Access Network Transport

Standards Work Plan

September 2020 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.

Access Network Transport Standards Work Plan

**Issue 32, September 2020**

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ACCESS NETWORK TRANSPORT STANDARDS WORK PLAN

ISSUE 32, SEPTEMBER 2020

# General

ANT Standards Work Plan is a living document. It may be updated even between meetings. The actual version can be found in: <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, Private Network Providers, Satellite and Cable TV Networks and Information Technologies. This has resulted in a number of 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-16 -** with the mandate to:

1. study the appropriate core Questions (Question 1, 2 and 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 WP 1/15, 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 presentation of the standards overview consists of two matrixes identifying key elements of the access network transport technologies and a listing of the various standards organizations and their standards identified, including their titles and publication dates.

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 (who, when, where, etc.),
2. identify lack of standards,
3. identify duplication and/or overlap,
4. discover priorities and market needs.

The **work plan** will reflect 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 BBF, 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” (extracted from ITU-T G.902)

An Access Network element can be configured and managed through a Q3 interface 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 interpret (user) signaling and 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.

# 3. Correspondents and contacts

A critical part of the ANT standardization work is the network of contacts for the development of relevant standards and the tracking of correspondence, usually in the form of liaisons, to guide the work. The list of contacts below provides an overview of the other relevant Study Groups in the ITU and other Standardization Groups corresponding through liaisons with Study Group 15 about matters related to the ANT Standards Overview and Work Plan.

## 3.1 Contacts

| **Body**  | **Contact person** | **Link to the Web-Site** | **Status of contact****NotesLiaison Tracking** |
| --- | --- | --- | --- |
| ATIS |  | <https://www.atis.org/> |  |
| Broadband Forum | Mr. Robin MershCEOrmersh@broadband-forum.orgLincoln LavoieBroadband Forum Technical Committee Chairlylavoie@iol.unh.edu | [www.broadband-forum.org/](http://www.broadband-forum.org/) | TD 334 GENJan-Feb 2020TD 276 WP1October 2018Contact made through those attending SG15/Q2 und Q4 meetingsLiaison RapporteurFrank Van der Puttenfrank.van\_der\_putten@nokia.comCC liaisons to:liaisons@broadband-forum.org |
| CENELECEUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION |  | [www.cenelec.eu/](http://www.cenelec.eu/) |  |
| CENELEC CLC/TC205, "Home and Building Electronic Systems (HBES)"  |  | <https://www.cenelec.eu/dyn/www/f?p=104:7:224592411655001::::FSP_ORG_ID,FSP_LANG_ID:1258281,25> |  |
| CENELEC CLC/TC209, "Cable networks for television signals, sound signals and interactive services"  |  | <https://www.cenelec.eu/dyn/www/f?p=104:7:224592411655001::::FSP_ORG_ID,FSP_LANG_ID:1258287,25> |  |
| CENELEC CLC/TC215, "Electrotechnical aspects of telecommunication equipment” |  | <https://www.cenelec.eu/dyn/www/f?p=104:7:224592411655001::::FSP_ORG_ID,FSP_LANG_ID:1258297,25> |  |
| CENELEC TC86A“Optical fibres and optical fibre cables”CENELEC TC86BXA“Fibre optic interconnect, passive and connectorised components” |  | <https://www.cenelec.eu/dyn/www/f?p=104:7:224592411655001::::FSP_ORG_ID,FSP_LANG_ID:1258369,25> | TD 278GENJuly 2019Liaison Rapporteur : Daniel Daems daniel.daems@commscope.comTD 277 GENJuly 2019 Liaison Rapporteur : Daniel Daemsdaniel.daems@commscope.com |
| ETSI ETSI BRAN, ETSI DECT, ETSI 3GPP, ETSI ATTMETSI= 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 | [portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx) | TD 466 WP1Jan – Feb 2020TD 138 WP1Jan – Feb 2018 |
| ATTM AT2 | Chairman : Olivier Bouffant Orange2 avenue Pierre MarzinLannionFranceolivier.bouffant@orange.com  | [portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx) |  |
| 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) | TD 466 WP1Jan – Feb 2020TD 138 WP1Jan – Feb 2018 |
| ETSI TC CABLEIntegrated Broadband Cable Telecommunication Networks |  | [portal.etsi.org/home.aspx](http://portal.etsi.org/home.aspx) |  |
| FSAN=Full Service Access NetworkThe single FSAN Working Group is called Optical Access Network (OAN). Within OAN are the following active Task Groups:Operation and Engineering Task GroupNext Generation PON (NG-PON) Task Group | OAN Working Group Chair:Junichi KaniOperation and Engineering Task Group Co-Chairs: Wang Bo and Jiang MingNext Generation PON Task Group Co-Chairs: Peter Dawes | <https://www.fsan.org/> | Contact made through those attending SG15/Q2 meetings. |
| IECIEC = International Electro-technical Commission |  | [www.iec.ch](http://www.iec.ch) |  |
| IEC SC 86AFibres and cablesIEC SC 86A/WG1(Fibre optics)IEC SC 86A/WG3(Fibre optical cables) |  | <https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1398> | Liaison rapporteurPeter PondilloCorning Incorporatedpondillopl@corning.comMarkus DollingerLiaison rapporteurCorning Incorporatedmarkus.dollinger@corning.com |
| IEC SC 86BFibre optic interconnecting devices and passive components |  | https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP\_ORG\_ID:1401 | Makoto MurakamiLiaison rapporteurNTTmurakami.makoto@lab.ntt.co.jp |
| IEC SC 86CFibre optic systems and active devices |  | https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP\_ORG\_ID:1403 | Peter PondilloLiaison rapporteurCorning Incorporated pondillopl@]corning.com |
| IEEE 802IEEE=Institute of Electrical and Electronics EngineersLAN/MAN Standards Committee |  | [www.ieee802.org/](http://www.ieee802.org/) | Contact made through those attending SG15/Q2 and Q4 meetings[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 802.1Working Group | Glenn ParsonsChair IEEE 802.1 Working GroupGlenn.parsons@ericsson.com | [www.ieee802.org/1/](http://www.ieee802.org/1/) | TD 428/GENSept 2020Liaison RapporteurGlenn ParsonsGlenn.parsons@ericsson.com  |
| IEEE 802.3Ethernet Working Group | David LawChair IEEE 802.3 Ethernet Working Groupdlaw@hpe.com | [www.ieee802.org/3/](http://www.ieee802.org/3/) | TD 506 WP1September 2020TD 479 WP1Jan – Feb 2020Liaison RapporteurPeter StassarHuawei Technologiespeter.stassar@huawei.comTD 345 GENJan - Feb 2020 |
| 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 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/) |  |
| 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 ShawRapporteur of the Rapporteur Group on the coexistence of wired telecommunication with radiocommunication systemsshawzone@usa.net | [www.itu.int/en/ITU-R/study-groups/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/Pages/default.aspx) | TD 228 WP1October 2018 |
| ITU-R WP4B  | Ms. Pascale Dumitpascale.dumit@ses.com  | [www.itu.int/en/ITU-R/study-groups/rsg4/rwp4b/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/rsg4/rwp4b/Pages/default.aspx) | TD 230 WP1October 2018 |
| ITU-R WP5A |  | [www.itu.int/en/ITU-R/study-groups/rsg5/rwp5a/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5a/Pages/default.aspx) |  |
| ITU-R WP5B |  | [www.itu.int/en/ITU-R/study-groups/rsg5/rwp5b/Pages/default.aspx](http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5b/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 WP6A | John Shawshawzone@usa.net | <https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6a/Pages/default.aspx> | TD 221 WP1October 2018 |
| ITU-R WP6B | Paul GardinerChairman, WP6BPaul.Gardiner@sony.com | <https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6b/Pages/default.aspx> | TD 220 WP1October 2018 |
| ITU-TITU Telecommunication Standardization Sector |  |  |  |
| ITU-T SG2 |   | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/02/Pages/default.aspx> |  |
| ITU-T SG9  | Satoshi MiyajiChairman SG9KDDI Corporation, Japansa-miyaji@kddi.comKei Kawamura Rapporteur for Q1/9KDDI Corporationki-kawamura@kddi.com | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/09/Pages/default.aspx> | TD 487 WP1September 2020 |
| ITU-T SG11 | Andrey KucheryavyChairman SG11Saint-Petersburg State University of Telecommunications, Russian Federationakouch@mail.ru | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/11/Pages/default.aspx> | TD 481 WP1September 2020TD 259 GENJuly 2019TD 260 GENJuly 2019 |
| 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 |   | <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 |  |  |  |
| ITU-D SG1  |  | <https://www.itu.int/net4/ITU-D/CDS/sg/index.asp?lg=1&sp=2018&stg=1> |  |
| ITU-D SG2 |  | <https://www.itu.int/net4/ITU-D/CDS/sg/index.asp?lg=1&sp=2018&stg=2> |  |
| MEF (Metro Ethernet Forum) |  | [metroethernetforum.org/](http://metroethernetforum.org/) | Glenn ParsonsLiaison rapporteurEricsson Canadaglenn.parsons@ericsson.com |
| SCTE SCTE=Society of Cable Telecommunications Engineers |  | <https://www.scte.org/> |  |
| OIFOIF = Optical Internetworking Forum |  | [www.oiforum.com/](http://www.oiforum.com/) | Jonathan SadlerLiaison rapporteur to OIF Networking and Software Track and SDNCoriant GmbH&Co. KGjonathan.sadler@coriant.comBernd TeichmannLiaison rapporteur to OIF Physical and Link Layer (PLL) TrackNokiabernd.teichmann@nokia.com |
| TIA FO 4 TIA = Telecommunication Industry Association |  | [www.tia.online.org](http://www.tia.online.org) |  |
| TIA TR-41  |  | [www.tia.online.org](http://www.tia.online.org) |  |
| TIA TR-42 |  | [www.tia.online.org](http://www.tia.online.org) |  |
| TTA = Telecommunications Technology AssociationTTA PG 05, Korea |  | [www.tta.or.kr/English/](http://www.tta.or.kr/English/) |  |

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# 4. Overview of existing holes/overlaps/conflicts

## 4.1 List of ANT Issues identified/mostly gaps (missing Standardization activities)

**Status: September 2020**

| **No.** | **Issue** | **Status** | **Action** |
| --- | --- | --- | --- |
|  | Practicability of the ANT Standards OverviewContribution C 1169 (June – July 2015)Proposal to initiate a plan to improve the format of the ANT Standards Overview using a web-based method. This contribution proposes to initiate a plan to improve the practicability of the ANT Standards Overview in Annex 2 in order to make it more manageable and user-friendly. The final objective of the improvement is to complement the current Annex 2 with a web-based ANT Standards Overview.Contribution agreed at Q1/15 and Q2/15 joint meeting and approved by WP1 management team during meeting June-July 2015.With the extensions done since Jan – Feb 2020 as reported in the column “Status”, the realization of the web-based ANT Standards Overview is closed. | Refer to Annex 3 of the “ANT Standards overview” version 34.Since Jan-Feb 2020, the web-based ANT Standards Overview has been extended with Part 6 “Broadband Power Line Communication” and Part 7 “Fixed Broadband Wireless Access”, including Broadband Satellite and High-Altitude Platform Systems (HAPS).  |   |
| 1.
 | The updated web-based ANT Standards Overview can be seen at [Web-based Access Network Transport  (ANT) Standards Overview​](https://www.itu.int/net4/ITU-T/landscape#?topic=0.105&workgroup=1&searchValue=&page=1&sort=Revelance) on the ITU-T SG15 website section “Documentation”. |

## 5. Ongoing Standardization activities in the area of Access Network Transport

**5.1 List of ongoing standardization activities in the area of Access Network Transport within ITU-T SG15 - WP1/15**

**Status: September 2020

Table updated with the latest Q2 and Q4 activities resulting from September 2020 SG15 WP1 plenary meeting**

| **Work item** | **Question** | **Status** | **Timing** | **Approval process** | **Subject / Title** | **Base text(s)** | **Editor(s)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| [G.984.5 (2014) Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15225) | Q2/15 | Consented | 2020-09 | AAP | Gigabit-capable passive optical networks (G-PON): Enhancement band - Amendment 2 | TD-589-PLEN | Dezhi (James) Zhang |
| G.984.5 Amd.3 | Q2/15 | Under study | 2021-07 | AAP | Gigabit-capable passive optical networks (G-PON): Enhancement band - Amendment 3 | - | Dezhi (James) Zhang |
| [G.987.2 (2016) Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15226) | Q2/15 | Consented | 2020-09 | AAP | 10-Gigabit-capable passive optical networks (XG-PON): Physical media dependent (PMD) layer specification - Amendment 2 | TD-628-PLEN | Dekun Liu  |
| G.987.3 Amd.2 | Q2/15 | Under study | 2021-07 | AAP | 10-Gigabit-capable passive optical networks (XG-PON): Transmission Convergence (TC) layer specification - Amendment 2 | C 2179 | Frank Effenberger |
| [G.988 (2017) Amd.4](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16471) | Q2/15 | Under study | 2020-09 | AAP | ONU management and control interface (OMCI) specification: Amendment 4 | - | Marta Seda, Lin Wei |
| [G.989.2 Amd.1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16473) | Q2/15 | Consented | 2020-09 | AAP | 40-Gigabit-capable passive optical networks (NG-PON2): Physical media dependent specification – Amendment 1 | TD-627-PLEN | Dekun Liu  |
| G.989.3 Amd.4 | Q2/15 | Under study | 2021-07 | AAP | 40-Gigabit-capable passive optical networks (NG-PON2): Transmission convergence specification – Amendment 4 | C 2157 | Denis Khotimsky |
| G.9803 Amd.2 | Q2/15 | Under study | 2021-07 | AAP | Radio over fibre systems - Amendment 2 | C 1987 | Toshiaki Kuri |
| [G.9804.1 Amd.1 (ex G.hsp.req)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15229) | Q2/15 | Under study | 2021-07 | AAP | Higher Speed Passive Optical Networks: Requirements - Amendment 1 | [TD 510-WP1](http://www.itu.int/md/T17-SG15-200127-TD-WP1-0439)  | Dezhi (James) Zhang |
| [G.9806 Amd.1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16474) | Q2/15 | Consented | 2020-09 | AAP | Higher speed bidirectional single-fibre point to point optical access systems: Amendment 1 |  TD-601-PLEN | Fabrice Bourgart, Shan Wey |
| G.9806 Amd.2 | Q2/15 | Under study | 2021-07 | AAP | Higher speed bidirectional single-fibre point to point optical access systems: Amendment 2 | - | Fabrice Bourgart, Shan Wey |
| [G.9807.1 (2016) Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15209) | Q2/15 | Consented | 2020-09 | AAP | 10-Gigabit-capable symmetric passive optical network (XGS-PON) | TD-626-PLEN | Ron Heron, Dekun Liu |
| [G.9807.3 (ex G.SuperPON)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15208) | Q2/15 | Under study | 2021-07 | AAP | Wavelength multiplexed point-to-multipoint 10-Gigabit-capable passive optical network | [C 1843](http://www.itu.int/md/T17-SG15-C-1843)  |  Cedric Lam, Xuming Wu |
| [G.hsp.50Gpmd](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14550) | Q2/15 | Under study | 2021-07 | AAP | Higher Speed Passive Optical Networks: 50G PMD | [TD 457-WP1](http://www.itu.int/md/T17-SG15-200127-TD-WP1-0457)  | Dekun Liu, Dechao Zhang |
| [G.hsp.comTC](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14549) | Q2/15 | Under study | 2021-07 | AAP | Higher Speed Passive Optical Networks: Common Transmission Convergence layer |  TD-621-PLEN | Dan Geng, Yuanqiu Luo, Shan Wey |
| [G.hsp.TWDMpmd](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14551) | Q2/15 | Under study | 2022 | AAP | Higher Speed Passive Optical Networks: TWDM PMD | [C 1136](http://www.itu.int/md/T17-SG15-C-1136)  | Richard Goodson, Hal Roberts |
| G.WDMPON.req | Q2/15 | Under study | 2021-07 | AAP | Wavelength Division Multiplexed Passive Optical Network: general requirement (G.WDMPON.req) (Continuation of the G.9802 series) | C 2082 | Dezhi Zhang, Fabrice Bourgart |
| G.WDMPON.pmd&tc | Q2/15 | Under study | 2022 | AAP | Wavelength Division Multiplexed Passive Optical Network: Physical media dependent (PMD) and Transmission Convergence (TC) (G.WDMPON.pmd&tc) (Continuation of the G.9802 series) | C 2067 | Jun Shan Wey, Peter Dawes,Derek Nesset |
| [G.sup49](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15210) | Q2/15 | Agreed | 2020-09 | Agreement | Rogue optical network unit (ONU) considerations | [C 1449](http://www.itu.int/md/T17-SG15-C-1449)  | Denis A. Khotimsky, Hal Roberts |
| [G.sup55](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16553) | Q2/15 | Under study | 2021-07 | Agreement | Radio-over-fibre (RoF) technologies and their applications" | [TD 533-WP1](http://www.itu.int/md/T17-SG15-200127-TD-WP1-0459)  | Toshiaki Kuri |
| [G.sup66](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16557) | Q2/15 | Agreed | 2020-09 | Agreement | 5G wireless fronthaul requirements in a passive optical network context | - | Yuanqiu Luo, Shan Wey |
| G.sup.CoDBA | Q2/15 | Under study | 2021-07 | Agreement | OLT capabilities for Cooperative DBA (G.sup.CODBA) | C 2264 | François Fredricx, Ed Walter |
| G.sup.5GBH | Q2/15 | Under study | 2021-07 | Agreement | G.Sup document on 5G small cell backhaul/midhaul over TDM-PON(G.sup 5GBH) | C 2150 | Wu Jia, Xuming Wu, Pascal Dom |
| [G.994.1 Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16475) | Q4/15 | Consented | 2020-09 | AAP | Handshake procedures for digital subscriber line transceivers - Amendment 2 | TD-610R2-PLEN | Miguel Peeters |
| G.994.1 Amd.3 | Q4/15 | Under study | 2021-07 | AAP | Handshake procedures for digital subscriber line transceivers - Amendment 3 | [-](http://www.itu.int/md/T17-SG15-200127-TD-WP1-0411) | Miguel Peeters |
| [G.997.2 Amd.2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16476) | Q4/15 | Consented | 2020-09 | AAP | Physical layer management for G.fast transceivers - Amendment 2 | TD-612R1-PLEN | Miguel Peeters |
| G.997.2 Amd.3 | Q4/15 | Under study | 2021-07 | AAP | Physical layer management for G.fast transceivers - Amendment 3 | TD-612R1-PLEN | Miguel Peeters |
| [G.997.3 (ex G.ploam-MGfast)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16477) | Q4/15 | Consented | 2020-09 | AAP | Physical layer management for MGfast transceivers | TD-611R2-PLEN | Miguel Peeters |
| [G.997.3 Amd.](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16477)1 | Q4/15 | Under study | 2021-07 | AAP | Physical layer management for MGfast transceivers – Amendment 1 | [-](http://www.itu.int/md/T17-SG15-200127-TD-WP1-0437) | Miguel Peeters |
| G.9701 Amd.3 | Q4/15 | Consented | 2020-09 | AAP | Fast access to subscriber terminals (G.fast) – Physical layer specification: Amendment 3 | TD-617R1-PLEN | Les Brown |
| G.9701 Amd.4 | Q4/15 | Under study | 2021-07 | AAP | Fast access to subscriber terminals (G.fast) – Physical layer specification: Amendment 4 | - | Les Brown |
| [G.9710 Amd.](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14267)1 | Q4/15 | Under study | 2021-07 | TAP | Multi-Gigabit fast access to subscriber terminals (MGfast) – Power spectral density specification: Amendment 1 | - | Eric Wang |
| [G.9711 (ex G.mgfast-PHY)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14267) | Q4/15 | Consented | 2020-09 | AAP | Multi-Gigabit fast access to subscriber terminals (MGfast) – Physical layer specification | TD-619R1-PLEN | Eric Wang |
| [G.9711 Amd.](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14267)1 | Q4/15 | Under study | 2021-07 | AAP | Multi-Gigabit fast access to subscriber terminals (MGfast) – Physical layer specification: Amendment 1 | - | Eric Wang |
| [G.fastback](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14895) | Q4/15 | Under study | 2021-07 | AAP | Transceiver and system specifications for backhaul applications based on G.fast | TD-524-WP1 | Les Brown |
| [G.Sup50](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15230) | Q4/15 | Under study | 2021-07 | Agreement | Overview of digital subscriber line Recommendations - Revision | - | Miguel Peeters |

**5.2 List of ongoing standardization activities in the area of Access Network Transport in other groups within ITU and other Standard Developing Organizations**

The following list contains developing Access Network Transport standards reported by the various groups by incoming Liaison documents or contributions. The list is a living document and is publicly available as part of the Internet presentation of ANT. The list is subject to change from correspondence and liaison statements during interim periods between Study Group meetings.

This list is intended to improve understanding and communication of the on-going work in the different Standardization Groups and may help identify possible gaps or overlaps.

**Status: September 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| Item No. | Source | Subject / Title | Comment |
| 1. | **Broadband Forum***TD 334 GENJan-Feb 2020* | **Broadband Forum** <https://www.broadband-forum.org>Broadband Forum Technical Committee Chair informs that on October 14, 2019, Broadband Forum took the final step to become ‘open’, adopting new Bylaws, which resulted in the Forum considering all its activities to be ‘open’ for the purposes of the U.S. Export Administration Regulations. The new Bylaws eliminate any restrictions on sharing Forum documentation and allow for anyone with interest to have access to Forum deliberations and documents if they apply for it.Information on Broadband Forum Projects “Access-Next” can be found at:<https://www.broadband-forum.org/projects/access-next>Published Broadband Forum Technical Reports related to ANT can be found at: <https://www.broadband-forum.org/technical-reports>Broadband Forum Abstract Test Plans related to ANT can be found at:<https://www.broadband-forum.org/abstract-test-plans> | More information on this change can be found at <https://www.broadband-forum.org/about-bbf/legal>Broadband Forum Work in Progress related to ANT can be found at:<https://www.broadband-forum.org/broadband-forum-resources/work-in-progress> |
|  | **CENELEC TC86A***TD 278 GENJuly 2019* | **CENELEC TC 86A - Optical fibres and optical fibre cables**TC86A approved to start the revision of CLC/TR 50510, “Fibre optic access to end-user - A guideline to building of FTTX fibre optic network”. A call for experts from CLC TC86A, CLC TC86BXA and CLC TC215 has been made.  | More information on CLC/TC 86A<https://www.cenelec.eu/dyn/www/f?p=104:7:1089811682801701::::FSP_ORG_ID,FSP_LANG_ID:1258369,25> |
|  | **ETSI TC ATTM***TD 138 WP1Jan-Feb 2018* | **ETSI TC ATTM - Access, Terminals, Transmission and Multiplexing** <https://www.etsi.org/committee/1390-attm>Liaison to ITU-T SG15 & Broadband Forum regarding LS on eco-environmental activitiesTC ATTM informs SG15 that ETSI PLT has been closed and its work area will be merged into ATTMTC ATTM informs ITU-T SG 15 and BBF on current and new works on standards for operational eco-efficient ICT and multiservices cities.TC ATTM proposes to cooperate with ITU-T SG15 and BBF on these specific topics to ensure coordination between European standards developed under EC Mandate M/462 and related International standards.Ongoing and future TC ATTM activities in achieving eco-efficient use of telecommunications networks are currently described below:- General eco-efficient engineering of ICT sites and networks: describe practices which shall be taken to improve eco-efficiency of sites and networks for broadband deployment.First version of documents of TS 105 174 Series: TS 105 174-1 (Generalities), TS 105 174-2 (Broadband Deployment and Energy Management; Part 2: ICT Sites), TS 105 174-4-1 (Broadband Deployment and Energy Management; Part 4: Access networks; Sub-part1: Fixed Access Networks).- Global KPIs (Key Performances Indicators): describe aspects of Global Key Performance Indicators in relation to energy management.First version of documents of ES 205 200 Series: ES 205 200-1 (Operational infrastructures, Part 1: General requirements), ES 205 200-2-1 (Operational infrastructures; Part 2: Specific requirements; Sub-part 1: Data centres), ES 205 200-2-2 (Operational infrastructures; Part 2: Specific requirements; Sub-part 2: Fixed Broadband access networks), ES 205 200-3 (Operational infrastructures; Part 3: Global KPIs for ICT Sites)- Multiservices cities: New work items to be agreed on “City individual terminals of Digital multiservices cities. | See also<https://portal.etsi.org/TBSiteMap/ATTM/ActivityReport.aspx>  |
|  | **ETSI ATTM TM6***Jan. 2020 Update from ETSI website* | TM6 have published TS 101 548 V2.1.1 (2016-09) Access, Terminals, Transmission and Multiplexing (ATTM); European Requirements for Reverse Powering of Remote Access Equipment - in September 2016. Work continued in this area and ETSI published the technical specification TS 101 548-1 V2.3.1 (2020-01) Access, Terminals, Transmission and Multiplexing (ATTM); European Requirements for Reverse Powering of Remote Access Equipment; Part 1: Twisted pair networks - in January 2020.Note: the ETSI TS 103 247 V1.1.1 and TS 105 175 series standards are listed in the HNT Standards Overview and Work Plan document |  |
|  | **IEEE 802.1***TD 428/GENSeptember 2020* | **IEEE 802.1 Working Group**CFM (Connectivity Fault Management) is widely used in Access and the YANG model was coordinated with ITU-T SG15, BBF & MEF. The project P802.1Qcx has been approved by the LMSC and IEEE-SA Standards Board but have not yet been published.For more information on project P802.1Qcx see:[P802.1Qcx – YANG Data Model for Connectivity Fault Management](https://1.ieee802.org/tsn/802-1qcx/)This new YANG model work will be 802.1Qcx-2020 - IEEE Standard for Local and Metropolitan Area Networks--Bridges and Bridged Networks Amendment: YANG Data Model for ConnectivityLink Layer Discovery Protocol (LLDP) also has some use in Access. There is new work underway in IEEE to add a YANG model (802.1ABcu) as well as adding longer or multiframe TLVs (802.1ABdh).For more information on project P802.1ABcu - Standard for Local and Metropolitan Area Networks - Station and Media Access Control Connectivity Discovery Amendment: YANG Data Model see:<https://standards.ieee.org/project/802_1ABcu.html>For more information on project P802.1ABdh - Standard for Local and Metropolitan Area Networks - Station and Media Access Control Connectivity Discovery Amendment: Support for Multiframe Protocol Data Units see:<https://standards.ieee.org/project/802_1ABdh.html> |  Approved Draft IEEE 802.1Qcx can be found at following URL:<https://standards.ieee.org/standard/802_1Qcx-2020.html> |
|  | **IEEE 802.3***TD 506 WP1September2020* | **IEEE 802.3 Ethernet Working Group**<http://www.ieee802.org/3/>Since the last IEEE 802.3 Working Group liaison communication (*TD 479-WP1 Jan Feb 2020*), there were several changes in the status of access-related projects within the IEEE 802.3 Working Group:**Update on IEEE P802.3ca Task Force**The IEEE P802.3ca Task Force has completed its work, with the amendment to IEEE Std 802.3-2018 approved on 4th June 2020 and published on 3rd July 2020. **Update on IEEE P802.3.2 (IEEE 802.3cf) YANG Data Model(s) Task Force**The IEEE P802.3.2 (IEEE 802.3cf) YANG Data Model(s) Task Force has completed the development of the standard for YANG data models for:* Selected MAC/RS and PHYs,
* Multi-Point Control Protocol (MPCP),
* DTE Power via Medium Dependent Interface (MDI), and
* Operations, Administration, and Maintenance (OAM).

These current approved YANG data models are available in a machine-readable format in the GitHub repository: <https://github.com/YangModels/yang/tree/master/standard/ieee/published/802.3>. | More information about the IEEE P802.3ca Task Force can be found at the following URL: <http://ieee802.org/3/ca/index.html>,including the PAR, CSD, and Objectives for this project. More information about the IEEE P802.3.2 (IEEE 802.3cf) Task Force, including the PAR, CSD, and Objectives, can be found at the following URL:[http://www.ieee802.org/3/cf/index.html.](http://www.ieee802.org/3/cf/index.html)  |
|  | **IEEE 802.3***Continuation of TD 506 WP1September 2020* | **Update on IEEE P802.3cp Task Force**The IEEE P802.3cp Task Force has started technical work on the development of bidirectional 10 Gb/s, 25 Gb/s, and 50 Gb/s optical access PHYs, supporting operating distances of at least 10 km, at least 20 km, and at least 40 km. The draft standard for this Task Force (D2.0) is stored in the private area and it is currently in the IEEE 802.3 Working Group Ballot stage.**Update on IEEE P802.3cs Task Force**The IEEE P802.3cs Task Force has started technical work on the development of increased-reach Ethernet optical subscriber access (so-called Super-PON), supporting a passive point-to-multipoint ODN with a reach of at least 50 km with at least 1:64 split ratio per wavelength pair, with at least 16 wavelength pairs for point-to-multipoint PON operation. Operation of 10 Gb/s downstream and 2.5 Gb/s and 10 Gb/s upstream is also expected. The currently adopted timeline for this project anticipates the beginning of the IEEE 802.3 Working Group Ballot by the end of2020. | More information about the IEEE P802.3cp Task Force, including the PAR, CSD, and Objectives, can be found at the following URL: <http://www.ieee802.org/3/cp/index.html>.More information about the IEEE P802.3cs Task Force, including the PAR, CSD, and Objectives, can be found at the following URL: <http://www.ieee802.org/3/cs/index.html>. |
|  | **IEEE 802.16** | **IEEE 802.16 Working Group on Broadband Wireless Access Standards**<https://standards.ieee.org/standard/802_16-2017.html><https://standards.ieee.org/standard/802_16_1-2012.html><https://standards.ieee.org/standard/802_16_2-2004.html> | More information about the IEEE 802.16 WG can be found at following URL:<http://www.ieee802.org/16/> |
|  | **IEEE 1904** | **IEEE 1904 Access Networks Working Group**WG is responsible for the maintenance of:- IEEE Std 1904.1-2017 - IEEE Standard for Service Interoperability in Ethernet Passive Optical Networks (SIEPON)- 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<https://standards.ieee.org/standard/1904_1-2017.html>The Working Group is currently developing- [P1904.2 - Standard for Universal Management Tunnel for Ethernet-based Subscriber Access Networks](https://standards.ieee.org/project/1904_2.html)- [P1904.4 - Standard for Service Interoperability in 25 Gb/s and 50 Gb/s Ethernet Passive Optical Networks](https://standards.ieee.org/project/1904_4.html) | More information about the IEEE 1904 ANWG can be found at following URL:<http://www.ieee1904.org>. |
|  | **IEEE 1901** | **IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications** | <https://standards.ieee.org/standard/1901-2010.html> |
|  | **ITU-R SG1****ITU-R WP1A***TD 228 WP1October 2018* | **ITU-R SG1: Spectrum Management**ITU-R WP1A: Spectrum engineering techniquesSubject: Proposed new standard G.mgfast PSD specification; coexistence of wired telecommunication with radiocommunication systemsThe information provided by the [Q4/15](https://www.itu.int/en/ITU-T/studygroups/2017-2020/15/Pages/q4.aspx) regarding the G.mgfast PSD specification and the latest revision of the PSD specification has been reviewed by WP1A, which is pleased to note the more detailed information becoming available on the operational characteristics of G.mgfast and the PSD specification for G.mgfast.WP1A is also pleased to note that the later response advises on the subcarrier masking and notching arrangements that will be available in the G.mgfast toolkit. The toolkit will enable service providers to configure the G.mgfast PSD for their individual deployment scenarios, as required to comply with the regulations and priorities pertaining to frequency use set by national regulatory bodies.WP1A would, however, caution that the wide frequency ranges covered by the initial 424 MHz profile, the later planned 848 MHz profile, and the possible 1 696 MHz profile, will cover many radiocommunication systems that have not been considered in previous liaison activities, which mainly addressed aeronautical communication and radionavigation services, the amateur service and the broadcasting service. Some systems with frequency overlap are highly protected, such as 406 MHz [COSPAS-SARSAT](https://www.cospas-sarsat.int/en/system-overview/cospas-sarsat-system) EPIRBs. Moreover, many other radiocommunication systems are widely used in residential and business premises in these higher frequency ranges, such as IMT/LTE user equipment and scanning telemetry systems used in connection with smart grids – one such example has been proposed for addition in Report [ITU-R SM.2351-2](http://www.itu.int/pub/R-REP-SM.2351), *Smart grid utility management systems*, using frequencies in the 450 – 470 MHz range (information has been provided to SG 15 on this development in a separate liaison statement). | 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> |
|  | *Continuation of TD 228 WP1October 2018* | WP1A further notes the advice that the length of unscreened wireline G.mgfast connections are likely to average around 50 m, which will help to limit disturbances to or from G.mgfast through the ingress or egress of electromagnetic radiation.Regarding the draft PSD specification, WP1A would advise amending the heading of Table I.1, Appendix I, to reference “... the frequency range 1.8–424/848 MHz”. The table itself would need to be extended for a PSD band plan extending above 900 MHz.WP1A concludes with expressing its desire to continue the good cooperation established with SG15 and encourages copy recipients in ITU-R to check which of their systems overlap the G.mgfast band plans, especially those systems likely to be used in residential and business premises served by G.mgfast broadband access connections. This will assist service providers and regulatory authorities in configuring the subcarrier masking toolkit prior to installation, so as to forestall potential coexistence problems.The next meeting of WP1A is planned to be held on 28 May to 5 June 2019. |  |
|  | **ITU-R SG4ITU-R WP4B**  | **ITU-R SG4: Satellite Services**ITU-R WP4B: Systems, air interfaces, performance and availability objectives for FSS, BSS and MSS, including IP-based applications and satellite news gathering | More information about ITU-R SG4 can be found at following URL:<https://www.itu.int/en/ITU-R/study-groups/rsg4/Pages/default.aspx> |
|  | **ITU-R SG5ITU-R WP5A** | **ITU-R SG5: Terrestrial Services**ITU-R WP 5A: Land mobile service above 30 MHz\* (excluding IMT); wireless access in the fixed service; amateur and amateur-satellite servicesITU-R WP 5C - Fixed wireless systems; HF and other systems below 30 MHz in the fixed and land mobile services | 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> |
|  | **ITU-R****ITU-R SG6ITU-R WP6A***TD 221 WP1October 2018* | **ITU-R SG6: Broadcasting Service**ITU-R WP6A: Terrestrial broadcasting deliverySubject: Proposed new standard G.mgfast and risk of interference to the reception of broadcasting servicesWP6A noted that the *MGfast* broadband access has been announced as targeting maximum aggregate net data rates from 5 Gb/s to 10 Gb/s over a single line. It is noted that use of the following transmission media types is envisaged: “low quality” twisted pair and quad (multi-pair/quad cables) up to 50 m distance, “high quality” twisted pair (e.g., Cat 5/6/7) up to 100 m, and coax (e.g., RG-6, RG-11, RG-59) up to 150 m.WP6A understands that the *MGfast* band plan extends the schemes developed for *Gfast*, which uses 106 MHz and 212 MHz power spectral density (PSD) profiles, to 424 MHz and 848 MHz profiles. WP6A also understands that the total power transmitted over multi-user cable bundles is provisionally set at +4 dBm, in contrast to the higher limit of +8 dBm for *Gfast.*WP6A would therefore advise that there are several digital sound and television broadcasting systems operating worldwide within the two *MGfast* band plans. It would therefore be constructive to consider the levels of ingress and egress along non-shielded wires running above ground. WP6A further understands that the lengths of open wire connections running above ground are unlikely to exceed a few tens of metres, which should help to limit the chance of disturbances arising.With further information on the *MGfast* band plans now becoming available, WP6A feels that the situation needs to be kept under review as regards the frequency ranges and power intended to be used over *MGfast* lines and the quality of the lines used, in order to assess the risk of interference to the reception of broadcasting services at frequencies above the *Gfas*t 106 MHz band plan.In order to help in assessing the risk and impact of interference occurring; WP6A lists in the Annex below the broadcasting systems operating in the *MGfast* band plans. Further information on how the various band plans are intended to be used, especially as regards the actual bandwidth used, would be helpful for assessing the risk to the in-home reception of broadcasting services. | 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> |
|  | **ITU-R WP6A***Continuation ofTD 221 WP1October 2018* | WP6A considers that the interference potential of stray radiation from *Gfast* or *MGfast* drop wires on digital broadcasting systems would be as an additional source of wideband man-made noise in the vicinity of receivers. It is the case that most studies to date on the protection criteria for digital broadcasting systems have concentrated on interference from sources operating within the broadcasting service. However, more recent studies have started to examine the effect of noise-like interferers on the reception of several digital broadcasting systems. In order to see if these results are adequate to determine the level and extent of any adverse impact from *MGfast* drop wires, WP6A would appreciate receiving further information on how subchannels and subcarriers will be organized over *MGfast* links.WP6A noted that the *MGfast* channel bandwidth will be partitioned into a set of parallel subchannels, further information is specifically requested on:- how much of the full channel bandwidth will normally be in use by active subchannels;- the standard subchannel bandwidth and subcarrier spacing;- what flexibility will be available within the *MGfast* toolkit for masking out subchannels or sections of subcarriers that would overlap with locally available broadcasting services?With the understanding that the *MGfast* connection between fibre optic drop-off points and subscriber premises will at all times be under the control of authorized telecommunication service providers, who will also carry out the initial setup upon installation, WP6A is confident that mitigation measures can be applied in the case of interference arising provided that the *MGfast* toolkit is designed so as to incorporate the necessary flexibility.WP6A also understands that the situation will also kept under review in ITU-R WP1A, which has primary responsibility for liaising with ITU-T on co-existence matters. |  |
|  | **ITU-R WP6A***Continuation ofTD 221 WP1October 2018* | ANNEX**Digital broadcasting systems developed for use in the VHF and UHF bands allocated to the broadcasting service**The digital television, sound and multi-media broadcasting systems listed below have been developed for regional and/or national use around the world with several already in widescale use.The transition from analogue to digital broadcasting in the VHF and UHF bands is proceeding rapidly in many countries and while this has proceeded smoothly from the planning perspective, WP6A is aware of unexpected interference issues affecting reception in the domestic environment becoming apparent as the result of high levels of noise-like emissions from a wide variety of electrical and electronic equipment used in the home environment. Such effects could also pose a risk to the operation of *Gfast* and *MGfast* connections as well.VHF/UHF digital television/multi-media broadcasting systems- Advanced Television Systems Committee (ATSC) digital terrestrial television systems;- Digital video broadcasting – terrestrial (DVB-T) digital terrestrial television systems;- Terrestrial Integrated Services Digital Broadcasting – terrestrial (ISDB-T) digital terrestrial television systems;- Digital Terrestrial Multimedia Broadcasting (DTMB) – digital terrestrial television systems.VHF digital sound/multi-media broadcasting systems- Eureka 147 Digital Audio Broadcasting (DAB) systems;- Integrated Services Digital Broadcasting – terrestrial sound broadcasting (ISDB-TSB) digital sound broadcasting systems;- HD Radio Technology systems;- Digital Radio Mondiale (DRM) systems;- Real-time Audiovisual Information System (RAVIS);- Convergent Digital Radio (CDR) technology systems. |  |
|  | **ITU-R WP6B***TD 220 WP1October 2018* | ITU-R WP6B: Broadcast service assembly and accessITU-R WP6B studies a global platform for the broadcasting services on the basis of Question [ITU‑R 140/6](http://www.itu.int/pub/R-QUE-SG06.140). The global platform is a delivery platform to facilitate distribution of broadcast content to end-users with various receiving devices in multiple reception environments, implemented by using both broadcasting and non-broadcasting (e.g. broadband) technologies. In order to realize such platforms, higher speed and more robust home network transport may be required, for example for multi-channel UHDTV. Report ITU-R BT.2400 “Usage scenarios, requirements and technical elements of a global platform for the broadcasting service” includes technical elements for the global platform and describes delivery of multi-channel 8k content over 10G-EPON network, which is one of the recent access networks.  | 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-T SG9** *TD 487 WP1September 2020* | **ITU-T SG9: Broadband cable and TV**ITU-T Study Group 9 proposes two updates of the table on Organization of ANT Relevant Standards by Transmission Medium and Technology – Annex 2.1 of the ANT Standards Overview document :- ITU-T J.225 (05/2020): Fourth-generation transmission systems for interactive cable television services - IP cable modems- ITU-T J Suppl. 10 (04/2020): Correspondence between CableLabs DOCSIS Specifications and ITU-T J-series RecommendationsWork Programme of ITU-T SG9 can be found at following URL:<https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3929&isn_status=-1,1,3,7&details=0&field=acdefghijo> | More information about ITU-T SG9 can be found at following URL:<https://www.itu.int/en/ITU-T/studygroups/2017-2020/09/Pages/default.aspx> |
|  | **ITU-D SG1 Q2/1** | **Strategies and policies for the deployment of broadband in developing countries** Report from ITU-D SG1 Q2/1: Broadband access technologies, including IMT, for developing countries ( Year 2017) can be found at following URL:<https://www.itu.int/pub/D-STG-SG01.02.1-2017> | More information about ITU-D SG1 Q2/1 can be found at following URL:<https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG01-RGQ01.1&stg=1>Work plan can be found at<http://www.itu.int/md/D14-SG01-R-0002/en> |

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# 6. Basic field of activities related to the ANT Standards Overview

This list 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.

Those are:

**Status: September 2020**

| **Work Item** | **Title** | **Meeting results** | **Work during interim period** |
| --- | --- | --- | --- |
| 1 | Maintain and update the ANT Standards Overview together with other Study Groups and in conjunction with ITU-R and other relevant organizations. | The ANT Standards Overview was updated based on liaison statements from cooperating standards bodies and input from WP1/15 in the meeting. These changes have been made and a new version 34 – September 2020 has been created. | Maintain existing correspondence relationships with appropriate groups |
| 2 | Work on the web-based ANT Standards Overview. | The web-based ANT Standards Overview has been extended with Part 6 “Broadband Power Line Communications” and Part 7 “Fixed Broadband Wireless Access”, including Broadband Satellite and High-Altitude Platform Systems (HAPS)  | Update the web-based ANT Standards Overview.  |
| 3 | Maintain and update the ANT Standards Work Plan, identify “gaps and overlaps” by observing ongoing standardization activities. | The ANT Standards Work Plan was updated based on liaison statements from cooperating standards bodies and input from WP1/15 in the meeting. These changes have been made and this new Version 32 - September 2020 has been created. | Maintain existing correspondence relationships with the appropriate groups. |
| 4 | ITU inter-Sector coordination: Serve as focal point to and provide co-ordination with other Study Groups | The new version of the Access Network Transport (ANT) and Home Network Transport (HNT) Standards Overviews and Work Plans have been provided via LS to ITU-T SG20 as well as ITU-D SG1 and SG2. | 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. | Update done during the September 2020 meeting. Updated list has been provided via LS to SG11. | Maintain existing correspondence relationships with the appropriate groups |

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