IEEE P802.11  
Wireless LANs

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Abstract

This document contains a liaison received from ITU-T Collaboration on ITS Communication Standards (CITS) committee related to maintaining an online database of ITS communication standards. The received liaison documents are embedded below, and copied on the following pages.



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| ITU logo | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2017-2020 | | | | CITS-LS12-E | |
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| **WG(s):** | | |  | | Geneva, 8 March 2019: | |
| **LIAISON STATEMENT** | | | | | | |
| **Source:** | | | Collaboration on ITS Communication Standards (CITS) | | | |
| **Title:** | | | LS on ITS communication standards online database | | | |
| **LIAISON STATEMENT** | | | | | | |
| **For action to:** | | | | 5GAA, ATIS Connected Car, CCSA TC10, CEN TC278, ETSI TC ITS, IEEE 1609 WG and IEEE P802.11-TGbd, ISO TC22 and ISO TC204, IETF IPWAVE WG, IMDA, SAE International, TTA PG905, TTC, W3C, WWRF, ITU-T SG12, SG16, SG17, SG20, ITU-R WP5A | | |
| **For comment to:** | | | | - | | |
| **For information to:** | | | | ITU-T SG2, SG3, SG5, SG9, SG11, SG13, FG-VM, FG-ML5G | | |
| **Approval:** | | | | CITS Meeting (8 March 2019) | | |
| **Deadline:** | | | | N/A | | |
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| **Keywords:** | April 2019 |
| **Abstract:** | This liaison statement aims to inform the various standards developing organizations (SDOs) of the latest decision from the Collaboration on ITS communication standards (CITS) to develop an ITS Communication Standards online database. SDOs are also invited to appoint an expert charged to maintain current their standards in the database. SDOs are also invited to link this database from relevant webpages for stakeholders use |

At the recent meeting of the Collaboration on ITS Communication Standards (CITS), held in Geneva on the 8 March 2019, it was agreed to inform relevant standards developing organizations that the CITS will pursue its efforts to develop an online database for ITS Communication Standards.

In order to do so, it would be highly beneficial if participating SDOs would review the categorisation of their related-standards and appoint an expert to maintain and update the relevant communication standards in the online database.

The draft classification and categorisation of your standards is attached for your review.

The online database is already accessible [here](https://www.itu.int/net4/ITU-T/landscape#?topic=0.131&workgroup=1&searchValue=&page=1&sort=Revelance). It already includes the ITU relevant ITS communication standards.

Please inform the CITS Secretariat, Mr Stefano Polidori, at [tsbcits@itu.int](mailto:tsbcits@itu.int) on the appointed expert to maintain current your standards in the online database. The Secretariat will provide him/her the necessary information and credentials to update the database online.

We look forward to hearing and working with you.

**Attachments: 2**

* ITS standards classification
* Categorization of your ITS standards

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**PROJECT: ITS Communication Standards Online Database**

The following draft classification has been developed for possible categorization of standards   
in the field of ITS Communication.

**ITS Communication Standards**

* Definitions and Taxonomy
* ITS Architecture and Requirements
  + V2V
  + V2C
  + V2P
  + V2D
  + V2I
  + V2X
  + Vehicle gateways
  + NGN
* ITS services and Applications
  + Vehicle Multimedia and Infotainment
  + Safety systems
  + Navigation
  + Location/Positioning
  + Emergency Communications
  + Hands Free Communications in Vehicles
  + Autonomous Driving
* ITS Communications Protocols
  + Satellite Communications
  + Mobile Devices/Networks (cellular)
  + Short and Mid-Range Devices/Networks
  + Wired Networking
* QoS/QoE in Vehicles
  + Media
  + Voice
* ITS Security
  + OTA Security
  + Threat Intelligence
  + Privacy
  + Trust
  + Cybersecurity
* ITS Test Specifications
  + Conformity Testing
  + Interoperability Testing

**ANNEX – Rational for the above classification**

The ITS communications standard classification is an effort by TSB to develop an online database for Intelligent Transport Systems Communications Standards. The goal of such a database is to:

1. Aggregate ITU recommendation efforts concerning ITS communications
2. Aggregate SDO standards on ITS communications.
3. Enable SDOs to easily input their updates on ITS communications standards.
4. Make searching for standards and recommendations for ITS communications easier.

The classification developed for ITS communications standards will utilize the roadmap tool from ITU for the following reasons

1. The roadmap is designed to aggregate and reference standards from any SDOs. This interface makes the process of finding standards of a particular topic much easier, as a centralized database for CITS standards has not yet been implemented.
2. Enables SDOs to access the database and add and modify their own standards.
3. The Roadmap offers an efficient search function, as it has the capability to scan plain text standards.
4. It is suggested to categorize each standard under two sub-categories

**Definitions and Taxonomy:**

Any standard regarding definitions and taxonomy will also be classified under another topic as it would be insufficient for it to be classified only under this category.

**ITS Architecture and Requirements:**

**V2V:**

The Vehicle to Vehicle (V2V) category covers communications between multiple vehicles. V2V communication technologies provide or support information transfers between vehicle, and are applicable in support of safety systems, autonomous driving, and other applications that require mesh networks to function.

**V2C:**

The Vehicle to Cloud (V2C) category will be relevant to any communications standards regarding cloud integration to vehicles. As various systems, applications and services will be provided from the cloud and will control the operations of the vehicle, V2C communications are an important aspect of V2X communications standards. It can include cloud—based information, security, entertainment etc…

**V2P:**

The Vehicle to Pedestrian (V2P) category will be relevant to any communications standards regarding interactions between pedestrian and vehicles. This can include pedestrian detection, collision prevention or pedestrian alerts, and can concern both pedestrians or bicyclists using either smartphones or wearable connected devices.

**V2D:**

The Vehicle to device (V2D), also known as Vehicle to nomadic devices (V2ND or V2N) category is dedicated to communication standards pertaining to communications in between the vehicle and in-vehicle devices.

**V2I:**

The Vehicle to Infrastructure (V2I) category will be relevant to any communications standards regarding communication interactions between vehicles and infrastructure system like highways, or regarding infrastructure control for applications like traffic management etc.…

**V2X:**

The V2X category covers a wide range of standards regarding communications between the vehicle and external systems. There is value in breaking down V2X in the classification as SDOs will be working on standards focused on specific applications for V2P, V2C etc, but V2X can be reserved for standards too vague in their V2X classification, or standards that touch multiple aspects of V2X without focusing on a particular V2X technology.

**Vehicle Gateways:**

The vehicle gateways category covers communication standards about VG devices communications. This category will include standards about vehicle gateways (VG), vehicle gateway platform (VGP), and relationships between VGs and in-vehicle networks, ICT devices, relevant communication protocols, and support to V2X.

**NGN:**

Next Generation Networks (NGN) refer to the telecommunication architecture using packet based networks. This category will include all the standards dedicated to that architecture.

**ITS Services and Applications:**

**Vehicle Multimedia and Infotainment:**

Any standard involving infotainment and vehicle multimedia specifically will be included in this category.

**Safety Systems:**

Safety system services and applications standards, like breaking assistance and collision avoidance are classified under the safety systems, as opposed to emergency communications that heavily focuses on emergency response.

**Navigation:**

Relevant to any standards pertinent to communications regarding navigation when it regards mapping technology, autonomous driving navigation and more.

**Location and positioning:**

The location and positioning category will be relevant to any standards pertinent the communications of the location and positioning of an object, be it the vehicle itself or other objects in its environment.

**Emergency Communications:**

The emergency communications category will be relevant to any standard pertinent to emergency response systems, standards on

**Hands Free Communications in Vehicles:**

Hands Free Communication in vehicles will be relevant to any standards pertinent to hands free communications,

**Autonomous Driving:**

The Autonomous Driving will be relevant to any standards using communications to supply, support and complement autonomous driving.

**ITS Communications Protocols:**

**Satellite Communications:**

Relevant to any ITS communications involving satellite, between the vehicle and the network.

**Mobile Devices/Networks (Cellular):**

This category is for standard that will detail requirements, architectures and services and applications using cellular networks for ITS communications. Upcoming 5G standards will be relevant to this category.

**Short and Mid-Range Devices/Networks:**

This category is for short range to mid-range devices and networks. Short and mid-range refers to the distance of transmission. Examples of short and mid-range would be NFC, Bluetooth, DSRC, Wi-Fi etc…

**Wired Networking:**

The Wired Networking section will refer to the use of wired connections to transmit information. Standards pertaining to Ethernet for example will be classified under wired networking.

**QoS/QoE in Vehicles:**

**Media:**

Quality of Service and Quality of Experience pertaining to multimedia and infotainment.

**Voice:**

Quality of Service and Quality of Experience pertaining to voice communication in the vehicle and outside of it. This includes voice commands, voice activation, microphone and audio requirements specific to voice transmission.

**ITS Security:**

**Over The Air (OTA) Security:**

The Over the Air Security category will be relevant to any communications standards pertaining to over the air programming, ranging from software updates, configuration settings or encryption keys all using OTA.

**Threat Intelligence:**

The Threat Intelligence category will be relevant to any communications standards pertaining to threat analysis, threat identification and threat management.

**Privacy:**

ITS privacy ITS privacy standards regarding international regulations, and specific national requirements when it comes to personally identifiable information.

**Trust:**

Trust architecture for ITS specific standards, regarding car transactions

**Cybersecurity:**

The Cybersecurity category will be relevant to any communications standards that do not fit in the other subcategories of ITS Security.

**ITS Test Specification:**

**Conformity Testing:**

Conformity Testing for ITS communication standards, also known at compliance testing, in regards to the requirements of a specification, technical standard or regulation.

**Interoperability Testing:**

ITS interoperability testing for communication standards that will inter-operate with other standards.

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**References:**