broadband connectivity to the drivers/passengers,
recognizing
- a) that Report ITU-R M.2444 provides examples of arrangements for intelligent transport systems (ITS) deployments in certain regions and countries to assist in improving traffic management and safe driving;
- b) that a certain country in Region 3 operates an ITS system around 5.8 GHz as described in Recommendation ITU-R M.1453,
noting
- a) that ITS are implemented under existing mobile-service allocations;
- b) that the frequency bands harmonized by this Recommendation are allocated to a variety of services in accordance with the relevant provisions of the Radio Regulations;
- c) that ITS applications are not understood as an application of a safety service (RR No. 1.59);
- d) that spectrum planning for ITS is performed at the national level, taking into account the benefits of harmonized frequency bands used by neighbouring administrations;
- e) that flexibility, when using ITS, should be afforded to administrations to determine, at the national level, how much spectrum will be made available in order to meet their particular national requirements taking into account the existing applications and their evolution;
- f) that the protection of existing services needs to be ensured;
- g) that a certain country in Region 3 operates an evolving ITS system in 755.5-764.5 MHz;

- h)* that some administrations in each of the three Regions have deployed radio local area networks in the frequency band 5 725-5 850 MHz and some administrations have allowed or are considering allowing radio local area networks in the frequency band 5 850-5 925 MHz, or parts thereof;
- i)* that FSS earth station uplinks may create potential interference to ITS devices, especially in cases of operation in close proximity;
- j)* that Administrations in CEPT have considered that ITS devices cannot claim protection from FSS earth station uplinks in 5 850-5 925 MHz in order to facilitate coexistence, in which case ITS devices deployed within CEPT need to cope with the interference created by FSS earth station uplinks,

recommends

- 1 that, taking into account *considering h)*, Administrations should consider using the frequency band 5 850-5 925 MHz, or parts thereof, for current and future ITS applications;
- 2 that those examples of ITS frequency bands in current use, as listed in the Annex, should be considered for regional harmonized ITS frequency bands;
- 3 that when using harmonized frequency bands for ITS, potential coexistence issues between ITS stations and other applications of the mobile service and/or other services should be considered.

Annex

Examples of frequency usage for evolving ITS within Regions

Region 1	
Country or Group	Frequency bands
CEPT	5 855-5 925 MHz
United Arab Emirates	5 855-5 925 MHz
Region 2	
Country or Group	Frequency bands
Brazil	5 855-5 925 MHz
Canada	5 895-5 925 MHz
United States	5 895-5 925 MHz
Region 3	
Country or Group	Frequency bands
Australia	5 855-5 925 MHz
China	5 905-5 925 MHz
Japan	755.5-764.5 MHz 5 770-5 850 MHz
Korea	5 855-5 925 MHz
Singapore	5 855-5 925 MHz

