QUESTION ITU-R 264/5

**Studies related to Intelligent Transport Systems, including Connected Automated Vehicles and future applications**

(2023)

The ITU Radiocommunication Assembly,

considering

*a)* that, around 1.5 billion vehicles exist in the world including trucks and buses;

*b)* that there is a need to integrate various technologies including radiocommunications into land transportation systems;

*c)* that information and radiocommunication technologies are integrated in a vehicle to provide evolving Intelligent Transport Systems (ITS) communication use cases for the purpose of improving traffic management and assisting safer driving;

*d)* that international standards would facilitate the world-wide deployment of ITS and provide for economies of scale in bringing ITS equipment and services to the public;

*e)* that, after the initial standardization of intelligent transport systems (ITS), ongoing enhancements of the ITS specifications have been and will continue to be accommodated over time;

*f)* that the introduction of connected automated vehicles (CAVs) is driven by new types of radiocommunication and sensor technologies;

*g)* that CAVs have the potential to reduce crashes, thereby reducing traffic fatalities and crash-related injuries;

*h)* that CAVs are being planned to be or are already deployed in various regions;

*i)* that radiocommunications for ITS, including CAV, may be implemented in frequency bands allocated to the land mobile service;

*j*) that specific requirements may need to be considered for safe operation of certain critical road safety ITS use cases;

*k)* that ITS has evolved over the years and there is continuing evolution both in terms of the technology and use cases;

*l)* that millimetre wave technology could be beneficial for ITS, including CAVs and future applications;

*m)* that studies were already carried out under Question ITU-R 205-6/5 on Intelligent Transport Systems;

*n)* that studies were already carried out under Question ITU-R 261/5 on Connected Automated Vehicles;

*o)* that, under the in force and previous versions of Question ITU-R 205/5 and Question ITU‑R 261/5, there were already ITU‑R Reports and Recommendations and Handbooks published on various aspects of Intelligent Transport Systems and Connected Automated Vehicles as listed in *noting* *b)* and *c)*,

noting

*a)* that the Conference developed Recommendation **208 (WRC-19)** for harmonization of frequency bands for evolving ITS applications under mobile service allocation;

*b)* that under WRC-15 agenda item 1.18, Recommendation ITU-R M.2057 and Report ITU‑R M.2322 were developed;

*c)* that under Question ITU-R 252/5, Report ITU-R F.2394 was developed;

*d)* that under the in force and previous versions of Questions ITU-R 205/5 and Question ITU‑R 261/5, the following ITU-R Recommendations and Reports were already developed: Recommendations ITU-R M.1452, ITU-R M.1453, ITU-R M.1890, ITU‑R M.2084, ITU-R M.2121, and Reports ITU-R M.2228, ITU-R M.2444, ITU‑R M.2445, ITU-R M.2534-0;

*e)* that Volume 4 of the Handbook on Land Mobile contains information about Intelligent Transport Systems,

decides

that the following Questions should be studied, taking into account the information available in the already existing ITU publications on ITS including CAV as listed in the *notings* section

1 For ITS in general:

– What are the radiocommunication and spectrum requirements for ITS services and functional elements that might benefit from international standardization, and to what extent can the evolving mobile telecommunications systems be used to deliver ITS services?

2 In particular, for ITS applications to CAV:

– What are the radiocommunication and spectrum requirements, including broadband and/or low-latency radiocommunication connectivity, and operational characteristics of the radiocommunication systems that are capable of supporting CAV?

– What are the interworking requirements for ad-hoc direct radiocommunication with cellular-network connected radiocommunication to deliver ITS applications to CAV, both in an efficient and sustainable manner?

3 For the future and other ITS applications beyond *decides* 1 and 2 above:

– What are the objectives, use cases, radiocommunication and spectrum requirements, technical and operational issues, including safe operation, associated with future and emerging applications used for ITS, including CAV?

further decides

1 that the existing ITU-R Reports and/or Recommendations as listed in the *notings* should be revised and updated with the relevant results of the studies carried out under this question as appropriate;

2 that new results of studies carried out under this question should be included in one or more new ITU-R Recommendation(s) and/or Report(s) as appropriate;

3 that the above studies should be completed by 2027.

Category: S2