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| **Keywords:** | ITU-T SG16; Multimedia; Lead study group report; |
| **Abstract:** | This TD contains the Report on Lead SG activities for ITU-T SG16 since last TSAG meeting. |

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# Lead SG roles

ITU-T SG16 is responsible for studies relating to ubiquitous multimedia applications, multimedia capabilities for services and applications for existing and future networks. This encompasses accessibility; multimedia architectures and applications; human interfaces and services; terminals; protocols; signal processing; media coding and systems (e.g. network signal processing equipment, multipoint conference units, gateways and gatekeepers).

ITU-T Study Group 16 performs on the following lead SG roles (WTSA-16 Res.2):

* multimedia coding, systems and applications
* ubiquitous multimedia applications
* telecommunication/ICT accessibility for persons with disabilities
* human factors
* multimedia aspects of intelligent transport system (ITS) communications
* Internet Protocol television (IPTV) and digital signage
* multimedia aspects of e-services

In addition to being the parent of the new JCA on multimedia aspects of e-services, ITU-T Study Group 16 also had active participation in the JCA-AHF [Joint Coordination Activity on Accessibility and Human factors](http://www.itu.int/ITU-T/jca/ahf/index.html)

The Study Group also coordinates its activities with a number of external players, there including:

* ISO/IEC JTC1 SC29 WGs 1 to 8 on still image and video coding, and on digital transport
* ISO/IEC JTC1 SC35 on accessibility and human factors
* ISO TC22 SC31 WG8 on vehicular domain service (VDS)
* WHO, ISO, IEC and CENELEC on e-health standardization
* IEC TC100 on IPTV and accessibility standardization
* Various disability organizations within the scope of Study Group 16's accessibility work.

# Recent results

ITU-T SG16 met once since the last TSAG meeting. This meeting was online, 19-30 April 2021. SG16 accomplished the following results, in line with its mandate and lead SG roles (all TD references are SG16 TDs, except where otherwise noted):

* **WTSA-20:** With WTSA postponed to March 2022, this meeting operated under the set of Study Group 16 Questions endorsed by TSAG ([TSAG-R20](https://www.itu.int/md/T17-TSAG-R-0020/en)). This updated set corresponds to the one that had been agreed by Study Group 16 in July 2020 for approval by WTSA with minor amendments by TSAG in its September 2020 meeting. Concerning the mandate, no further updates were proposed at this meeting. [[TD511/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0511), [TD512/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0512)]. Since the next Study Group 16 meeting is planned to be collocated with MPEG and in the week after the last TSAG meeting in the period, unless an extra Study Group 16 meeting is planned, the current set of Questions and Resolution 2 updates would be the ones to be submitted to WTSA, for further deliberations in its preparations for the study period 2021-2024. The Study Group 16 management will conduct a consultation to determine whether such an extra Study Group 16 Plenary (probably in the September-October 2021 timeframe) would be needed.
* Study Group 16 reviewed the ITU-T A.4 qualification analysis from TSB for International Association of Trusted Blockchain Applications (INATBA) [[TD498/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0498)] that was initiated by Q22/16. Study Group 16 **agreed** to have INATBA **recognized as an A.4 organization**, subject to the verification by the Study Group 16 management that the IPR policy currently under ballot is confirmed.
* A proposal to establish a **regional group** for Study Group 16 in East and Southeast Asia was *not* supported. Proponents were invited to discuss the idea further in APT / ASTAP [[TD499-R1/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0499)].
* **Coordination:** Joint sessions were held with SG17 security experts on digital ledger technology (DLT) security, with JPEG on their JPEG AI project, and with MPEG on future planning for video coding collaboration. SG17 is also interested in organizing a workshop on the digital vaccination certificate topic with Study Group 16 and involving other stakeholders. Study Group 16 will also organize another workshop with WHO on accessible telehealth applications and services.
* **Video coding collaboration:** The updated terms of reference for the ITU-T SG16 & ISO/IEC JTC1/SC29 Joint Video Experts Team (JVET) was approved [[TD476/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0476)]. Additionally, Study Group 16 agreed to propose to JTC1/SC29 that Mr [Jens-Rainer Ohm](mailto:ohm@ient.rwth-aachen.de) (RWTH Aachen University, Germany) be the sole Chair of JVET.
* **Video and image coding standards:** New editions of four video coding deliverables were Consented at this meeting:
* ITU-T H.264 V14 "*Advanced video coding for generic audiovisual services*" (Rev.) [[TD496/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0496)]
* ITU-T H.265 V8 "*High efficiency video coding*" (Rev.) [[TD497/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0497)]
* ITU-T H.273 V2 "*Coding-independent code points for video signal type identification*" (Rev.) [[TD516/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0516)]
* ITU-T H.Sup19 V3 "*Usage of video signal type code points*" (Rev.) [[TD522-R1/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0522)]

New editions were also Consented for five image coding common text Recommendations:

* ITU-T T.801 V2 | ISO/IEC 15444-2 Ed.2 "*Information technology - JPEG 2000 image coding system: Extensions*" (Rev.) [[TD517/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0517)]
* ITU-T T.803 V2 | ISO/IEC 15444-4 Ed.3 "*Information technology - JPEG 2000 image coding system: Conformance testing*" (Rev.) [[TD518/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0518)]
* ITU-T T.804 V3 | ISO/IEC 15444-5 Ed.3 "*Information technology - JPEG 2000 image coding system: Reference software*" (Rev.) [[TD519/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0519)]
* ITU-T T.815 V2 | ISO/IEC 15444-16 Ed.2 "*Information technology - JPEG 2000 image coding system: Encapsulation of JPEG 2000 images into ISO/IEC 23008-12*" (Rev.) [[TD520/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0520)]
* ITU-T T.873 V2 | ISO/IEC 10918-7 Ed.2 "*Information technology - Digital compression and coding of continuous-tone still images: Reference software*" (Rev.) [[TD521/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0521)]
* **Safe listening:** the collaboration with WHO continued. At this meeting, the conformance testing specification for H.870 (2018), [HSTP-CONF-H870](https://itu.int/pub/T-TUT), was approved [[TD483/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0483)]. Efforts will now focus on the 2nd edition to H.870, expected for Consent in 2022. ITU and WHO look forward identifying suitable test laboratories to undergo conformance testing, in collaboration with ITU-T SG11 CASC [[SG16-LS249](https://www.itu.int/ifa/t/2017/ls/sg16/sp16-sg16-oLS-00249.docx)].
* **Accessible telehealth:** WHO requested Study Group 16 to develop a new standard on the accessibility of telehealth services, an issue that has received heightened attention during the COVID-19 pandemic response. Telehealth services saw a significant increase during the pandemic, and the need to better support persons with disabilities became an urgent issue. The draft of new [F.ACC-TH](https://itu.int/itu-t/workprog/wp_item.aspx?isn=16898) was progressed at this meeting [[TD372/WP2](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0372)], and ITU and WHO will organize a workshop on 23 June 2021 to further consult with stakeholders [[TSB Circular 317](https://www.itu.int/md/T17-TSB-CIR-0317/en)].
* **Personal connected health devices:** As a result of adding FHIR as a new observation uploading method, two new conformance testing specifications for the Continua Design Guidelines were Consented:
* ITU-T H.830.17 "*Conformance of ITU-T H.810 personal health system: Services interface Part 17: Personal Health Device Observation Upload (POU) Sender*" (New) [[TD487/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0487)]
* ITU-T H.830.18 "*Conformance of ITU-T H.810 personal health system: Services interface Part 18: Personal Health Device Observation Upload (POU) Receiver*" (New) [[TD488/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0488)]
* **Digital multimedia transport:** Common text ITU-T H.222.0 | ISO/IEC 13818-1 is used in most terrestrial and satellite broadcast systems for transport of audiovisual content. At this meeting, a new edition was Consented that incorporated the previous Amd.1 and Cor.1 as well as adding several new features: carriage of VVC (ITU-T H.266 | ISO/IEC 23090-3) and EVC video (ISO/IEC 23094-1) in MPEG-2 systems, signalling of compatible profile sets for MPEG-H 3D Audio (ISO/IEC 23008-3), and extension of the semantics for ISO 639 language descriptors [[TD495-R1/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0495)].
* **Intelligent transport systems (ITS):** Work within the ITU-T SG16 and ISO TC22/SC31/WG8 [Joint Project Team on vehicle domain service (JVDS)](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/jvds.aspx) has completed. Of the [four joint work items](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_status=-1,1,3,7&title=Road%20vehicles&details=0&field=acdefghijo), one is finished and waiting for FDIS on the ISO side and three others were cancelled due to discontinuation on the ISO side. Accordingly, it was agreed to **disband** the JVDS.
* **Vehicular multimedia:** A second deliverable from the FG-VM was adopted at this meeting as new work item ITU-T F.VM-VMA "*Architecture of vehicular multimedia systems*". After discussion, it was agreed that F.VM-VMA would follow the traditional approval process (TAP), with target Determination date in September/October 2021 [[TD393/WP2](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0393/en)]. Additionally, the following texts were Consented:
* ITU-T F.749.4 (ex F.VS-AIMC) "*Use cases and requirements for multimedia communication enabled vehicle systems using artificial intelligence*" (New) [[TD523/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0523)]
* [ITU-T FSTP.SS-OTA](https://itu.int/pub/T-TUT) "*Technical Paper: Standardization survey for over-the-air updating in vehicle*" (New) [[TD524/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0524)]
* **Digital culture:** The first deliverable to be Consented under the new Study Group 16 Question 23/16 on digital culture is ITU-T F.740.2 (ex F.ARMS), which defines requirements and a reference framework for digital representation of cultural relics/artworks using augmented reality [[TD525/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0525)].
* **Content delivery networks (CDNs),** **IPTV and Digital Signage:** From this meeting onwards, all CDN, IPTV and digital signage will be conducted under a single umbrella, Question 13/16. At this meeting, two work items were Consented:
* ITU-T H.644.4 (ex H.CDN-MECArch) "*Architecture for mobile/multi-access edge computing enabled content delivery networks*" (New) [[TD493/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0493)]
* ITU-T H.753 Cor.1 "*Scene-based metadata: Correction on Scene on Demand definition and abbreviation*" (New) [[TD494/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0494)]
* **Visual surveillance:** Concluding discussions that started at previous meetings, it was agreed to stop work toward a controversial standard on facial recognition requirements in video surveillance systems. Otherwise, the work progressed well with four new work items created and the Consent of three new Recommendations:
* ITU-T F.735.2 (ex H.SDC) "*Architecture and protocols for software-defined camera*" (New) [[TD477/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0477)]
* ITU-T F.743.12 (ex F.ECVSReqs) "*Requirements for edge computing in video surveillance*" (New) [[TD478/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0478)]
* ITU-T T.627 (ex F.TSVSN) "*Test specification for video surveillance networking*" (New) [[TD479/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0479)]. This Recommendation will be a key element of a pilot project for conformance and interoperability (C&I) testing of video surveillance products, in cooperation with ITU-T SG11 CASC [[SG16-LS226](https://www.itu.int/ifa/t/2017/ls/sg16/sp16-sg16-oLS-00226.docx)].
* **Civilian unmanned aerial vehicles:** Two new Recommendations that were Consented at this meeting expand the set of standards developed by SG16 for the use of civilian unmanned aerial vehicles in areas such as: flight control, flight data transportation, mission payload data services and video/imaging services. They are:
* ITU-T F.749.13 (ex H.CUAV-AIF) "*Framework and requirements for civilian unmanned aerial vehicle flight control using artificial intelligence*" [[TD485/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0485)]
* ITU-T F.749.14 (ex F.CUAV-C) "*Requirements of coordination for civilian unmanned aerial vehicles*" [[TD486/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0486)].
* **AI and machine learning:** The multimedia AI topic was very active at this meeting. In addition to [ongoing and new work items](https://www.itu.int/ITU-T/workprog/wp_search.aspx?q=5/16), three texts were Consented:
* ITU-T F.748.12 (ex F.AI-DLFE) "*Deep learning software framework evaluation methodology*" (New) [[TD480-R1/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0480)]
* ITU-T F.748.13 (ex F.AI-MLTF) "*Technical framework for shared machine learning system*" (New) [[TD481/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0481)]
* ITU-T F.Sup4 (ex F.Sup-OCAIB) "*Overview of convergence of artificial intelligence and blockchain*" (New) [[TD482/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0482)]
* **Human factors:** Two work items were Consented:
* ITU-T H.862.4 (ex F.FW-OFT) "*Framework for ICT olfactory function test systems*" (New) [[TD489/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0489)]
* ITU-T H.862.5 (ex F.EMO-NN) "*Emotion enabled multimodal user interface based on artificial neural networks*" (New) [[TD490/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0490)]
* **DLT:** New ITU-T F.747.10 (ex F.DLS-SHFS) "*Requirements of distributed ledger systems (DLS) for secure human factor services*" [[TD491-R1/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0491)], developed under Q24/16, was transferred from AAP to the Traditional Approval Process (TAP) at the WP2/16 closing plenary. TAP "Decision" on the text is expected at the January 2022 meeting of SG16 [[TSB Circular 312](https://www.itu.int/md/T17-TSB-CIR-0312/en)].
* **Immersive live experience:** ILE work progressed with the agreement to start a 2nd edition of ITU-T H.430.3 "*Service scenario of immersive live experience (ILE)*" and work on associated new Recommendation H.IIS-reqts "*Requirements of interactive immersive services*" [[TD189/WP3](https://www.itu.int/md/T17-SG16-210419-TD-WP3-0189)].
* **Accessibility:** New Technical Paper ITU-T HSTP.ACC-UC "*Use cases for inclusive media access services*" was approved [[TD526/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0526)] and collaborative work with JTC1/SC35 "*User interfaces*" continued:
* [H.ACC-GAD](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14438) *Guidance on audio descriptions* (twin text of ISO/IEC TS 20071-21:2015)
* [H.ACC-GAP](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14440) *Guidance on the audio presentation of text in videos, including captions, subtitles and other on-screen text* (twin text of ISO/IEC 20071-25:2017)
* [H.ACC-GVP](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14439) *Guidance on the Visual presentation of audio information, including captions and subtitles* (twin text of ISO/IEC 20071-23)
* [F.ACC-AVSL](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16371) *Visual presentation of audio information in sign languages* (twin text of ISO/IEC 20071-24)

# Recent "collocated" activities

Several activities were collocated with the Study Group 16 meeting:

* [ITU-T Study Group 16](http://www.itu.int/go/tsg16) (19-30 April 2021)
* Joint Video Experts Team ([JVET](http://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/video/jvet.aspx)) from 20-28 April 2021, as part of its ongoing collaboration with ISO/IEC JTC1/SC29 for the development of enhanced capabilities for video coding.
* ITU-T [JCA-AHF](https://www.itu.int/en/ITU-T/jca/ahf) on 28 April 2021
* [MPEG134](https://www.mpegstandards.org/meetings/mpeg-134/) (ISO/IEC JTC1/SC29/WGs 2-9) meeting (26-30 April 2021)
* [JPEG91](https://jpeg.org/items/20210507_press.html) (ISO/IEC JTC1/SC29/WG1) meeting (19-23 April 2021)
* ITU Workshop "[The future of television for Asia & Pacific](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/202004/)" (23 April 2021)

NOTE – Other notable parallel meetings that took place during the period were SG15 during the first week and SG9 and SG17 during the two weeks.

# Future meetings

* Interim WP meetings: WP2/16 tentatively plans one meeting in the September-October 2021 time frame to Consent work items that may become mature. If confirmed, final dates, venue and other details will be announced via a Collective Letter. There is a possibility that this WP2/16 meeting might become an extra SG16 meeting, see §‎5.7 for details.
* The next full SG16 meeting is currently planned in Geneva, 17-28 January 2022, date and details to be confirmed.
* The subsequent meeting is foreseen for October 2022, in Geneva (collocated with MPEG), pending WTSA-20 outcomes and availability of facilities to host MPEG.

Later meetings till the end of the next study period are unlikely to be held in ITU premises, due to the Varembé II construction project. Invitations to host ITU-T SG16 and MPEG outside Geneva are welcome; please contact TSB at [tsbsg16@itu.int](mailto:tsbsg16@itu.int).

Rapporteur meeting activities are listed at <https://itu.int/go/rgm/tsg16>.

# New participation in the work of Study Group 16

The following organizations have joined the SG16 activities:

* Sector Member: Global Esports Federation (Singapore)
* Associate (SME): Multiledgers (Brazil);
* Academia: EPFL (CH);

# Feedback and status reports on interim activities and collaboration

## TSAG meeting

In addition to this report, two documents from SG16 are available at this TSAG meeting:

| TD | Source | Subject |
| --- | --- | --- |
| [TSAG-TD1074](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0884/en) | ITU-T SG16 Chairman | ITU-T SG16 proposals to WTSA-20 for its Questions and Res.2 – Final version |
| [TSAG-TD1100](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-211025-TD-GEN-1100) | ITU-T SG16 | LS on updated mapping tables of common interest areas of work between the ITU-D and ITU-T study groups and between the ITU-R and ITU-T study groups [from ITU-T SG16] |

## E-services and multimedia

### JCA-MMeS

No meetings of the ITU-T JCA on multimedia aspects of e-services (JCA‑MMeS) were held after its 4th meeting in Geneva, 14 October 2019 [[Announcement](https://www.itu.int/ml/lists/arc/jca-mmes/2019-10/msg00000.html) | [Documents](https://www.itu.int/en/ITU-T/jca/mmes/Pages/docs.aspx) | [Report](https://www.itu.int/en/ITU-T/jca/mmes/JCAMMeS%20Docs/JCA-MMeS-Doc032.docx) | [LS-In](https://www.itu.int/net/itu-t/ls/ols.aspx?from=-1&to=6667&after=2019-03-30&before=2019-10-14)| [LS-Out](https://www.itu.int/net/itu-t/ls/ols.aspx?from=6667&after=2019-10-15&before=2020-06-30)] (the report was reviewed by SG16 at its closing plenary, 17 October 2019).

The list of nominated representatives is found in [JCA-MMES-DOC13-R1](https://www.itu.int/en/ITU-T/jca/mmes/JCAMMeS%20Docs/JCA-MMeS-Doc013-R1.docx).

The website for the JCA-MMES is found at <http://itu.int/en/ITU-T/jca/mmes>.

### Ubiquitous multimedia applications

The DLT experts continue to organize a series of [DLT "meet-ups"](https://www.itu.int/go/dlt-meetups) (a form of interactive and informal webinars), to discuss topics related to Distributed Ledger Technology (DLT) and their standardization. The main goal of this initiative is to increase the collaboration of Q22/16 with global DLT community. Eight episodes were already organized, and they will continue normally on the first Wednesday of every month. A [call for speakers](https://itu.int/en/ITU-T/webinars/20200805/Documents/DLT%20Meet-ups_Call%20for%20speakers.pdf) tells how DLT practitioners can propose talks and special sessions.

## Accessibility and human factors

**Question 26/16** is the key Question in ITU-T for accessibility and it held one interim meeting online in September 2021, jointly with ITU-T SG9 Q11/9, to discuss draft new J.acc-us-prof “Common user profile format for audiovisual content distribution”. This draft plans to specify a common user profile format for audio visual media including but not limited to broadband and digital TV, computer and smart phone software and web-based audio visual systems. A user profile creation application will collect information from users and store it in a device and application independent way. For example, it will store information on font-size as minimum visual angle so that the appropriate font-size can automatically be calculated for any device like TV, smartphone, desktop computer and so on. The user can invoke the profile creation application anytime and can modify it.

**Question 24/16** is the key Question in ITU-T for human factors. The Question held two interim meetings online in April and May 2020.

Currently, Masahito Kawamori (Keio University, Japan) is the SG16 Liaison Officer for accessibility and human factor matters in **ITU-T** [**JCA-AHF**](http://www.itu.int/en/ITU-T/jca/ahf/Pages/default.aspx). The JCA-AHF coordinates activities related to accessibility and human factors, and it held a meeting online on 21 May 2020 jointly with Q26/16. The meeting report will be found on the JCA-AHF webpage.

The collaboration between SG16 and ISO/IEC **JTC1 SC35** "User interfaces" continues with various common work items open, after approval of [T.701.11](https://www.itu.int/rec/T-REC-T.701.11) | ISO/IEC 20071-11 "Guidance on text alternatives for images" in September 2020:

|  |  |  |
| --- | --- | --- |
| [H.ACC-GAP](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14440) | ISO/IEC TS 20071-25:2017 | Guidance on the audio presentation of text in videos, including captions, subtitles and other on-screen text |
| [H.ACC-GAD](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14438) | ISO/IEC TS 20071-21:2015 | Guidance on audio descriptions |
| [F.ACC-AVSL](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16371) | ISO/IEC 20071-24 | Visual presentation of audio information in sign languages |
| [H.ACC-GVP](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14439) | ISO/IEC 20071-23:2018 | Guidance on the visual presentation of audio information, including captions and subtitles |

For various potential humanitarian projects, and in particular to provide global digital telecommunications platform designed to meet the specific needs of persons with disabilities worldwide, creation of a new draft F.ACC-Humanitarian is being discussed in coordination with ITU-T SG2.

SG16 participates in the IRG-AVA, see report in §6.8.1.

## IPTV and digital signage

As already seen in TSAG-R20The Questions on IPTV and on Digital Signage were merged into a revised Question 13/16, which also includes standardization on content delivery networks that were before being done under Question 21/16.

SG16 participates in the IRG-IBB, see report in §6.8.2.

SG16 maintains standardization roadmaps for IPTV and Digital Signage, see [SG16-TD458/WP1](http://www.itu.int/md/T17-SG16-220117-TD-WP1-0458/en) and online at:

* <https://itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/rm/iptv.aspx>
* <https://itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/rm/ds.aspx>

## E-health

Question 28/16 on e-health met as follows and work progressed in various safe listening work items:

|  |  |  |  |
| --- | --- | --- | --- |
| 2020-10-13/14 | E-Meeting | [Q28/16](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=11600&Group=16) [[meeting report](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0357)] | Q28/16 - Safe Listening |
| 2020-11-23/24 | E-Meeting | [Q28/16](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=11726&Group=16) [[meeting report](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0358)] | Q28/16 – Safe Listening |
| 2021-02-08/09 | E-Meeting | [Q28/16](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=11833&Group=16) [[meeting report](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0359)] | Q28/16 meeting |
| 2021-03-10 | E-Meeting | [Q28/16](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=12351&Group=16) [[meeting report](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0360)] | Q28/16 meeting |
| 2021-06-28/29 | E-Meeting | [Q28/16](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=12514&Group=16) | Q28/16 "Digital health" |
| 2021-09-15/16 | E-Meeting | [Q28/16](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=12713&Group=16) | Q28/16 "Digital health" |

### Personal connected health – H.810-H.850 series

Two new conformance testing specs were approved under AAP, see the [highlight clause](#PCHA) of this report.

### Collaboration with WHO

* Safe listening: the draft of revised H.870 (V2) continues to be developed. The draft progressed during the period (see meeting list above).
* Draft new Technical Paper [HSTP-CONF-H870](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14906) with guidelines for testing of personal audio systems for compliance with H.870 (2017) was approved.
* An ITU/WHO video promoting the safe listening standard is found here: <https://youtu.be/Nm6T0f8SeHs>.
* A new work item was established to define requirements for accessible telehealth systems, see draft at [F.ACC-TH](https://itu.int/itu-t/workprog/wp_item.aspx?isn=16898) and its drafting progressed. A workshop on this topic was also organized with WHO to gather inputs from industry
* [ITU/WHO workshop "Role of industry in making telehealth accessible for persons with disabilities"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/dh/202106/Pages/default.aspx), Online, 23 June 2021, 15:00-17:00 (Geneva time)

NOTE – See §6.5.3 concerning cooperation with WHO in the area of AI for health.

### Artificial Intelligence for health

As part of its studies on new standardization areas, a Focus Group on AI for health was established from a proposal from World Health Organization (WHO) and other ITU members. The Chairman is Thomas Wiegand (Fraunhofer HHI, Germany) and it has a life span till October 2022. Vice-chairmen representing different key stakeholders working on AI for health have been nominated:

* Stephen Ibaraki (ACM and REDDS Capital, USA)
* Ramesh Krishnamurthy (WHO/Health Metrics and Measurement Cluster)
* Naomi Lee (The Lancet, UK)
* Sameer Pujari (Be Healthy Be Mobile Initiative and WHO/Non-communicable Diseases Cluster)
* Manjula Singh (ICMR, India)
* Shan Xu (CAICT, China)

The FG has seven established working groups and one in preparation ([ToRs](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Pages/wg.aspx)):

* Data and AI solution assessment methods (WG-DAISAM)  
  Chair: Pat Baird (Philips)  
  Vice-chair: Luis Oala (Fraunhofer HHI, DE)
* Data and AI solution handling (WG-DASH)  
  Chair: Marc Lecoultre (MLlab.AI, CH)  
  Vice chair: Ferhat Kerif (CHUV, CH)
* Operations (WG-O)  
  Co-chairs: Markus Wenzel and Monique (Fraunhofer HHI, Germany)
* Regulatory considerations on AI for health (WG-RC)  
  Chair: Naomi Lee (The Lancet, UK)  
  Vice-chairs:
* Paolo Alcini (European Medicines Agency, EU)
* Chandrashekar Ranga   
  (CDSCO, India)
* Khair ElZarrad (FDA, USA)
* Wolfgang Lauer (Federal Institute for Drugs and Medical Devices, Germany)
* Peng Liang (National Medical Products Administration, China)
* Ethical considerations on AI for health (WG-Ethics)  
  Chair: Andreas Reis (WHO)
* Clinical Evaluation (WG-CE)  
  Chair: Naomi Lee (The Lancet, UK)

The group works in partnership with the WHO and is a collaborative platform to establish a standardized (ICT) assessment framework for the evaluation of AI-based methods for health, diagnosis, triage or treatment decisions. It held one meeting since last TSAG meeting (online, 7-8 May 2020) and expanded the number of identified several use cases:

* Cardiovascular disease risk prediction (TG-Cardio)
* Dermatology (TG-Derma)
* Falls among the elderly (TG-Falls)
* Histopathology (TG-Histo)
* Malaria detection (TG-Malaria)
* Neurological disorders (TG-Neuro)
* Ophthalmology (TG-Ophthalmo)
* Outbreak detection (TG-Outbreaks)
* Psychiatry (TG-Psy)
* Snakebite and snake identification (TG-Snake)
* Symptom assessment (TG-Symptom)
* Tuberculosis (TG-TB)
* Volumetric chest computed tomography (TG-DiagnosticCT)
* Primary and secondary diabetes prediction (TG-Diabetes)
* Diagnoses of bacterial infection and anti-microbial resistance (AMR) (TG-Bacteria)
* Dental diagnostics and digital dentistry (TG-Dental)
* AI-based detection of falsified medicine (TG-FakeMed)
* Maternal and child health (TG-MCH)
* Radiotherapy (TG-Radiotherapy)
* Endoscopy (TG-Endoscopy)
* Musculoskeletal medicine (TG-MSK)
* Human reproduction and fertility (TG-Fertility)
* Point-of care diagnostics (TG-POC)
* Sanitation for public health (TG-Sanitation)

A detailed progress report for the June 2020 to April 2021 period is found in [SG16-TD470/Plen](https://www.itu.int/md/T17-SG16-210419-TD-PLEN-0470/en). Additional meetings held after the last SG16 are:

* Meeting L - Virtual meeting, 19-21 May 2021   
  [Announcement](https://www.itu.int/ml/lists/arc/fgai4h/2021-04/msg00000.html) - [Documents](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/Forms/210519.aspx) - [Report](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-L-101.docx) - [LS/in](https://www.itu.int/net/itu-t/ls/ols.aspx?from=-1&to=7952&after=2021-01-29&before=2021-05-22) - [LS/out](https://www.itu.int/net/itu-t/ls/ols.aspx?from=7952&after=2021-05-18&before=2021-05-22)
* Meeting M: Virtual meeting, 28-30 September 2021   
  [Announcement](https://www.itu.int/ml/lists/arc/fgai4h/2021-08/msg00005.html) - [Documents](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/Forms/210928.aspx) - [Report](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-M-101.docx) - [LS/in](https://www.itu.int/net/itu-t/ls/ols.aspx?from=-1&to=7952&after=2021-05-21&before=2021-09-28) - [LS/out](https://www.itu.int/net/itu-t/ls/ols.aspx?from=7952&after=2021-09-27&before=2021-10-01)

The next meeting is expected in Jan-Feb 2022 timeframe and then every two months (to be confirmed).

For more details, see <https://itu.int/go/fgai4h>.

## ITS

As part of its lead SG role in multimedia aspects of intelligent transport system (ITS) communications, SG16 addresses standardization for vehicular gateways and has recently launched studies in vehicular media. The lead Question in SG16 is Q27/16. SG16 also takes part of the Collaboration on Intelligent Transportation Systems Communication Standards (CITS), which is a collaboration platform coordinated under TSAG. An updated report on CITS activity is found in [TSAG-TD1051](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1051/en)

Work under ITS area was also progressed in SG17 Q13/17 on security aspects for Intelligent Transport Systems is working in close coordination with Q27/16 on standards for secure software updates, which have direct application for connected cars.

### Vehicular multimedia (FG-VM)

Since the creation of the FG-VM in July 2018, it has held 14 meetings, under the chairmanship of Mr Jun Harry Li (TIAA, China) as chairman and Ms Gaëlle Martin-Cocher (Interdigital, Canada) and Mr Kaname Tokita (Honda, Japan) as vice-chairmen.

The management team is:

* Chairman: Jun (Harry) Li (TIAA, People's Republic of China)
* Vice-chairmen: Gaëlle Martin-Cocher (Interdigital, Canada) and Kaname Tokita (Honda, Japan)

The progress report of this Focus Group for the June 2020 to April 2021 period can be found in [SG16-TD471/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0471).

Two draft specifications have been streamlined to SG16:

* [F.749.3 (ex F.VM-URVMN)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16484): Use cases and requirements for the vehicular multimedia networks
* [F.VM-VMA](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=17062): Architecture of vehicular multimedia systems (TAP)

For more information, check <https://itu.int/go/fgvm>.

### AI for autonomous and assisted driving (FG-AI4AD)

A detailed progress report since last SG16 meeting is found in [SG16-TD469/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0469).

The ITU-T Focus Group on AI for Autonomous and Assisted Driving (FG-AI4AD) was established by ITU-T SG16 at its meeting in Geneva, Switzerland, 7-17 October 2019. This Focus Group delves into the behavioural evaluation of the AI responsible for the dynamic driving task of a vehicle, in accordance with the 1949 and 1968 Convention on Road Traffic of the UNECE Global Forum for Road Safety. It aims to facilitate international harmonisation on the definition of a minimal performance threshold for these AD vehicles.

FG-AI4AD held seven meetings so far, the most recent on 6-7 October 2021. A future meeting is planned online in December 2021.

The webpage of the group is <https://www.itu.int/en/ITU-T/focusgroups/ai4ad> and the documentation is found at <https://extranet.itu.int/sites/itu-t/focusgroups/ai4ad>.

### Joint project team with ISO TC22/SC31/WG8 on vehicular domain service (JVDS)

The ISO/ITU Joint Project Team on Vehicular Domain Service (JVDS) was established in October 2019 by ITU-T SG16 and ISO TC22/SC31 to develop technically aligned standards for ITU-T Recommendations | ISO International Standards for vehicle domain service technologies that would enhance the current V2X communication mechanisms. The group is chaired by [Hideki Yamamoto](mailto:yamamoto436@oki.com) (OKI Electric, Japan), ITU-T SG16, and [Kaname Tokita](mailto:kaname_tokita@n.t.rd.honda.co.jp) (Honda, Japan), ISO/IEC TC22/SC31.

The most recent meetings were:

* JVDS & Q27/16 meeting - 2020-10-06/07 [[Announcement](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=11512&Group=16) / [meeting report](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0356)]
* JVDS meeting - 2020-11-17 [[Announcement](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=11561&Group=16) / [meeting report](https://www.itu.int/md/T17-SG16-210419-TD-WP2-0355)]

After an update in standardization priorities, WG8 decided to stop work on three future standards, after completing the work on the first one. Accordingly, SG16 agreed in April to disband the JVDS and to propose the one completed item for Consent at the next opportunity.

* [H.VDS-UC](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16372): Road vehicles - Vehicle domain service - General information and use case definitions

The group has various work items that are included in the Q27/16 work programme.

The group home page is <https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/jvds.aspx>, and the collaboration area is <https://extranet.itu.int/sites/itu-t/jointgroups/jvds>.

## Immersive Live Environments

No interim meetings were held on Immersive Live Environments (ILE). One Recommendation was approved after the July 2020 SG16 meeting, ITU-T H.430.5 (ex H.ILE-PE) "Reference models for ILE presentation environment". In April 2021, it was agreed to start a 2nd edition of ITU-T H.430.3 "*Service scenario of immersive live experience (ILE)*" and work on associated new Recommendation H.IIS-reqts "*Requirements of interactive immersive services*".

## Intersector Rapporteur Groups

### IRG-AVA

Q26/16 is part of the [IRG-AVA](https://www.itu.int/en/irg/ava/Pages/default.aspx), the *Intersector Rapporteur Group on Audiovisual Media Accessibility*. The SG16 co-chair in the group is Mr Masahito Kawamori (Keio University, Japan). The two recent meetings of the group were:

* 17th meeting: virtual, 25 June 2020 (1315-1445 hours CEST)  
  [Announcement](https://www.itu.int/ml/lists/arc/irgava/2020-06/msg00000.html) - [Agenda](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2006-001.docx) - [Report](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2006-002.docx) - [Transcript](https://extranet.itu.int/sites/irg/ava/_layouts/15/WopiFrame.aspx?sourcedoc=%7b700DD76E-6F0A-4170-933C-E87554A65E6C%7d&file=IRG-AVA-2006-000-Caption.docx&action=default) - [LS in](https://www.itu.int/net/itu-t/ls/ols.aspx?from=-1&to=2531&after=2019-10-09) - [LS Out](https://www.itu.int/net/itu-t/ls/ols.aspx?from=2531&after=2019-10-09) - [Documentation](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/Forms/2006VIR.aspx)
* 18th meeting: virtual, 20 October 2020 (1530-1730 hours CEST)  
  [Announcement](https://www.itu.int/ml/lists/arc/irgava/2020-08/msg00005.html) - [Agenda](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2010-001-R1.docx) - [Report](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2010-002.docx) - [Transcript](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2010-000-Captioning.docx) - [LS in](https://www.itu.int/net/itu-t/ls/ols.aspx?from=-1&to=2531&after=2019-25-06) - [LS Out](https://www.itu.int/net/itu-t/ls/ols.aspx?from=2531&after=2020-25-06) - [Documentation](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/Forms/2010VIR.aspx)
* 19th meeting: virtual, 9 April 2021, 1400-1630 hours CEST  
  [Announcement](https://www.itu.int/ml/lists/arc/irgava/2021-02/msg00001.html) - [Agenda](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2104-001.docx) - [Report](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2104-002.docx) – [Transcript](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2104-000-Captioning.docx) – [LS In](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=26395) – [LS Out](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=26447) - [Documentation](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/Forms/2104VIR.aspx)
* 20th meeting, fully virtual, 23 September 2021, 1430-1700 hours CEST  
  [Announcement](https://www.itu.int/ml/lists/arc/irgava/2021-08/msg00001.html) - [Agenda](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2109-001.docx) - [Report](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2109-002.docx) - [Transcript](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/IRG-AVA-2109-000-Captioning.docx) - [LS in](https://www.itu.int/net/itu-t/ls/ols.aspx?from=-1&to=2531&after=2021-04-09&before=2021-09-24) - [LS Out](https://www.itu.int/net/itu-t/ls/ols.aspx?from=2531&before=2022-01-17&after=2021-09-22) -[Documentation](https://extranet.itu.int/sites/irg/ava/Shared%20Documents/Forms/2109VIR.aspx)

The next meeting is not yet planned.

### IRG-IBB

Q13/16 is part of the IRG-IBB, the *Intersector Rapporteur Group on* *Integrated Broadcast-Broadband (IBB)*. The group's homepage is <http://itu.int/en/irg/ibb>. The co-chairs are [Ana Eliza Faria e Silva](mailto:ana.eliza@tvglobo.com.br) (Brazil; ITU-R SG6), [Satoshi Miyaji](mailto:sa-miyaji@kddi.com) (Japan; ITU-T SG9), and [Marcelo Moreno](mailto:%20moreno@ice.ufjf.br) (Brazil; ITU-T SG16).

IRG-IBB held its 11th meeting on 29 June 2020 and its 12th meeting on 21 April 2021, 13h15-14h45, co-timed with the ITU-T SG9 and ITU-T SG16 meetings. A co-timed meeting is planned with SG9 in November 2021.

## Various collaboration matters

Coordinated activity continued with inter alia MPEG and JPEG.

### ITU-T SG9

The Liaison Officer from SG9 into SG16 is Mr Jeong Yun Kim, ETRI, Korea (Rep. of).

Close coordination will be expected with SG9 on accessibility matters, as a new Question on accessibility was created within SG9. ITU-T SGs 9 and 16 take both part in two IRGs, IRG-AVA (§6.8.1) and IRG-IBB (§6.8.2).

The current list of LSs received from ITU-T SG9 are as given below:

| TD | Source | Title | Questions |
| --- | --- | --- | --- |
| [SG16-TD504/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0504) | ITU-T SG9 | LS/r on recent activities of Recommendations related to TVOS (IRG-IBB-LS5) [to IRG-IBB, ITU-T SG16, ITU-R WP6B] | Q13/16 |
| [SG16-TD559/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0559) | ITU-T SG9 | LS/r on smart TV operating system (IRG-IBB-LS6) | Q13/16 |
| [SG16-TD560/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0560) | ITU-T SG9 | LS on AAP Consent of draft new Recommendation ITU-T J.1611 "Functional requirements for Smart Home Gateway" | Q13/16 |
| [SG16-TD561/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0561) | ITU-T SG9 | LS on AAP Consent of draft new Recommendation ITU-T J.1301 (J.CBCMS-part1) "The specification of cloud-based converged media service to support IP and Broadcast Cable TV - Requirements" | Q13/16 |
| [SG16-TD562/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0562) | ITU-T SG9 | LS on AAP Consent of draft new Recommendation ITU-T J.208 (J.acf-hrm) "Harmonization of Integrated Broadcast-Broadband DTV application control framework" | Q13/16 |
| [SG16-TD574/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0574) | ITU-T SG9 | LS/r on the current text of new draft Recommendations J.cable-rf-ip "Requirements of cable network for RF and IP secondary distribution of television programmes" (SG16-LS196) | Q13/16 |
| [SG16-TD575/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0575) | ITU-T SG9 | LS/r on start of new draft Recommendations J.rfip-switching "RF/IP adaptive video distribution scheme over cable television networks" (SG16-LS195) | Q21/16, Q13/16 |
| [SG16-TD576/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0576) | ITU-T SG9 | LS on AAP Consent of draft new Recommendation ITU-T J.481 (ex J.cable-rf-ip) and J.482 (ex J.rfip-switching-req) | Q13/16 |

### ITU-T SG12

The Liaison Officer is vacant, following Mr Paul Coverdale's retirement. Areas of common interest continue to include:

* Quality assessment methods
* ITS and telepresence
* Safe listening (H.870)

The following LSs were received from SG12 for this meeting (one reply LS):

| TD | Source | Title | Questions |
| --- | --- | --- | --- |
| [SG16-TD526/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0526) | ITU-T SG12 | LS/r on consent of ITU-T F.749.3 "Use cases and requirements for vehicular multimedia networks" (SG16-LS206) | Q27/16 |
| [SG16-TD539/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0539) | ITU-T SG12 | LS/r on working practices using objective metrics for evaluation of video coding efficiency experiments (SG16-LS210) | Q6/16 |

### ITU-R

In addition to the IRG-AVA and IRG-IBB work, SG16 received or was copied in one information document from ITU-R:

| TD | Source | Title | Questions |
| --- | --- | --- | --- |
| [SG16-TD588/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0588) | ITU-R SG6 | LS/r on approval of new terms and definitions (SG16-LS163) [from ITU-R SG6] | Q13/16 |
| [SG16-TD551/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0551) | ITU-R WP 6B | LS/r on versatile video coding (VVC) (SG16-LS212) [from ITU-R WP 6B] | Q6/16 |
| [SG16-TD586/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0586) | ITU-R WP 6B | LS/r on AAP Consent of draft new Recommendation ITU-T J.208 (J.acf-hrm) "Harmonization of Integrated Broadcast-Broadband DTV application control framework" (reply to SG9-LS118) [from ITU-R WP 6B to ITU-T SG9] | Q13/16 |
| [SG16-TD538/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0538) | ITU-R WP 6C | LS/r on versatile video coding (VVC) (SG16-LS212) [from ITU-R WP 6C] | Q6/16 |
| [SG16-TD587/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0587) | ITU-R WP 6C | LS on Working Party 6C Contributions that may be informative to the studies of IRG AVA on accessible disaster management systems [from ITU-R WP 6C to IRG AVA] | Q26/16 |

### ITU-D

SG16 received or was copied in one information document from ITU-D:

| TD | Source | Title | Questions |
| --- | --- | --- | --- |
| [SG16-TD598/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0598) | ITU-D Q5/2 | LS on the output Report on Question 5/2 | Q28/16, Q13/16 |
| [SG16-TD546/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0546) | ITU-D Q2/1 | LS on comments and information on the draft final report of ITU-D Question 2/1 | Q13/16 |
| [SG16-TD595/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0595) | ITU-D Q3/2 | LS on Output Report of ITU-D Question 3/2 | Q26/16 |
| [SG16-TD549/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0549) | ITU-D Q5/2 | LS on the Final Report of ITU-D Q5/2 and draft future work of ITU-D Q5/2 to WTDC-21 | Q13/16 |

### IEC TC100 and IEC SyC AAL

The last meeting of the IEC TC 100 ad hoc group for coordination with other SDOs took place in Geneva, Sat. 21 January 2017 PM, at ITU HQs. A draft report was reviewed in Macau as [SG16-TD110/Plen](https://www.itu.int/md/T17-SG16-171016-TD-Plen-0110).

No LS was received from IEC TC 100 in the interim period.

No LSs was received from the IEC system committee on active assisted living (IEC SyC AAL), for Q26/16 in the interim period

### ISO/IEC JTC 1

None at this meeting.

### Video and image coding

Work has been completed on four twin texts within the JVET, which are now approved:

* ITU-T H.264 V14 "*Advanced video coding for generic audiovisual services*" (Rev.)
* ITU-T H.265 V8 "*High efficiency video coding*" (Rev.)
* ITU-T H.273 V2 "*Coding-independent code points for video signal type identification*" (Rev.)
* ITU-T H.Sup19 V3 "*Usage of video signal type code points*" (Rev.)

#### ISO/IEC JTC1 SC 29

The Liaison Officer is Mr Gary Sullivan (Microsoft, USA).

SC29 held two sets of plenary meetings by teleconference since the previous meeting of SG16. These meetings were held on 15–17 July 2020 and 26–28 January 2021.

The restructuring plan for SC29 that was reported to SG16 at its previous meeting has since been put into place, such that some of the prior subgroups of the former WG 11 (MPEG) have become distinct MPEG working groups (WGs) and advisory groups (AGs) of SC29 rather than subgroups of one of its WGs, as illustrated in Figure 1. The MPEG community has become an affiliated group of WGs and AGs that has continued meeting together according to previous MPEG meeting practices (thus far by teleconference) and will continue to progress the standardization activities of the MPEG work programme. The internal restructuring took effect after the July 2020 meeting of SC29, and most of the new convenorships are now held by the same persons who chaired corresponding subgroups within MPEG.

Chart

Description automatically generated

Figure 1: Structure of ISO/IEC JTC1/SC29, effective July 2020

SC29 agreed with SG16's proposal to merge the former Joint Collaborative Team on Video Coding (JCT-VC) into the Joint Video Experts Team (JVET) and to broaden its Terms of Reference to include all joint work with SG16 on video coding subjects. The resulting team is designated as WG 5 and reports directly to SC29 on its side. See [TD476/Plen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-PLEN-0476) for the updated JVET ToR.

Effective at the beginning of 2021, the end of the term of the prior chair of SC29, Mr Teruhiko Suzuki (Sony, Japan), was reached and Mr Gary Sullivan (Microsoft, USA) became the new chair of SC29 by JTC1 appointment. (Mr Sullivan has also been serving within SG16 as Rapporteur of Q6/16, co-chair of JVET, and Liaison Officer to SC29.)

Meetings of nearly all of the various working groups and advisory groups of SC29 are being held by teleconference during the current meeting of SG16, and some joint sessions are planned, including those further noted below.

In addition to the topics of joint work with SG16 as further described below, a substantial amount of other work in SC29 is highly relevant to SG16.

The following is a compilation of the LS received from SC29 (including its WGs).

|  |  |  |  |
| --- | --- | --- | --- |
| [SG16-TD535/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0535) | ISO/IEC JTC1/‌SC29 | LS/r on video coding collaboration (SG16-LS186) | Q6/16 |
| [SG16-TD533/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0533) | ISO/IEC JTC1/‌SC29/WG1 | LS/r on JPEG 2000 (SG16-LS211) | Q6/16 |
| [SG16-TD536/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0536) | ISO/IEC JTC1/‌SC29/WG1 | LS/r on progress of SG16 activities on distributed ledger technologies (DLT) and e-services (SG16-LS200) | Q22/16 |
| [SG16-TD537/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0537) | ISO/IEC JTC1/‌SC29/WG1 | LS on JPEG AI ongoing activity on learning-based image compression | Q6/16 |
| [SG16-TD578/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0578) | ISO/IEC JTC1/SC29/WG1 | LS/r on withdrawal of option 3 patent declaration for ITU-T T.814 | ISO/IEC 15444-15 (SG16-LS211) | Q6/16 |
| [SG16-TD581/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0581) | ISO/IEC JTC1/SC29/WG1 | LS/r on JPEG AI activities (SG16-LS182) | Q6/16, Q5/16 |
| [SG16-TD532/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0532) | ISO/IEC JTC1/‌SC29/WG11 | LS/r on video coding collaboration (SG16-LS185) | Q8/16, Q6/16, Q12/16 |
| [SG16-TD558/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0558) | ISO/IEC JTC1/SC29/WG3 | LS/r on new ITU-T Rec. for reference models for ILE presentation environment (SG16-LS213) | Q8/16 |

#### ISO/IEC JTC1 SC 29/WG 1 (JPEG)

The Liaison Officer is Mr Gary Sullivan (Microsoft, USA).

Historically, the JPEG group is a joint collaborative team between ITU‑T (now in SG16 Q6/16, historically previously in ITU-T SG8) and ISO/IEC JTC1 SC29/WG 1. A number of texts in the area of image coding, including the T.8x (JPEG), T.80x (JPEG 2000) and T.83x (JPEG XR) series, are common or twin ISO/IEC and ITU‑T texts.

Meetings of JPEG since the last meeting of SG16 have been held by teleconference during 7–10 July 2020, 5–9 October 2020, and 18–22 January 2021, and a meeting of JPEG is being held during 19–23 April 2021 in parallel with the current meeting of SG16. A joint session with Q5/16 and Q6/16 has been planned for the afternoon of 22 April 2021 at 1600 hours (Geneva time) for coordination; see the time plan in [SG16-TD455-R1/PLEN](https://ituint-my.sharepoint.com/:w:/g/personal/simao_campos_itu_int/EckCtJLFeLFJhXNr444Se6sBvUlD5D5b5bavjuKSNF8JDQ?e=L0cPss).

Revisions of several common text Recommendations are under development in JPEG, including the following candidates for Consent at the current meeting: T.801 v2 JPEG 2000 extensions, T.803 v2 conformance testing, T.804 v3 reference software for JPEG 2000, T.815 V2 encapsulation of JPEG 2000 images into ISO/IEC 23008-12, and T.873 reference software for the original JPEG standard.

At the previous meeting of SG16, the receipt of a "type 3" patent rights declaration (unwillingness for RAND licensing) for Rec. T.814 | ISO/IEC 15444-15 was noted. This issue was resolved in the interim period, as the submitter withdrew their submitted statement. No further action on that matter appears necessary.

A longer-term work item is T.816 V2 JPEG 2000 extensions for coding discontinuous media, targeting Consent in late 2022.

JPEG has also begun a new project called JPEG AI for coding of images using artificial intelligence / neural network technology.

Recent other work within JPEG includes such projects as JPEG XS backward-compatible extensions of the older JPEG coding format (including raw sensor compression), 360° omnidirectional image representation, JPEG Pleno for coding of such information as 3D light fields, JPEG XL image compression with support of reversible transcoding of images encoded using the older JPEG coding format, and systems and file format support for image coding. This other recent new work has so far not been planned within SG16 for joint approval by ITU‑T.

JPEG has also recently been conducting exploration studies on the impact of fake media with mitigation efforts via provenance information, on blockchain / distributed ledger applications for media technology, and on the storage of images using DNA molecules.

Updated information about JPEG work is provided in incoming liaison statements [SG16-TD533/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0533), [SG16-TD536/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0536), [SG16-TD537/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0537), [SG16-TD578/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0578), and [SG16-TD581/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0581) to SG16.

#### ISO/IEC JTC1 SC29/ WG5 (JVET)

The Liaison Officer is Mr Gary Sullivan (Microsoft, USA).

The video coding work conducted collaboratively with SC29/WG 5 (formerly SC29/WG 11) has been very active, attracting 250–350 participants and about 75 contributions for the recent and current meetings.

Video coding work was formerly conducted jointly with ISO/IEC JTC1/SC29/WG 11 (MPEG), especially in two joint collaborative teams (JCTs) known as the Joint Video Experts Team (JVET) and the Joint Collaborative Team on Video Coding (JCT-VC). In the interim period since the last meeting of SG16, SC29 was restructured as described above, and the work of JCT-VC was merged into JVET, which was designated as WG 5 in SC29. These arrangements were confirmed by SG16 at the April 2021 meeting.

A meeting of JVET is being held by teleconference along with the current ITU‑T SG16 meeting under its auspices. The activities in JVET are managed on the ITU‑T side by Q6/16. JVET is tasked with the development, maintenance and extension of the jointly developed video coding standards in the domain of SG16 and SC29, and with exploration work on potential additional such future standards development projects relating to video coding. It is also maintains the specification of Coding-Independent Code Points for Video Signal Type Identification (CICP, Rec. ITU-T H.273, twin text with ISO/IEC 23091-2) and develops reports on non-normative topics relating to video coding such as (including H.Sup15, H.Sup18, and H.Sup19, and HSTP-VID-WPOM which are twin texts with ISO/IEC technical reports) and reference software and conformance testing specifications relating to the jointly developed video coding specifications.

Most notably, at the previous meeting of SG16, Consent was reached on Versatile Video Coding (VVC) and the closely associated specification of Versatile Supplemental Enhancement Information (VSEI), and these texts were approved in the interim period without comment as Rec. ITU-T H.266, (with technically aligned twin text in ISO/IEC 23090-3) and Rec. H.274 (with technically aligned twin text in ISO/IEC 23002 7), respectively.

A meeting of JVET was also held by teleconference together with the previous meeting of SG16, and two additional meetings of JVET were held during 7–16 October 2020 and during 6–15 January 2021 since the previous meeting of SG16.

The following candidates for Consent or Approval at the current meeting are under development in JVET: H.273 v2 Coding-Independent Code Points for Video Signal Type Identification (CICP), H.265 v8 High Efficiency Video Coding (HEVC, including a shutter interval information SEI message), H.264 v14 Advanced Video Coding (AVC, including annotated regions and shutter interval information SEI messages), and H.Sup19 v3 Usage of video signal type code points (UVSTP).

Other work in SC29 relating to video coding that is not conducted jointly with SG16 is noted to also be under way or recently completed, especially in SC29/WG 4. This includes such topics as the recently completed "Essential Video Coding" and "Low-Complexity Enhancement Video Coding", and "MPEG Immersive Video" using metadata with existing video coding technology, video-based and graphics-based point cloud coding, and exploration work on "Video Coding for Machines".

Updated information about JVET work and video coding collaboration with ISO/IEC JTC1/SC29 is provided in incoming liaison statements [SG16-TD532/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0532) and [SG16-TD535/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0535) to SG16.

### ISO TC22 SC31 WG8

See §6.6.3 concerning the joint project team on vehicular domain service (JVDS) between SG16 and ISO TC22 SC31 WG8, which has been disbanded.

### Other groups

New organizations requested relationship with SG16, in particular the following liaison representatives to SG16 were nominated:

| Group | Representative from that group in SG16 |
| --- | --- |
| CEN/CENELEC JTC19 [Blockchain and distributed ledger technologies](https://standards.cen.eu/dyn/www/f?p=204:22:0::::FSP_ORG_ID,FSP_LANG_ID:2702172,25&cs=1C5DF4D2E1D80EA24F5896718E20EA6F3) | Mr Andrea Caccia  E-mail: [andrea.caccia@studiocaccia.com](mailto:andrea.caccia@studiocaccia.com) |
| CEN/TC 434 [Electronic Invoicing](https://sd.cen.eu/documents/ui/#!/browse/cen/cen-tc-434) (on DLT) | Mrs Ulrike Linde  E-mail: [ulrike.linde@colinde.de](mailto:ulrike.linde@colinde.de) |

In addition, the following LS was received:

| TD | Source | Title | Questions |
| --- | --- | --- | --- |
| [SG16-TD524/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0524) | CEN-CENELEC JTC19 | LS on CEN-CENELEC JTC 019 launched | Q22/16 |
| [SG16-TD557/Gen](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG16-210419-TD-GEN-0557) | INATBA | LS on increased collaboration for DLT standardization studies and A.4/A.5 qualification | Q22/16 |

Other groups of interest for SG16 include [ITU-T JCA-IoT&SCC](https://www.itu.int/en/ITU-T/jca/iot), [JCA-IMT2020](https://www.itu.int/en/ITU-T/jca/imt2020).

No particular reports were provided for the following groups:

| Group | SG16 representative in that group |
| --- | --- |
| [ISO TC 215](http://www.iso.org/iso/iso_technical_committee?commid=54960) Health informatics (on e-health) | Mr Masahito Kawamori Email: [masahito.kawamori@ties.itu.int](mailto:masahito.kawamori@ties.itu.int) |
| [W3C](http://www.w3.org/) World Wide Web Consortium (IPTV and e-health) | Mr Masahito Kawamori Email: [masahito.kawamori@ties.itu.int](mailto:masahito.kawamori@ties.itu.int) |

## Bridging the standardization gap (BSG)

The mentor in ITU-T SG16 is Mr Hideki Yamamoto (OKI Electric, Japan). No particular BSG-related activities were held under SG16 since the last TSAG meeting. One leadership training session was provided by TSB to interested delegates on during Session 3 of Wed 21 April 2021. A recording of the session is available.[[1]](#footnote-1)

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1. [https://www.itu.zoom.us/rec/share/PlBI3bx2yhA-RAmea\_0928qQl5ix4IDxbGWqO5ROqMLEOekO8cUi1DrNneNbYw‌4x.7\_xWydS2LgFISz13](https://itu.zoom.us/rec/share/PlBI3bx2yhA-RAmea_0928qQl5ix4IDxbGWqO5ROqMLEOekO8cUi1DrNneNbYw4x.7_xWydS2LgFISz13) [↑](#footnote-ref-1)