Access Network Transport

Standards Work Plan

November 2023 Q1/15 meeting

Contact persons for the project updating:

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Access Network Transport is an ITU-T Project dealing with studies and Recommendations on the Access Network. The present Access Network Transport (ANT) Standards Work Plan is part of
ITU-T SG15 Lead Study Group activities on coordination of Access Network Transport standards.

Access Network Transport Standards Work Plan

**Issue 37, November 2023**

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| **Revision Status Report: Major Updates of Version 37, November 2023** |
| In this version 37, following changes, additions and updates have been made.1) Section 3.1 - Ongoing standardization activities in the area of Access Network Transportwithin ITU-T SG15The list of ongoing standardization activities in the area of Access Network Transport within ITU-T SG15 has been updated.* The table of Q2/15 and Q4/15 work items has been updated with the latest Q2/15 and Q4/15 activities resulting from ITU-T SG15 - WP1 November 2023 plenary meeting.
* The table of Q5/15 and Q7/15 work items related to the optical physical infrastructures (e.g., fibre and cable, optical node) has been updated with the latest Q5/15 and Q7/15 activities resulting from ITU-T SG15 - WP2 November 2023 plenary meeting.

 2) Section 3.2 - List of ongoing standardization activities in the area of Access Network Transport in other groups within ITU and other Standards Development OrganizationsThe list has been updated with the incoming liaisons from other ITU SGs and SDOs and reports from liaison Rapporteurs of ITU-T SG15.3) Section 4 – List of Contacts has been updated 4) Section 5 – Lead Study Group activities related to the ANT Standards Overview and Work Plan has been updated. |

Access Network Transport Standards Work Plan

**Issue 37, November 2023**

General… 4

Introduction 4

1. Scope 4

2. General Access Network architecture  5

3. Ongoing standardization activities in the Area of Access Network Transport 7

3.1 Ongoing standardization activities in the area of Access Network Transport

 within ITU-T SG15  7

3.2 Ongoing standardization activities in the area of Access Network Transport in

 other groups within ITU and other Standards Development Organizations 12

4. List of Contacts 33

5. Lead Study Group activities related to the ANT Standards Overview and Work
 Plan 40

ACCESS NETWORK TRANSPORT STANDARDS WORK PLAN

ISSUE 37, NOVEMBER 2023

# General

ANT Standards Work Plan is a living document. The actual version is available at <http://www.itu.int/en/ITU-T/studygroups/com15/Pages/ant.aspx> .

# Introduction

Today's global communications world has obscured traditional boundaries in network access between Telecommunication Network Operators, Communication Services Providers, Satellite and Cable TV Networks, Mobile Networks and Information Technologies. This has resulted in several different Study Groups within the ITU-T, e.g., SG 9, 13, 15 developing Recommendations related to transport in the access. Moreover, ITU-R and other standards bodies, fora and consortia are also active in this area.

Recognizing that without a strong coordination effort there is the danger of duplication of work as well as the development of incompatible and non-interoperable standards, the WTSC 96 designated Study Group 15 as **Lead Study Group** on **Access Network Transport (ANT) - reaffirmed at the WTSA-20 -** with the mandate to:

1. study the appropriate core Questions (Question 2/15 and Question 4/15),
2. define and maintain an overall (standards) framework, in collaboration with other SGs and standards bodies
3. coordinate, assign and prioritize the studies done by the Study Groups (recognizing their mandates) to ensure the development of consistent, complete and timely Recommendations.

Study Group 15 entrusted Working Party 1/15 (Transport aspects of access, home and smart grid networks), under Question 1/15, with the task to manage and carry out the Lead Study Group activities on coordination of Access Network Transport standards.

# 1. Scope

As the mandate of this Lead Study Group role implies, the standards area covered relates to transport, i.e., Circuit Layer (CL), Path Layer (PL) and Transmission Media Layer (TM) in terms of the general protocol reference model for the Access Network ITU-T Recommendation G.902, Fig. 2/G.902.
The corresponding transport functions include:

1. multiplexing function
2. cross connect function, including grooming and configuration
3. management functions
4. physical media functions.

The outcome of the Lead Study Group activities is twofold, consisting of an:

* Access Network Transport (ANT) Standards Overview
* Access Network Transport (ANT) Standards Work Plan

The main purpose of **the Standards Overview** is to identify the existing standards related to the Access Network Transport technologies.

The main purpose of **the Standards Work Plan** is to:

* define a corresponding matrix table, including the various standards organizations,
* provide an overview of ongoing ANT activities,
* monitor progress of ANT standards work,
1. facilitate the coordination/negotiation for additional standards work on ANT to be undertaken,
2. identify lack of standards,
3. identify duplication and/or overlap,
4. discover priorities and market needs.

The **Work Plan** reflects the agreement reached between the parties concerned on the necessary actions to remedy the deficiencies identified.

Apart from taking the Lead Study Group role within the ITU-T, Study Group 15 also endeavor to cooperate with ITU-R and other relevant organizations, such as Broadband Forum, ETSI, IEEE , ISO/IEC, etc..

# 2.  General Access Network architecture

**Access Network Transport (ANT)**

Based on definitions specified in ITU-T Rec. G.902 the Access Network (AN) provides transport bearer capabilities for the provision of telecommunications services inside of the AN between a service node interface (SNI) providing customer access to a service node and each of the associated interfaces towards the Customer Premises Network(s) which are being grouped as user network interfaces (UNIs). An Access Network implementation comprises transmission media and access network element (NE) entities.
An Access Network is delimited by its interfaces. Users are connected via a User Network Interface (UNI) to the network. The AN is connected to the Service Node (SN) via the Service Node Interface (SNI) and to the Telecommunication Management Network (TMN) via a Q3 interface.
Figure 1 “General Access Network architecture and boundaries” shows the AN with the UNI, SNI and Q3 interface as the boundaries to other network entities.



Figure 1 “General Access Network architecture and boundaries” (from ITU-T G.902)

An Access Network element can be configured and managed through a Q3interface which may be implemented at the Q reference point. This Q reference point is the access point for management information, configuration control, performance monitoring and maintenance as defined in ITU-T Rec. M.3010.

In principle there are no restrictions on the types and number of SNIs and UNIs which an Access Network may implement. The Access Network does not include Customer Premises Networks and/or terminal equipment respectively.

**Functions of Access Network Transport (ANT)**

The Transport Function (TF) provides the paths for the transport of common bearers between different locations in the Access Network (AN) and the media adaptation for the relevant transmission media used.

Examples of transport functions are:

1. multiplexing function,
2. cross connect function including grooming, on demand connection and configuration,
3. management functions,
4. physical media function.

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## 3. Ongoing standardization activities in the area of Access Network Transport

**3.1 Ongoing standardization activities in the area of Access Network Transport within ITU-T SG15**Question 2/15 and Question 4/15 of ITU-T SG15 – WP1/15 are responsible for Access Network Transport standardization activities.
Q2/15 addresses “Optical systems for fibre access networks” and Q4/15 the “Broadband access over metallic conductors”.The table below of Q2/15 and Q4/15 current work items has been updated with the latest Q2/15 and Q4/15 activities resulting from ITU-T SG15 - WP1 November 2023 plenary meeting

| **Work item** | **Question** | **Status** | **Timing** | **Approval process** | **Subject / Title** | **Base text** | **Editor(s)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| [G.988 Amd.1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18857) | Q2/15 | Consented | 2023-12 | AAP | ONU management and control interface (OMCI) specification | TD-256R1/PLEN | Yuanqiu Luo (Futurewei Technologies),Marta Seda (Calix) |
| G.988 Amd.2 | Q2/15 | Under Study | 2024-07 | AAP | ONU management and control interface (OMCI) specification | TD-256R1/PLEN | Yuanqiu Luo (Futurewei Technologies),Marta Seda (Calix) |
| [G.9802](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18254) | Q2/15 | Under study | 2024-07 | AAP | Multiple-wavelength passive optical networks (MW-PONs) | TBD | Yuanqiu Luo (Futurewei Technologies),Dechao Zhang (China Mobile) |
| [G.9802.2 (2022) Amd.1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18853) | Q2/15 | Under study | 2024-07 | AAP | Wavelength Division Multiplexed Passive Optical Network: Physical media dependent (PMD) and Transmission Convergence (TC) Amd.1 | TBD | Peter Dawes (Vodafone Group),Derek Nesset (Huawei Technologies) |
| [G.9804.1 (2019) Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18279) | Q2/15 | Consented | 2023-12 | AAP | Higher Speed Passive Optical Networks: Requirements - Amendment 2 | TD-261/PLEN | Dezhi (James) Zhang (China Telecom) |
| [G.9804.2 (2021) Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18854) | Q2/15 | Under study | 2024-07 | AAP | Higher Speed Passive Optical Networks: Common Transmission Convergence layer Specification - Amendment 2 | TD-126/WP1 | Dan Geng (Nokia Shanghai Bell Co. Ltd.),Yuanqiu Luo (Futurewei Technologies) |
| [G.9804.3 (2021) Amd 2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18855) | Q2/15 | Consented | 2023-12 | AAP | 50-Gigabit-capable passive optical networks (50G-PON): Physical media dependent (PMD) layer specification Amendment 2 | TD-274R1/PLEN | Rene Bonk (Nokia),Dekun Liu (Huawei Technologies),Dechao Zhang (China Mobile) |
| [G.9806 Amd.3](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18250) | Q2/15 | Consented | 2023-12 | AAP | Higher-speed bidirectional, single fibre, point-to-point optical access system (HS-PtP) - Amendment 3 | TD-241R2/PLEN | Hugues Le Bras (Orange),Jun Shan Wey (Verizon) |
| [G.hsp.TWDMpmd](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18206) | Q2/15 | Under study | 2025- | AAP | Higher Speed Passive Optical Networks: TWDM PMD | TD-58/WP1 | Christopher Bernard (Calix Networks, Inc.),Richard Goodson (Adtran) |
| [G.sup.eOLT](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18282) | Q2/15 | Under study | 2024-07 | Agreement | Enhanced optical line termination with IT functions | TD-218/PLEN | Wu Jia (China Unicom),Yi Jiang (ZTE),Haomian Zheng (Huawei) |
| [G.sup.OANops](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18862) | Q2/15 | Under study | 2024-07 | Agreement | Operational aspects of optical access | TD-206/WP1 | Hugues Le Bras (Orange),Denis A. Khotimsky (Verizon) |
| [G.sup.PONlatency](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18281) | Q2/15 | Agreed | 2023-12 | Agreement | Latency control and deterministic capability over a PON system | TD-262R1/PLEN | Xuming Wu (Huawei Technologies Co., Ltd),Dezhi (James) Zhang (China Telecom) |
| [G.sup.PONsec](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18863) | Q2/15 | Under study | 2024-07 | Agreement | Practical aspects of PON security | TD-207/WP1 | Denis A. Khotimsky (Verizon),Dekun Liu (Huawei Technologies),Dezhi (James) Zhang (China Telecom) |
| [G.suppl.55](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18555) | Q2/15 | Agreed | 2023-12 | Agreement | Radio over Fiber Systems | TD-267R1/PLEN | Toshiaki Kuri (NICT) |
| G.suppl.71 Revised | Q2/15 | Agreed | 2023-12 | Agreement | Optical line termination capabilities for supporting cooperative dynamic bandwidth assignment | TD-268R1/PLEN | François Fredricx (Nokia) |
| [G.suppl.VHSP](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18554) | Q2/15 | Under study | 2025 | Agreement | PON transmission technologies above 50 Gb/s per wavelength | TD-214/WP1 | Dezhi (James) Zhang (China Telecom),Bhushan Padhiar (AT&T),Jun Shan Wey (Verizon) |
| G.9805 Amd.2 | Q2/15 | Under study | 2025 | AAP | Coexistence of Passive Optical Network Systems Amendment 2 | TBD | Dezhi Zhang (China Telecom), Dekun Liu (Huawei) |
| G.suppl.FTTGrid | Q2/15 | Under study | 2025 | Agreement | Fibre to the grid use cases and network requirements | TBD | Kaiqiang Gao (State Grid Corporation), Yuanqiu Luo (Futurewei Technologies) |
| G.suppl.CMAFP | Q2/15 and Q3/15 | Under study | 2025 | Agreement | Coordinated management of access and fibre in premises networks | TBD | Ning Wang (China Mobile), Xuming Wu (Huawei), Hai Ding (China Unicom) |

**Work item**: Short name identifying a (draft or approved) Recommendation or other text. It may be a provisional name or the final publication designation (e.g. H.264)
**Question**: Number of the Question responsible for the development of a work item
**Status**: Current Approval state of a work item
**Timing**: Best current estimate of the expected year and month of Determination (TAP), Consent (AAP), or Agreement (non-normative materials) of a work item
**Approval process**: One of: Traditional Approval Process (TAP); Alternative Approval Process (AAP); or Agreement
**Subject / Title**: Best current expectation of the full name of a work item
**Base text(s)**: Previous published version of a work item and/or its latest draft. It may also include reference to A.5 justification documentation.
**Editor(s)**: Person(s) responsible for coordinating development of a work item

Question 5/15 and Question 7/15 of ITU-T SG15 – WP2/15 are responsible for the standardization of components for the optical physical infrastructures (e.g., fibre and cable, optical node).
Q5/15 addresses “Characteristics and test methods of optical fibres and cables, and installation guidance” and Q7/15 the “Connectivity, operation and maintenance of optical physical infrastructures”.

The table below of Q5/15 and Q7/15 current work items related to the optical physical infrastructures (e.g., fibre and cable, optical node) has been updated with the latest Q5/15 and Q7/15 activities resulting from ITU-T SG15 - WP2 November 2023 plenary meeting.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Work item** | **Question** | **Timing** | **Approval process** | **Version** | **Liaison relationship** | **Subject / Title** | **Priority** | **Reference(s)** | **Editor(s)** |
| [TR-OFCS](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18852) | WP2/15 | 2024 | Agreement | Rev. | - | Optical fibres, cables and systems | Medium | <https://www.itu.int/pub/T-TUT-HOME-2015-OFCS> | Sudipta Bhaumik (Sterlite Technologies Limited (STL)) |
| [G.650.1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18292) | Q5/15 | 2023-12 | AAP | Rev. | IEC SC86A, IEC SC86B | Definitions and test methods for linear, deterministic attributes of single-mode fibre and cable | High | [SG15-TD61-R1/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0061) | Tsukasa Hosokawa (Communication Line Products Association of Japan), |
| Jing Li (YOFC) |
| [G.654](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18293) | Q5/15 | 2024 | AAP | Rev. | Q6/15, Q8/15, IEC SC86A | Characteristics of a cut-off shifted single-mode optical fibre and cable | Medium | [SG15-TD63/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0063) | Yoshinori Yamamoto (CLPAJ) |
| [G.657](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18841) | Q5/15 | 2024 | AAP | Rev. | Q2/15, Q6/15, IEC SC86A | Characteristics of a bending-loss insensitive single-mode optical fibre and cable | Medium | [SG15-TD70/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0070) | Vincent Ferretti (Corning) |
| [G.Sup.40](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18843) | Q5/15 | 2024 | Agreement | Rev. | Q6/15, Q8/15, IEC SC86A | Optical fibre and cable Recommendations and standards guideline | Medium | [SG15-C377 (2023-04)](http://www.itu.int/md/T22-SG15-C-0377) | Yuto Sagae (NTT) |
| [L.100 (2021) Amd.1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18842) | Q5/15 | 2023-12 | AAP | - | IEC SC86A | Optical fibre cables for duct and tunnel application | Medium | [SG15-C345-R1 (2023-03)](http://www.itu.int/md/T22-SG15-C-0345) | Yuki Niiyama (CLPAJ) |
| [L.109](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18294) | Q5/15 | 2024 | AAP | Rev. | IEC SC86A, IEC SC86B, IEC SC46C JWG8, IEEE802.3 | Construction of optical/metallic hybrid cables | Medium | [SG15-TD56-R1/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0056) | Yuki Niiyama (CLPAJ) |
| [L.250/L.90](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18264) | Q7/15 | 2023-12 | AAP | Rev. | ITU-T SG15 Q2/15,IEC SC86A, IEC SC86B | Topologies for optical access network | High | [SG15-TD74-R1/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0074) | Han Chao (CAICT, MIIT) |
| [L.312/L.68](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18624) | Q7/15 | 2023-12 | AAP | Rev. | IEC SC86C | Optical fibre cable maintenance support, monitoring and testing system for optical fibre cable networks carrying high total optical power | Medium | [SG15-TD80/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0080) | Shikui Shen (China Unicom) |
| [L.341/L.88](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18847) | Q7/15 | 2025 | AAP | Rev. | - | Maintenance of telecommunication poles and overhead facilities | Medium | [In-force L.341/L.88 (2010-07)](https://www.itu.int/rec/T-REC-L.341/en) | Chihiro Kito (NTT) |
| [L.360/L.80](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18848) | Q7/15 | 2025 | AAP | Rev. | - | Operations support system requirements for infrastructure and network elements management using ID technology | Medium | [In-force L.360/L.90 (2008-05)](https://www.itu.int/rec/T-REC-L.360/en) | Chao Han (CAICT, MIIT) |
| [L.pcc](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18849) | Q7/15 | 2025 | AAP | New | IEC SC86A, IEC SC86B | Pre-connectorised cabling components for FTTx infrastructures | Medium | [SG15-C126 (2022-09) ,](http://www.itu.int/md/T22-SG15-C-0126) | David Kozischek (Corning) |
| [SG15-C352 (2023-03)](http://www.itu.int/md/T22-SG15-C-0352) |
| [L.Suppl.fttx](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18850) | Q7/15 | 2023-12 | Agreement | New | Q2/15, Q5/15, Q6/15 | National experiences for FTTx network architectures | Medium | [SG15-TD86/WP2 (2023-04)](http://www.itu.int/md/T22-SG15-230417-TD-WP2-0086) | Chao Han (CAICT, MIIT) |

Work Programme of ITU-T SG15 can be found at <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=15>

More information about ITU-T SG15 can be found at <https://www.itu.int/en/ITU-T/studygroups/2022-2024/15/Pages/default.aspx>

**3.2 Ongoing standardization activities in the area of Access Network Transport in other groups within ITU and other Standards Development Organizations**

The following list provides information on the Work Plans and ongoing ANT activities of various standardization groups outside ITU-T SG15. This list is intended to improve understanding of the ongoing work in the different standardization groups and may help identify possible gaps or overlaps.

|  |  |  |  |
| --- | --- | --- | --- |
| Item No. | Source | Subject / Title | Comment |
|  | **ITU-T SG9** *SG15 TD 158 WP1Nov - Dec 2023**SG15 TD 191 GEN**Nov – Dec 2023**SG15 TD 192 GEN Nov – Dec 2023* | **ITU-T SG9: Audio-visual content transmission and integrated broadband cable networks** ITU-T SG9 informs ITU-T SG15 that during its meeting held from 9 to 18 May 2023 SG9 has consented several Recommendations relevant to the ANT and therefore invites SG15 to update the “Access Network Transport (ANT) Standards Overview and Work Plan” accordingly with:- Revision ITU-T J.224 “Fifth-generation transmission systems for interactive cable television services - IP cable modems” (Published on 07/2023),- Revision ITU-T J.225 “Fourth-generation transmission systems for interactive cable television services - IP cable modems” (Published on 07/2023),- New ITU-T J.152 “Requirements for cable television services to use 5G radio system” (Published on 07/2023), - New ITU-T J.484 “Requirements of multicast adaptive bit rate (M-ABR) IP delivery” (Referred to Study Group Approval).SG9 also agreed revision J Suppl. 10 (05/2023) “Correspondence between CableLabs DOCSIS Specifications and ITU-T J-series Recommendations”. ITU-T SG9 informs that during its meeting held on 9-18 May 2023, Bangalore, India, SG9 has initiated a new work item, candidate to be published as ITU-T Supplement, on J.Sup-HiNoC “Comparison between third-generation HiNoC and second-generation HiNoC”. SG9 also informs on the latest progress on the draft Recommendations J.HiNoC3-PHY and J.HiNoC3-MACWork Programme of ITU-T SG9 can be found at following URL<https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=9> | More information about ITU-T SG9 can be found at following URL<https://www.itu.int/en/ITU-T/studygroups/2022-2024/09/Pages/default.aspx> |
|  | **ITU-T SG11***SG15 TD 178 GENNov – Dec 2023* | **ITU-T SG11: Signalling requirements, protocols, test specifications and combating counterfeit telecommunication/ICT devices** This liaison statement from ITU-T SG11 informs all ITU-T SGs that SG11 revised its C&I action plan and agreed to simplify the process on collecting information in order to update the reference table of standards which are used for C&I assessment.The liaison contains information relevant to the update of WP1/15 living list of conformance and interoperability testing (CIT) activities in other SDOs related to WP1/15 technologies.Work Programme of ITU-T SG11 can be found at following URL<https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=11> | More information about ITU-T SG11 can be found at following URL<https://www.itu.int/en/ITU-T/studygroups/2022-2024/11/Pages/default.aspx> |
|  | **ITU-T SG16**  | **ITU-T SG16: Multimedia and related digital technologies​** Work Programme of ITU-T SG16 can be found at following URL<https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=16> | More information about ITU-T SG16 can be found at following URL<https://www.itu.int/en/ITU-T/studygroups/2022-2024/16/Pages/default.aspx> |
|  | **ITU-R SG1** | **ITU-R SG1: Spectrum Management**ITU-R WP1A: Spectrum engineering techniques | More information about ITU-R SG1 can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg1/Pages/default.aspx>More information about ITU-R WP1A can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg1/rwp1a/Pages/default.aspx> |
|  | **ITU-R SG5** | **ITU-R SG5: Terrestrial Services**WP5A: Land mobile service above 30 MHz (excluding IMT); wireless access in the fixed service; amateur and amateur-satellite services- ITU-R WP5A guide document: “Overview of the ITU-R texts relating to the land mobile service, including wireless access in the fixed service” has been updated on 4 October 2023: see at <https://www.itu.int/oth/R0A06000001/en>ITU-R WP5C - Fixed wireless systems; HF and other systems below 30 MHz in the fixed and land mobile servicesITU-R WP5D – IMT Systems | More information about ITU-R SG5 can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg5/Pages/default.aspx>More information about ITU-R WP5A can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5a/Pages/default.aspx>More information about ITU-R WP5C can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5c/Pages/default.aspx>More information about ITU-R WP5D can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/Pages/default.aspx> |
|  | **ITU-R SG6***SG15 TD 12 GEN September 2022* | **ITU-R SG6: Broadcasting Service**ITU-R SG6 informs ITU-T SG15 that it has established a Rapporteur Group - Future of Broadcasting (RG-FOB) at its November 2021 meeting to develop draft new ITU-R texts giving a Vision for the Future of Broadcasting. The RG-FOB members agreed to work on following topics:Section 1 – IntroductionSection 2 – User ExperienceSection 3 – Production ExperienceSection 4 – Delivery ExperienceSection 5 – Accessible ExperienceSection 6 – Sustainable ExperiencePublication of the final text is targeted in Q2 2023.ITU-R WP6A: Terrestrial broadcasting deliveryITU-R WP6B: Broadcast service assembly and access | More information about ITU-R SG6 can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg6/Pages/default.aspx>More information about ITU-R WP6A can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6a/Pages/default.aspx>More information about ITU-R WP6B can be found at following URL<https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6b/Pages/default.aspx> |
|  | **ITU-D SG1and ITU-D SG2***SG15 TD 91 WP1April 2023* | **ITU Telecommunication Development Sector (ITU-D)**The ITU-D Sector published a new guide: “Guide for procuring last-mile connectivity data networks” in June 2022 (see at [https://www.itu.int/hub/publication/d-tnd-05-2022/](https://www.itu.int/hub/publication/d-tnd-05-2022)). This guide complements “The Last-mile Internet Connectivity Solutions Guide: Sustainable Connectivity Options for Unconnected Sites” published in January 2020 (see at <https://www.itu.int/pub/D-TND-01-2020>)**ITU-D SG1: Enabling environment for meaningful connectivity**Question 1/1: Strategies and policies for the deployment of broadband in developing countriesQuestion 5/1: Telecommunications/ICTs for rural and remote areasITU-D Q1/1 thanks ITU-T SG15 for the LS on the new versions of the ANT Standards overview and work plan and provides the link [1/REP/1](https://www.itu.int/md/D22-SG01-R-0001/en) to its report of meeting 29 November 2022. The date of next ITU-D Q1/1 meeting is 8-19 May 2023.**ITU-D SG2: Digital transformation**Question 1/2 : Sustainable smart cities and communities | More information on the ITU-D Sector can be found at following URL<https://www.itu.int/en/ITU-D/Pages/default.aspx>More information about ITU-D SG1 and SG2 can be found at following URL<https://www.itu.int/en/ITU-D/Pages/New-ITU-D-Study-Group-Questions.aspx> |
|  | **Broadband Forum***SG15 TD 194 GENNov – Dec 2023**SG15 TD 267 GENNov – Dec 2023* | **Broadband Forum** <https://www.broadband-forum.org>Broadband Forum informs ITU-T SG15 that the Broadband Forum Fiber Access Networks (FAN) Work Area recently agreed to initiate a new project for the optimization of management of Optical Network Units (ONU) at scale. This project, called WT-505: ONU Management at Scale, is intended to be an enhancement of the existing specification, TR-385: ITU-T xPON YANG Modules.Broadband Forum refers ITU-T SG15 to its published specification work on the [Broadband Forum website](https://www.broadband-forum.org/technical-reports) and its specification work in progress on the [Broadband Forum Work in Progress Wiki](https://wiki.broadband-forum.org/display/BBF/BBF%2BWork%2Bin%2BProgress%2B-%2BProjects%2C%2BProject%2BStreams%2C%2Band%2BJira%2BLinks) which will provide more detailed information on Broadband Forum work.Web-based ANT Overview has been updated according to the list in TD 267 GEN of new documents approved/published (since last SG15 meeting) Published Broadband Forum Technical Reports related to ANT can be found following URL <https://www.broadband-forum.org/technical-reports>Broadband Forum Test Plans related to ANT can be found at following URL <https://www.broadband-forum.org/test-plans>  | Broadband Forum Work in Progress related to ANT can be found at following URL <https://www.broadband-forum.org/broadband-forum-resources/work-in-progress> |
|  | **CENELECTC 86A and TC 86BXA***SG15-TD 203/GENNov – Dec 2023**SG15-TD 204/GENNov – Dec 2023* | **CENELEC TC 86A - Optical fibres and optical fibre cables**Business Plan of TC 86A: see<https://standards.cencenelec.eu/BPCLC/BP_TC_86A.pdf>Work progresses from CENELEC TC 86A since April 2023Since April 2023 CENELEC TC 86A had a virtual meeting on 23 May 2023.- New work item proposal:* NWI for “New blowing route for indoor cables”. Some basic tests and experimental results on the comparison of two potential blowing routes were presented. A simpler method gave similar results. Proposal is to have this simpler test as a new method in IEC 60794-124 “Generic specification - Basic optical cable test procedures - Installation test for microduct cabling” when a 3rd CD would be circulated in IEC SC86A.

- Documents proposed to IEC SC86A* EN IEC 60794-1-136: “Generic specification - Basic optical cable test procedures - Determination of the maximum applicable push force during cable installation by blowing”. A NWIP will be circulated in IEC SC86A.

- Documents planned for revision* EN 50551-1 “Simplex and duplex cables for use in terminated cable assemblies - Part 1: Blank Detail Specification and minimum requirements”. No progress was made as no draft was received**.**

**CENELEC TC 86BXA - Fibre optic interconnect, passive and connectorized components**Business Plan of TC86BXA: see <https://standards.cencenelec.eu/BPCLC/BP_TC_86BXA.pdf>Work progresses from CENELEC TC 86BXA since April 2023Since April 2023 CENELEC TC 86BXA had a hybrid meeting in Delft, Netherlands on 6 and 7 June 2023TC 86BXA WG1 - Connector sets and interconnect components to be used in optical fibre communication systems- The following draft documents were harmonized with the latest IEC 61753-021 performance standards for connectors and IEC 61755-3-1 and -3-2 optical interface standards and reviewed in the meeting:* EN 50377-2-1: “Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications - Part 2-1: Type FC-PC terminated on IEC 60793-2 category B1 singlemode fibre.
* EN 50377-2-2: “Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications - Part 2-2: FC/APC 8 terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre, with full zirconia ferrule, category C”.

TC 86BXA-WG2 - Fibre management systems and protective housings to be used in optical fibre communication systems- The following new work item was rejected by CCMC as there was a Vilamoura procedure started by France for a similar product. TC86BXA has to wait till document is offered by the French National Committee to WG2:* EN 50411-3-10: “Fibre management systems and protective housings to be used in optical fibre communication systems - Product specifications – Part 3-10: Free-breathing terminals, category A, for FTTH optical drop cable networks.”

- The following revised document was prepared for a 3-month enquiry in the National Committees. It contains the latest changes from the IEC 61753-111-08 standards:* EN 50411-2-10: “Fibre management systems and protective housings to be used in optical fibre communication systems - Product specifications - Part 2-10: Sealed optical fibre splice closures for category G”.

- The following document will be submitted to the national committees for final voting:* EN 50411-3-1: “Fibre management system, splice wall box, for category C & A”.
 | More information about CLC/TC 86A can be found at following URL <https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258369>More information about CLC/TC 86BXA can be found at following URL <https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258371> |
|  | **IEC TC 86***SG15 TD 238 GENNov – Dec 2023**SG15 TD 246 GENNov – Dec 2023* | **IEC TC 86 - Fibre optics****IEC TC 86 SC 86A - Fibres and cablesIEC SC86A WG1 (Fibres and associated measuring methods)**Following documents from IEC SC86A WG1 that are relevant to the ANT are in ballot process (or in preparation for ballot) since the last ITU-T SG15 April 2023 meeting:- IEC TR 63309 Ed.1: Active fibres - Characteristics and Measurement Methods – Guidance- Revision of IEC 60793-2-50, Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibresThe following document is in preparation by WG1 for revision:- Proposed revisions for IEC TS 62033, Attenuation uniformity in optical fibres**IEC SC86A WG3 (Cables)**Published Document:- IEC 60794-1-1 ED5: Optical fibre cables - Part 1-1: Generic specification – GeneralFollowing document from IEC SC86A WG3 that is relevant to the ANT is in ballot (or in preparation for ballot) since the last ITU-T SG15 April 2023 meeting:- IEC TR 63431 ED.1: Optical fibre cables - Microduct technology – GuidanceNew activity on specification for In-home cable: It was proposed to create a new detail specification, 60794-2-12. It was mentioned that ITU-T Rec. L.111 does not harmonise with this proposal and the cables currently defined in IEC 60794-2-11.**IEC TC 86 SC 86B Fibre optic interconnecting devices and passive components****IEC TC 86 SC 86C Fibre optic systems and active devicesIEC SC86C WG1 (Fibre optic communications systems and subsystems)**Following documents from IEC SC86C WG1 that are relevant to the ANT are in ballot process (or in preparation for ballot) since the last ITU-T SG15 April 2023 meeting:- TR 61282-14 Ed.3: Determination of the uncertainties of attenuation measurements in fibre plants - 61280-4-2 Ed.2: Installed cable plant - Single-mode attenuation and optical return loss measurement | More information about IEC TC 86 can be found at following URL<https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1279>More information about IEC TC 86 SC 86A and work programme can be found at following URL <https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1398>More information about IEC TC 86 SC 86B and work programme can be found at following URL <https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1401>More information about IEC TC 86 SC 86C and work programme can be found at following URL<https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1403> |
|  | **ETSI TC ATTM** | **ETSI TC ATTM - Access, Terminals, Transmission and Multiplexing**<https://www.etsi.org/committee/1390-attm>Work Programme of ETSI ATTM can be found at following URL<https://portal.etsi.org/tb.aspx?tbid=689&SubTB=689,693,851,706,694,695#/> | See Terms of Reference (ToR) at<https://portal.etsi.org/TB-SiteMap/ATTM/ATTM-ToR>  |
|  | **ETSI TC BRAN** | **ETSI TC BRAN - Broadband Access Radio Networks**<https://www.etsi.org/committee/1389-bran>Work Programme of ETSI BRAN can be found at following URL<https://portal.etsi.org/tb.aspx?tbid=287&SubTB=287#/> | See Terms of Reference (ToR) at<https://portal.etsi.org/TB-SiteMap/bran/bran-tor> |
|  | **ETSI TC Cable** | **ETSI TC Cable – Integrated Broadband Cable Telecommunications Networks**<https://www.etsi.org/committee/1392-cable>Work Programme of ETSI Cable can be found at following URLhttps://portal.etsi.org/tb.aspx?tbid=786&SubTB=786,791,792,793,794#/ | See Terms of Reference (ToR) at<https://portal.etsi.org/TB-SiteMap/CABLE/CABLE-ToR> |
|  | **ETSI TC EE** | **ETSI TC EE – Environmental Engineering**<https://www.etsi.org/committee/1395-ee>Work Programme of ETSI EE can be found at following URL<https://portal.etsi.org/tb.aspx?tbid=28&SubTB=28,29,30,635,853#/> | See Terms of Reference (ToR) at<https://portal.etsi.org/TB-SiteMap/ee/ee-tor> |
|  | **ETSI ISG F5G***SG15 TD 249 GENNov – Dec 2023* | **ETSI ISG - Fifth Generation Fixed Network (F5G)**<https://www.etsi.org/committee/1696-f5g>Extract from Liaison Report from ETSI ISG F5G Liaison Rapporteur of ITU-T SG15 and ETSI ISG F5G Liaison Officer**Projects in ETSI ISG F5G** In 2021, ETSI ISG F5G has published F5G Release 1 (GR-001 Generation Definition and GR-002 Use Cases). The technology landscape (WI-3) summarizes the network requirements and gaps. Specifically, the analysis of network requirements of FTTR is sent to ITU-T Q3 SG15. Multiple projects intend to specify the E2E characteristics, such as WI-4 architecture, WI-5 QoE, WI-6 E2E management, etc. Security (WI-10 and WI-11) is also one of the important aspects in the F5G group. In Q1 of 2023, F5G Release 2 is finalizing (shown in Figure 3), including WI-7 Industrial PON, WI-8 F5G use case version 2, WI-11 AN telemetry architecture, WI-12 Security framework, WI-13 F5G technology landscape version 2, WI-14 F5G architecture version 2, WI-15 F5G Residential services quality. Figure 3 Standard milestone of F5G ISGSince 2023, the parallel work of F5G Release 3 has started, including a couple of new projects: WI-17 measurement methodology of residential service, WI-18 OCN architecture, WI-19 AN level definition, WI-21 F5G advance generation, WI-22 PON based industrial networks, WI-23 F5G advance technical landscape, WI-24 F5G advance architecture, WI-25 Computing coordination in PON network, WI-26 Residential QoE monitoring, and WI-27 F5G E2E management. Figure 4 Standard status in F5G R3Besides Work Items, the F5G group also published three white papers: 1. F5G Vision: Fibre to everywhere and everything (<https://www.etsi.org/images/files/ETSIWhitePapers/etsi_wp_41_FSG_ed1.pdf>)
2. Global Fibre Deployment Index (<https://www.etsi.org/images/files/ETSIWhitePapers/WP_47_GFDI.pdf>)
3. Fixed 5th Generation Advanced and Beyond

(<https://www.etsi.org/images/files/ETSIWhitePapers/ETSI-WP-50-F5G-Advanced-and-Beyond.pdf>)1. All-optical network facilitates the Carbon Shift

NOTE: this white paper is under final determination by the group of ETSI F5G ISG**Use cases of F5G and F5G Advanced**The use cases as described in ETSI GR F5G 008 document are driving the three dimensions of characteristics (i.e. eFBB, FFC and GRE) of F5G. Depending on the use case, one or more dimensions are particularly important. All dimensions of the F5G system architecture are implemented by the use cases. There are total 32 use cases defined, leveraging the fibre optical network to benefit multiple segments including residential applications, business applications, network internal topics such as network optimizations plus the use of F5G for mobile xHaul, and finally vertical industries oriented use cases. The use cases are shown in Figure 5. ETSI GR F5G 002 initially defined the use case 1-16 while use cases 17-32 are newly added and the previous use cases are updated in ETSI GR F5G 008. ETSI GR F5G 020 currently is initiated and under development, collecting new use cases for F5G Advanced. F5G Advanced is assumed to rely on various ITU-T SG15 technologies of the different Questions. Therefore, the topic how those technologies could be used is of interested to different questions of SG15.To implement the use case in Release 2, F5G expect that the ITU-T SG15 group could help develop new technologies or technology features. For example, to adapt to new fibre infrastructure and in-premises scenarios. In general, the use cases are looked at from an end-to-end perspective and might have aspects for various ITU SG15 questions for consideration, however, a few considerations are given here:* Q3 may consider: 1. define low optical link budget for home networking and small building; 2. specify a high priority channel for signalling in fibre networks; 3. define a mechanism to recognize network signalling and protocols, etc.
* Q11 may consider: 1. specify finer granularity OTN; 2. define OTN container with flexible granularity; 3. Optimize OTN to support mixed traffic of ODUs and OSUs, 4. Support for cloudification and multiple cloud access, etc.
* Q2 may consider: 1. supporting TSN features on PON system; 2. Increase in PON throughput via new technologies such as high-order modulation and wavelength-division multiplexing; 3. Improved DBA to support low-latency upstream transmission with latency below 100 µs.
* Q6 may consider: 1. Digitalization of cabling and fibre monitoring
* Q14 may consider: 1. Optimization of fibre network operation through telemetry, 2. Customer interactions and 3. automation

Work Programme of ETSI F5G can be found at following URL<https://portal.etsi.org/tb.aspx?tbid=885&SubTB=885#/> | See Terms of Reference (ToR) at<https://portal.etsi.org/Portals/0/TBpages/F5G/ISG_F5G_ToR_D-G_APPROVED_20191210.pdf> |
|  | **FSAN***SG15 TD 244 GENNov – Dec 2023**SG15 TD 74 WP1September 2022* | **FSAN - Full Service Access Network**[https://www.fsan.org**/**](https://www.fsan.org/)FSAN activity since April 2023 SG15 plenaryFSAN (Full Service Access Network, fsan.org) prefers delivering input to Q2/15 via a contribution to the subsequent Q2 meeting (either interim or plenary) with several or all of the operator members as joint-contributors. To date, FSAN has not requested a formal liaison.FSAN met during a co-located FSAN/Q2 workshop on 13-14 June 2023 in Waltham, Massachusetts, U.S.A. FSAN also held a technical meeting via teleconference on 19 September 2023. No direct contributions were submitted from either meeting into a Q2 interim meeting.To date, Q2 has not requested a formal liaison back to FSAN.FSAN Management Committee informs ITU-T SG15 that FSAN has been re-chartered as a voluntary consensus standards body. FSAN is a world-wide industry association of operator companies who are interested in and committed to the advancement of optical access networks, technologies and services. FSAN sees its mission in coordinating the development of voluntary consensus standards in the field of optical access networks with the purpose to improve the technology and distribution of broadband optical access services and products for the benefit of the industry as a whole, its customers and consumers. | See FSAN Association 2022 Charter published on 8 August 2022 at<https://www.fsan.org/the-2022-fsan-charter-is-published/> |
|  | **IEEE 802.3***SG15 TD 216 WP1Nov – Dec 2023**SG15 TD 258 GENNov – Dec 2023* | **IEEE 802.3 Ethernet Working Group**<http://www.ieee802.org/3/>The current revision is IEEE Std 802.3-2022, Standard for Ethernet: <https://standards.ieee.org/ieee/802.3/10422/>**Update on the activities within the IEEE 802.3 Working Group**Since the last communication from IEEE 802.3 Working Group (i.e., since the last SG15 April 2023 meeting), there were several changes in the status of access-related projects within the IEEE 802.3 Working Group: • The IEEE P802.3dk Task Force continues its technical work on the development of higher speed bidirectional fibre access links exceeding the capacity supported by the IEEE Std 802.3cp-2021. The first Task Force draft D0.1 is currently available in the private area of this Task Force. • Technical work on two projects was started, targeting updates to Structure of Management Information version 2 (SMIv2) MIB module specifications for IEEE Std 802.3 Ethernet and associated managed object branch and leaf assignments used in the variable descriptors in IEEE Std 802.3 Variable Request operations, administration, and maintenance protocol data unit (OAMPUD) under the project IEEE P802.3.1 (IEEE 802.3.1a); and updates to YANG data models for IEEE Std 802.3 Ethernet under the project IEEE P802.3.2 (IEEE 802.3.2b). Both projects started the IEEE 802.3 Working Group ballot out of the November 2023 plenary meeting.  | More information about the IEEE P802.3dk Task Force, including the Project Authorisation Request (PAR), Criteria for Standards Development (CSD), and Objectives, can be found at: <https://www.ieee802.org/3/dk/index.html>More information about these two projects can be found at the URLs: <https://www.ieee802.org/3/1/b> and <https://www.ieee802.org/3/2/a> |

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|  | **IEEE 802.11** | **IEEE 802.11 Working Group for Wireless Local Area Networks**<http://www.ieee802.org/11/>Current revision is IEEE Std 802.11-2020:<https://standards.ieee.org/ieee/802.11/7028/>**Wireless LAN / Wi-Fi HotspotIEEE P802.11be** is a Task Group to work on a major amendment for next generation wireless LAN to Enable Extremely High Throughput (EHT) and Low Latency for Wi-Fi. The new amendment will define Extreme High Throughput (EHT) physical (PHY) and medium access control (MAC) layers capable of supporting a maximum throughput of at least 30 Gbps.IEEE P802.11be - Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Enhancements for Extremely High Throughput (EHT)Branded as future Wi-Fi 7 by the Wi-Fi Alliance | More information about IEEE P802.11be can be found at following URLs<https://standards.ieee.org/ieee/802.11be/7516/><https://standards.ieee.org/beyond-standards/ieee-p802-11be-to-enable-extremely-high-throughput-eht-and-low-latency-for-wi-fi/><https://www.ieee802.org/11/Reports/tgbe_update.htm> |
|  | **IEEE 802.16** | **IEEE 802.16 Working Group on Broadband Wireless Access Standards**<http://www.ieee802.org/16/>Note: The IEEE 802.16 Working Group on Broadband Wireless Access Standards is currently in an inactive state of hibernation. |  |
|  | **IEEE 1904** | **IEEE 1904 Access Networks Working Group**<http://www.ieee1904.org>IEEE 1904 WG is responsible for the maintenance of:- IEEE Std 1904.1-2017 - IEEE Standard for Service Interoperability in Ethernet Passive Optical Networks (SIEPON.1)- IEEE Std 1904.1-Conformance01-2014 “Standard for Conformance Test Procedures for Service Interoperability in Ethernet Passive Optical Networks, IEEE Std 1904.1(TM) Package A” - IEEE Std 1904.1-Conformance02-2014 - Standard for Conformance Test Procedures for Service Interoperability in Ethernet Passive Optical Networks, IEEE Std 1904.1(TM) Package B- IEEE Std 1904.1-Conformance03-2014 - Standard for Conformance Test Procedures for Service Interoperability in Ethernet Passive Optical Networks, IEEE Std 1904.1(TM) Package C- IEEE Std 1904.2-2021 - IEEE Standard for Control and Management of Virtual Links in Ethernet-based Subscriber Access NetworksThe Working Group is currently developing:- [IEEE P1904.4 Standard for Service Interoperability in 25 Gb/s and 50 Gb/s Ethernet Passive Optical Networks (SIEPON.4)](https://www.ieee1904.org/4/index.shtml) | More information about IEEE 1904.1 can be found at following URL<https://standards.ieee.org/standard/1904_1-2017.html>More information about IEEE 1904.2 can be found at following URL<https://standards.ieee.org/standard/1904_2-2021.html>More information about IEEE P1904.4 can be found at following URL<https://standards.ieee.org/project/1904_4.html> |
|  | **IEEE COM/PLCIEEE 1901** | **IEEE Power Line Communications Standards Committee**<https://sagroups.ieee.org/plcsc/>The scope of the Power Line Communications Standards Committee (PLCSC) is to develop and maintain: - Standards in Communications and Networking over Power Lines including in access, in-home and enterprise, in-vehicle and vehicle-to-grid- Standards related to Heterogeneous Networking involving Power Line Communication in various networking scenarios- Standards relevant to PLC or other modes of communication that are designed for Power Grid, Smart Cities, IoT applications, and for embodiment in devices designed to be deployed in Power Utility Grid and Microgrid environments- Standards related to applications for SmartGrid DER management, AMI, and management of HAN devicesThe list of published standards of the Power Line Communications Standards Committee is available at following URLhttps://sagroups.ieee.org/plcsc/published-standards/**IEEE 1901 Working Group on Power Line Communications** <https://sagroups.ieee.org/1901/>The scope of the IEEE 1901 Working Group is to maintain and advance the IEEE 1901 standard “IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications” originally approved in 2010.This has resulted in the publication of:IEEE 1901-2020 - IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications,and IEEE 1901b-2021 - IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications Amendment 2: Enhancements for Authentication and Authorization..In May 2022, IEEE 1901 Working Group started a new P1901c project: Amendment to IEEE Standard 1901-2020: Enhanced Flexible Channel Wavelet (FCW) physical and media access control layers for use on any media.P1901c project: Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications Amendment 3: Enhanced Flexible Channel Wavelet (FCW) physical and media access control layers for use on any media.On 25 September 2023, the Draft Standard has been moved to SA ballot. | More information about IEEE 1901 can be found at following URL<https://standards.ieee.org/ieee/1901/7598/>More information about the IEEE 1901.b can be found at following URL<https://standards.ieee.org/ieee/1901b/10362/>More information about P1901c can be found at following URL<https://sagroups.ieee.org/1901/>and <https://standards>.ieee.org/ieee/1901c/10922/ |
|  | **MoCA***SG15 TD 82 WP1 September 2022* | **MoCA Link™ 2.5, 5G and Satellite Broadband** MoCA Link™ 2.5 MAC/PHY specification, provides a multi-gigabit solution especially designed for sub-millisecond low-latency point to point links over coaxial cabling for fiber extension, satellite, and 5 G connectivity. | More information about MoCA Link 2,5 can be found at following URL<https://mocalliance.org/mocalink/moca-link-5G-and-satellite-broadband.php> |

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## 4. List of Contacts

| **Body**  | **Contact person** | **Link to the Web-Site** | **Status of contact****NotesLiaison Tracking** |
| --- | --- | --- | --- |
| ATIS Committee STEP |  | <https://www.atis.org/committees-forums/> |  |
| Broadband Forum | Lincoln LavoieBroadband Forum Technical Committee Chairlylavoie@iol.unh.edu | [www.broadband-forum.org/](http://www.broadband-forum.org/) | SG15 TD 194 GENNov – Dec 2023SG15 TD 267 GENNov – Dec 2023Liaison RapporteurFrank Van der Puttenfrank.van\_der\_putten@nokia.com |
| CENELECEUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION |  | [www.cenelec.eu/](http://www.cenelec.eu/) |  |
| CENELEC CLC/TC215, "Electrotechnical aspects of telecommunication equipment” |  | <https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258297> |  |
| CENELEC TC 86A“Optical fibres and optical fibre cables”CENELEC TC 86BXA“Fibre optic interconnect, passive and connectorised components” |  | <https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258369><https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258371> | SG15-TD 203/GENNov – Dec 2023Liaison RapporteurDaniel Daems daniel.daems@commscope.comSG15-TD 204/GENNov – Dec 2023Liaison RapporteurDaniel Daemsdaniel.daems@commscope.com |
| ETSI ETSI= European Telecommunications Standards Institute |  | [www.etsi.org](http://www.etsi.org) |  |
| ETSI TC ATTM (Access Terminals, Transmission and Multiplexing)ATTM has the following Working Groups **AT2**: (Infrastructure, Physical Networks & Communication Systems)**TM4**: (Fixed Radio Systems)**TM6** (Wireline Access Network Systems)TG IC CG: (Co-ordination Group Cenelec-ETSI Installations & Cabling) | Chairman: ATTMDominique RocheeG4Udominique.roche@eg4u.orgATTM Technical SecretaryPat O’Keeffe eG4U Pat.okeeffe@eg4u.ie | <https://www.etsi.org/committee/1390-attm>[portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx)  | SG15 TD 466 WP1Jan – Feb 2020 |
| ATTM AT2 | Chairman : Olivier Bouffant Orange2 avenue Pierre MarzinLannionFranceolivier.bouffant@orange.com  | [portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx) | SG15 TD 579 WP1April 2021 |
| ATTM TM4 | ChairmanDr. Roberto MacchiSIAE Microelettronica SpAVia MichelangeloBuonarroti 21I-20093Cologno MonzeseItalyRoberto.Macchi@SIAEMIC.it Vice Chairman & SecretaryDr. Nader ZeinNEC Europe Ltd.Athene, Odyssey Business ParkWest End RoadHA46QE South Ru–slip - UKnader.zein@emea.nec.com | [portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx) |  |
| ATTM TM6 | ChairmanPat O’KeeffeeG4U Pat.okeeffe@eg4u.ie | [portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx) | SG15 TD 466 WP1Jan – Feb 2020 |
| ETSI TC CABLEIntegrated Broadband Cable Telecommunication Networks |  | <https://www.etsi.org/committee/1392-cable> |  |
| ETSI TC EEEnvironmental Engineering |  | <https://www.etsi.org/committee/1395-ee> |  |
| ETSI BRANBroadband Radio Access Networks |  | <https://www.etsi.org/committee/1389-bran> |  |
| ETSI ISG F5G5th Generation Fixed Network |  | <https://www.etsi.org/committee/1696-f5g> | SG15 TD 240 GENNov - Dec 2023Liaison RapporteurTony ZengHuaweiChinatony.zengyan@huawei.com |
| IETFInternet Engineering Task Force |  | <https://www.ietf.org/> |  |
| FSAN=Full Service Access Network | Denis A. KhotimskyChair, FSANdenis.khotimsky@verizon.comDeZhi (James) ZhangVice Chair, FSANzhangdzh@chinatelecom.cn | <https://www.fsan.org/> | SG15 TD 244 GENNov – Dec 2023Liaison RapporteurMark LaubachCienamlaubach@ciena.comContact made through those attending SG15/Q2 meetings. |
| IECIEC = International Electro-technical Commission |  | [www.iec.ch](http://www.iec.ch) |  |
| IEC TC 86 SC 86AFibres and cables |  | <https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1398> | SG15 TD 238 GENNov – Dec 2023Liaison RapporteurSudipta BhaumikSterlite Technologies Ltd, Indiasudipta.bhaumik@stl.tech |
| IEC TC 86 SC 86BFibre optic interconnecting devices and passive components |  | <https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1401> | SG15 TD 158 GENApril 2023Makoto MurakamiLiaison RapporteurNTTmurakami.makoto@lab.ntt.co.jp |
| IEC TC 86 SC 86CFibre optic systems and active devices |  | <https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1403> | SG15 TD 246 GENNov – Dec 2023Peter PondilloLiaison RapporteurCorning Incorporated pondillopl@corning.com |
| IEEE 802IEEE=Institute of Electrical and Electronics EngineersLAN/MAN Standards Committee |  | [www.ieee802.org/](http://www.ieee802.org/) | [Joint IEEE 802 and ITU-T Study Group 15 Workshop](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/202001/Pages/default.aspx)Geneva, 25 January 2020 |
| IEEE 802.3Ethernet Working Group | David LawChair IEEE 802.3 Ethernet Working Groupdlaw@hpe.com | [www.ieee802.org/3/](http://www.ieee802.org/3/) | SG15 TD 216 WP1Nov – Dec 2023 SG15 TD 258 GENNov – Dec 2023Liaison RapporteurTom HuberNokia USAtom.huber@nokia.com |
| IEEE 802.11Working Group for WLAN Standards |  | [www.ieee802.org/11/](http://www.ieee802.org/11/) |  |
| IEEE 802.16Working Group on Broadband Wireless Access |  | [www.ieee802.org/16/](http://www.ieee802.org/16/) |   |
| IEEE 1901Working Group on Power Line Communications (COM/PLC) | Chair, Jean-Philippe Faure jean-philippe.faure@progilon.com  | <https://sagroups.ieee.org/1901/> | SG15 TD 639 WP1April 2021 |
| IEEE 1904Access Networks Working GroupIEEE 1904.1Working GroupStandard for Service Interoperability in Ethernet Passive Optical Networks (SIEPON) |  | <http://www.ieee1904.org/>[www.ieee1904.org/1/](http://www.ieee1904.org/1/) |  |
| SCTE Society of Cable Telecommunications Engineers |  | <https://www.scte.org/> |  |
| ITU=International Telecommunication Union |  | [www.itu.int/en/Pages/default.aspx](http://www.itu.int/en/Pages/default.aspx) |  |
| ITU-RITU Radiocommunication Sector |  | [www.itu.int/en/ITU-R/Pages/default.aspx](http://www.itu.int/en/ITU-R/Pages/default.aspx) |  |
| ITU-R WP1A | Philippe AubineauCounsellor, ITU-R SG1philippe.aubineau@itu.intJohn ShawChairman, Correspondence Group on EMC- Related Interference and Coexistence of wired telecommunication systems with radiocommunication systemsshawzone@gmail.com | [www.itu.int/en/ITU-R/study-groups/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/Pages/default.aspx) | SG15 TD 554 WP1April 2021 |
| ITU-R WP4B |  | <https://www.itu.int/en/ITU-R/study-groups/rsg4/rwp4b/Pages/default.aspx> |  |
| ITU-R WP5A |  | <https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5a/Pages/default.aspx> |  |
| ITU-R WP5C |  | [www.itu.int/en/ITU-R/study-groups/rsg5/rwp5c/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5c/Pages/default.aspx) |  |
| ITU-R WP5D |  | [www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/Pages/default.aspx) |  |
| ITU-R SG6 | Yukihiro NishidaChairman ITU-R Study Group 6nishida.y-fe@nhk.or.jp | <https://www.itu.int/en/ITU-R/study-groups/rsg6/Pages/default.aspx> | SG15 TD 12 GEN September 2022 |
| ITU-R WP6A | John ShawRapporteur on Power Line Telecommunication (PLT) and general EMC-related potentialshawzone@gmail.com | <https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6a/Pages/default.aspx> | SG15 TD 547 WP1April 2021 |
| ITU-R WP6B | Paul GardinerChairman, WP6Bpaul.gardiner@eu.sony.com | <https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6b/Pages/default.aspx> |  |
| ITU-TITU Telecommunication Standardization Sector |  | <https://www.itu.int/en/ITU-T/Pages/default.aspx> |  |
| ITU-T SG5 |   | <https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/default.aspx> |  |
| ITU-T SG9  | Satoshi MiyajiChairman SG9KDDI Corporation, Japansa-miyaji@kddi.comKei Kawamura Rapporteur for Q1/9KDDI Corporationki-kawamura@kddi.comJingyi XueRapporteur of Q10/9ABP, NRTAChinaxuejingyi@abp2003.cnTaeKyoon KimRapporteur for Q7/9ETRIBroadcasting and Telecommunications Convergence Research Lab. Broadcasting System Research Dept./Digital CATV System Research Team138 Gajeongno, Yuseong-gu, Daejeon305-700Korea (Rep. of)tkkim@etri.re.kr | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/09/Pages/default.aspx> | SG15 TD 158 WP1Nov – Dec 2023SG15 TD 191 GENNov – Dec 2023SG15 TD 192 GENNov – Dec 2023SG15 TD 85 WP1April 2023SG15 TD 86 WP1April 2023  |
|  ITU-T SG11 | Ritu Ranjan MittarChairman SG11rr.mittar@gov.inMartin BrandA1 Telekom Austria AGmartin.brand@a1.at | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/11/Pages/default.aspx> | SG15 TD 178 GENNov – Dec 2023SG15 TD 92 WP1April 2023 |
| ITU-T SG12  |  | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/default.aspx> |  |
| ITU-T SG13 |  | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/13/Pages/default.aspx> |  |
| ITU-T SG16 | Sarra RebhiOffice National de la télédiffusionTunisiarebhi.sarra@telediffusion.net.tn | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/default.aspx> |  |
| ITU-T SG17 |   | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/17/Pages/default.aspx> |  |
| ITU-T SG20 |  | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/default.aspx> |  |
| ITU-DTelecommunication Development Sector |  | <https://www.itu.int/en/ITU-D/Pages/default.aspx> |  |
| ITU-D SG1  | Ahmed GadRapporteur for Question 1/1, Egyptahmed.abdelaziz.gad@gmail.comAminata AmadouBDT Focal Point for Question 1/1aminata.amadou-garba@itu.int | <https://www.itu.int/en/ITU-D/Pages/New-ITU-D-Study-Group-Questions.aspx> | SG15 TD 91 WP1April 2023 |
| ITU-D SG2 |  | <https://www.itu.int/en/ITU-D/Pages/New-ITU-D-Study-Group-Questions.aspx> |  |
| SCTE SCTE=Society of Cable Telecommunications Engineers |  | <https://www.scte.org/> |  |

# 5. Lead Study Group activities related to the ANT Standards Overview and Work Plan

This list of Lead Study Group activities should be used to identify work items, to show the current status and should be taken as a permanent living document that will accompany the work through the Study Period.

**Status: November 2023**

| **Work Item** | **Title** | **Meeting results** | **Work during interim period** |
| --- | --- | --- | --- |
| 1 | Maintain and update the ANT Standards Overview and ANT Standards Work Plan together with other ITU-T Study Groups and in conjunction with ITU-R and other relevant standards organizations. | The web-based presentation of the ANT Standards Overview, as well as the ANT Standards Work Plan have been both updated based on received liaison statements (LS) from other ITU-T and ITU-R Study Groups, other SDOs, new approved documents and work plan from ITU-T SG15 WP1 Q2 & Q4, WP2 Q5 & Q7, LS from ITU-T SG15 liaison Rapporteurs and new published documents observed on the websites of other relevant SDOs. The ANT Standards Overview document details the taxonomy and features of the web-based ANT Standards Overview. These changes have been incorporated in the new versions of the ANT Standards Overview and ANT Standards Work Plan documents from November 2023. | Maintain existing correspondence relationships with appropriate groups |
| 2 | Maintain and update the web-based ANT Standards Overview. | The web-based ANT Standards Overview has been updated: see at [ITU-T landscape for ICT standards - ANT](https://www.itu.int/itu-t/landscape/?topic=tx356&group=g&search_text=) |  |
| 3 | Identify “gaps, overlaps and conflicts” by observing ongoing standardization activities. | ITU-T SG15 Q1/15 noted the activities of ETSI new group on 5th Generation Fixed Network (F5G) activities “*shifting the paradigm from Fibre to the Home to Fibre to Everything Everywhere*”. | To follow up ETSI F5G activities with Q2/15 and Q3/15. |
| 4 | Communicate with other groups, inside and outside ITU-T as needed for coordination purposes and serve as focal point to provide ITU inter-Sector coordination with other ITU-R and ITU-D Study Groups. | The new versions of the ANT Standards Overview and ANT Work Plan have been provided via LS for action to ITU-T TSAG, ITU-T SG9, SG12, SG13, SG16, SG17, ITU-R SG1, SG5, SG6, ETSI TC ATTM, IEEE 802.3, Broadband Forum, and via LS for information ITU-T SG20 as well as ITU-D SG1. | Maintain existing correspondence relationships with the appropriate groups. |
| 5 | Maintain and update a living list of the conformance and interoperability testing (CIT) activities in other organizations related to technologies based on ITU-T Recs. from WP1/15. | Updated list (SG15-TDXXX/WP1): Version 17 of living list of CIT activities related to technologies based on ITU-T Recommendations from WP1/15) has been provided via LS for information to ITU-T SG11. | Maintain existing correspondence relationships with the appropriate groups |

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