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| **Collaboration on Intelligent Transport Systems Communication Standards** | |
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**Draft Report – Meeting of Collaboration on ITS Communication Standards**

***(7 September 2018, Nanjing)***

[**http://itu.int/go/ITScomms**](http://itu.int/go/ITScomms)

1. **Introduction**

The meeting of the Collaboration on ITS Communication Standards (CITS) took place on 7 September 2018, Nanjing at the Jiangning Exhibition Center premises in Nanjing, China, kindly hosted by the ITS Industry Alliance of China. Russell Shields (Ygomi LLC) chaired the meeting assisted by Stefano Polidori (ITU/TSB Advisor).

The CITS meeting was preceded by the International Forum on ITS ([ITS-2018](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180906/Pages/default.aspx)), which was co-organized by the ITS Industry Alliance ([C-ITS](http://www.c-its.org.cn/)) of China and the International Telecommunication Union ([ITU](https://www.itu.int/en/Pages/default-24june2019.aspx)) with the aim to explore How Communications will Change Vehicles and Transport.



1. **Opening, meeting participants and adoption of the agenda**

**T. Russell Shields**, Chair of CITS, opened the meeting and provided background information on the Collaboration on ITS Communication Standards (CITS) and its role. He clarified that the CITS is not a standards-setting body, but a standards-facilitating group, mainly used for exchanging information and promoting Collaboration to support ITS communications standards.

The aim of CITS is to provide a globally recognized forum for the creation of an internationally accepted, globally harmonized set of ITS communication standards of the highest quality in the most expeditious manner possible to enable the rapid deployment of fully interoperable ITS communication-related products and services in the global marketplace.

The TSB Advisor explained that the Collaboration is following a yearly cycle of three meetings and three workshops: (1) March, during Geneva Motor Show; (2) summer in Asia; (3) late fall in the Americas. However as the event in USA will take place in October, this year the CITS will only meet twice.

The Chair invited all participants present on site as well as those connected remotely to introduce themselves. **29** participants joined the meeting representing various Standards Development Organizations (SDOs) and other stakeholders, of which **17** joined remotely and **12** on site. The list of participants is available and posted as [Doc 21](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/21-final-list-of-participants-Nanjing-CITS-7Sept.pdf).

A total of 20 meeting documents were submitted. This meeting report was posted as Doc 22 after the meeting. All related meeting documents were openly accessible by everyone in the CITS site [here](https://www.itu.int/en/ITU-T/extcoop/cits/Pages/meeting-documents.aspx?RootFolder=/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing&FolderCTID=0x0120008D91490DA7927C4D8A0BB5A73929B07D&View=%7b73BE16B3-22C9-43D5-A9FD-D8BC067A87FF%7d).

The draft agenda was adopted as in [Doc 1](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/01_Chair_draft_agenda.docx).

1. **Wrap-up of ITU/C-ITS International Forum on ITS (**[**ITS-2018**](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180906/Pages/default.aspx)**)  
   (6 -7 September 2018)**

The day before the CITS meeting, the **International Forum on ITS (**[**ITS-2018**](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180906/Pages/default.aspx)**)** was held and participants expressed appreciation for the organization, format and quality of the panelists of this conference that is planned to be held annually.

The Forum was organized with an opening Plenary and four sub-forum in two parallel sessions, featuring five to seven speakers per track which allowed interesting panel discussion on specific themes. A presentations (about twenty-five minutes) by each of the panelists focused on what their company or organization contributes toward solving a particular problem related to the theme.

The bios of the panelists can be seen at:

<https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180906/Pages/Biographies.aspx>

The following themes were covered at the Forum:

* **Session 1 – Plenary Presentations**
* **Session 2A – ITS Policy and ITS Industry Evolution**
* **Session 2B – New Energy Vehicles and Intelligent Connected Vehicles (NEV-ICV)**
* **Session 3A – Intelligent Transport Infrastructure**
* **Session 3B – ITS for Smart Cities**

See the Forum program at: <https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180906/Pages/Programme.aspx>

The biographies of each speakers are available on the Forum program, and the biographies of the Programme committee members are available [here](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180906/Pages/Committee.aspx).

1. **Status of ITS communications work in various SDOs**

**4.1** [**ISO/TC 22/SC 31/WG8**](https://www.iso.org/committee/5383568.html)

[[Doc 10](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/10-ISO-TC22-SC31-WG8_VDS.pptx)] was submitted by ISO and presented by Kaname Tokita, WG8 Convenor, Honda. It provides updates on the status of project ISO 23239 Vehicle Domain Service (VDS), allocated under ISO TC 22 / SC 31 as the new WG8. The presentation then defined Vehicle Domains and Actors, as well as the role of data integration, calibration and collection as part of VDS.

Potential harmonization are under discussion with SAW and ISO TC 205 / WG3, and harmonization with standardization bodies about smart cities and smart traffic might be necessary.

**4.2** [**CCSA**](http://www.ccsa.org.cn/english/tc.php?tcid=tc10)

[[Doc 11](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/11-CCSA-Status-report.pptx)] was submitted by the CCSA and presented by Yuming Ge, ITS expert from CAICT. It provides an update on C-V2X standards from the IMT-2020 C-V2X working group, as well as an overview on the CCSA organizations and the C-V2X Industry with a focus on China.

The IMT-2020 Promotion Group established the C-V2X Work Group to promote the establishment of a cross-industry innovation platform. 75 institutes and research centers and enterprises joined and formed a member alliance for cooperation among multiple industries.

**4.3** [**TTC/WG Connected Car**](http://www.ttc.or.jp/e/organization/wg/connectedcar/)

[[Doc 12](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/12-TTC-WGConnectedCar_status%20report.docx) and [Doc 17](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/17-LS_TTC-WGConnectedCar_CITS_representatives.docx)] were submitted by TTC and presented by Hideki Yamamoto, Oki, Japan. The report describes the recent activities of WG Connected Car, regarding vehicle hub (V-HUB) and reprogramming for vehicles.

Standardization of the V-HUB system was adopted in ASTAP-30, and endorsed by fifteen APT member administrations. It will be sent to MC-42 for final approval.

A technical report, TR-1068, was published by TTC in late 2017 regarding OTA updating in vehicles.

**4.4** [**UNECE WP.29**](http://www.unece.org/trans/main/wp29/introduction.html)

[[Doc 13](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/13-UNECE-TFCS-update.pptx)] was submitted by the [UNECE TFCS](https://wiki.unece.org/pages/viewpage.action?pageId=40829521)/OTA and presented remotely by Darren Handley, Chair CS/OTA, Department for transport, UK. It provides updates on the status of two recommendations: Software updates and cyber security.

* The software updates paper has been fully reviewed but has some outstanding comments that need to be resolved.
* The cyber security paper has been fully reviewed but has some outstanding comments and the structure of the draft regulations need to be confirmed.

At its June 2018 session, the UNECE WP.29 activities related to automated, autonomous and connected vehicles, including the task force on cybersecurity and OTA issues were restructured. The previous Working Party on Brakes and Running Gear (GRRF) was therefore revamped into a new Working Party on Automated/Autonomous and Connected Vehicles (GRVA). This new GRVA will now take over also the activities previously handled under the banners “Intelligent Transport Systems and Automated Driving ([ITS/AD](https://wiki.unece.org/pages/viewpage.action?pageId=2523344))” and “UN Task Force on Cyber security and OTA issues ([CS/OTA](https://wiki.unece.org/pages/viewpage.action?pageId=40829521))”

**4.5** [**WWRF VIP WG CV**](https://www.wwrf.ch/vip-wg-connected-vehicles.html)

[[Doc 14](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/14-WWRF-VIP-WGCV-status-report.zip)] were submitted by the WWRF VIP WG The connected car, and presented by Ms Qi Fei on behalf of Chair WWRF. They provide an overview of the WWRF Working Group, especially regarding the VIP WG Connected Vehicles, and presents its scope, objectives and deliverables.

* *Scope: The VIP WG Connected Vehicles focuses on research that looks five to ten years ahead in order to meet the requirements of the automotive and transport industries based on the next generation wireless technology. It also is aimed at the identification of use cases for these industries.*

As part of Doc 14 was also included a draft white paper outlining the key elements of the new WWRF Working Group.

**4.6** [**IEEE VTS Standards**](https://vtsociety.org/?option=com_content&view=article&id=71&Itemid=73)

[[Doc 15](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/15-IEEE-VT-ITS-status-report.ppt)] was submitted by the IEEE VT ITS and presented by Tom Kurihara, IEEE VTS. It provides updates on the IEEE 1609 project as well as a description of a multitude of VT/ITS projects and liaison activities.

**4.7** [**5GAA**](http://5gaa.org/)

[[Doc 19](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/19-5GAA_CITS-status-report.pdf)] was submitted by 5GAA and presented remotely by Maxime Flament, CTO 5GAA. It provides a presentation on the 5GAA activities and constituencies. 5GAA was created with the aim to connect telecom industry and vehicle manufacturers and work closely together to develop end-to-end solutions for future mobility and transportation services. Safety is very high on the 5GAA agenda.

One year old, started with 12 companies and has already more than 70 companies. 12 stable funding members plus four that rotate yearly. General Assembly take place twice a year. Includes five working groups. Is not an SDO but collaborate actively with other SDOs especially ETSI and 3GPP. 5GAA explicitly supports 3GPP technologies.

C-V2X timelines are shown in details in the slides, with a strong focus on the arrival of 5G.

1. **Status of ITS communications work in ITU**

**5.1** [**Overview of all ITS work items in ITU**](http://www.itu.int/en/ITU-T/extcoop/cits/Documents/ITS-work-items.xlsx)

A [spreadsheet](https://staging.itu.int/en/ITU-T/extcoop/cits/Documents/ITS-work-items.xlsx) (freely available online) collecting information about all ITS related work items in ITU is available. Covering the work of ITU-T (Study Groups 12, 13, 16, 17, 20) and ITU-R (WP5A), the spreadsheet is regularly updated.

**5.2 ITU-T** [**SG2**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/02/Pages/default.aspx)

[[Doc 7](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/07-LS_ITU-T-SG2_updated-terms-of-reference.docx) and [Doc 20](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/20-ITU-T-SG2-status-report.ppt)] were submitted by SG2 representative and presented remotely by Dmitry Cherkesov, Russian Federation. SG2 is responsible for numbering naming and addressing and is planning to initiate relevant work related to ITS.

**5.3 ITU-T** [**SG12**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/default.aspx) **(**[**Q4/12**](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3931&isn_qu=4155&isn_status=-1,1,3,7&details=0&field=acdefghijo)**)**

[[Doc 4](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/04-LS_ITU-T-SG12_updated-terms-of-reference.docx)] was submitted by ITU-T SG12 and provides a liaison statement informing CITS that Mr. Hans W. Gierlich was appointed as liaison representative. A volunteer for a vice chair position could not be found.

**5.4 ITU-T** [**SG16**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/default.aspx) **(**[**Q27/16**](http://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3934&isn_qu=4207&isn_status=-1,1,3,7,2&details=0&field=acdefghijo)**)**

[[Doc 8](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/08-LS_ITU-T-SG16_updated-terms-of-reference.docx) and [Doc 9](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/09-LS_ITU-T-SG16_Focus-Group-Vehicular-Multimedia.docx)] were submitted by SG16 representative and presented by Hideki Yamamoto, Oki, Japan. They provide information on the establishment of a new Focus Group on Vehicular Multimedia (FG-VM) at the SG16 closing plenary.

The focus group will analyze and identify gaps in the vehicular multimedia standardization landscape and eventually draft technical reports and specification covering, among others, vehicular multimedia use cases, requirements, applications, interfaces, protocols, architectures, security, etc.

The first meeting of FG-VM is planned in Ottawa, Canada, 11 October 2018.

SG16 also nominates Mr Hideki Yamamoto as SG16 representative and indicates its availability to serve as CITS vice-chair.

**5.5 ITU-T** [**SG17**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/17/Pages/default.aspx) **(**[**Q13/17**](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3935&isn_qu=6705&isn_status=-1,1,3,7&details=0&field=acdefghijo)**)**

[[Doc 3](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/03-LS_ITU-T-SG17_security-aspect.zip)] was submitted by SG17 representative and provides a progress report on activities related to CITS.

During the SG17 meeting in Geneva on the 29th March 2018, updates where made for draft recommendations:

* ITU-T X.itssec-2, “Security guidelines for V2X communication systems”  
  (Target for the final version of this Recommendation is September 2018)
* ITU-T X.itssec-3, “Security requirements for vehicle accessible external devices”  
  (Target for the final version of this Recommendation is September 2019)
* ITU-T X.itssec-4, “Methodologies for Intrusion Detection System on In-Vehicle Systems”  
   (Target for the final version of this Recommendation is March 2020)
* ITU-T X.itssec-5, “Security guidelines for vehicular edge computing”  
  (Target for the final version of this Recommendation is March 2020)

The meeting has also established three new work items as follows:

* ITU-T X.mdcv, “Security-related misbehaviour detection mechanism based on big data analysis for connected vehicles”
* ITU-T X.srcd, “Security requirements for categorized data in V2X communication”
* ITU-T X.stcv "Security threats in connected vehicles”

**5.6** [**SG20**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/default.aspx) **(**[**Q1/20**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/q1.aspx)**,** [**Q2/20**](http://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/q2.aspx)**,** [**Q3/20**](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/q3.aspx)**,** [**Q4/20**](http://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/q4.aspx)**)**

[[Doc 5](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/05-LS_ITU-T-SG20_updated-terms-of-reference.docx), [Doc 6](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/06-LS_ITU-T-SG20_ITS-related-work-items.docx) and [Doc 16](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20180907-Nanjing/16-ITU-T_SG20_status-report.pptx)] were submitted by a SG20 representative and provides an updated progress report on activities related to CITS. They were presented by Ziqin Sang, China ICT group, SG20 Vice Chair.

The SG20 provided an update on its collaboration with ISO TC204 regarding six ongoing work items and two approved recommendations.

* ITU-T Y.infra “Overview of city infrastructure”(on-going)
* ITU-T Y.IoT-ITS-framework “Framework of cooperative Intelligent Transport Systems based on the Internet of Things” (ongoing)
* ITU-T Y.AERS-msd “Minimum set of data structure for automotive emergency response system” (ongoing)
* ITU-T Y.AERS-mtp “Minimum set of data transfer protocol for automotive emergency response system” (ongoing)
* ITU-T Y. NDA-arch “Functional architecture of network-based driving assistance for autonomous vehicles” (ongoing)
* ITU-T Y.TPS-afw “Architectural framework for transportation safety services” (ongoing)
* ITU-T Y.4116 “Requirements of transportation safety services including use cases and service scenarios” (approved)
* ITU-T Y.4119 “Requirements and capability framework for IoT-based Automotive Emergency Response System” (approved)

**5.7 ITU-R** [**SG5**](https://www.itu.int/en/ITU-R/study-groups/rsg5/Pages/default.aspx) **(**[**WP5A**](https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5a/Pages/default.aspx)**)**

[Doc 18] was submitted by ITU-R SG5 WP5A representative and provides a detailed progress report on activities related to CITS.

WP5A worked on developing a preliminary draft new report and a preliminary draft new recommendation.

In addition, WP5A initiated the development of a working document towards a preliminary draft new report with examples of frequency arrangements for Intelligent Transport Systems.

WP5A also made some progress on the development of:

* A preliminary draft revision of recommendation ITU-R M.1890 on operational radiocommunication objectives and requirements for advanced intelligent transport systems.
* A working document towards a preliminary draft new report ITU-R M.[ITS\_USAGE] on intelligent transport system usage report in ITU-R member states to develop.
* A preliminary draft revision of recommendation ITU-R M.2084-0 on radio interface standards of V2V and V2I communications for ITS applications.

1. **ITS Standards Online Repository**

The Chair requested the Secretariat from TSB to present the project “ITS Communication Standards Online Repository”. Mr Polidori (TSB) informed that TSB could work on this project which would require analysing ITS Communication Standards from various SDOs and identifying an online tool to store the standards and make them available to the public. TSB will contact various SDOs representatives to collect comments on the project and will report to next CITS meeting for final implementation. The CITS welcomed the project and encouraged TSB towards its development.

1. **Next meeting**

The next Collaboration (CITS) meeting will not take place in co-location to the ***“Workshop on how communications will change vehicles and transport*”** on **8-9 October 2018, Detroit, United States**. This because the event is too close to the current meeting. The workshop will behosted by SAE International. More information are available on the official web page of the meeting: <https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20181008/Pages/default.aspx>

The next CITS meeting will take place in Geneva on 8 march 2019, in collocation with the FNC-2019.

1. **Close of meeting**

The Chair, Russ Shields, thanked C-ITS, China, for hosting the collaboration (CITS) meeting and Stefano Polidori (ITU/TSB) for having supported its preparation. He also appreciated ITU and C-ITS staff for having successfully co-organized the International Forum on Intelligent Transport Systems (ITS 2018). Finally the Chair expressed appreciation to all participants that joined physically or remotely and especially for their inputs and the fruitful discussions.

The meeting closed at 1730 local time.

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