



Recommendation ITU-R M.1890-1
(01/2019)

**Operational radiocommunication objectives
and requirements for advanced
Intelligent Transport Systems**

M Series
**Mobile, radiodetermination, amateur
and related satellite services**



Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Policy on Intellectual Property Right (IPR)

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Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

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RECOMMENDATION ITU-R M.1890-1

Operational radiocommunication objectives and requirements for advanced Intelligent Transport Systems

(Question ITU-R 205-5/5)

(2015-2019)

Scope

This Recommendation provides operational radiocommunication objectives and requirements for intelligent transport systems (ITS), including evolving ITS. ITS utilize a combination of technologies such as computers, telecommunications, positioning, and automation to improve the safety, management, efficiency, usability and environmental sustainability of terrestrial transportation systems.

Keywords

Intelligent Transport Systems (ITS)

Abbreviations

AVL	Automated vehicle location
DARC	Data radio channel
FM	Frequency modulation
GNSS	Global navigation satellite systems
IMT-2000	International Mobile Telecommunications-2000
IMT-Advanced	International Mobile Telecommunications-Advanced
ISO	International Organization for Standardization
ITS	Intelligent transport systems
ITS-G5	Access technology to be used in frequency bands dedicated for European intelligent transport System (ITS)
LAN	Local area network
RF	Radio frequency
RDS	Radio data system
V2X	Vehicle-to-everything

Related ITU-R Recommendations and Reports

Recommendation ITU-R M.1452 – Millimetre wave 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

Recommendation ITU-R M.2120 – Harmonisation of frequency bands for Intelligent Transport Systems in the mobile service

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

Report ITU-R M.2441 – Emerging usage of the terrestrial component of International Mobile Telecommunication (IMT)

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

The ITU Radiocommunication Assembly,

considering

- a) that there is a need to integrate various technologies including radiocommunications into land transportation systems;
- b) that many new land transportation systems use intelligence in land vehicles coupled with advanced vehicle, advanced traffic management, advanced traveller information, advanced public transportation, and advanced fleet management systems to improve traffic management;
- c) that ITS are being planned and implemented in various Regions by administrations;
- d) that a wide variety of applications and services are defined;
- e) that international standards would facilitate worldwide application of ITS and provide for economies of scale in bringing ITS equipment and services to the public;
- f) that worldwide compatibility of ITS may be dependent on harmonized radio spectrum allocations;
- g) that the ISO is standardizing ITS (non-radio aspects) in ISO/TC204 including applications for “cooperative systems” which require vehicle-to-vehicle and vehicle-to-infrastructure radiocommunications;
- h) that next generation vehicular radiocommunication technologies and ITS broadcast systems are emerging;
- i) that ITS applications can be classified as safety-related ITS and non-safety related ITS applications; and their corresponding objectives and requirements are different,

recognizing

- a) that Recommendation ITU-R M.1452 provides low power short-range vehicular radar equipment at 60 GHz and 76 GHz, and technical characteristics of millimetre wave radiocommunication systems for data communications for vehicle-to-vehicle and vehicle-to - infrastructure communications;
- b) that outlines of technologies and characteristics for dedicated short-range communications at 5.8 GHz are described in Recommendation ITU-R M.1453;
- c) that Recommendation ITU-R M.1797 provides terminology on ITS;
- d) that the land mobile Handbook (Volume 4 on ITS) contains information on ITS radiocommunication;
- e) that some administrations in each of the three Regions have deployed radio local area networks (RLANs) in the frequency band 5 725-5 825 MHz, which is also identified for industrial, scientific and medical (ISM) applications;
- f) that Report ITU-R M.2228 defines “Advanced ITS”;
- g) that studies and feasibility tests on advanced ITS radiocommunications have been actively conducted towards the realization of traffic safety and a reduction of environmental impact as described in Report ITU-R M.2228;