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**Draft Report – Meeting of Collaboration on ITS Communication Standards**

***(15 March 2024, E-meeting)***

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

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# 1 Introduction

The meeting of the Collaboration on ITS Communication Standards (CITS) took place virtually on 15 March 2024. T. Russell Shields (United States) chaired the meeting supported by Stefano Polidori (ITU/TSB Counsellor).

It was recognized that the Future Networked Car Symposium ([FNC-2024](https://fnc.itu.int)) took place virtually from 11th to 14th March 2024. The Symposium was a great success, it was well attended as in previous editions, and the full program and recording of the sessions is available at: <https://fnc.itu.int/programme>.

# 2 Opening, meeting participants and adoption of the agenda

**T. Russell Shields**, Chair of CITS, started the meeting and welcomed the participants. In line with its scope, CITS facilitates the coordination of internationally accepted, harmonised 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.

Mr Shields thanked the representatives for providing updates to this meeting and for facilitating the exchange of information related to ITS communications standards from their respective organizations to the database being maintained by CITS. Based on the presentations and related discussions at the CITS meetings, the [ITS Communication Standards Database](https://www.itu.int/itu-t/landscape/?topic=tx21&group=g&search_text=) will be continuously updated with relevant standards from Standards Development Organizations (SDOs) and other relevant entities.

The previous CITS meeting took place as e-meeting on 22 September 2023. Its meeting report, posted as [[Doc 27](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20230922-e-meeting/27_Report_CITS_meeting_September_2023.docx)], was approved with no comments.

**13** participants joined this meeting representing many SDOs and other stakeholders. The list of participants is available in [[Doc 29](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/29_List-of-Participants.csv)].

**28** meeting documents were submitted to this meeting. The meeting report (this document) was posted after the meeting as [Doc 30]. All related meeting documents are openly accessible on 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-20240315-e-meeting&FolderCTID=0x0120008D91490DA7927C4D8A0BB5A73929B07D&View=%7b73BE16B3-22C9-43D5-A9FD-D8BC067A87FF%7d#InplviewHash73be16b3-22c9-43d5-a9fd-d8bc067a87ff=). The meeting was recorded and is available from the [CITS webpage](http://www.itu.int/go/ITScomms) online.

The draft agenda as contained in [[Doc 01R2](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/01R2_CITS-Chair_draft-agenda.docx)] was adopted.

# 3 Status of ITS communications work in SDOs

## 3.1 [5GAA](http://5gaa.org/)

[[Doc 10](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/10_5GAA_Status-Report.pptx)] was submitted and presented by Maxime Flament, 5GAA .

The presentation outlines the key initiatives and developments of the 5G Automotive Association (5GAA) in driving digital transformation within the automotive industry. 5GAA serves as a bridge between the automotive and telecommunications sectors, focusing on connected mobility for people, vehicles, and transport infrastructure. With 125 members from around the world, including top OEMs, MNOs, and smartphone vendors, 5GAA aims to advance Cellular Vehicle-to-Everything (C-V2X) technologies. The association's strategic pillars encompass membership, deployment, standards, advocacy, and innovation, with a focus on building partnerships, enabling deployment, contributing to standards, advocating to policymakers, and promoting innovation. Notable recent developments include Volvo Cars' real-time alerts based on C-V2X, the release of new NCAP by the Republic of China, and upcoming vehicles from Jaguar Land Rover featuring 5G and C-V2X capabilities.

Moreover, 5GAA's strategic objectives and priority areas revolve around digital roads, vehicles, users, trust, and connectivity, aiming to ensure integration of infrastructure and smart devices into the V2X ecosystem, delivering safer, smarter, and greener services. The association's ongoing work items span various domains such as evaluation of radio-based positioning, LTE-V2X deployment guidance, connected powered two-wheelers, and trustable positioning methodology for V2X, among others. Additionally, 5GAA has published technical reports and white papers on topics like automated valet parking technology, cybersecurity for edge computing, federated MEC demos/trials, and VRU protection services. Looking ahead, the association's priorities for 3GPP Release 19 include input on satellite connectivity high-level requirements, integrated sensing and communications, and Non-Terrestrial Networks for automotive applications. Furthermore, the presentation highlights upcoming topics for the 2023-2024 work program, including V2X advanced applications triggering profiles, edge compute for automotive, intersection safety via infrastructure sensor-sharing, and virtual testing and test control interface.

## 3.2 [SAE International/SAE C-V2X](http://profiles.sae.org/tevcsc2/)

[[Doc 21](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/21_SAE-International_Status-report.pptx)] was submitted and presented by William (Bill) Gouse *(SAE International)*.

This presentation provides a comprehensive overview of the SAE standards development activities related to V2X communication, connected transportation interoperability (CTI), and cooperative driving automation. The report is authored by S. William Gouse, the Director of International Government Industry Technical Affairs at Global Ground Vehicle Standards. It covers various aspects such as rulemaking, committee activities, standard development, and upcoming events related to V2X communication, CTI, and cooperative driving automation.

The presentation highlights the ongoing development and revision of standards within the V2X domain, focusing on areas such as LTE Vehicle-to-Everything (LTE-V2X) deployment profiles, V2X security, on-board system requirements for V2V safety communications, and dedicated short-range communication (DSRC) V2X systems engineering process guidance. It also discusses the activities of technical committees such as the C-V2X Technical Committee, V2X Security Technical Committee, V2X Core Technical Committee, and V2X Vehicular Applications Technical Committee, emphasising the publication, revision, and development of multiple standards and recommended practices.

The report delves into the connected transportation interoperability (CTI) domain, detailing the activities of the CTI Technical Committee, including the development of the Connected Intersections Implementation Guide, testing and validation of SPaT information broadcast, and V2X infrastructure support for GNSS corrections. Additionally, it outlines the initiatives of the Cooperative Driving Automation (CDA) Technical Committee, covering taxonomy and definitions for cooperative driving automation, infrastructure-based prescriptive cooperative merge, and cooperative permissive left turn across opposing traffic with infrastructure guidance.

Moreover, the presentation offers insights into significant events and updates, including the United Nations WP.29 GRVA meeting scheduled for May 2024 in Troy, MI, featuring the collaboration between SAE and USDOT/US State Department officials.

## 3.3 [ARIB](http://www.arib.or.jp/english/index.html)

[[Doc 14](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/14_ARIB_Status-Report.zip)]was submitted and presented by Takahiro Yokoyama *(*[*ARIB*](http://www.arib.or.jp/english/index.html)*, Japan)*.

The Status Report of ARIB, Japan presents a comprehensive overview of the Association of Radio Industries and Businesses (ARIB) and its involvement in the ITS Info-Communications Forum of Japan. The report details the organizational structure of ARIB and the ITS Info-Communications Forum, emphasising its technical committees, standard assemblies, and guidelines. Furthermore, it delves into the specific standards and guidelines established by ARIB, including those related to Dedicated Short-Range Communication System (DSRC), Millimetre-wave Radars, 700 MHz band ITS, and Connected and Automated Vehicles (CAV) and Vulnerable Road Users (VRU). The document also highlights recent activities, such as the National Automated Driving Initiatives, amendments to the Road Traffic Act, and plans for dedicated driving lanes for automated trucks on the Shin Tomei Expressway.

The report begins by elucidating the structure and functions of ARIB and the ITS Info-Communications Forum, outlining the various technical committees, standard assemblies, and guidelines. It provides a detailed breakdown of the standards and guidelines for DSRC, Millimetre-wave Radars, 700 MHz band ITS, CAV, VRU, and ITS Multi-Media Support Layer, enumerating the specific standard titles and codes for each area. The document underscores the recent activities in Japan related to automated driving initiatives, including the amendment of the Road Traffic Act to permit Level 4 automated driving on public roads and the allocation of bandwidth for V2X communications. Furthermore, it highlights the forthcoming establishment of a dedicated driving lane for automated trucks on the Shin Tomei Expressway and the ongoing updates to guidelines related to merger assistance and advance information provision, as well as the message set for vehicle-to-infrastructure communication.

## 3.4 [TSDSI](https://tsdsi.in/)

[[Doc18](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/18_TSDSI_Status_report.docx)] was submitted by Vishnu Ram.

This report provided an update about recent and planned activities of TSDSI and its partners namely Telecom Engineering Centre (TEC), Bureau of Indian Standards (BIS), and Automotive Research Association of India (ARAI) in the area of ITS.

TSDSI has published a report [DCS Report] capturing the India specific flight requirements during take‑off, in-flight, and post-flight operations. The study also includes the requirements on the connectivity aspects between drones and 3GPP cellular network and recommendations for using Digital Sky Platform [DGCA Guidance manual], a regulatory framework from Directorate General of Civil Aviation (DGCA) India for seamless and secure operations of drones in Indian airspace.

Indian Product Standards related to the ITS area are available from BIS under Transport Engineering Department (TED) 28 on Automotive Tracking Device (ATD) and Integrated Systems and ITS: Reverse Parking Alert System (RPAS). Refer to [BIS 2.0] for details.

## 3.5 [C-SAE](http://en.sae-china.org/)

[[Doc07](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/07_CSAE_status-report.pdf)] was submitted and presented by Yunjia Ji, Standard Engineer, C-SAE.

The presentation covered the update on the standards and research projects of the China-SAE (CSAE) and the China Industry Innovation Alliance for the Intelligent and Connected Vehicles (CAICV). The presentation commenced with an introduction to the China-SAE (CSAE) and the China Industry Innovation Alliance for the Intelligent and Connected Vehicles (CAICV), emphasising their roles in collaborative training, technical establishment, and policy innovation in the automotive industry. It provides detailed information about the organizational structure, membership statistics, and working groups of CAICV, including the standards and technical documents related to cooperative intelligent transportation systems, vehicular communication, autonomous driving, and vehicle-infrastructure-cloud integrated systems. Additionally, the document outlines the VICIS application pilot policy, highlighting its issuance, infrastructure foundation undertakings, and emphasis on C-V2X equipment instalment and C-ADAS and C-ADS feature realization in pilot areas.

The presentation outlined the organizational structure and membership details of CSAE and CAICV, highlighting their roles in collaborative training, technical establishment, and policy innovation in the automotive industry. The standards and technical documents related to cooperative intelligent transportation systems, vehicular communication, autonomous driving, and vehicle-infrastructure-cloud integrated systems are extensively discussed. The presentation also introduced the VICIS application pilot policy, emphasising infrastructure construction, C-V2X equipment instalment, and the promotion of C-ADAS and C-ADS features in pilot areas. Additionally, it details the main content of the policy, which encompasses vehicle-side, road-side, and cloud-side construction, AD functions demonstration, and system consistent construction.

Furthermore, the document delves into the main content of the VICIS application pilot policy, detailing the vehicle-side, road-side, and cloud-side construction in pilot areas. It emphasizes the promotion of C-ADAS and C-ADS features, the construction of two-layer cloud control basic platforms, and the balancing of safety and development. Moreover, the document highlights the AD functions demonstration, including multi-scenario autonomous driving, smart buses, smart passenger cars, AVP parking lots, urban logistics and distribution vehicles, and low-speed unmanned vehicles. Lastly, it outlines the system consistent construction, emphasising the construction of a technical system for geographic information security defence, VICIS standard system, ICV testing and evaluation system, and cross-domain CA certificate system.

## 3.6 [IEEE 1609 WG VT/ITS](https://standards.ieee.org/project/1609_2_1.html)

[[Doc 26](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/26_IEEE-1609WG_Status-report.pptx)] was submitted and presented by Justin McNew *(IEEE 1609 Chair)*

The presentation provided an update on the standards activities of the IEEE Vehicular Technology Society (VTS) and specifically focuses on the IEEE 1609 Working Group's status. Justin McNew, the Chair of the IEEE 1609 Working Group, outlines the progress and future plans for various standards, including IEEE 1609.2, IEEE 1609.2.1, IEEE 1609.2.2, and IEEE 1609.3. The presentation highlighted that IEEE 1609.2.2, which pertains to Multi-Jurisdictional Interoperability (MJI), aims to enable interoperable interactions between devices issued certificates under different Security Credential Management System (SCMS) Managers with distinct policy frameworks. It discusses trust restrictions on the Certificate Trust List (CTL), concept design, trust relationships, and the potential impact on access control decisions based on local policy. Additionally, it outlines the schedule for the IEEE 1609 Working Group meetings and provides details for participation.

The presentation also outlines the status of various standards, mentioning that IEEE 1609.2, focusing on Security Services, has been published and may undergo revision in 2024. Furthermore, it notes the publication of IEEE 1609.2.1, which deals with Certificate Authority, along with the issuance of guidance notes regarding Certificate Revocation Lists (CRLs). Additionally, it discusses the status of IEEE 1609.2.2, emphasising the concept design for Multi-Jurisdictional Interoperability and its potential impact on trust relationships and access control decisions based on local policy.

## 3.7 [ETSI TC ITS](https://www.etsi.org/committee/1402-its)

[[Doc 22](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/22_ETSI-ITS_Status-report.pptx)] was submitted and presented by Niels Peter Skov Andersen *(Chair ETSI TC ITS)*.

The presentation provides an overview of the status of Cooperative Intelligent Transport Systems (C-ITS) work within the European Telecommunications Standards Institute (ETSI). It outlines the background and main areas of work within the ETSI Technical Committee for Intelligent Transport Systems (TC ITS), including the responsibility for developing and maintaining standards and specifications to support ITS service provision across transport networks. The information provided reflects ETSI's commitment to advancing C-ITS standards and specifications to support the development and implementation of intelligent transport systems, ensuring interoperability and functionality across various access layer technologies. This comprehensive overview serves as a valuable resource for stakeholders involved in ITS communication standards and highlights the ongoing efforts to enhance C-ITS capabilities for the benefit of transport networks, vehicles, and transport users. The presentation details the key features for Release 2 of C-ITS, highlighting aspects such as short-range communication, security challenges, and spectrum-related work. It also discusses ongoing work, including the status of standards, spectrum-related work, and the key features of Release 2, such as the Collective Perception Service, Misbehaviour Detection, Multi-Channel Operation, Manoeuvre Coordination, and extensions of existing services. Additionally, the document provides a comprehensive list of ongoing work items, including vehicular communication, testing, security, and privacy management, among others.

Additionally, the presentation offers a comprehensive insight into the current state and future developments of C-ITS within ETSI. It covers the background and scope of work, key characteristics of short-range communication, security challenges, status of standards, spectrum-related activities, key features for Release 2, and ongoing work items.

## 3.8 [Car2Car Communication Consortium](https://www.car-2-car.org/)

[[Doc 23](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/23_C2C-CC_Status-report.pptx)] was submitted and presented by Niels Peter Skov Andersen *(General Manager C2C-CC)*. C2CC supports V2X deployment.

The CAR 2 CAR Communication Consortium, initiated by European vehicle manufacturers, aims to increase road safety and traffic efficiency while reducing the environmental footprint through fully interoperable cooperative applications for all users. The organization focuses on improving road safety through the deployment of cooperative services and applications across various vehicle types and traffic participants, emphasising horizontal and vertical interoperability, minimal cost for users, and long-term availability and accessibility of cooperative features. The consortium's objective includes identifying and specifying C-ITS requirements, coordinating requirements among all actors, driving research into supporting technologies, providing relevant specifications, contributing to standardization organizations, and promoting policies and measures that ease deployment.

The presentation emphasizes the functional requirements of the C2C-CC, focusing on communication needs such as tactical information for proximity of vehicles, strategic information for planning ahead, and infotainment communication not directly related to driving. It also discusses the roadmap towards automated driving, spectrum needs for short-range communication, and the challenge of establishing a common communication platform. Furthermore, ongoing work in the areas of functionality, technical aspects, and deployment is highlighted, including guidance for future applications, technical improvements, and deployment-related activities. The document also addresses the spectrum needs for single short-range V2X communication technology and the challenges and advantages of establishing a common communication platform in the context of ITS. Overall, the presentation underscores the importance of collaboration on ITS communication standards to realize the vision of increased road safety and traffic efficiency while reducing the environmental impact.

## 3.9 [C-Roads / C-ITS](https://www.c-roads.eu/platform.html)

[[Doc 16](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/16_C-Road_C-ITS_Status-report.pptx)] was submitted and presented by Martin Böhm, Technical Director.

The presentation provided a comprehensive overview of the deployment status of Cooperative Intelligent Transport Systems (C-ITS) in Europe. It emphasized on the critical role of cooperation and trust among authorities, road operators, and the car industry in enabling wide-scale C-ITS deployments. The C-Roads Platform, initiated in 2016, aims to link all C-ITS deployments across Europe, develop common technical specifications, and plan intensive cross-testing to verify interoperability. The document outlines the progression of C-ITS deployment, from the initial eight founding Member States in 2016 to the current status with over 50 European cities and approximately 1.5 million C-ITS equipped vehicles connected and exchanging information.

Furthermore, the presentation highlighted the publication of Communication Profile Releases, such as Rel. 1.0 in 2017 and the most recent Rel. 2.1, which includes the first full hybrid specification. It also delves into the C-Roads WG2 process of use cases, including C-ITS Security Requirements and Specifications, C-ITS Infrastructure Mobile ITS-G5 System Profile, and C-ITS EU Handbook for MAPEM and SPATEM Creation. The importance of a hybrid communication mix, combining short and long-range communication, is emphasized, along with C-ROADS' technology-neutral position, supporting every technology in line with shared communication rules in the 5.9 GHz ITS Band.

The presentation highlighted the fundamental principles of C-ITS communication, emphasising the essential prerequisite of preserving an open 5.9 GHz ITS band for cross-border and multi-OEM C-ITS services. Additionally, it outlines the current deployment status of ITS-G5 road-side units and the potential for C-ITS in multimodal (urban) environments. The presentation concludes by outlining the next steps in Europe, including the revised EU ITS-Directive, focusing on developing and implementing cooperative intelligent transport systems. It also emphasized the continued support of the C-Roads Platform for European goals, with a future focus on the operation of C-ITS Infrastructure in a multi-stakeholder environment and the continuation of deployments in new focus areas, such as urban areas, blue-light organizations, and public transport.

## 3.10 [CCSA](http://www.ccsa.org.cn/)

[[Doc11R1](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/11R1_CCSA_Status-Report.pptx)] was submitted and presented by Yuming Ge.

The presentation provided an overview of V2X standardization by the China Communications Standards Association (CCSA). The CCSA consists of various technical committees (TC) and special task groups (ST) focusing on areas like internet, network, IoT, and emergency communication. The V2X technology and standardization architecture in CCSA cover applications such as assisted driving, automated driving, remote driving, traffic efficiency, and telematics. It encompasses various platforms, messages, interfaces, and security aspects, all aimed at achieving V2X application scenarios through defined datasets, interfaces, and test methods.

This presentation outlines the CCSA's application and message related standards, including technical requirements and test methods for LTE-based vehicular communication, enhanced V2X application layer data interaction, application identity assignment, and mapping of LTE-based vehicle wireless communication technology. It also details the technical requirements for 5G-enabled remote driving, emergency communication, and autonomous driving, as well as standards for networking communication encompassing general technical requirements, air interface, network layer, and wired bearer network. Furthermore, it highlights the deployment and testing requirements of 5G networks for high-level autonomous driving, including scenarios and business categories.

The presentation also delves into the CCSA's workshops on the application of edge computing in V2X, which involved discussions on MEC standards in China, MEC-based C-V2X system standards, ETSI MEC introduction, use cases of MEC V2X API, and V2X R&D progress. Additionally, it covers a workshop on enablement for connected vehicles, which addressed challenges, evolution, new use cases, technology trends, industry development, and strategic alignment.

## 3.11 [IEC SyC SET](https://www.iec.ch/ords/f?p=103:186:615245856499969::::FSP_ORG_ID,FSP_LANG_ID:30143,)

[[Doc 08](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/08_IEC-SyC-SET_Status-Report.pptx)] was submitted and presented by Daniele Bozzolo, Vice-Chair.

This presentation provided a comprehensive update on the activities and status of the IEC SyC SET (International Electrotechnical Commission Systems Committee Sustainable Electrified Transportation). It outlines the committee's scope, organization, participation, and current activities. The committee was established in early 2023 and comprises officers such as Mr. Daniele Bozzolo, Mr. Richard Cook, Mrs. Sandrine Gosselin, Mr. Alexander Kupfer, Mr. Feng NI, and Mr. Gennaro Ruggiero. Additionally, it includes members from various countries and has registered experts and working group participation.

Furthermore, the document delves into the specific activities of the IEC SyC SET, focusing on three key areas. Firstly, the committee is looking at the electrified transport system from a systems perspective to achieve UN sustainability goals, with a focus on sustainability system assessment and potential sustainability performance. Secondly, it is addressing a systems approach in smart charging for sustainable electrified transportation, aiming to identify means and processes to charge battery electric vehicles directly from renewable energy sources. Lastly, the IEC SyC SET is working on a systems architecture proposal for sustainable electrified transportation, studying the initiation of the development of a systems architecture within the committee.

The presentation elaborated on the importance of the IEC SyC on Sustainable Electrified Transport as a crucial partner in developing sustainability aspects in transportation. It also highlights the interest of thought leaders in engaging with the IEC SyC SET and the attractiveness of concrete topics for a system assessment in engaging relevant experts, including specific technical committees.

## 3.12 [ISO TC204](https://www.iso.org/committee/54706.html)

[[Doc 06](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/06_ISO-TC204_status-report.pdf)] and [[Doc 05](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/05_ISO-TC204_LS1.zip)]were submitted and presented by Jennifer Collins, Global Ground Vehicle Committee Manager.

The presentation is a status report from the ISO/TC 204 Intelligent Transport Systems (ITS. It outlines the scope of ISO/TC 204, which encompasses standardization of information, communication, and control systems in urban and rural surface transportation, including intermodal and multimodal aspects, traveller information, traffic management, public transport, and emergency services. The report highlights that ISO/TC 204 is responsible for overall system and infrastructure aspects of ITS, as well as coordinating the ISO work program in this field. It also discusses the number of active projects, with 460 projects in various stages, and mentions notable published and ongoing projects.

Additionally, the report provides an overview of ISO/TC 204's liaison activities with other organizations, such as ISO/TC 211, ISO/IEC JTC 1, ISO/TC 268/SC 2, and SAE International. It details the establishment of joint working groups and liaison with these organizations, emphasising collaboration in areas including geographic information, data modelling, sustainable mobility and transportation, and partnership standards development. The document further summarizes the 62nd ISO/TC 204 Plenary, where 22 P-members and 1 O-member participated, and provides a recap of the liaison attendances and reports from various organizations.

Moreover, the presentation outlines the outcomes of the 62nd ISO/TC 204 Plenary, which include the introduction of the CITS Expert Group on Communications Technology for Automated Driving, coordination activities with ISO TC22, and addressing proposed Urban Logistics TC scope overlap.

## 3.13 [WWRF VIP WG The Connected Car](https://wwrf.ch/)

[[Doc 24](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/24_WWRF-CVWG_Status-report.pptx)] was submitted by Seshadri Mohan *(Chair, WWRF VIP CV WG)* for information (not presented).

The presentation provided an update on the activities of the Wireless World Research Forum's (WWRF) Connected Vehicle Working Group (CV WG). The WWRF is a global organization that aims to develop the future vision of the wireless world, bring together various stakeholders to overcome roadblocks, and promote this vision through publications and collaborations. The organization is open to various types of members, including manufacturers, network operators, academic institutes, government agencies, and individuals. It holds regular meetings and special sessions to gather input from members and participants, ultimately producing white papers and other publications to promote the vision of the wireless future.

Specifically focusing on the Connected Vehicle Working Group, it aims to address the research needs of the automotive and transport industries based on next-generation wireless technology, with a focus on the next five to ten years. The group is currently working on a white paper on 'AI/Machine Learning Based Connected Vehicles in the Era of 5G, 6G, and Beyond' and has organized sessions and panel discussions on connected vehicles at various events. The activities also include planning for special issues in journals, developing proposals for further white papers, and organising workshops and sessions for the future.

The presentation highlights the specific topics and discussions within the Connected Vehicle Working Group, including the impact of mobility and smart jammers on security vulnerabilities of 5G cells, utilization of mm-wave and THz wave for V2X communication, and the use of VR and generative AI to solve real-world CV challenges. Furthermore, it outlines key questions and requirements for AI/ML techniques in enhancing networking requirements for connected vehicles, the role of standards in facilitating AI/ML for CV, handling real-time KPIs, standards evolution, industry adoption, deployments, and various applications of AI/ML for connected vehicles.

## 3.14 TIAA

[[Doc 20](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/20_TIAA_Status-report.pdf)]was submitted and presented by Xiaofeng Yi, Lenovo Vehicle Computing.

This presentation provided a comprehensive report on the development status of intelligent connected vehicles in China, focusing on various aspects such as market trends, predictions, and technological advancements. The report highlights the sustained growth of new energy vehicles, with a bold prediction that by 2024, a new turning point in the new energy market will be reached, and by 2030, the proportion of new energy vehicles is expected to exceed 80%. The evolving market trends indicate a shift towards larger, more family-oriented, and replacement-market-oriented passenger car models, with increased competition focusing on the existing market.

Moreover, the presentation also highlighted the increasing linkage between new energy cars and intelligent vehicles, emphasising the transition from the Intelligent Era 1.0 to 1.5, marked by functional upgrades and the declaration of the end of the era of intelligent fuel vehicles. It also delves into the competition trends in different price ranges and the proportion of sales volume of car models in the new energy car market. The integration of L2 and parking is identified as a temporary demand, while NOA (Navigate on Autopilot) remains mainstream, indicating a hurdle between L2 and NOA. Additionally, the report discusses the changes in Autonomous Driving Domain Controllers and NOA data, highlighting the challenges and opportunities in this domain.

Furthermore, the presentation shed light on the penetration rate data of cockpit domain controllers and 5G technology for the China passenger car market from 2020 to 2030. It predicts an ongoing battle between cockpit domain controllers and computing platforms, as well as the integration of 5G wireless terminals. The penetration rate of different intelligent cockpit functions is also assessed, indicating the evolving landscape of intelligent driving components and human-machine-co-driving Human-Machine Interface (HMI).

Lastly, the presentation also outlined the evolution roadmap of "Central Computing+ Regional control" in the multi-domain intelligent market, projecting the coexistence of multiple domains and architectures by 2030. This roadmap highlights the progression from Cockpit and Intelligent Driving to the integration of diverse domains, emphasising the coexistence of various architectures and the advancement towards single chips with supercomputing power.

# 4 Status of ITS communications work in UNECE

## 4.1 [UNECE WP.29 GRVA](https://wiki.unece.org/pages/viewpage.action?pageId=40829521)

[[Doc 28](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/28_UNECE_Status-report.pdf)] was submitted and presented by Francois Guichard *(Secretary, UNECE WP.29 GRVA)*.

The presentation provided an update on Intelligent Transport Systems (ITS) within the framework of the United Nations Economic Commission for Europe (UNECE). It emphasizes UNECE's role as a custodian of 60 inland transport conventions, with a regional and global mandate from UN ECOSOC. The revised UNECE roadmap on ITS, adopted in February 2021, encompasses 18 actions across various transport modes and specialized areas, such as data security and the transport of dangerous goods. Additionally, the presentation highlighted the activities of the Informal Working Group (IWG) on ITS and its Task Force on Vehicular Communication, focusing on developments related to vehicle corridors, connected services, and vehicular communication.

The presentation also discussed the cutting-edge technology in vehicles, including artificial intelligence, automated and autonomous systems, cybersecurity, and access to vehicle data and privacy. Proposed structures for the work on Automated Driving Systems (ADS) regulations and the adoption of the new Driver Control Assistance System (DCAS) regulation were also outlined.

The presentation also touched upon the development of a global regulation for ADS, sponsored by Canada, China, EU, Japan, UK, and USA. It also delves into the Data Storage for Automated Driving Systems (DSSAD), which aims to store data on ADS and driver status, with specific requirements for data categories, events triggering recording, technical aspects, privacy, and data protection. The newly adopted DCAS regulation focuses on systems providing longitudinal and lateral support, setting minimum safety requirements for any advanced driver assistance systems. It emphasizes driver involvement and Human-Machine Interface (HMI) and is phased in two steps, with a strong emphasis on "eyes-on" for Level 2 systems.

## 4.2 UNECE TF CS/OTA

[[Doc 25](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/25_UNECE-TF-CS-OTA_Status-report.pptx)] was submitted by Tetsuya Niikuni, Chief Researcher, NTSEL, Japan.

The presentation contained the status report from the Informal Working Group (IWG) on Cyber Security and Software Updates, outlining their progress and upcoming activities. The group has held web meetings, including the 27th and 28th sessions in November 2023 and the 28th session in January 2024. The activities of the IWG encompass various areas, such as updating the interpretation document of UN R.156, amending Annex 7 of R.E.3 (RXSWIN), harmonising post-registration software update processes, addressing authorized data access and privacy by design, and exploring updatable over-the-air (OTA) telecommunications technology. Notably, the IWG has been discussing the alignment of references with the recently published ISO 24089:2023 and drafting proposed amendments to the interpretation document to include references to clauses of ISO 24089. Additionally, discussions have centred around the proposal to provide a set of regulatory texts to implement the "RXSWIN" concept for other regulations, with differences in opinions highlighted regarding its extent and method of implementation.

The presentation also covered the issues with post-registration software updates, emphasising the differences in approaches and issues across countries and regions. It also mentioned the distribution of a survey to gather further information and the presentation of the situation in various countries, including France, Germany, Denmark, the UK (Great Britain), Spain, Switzerland, Japan, and Italy. Moreover, it addresses the issues with Whole Vehicle Type-Approval and the concept of authorized data access and data privacy presented by FIA, categorising levels of accessibility to vehicle data and emphasising the control of data streams to and from the vehicle by the driver or authorized person. The IWG is also seeking further information regarding updatable OTA telecommunications technology and planning upcoming events, including the next IWG meeting.

# 5 [Status of ITS communications work in ITU](http://www.itu.int/en/ITU-T/extcoop/cits/Documents/ITS-work-items.xlsx)

The [spreadsheet](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/ITS-work-items.xlsx) (freely available online) contains information about all ITS related work items in ITU. Covering the work of ITU-T (Study Groups 12, 13, 16, 17, 20) and ITU-R (WP5A), the spreadsheet will be updated based on inputs received from constituent Study Groups and other relevant groups.

## 5.1 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 27](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/27_ITU-T-SG16_Status-update.pptx)] and[[Doc 04](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/04_ITU-T-SG16_LS142.zip)]were submitted and presented by Hideki Yamamoto *(Vice-chairman, SG16)*.

The presentation provides a comprehensive update on the activities and achievements of ITU-T SG16, particularly focusing on Question 27/16 and its contributions to vehicular multimedia communications and intelligent transport systems. Study Group 16 (ITU-T SG16) is responsible for multimedia and related digital technologies, consisting of 14 questions and three working parties. Notably, Question 27 in SG16 focuses on Vehicular Multimedia Communications, Systems, Networks, and Applications. The SG16 meetings take place every six months, with approximately 600 input documents discussed and around 40 output documents, including recommendations or technical papers. Recent achievements in Q27/16 include the approval of new work items related to voice interaction, universal interfaces, data sharing for electric charging, vulnerable road users, and heterogeneous networks. Furthermore, the document highlights the progress and achievements in various ITU-T recommendations related to vehicular multimedia systems and intelligent transport systems.

The recent achievements in Question 27/16 and its working party include the approval of new work items and existing work items related to vehicular multimedia systems. Notably, Recommendation ITU-T H.552 specifies essential requirements for the implementation of vehicular multimedia systems, addressing connectivity, human-machine interface, media format and control, and smartphone infotainment assistant. Additionally, the document describes the ITU-T F.749.7 recommendation, which specifies requirements for a remote driving service based on a vehicle gateway platform, aimed at reducing the cost of manned driving and improving driving efficiency. The future meetings of ITU-T SG16, Q27/16, and WP1/16 are outlined, with the next SG16 meeting scheduled to be held in Rennes, France in April 2024. The document concludes with an invitation to visit the ITU-T SG16 home page for more detailed information.

## 5.2 [ITU-T SG12](https://www.itu.int/en/ITU-T/studygroups/2022-2024/12/Pages/default.aspx)

[[Doc13](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/13_ITU-T-SG12_Status-Report.pdf)] was submitted and presented by Jan Reimes, Q4/12 Rapporteur.

The presentation contains a status report from ITU-T Study Group 12 (SG12) focusing on "Objective methods for speech and audio evaluation in vehicles." The report is presented by the Rapporteur, Jan Reimes from HEAD acoustics GmbH, and highlights the collaboration on Intelligent Transport Systems Communication Standards (CITS). The main topics in scope include safety aspects related to driver distraction and emergency systems, as well as Quality of Experience (QoE) of speech communication terminals. The report outlines the core recommendations such as hands-free telephony, emergency call systems, in-car communication, and speech dialogue systems, including new work on automatic speech recognition (ASR).

The presentation also emphasized on the methodologies and performance requirements for testing vehicle-related speech communication systems. It underscores the need for a "black box approach" for testing, where no access to internals is required, and the use of standardized electrical and acoustical interfaces for realistic testing from the user's perspective. Various testing principles and example setups for different recommendations, such as P.1100/1110/1120, P.1140 (eCall), and P.1150 (ICC), are detailed, along with the quality of experience factors to be considered during testing, such as delay, frequency response, echo, double talk, and speech quality under noise.

Additionally, the presentation introduced a new work item, P.ASR, focusing on automatic speech recognition. It discusses the specification of test methods, guidelines, and performance metrics for ASR, including different degrees of complexity in performance measures like Word Error Rate (WER), Wake Word Detection, Commands, and Natural Language Processing (NLP)/semantics. Additionally, the document highlights the importance of defining new diagnostic interfaces for evaluating speech dialogue systems, emphasising the need for collaboration with stakeholders to address the differences in evaluating these systems. The conclusion reiterates the focus on test methods and performance requirements for vehicle-based speech communication terminals, emphasising the upcoming meeting of Q4/SG12 in April 2024 in Geneva.

## 5.3 [ITU-R SG5](https://www.itu.int/en/ITU-R/study-groups/rsg5/Pages/default.aspx)

[[Doc 17](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/17_ITU-R-SG5_Status-report.pdf)] was submitted and presented by Uwe Loewenstein (ITU-R SG5 Counsellor).

The presentation provides an update on the Intelligent Transport Systems (ITS) related work within the ITU-R, specifically focusing on the activities of Study Groups 5A and 5D. The update highlights the revision of recommendations for land mobile and IMT services, including frequency arrangements and the inclusion of bands identified at WRC-19. It also introduces new reports on connected automated vehicles (CAV) and the use of terrestrial components for Cellular-Vehicle-to-Everything (C-V2X) communication. Moreover, it discusses ongoing work on IMT-2030 (6G) and the definition of requirements and evaluation criteria for IMT-2030 Radio Interface Technologies.

Furthermore, the presentation underscores the scope of the ITU-R Question 264/5, which pertains to studies related to ITS, including connected automated vehicles and future applications. It outlines specific questions related to the radiocommunication and spectrum requirements for ITS services, particularly for CAV, and emphasizes the need for international standardization. The update also provides a timeline of meetings for WP 5A and 5D, including the preparation of proposals towards WRC-27 for new agenda items. Additionally, it introduces new reports on the use of the terrestrial component of IMT for C-V2X and connected automated vehicles.

The presentation also includes a list of recent ITU-R documents relevant to ITS/CAV, encompassing recommendations and reports related to vehicular collision avoidance radars, short-range communications, operational radiocommunication objectives, and specific radio interface standards for vehicle-to-vehicle and vehicle-to-infrastructure communications. This compilation of documents highlights the comprehensive efforts of the ITU-R in addressing the technological and operational aspects of intelligent transport systems and connected automated vehicles. The presentation was concluded emphasizes the need for international collaboration and the continuous updating of recommendations and reports to address the evolving landscape of ITS technologies and applications.

## 5.4 [ITU-T SG20](https://www.itu.int/en/ITU-T/studygroups/2022-2024/20/Pages/default.aspx)

[[Doc12](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/12_ITU-T-SG20_Status-Report.pdf)] was submitted by *Chao Ma.*

The presentation contains an overview of SG20, which includes working parties such as WP1/20 focusing on interoperability and interworking of IoT and SC&C applications, and WP2/20 addressing security, privacy, and evaluation of Smart Sustainable Cities and Communities. The document also highlights the regional groups and focus groups under SG20, along with the main statistics from 2022-2024.

Furthermore, the document delves into specific recommendations and draft recommendations related to IoT for ITS, such as ITU-T Y.4116, ITU-T Y.4119, and ITU-T Y.4211 focusing on transportation safety services, IoT-based automotive emergency response system, and smart public transportation services, respectively. Additionally, it discusses the concept of digital twin for intelligent transport systems and the requirements, capabilities, and use cases of Internet of Things infrastructures in roadside traffic perception systems, as well as a functional architecture for roadside multi-sensor data fusion systems for autonomous vehicles. The status and approval dates of these recommendations are also provided, offering a comprehensive overview of the progress in IoT standardization for ITS.

Moreover, the presentation also introduced Recommendation Y.4482 on the requirements and capability framework of digital twin for intelligent transport systems, emphasising its ability to provide a digital representation of the physical transportation world. It outlines the capability layers involved and the significant enhancements in the awareness of physical transportation, problem discovery, traffic simulation, and intelligent applications. Additionally, it discusses a draft recommendation Y.IoT-RTPS focusing on the requirements, capabilities, and use cases of Internet of Things infrastructures in roadside traffic perception systems, highlighting the role of IoT technologies in enhancing traffic safety and efficiency through collaboration and information provision.

The presentation also contained information on the Recommendation Y.4487 on the functional architecture of roadside multi-sensor data fusion systems for autonomous vehicles, emphasising the need for enhanced roadside perception capabilities to support higher-level autonomous driving applications. It defines the reference functional architecture and key functional entities, providing use cases based on these systems. Furthermore, it introduces a Supplement VFS on the functional architecture of connected vehicle formation supporting based on edge computing, emphasising the role of edge computing in enabling IoT and C-V2X with stronger computing and connectivity capabilities, thus becoming a crucial component of intelligent transportation systems.

The presentation also outlined upcoming events, including:

* SG20 Regional Group for Asia and the Pacific, 23-24 April 2024
* ITU-T Study Group 20 meeting in Geneva, 1-12 July 2024
* World Telecommunication Standardization Assembly in New Delhi, 15-24 October 2024

## 5.5 ITU-T SG5

[[Doc 15](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/15_ITU-T-SG5_Status-report.pptx)]was submitted and presented by Paolo Gemma, WP2/5 Chair.

The presentation provided an update on the activities of ITU-T Study Group 5, focusing on sustainable digital transformation and standards. The group aims to reduce carbon emissions, achieve sustainable digitalization, improve uptake of green energy, and provide technical guidance for green energy solutions. Key areas of ongoing work include environmental performance scoring of smartphones, digital product information on sustainability, and universal power adapters for smart devices. The document also outlines the methodology for assessing the impact of ICT and digital technology solutions on GHG emissions, as well as examples of ICT solutions across various sectors such as energy supply transformation, industry, buildings, transport, agriculture, and forestry. Additionally, the presentation also elaborated on the effects considered in ITU-T L.1480, guidelines for ICT original equipment manufacturers providing equipment to autonomous vehicles, standards for reporting Scope 3 emissions, and principles for assessing and reporting Scope 3 emissions. Furthermore, it highlights the Green Digital Action initiative, which aims to enhance collaboration and industry-wide commitments to addressing climate challenges in the ICT sector.

ITU-T Study Group 5 is dedicated to enabling the net-zero transition by providing a structured methodological approach to assess the impact of ICT and digital technology solutions on GHG emissions. This approach, outlined in ITU-T L.1480, involves six steps: defining the assessment goal, scoping, modelling and data collection, critical review, reporting, and interpreting results. The document further details examples of ICT solutions across various sectors and the effects considered in ITU-T L.1480, as well as guidelines for ICT original equipment manufacturers providing equipment to autonomous vehicles. Furthermore, the presentation covered standards for reporting Scope 3 emissions, focusing on harmonising methods for telecommunication operators to assess and report their Scope 3 GHG emissions. The presentation also emphasized on the principles for assessing and reporting Scope 3 emissions, including the goal of reduction, hot-spotting, simplicity, scalability, improvement of accuracy over time, suitability for all, and following science-based principles. Moreover, it highlights the Green Digital Action initiative, which aims to fast-track industry-wide commitments to addressing climate challenges in the ICT sector. The initiative includes commitments for companies to set 1.5-degree aligned science-based targets, contribute to an ICT sector database creation, and report data on GHG emissions publicly.

## 5.6 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=-1,1,3,7,2&details=0&field=acdefghijo))

[[Doc 09](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/09_ITU-T-SG17_Status-Update.pdf)]were submitted and presented by Sang-Woo Lee (*ITU-T Q13/17 Rapporteur)*.

The presentation contains the status report on ITS (Intelligent Transportation Systems) security in ITU-T SG17, presented by Sang-Woo Lee, the Rapporteur of ITU-T Q13 in SG 17. It begins with an introduction to SG17 in ITU-T, highlighting its focus on security aspects for various technologies, including intelligent transportation systems (ITS), 5G networks, cloud computing, and Internet-of-Things. The presentation then delves into the current status of work items related to ITS security in Q13/17, detailing approved Recommendations such as security threats in connected vehicles, V2X communication, intrusion detection systems, and security guidelines for various ITS components. It also outlines ongoing work items, including security requirements for vehicular edge computing, electric vertical take-off and landing (eVTOL) vehicles, cellular vehicle-to-everything (C-V2X) services, and in-vehicle intrusion detection systems.

Furthermore, the presentation highlights the scope of specific recommendations, such as X.1373 (Rev. Approved March 2024), which focuses on secure software update capability for intelligent transportation system communication devices. It also introduces new work in progress (NWIP), such as X.fod-sec, addressing security guidelines for a feature on demand (FoD) service in a connected vehicle environment, and X.af-sec, which pertains to evaluation methodologies for anonymization techniques using face images in autonomous vehicles. Additionally, it presents the future plan, including the next Q13 RGM meeting scheduled for June 2024 and outlines liaison collaborations with SG16, CITS, and UNECE WP29.

# 6 Organizations that did not send a progress report at this meeting

– [W3C](https://www.w3.org/) [WG Closed]

– [CATARC](https://europe.catarctc.com/en)

– [TTC](https://www.ttc.or.jp/e/standardization/standards)

– [TTA PG905](https://www.tta.or.kr/tta/index.do)

– IETF IPWAVE WG

– [ATIS](https://www.atis.org/01_strat_init/connectedcar/)

– [CEN TC278](https://www.itsstandards.eu/)

– [IMDA](https://www.imda.gov.sg/)

– [ISO TC 22](https://www.iso.org/committee/46706.html)

– [IEEE 802.11 TGbd](https://www.ieee802.org/11/Reports/tgbd_update.htm)

# 7 Incoming Liaison Statements

CITS received the following liaison statements, which were duly noted.

• [Doc 03](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/03_FGAN_LS12.zip): LS on Autonomous Networks deliverables from ITU-T FG-AN   
*Abstract:* This liaison statement informs the relevant bodies of the approval of the completed deliverables of ITU-T FG-AN at its final meeting and completion of the Focus Group works.

• [Doc 04](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/04_SG16_LS142.zip): LS on the start of approval process of three ITU-T Recommendations for vehicular gateways and vehicular multimedia [to ITU-T SG20; ITU CITS; ISO/TC22 and TC204, UN WP29 GRVA and TF-VC; from ITU-T SG16]  
*Abstract:* This LS informs the ISO/TC22, ISO/TC204, UN WP29 GRVA, UN WP29 TF-VC, ITU-T SG20, ITU-T CITS on the start the approval process of the draft new Recommendations F.VGP-RDSreqs, H.VMMA-FCR, and H.VM-VMIA.

• [Doc 05](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/05_ISOTC204_LS1.zip): LS on the establishment of an Expert Group on Communications Technology for Automated Driving   
*Abstract:* Through this LS, ISO TC 204 invites the members of the ITU-T CITS and its ED-ComAD to contribute to the work being done in TC 204 regarding communications for AD, including its objectives of getting ITS G5/US DSRC/WAVE mandated for worldwide deployment as soon as possible, and the development and implementation of new services related to AD such as cooperative merging, platooning, and others.

The majority of the incoming LSs were referred to CITS for information only. These LSs were noted. Additionally, the relevant information on the standards provided in the LS will be utilized to update the database as required.

# 8 Expert Group on Communications Technology for Automated Driving

[[Doc 19]](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/19_EGComAD_Status-Report.pptx)was submitted and presented by Russ Shields *(CITS Chair)*.

The Expert Group on Communications Technology for Automated Driving was organized on 8 March 2024. A document providing the status report is contained in [[Doc 19]](https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20240315-e-meeting/19_EGComAD_Status-Report.pptx). The Expert Group discussed its Objectives (Doc2R1) and its expected Work Plan (Doc3R2). The EG-ComAD meeting report is provided as (Doc7). The first meeting documents are available at: <https://tsbcloud.itu.int/s/no3mpn4fcyZbawi>

The Expert Group has identified three key topics

* (1) Providing the V2V communications capabilities to ensure that automated driving systems (ADS) can reliably merge into a crowded lane in every circumstance
  + This will challenge types and volumes of communications messages needed
  + Review the technical requirements of ADS and identify potential gaps regarding the spectrum usage of such systems
* (2) Protecting vulnerable road users (VRU) by making V2X communications an addition sensor for AEBS products in new vehicles
  + This will challenge the types and volumes and communications devices needed
* (3) Matching the service life of communications equipment with the service life of automobiles
  + Automobiles being developed today will be on the roads in many counties after 2050

The next meeting of the Expert group plans to continue the efforts to clarify scope and objectives and will lay down the working group structures. It is planned on Friday 17 May 2024, 12h00-15h00 CET:

More info at: <https://www.itu.int/en/ITU-T/extcoop/cits/Pages/egcomad.aspx>

# 8 ITS Standards Online Repository

Based on the inputs received from and presentations delivered by the SDOs, the [ITS communication standards database](https://www.itu.int/itu-t/landscape/?topic=tx21&group=g&search_text=) will be updated by ITU as soon as possible, taking into account resources availability.

# 9 Next meeting

The next CITS meeting is planned on 13 September 2024. The final date will be announced via email list. The preparations for FNC-2025 are also underway.

# 10 Closure of the meeting

The Chair, Russ Shields, thanked ITU for remotely hosting the CITS meeting and having supported its organization.

The Chair expressed his gratitude to the representatives from the SDOs who attended the meeting and thanked them for their contributions to the meeting, which will serve as the basis for the pertinent inputs to be fed into the ITS Communication Database. He also expressed his appreciation for the ITU staff (Mr Stefano Polidori, Ms Mythili Menon, Mr Gent Bajrami, Mr Ilia Londo) for organising the CITS meetings and Ms Gillian Makamara for updating the ITS communication standards database. The meeting closed at 17h00 hours local Geneva time.

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