

A stylized yellow car is shown from a top-down perspective, partially obscured by a large, sweeping swoosh that transitions from red at the top to yellow at the bottom.

***THE FULLY
NETWORKED
CAR***

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- ITU-R Study Groups
- Terminology
- Areas of study
- Results so far
- Ongoing work
- Relationships with other organizations
- Final observations

- o SG 1: Spectrum management
- o SG 3: Radiowave propagation
- o SG 4: Fixed-satellite service
- o SG 6: Broadcasting service
- o SG 7: Science services
- o SG 8: Mobile services
- o SG 9: Fixed service

- o ITS applications and services cut across several ITU-R SGs, e.g.
 - WP 6M addresses multimedia ITS and telematics applications for broadcasting
 - WP 8F has reviewed ITS and telematics requirements for IMT-2000 (3G) and IMT-Advanced (beyond 3G) radio systems
 - SG9 covers various ITS point-to-point communications in the fixed service
 - SG1 addresses ultra wideband (UWB) technologies (collision avoidance radar)
- o ITS is assigned (for administrative purposes) to ITU-R SG8/WP8A

- The term “TICS” (Transport Information and Control Systems) was used initially for this area of study in ITU-R
- Different terms were used in other countries/regions
- The terminology has now been globally harmonized through ISO as “ITS” (Intelligent Transport Systems)

- o Study Question 205/8 on transport information and communication systems (TICS) introduced by Canada in 1994
 - What are the elements of TICS that require global harmonization?
 - What are the spectrum requirements for TICS?
 - What are the inter-connect requirements between TICS and mobile systems?
- o An international Correspondence Group on TICS was formed in 1995; currently operating as WG2 of ITU-R Working Party 8A

- o A previous Study Question was introduced in 1982, and later assigned to TICS
 - Study Question 51/8 on automatic determination of location and guidance in the land mobile service
 - This Study Question was introduced by Germany, long before the emergence of the ITS industry
 - The intent was to standardize automatic vehicle location (AVL) and guidance systems for dispatch operations

- **ITU-R M.1310 Transport information and control systems (TICS) - Objectives and requirements (10/97)**
 - based on the ITS reference architecture completed in ISO/TC 204 - Working Group 1. It is also based on the US National Architecture.

- **ITU-R M.1451 Transport information and control systems: functionalities (05/00)**
 - establishes a functional relationship between ITS applications and radio services or other telecommunication services.

- **ITU-R M.1452 Low power short-range vehicular radar equipment at 60 GHz and 76 GHz (05/00)**
 - technical and operational characteristics of collision avoidance radar operating at 60 and 76 GHz
 - has been implemented by the ITS industry.
- **ITU-R M.1453-2 Dedicated short range communications (DRSC) at 5.8 GHz (06/05)**
 - based on the ETSI and CEN Standards for DSRC, and updated in June 2005 to include an active transponder standard defined by ARIB T-75.
 - extensively used by the ITS industry.

o **Handbook on ITS**

- Volume 4 of the Land Mobile Handbook
www.itu.int/pub/R-HDB-49/en
(now available)
- complements the ITU-R Recommendations
- summary of current and planned ITS applications around the globe

- New Recommendation on broadband ITS radiocommunications in the 5.9 GHz band
- New Recommendation on millimeter wave applications for ITS
- Both texts depend on progress/completion of the CALM microwave (M5) and millimeter (MM) efforts within ISO/TC204/WG16

- ITU-R work on ITS recognizes the ISO/TC204 standardization effort on the upper Layers
- The ITU-R Recommendations are limited to the Physical and Network Layers
 - Close cooperation exists with ISO/TC204 in order to synchronize the requisite work
- The ITU-R activities are also closely coordinated with ETSI (through CEPT), IEEE (via liaison), and other Regional efforts (such as the APT – Asia Pacific Telecommunity)

- o The ITU/ISO/IEC Advisory Panel on Standards Collaboration (APSC) provides an excellent forum for collaboration with external organizations and regional ITS organizations
- o The APSC also provides an interface with the Global Standardization Cooperation (GSC)

- As a global industry and market, there is a need to better articulate the requirement for global harmonization of ITS radio services
 - further development of globally applicable Recommendations
 - Look well into the future - possibly consider identification of spectrum at a future World Radiocommunication Conference
- ITS also depends on other activities in the ITU-R:
 - software defined radio (SDR) and cognitive radio (CR), adaptive antennas, IMT-Advanced, etc.
 - participate in these activities to ensure that ITS requirements are taken into account.

- Chairman, WG2 on ITS in ITU-R WP 8A

(through June 2007)

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