IRF and UNECE ITS Event

Intelligent Transport Systems standardization in ITU
Geneva, 4 December 2018

Chaesub LEE
Director, ITU Telecommunication Standardization Bureau
: international organization with global presence

~750 Staff from ~80 Countries
Membership driven (193 M.S., +700 private entities, +150 Academia)
6 UN Official Languages: Arabic, Chinese, English, French, Russian, Spanish
Headquarters in Geneva with Liaison Office in New York
Regional offices in Addis Ababa, Bangkok, Brasilia, Cairo
Area offices in Bridgetown, Dakar, Harare, Jakarta, Moscow, Santiago, Tegucigalpa, Yaoundé

ITU-T Standardization

ITU-R Radiocommunication

ITU-D Development

Committed to Connecting the World
Standardization on Intelligent Transport Systems (ITS): Multiple Study Group approach

Radiocommunication Sector (ITU-R)
- Working Party 5A (spectrum allocation & harmonization, automotive radar)

Telecommunication Standardization Sector (ITU-T)
- Study Group 17: ITS and automotive cybersecurity (remote SW update)
- Study Group 12: Quality of Service of speech and audio in vehicles
- Study Group 2: Numbering for In Car Emergency Communication (ICEC)
- Study Group 20: ITS and Internet of Things and Smart Cities
- Study Group 16: Vehicle gateway and in car multimedia platforms
  - ITU-T Focus Group on Vehicular Multimedia (FG-VM)
ITU allocates spectrum for vehicles
ITU-R: Radiocommunication and ITS

- Techniques to transfer data over short distances between a roadside infrastructure and mobile units (V2V and V2X) - M.2084-0
- Technologies and characteristics for Dedicated Short Range Communications (DSRC) - 5.8 GHz - M.1453-2
- System characteristics and applications for Automotive radar in various frequency bands) - M.1452, M.1453, M.1890, M.2057
- System requirements for Millimetre wave radiocommunication (including Collision avoidance radar) ~ 60-80 GHz - M.1452-2
- Automotive Radar technologies and possible interference with incumbent services – 78 GHz - M.2322-0
- Usage of ITS technologies, frequency bands, status of standardization, and related applications and deployments in ITU Member States M.[ITS_USAGE]
- Studies on harmonisation of frequency bands for ITS services M.[ITS_FRQ]
- Currently working on studies in preparation of WRC-19: Plans to consider possible global or regional harmonized frequency bands for evolving ITS
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    – *ITU-T Focus Group on Vehicular Multimedia (FG-VM)*
SG17: ITU standards secure over-the-air software updates for vehicles

ITU-T X.1373 (2017-03)
A successful future automated driving car must ensure security and safety through cybersecurity mechanisms and secure over-the-air software updates
SG17: Ongoing ITS Security standards work

- **X.itssec-2**: Security guidelines for V2X communication systems; (2018-09)
- **X.itssec-3**: Security requirements for vehicle accessible external devices; (2019-09)
- **X.itssec-4**: Methodologies for intrusion detection system on in-vehicle systems; (2020-03)
- **X.itssec-5**: Security guidelines for vehicular edge computing; (2020-03)

In ITS environment a vehicle may act as router to transmit to other vehicles. So the vulnerability of a vehicle can be propagated to the other vehicles

→ **Security is very important**

ITU-T SG17 collaborate actively with UNECE WP.29

[UN Task Force on Cyber Security and OTA Issues (CS/OTA)]

Regulations for cyber security and over-the-air updates in progress
SG12: ITU standards improve quality of hands-free communication in vehicles

https://www.youtube.com/watch?v=x4dtjvLHXds

ITU Telecom World 2017 Busan

ITU Telecom World 2016 Bangkok

ITU-T P.1100
ITU-T P.1110
ITU-T P.1120
ITU-T P.1130

ITU conducts test events of mobile phones and vehicle hands-free systems
SG12: ITU standards make e-calls intelligible

Source: Continental - Automatic Emergency Call

ITU-T P.1140 - Speech communication requirements for emergency calls originating from vehicles
Referenced in new UN regulation on automatic emergency call system for road traffic accidents (UNECE WP.29)
SG2: Numbering for In Car Emergency Communication (ICEC) calls

• Global numbering resources used for ICEC calls is under consideration.
ITU-T SG20 - IoT and Smart Cities & Communities - develops international standards to enable the coordinated development of IoT technologies in smart cities, including related big data.

Completed standards work

- ITU-T Y.4116: Requirements of transportation safety services including use cases and service scenarios.
- ITU-T Y.4119: Requirements and capability framework for IoT-based automotive emergency response system

Ongoing standards work:

- Y.IoT-ITS-framework: Framework of Cooperative ITS based on the IoT
- Y.IoT-UAS-Reqts: Use cases, requirements and capabilities of unmanned aircraft systems for IoT
- Y.AERS-mtp: Minimum set of data structure for automotive emergency response system
- Y.AERS-mtp: Minimum set of data transfer protocol for automotive emergency response system
- Y.SSC-AISE-arc: Reference architecture of artificial intelligence service exposure for smart sustainable cities
- Y.TPS-afw: Architectural framework for providing transportation safety service
- Y.FW.IC.MDSC: Framework of identification and connectivity of Moving Devices in Smart City
ITU-T SG16: ITS Standards for vehicle gateway platform (VGP)

Vehicle gateway platform (VGP) Standards:
• ITU-T F.749.1 “Functional requirements for vehicle gateways”
• ITU-T F.749.2 “Service requirements for vehicle gateway platforms”
• ITU-T H.550 "Architecture and functional entities of vehicle gateway platforms"
• ITU-T H.560 "Communications interface between external applications and a vehicle gateway platform"

ITS Technical Paper:
• HSTP-CITS-Req (2014) "Global ITS Communication Requirements"
New ITU-T Focus Group on “Vehicular Multimedia” (FG-VM)

Vehicular multimedia system
- 4th screen after TV, PC & Mobile Phone
- 3rd infotainment space after home, office

Aim of FG-VM
- Integration of Terrestrial and Satellite networks
- Integration of Broadcasting and Internet services
- Reduce costs using converged networking
- Provide wide area coverage

Challenges
- Integration and compatibility with mobile communication: 3, 4, 5G and beyond
- Software protocols and hardware specifications standardization and adoption
- Harmonization of Transport regulations
- Involve international experts and stakeholders

Source: https://www.hlmediacomms.com
New ITU-T FG-VM “Vehicular Multimedia”  2/2
(established on 20/07/2018) (Proposed by )

FG-VM Management
– Chairman: Jun (Harry) Li (TIAA, China)
– Vice chairmen: Gaëlle Martin-Cocher (Blackberry, Canada)
– Interested candidates to join the management team as vice-chairs are requested to contact TSB at tsbfgvm@itu.int. Those candidatures will be evaluated and agreed by the FG-VM and announced at their meetings.

FG-VM Meetings
– Plans to meet 4 times a year
– Extensive use of remote meetings
– First meeting held on 11 October 2018, Ottawa, Canada (hosted by Blackberry)
– Second meeting planned on 23-25 January 2019, Tokyo, Japan (hosted by TTC)

https://www.itu.int/en/ITU-T/focusgroups/vm  tsbfgvm@itu.int
ITU and Vehicle Connectivity: Yearly Events (EUROPE, ASIA, AMERICA)
AI for Good
Global Summit

Accelerating progress towards the SDGs

28–30 May 2019
Geneva, Switzerland

#AIforGood
Opportunities for Collaboration

Collaboration on ITS Communication Standards (CITS)

– Established by the ITU to provide a Platform to share knowledge and coordinate ITS standardization
– Attended by worldwide SDOs
– Three meetings x year, back to back with the ITS-related regional events: Asia (~July), America (~Dec.) Geneva (~March)
– Aims for a coordinated set of interoperable ITS Communication Standards

http://itu.int/go/ITScomms

Subscribe to the CITS mailing list!
Please contact Stefano POLIDORI (Advisor at the ITU) for more information and opportunities for collaboration on:
- **Intelligent Transport Systems (ITS)** and
- **Future Networked Car activities**

**tsbcits@itu.int  |  tsbfgvm@itu.int**