Home Network Transport

Standards Overview and Work Plan

November 2023 Q1/15 meeting

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

Home Network Transport Standards Overview and Work Plan

**Issue 16, November 2023**

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| Revision Status Report: Major Updates of Version 16, November 2023 |
| In this version 16, following changes, additions and updates have been made: 1) Sections 1, 2, 3 and 4 of the document have been restructured.  2) The web-based HNT Standards Overview has been updated with following new or revised Standards, Recommendations, Amendments and Corrigenda, Supplements, Technical Reports and other technical documents from ITU-T SG15, other ITU Study Groups and other SDOs that have been approved and published since the last ITU-T SG15 April 2023 plenary meeting:   * General on Home Network > Home Network architecture and functions: BBF TR-488 (10/2023); ETSI GS F5G 014 V1.1.1 (2023-05) > Home Network security: ETSI GR F5G 010 V1.1.1 (2022-04) and GS F5G 012 V1.1.1 (2023-01) * Wireline home networking > Over phoneline: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023)   > Over powerline - Power Line Communications (PLC): ITU-T G.9901 (2017) Amd. 1 (04/2023)\*, G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023)  > Over coaxial cable: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023)  > Over Ethernet twisted-pair cable: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023) > Over plastic optical fibre (POF): ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023)  > Over glass optical fibre: ITU-T G.9940 (Draft), all ETSI GS F5G reports deleted   * Wireless home networking > General on WLAN and WPAN Wireless Access: ITU-R SM.2152.0 (09/2022), ITU-R SG5 Guide to the use of ITU-R texts (10/2023) > Optical wireless communications: IEEE 802.11bb-2023, IEEE 802.15.13-2023 * G.hn technology: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023) * Home gateways: BBF TR-456 Issue 2 Corrigendum 1 (07/2023); BBF TR-459 Issue 2 (04/2023); ITU-T J.1612 (07/2023) * Home Network applications > General on Smart Home Network: ITU-T J.1612 (07/2023), Y.4220(03/2023)   > Cable-based video services and IPTV: ITU-T J.299 (07/2023), J.1612 (07/2023)   * Internet connectivity   > Internet connectivity over wireline networking: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023) > Internet connectivity over wireless networking: ITU-R SM.2422, ITU-T G.9991, IEEE 802.15.7 have been deleted   * In-home Access Points connectivity   > In-home Access Points connectivity over wireline networking: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023)   * Personal and close proximity connectivity: IEEE 802.11bb (draft), IEEE 802.15.13 * IoT / Domotics applications   > IoT / Domotics over wireline networking: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023) > IoT / Domotics over wireless networking: IEEE 802.11bb (draft), IEEE 802.15.13   * Smart Grid applications: ITU-T G.9960 (06/2023), G.9962 (04/2023), G.9963 (06/2023); CENELEC EN 50491-12-2:2022 * Home and Building Automation Systems   > Home and Building Electronic Systems (HBES): CENELEC EN 50090-6-3 :2023 and EN 50491-12-2:2022  > Home Electronic System (HES): ISO/IEC 14543-4-302:2023, ISO/IEC 14543-5-103:2023   * Home Network cabling: CENELEC EN 50173-20:2022 and EN 50700:2023; ISO/IEC 11801-6:2017 and 11801-6:2017/COR1:2018; IEC 60794-2-11:2019+AMD1:2020 CSV * Environment and power supply of Home Network equipment: ITU-T L.1023 (08/2023) * Safety and protection of Home Network equipment: ITU-T K.93 (07/2023), K.147 (07/2023) * Operation and Maintenance (OAM) of Home Networks > Management of home network devices: BBF TR-369 Amendment 3 (06/2023), BBF TR-369 Amendment 3 Corrigendum 1(10/2023) > Data models for Home Network: BBF TR-106 Amendment 12 (06/2023), TR-181 Issue 2 Amendment 16 (06/2023), TR-369 Amendment 3 (06/2023), TR-369 Amendment 3 Corrigendum 1(10/2023)   > Performance testing of Home Network equipment: ETSI TS 103 754 V1.1.1 (2022-06)  (\*) Refer to the related main ITU-T Recommendation in the web-based overview to get access to the Amendment and/or Corrigendum   3) Work programmes and ongoing standardization activities in Sections 4.1 have been updated with the latest Q3/15 activities resulting from November 2023 ITU-T SG15 - WP1 plenary meeting and the latest Q5/15 and Q7/15 activities resulting from ITU-T SG15 - WP2 November 2023 plenary meeting.  4) Work programmes and ongoing standardization activities in Sections 4.2 and 4.3 have been updated with the incoming liaisons from other ITU SGs and SDOs and reports from liaison Rapporteurs of ITU-T SG15.  5) Sections 5 and 6 have been updated. |

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 [Broadband Forum; Bluetooth SIG; ETSI; HomeGrid Forum, CENELEC;  
 IEC; IEEE 802.3; IEEE 802.11; Wi-Fi Alliance®; IEEE 802.15;  
 IEEE 1901; IEEE 1905; ISO/IEC; MoCA®; TIA; TTC; Thread Group;  
 CSA (ex. Zigbee Alliance);   
 Z-Wave Alliance]

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**HOME NETWORK TRANSPORT** **STANDARDS OVERVIEW AND WORK PLAN**

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# General

As home networks become more sophisticated, and as their interactions with the access network become more complex, coordination between access network standards and home network standards becomes of increasing importance. **WTSA-20 reaffirmed** Study Group 15 as **Lead Study Group** on **Home Network Transport (HNT)** within ITU-T and 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 Home Network Transport.  
Using a process similar to the access network transport (ANT) standards coordination, a **Home Network Transport (HNT) Standards Overview and Work Plan** has been developed.

The HNT Standards Overview and Work Plan is a living document. The current version is available at <https://www.itu.int/en/ITU-T/studygroups/Pages/sg15-hnt.aspx>.

# Introduction

The continuing customer demand for ever higher bit rate data services, high-speed Internet access and other innovative services, and the ongoing needs of network operators to leverage in-premises connectivity for distributing within the home IPTV and other services and applications, require the development of new Recommendations and enhancements to existing Recommendations covering all aspects of in-premises networking transceivers. These studies include, but are not limited to, the transport of higher layer protocols, the management and test of the in-premises systems, spectral management aspects and energy saving techniques.

Given the interdisciplinary nature of Home Network applications, it is expected that a high degree of cooperation with other ITU Sectors (ITU-R, ITU-D), ITU-T Study Groups, Questions, Focus Groups (FGs), Joint Coordination Activities (JCAs), Global Strategic Initiatives (GSIs), as well as other international standards bodies will be required.

Within the ITU-T, the study and development of Recommendations related to transport in the Home Network is being carried out in Study Group 15 - see in Section 2 below, and in several other Study Groups - e.g. SGs 5, 9, 13, 16, 17, 20 as well as in ITU-R - see in Section 3 below. Other standards bodies, forums and consortia are also active in this area - see in Section 4 below for the lists of such activities.

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 ITU-T designated Study Group 15 as the **Lead Study Group** on **Home Network.**A **web-based HNT Standards Overview** has been created to classify the **existing HNT standards** and to represent the multitude of home networking technologies and services offered to the customer.This web presentation of the existing HNT standards is part of the present document and isavailable in the web-based ITU-T Standards Landscape – Topic/Root “Home Network Transport Standards“ at [ITU-T landscape for ICT standards - HNT](https://www.itu.int/itu-t/landscape/?topic=tx153&group=g&search_text=) on the ITU-T SG15 website.

The description and taxonomy of the web-basedHNT Standards Overvieware provided in the **Sections 3.1, 3.2** and **3.3** of the present document.

The list of **HNT-Relevant Standards** can be downloaded using the topics and related groups (ITU Study Groups and SDOs) of the web-based HNT Standards Overview represented in **Section 3.3.**

A guide on the use of the web-based HNT Standards Overview is provided in **Annex 1**.

A critical part of the HNT 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 in **Section 5** 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 HNT Standards Overview and Work Plan.

1. **Home Network Transport technologies**
2. Wireline home networking
   1. Over phoneline
      * HomePNA transceivers [ITU-T G.995x-series]
      * Phoneline Enhanced HomePNA transceivers [ITU-T G.9954]
      * Phoneline G.hn unified transceivers [ITU-T G.996x-series]
   2. Over powerline - Power Line Communications (PLC)
      * Narrowband PLC transceivers [ITU-T G.990x-series];  
        [IEEE COM/PLC: IEEE Std 1901.2 and 2a]
      * Broadband PLC transceivers [IEEE COM/PLC: IEEE Std 1901, 1901b and 1901.1]; [ISO/IEC 12139-1]; [TIA-1113]
      * Powerline G.hn unified transceivers [ITU-T G.996x-series]
   3. Over coaxial cable
      * Multimedia over Coax Alliance (MoCA) [MoCA Home 2.0/2.0 Bonded, 2.5, 3.0 and MoCA Link]
      * Coax Enhanced HomePNA transceivers [ITU-T G.9954]
      * Coax G.hn unified transceivers [ITU-T G.996x-series]
      * HiNoC - High performance network over Coax [ITU-T J.195.x-series, J.196.x-series, J.198.1]
   4. Over Ethernet twisted-pair cable
      * IEEE 802.3 transceivers over Catx cable [IEEE Std 802.3]
      * Catx G.hn unified transceivers [ITU-T G.996x-series]
   5. Over plastic optical fibre (POF)
      * ETSI POF based home networking [ETSI TS 105 175-1.x-series]
      * IEEE 802.3 transceivers over POF [IEEE Std 802.3]
      * POF G.hn unified transceivers [ITU-T G.996x-series]
   6. Over glass optical fibre
      * FTTR [ITU-T G.9940 (draft)]
3. Wireless home networking
   1. IEEE 802.11 Wireless LAN / Wi-Fi [IEEE Std 802.11: 802.11n (Wi-Fi 4), 802.11ac (Wi-Fi 5), 802.11ax (Wi-Fi 6 and 6E)]
   2. IEEE 802.11 Wireless Gigabit (WiGig) [IEEE Std 802.11: 802.11ad, 802.11aj, 802.11ay]
   3. IEEE 802.11 Wake-Up Radio [IEEE Std 802.11: 802.11ba]
   4. Sub 1 GHz Wireless LAN [IEEE Std 802.11: 802.11ah]; [ITU-T G.9959]
   5. ETSI HiperLAN Type 2 [ETSI TR 101 683, TS 101 475, TS 101 493-1, TS 101 761-1]
   6. ETSI DECT (Digital Enhanced Cordless Telecommunications)
      * Classic DECT [ETSI EN 300 175-x-series]
      * DECT Ultra Low Energy (ULE) [ETSI TS 102 939-x-series]
      * DECT-2020 New Radio (NR) [ETSI TS 103 636-x-series]
   7. IEEE 802.15.4 based low-rate wireless networks [IEEE Std 802.15.4];   
      [Thread Group]; [Connectivity Standards Alliance (CSA) – es Zigbee Alliance]
   8. Bluetooth technology [Bluetooth SIG: Bluetooth Classic and Bluetooth Low Energy]
   9. Optical wireless communications
      * Visible Light Communication / Li-Fi [ITU-T G.9991 and G.9992];   
        [IEEE 802.11bb (draft)]; [IEEE Std 802.15.7 and 802.15.13]
   10. Sub 1 GHz wireless / Z-Wave transceiver [ITU-T G.9959], [Z-Wave Alliance]
4. **Overview of Home Networks applications**

**Table 5 – Examples of Home Network applications and related Home Network technologies**

| **Technology** | **Standards** | **Internet connectivity** | **In-home Access Points connectivity** (Note 1) | **Personal and close proximity connectivity** (Note 2) | **IoT / Domotics applications** (Note 3) | **Smart Grid / Energy Management** |
| --- | --- | --- | --- | --- | --- | --- |
| **Wireline home networking** | | | | | | |
| **HomePNA (Phoneline)** | G.9951  G.9952  G.9953 G.9954 | X |  |  |  |  |
| **G.hn  (Phoneline)** | G.9960  G.9961  G.9962  G.9963 G.9964 | X | X |  | X |  |
| **Narrowband  PLC  (Powerline)** | G.9901 G.9902  G.9903  G.9904  G.9905 |  |  |  | X | X |
| IEEE 1901.1 IEEE 1901.2 IEEE 1901.2a |  |  |  |  | X |
| **G.hn  Broadband  PLC  (Powerline)** | G.9960 G.9961 G.9962 G.9963 G.9964 | X | X |  | X | X |
| **Other  Broadband  PLC  (Powerline)** | IEEE 1901 IEEE 1901b | X | X |  | X | X |
| IEEE 1901.1 |  |  |  |  | X |
| **MoCA (Coax)** | MoCA Alliance | X | X |  |  |  |
| **HiNoC (Coax)** | J.195 series J.196 series J.198.1 | X | X |  |  |  |
| **HomePNA (Coax)** | G.9954 | X | X |  |  |  |
| **G.hn (Coax)** | G.9960 G.9961  G.9962  G.9963 G.9964 | X | X |  | X |  |
| **IEEE 802.3**  **Ethernet (Catx)** | 1000BASE-T  2.5GBASE-T 5GBASE-T 10GBASE-T | X | X |  |  |  |
| 10BASE-T1L 10BASE-T1S |  |  |  | X |  |
| **G.hn  (Catx)** | G.9960 G.9961 G.9962  G.9963 G.9964 | X | X |  | X |  |
| **ETSI (PoF)** |  | X | X |  |  |  |
| **IEEE 802.3 (PoF)** | 1000BASE-RHA | X | X |  |  |  |
| **G.hn (PoF)** | G.9960  G.9961  G.9962  G.9963;  G.9964 | X | X |  | X |  |
| **Over glass optical fibre** | G.fin series **(*Under study*)** | X | X |  | X |  |
| **Wireless home networking** | | | | | |  |
| **IEEE 802.11** | Wi-Fi 4, 5, 6, 6E | X | X |  | X |  |
| WiGig mmWave Wi-Fi |  |  | X |  |  |
| **IEEE 802.11 Low power  Wi-Fi** | Sub-1 GHz IEEE 802.11ah Wake-Up Radio IEEE 802.11ba |  |  |  | X |  |
| **IEEE 802.15.4 based Low-Rate Wireless Networks** | IEEE 802.15.4 Thread |  |  |  | X |  |
| Zigbee |  |  |  | X | X |
| **Bluetooth** | Bluetooth Classic Bluetooth Low Energy (LE) |  |  | X | X |  |
| **ITU-T G.9959 Sub-1 GHz based Wireless Networks** | G.9959 Z-Wave |  |  |  | X | X |
| **DECT** | DECT ULE |  |  |  | X |  |
| Classic DECT DECT-2020 NR |  |  | X | X |  |
| **LiFi** | G.9991 IEEE 802.11bb IEEE 802.15.7IEEE 802.15.13 |  |  | X | X |  |
| **CENELEC “HBES” and ISO/IEC JTC 1/SC 25 “Home Electronic System”** | | | | | | |
| **HBES and HES** |  |  |  |  | X | X |

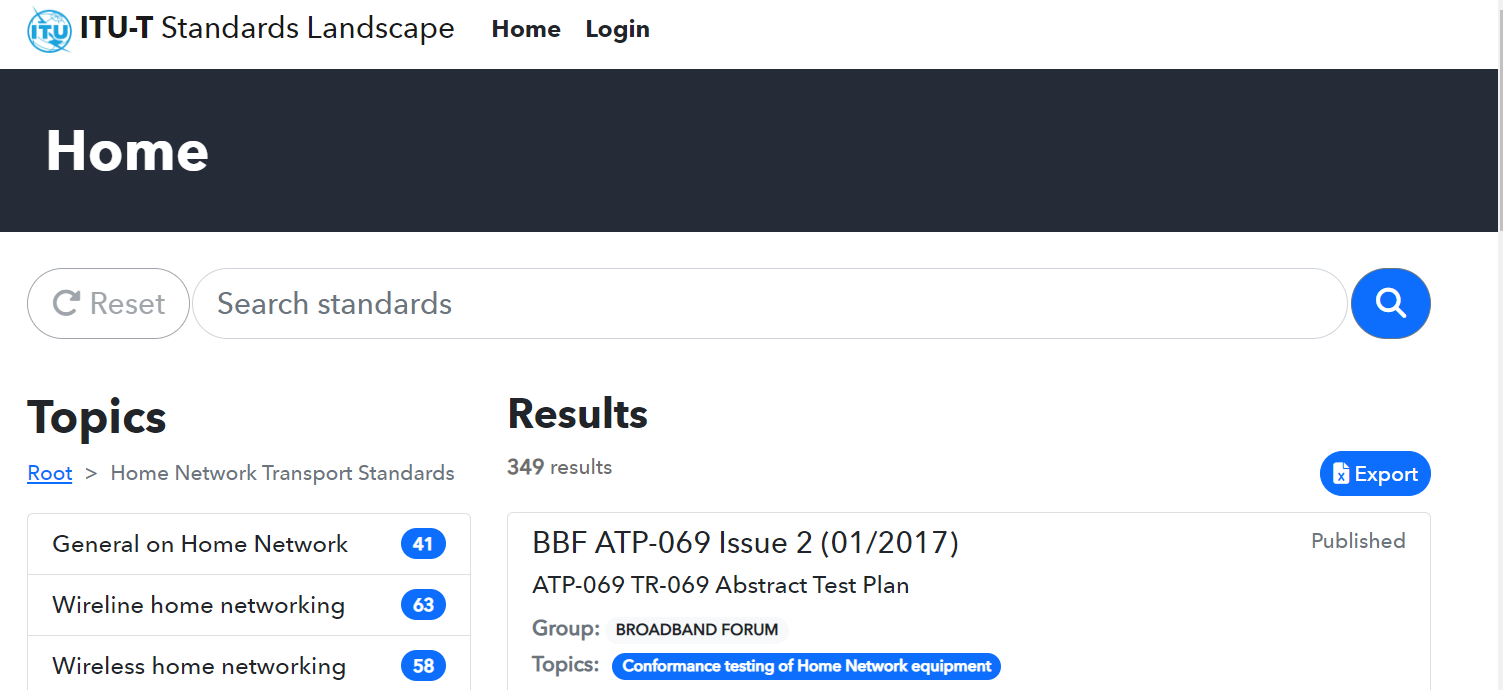
Note 1: Access Point connectivity to provide e.g. in-home Wi-Fi backhauling.  
Note 2: Personal connectivity for Personal Area Network (PAN) and close proximity connectivity e.g. cordless communication and multiple gigabit links typically at ranges of around 10 m for in-room use.  
Note 3: Connectivity to IoT and domotics applications e.g. to support Smart Home.

1. **Web presentation of the HNT Standards Landscape**

**3.1 Web-based HNT Standard Overview**

A web-based HNT Standards Overview was developed to classify the existing HNT standards using inputs and published standards lists from ITU-T Study Group 15 and other ITU Study Groups, as well as from other standards development organizations (SDOs), Forums & consortia.

The **web-based HNT Standards Overview** is part of the web-based ITU-T Standards Landscape  
- Topic/Root “Home Network Transport Standards” and is available on the ITU-T SG15 website at [ITU-T landscape for ICT standards - HNT](https://www.itu.int/itu-t/landscape/?topic=tx153&group=g&search_text=)



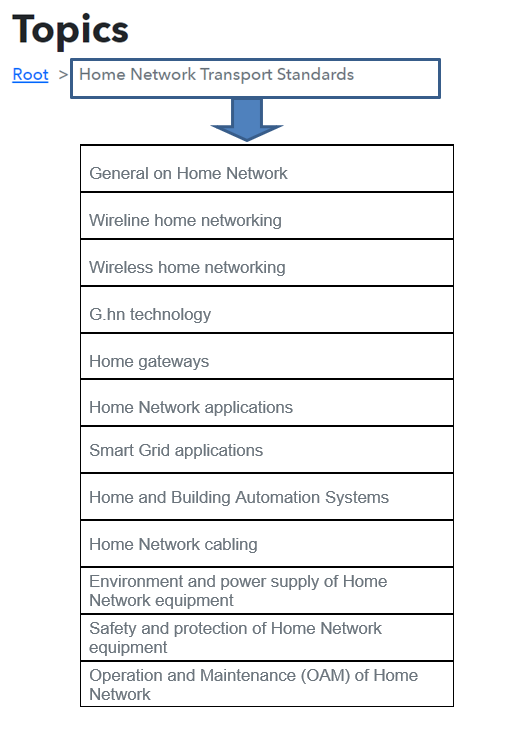
The web-based HNT Standards overview is organized by topics representing the home network technologies, the various systems generations of each technology and related technical matters as well as their applications in the home. It enables an easy identification and download of the publicly available Standards, Recommendations, Technical Specifications and other technical documents related to each topic. The web-based HNT Standards Overview focuses on the most relevant published and updated documents related to Home Network Transport.

The items listed within each topic represent Standards, Recommendations, Technical Specifications or other technical documents and are identified by their responsible ITU Study Group or SDO, their individual reference number, as well as their publication date and title. The items are also searchable on number, title and description and are alphanumerically listed within each topic; this is inherent in the data base system.   
  
Lists of Standards, Recommendations, Technical Specifications and other documents (items) can be generated from the web-based HNT Standards Overview as needed for each topic or groups of topics and responsible Group (ITU Sector or ITU-T SGs or SDOs) and exported on an excel table.

The taxonomy used for the web-based HNT Standards Overview is described in the Section 1.2 below and a guide on how to use the web presentation is provided in Annex 1.

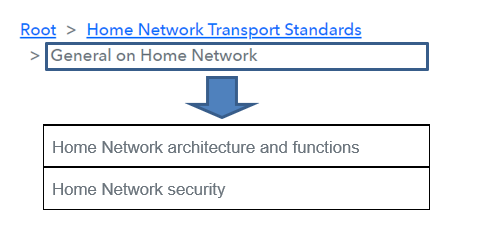
**3.2 Taxonomy of the web-based HNT Standards Overview**

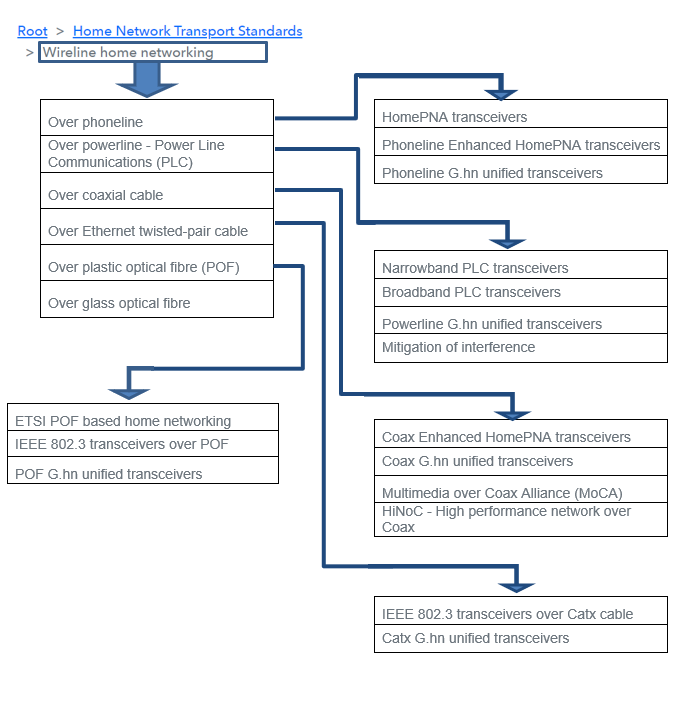
**Topics of “Home Network Transport Standards”** representing the home networking technologies and applications



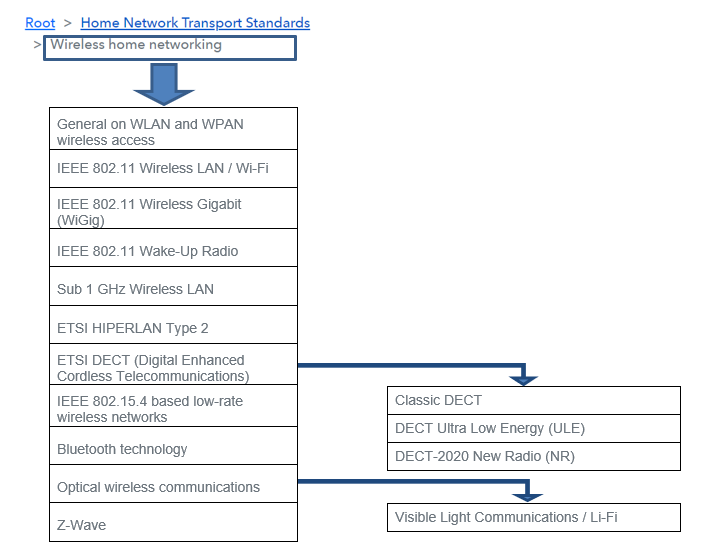
Each of the above topics is further described on the next pages.

**Topics of “General on Home Network”** providing general information on home network architecture and function as well as on the security aspects.



**Topics of the “Wireline home networking”** representing the various wire based home networking systems and transceiver generations.

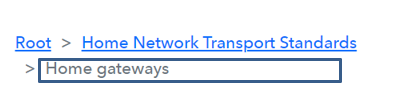
**Topics of the “Wireless home neworking”** representing the various wireless based home networking systems and transceiver generations.



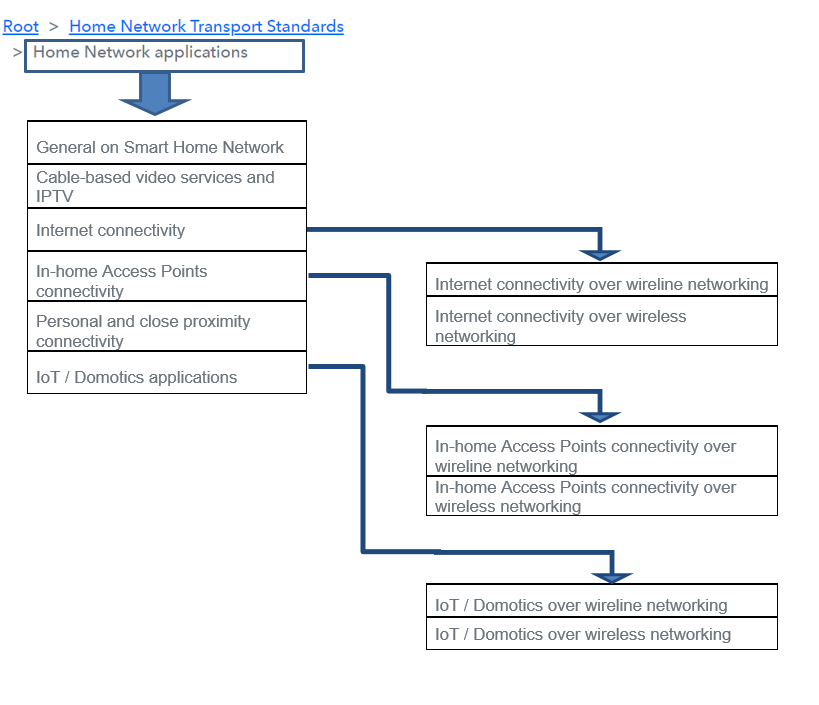
**Topic “G.hn technology”** providing the G.hn transceiver specifications and information on G.hn applications.



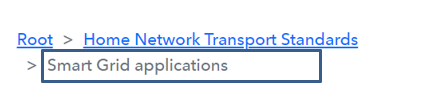
**Topic “Home gateways”** providing the specifications of various home gateways.



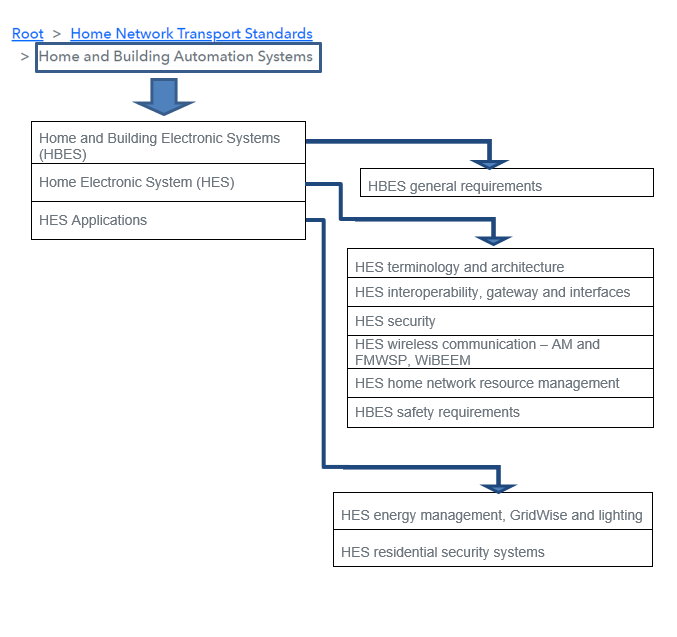
**Topics of “Home Network applications”** representing the various types of connectivities in the home and related home networking transceivers.



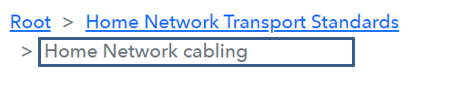
**Topic “Smart Grid applications”** representing the related home transceivers and technical matters.



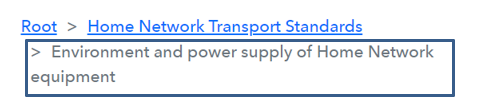
**Topics of “Home and Building Automation Systems”** representing HBES (CENELEC) and HES (ISO/IEC) general requirements, terminology, architecture and applications as well as other related technical matters.



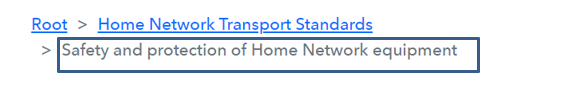
**Topic “Home Network cabling”** providing the standards related to home cabling.



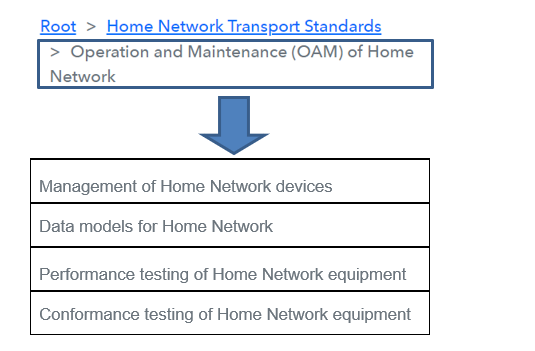
**Topic “Environment and power supply of Home Network equipment”** providing standards related to power supply of customer premises equipment.



**Topic “Safety and protection of Home Network equipment”** providing standards related the safety aspects of customer premises equipment.



**Topics of “Operation and maintenance (OAM) of Home Network”** providing standards related to management and testing of customer premises equipment.



# 3.3 HNT Topics and related Groups (ITU Study Groups and SDOs)

Some of the listed documents in the web-based ANT Standards Overview may not be publicly available. Interested people may contact the responsible standardization group in the list of contacts in Section 5.

**HNT Topics related to Transmission Medium, Transceivers Technologies and Applications**

|  |  |
| --- | --- |
| **TOPICS** | **GROUPS: ITU Study Groups and SDOs** |
| **General on Home Network** |  |
| > Home Network architecture and functions | Broadband Forum, ETSI ISG F5G,  IEC TC100 TA18, IEEE 1905, ITU-T SG15, SG16 and SG20 |
| > Home Network security | ISO/IEC JTC1/SC25, ETSI IGS F5G, ITU-T SG15 and SG17 |
| **Wireline home networking** |  |
| > Over phoneline |  |
| >>> HomePNA transceivers | ITU-T SG15 |
| >>> Phoneline Enhanced HomePNA transceivers | ITU-T SG15 |
| >>> Phoneline G.hn unified transceivers | ITU-T SG15 |
| > Over powerline - Power Line Communications (PLC) |  |
| >>> Narrowband PLC transceivers | IEEE COM/PLC, ITU-T SG15 |
| >>> Broadband PLC transceivers | IEEE COM/PLC, ISO/IEC JTC1/SC6, TIA |
| >>> Powerline G.hn unified transceivers | ITU-T SG15 |
| >>> Mitigation of interference | ITU-T SG15 |
| > Over coaxial cable |  |
| >>> Coax Enhanced HomePNA transceivers | ITU-T SG15 |
| >>> Coax G.hn unified transceivers | ITU-T SG15 |
| >>> Multimedia over Coax Alliance (MoCA) | MoCA |
| >>> HiNoC - High performance network over Coax | ITU-T SG9 |
| > Over Ethernet twisted-pair cable |  |
| >>> IEEE 802.3 transceivers over Catx cable | IEEE 802.3 |
| >>> Catx G.hn unified transceivers | ITU-T SG15 |
| > Over plastic optical fibre (POF) |  |
| >>> ETSI POF based home networking | ETSI TC ATTM |
| >>> IEEE 802.3 transceivers over POF | IEEE 802.3 |
| >>> POF G.hn unified transceivers | ITU-T SG15 |
| > Over glass optical fibre | ETSI TC ATTM, ITU-T SG15 |
| **Wireless home networking** |  |
| > General on WLAN and WPAN wireless access | ETSI TC BRAN and TC ERM,  ITU-R SG1 and SG5, ITU-T SG13 |
| > IEEE 802.11 Wireless LAN / Wi-Fi | IEEE 802.11 |
| > IEEE 802.11 Wireless Gigabit (WiGig) | IEEE 802.11 |
| > IEEE 802.11 Wake-Up Radio | IEEE 802.11 |
| > Sub 1 GHz Wireless LAN | IEEE 802.11, ITU-T SG15 |
| > ETSI HIPERLAN Type 2 | ETSI TC BRAN |
| > ETSI DECT (Digital Enhanced Cordless Telecommunications) |  |
| >>> Classic DECT | ETSI TC DECT, ITU-R SG5 |
| >>> DECT Ultra Low Energy (ULE) | ETSI TC DECT |
| >>> DECT-2020 New Radio (NR) | ETSI TC DECT |
| > IEEE 802.15.4 based low-rate wireless networks | IEEE 802.15,  Connectivity Standards Alliance (CSA), Thread Group |
| > Bluetooth technology | Bluetooth SIG |
| > Optical wireless communications |  |
| >>> Visible Light Communications / Li-Fi | IEEE 802.11, IEEE 802.15, ITU-R SG1, ITU-T SG15 |
| > Z-Wave | Z-Wave Alliance, ITU-T SG15 |
| **G.hn technology** | ITU-T SG15 |
| **Home gateways** | Broadband Forum, IEC TC 100 TA18, ISO/IEC JTC1/SC25, ITU-T SG15, SG9 and SG16 |
| **Home Network applications** |  |
| > General on Smart Home Network | ITU-T SG9, SG15 and SG20 |
| > Cable-based video services and IPTV | Broadband Forum, ETSI TC Cable and TC ATTM, ITU-T SG9, SG15 and SG16 |
| > Internet connectivity |  |
| >>> Internet connectivity over wireline networking | ETSI TC ATTM, IEEE COM/PLC,  IEEE 802.3, ITU-T SG9 and SG15, MoCA |
| >>> Internet connectivity over wireless networking | IEEE 802.11 |
| > In-home Access Points connectivity |  |
| >>> In-home Access Points connectivity over wireline networking | ETSI TC ATTM, IEEE COM/PLC,  IEEE 802.3, ITU-T SG9 and SG15, MoCA |
| >>> In-home Access Points connectivity over wireless networking | IEEE 802.11 |
| > Personal and close proximity connectivity | Bluetooth SIG, ETSI TC DECT, IEEE 802.11, IEEE 802.15, ITU-R SG1, ITU-T SG15 |
| > IoT / Domotics applications |  |
| >>> IoT / Domotics over wireline networking | IEEE COM/PLC, IEEE 802.3, ITU-T SG15 |
| >>> IoT / Domotics over wireless networking | Bluetooth SIG,  Connectivity Standards Alliance (CSA),  ETSI TC DECT, IEEE 802.11, IEEE 802.15, ITU-R SG1, ITU-T SG15 and SG20,  Thread Group, Z-Wave Alliance |
| **Smart Grid applications** | CENELEC TC 205,  Connectivity Standards Alliance (CSA),  ETSI TC ATTM, IEEE COM/PLC, ISO/IEC JTC1/SC25, ITU-R SG1, ITU-T SG15, SG17 and SG20,  Z-Wave Alliance |
| **Home and Building Automation Systems** |  |
| > Home and Building Electronic Systems (HBES) |  |
| >>> HBES general requirements | CENELEC TC 205 |
| > Home Electronic System (HES) |  |
| >>> HES terminology and architecture | ISO/IEC JTC1/SC25 |
| >>> HES interoperability, gateway and interfaces | ISO/IEC JTC1/SC25 |
| >>> HES security | ISO/IEC JTC1/SC25 |
| >>> HES wireless communication – AM and FMWSP, WiBEEM | ISO/IEC JTC1/SC25 |
| >>> HES home network resource management | ISO/IEC JTC1/SC25 |
| >>> HBES safety requirements | ISO/IEC JTC1/SC25 |
| > HES Applications |  |
| >>> HES energy management, GridWise and lighting | ISO/IEC JTC1/SC25 |
| >>> HES residential security systems | ISO/IEC JTC1/SC25 |

# ANT Topics related to Home Cabling Infrastructure incl. Operation and Maintenance

|  |  |
| --- | --- |
| TOPICS | GROUPS: ITU Study Groups and SDOs |
| **Home Network cabling** | CENELEC TC 86BXA and TC 215, ETSI TC ATTM, IEC TC 86 SC 86A, IEC TC 46 SC 46C, ISO/IEC JTC1/SC25,  ITU-T SG5 and SG15 |
| **Environment and power supply of Home Network equipment** | ETSI TC EE, ITU-T SG5 and SG9 |
| **Safety and protection of Home Network equipment** | IEC TC 76, ISO/IEC JTC1/SC25,  ITU-R SG1, ITU-T SG5 and SG15, |
| **Operation and Maintenance (OAM) of Home Network** |  |
| > Management of Home Network devices | Broadband Forum, IEEE 802.3,  ISO/IEC JTC1/SC25, ITU-T SG15 |
| > Data models for Home Network | Broadband Forum, IEEE 802.3 |
| > Performance testing of Home Network equipment | Broadband Forum, ETSI TC BRAN |
| > Conformance testing of Home Network equipment | Broadband Forum, Home Grid Forum, TTC |

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# 4. Ongoing standardization activities in the area of Home Network Transport

# 4.1 Ongoing standardization activities in the area of Home Network Transport within ITU-T SG15

Question 3/15 of ITU-T SG15 – WP1/15 is responsible for the Home Network standardization activities. Q3/15 addresses “Technologies for in-premises networking and related access applications”.

The table below of Q3/15 current work items has been updated with the latest Q3/15 activities resulting from SG15 WP1 November 2023 plenary meeting.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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) |
| [G.9940 (ex G.fin-SA)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18226) | Q3/15 | Approved 2023-12-01 | 2023-12 | AAP | High speed fibre-based in-premises transceivers - system architecture | TD191R1/PLEN | [Qiang Cheng](mailto:chengqiang(AT)caict.ac.cn), Xinrui Shi (China Telecom) |
| [G.9961](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18837) | Q3/15 | Approved 2023-12-01 | 2023-12 | AAP | Unified high-speed wireline-based home networking transceivers - Data link layer specification | TD-190R1/PLEN | [Les Brown (Huawei)](mailto:lesbrown(AT)sympatico.ca) |
| [G.9962 (2023) Amd1](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18858) | Q3/15 | Under study | 2024 | TAP | Unified high-speed wire-line based home networking transceivers - Management Specification - Amendment 1 |  | [Marcos Martinez (Maxlinear)](mailto:mmartinez(AT)maxlinear.com) |
| [G.9964](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18859) | Q3/15 | Approved 2023-12-01 | 2023-12 | TAP | Unified high-speed wireline-based home networking transceivers Power spectral density specification |  | [Les Brown (Huawei)](mailto:lesbrown(AT)sympatico.ca) |
| G.9942 (ex [G.fin-DLL](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18257)) | Q3/15 | Consented 2023-12-01 | 2023-12 | AAP | High speed fibre-based in-premises transceivers data link layer | TD297/PLEN | [Wu Jia (China Unicom)](mailto:jiawu9(AT)chinaunicom.cn), Xinrui Shi (China Telecom) |
| G.9943 ([G.fin-NM](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18258)) | Q3/15 | Under study | 2024 | AAP | High speed fibre-based in-premises transceivers network management | No base text | [Qiang Cheng](mailto:chengqiang(AT)caict.ac.cn), Yue Sun (China Unicom) |
| G.9941 (ex [G.fin-PHY](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18256)) | Q3/15 | Consented 2023-12-01 | 2023-12 | AAP | High speed fibre-based in-premises transceivers physical layer | TD263R1/PLEN | [Junwei Li (China Mobile)](mailto:lijunwei(AT)chinamobile.com), [Xuming Wu (Huawei Technologies Co., Ltd)](mailto:wuxuming(AT)huawei.com) |
| [G.hetnet](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18259) | Q3/15 | Under study | 2024 | AAP | Terminology & overview of the architecture of Heterogeneous Home Networks |  | [Marcos Martinez (Maxlinear)](mailto:mmartinez(AT)maxlinear.com), [Tony Zeng (Huawei)](mailto:tony.zengyan(AT)huawei.com) |
| [G.hn2](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18205) | Q3/15 | Under study | 2024 | AAP | Evolution of unified high-speed wire-line based home networking transceivers |  | [Tony Zeng (Huawei)](mailto:tony.zengyan(AT)huawei.com) |
| [G.IoT](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18214) | Q3/15 | Under study | TBD | AAP | System architecture, PHY layer and DLL layer for IoT Smart Home over PLC |  | [Yan Chen (HiSilicon)](mailto:chenyan524(AT)hisilicon.com), Yue Sun (China Unicom) |
| G.9930 (ex [G.p2pf](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18860)) | Q3/15 | Consented | 2023-12 | AAP | Point-to-Point Fibre in the Premises | TD276/PLEN | [Ronald Heron (Nokia)](mailto:ronald.heron(AT)nokia.com) |
| [G.Sup.Edge4Home](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18861) | Q3/15 | Under study | 2024 | Agreement | Enhanced on-premises networking with computing functions |  | [Wu Jia (China Unicom)](mailto:jiawu9(AT)chinaunicom.cn), [Haomian Zheng (Huawei)](mailto:zhenghaomian(AT)huawei.com) |
| [G.uvs-xR](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18290) | Q3/15 | Under study | 2024 | AAP | Technical requirements of extended reality service over in-premises networks |  | [Wu Jia (China Unicom)](mailto:jiawu9(AT)chinaunicom.cn) |
| [GSTP-HNSG](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18864) | Q3/15 | Under study | 2024 | Agreement | Technical paper on the use of G.hn technology for smart grid |  | Marc Sabater (Maxlinear), Cedric Lavenu (EDF) |
| [SUP-FTTR-4H](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18582) | Q3/15 | Under study | 2024 | Agreement | Use case and Requirements of Fibre-to-The-Room for Residential Applications (FTTR4H) |  | [Hai Ding](mailto:dinghai2(AT)chinaunicom.cn), Qizheng Li |
| [TP-UC-HN](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18216) | Q3/15 | Under study | 2024 | Agreement | Technical paper on the use of ITU-T G.hn technology for in-home networking |  | [Marcos Martinez (Maxlinear)](mailto:mmartinez(AT)maxlinear.com) |
| [TP-VLC](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18215) | Q3/15 | Under study | 2024 | Agreement | Technical paper on the use of ITU-T Visible Light Communication technology |  | [Marcos Martinez (Maxlinear)](mailto:mmartinez(AT)maxlinear.com) |
| G.wmci | Q3/15 | Under study | 2024 | AAP | WLAN management control interface (WMCI) for in-premises network | No base text | Mr Qiang Cheng (CAICT), Mr Hai Ding (China Unicom) |
| G.fin-XDLL | Q3/15 | Under study | 2025 | AAP | High speed fibre-based in-premises transceivers - 10G data link layer | No base text | Mr Qizheng Li (China Telecom), Mr Yi Jiang (ZTE) |
| G.fin-XPHY | Q3/15 | Under study | 2025 | AAP | High speed fibre-based in-premises transceivers - 10G Physical layer | No base text | Mr Junwei Li (China Mobile), Mr Xuming Wu (Huawei) |
| G.sup.TwinHome | Q3/15 | Under study | 2026 | Agreement | Digital twin network on in-premises networking | No base text | Mr. Wu Jia (China Unicom), Mr Jian Zhu (Huawei) |

**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

ITU-T Q3/15 Project FTTR (Fibre to the room)  
   
Question 3/15 of ITU-T SG15 organised a first Joint ETSI ISG F5G (European Telecommunications Standards Institute – Industry Specification Group - Fifth Generation Fixed Network), BBF (Broadband Forum), CCSA TC6 (China Communications Standards Association – Technical Committee 6) and ITU-T SG15 Workshop on “FTTR” (Fibre to the room) on 14 June 2021.  
For more information see workshop programme and presentations at  
<https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2021/0614/Pages/default.aspx>

Question 3/15 of ITU-T SG15 organised a second Joint ETSI ISG F5G, BBF, CCSA TC6 and ITU-T SG15 Workshop on “FTTR” (Fibre to the room) on 28 June 2022.  
For more information see workshop programme and presentations at  
<https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2022/0628/Pages/default.aspx>.

Question 3/15 of ITU-T SG15 organized a third Joint ETSI ISG F5G, BBF, CCSA TC6 and ITU-T SG15 Workshop on “FTTR” (Fibre to the room) on 23 June 2023.  
For more information see workshop programme and presentations at  
[Third Joint ETSI ISG F5G, BBF, CCSA TC6 and ITU-T SG15 Workshop on "FTTR" (Fibre to the room)](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2023/0623/Pages/default.aspx)

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) of the Home Network. 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 Home Network 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))](mailto:sudipta.bhaumik(AT)stl.tech) |
| [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),](mailto:tsukasa.hosokawa(AT)jp.fujikura.com) |
| [Jing Li (YOFC)](mailto:lijing(AT)yofc.com) |
| [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)](mailto:yamamoto-yoshinori(AT)sei.co.jp) |
| [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)](mailto:vincent.ferretti(AT)corning.com) |
| [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)](mailto:yuuto.sagae.nm(AT)hco.ntt.co.jp) |
| [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)](mailto:yuki.niiyama(AT)furukawaelectric.com) |
| [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)](mailto:yuki.niiyama(AT)furukawaelectric.com) |
| [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)](mailto:hanchao(AT)caict.ac.cn) |
| [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)](mailto:shensk(AT)chinaunicom.cn) |
| [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)](mailto:chihiro.kito(AT)ntt.com) |
| [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)](mailto:hanchao(AT)caict.ac.cn) |
| [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)](mailto:kozischedr(AT)corning.com) |
| [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)](mailto:hanchao(AT)caict.ac.cn) |

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>

**4.2. Ongoing standardization activities in the area of Home Network Transport in other ITU Study Groups**

This following list is intended to improve understanding and communication of the on-going work related to Home Network in other Study Groups of the ITU-T, ITU-R and ITU-D Sectors and may help identify possible gaps or overlaps.  
The list gives an updated overview of such activities.

| **ITU-T SGs** | **SGs activities related to Home Network and other information** |
| --- | --- |
| **ITU-T SG5**  continuation of **ITU-T SG5** | **ITU-T SG5: Electromagnetic fields (EMF), environment, climate action, sustainable digitalization, and circular economy WP1/5 - EMC, lightning protection, EMF WP2/5 - Environmental efficiency, e-waste, circularity and sustainable ICT networks** ITU-T SG5 work programme update related to Home Network  *SG15 TD 160 WP1 Nov – Dec- 2023*  ITU-T SG5 informs ITU-T SG15 that with respect to the information sent on 2022, under Q2/5, there is updated information on protection of single twisted pair Ethernet (SPE).  The standardization of single twisted pair power over Ethernet (SPoE) has been continuing by the IEEE 802.3 to supply up to 50 W to network powered devices (NPD), such as video cameras with pan and tilt. Industrially there is an SPE variant with a design reach of 1 km.  To keep members updated on SPE, in addition to informative document ITU-T K Suppl. 25 (05/2021), “Long reach single twisted-pair Ethernet resistibility testing”, ITU-T K.147 has been revised (revision published on 07/2023) as “Protection of digital ports connected to balanced pairs of conductors”, which also includes the information beneficial for considering overvoltage protection of SPE.  ITU-T SG5 is monitoring this SPE evolution for stability before revising any Recommendations or creating new Recommendations.  Regarding the work covering environmental aspects, ITU-T SG5 provides below the list of their current work items:   | **Name** | **Responsible group** | **Status** | **Subject** | **Topics** | | --- | --- | --- | --- | --- | | L.DP4I | ITU-T SG5 | Under study | An information model for digital product information on sustainability and circularity | Information, parameters required for the DPP | | L.UFCS | ITU-T SG5 | Under study | Universal Fast Charging Solution for mobile terminal | Specifications for universal fast charging solution | | L.UPCSW | ITU-T SG5 | Under study | Universal power adapter for smart watches and smart bands | Specifications for a standardized charger and charging adaptors and ports for all smartwatches and smart bands | | L.SimplifiedLCA | ITU-T SG5 | Under study | Guidance on simplified life cycle assessments of Information and Communication Technologies | Simplified method to assess the life cycle of an ICT good | | L.1070 (ex.L.GDSPP) | ITU-T SG5 | Consented | Global digital sustainable product passport opportunities to achieve a circular economy | Definition of a digital product passport of ICT equipment covering sustainable related parameters | | L.1023 | ITU-T SG5 | Consented | Assessment method for circular scoring | Update of the standard to clarify the application of some criteria |   Source: <https://www.itu.int/net4/ITU-T/landscape#?topic=0.132.9&workgroup=1&searchValue=&page=1&sort=Revelance>  Work programme of ITU-T SG5 can be found at following URL <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=5>  More information about ITU-T SG5 can be found at following URL <https://www.itu.int/en/ITU-T/studygroups/2022-2024/05/Pages/default.aspx> |
| **ITU-T SG9**  continuation of **ITU-T SG9** | **ITU-T SG9: Audiovisual content transmission and integrated broadband cable networks WP1/9 - Cable transport and terminals, including video and data**  ITU-T SG9 work programme update related to Home Network  *SG15 TD 192 GEN Nov – Dec 2023* 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-MAC.  Note: During its meeting held from 9 to 18 May 2023 ITU-T SG9 has consented several Recommendations relevant to the HNT: - Revision ITU-T J.1612 (07/2023) “Architecture for a Smart Home Gateway”, - Revision ITU-T J.299 (07/2023) “Functional requirements for remote management of cable set-top boxes by auto configuration server”.  Work 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** | **ITU-T SG11: Signalling requirements, protocols, test specifications and combating counterfeit telecommunication/ICT devices**  *SG15 TD 178 GEN Nov – Dec 2023*  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 requirements 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 SG13** | **ITU-T SG13: Future networks and emerging network technologies WP3/13 - Network Evolution, Trust and Quantum Enhanced Networking** Work Programme of ITU-T SG13 can be found at following URL <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=13>  More information about ITU-T SG13 can be found at following URL <https://www.itu.int/en/ITU-T/studygroups/2022-2024/13/Pages/default.aspx> |
| **ITU-T SG16** | **ITU-T SG16: Multimedia and related digital technologies​ WP1/16 - Multimedia content delivery**  *SG15 TD 642 WP1 December 2021* ITU-T SG16 informs ITU-T SG15 on its ongoing work and recommends to await the finalization of two recent draft recommendations related to HNT: - H.IPTV-TDES.6 "IPTV Terminal Device: Virtualized model" - H.IPTV-TDES.7 "IPTV Terminal Device: Home gateway integrated model" (Refer to work programme of WP1/16)  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-T SG17** | **ITU-T SG17: Security WP2/17 - 5G, IoT and ITS security**  Work programme of ITU-T SG17 can be found at following URL <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=17>  More information about ITU-T SG17 can be found at following URL <https://www.itu.int/en/ITU-T/studygroups/2022-2024/17/Pages/default.aspx> |
| **ITU-T SG20** | **ITU-T SG20: Internet of things (IoT) and smart cities and communities (SC&C) WP1/20 - Interoperability, Applications and Digital Services**  Work programme of ITU-T SG20 can be found at following URL <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=20>  More information about SG20 can be found at following URL <https://www.itu.int/en/ITU-T/studygroups/2022-2024/20/Pages/default.aspx> |

| **ITU-R SGs** | **SGs activities related to Home Network and other information** |
| --- | --- |
| **ITU-R**  **ITU-R SG1**    continuation of **ITU-R SG1** | **ITU-R overall activities related to Home Network**  ITU-R SG1: Spectrum Management WP1A - Spectrum engineering techniques  *SG15 TD 159 WP1 Nov – Dec 2023*  Liaison statement from ITU-R Working Party 1A on the role of powerline communications in home-networking applications.  ITU-R WP1A provides following comments on the role of powerline communications in home-networking applications.  Concerning the information linked to the HNT projects referenced in the recent work plans of ITU-T SG15 WP1,  ITU-R WP1A has noted a continuing interest in the use of powerline connectivity for various applications in and related to home-networking, including smart grids, smart metering, internet-of-things and visual light communications.  Considering the potential interference effects to radiocommunication services and the need for deconflicting the interactions between several powerline systems operating in the same domain or in neighbouring domains sharing common powerlines,  ITU-R WP1A would appreciate if ITU-T SG15 could provide an estimation of the role, scope and scale of the deployment still expected for powerline use in the current and anticipated home-networking projects.  ITU-R WP1A has noted the greater potential for interference when using the MIMO configuration for powerline communications as a result of additional radiation from the protective earth wire.  ITU-R WP1A concludes with expressing its desire to continue the good cooperation established with ITU-T SG15 and in trying to forestall interference problems from networking solutions using metallic conductors.  The next meeting of ITU-R WP1A is currently scheduled to be held during 12 to 19 June 2024. If information becomes available before then, it may also be communicated to the ITU-R WP1A Correspondence Group on EMC Related Interference and Coexistence of Wired Telecommunications systems with Radiocommunication Systems, in order to ensure timely consideration of any potential co-existence issues.   |  |  | | --- | --- | | **Contacts:** Philippe Aubineau Counsellor, [ITU-R Study Group 1](http://www.itu.int/en/ITU-R/study-groups/rsg1/Pages/default.aspx) | [philippe.aubineau@itu.int](mailto:philippe.aubineau@itu.int) | | John Shaw Chairman of the Correspondence Group on EMC Related Interference and Coexistence of Wired Telecommunications systems with Radiocommunication Systems | [shawzone@usa.net](mailto:shawzone@usa.net) |   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>  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> |
| **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 SG5 Guide to the use of ITU-R texts: Overview of the ITU-R texts relating to the land mobile service, including wireless access in the fixe service (last update: 4 October 2023): see at <https://www.itu.int/oth/R0A06000001/en>  Radio Local Area Networks (RLANs) and Multiple Gigabit Wireless Systems (MGWS) WP 5A conducts work on radio local area networks (RLANs) and Multiple Gigabit Wireless Systems (MGWS) under Question [ITU-R 212-4/5](http://www.itu.int/pub/R-QUE-SG05.212) (Nomadic wireless access systems including radio local area networks).  LANs/MGWS could be used to implement a home network. For a description of this work refer to:  - section 8.2 “Nomadic Wireless Access” of the [Guide to the use of ITU-R texts relating to the land mobile service, including wireless access in the fixed service](http://www.itu.int/oth/R0A06000001/en), and in particular Recommendation [ITU-R M.1450-5](http://www.itu.int/rec/R-REC-M.1450/en), which recommends characteristics of broadband radio local area networks,  - section 8.4 “Multiple Gigabit Wireless Systems” of the [Guide to the use of ITU-R texts relating to the land mobile service, including wireless access in the fixed service](http://www.itu.int/oth/R0A06000001/en), and in particular Recommendation [ITU-R M.2003-2](http://www.itu.int/rec/R-REC-M.2003/en), which provides general characteristics and radio interface standards for MGWS in frequencies around 60 GHz and Report [ITU-R M.2227-2](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.2227-2-2017-PDF-E.pdf) which describes applications, deployment scenarios and technical characteristics of MGWS. - section 11: Cordless Telecommunication Systems of the Guide, and in particular Recommendation [ITU-R M.1033-1](https://www.itu.int/rec/R-REC-M.1033/en) and Report [ITU-R M.1025-1](https://www.itu.int/pub/R-REP-M.1025) which provides technical and operational characteristics of cordless telephones and cordless telecommunication systems.  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 SG5 can be found at following URL <https://www.itu.int/en/ITU-R/study-groups/rsg5/Pages/default.aspx> |
| **ITU-R SG6**  continuation of **ITU-R SG6** | **ITU-R SG6: Broadcasting Service** *SG15 TD 12 GEN September 2022* 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 – Introduction Section 2 – User Experience Section 3 – Production Experience Section 4 – Delivery Experience Section 5 – Accessible Experience Section 6 – Sustainable ExperiencePublication of the final text is targeted in Q2 2023.**WP6A - Terrestrial broadcasting delivery**  *SG15 TD 547 WP1 April 2021* In its liaison in TD 547 WP1 from April 2021, ITU-R WP6A Rapporteur on “Power Line Telecommunications (PLT) and General EMC-Related Potential Interference Issues” reports that it has analysed the work plan of ITU-T SG15 Question 3 (ex Question 18) (Table 3 in the “Home Network Transport Standards Overview and Work Plan- Issue 11, September 2020”) and provides a compilation of its work in the document “Update on recent EMC related issues” attached below.  ITU-R WP6A Rapporteur notes that no issues have been identified that would need an immediate response on possible concerns, but issues with PLT (in Q18 projects G.9904.1, G.Iot and G.uvs) have been identified where further monitoring, supported by studies by the broadcasting community, is essential.  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>  **WP6B - Broadcast service assembly and access**  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>  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> |
| **ITU-D SG1** | **ITU-D SG1: Enabling environment for meaningful connectivity** Question 1/1: Strategies and policies for the deployment of broadband in developing countries Question 5/1: Telecommunications/ICTs for rural and remote areas  *SG15 TD 91 WP1 April 2023*  ITU-D Q1/1 thanks ITU-T SG15 for the LS on the new versions of the HNT 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.  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 can be found at following URL <https://www.itu.int/en/ITU-D/Pages/New-ITU-D-Study-Group-Questions.aspx> |

**4.3. Ongoing standardization activities in the area of Home Network Transport in other Standards Development Organizations**

This following list is intended to improve understanding and communication of the on-going work related to Home Network in other Standardization Developing Organizations and may help identify possible gaps or overlaps.  
The list gives an updated overview of such activities.

| **SDOs** | **SDOs activities related to Home Network and other information** | |
| --- | --- | --- |
| **Broadband Forum** | **Broadband Forum** [https://www.broadband-forum.org](https://www.broadband-forum.org/)  *SG15 TD 90 WP1 April 2023*  Broadband Forum informs ITU-T SG15 that it has currently no feedback to convey concerning the HNT Standards overview and work plan.  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+Work+in+Progress+-+Projects%2C+Project+Streams%2C+and+Jira+Links) which will provide more detailed information on Broadband Forum work.  Information about Broadband Forum Projects “Connected Home” can be found at following URL <https://www.broadband-forum.org/projects/connected-home>  Broadband Forum Test Plans related to HNT can be found at following URL <https://www.broadband-forum.org/test-plans>  Broadband Forum Work in Progress related to HNT can be found at following URL <https://www.broadband-forum.org/broadband-forum-resources/work-in-progress>  *SG15 TD 267 GEN Nov – Dec 2023* Web-based HNT Overview has been updated according to the list in TD 267 GEN of new documents approved/published (since last SG15 meeting) | |
| **Bluetooth SIG** | **Bluetooth® Technology** <https://www.bluetooth.com/>  Bluetooth® Classic Bluetooth® Low Energy (LE) More information on Bluetooth technology can be found au following URL <https://www.bluetooth.com/learn-about-bluetooth/tech-overview/>  Information on Bluetooth Specificationscan be found at following URL <https://www.bluetooth.com/specifications/specs/> Bluetooth is a IEEE 802.15.1 based wireless system.  More information about Bluetooth specifications in development can be found at following URL <https://www.bluetooth.com/specifications/in-development/> | |
| **ETSI** | **ETSI** <https://www.etsi.org/> |
| **ETSI TC ATTM** | **ETSI TC ATTM “Access, Terminals, Transmission and Multiplexing”** <https://www.etsi.org/committee/1390-attm>  More information about ETSI ATTM can be found at following URL <https://portal.etsi.org/TB-SiteMap/ATTM/ATTM-ToR>  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#/> |
| **ETSI TC BRAN** | **ETSI TC BRAN “Broadband Radio Access Networks”** <https://www.etsi.org/committee/1389-bran>  More information about ETSI BRAN can be found at following URL <https://portal.etsi.org/TB-SiteMap/bran/bran-tor>  Work Programme of ETSI BRAN can be found at following URL <https://portal.etsi.org/tb.aspx?tbid=287&SubTB=287#/> |
| **ETSI TC DECT** | **ETSI TC DECT “Digital Enhanced Cordless Telecommunications”** <https://www.etsi.org/committee/1394-dect>  **ETSI Classic DECT** **ETSI DECT Ultra Low Energy (ULE)** **ETSI DECT-2020 New Radio (NR)**  DECT-2020 NR is a Radio Interface Technology (RIT) designed to provide a slim but powerful technology foundation for wireless applications deployed in various use cases and markets. This radio technology includes, but is not limited to Cordless Telephony, Audio Streaming Applications, Professional Audio Applications, consumer and industrial applications of Internet of Things (IoT) such as industry and building automation and monitoring, and in general solutions for local area deployments for Ultra-Reliable Low Latency Communication (URLLC) and massive Machine Type Communication (mMTC) as envisioned by ITU-R for IMT2020.  The roadmap of DECT can be seen in Technical Report TR 103 513 V1.1.1 (2019-11): Digital Enhanced Cordless Telecommunications (DECT); DECT Technology Roadmap  More information about ETSI DECT can be found at following URLs <https://portal.etsi.org/TB-SiteMap/dect/dect-tor> and <https://www.etsi.org/technologies/dect>  Work Programme of ETSI DECT can be found at following URL <https://portal.etsi.org/tb.aspx?tbid=19&SubTB=19,894#/> |
| **ETSI TC EE** | **ETSI TC EE “Environmental Engineering”** <https://www.etsi.org/committee/1395-ee>  More information about ETSI EE can be found at following URL <https://portal.etsi.org/TB-SiteMap/ee/ee-tor>  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#/> |
| **ETSI ISG F5G**  continuation of  **ETSI ISG F5G**  continuation of  **ETSI ISG F5G** | **ETSI ISG - Fifth Generation Fixed Network (F5G)** <https://www.etsi.org/committee/1696-f5g>  *SG15 TD 162 WP1 Nov – Dec 2023* Liaison statement from ETSI ISG F5G to respond to questions from Q3/15 to collect feedback on the 3rd joint workshop on FTTR. ETSI ISG F5G sees several potential other SDOs/groups to be invited.  - Since for many FTTR deployments, the fronthaul technology is based on IEEE WLAN specifications, and therefore inviting IEEE might make sense. - Fibre deployment regulation is the foundation of FTTR, therefore, ETSI TC ATTM could be the group to help to discuss FTTR infrastructure related topics. - Energy efficiency matters are becoming very important and ISG F5G has started focusing on these aspects; ETSI TC EE could bring important knowledge in the discussion when invited. - Fibre component and installation tool are important for fibre deployment engineering. The potential group includes ITU-T SG15 Q6 and IEC/ISC SC86B.  Regarding management methodologies for fibre-based in-premises networking: So far ETSI ISG F5G didn’t work on the management of FTTR. However, FTTR Management is in the scope of the recently approved Work Item on the End-to-end Management of F5G Advanced (WI-027). Management topic is service operator oriented, it is encouraged to invite more service operator to participate the workshop on that topic.  *SG15 TD 240 GEN Nov - Dec 2023* Extract from Liaison Report from ETSI ISG F5G Liaison Rapporteur of ITU-T SG15 and ETSI ISG F5G Liaison Officer  Besides 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#/>  More information about ETSI ISG F5G can be found at following URL <https://portal.etsi.org/Portals/0/TBpages/F5G/ISG_F5G_ToR_D-G_APPROVED_20191210.pdf>  ​​ |
| **HomeGrid Forum**  continuationof  **HomeGrid Forum** | **HomeGrid Forum** <http://www.homegridforum.org/>  HomeGrid Forum (HGF) is an industry alliance formed to support the development and deployment of a unified coaxial, phoneline, powerline, and plastic optical fiber home networking technology called G.hn (Gigabit Home Networking).  HomeGrid Forum G.hn Certification Testing More information about G.hn Certification can be found at following URL  <https://homegridforum.org/certification-overview/>  *SG15 TD 650 WP1 December 2021* In its liaison TD 650 WP1 from December 2021, HomeGrid Forum informs about the recent developments on the GiGAWire VB™ technology for broadband access applications, based on ITU-T G.hn family of Recommendations and provides details on the G.hn Access standardization profiles addressing broadband access network topologies, as well as the acceleration of the deployments with the GiGAWire VB™ open-source code program.  Additional information about GiGaWire can be found at following URL <https://homegridforum.org/giga-wire-access/> |
| **CENELEC** | **CENELEC** <https://www.cencenelec.eu/> |
| **CENELEC TC 86BXA** | **CENELEC TC 86BXA: Fibre optic interconnect, passive and connectorised components** *See section on CENELEC TC 86 and TC 86BXA in ANT Standards Workplan Issue 37 November 2023* General information, structure, work programme and published Standards 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> Business Plan of TC 86BXA: see <https://standards.cencenelec.eu/BPCLC/BP_TC_86BXA.pdf> |
| **CENELEC TC 205** | **CENELEC TC 205: Home and Building Electronic Systems (HBES)** General information, structure, work programme and published Standards can be found at following URL <https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258281> Business Plan of TC 205: see <https://standards.cencenelec.eu/BPCLC/BP_TC_205.pdf> |
| **CENELEC TC 215** | **CENELEC TC 215: Electrotechnical aspects of telecommunication equipment** General information, structure, work programme and published Standards can be found at following URL<https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258297> Business Plan of TC 215: see <https://standards.cencenelec.eu/BPCLC/BP_TC_215.pdf> |
| **IEC CISPR** | **International special committee on radio interference - EMC requirements** <https://www.iec.ch/emc/iec_emc/iec_emc_players_cispr.htm> |
| **IEC** | **IEC** <https://iec.ch/homepage> |
| **IEC TC 46/SC 46C** | **IEC TC 46/SC 46C: Wires and symmetric cables**  Scope, structure, projects and publications can be found at following URL<https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1366> |
| **IEC TC 76** | **IEC TC 76: Optical radiation safety and laser equipment** Scope, structure, projects and publications can be found at following URL<https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1264> |
| **IEC  TC 86/SC 86A**  continuation of  **IEC  TC 86/SC 86A** | **IEC TC 86/SC 86A: Fibres and cables** Scope, structure, projects and publications can be found at following URL<https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:1398>*SG15 TD 238 GEN Nov- Dec 2023*  **IEC SC86A WG3 (Cables)** New activity since the last ITU-T SG15 April 2023 meeting relevant to HNT: 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 100/TA 18** | **IEC TC 100/TA 18: Multimedia home systems and applications for end-user networks**  Scope, structure, projects and publications can be found at following URL<https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:22351> |
| **IEEE 802.3**  continuation of  **IEEE 802.3**    continuation of  **IEEE 802.3** | **IEEE 802.3 Ethernet Working Group** <https://www.ieee802.org/3/>The current revision is IEEE Std 802.3-2022, Standard for Ethernet: <https://standards.ieee.org/ieee/802.3/10422/>  *SG15 TD 217 WP1 Nov – Dec 2023* IEEE 802.3 Working Group communicates following update:  The following provides an update on the current status of HNT related documents and work within the IEEE 802.3 working group (HNT Standards Overview and Work Plan, Section 4.3/IEEE/IEEE802.3):  IEEE Std 802.3-2022, Standard for Ethernet is the current revision. This revision has eight approved amendments: IEEE Std 802.3dd-2022, IEEE Std 802.3cs-2022, IEEE Std 802.3db-2022, IEEE Std 802.3ck-2022, IEEE Std 802.3de-2022, IEEE Std 802.3cx-2023, IEEE Std 802.3cz-2023 and IEEE Std 802.3cy-2023 .  The following are example HNT applicable technologies in IEEE Std 802.3-2022 (including its amendments):   * The 10BASE-T, 100BASE-TX and 1000BASE-T specifications for operation over various grades of twisted pair cabling have long been used as a home networking technology, and they continue to be applicable. Home gateways typically include both IEEE Std 802.11 specified capabilities and either 10/100 Mb/s or 10/100/1000 Mb/s Ethernet ports. * 2.5GBASE-T, 5GBASE-T and 10GBASE-T provide a migration path for higher bandwidth home networks. * 1000BASE-RHA is a plastic optical fiber port type targeted for home networks. * Fiber optic Ethernet port types would be applicable to HNT especially in cases where a non-conductive medium is required. It is appropriate to note that BASE-T port types are not specified for outdoor cable installations. * For access to the home, the approved standard includes various speeds of operation for Ethernet Passive Optical Networks. * The standard also includes DTE Power via the MDI (also called Power over Ethernet) capabilities applicable to HNT (e.g., to provide power to security equipment). These specifications include multiple options for BASE-T cabling also providing options for amount of power provided to the Powered Device.   Other optional Ethernet capabilities have relevance to HNT including:   * Time Sensitive Networking related functions appropriate to support applications running over HNT, and Energy Efficient Ethernet specifications for many port types to reduce energy consumption. The IEEE Std 802.3cx-2023, amendment 6, Improved PTP Timestamping Accuracy amendment is now published. This amendment improves the precision of delay and jitter measurements, for data carried over Ethernet, capabilities that are leveraged by some time sensitive HNT applications. * Two additional standards provide SNMP and YANG management capabilities for Ethernet. Projects have been initiated to revise (update) the current standards. These projects are IEEE P802.3.1 (IEEE 802.3.1b), Standard for Ethernet Structure of Management Information version 2 (SMIv2) Data Model Definitions, and IEEE P802.3.2 (IEEE 802.3.2a), Standard for Ethernet - YANG Data Model Definitions. Both projects started the IEEE 802.3 Working Group ballot out of the November 2023 plenary meeting. More information about these two projects can be found at the following URLs: <https://www.ieee802.org/3/1/b>   and <https://www.ieee802.org/3/2/a>.   * The current IEEE P802.3da project within the IEEE 802.3 Working Group includes in its scope improving time synchronization and power delivery with potential application in home networks.  (Current activities are listed on the 802.3 home page: <http://ieee802.org/>3).  Approved amendments to IEEE Std 802.3-2022 and current projects enhance capabilities for many other Ethernet application areas. * The contact information for the chair of IEEE 802.3 in Section 5 is current.   See also *SG15 TD 258 GEN Nov – Dec 2023* |
| **IEEE 802.11**  continuation of **IEEE 802.11** | **IEEE 802.11 Working Group for Wireless Local Area Networks** <http://www.ieee802.org/11/> The current revision is IEEE Std 802.11-2020: <https://standards.ieee.org/ieee/802.11/7028/>  **Wireless LAN / Wi-Fi (branded as Wi-Fi 4, 5, 6 and 6E by Wi-Fi Alliance) Wireless Gigabit / WiGig (mmWave Wi-Fi) Wake-Up Radio (WUR) Low-power Wi-Fi Sub 1GHz Visible Light Communications / Li-Fi** New IEEE 802.11 standardization projects applicable to Home Network **IEEE 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 – IEEE Draft 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/> and  <https://www.ieee802.org/11/Reports/tgbe_update.htm>  **IEEE P802.11bf** is a Task Group about WLAN sensing within the IEEE 802.11 working group. IEEE P802.11bf - IEEE Draft 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 2: Enhancements for Wireless LAN Sensing More information about IEEE P802.11bf can be found at following URLs <https://standards.ieee.org/ieee/802.11bf/10365/> and <https://www.ieee802.org/11/Reports/tgbf_update.htm>  **IEEE 802.11bb** is a Task Group on Light Communications that is focused on introducing necessary changes to the base IEEE 802.11 Stds to enable communications in the light medium – access. IEEE published on 10 November 2023 the IEEE 802.11bb -2023 - IEEE 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 6: Light Communications  This amendment specifies modifications to existing physical layers (PHYs) and the medium access control layer (MAC) that enable transparent operation of IEEE 802.11 over the light in the 800 nm to 1000 nm band. This amendment specifies PHYs that provide bidirectional operations that achieve a minimum and maximum throughput of 10 Mb/s and 9.6 Gb/s, respectively, as measured at the MAC data service access point (SAP), and facilitate interoperability among solid-state light sources with different modulation bandwidths.  More information about IEEE 802.11bb can be found at following URLs <https://standards.ieee.org/ieee/802.11bb/10823/> and <https://www.ieee802.org/11/Reports/tgbb_update.htm> |
| **Wi-Fi Alliance®** | **Wi-Fi Alliance®** <https://www.wi-fi.org/> Information about the Wi-Fi generation names and user interface visuals can be found at following URL [Generational Wi-Fi User Guide](https://www.wi-fi.org/download.php?file=/sites/default/files/private/Generational_Wi-Fi_User_Guide_20181003.pdf)  Information about Wi-Fi Alliance work areas can be found at following URL <https://www.wi-fi.org/who-we-are/current-work-areas>  Information about Wi-Fi Certification can be found at following URL <https://www.wi-fi.org/certification> |
| **IEEE 802.15** | **IEEE 802.15 Working Group for Wireless Specialty Networks (WSN)** <http://www.ieee802.org/15/>  Low-Rate Wireless Networks <https://standards.ieee.org/ieee/802.15.4/7029/> - IEEE Std 802.15.4-2020 - IEEE Standard for Low-Rate Wireless Networks  Short-Range Optical Wireless Communications https://standards.ieee.org/ieee/802.15.7/6820/ - IEEE Std 802.15.7-2018 - IEEE Standard for Local and metropolitan area networks--Part 15.7: Short-Range Optical Wireless Communications  Multi-Gigabit/s Optical Wireless Communications  IEEE 802.15.13-2023 - IEEE Standard for Multi-Gigabit per Second Optical Wireless Communications (OWC), with Ranges up to 200 m, for Both Stationary and Mobile Devices More information can be found at following URL <https://standards.ieee.org/ieee/802.15.13/10269/>  Note: 802.15.13 is mainly designed for industrial wireless network applications. |
| **IEEE COM/PLC** | **IEEE Power Line Communications Standards Committee (PLC 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 devices  The list of published standards of the Power Line Communications Standards Committee is available at following URL <https://sagroups.ieee.org/plcsc/published-standards/> |
| **IEEE COM/PLC**  **IEEE 1901**  continuationof **IEEE 1901** | **IEEE 1901 IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications** <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 More information about IEEE 1901 can be found at following URL: https://standards.ieee.org/ieee/1901/7598/  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.  More information about the draft IEEE 1901.b can be found at following URL: <https://standards.ieee.org/ieee/1901b/10362/>  In May 2022, the 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 mediaP1901c 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 P1901.c can be found at following URL <https://sagroups.ieee.org/1901/> and https://standards.ieee.org/ieee/1901c/10922/ |
| **IEEE COM/PLC**  **IEEE 1901.1** | **IEEE 1901.1 IEEE Standard for Medium Frequency (less than 12 MHz) Power Line Communications for Smart Grid Applications**  <https://standards.ieee.org/ieee/1901.1/6834/>  - IEEE Std 1901.1-2018 - IEEE Standard for Medium Frequency (less than 12 MHz) Power Line Communications for Smart Grid Applications  Current project that has been authorized by the IEEE SA Standards Board to develop a standard. IEEE P1901.3 - Standard for Medium Frequency (less than 12 MHz) Power Line Communications (PLC) with a Hybrid PLC/Radio Frequency Physical Layer (PHY) |
| **IEEE COM/PLC**  **IEEE 1901.2**  continuation of **IEEE 1901.2** | **IEEE 1901.2 IEEE Standard for Low-Frequency (less than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications** - IEEE Std 1901.2-2013 - IEEE Standard for Low-Frequency (less than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications <https://standards.ieee.org/ieee/1901.2/4833/>  and amendment - IEEE Std 1901.2a-2015 - IEEE Standard for Low-Frequency (less than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications - Amendment 1 https://standards.ieee.org/ieee/1901.2a/6207/ |
| **IEEE 1905.1** | **IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies** <https://standards.ieee.org/ieee/1905.1/4995/>  - IEEE Std 1905.1-2013 - IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies <https://standards.ieee.org/ieee/1905.1/4995/>  - IEEE Std 1905.1a-2014 - IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies  Amendment 1: Support of New MAC/PHYs and Enhancements <https://standards.ieee.org/ieee/1905.1a/5820/> |
| **ISO/IEC JTC 1** | **ISO/IEC JTC 1 - Information technology** [IEC - ISO/IEC JTC 1 Dashboard> Scope](https://www.iec.ch/dyn/www/f?p=103:7:::::FSP_ORG_ID:3387) |
| **ISO/IEC JTC 1/SC 6** | **ISO/IEC JTC 1/SC 6: Telecommunications and information exchange between systems** <https://www.iso.org/committee/45072.html> |
| **ISO/IEC JTC 1/SC 25** | **ISO/IEC JTC 1/SC 25: Interconnection of Information Technology Equipment** <https://www.iso.org/committee/45270.html> All information related to ISO/IEC JTC 1/SC 25 is available on the[IEC web site](http://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:3399)  Scope of ISO/IEC JTC 1/SC 25 The scope of SC 25 is to provide technologies for interconnection of information technology equipment in Customer premises – see also [ISO/IEC JTC 1/SC 25 Scope](https://www.iec.ch/dyn/www/f?p=103:7:1288324492443::::FSP_ORG_ID,FSP_LANG_ID:3399,25)  ISO/IEC JTC 1/SC 25 Subcommittee(s) and/or Working Group(s) responsible for home networks: - SC 25/WG 1 “Home Electronic System (HES)” develops IoT (Internet of Things) standards for the interconnection of electrical and electronic equipment and products for homes and small buildings. - SC 25/WG 3 “Customer Premises Cabling” develops standards for customer premises cabling systems including test procedures, planning and installation guide.  *SG15 TD 546 WP1 April 2021* In its liaison ISO/IEC JTC 1/SC 25 attaches a summary “Home Electronic System (HES) Overview” dated September 2020 prepared by Dr. Kenneth Wacks - Convener of ISO/IEC JTC 1/SC 25/WG 1 – see attached below.  This summary provides an overview of the more than 50 standards and technical reports published and under development originated in SC25/WG1. This document served as reference for the update of the “List of HES standards and technical reports” below as well as Part 6 of the “Web-Based Home Network Transport (HNT) Standards Overview” - see Section 3 - of the present document. |
| **MoCA®**  continuation of **MoCA®**  continuation of **MoCA®**  continuation of **MoCA®** | **MoCA®** Multimedia over Coax Alliance <http://www.mocalliance.org/>  *SG15 TD 82 WP1 September 2022* MoCA provided a complete update of the section “MoCA home networking MAC/PHY specifications” as below.  The Multimedia over Coax Alliance, MoCA®, supports three versions of its MoCA home networking MAC/PHY specifications (MoCA Home™ 2.0/2.0 Bonded, MoCA Home™ 2.5 and MoCA Home™ 3.0).  MoCA 1.0 and 1.1 specifications are sunset and the Alliance no longer certifies products using these protocols.  **MoCA Home™ 2.0/2.0 Bonded**  - Up to 1 Gbps MAC data rate - Deterministic (scheduled) media access with 3.6 ms average latency  - Two packet error modes: Very low Packet Error Rate (1e-8) and Nominal Packet Error Rate (1e-6) - Single or dual 100 MHz channels operating in the frequency range of 400…1650MHz - Power states: active, low power, standby and sleep mode - Backward interoperable with MoCA 1.1  **MoCA Home™ 2.5** - Up to 2.5 Gbps MAC data rate  - MoCA protected setup (MPS) - Management Proxy - Enhanced Privacy - Network wide Beacon Power  - Bridge detection   * MoCA Home 2.5 is backward interoperable with MoCA Home 2.0/2.0 Bonded. **NOTE**: MoCASec™ is a peer-to-peer security feature accessible for MoCA Home**™** 2.0/2.0 Bonded and MoCA Home**™** 2.5 via firmware download. Peer-to-peer security is embedded in MoCA Home**™** 3.0.   **MoCA Home™ 3.0** - Up to 10 Gbps MAC data rate with a channel bandwidth of up to 1600 MHz and 5 Gbps with a channel bandwidth of up to 800 MHz - Less channel bandwidth required to achieve 2.5 Gbps of MAC data rate (300 MHz ~ 400 MHz)- Low latency (as low as 1.4 ms) - Provides peer-to-peer security capability  - Strong security and privacy features (support for IEEE Std 802.1X, 128-bit AES-CTR)  - Up to four 400 MHz channels operating in the frequency range of 200…2075MHz  - Support for network-wide reduced power mode - Support for remote password provisioning without user intervention - MoCA Home 3.0 is backward interoperable with MoCA Home 2.0/2.0 Bonded and MoCA Home 2.5.  More details on MoCA Home™ networking technology can be found at: <https://mocalliance.org/technology/index.php>  **MoCA Access™ 2.5** MAC/PHY Specification is a network access standard capable of 2.5 Gbps data rates over coaxial cable.  **MoCA Access™ 2.5** - Fiber extension technology using in-building coaxial cabling. - Based on MoCA 2.5 specification. -Throughput is 2.5 Gbps downstream and 2 Gbps upstream. - Latency is less than 5ms. - Point-to-multipoint serving up to 16 modems (clients). - Works over existing in-building coaxial wiring. - Operating frequency range of 400MHz - 1675MHz. - Co-exists with TV, and cellular (4G/5G) technologies. - Supports standard traffic shaping and QoS up to eight (8) traffic classes. - Strong security support. - Three transmission power modes with 45dB, 55dB or 65dB link budgets and power saving modes. - Included in TR-419 by Broadband Forum:  [Fiber to the extension point, Technical Report TR-419](https://www.broadband-forum.org/technical/download/TR-419.pdf)  Applications include: - Fiber to the building (FTTB) - MDUs, MTEs, Affordable Housing Units, Social and Affordable Housing - Wired backhaul for 4G/5G - Hotels, hospitals, restaurants, offices  MoCA Access supports standard traffic shaping and QoS up to eight (8) traffic classes. It also provides strong security, three transmission power modes with 45dB, 55dB or 65dB link budgets and power saving modes.  More details on MoCA Access can be found at following URL: <http://www.mocalliance.org/access/index.htm>  **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.  **MoCA link™ 2.5** shares the physical characteristics of **MoCA Home™ 2.5.** - Point to point connection for 5G, Fiber PON and Satellite - Ultra-low latency of less than 1 millisecond - Allows low-cost access termination on the street, roof, or outside wall of the premises - Enables reverse power feed - Based on MoCA Home™ 2.5 technology - 2.5 Gbps, Multi-Gigabit speeds - Will be extended to MoCA Link™ 3.0 (10 Gbps) - Ease of deployment using existing coaxial cabling - Ease of deployment reusing deployed coaxial cabling - Operating frequency range of 400MHz - 1675MHz. - Coexists with TV, DOCSIS and cellular (4G/5G) technologies. - Supports standard traffic shaping and QoS up to four (4) queue in actual applications. - Strong security support. - Three transmission power modes with 45dB, 55dB or 65dB link budgets and power saving modes.  More details on MoCA Link™ can be found at following URL <https://mocalliance.org/mocalink/index.php>  Note: MoCA emphasizes true and realized data rates and has conducted numerous field tests to verify MAC rates. |
| **TIA** | **TIA (Telecommunications Industry Association)** <http://standards.tiaonline.org/>  -TIA-1113 - 2008 Edition, May 2008: Medium-Speed (up to 14 Mbps) Power Line Communications (PLC) Modems using Windowed OFDM |
| **TTC** | **TTC (The Telecommunication Technology Committee)** <https://www.ttc.or.jp/e>  - TTC JJ-300.00 – Version 3.0 – May 25, 2017: Home-network Topology Identifying Protocol (HIP) |
| **Thread Group** | **Thread Group** <https://www.threadgroup.org/>  Thread Specifications can be found at following URL <https://www.threadgroup.org/support#specifications>  Thread is a IEEE 802.15.4 based wireless system. More information on Thread solution can be found at following URLs <https://www.threadgroup.org/What-is-Thread/Overview> <https://www.threadgroup.org/What-is-Thread/Developers> |
| **CSA (ex. Zigbee Alliance)** | **Connectivity Standards Alliance (CSA)** <https://csa-iot.org/>  In May 2021 Zigbee Alliance rebranded as Connectivity Standards Alliance.  Zigbee is a IEEE 802.15.4 based wireless system Zigbee Specifications can be found at following URL <https://csa-iot.org/all-solutions/zigbee/>  More information about the Zigbee solution and developer resources can be found at following URL  <https://csa-iot.org/resources/developer-resources/> |
| **Z-Wave Alliance** | **Z-Wave Alliance** <https://z-wavealliance.org/>  Z-Wave PHY and MAC layers are defined by ITU-T Recommendation [G.9959](http://www.itu.int/rec/T-REC-G.9959-201501-I) . Z-Wave Specifications can be found at following URL  <https://z-wavealliance.org/z-wave-specifications/>  More information about Z-Wave technology can be found at following URL <https://z-wavealliance.org/about_z-wave_technology/> More information on Z-Wave Smart home control can be found at following URL <https://www.z-wave.com/> |

**5. List of Contacts**

| **Body** | **Contact person** | | **Link to the Web-Site** | **Status of contact**  **Notes Liaison Tracking** |
| --- | --- | --- | --- | --- |
| Broadband Forum | Lincoln Lavoie Broadband Forum Technical Committee Chair [lylavoie@iol.unh.edu](mailto:lylavoie@iol.unh.edu) | | [www.broadband-forum.org/](http://www.broadband-forum.org/) | SG15 TD 267 GEN Nov – Dec 2023  Liaison Rapporteur Frank Van der Putten [frank.van\_der\_putten@nokia.com](mailto:frank.van_der_putten@nokia.com) |
| 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/GEN Nov – Dec 2023  Liaison Rapporteur Daniel Daems  [daniel.daems@commscope.com](mailto:daniel.daems@commscope.com)  SG15-TD 204/GEN Nov – Dec 2023  Liaison Rapporteur Daniel Daems [daniel.daems@commscope.com](mailto:daniel.daems@commscope.com) |
| CENELEC CLC/TC 205,  "Home and Building Electronic Systems (HBES)" |  | | <https://standards.cencenelec.eu/dyn/www/f?p=305:7:0:25:::FSP_ORG_ID,FSP_LANG_ID:1258281> |  |
| 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> |  |
| IEC TC 86 SC 86A Fibres and cables |  | | <https://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1398> | SG15 TC 238 GEN Nov – Dec 2023  Liaison Rapporteur Sudipta Bhaumik Sterlite Technologies Ltd, India [sudipta.bhaumik@stl.tech](mailto:sudipta.bhaumik@stl.tech) |
| ETSI TC ATTM  Access Terminals, Transmission and Multiplexing | Chairman: ATTM Dominique Roche eG4U [dominique.roche@eg4u.org](mailto:dominique.roche@eg4u.org)  ATTM Technical Secretary  Pat O’Keeffe  eG4U  [Pat.okeeffe@eg4u.ie](mailto:Pat.okeeffe@eg4u.ie)  ATTM AT2 Olivier Bouffant ATTM/AT2 Chairman [olivier.bouffant@orange.com](mailto:olivier.bouffant@orange.com) | | <https://www.etsi.org/committee/1390-attm> | SG15 TD 580 WP1 April 2021 |
| ETSI TC DECT  Digital Enhanced Cordless Telecommunications |  | | <https://www.etsi.org/committee/1394-dect> |  |
| ETSI ISG F5G 5th Generation Fixed Network | | Marcus Brunner [marcus.brunner@huawei.com](mailto:marcus.brunner@huawei.com) | <https://www.etsi.org/committee/1696-f5g> | SG15 TD 162 WP1 Nov – Dec 2023  SG15 TD 162 WP1  Nov – Dec 2023  Liaison Rapporteur Tony Zeng Huawei China [tony.zengyan@huawei.com](mailto:tony.zengyan@huawei.com) |
| ETSI TC EE Environmental Engineering | |  | <https://www.etsi.org/committee/1395-ee> |  |
| ETSI BRAN Broadband Radio Access Networks | |  | <https://www.etsi.org/committee/1389-bran> |  |
| IEEE 802.3 | David Law Chair, IEEE 802.3 Ethernet Working Group [dlaw@hpe.com](mailto:dlaw@hpe.com) | | <http://www.ieee802.org/3/> | SG15 TD 217 WP1 Nov – Dec 2023  SG15 TD 258 GEN Nov – Dec 2023 Liaison Rapporteur Tom Huber Nokia USA [tom.huber@nokia.com](mailto:tom.huber@nokia.com) |
| IEEE 802.11 |  | | <https://www.ieee802.org/11/> |  |
| IEEE 802.15 |  | | <http://www.ieee802.org/15/> |  |
| IEEE 1901 Working Group on Power Line Communications (COM/PLC) | Chair,  Jean-Philippe Faure  [jean-philippe.faure@progilon.com](mailto:jean-philippe.faure@progilon.com) | | <https://sagroups.ieee.org/1901/> | SG15 TD 639 WP1 April 2021 |
| MoCA®  Multimedia over Coax Alliance | Roberta Silverstein, Managing Director Multimedia over Coax Alliance, MoCA (R) [robertas@mocalliance.org](mailto:robertas@mocalliance.org) | | [www.mocalliance.org](http://www.mocalliance.org) [www.mocainyourhouse.com](http://www.mocainyourhouse.com) | SG15 TD 82 WP1 September 2022 |
| HomeGrid Forum |  | | <http://www.homegridforum.org/> | SG15 TD 650 WP1  December 2021 |
| ITU-R WP1A | John Shaw Chairman, Correspondence Group on EMC Related Interference and  Coexistence of wired telecommunication systems with radiocommunication systems [shawzone@gmail.com](mailto:shawzone@gmail.com)  Philippe Aubineau Counsellor  ITU-R Study Group 1 [philippe.aubineau@itu.int](mailto:philippe.aubineau@itu.int) | | [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 159 WP1 Nov – Dec 2023  SG15 TD 704 WP1 December 2021  SG15 TD 554 WP1 April 2021 |
| 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 WP6 | Yukihiro Nishida Chairman ITU-R Study Group 6 [nishida.y-fe@nhk.or.jp](mailto:nishida.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 Shaw Rapporteur on Power Line Telecommunication (PLT) and general EMC-related potential [shawzone@gmail.com](mailto:shawzone@gmail.com) | | <http://www.itu.int/en/ITU-R/study-groups/rsg6/Pages/default.aspx> | SG15 TD 547 WP1 April 2021 |
| ITU-R WP6B | Paul Gardiner Chairman, WP6B [paul.gardiner@eu.sony.com](mailto:paul.gardiner@eu.sony.com) | | <https://www.itu.int/en/ITU-R/study-groups/rsg6/rwp6b/Pages/default.aspx> |  |
| ITU-T SG5 | Dominique Würges SG5 Chairman [dominique.wurges@orange.com](mailto:dominique.wurges@orange.com)  Fryderyk Lewicki WP1/5 Chairman Orange Polska [fryderyk.lewicki@orange.com](mailto:fryderyk.lewicki@orange.com)  Paolo Gemma WP2/5 Chairman [paolo.gemma@huawei.com](mailto:paolo.gemma@huawei.com)  Qi Shuguang WP3/5 Chairman [qishuguang@caict.ac.cn](mailto:qishuguang@caict.ac.cn) | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/default.aspx> | SG15 TD 160 WP1 Nov – Dec 2023  SG15 TD 87 WP1  April 2023 |
| ITU-T SG9 | Satoshi Miyaji Chairman SG9  KDDI Corporation, Japan [sa-miyaji@kddi.com](mailto:sa-miyaji@kddi.com)  Cui Zhao  ABS, NRTA, China [zhaocui@abs.ac.cn](mailto:zhaocui@abs.ac.cn)  Kei Kawamura  Rapporteur for Q1/9  KDDI Corporation ki-kawamura[@kddi.com](mailto:@kddi.com)  Jingyi Xue Rapporteur of Q10/9 ABP, NRTA China [xuejingyi@abp2003.cn](mailto:xuejingyi@abp2003.cn)  TaeKyoon Kim  Rapporteur for Q7/9  ETRI  Broadcasting and Telecommunications Convergence Research Lab. Broadcasting System Research Dept./Digital CATV System Research Team  138 Gajeongno, Yuseong-gu, Daejeon  305-700  Korea (Rep. of) [tkkim@etri.re.kr](mailto:tkkim@etri.re.kr) | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/09/Pages/default.aspx> | SG15 TD 192 GEN Nov – Dec 2023  SG15 TD 86 WP1 April 2023 |
| ITU-T SG11 | Ritu Ranjan Mittar  SG11 Chairman [rr.mittar@gov](mailto:rr.mittar@gov).in  Martin Brand A1 Telekom Austria AG [martin.brand@a1.at](mailto:martin.brand@a1.at) | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/11/Pages/default.aspx> | SG15 TD 178 GEN Nov – Dec 2023  SG15 TD 471 GEN April 2021 |
| ITU-T SG13 |  | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/13/Pages/default.aspx> |  |
| ITU-T SG16 | Sarra Rebhi Office National de la télédiffusion Tunisia [rebhi.sarra@telediffusion.net.tn](mailto:rebhi.sarra@telediffusion.net.tn) | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/default.aspx> | SG15 TD 4 WP1 September 2022  SG15 TD 642 WP1 December 2021 |
| ITU-T SG17 | Jonghyun Baek Rapporteur of Q6/17 [jhbaek@kisa.or.kr](mailto:jhbaek@kisa.or.kr) | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/17/Pages/default.aspx> | SG15 TD 483 WP1 September 2020 |
| ITU-T SG20 |  | | <http://www.itu.int/en/ITU-T/studygroups/2017-2020/20/Pages/default.aspx> |  |
| ITU-D SG1 | Ahmed Gad Rapporteur for Question 1/1, Egypt [ahmed.abdelaziz.gad@gmail.com](mailto:ahmed.abdelaziz.gad@gmail.com)  Aminata Amadou BDT Focal Point for Question 1/1 [aminata.amadou-garba@itu.int](mailto:aminata.amadou-garba@itu.int) | | https://www.itu.int/en/ITU-D/Pages/New-ITU-D-Study-Group-Questions.aspx | SG15 TD 91 WP1 April 2023 |
| ITU-D SG2 |  | | <https://www.itu.int/en/ITU-D/Pages/New-ITU-D-Study-Group-Questions.aspx> |  |
| ISO/IEC JTC 1/SC 25 | Marco Peter Secretary ISO/IEC JTC 1/SC 25 [peter@zvei.org](mailto:peter@zvei.org) | | <https://www.iso.org/committee/45270.html> | SG15 TD 546 WP1 April 2021 |
| TIA = Telecommunication Industry Association TR-41, TR-42 |  | | <https://standards.tiaonline.org/> |  |

# 6. Lead Study Group activities related to the HNT 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**

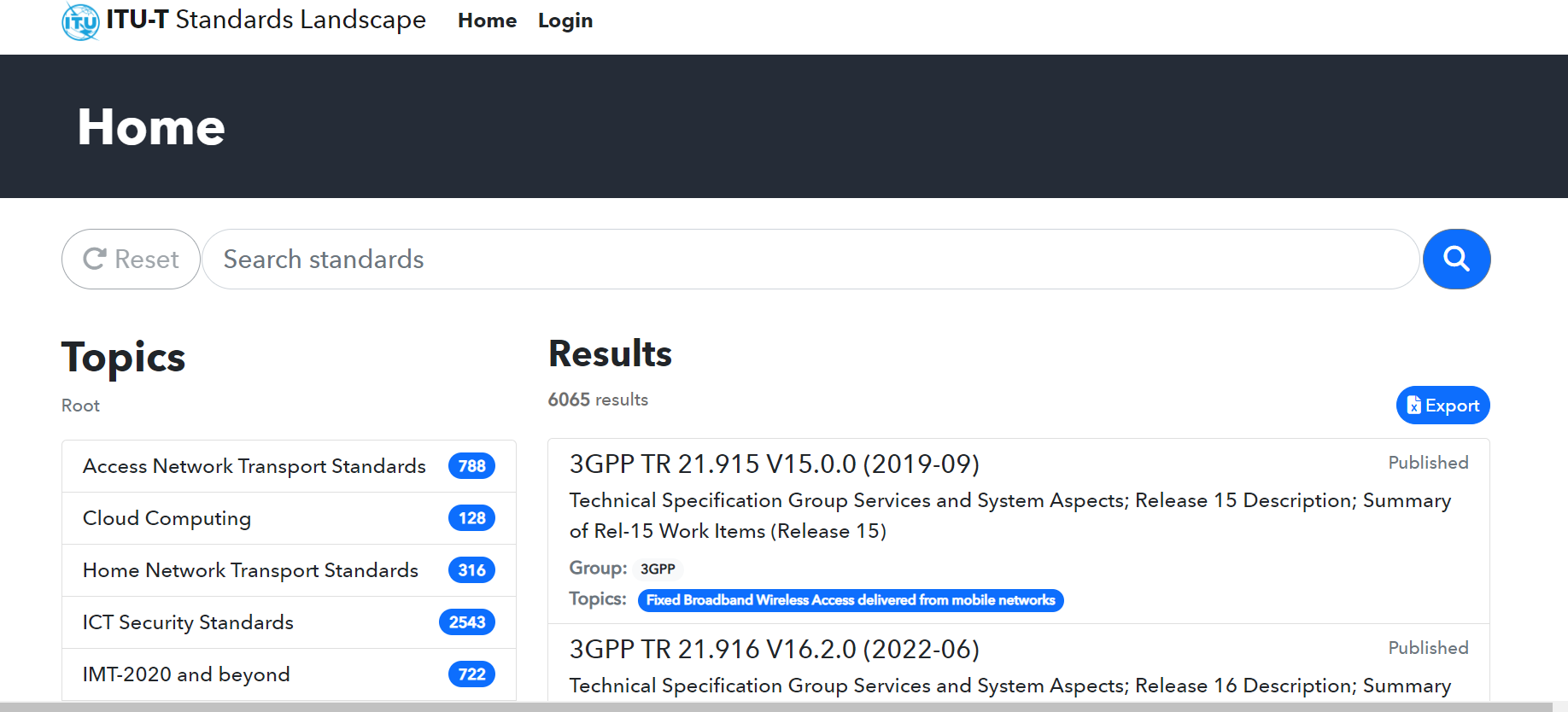
| **Work Item** | **Title** | **Meeting results** | **Work during interim period** |
| --- | --- | --- | --- |
| 1 | Maintain and update the HNT Standards Overview and Work Plan document together with other ITU-T Study Groups and in conjunction with ITU-R and other relevant standards organizations. | The web-based presentation of the HNT Standards, as well as the HNT 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 Q3, WP2 Q5 & Q7, LS from ITU-T SG15 liaison Rapporteurs and new published documents observed on the web-sites of other relevant SDOs. The HNT Standards Overview and Work Plan document details the taxonomy and features of the web-based HNT Standards Overview. These changes have been incorporated in the new version of the HNT Standards Overview and Work Plan document from November 2023. | Maintain existing correspondence relationships with appropriate groups |
| 2 | Maintain and update the web-based HNT Standards Overview. | The web-based HNT Standards Overview has been accordingly updated: see at [ITU-T landscape for ICT standards - HNT](https://www.itu.int/itu-t/landscape/?topic=tx153&group=g&search_text=) |  |
| 3 | Identify "gaps, overlaps and conflicts" by observing on-going 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 version of the HNT Standards Overviews and Work Plan document has been provided via LS for action to ITU-T TSAG, ITU-T SG5, SG9, SG13, SG16, SG17, ITU-R SG1, SG5, SG6, ETSI TC ATTM, ISO/IEC JTC 1/SC 25, IEEE 802.3, Broadband Forum, MoCA and via LS for information 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. | Updated list (SG15-TD113/WP1): Version 16 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 |

##### Annex 1

##### Guide on the use of the web-based HNT Standards Overview

##### Search of a list of standards using the Topics structure: for example, search the list of all ITU-T SG15 Recommendations on “Wireline home networking over coaxial cable”.

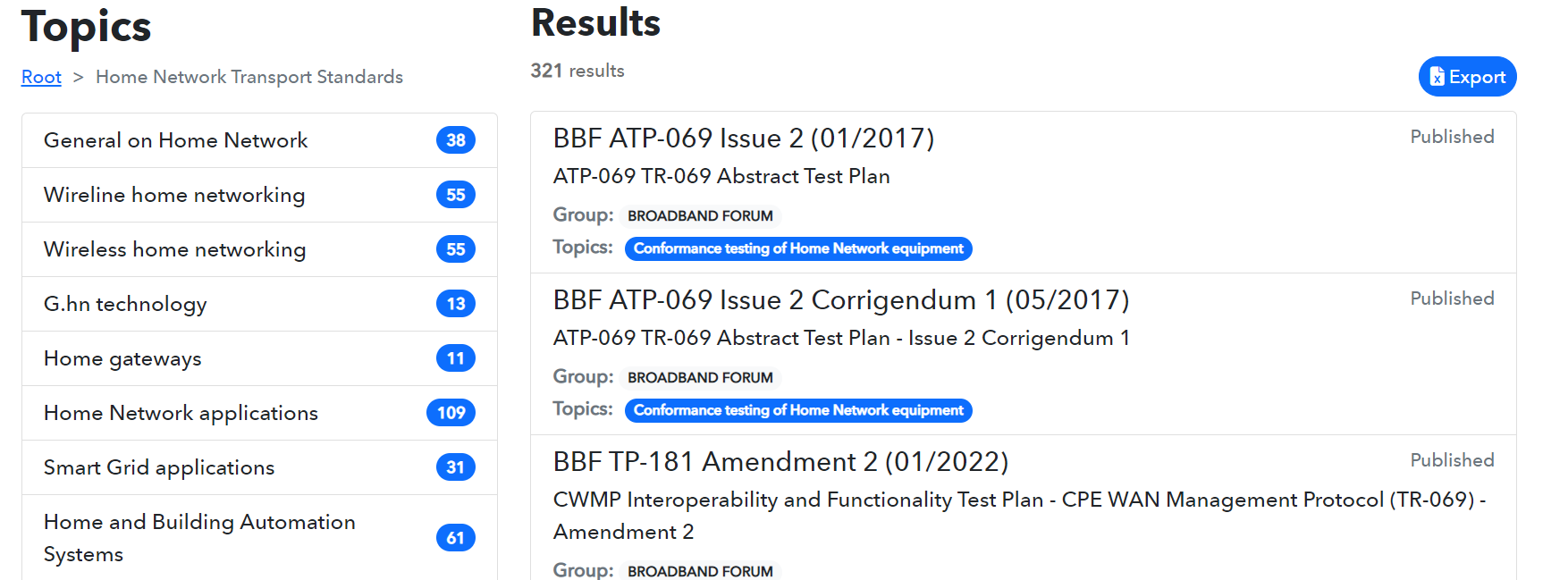
**Step 1** – starting from [ITU-T landscape for ICT standards](https://www.itu.int/itu-t/landscape/?topic=t&group=g&search_text=) .



**Click on**

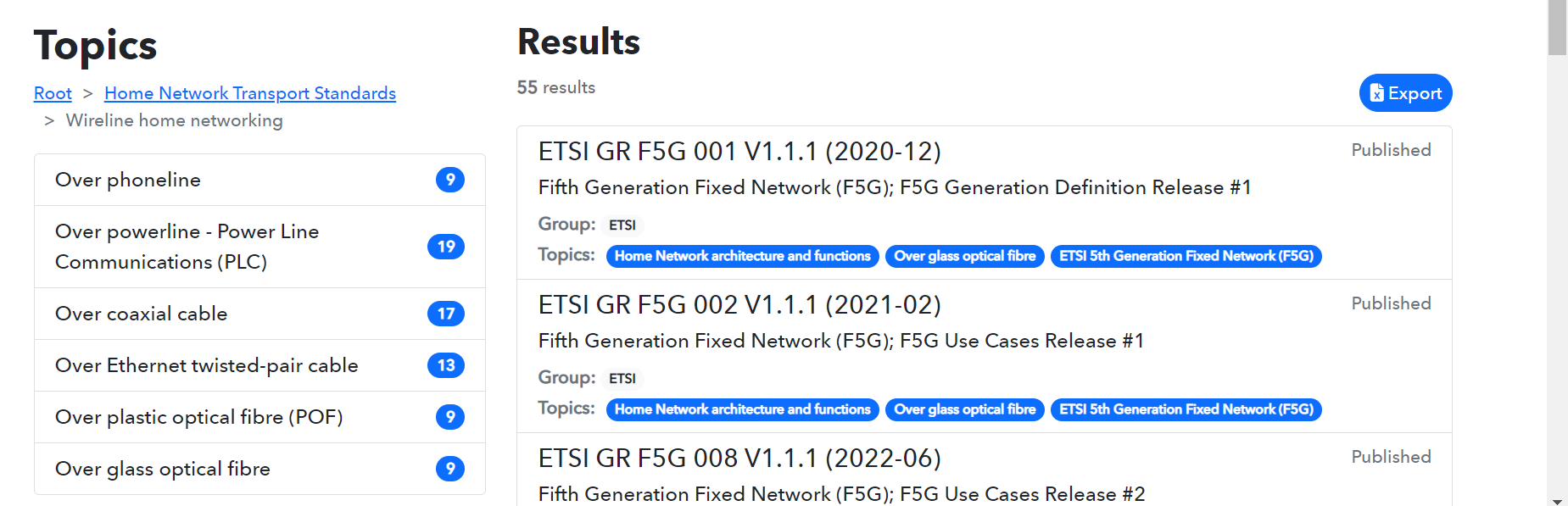
**Step 2 –** or starting from [ITU-T landscape for ICT standards - HNT](https://www.itu.int/itu-t/landscape/?topic=tx153&group=g&search_text=).

**Click on**

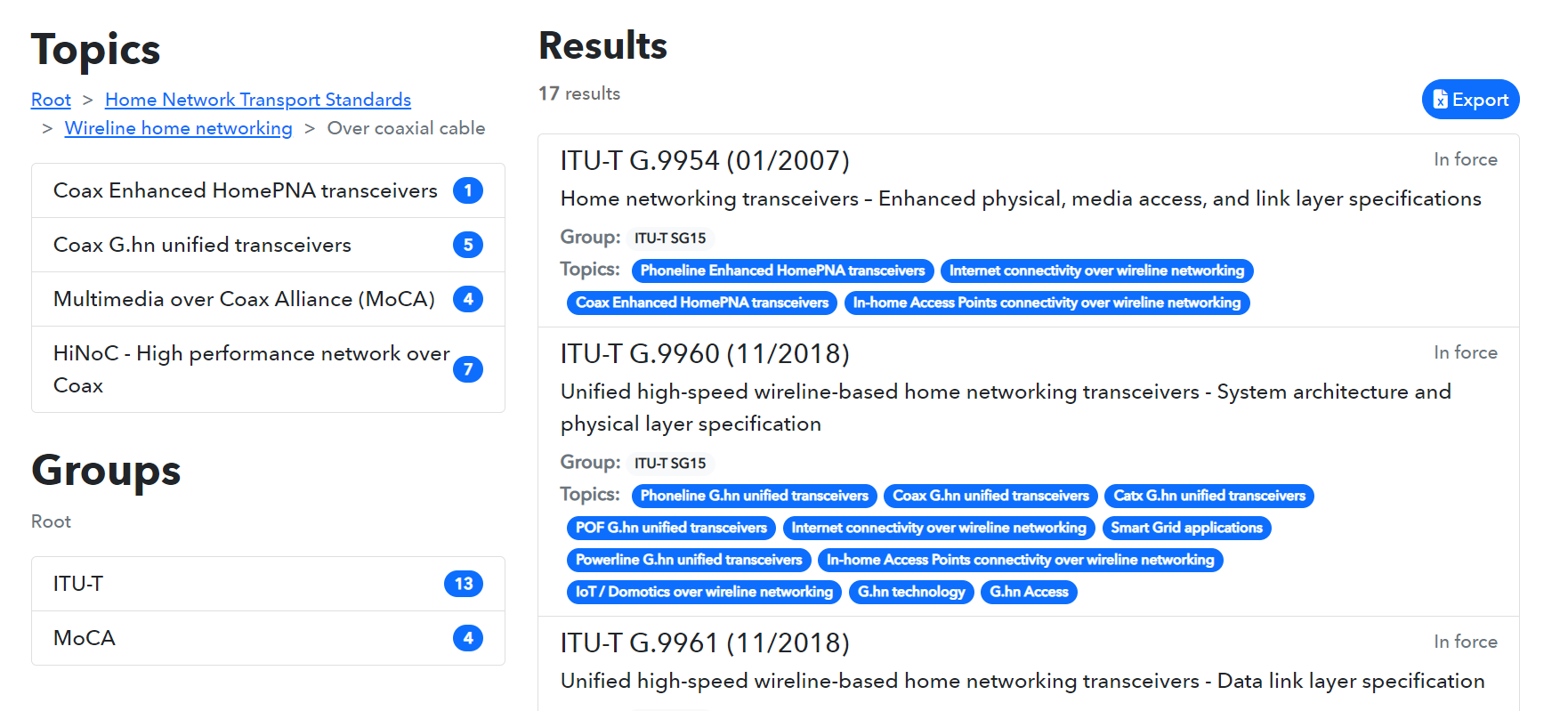


**Step 3**

**Click on**

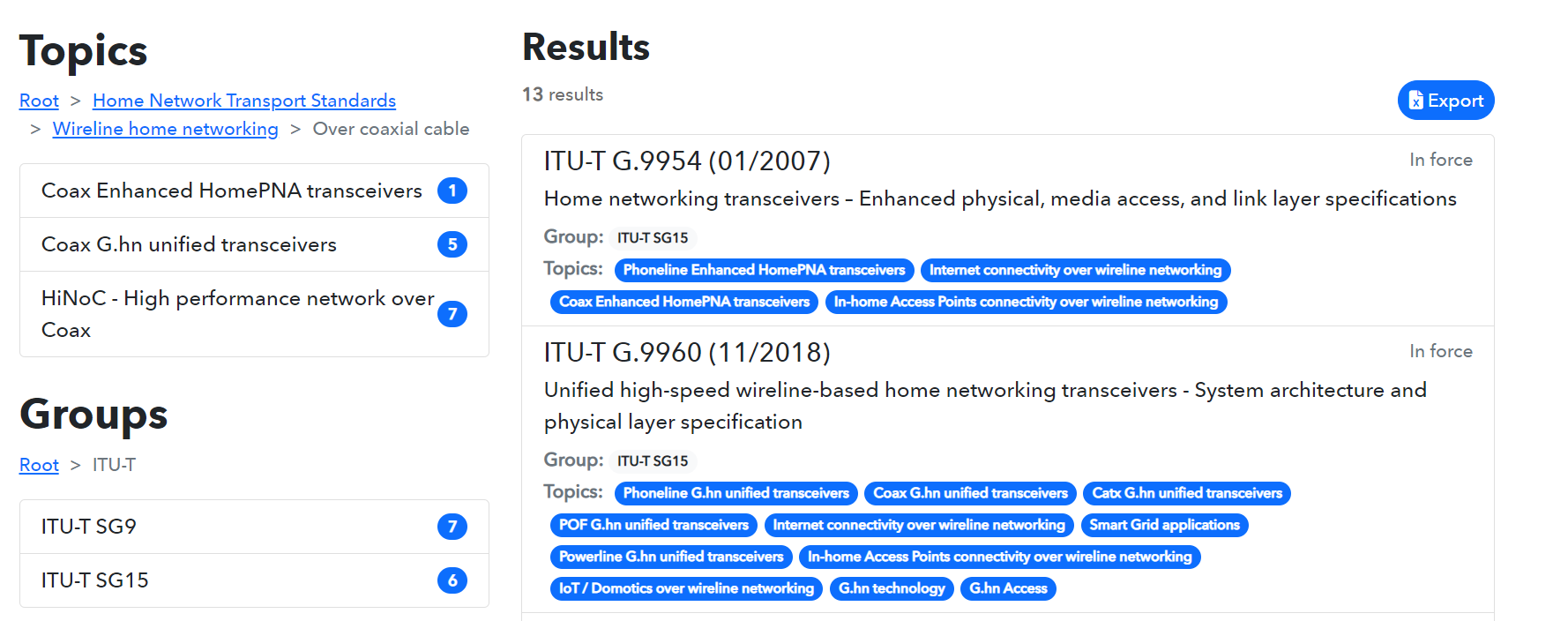


**Step 4**

****

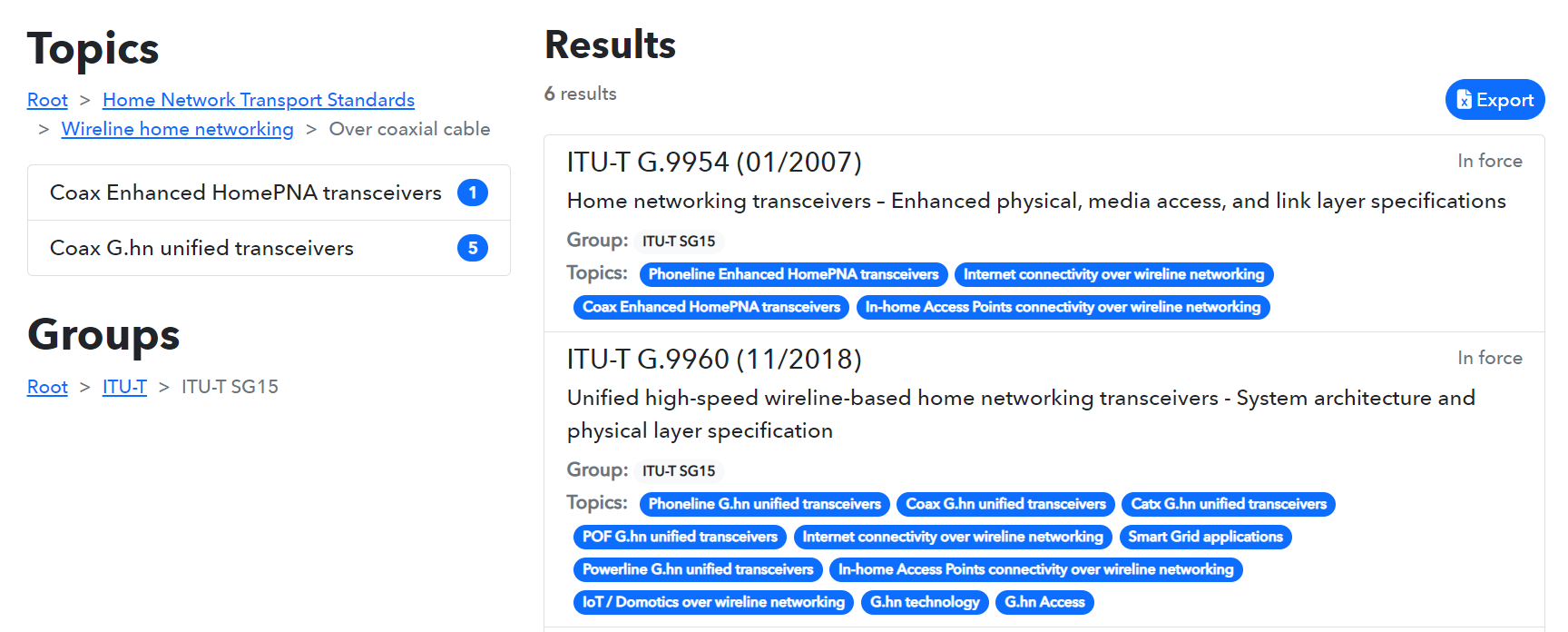
**Click on**

**Step 5**

****

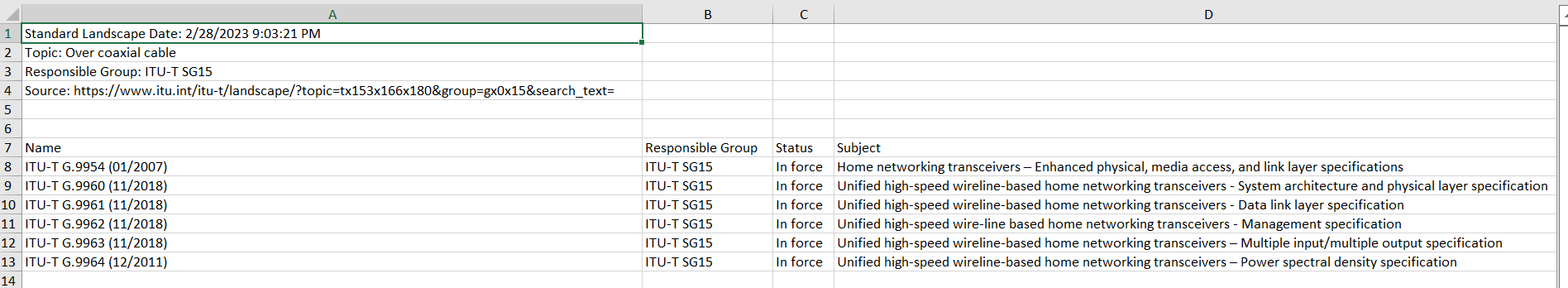
**Click on**

**Step 6**

The list of all ITU-T SG15 Recommendations, including Supplements related to “Wireline home networking over coaxial cable” is displayed. The list can be exported on an excel table.

**Click on**

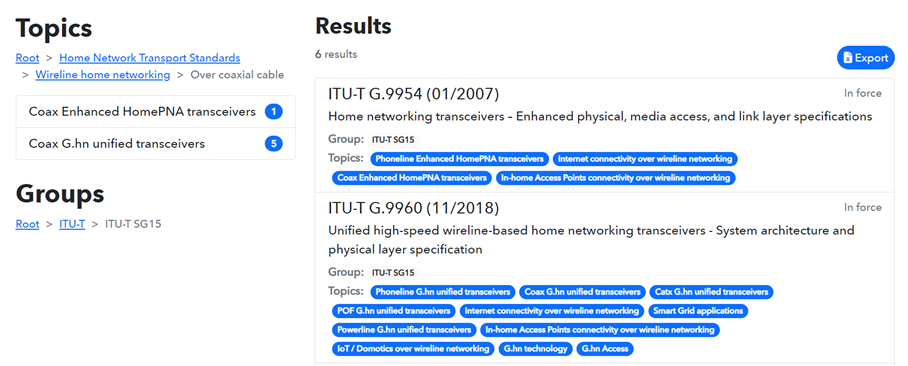
**Step 7**: “Documents Export xlsx” is ready for download, the list of all ITU-T SG15 Recommendations on “Wireline home networking over coaxial cable” can be displayed in excel.



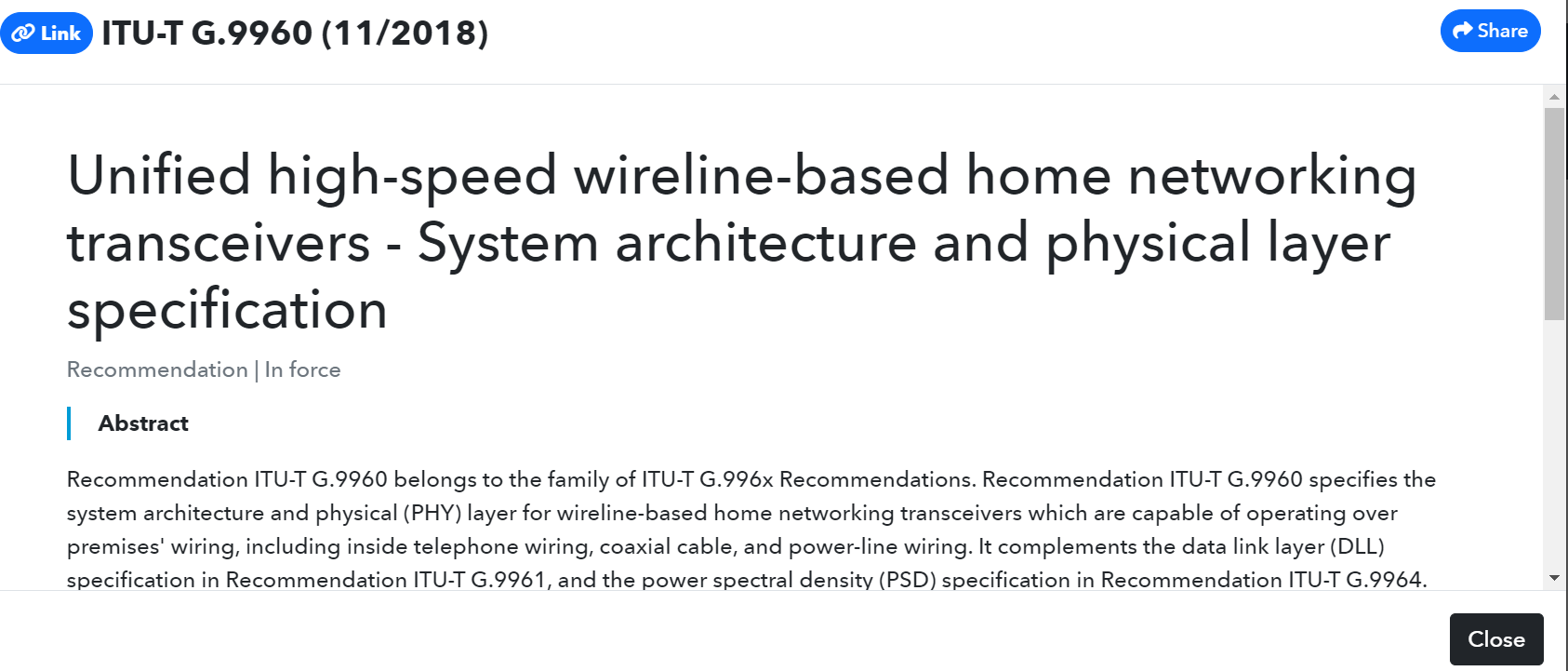
##### Search of a selected standard using the Topics structure: for example, search Recommendation ITU-T G.9960.

**Proceed with steps 1 to 5 as in above search example 1**  
**Step 6**: Click on item ITU-T G.9960.

**Click on**

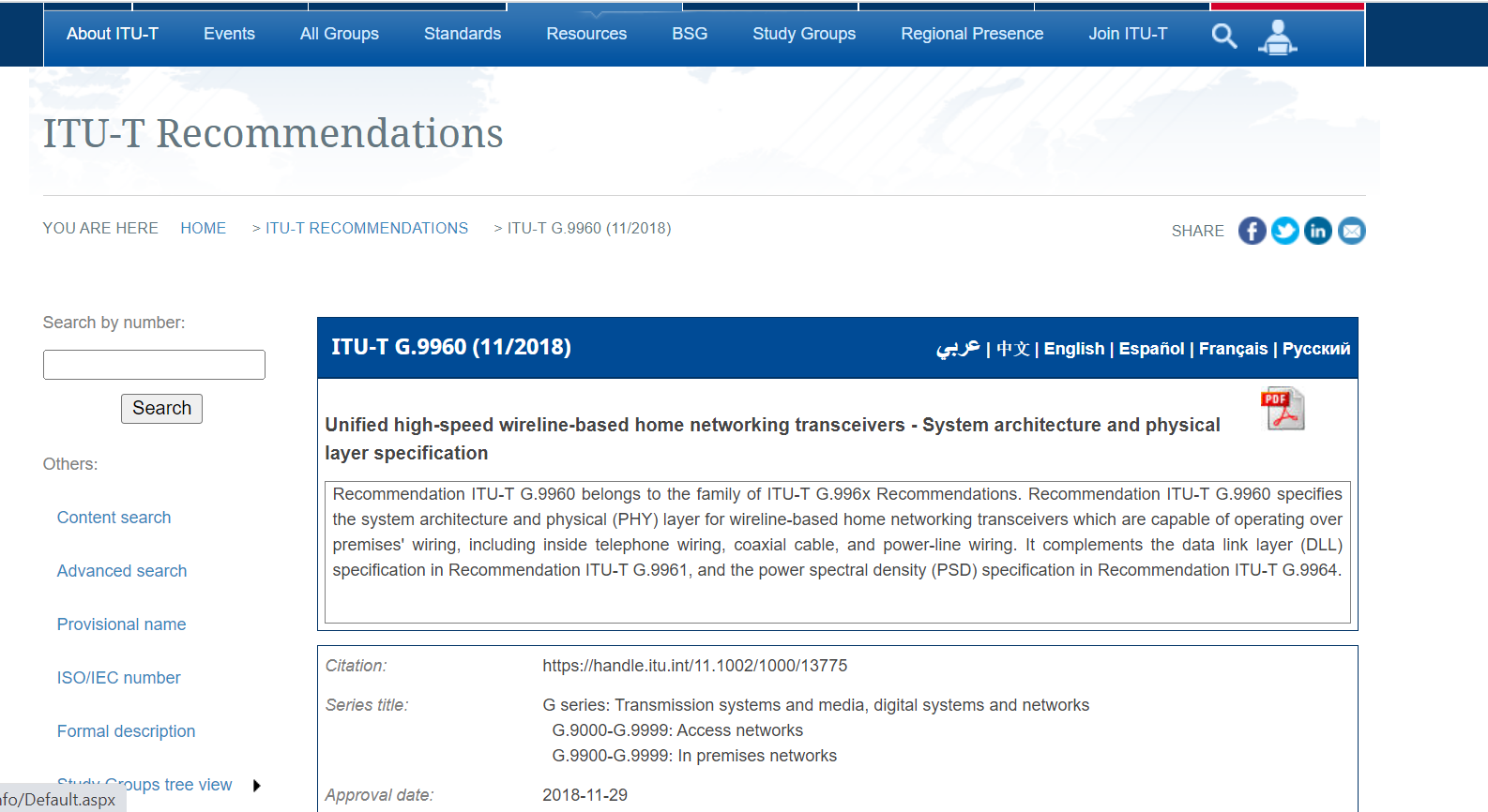


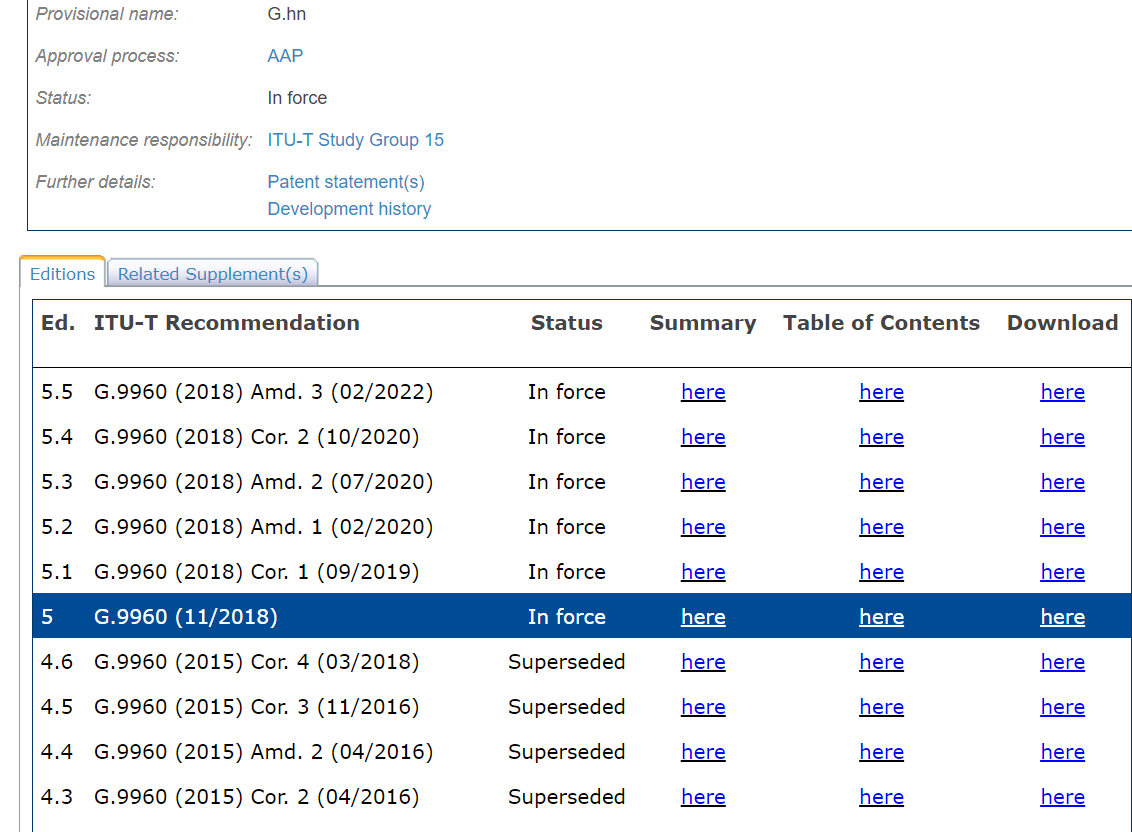
**Step 7**: See the displayed information on ITU-T G.9960 (11/2018) and click on the link to access to the ITU-T SG15 webpage of Recommendation G.9960.



**Click on Link**

**Step 8**: The ITU-T SG15 webpage of Recommendation G.9960 (11/2018) including its   
Amendments is displayed, and the searched document can be downloaded.   
Click on “here” to download the document.



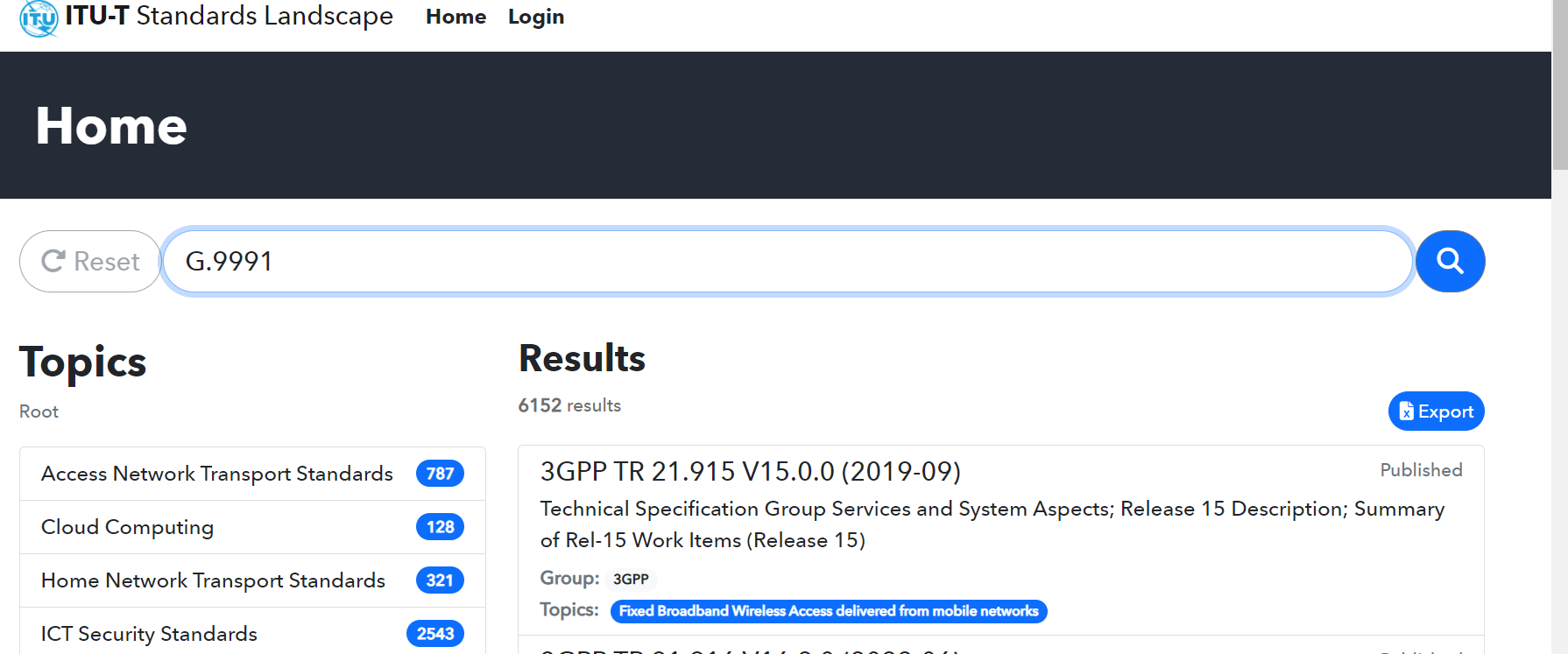


**Click on here**

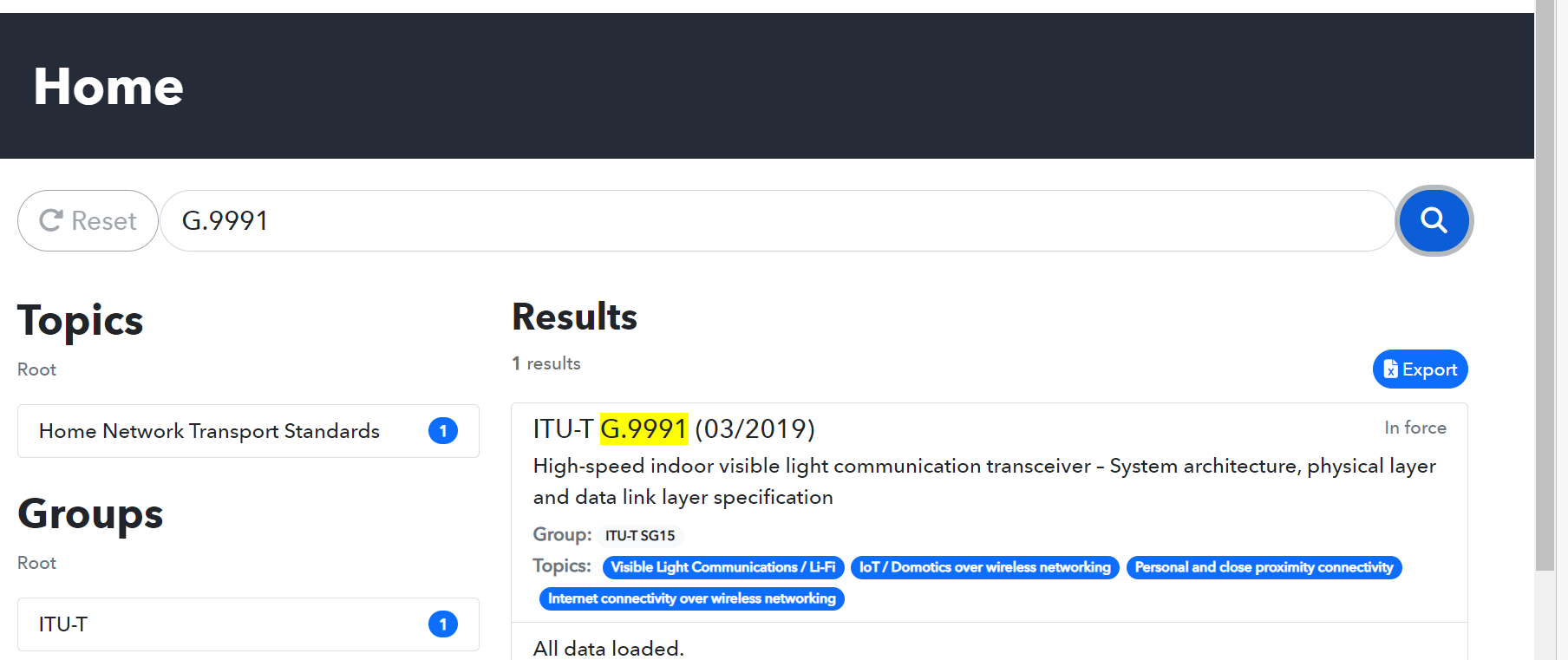
**to download the document**

1. Search of a standard using the search function of the ITU-T Standards Landscape:  
   for example, search Recommendation ITU-T G.9991.

**Step 1**: Enter G.9991 in the “Search standards” window of the ITU-T Standards Landscape  
and launch the search. The items are also searchable on title or descriptive terms.



**Step 2**: See displayed Results and continue as for steps 6, 7 and 8 in above search example 2.

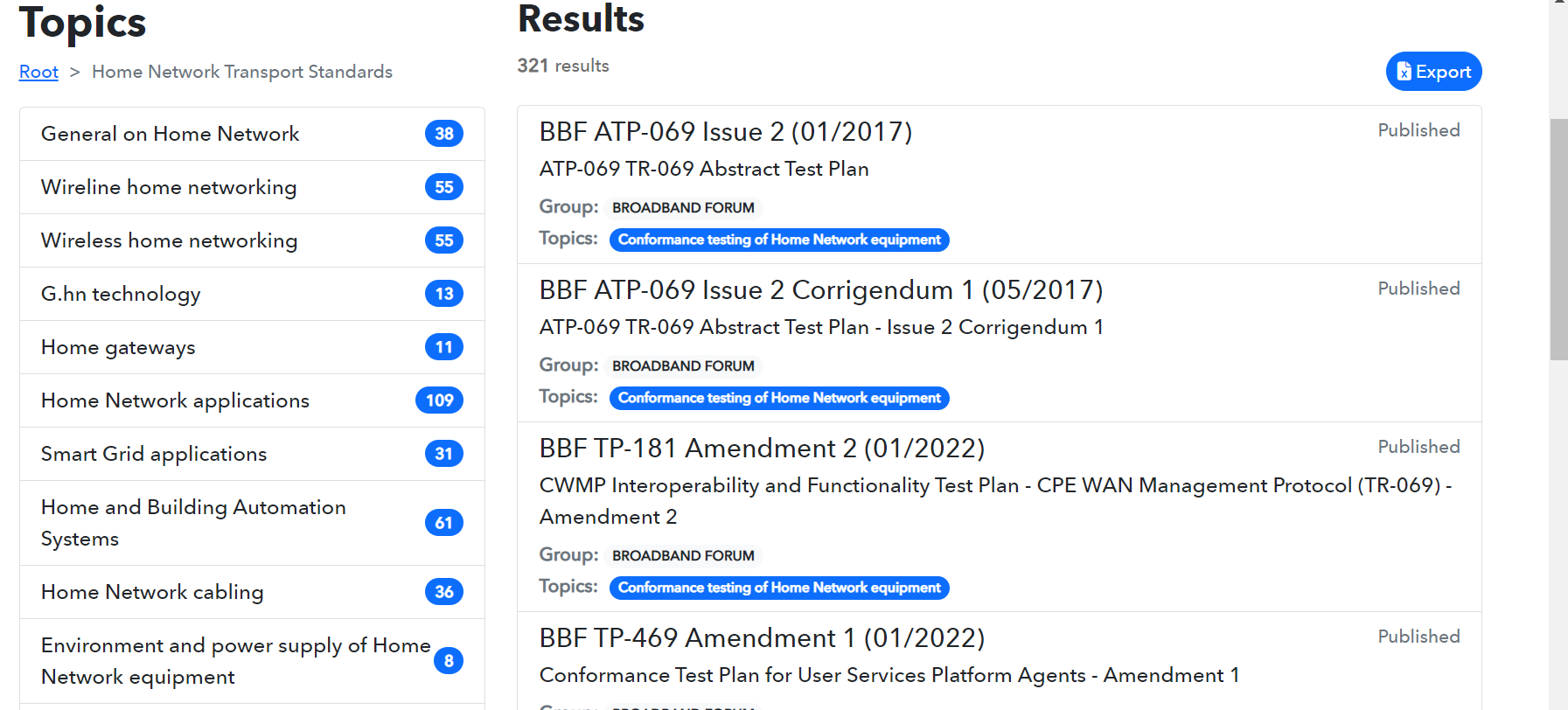


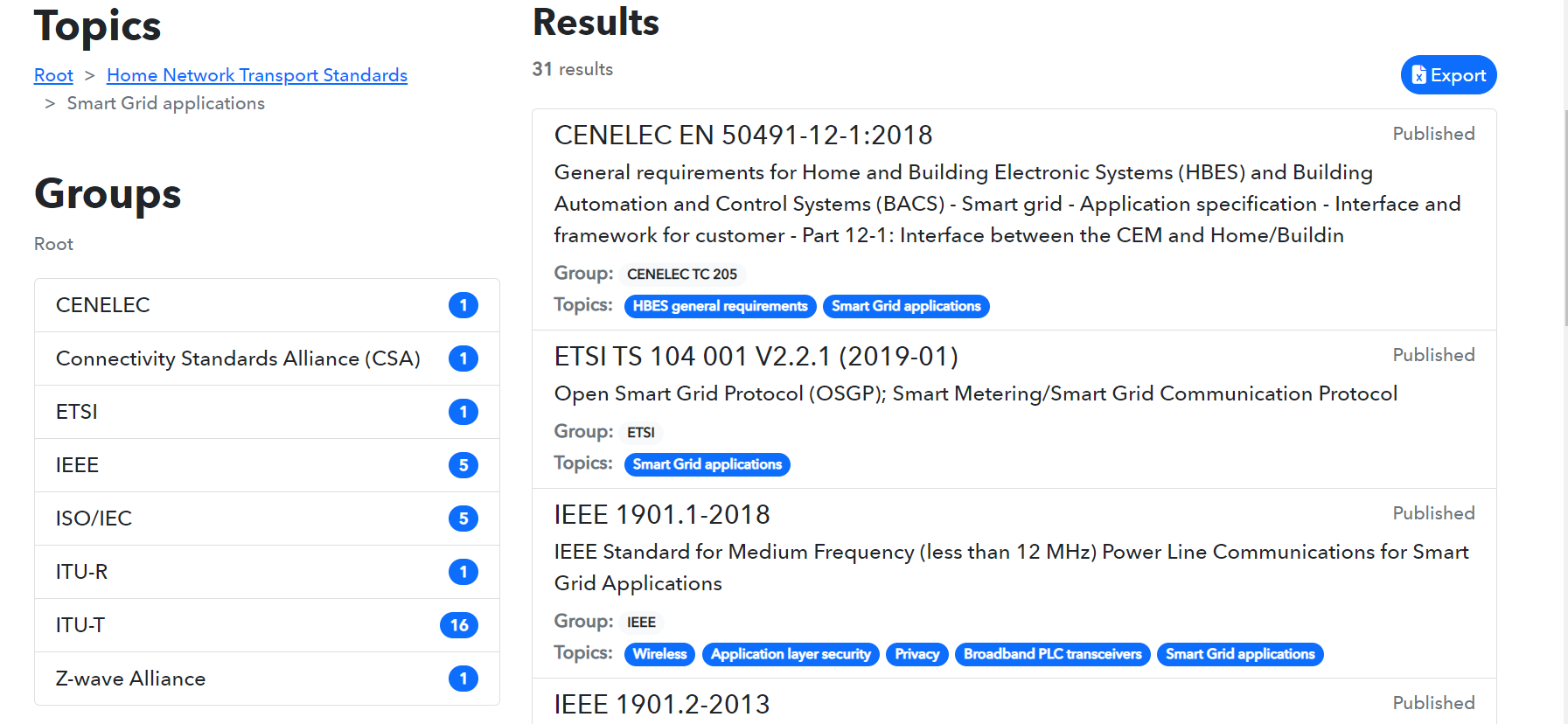
**Click on**

1. Search of a list of standards using the Groups structure:  
   for example, search the list of all ITU-T SG15 Recommendations related to “Smart Grid applications”.

**Proceed with step 1 as above in section 1**  
**Step 2**

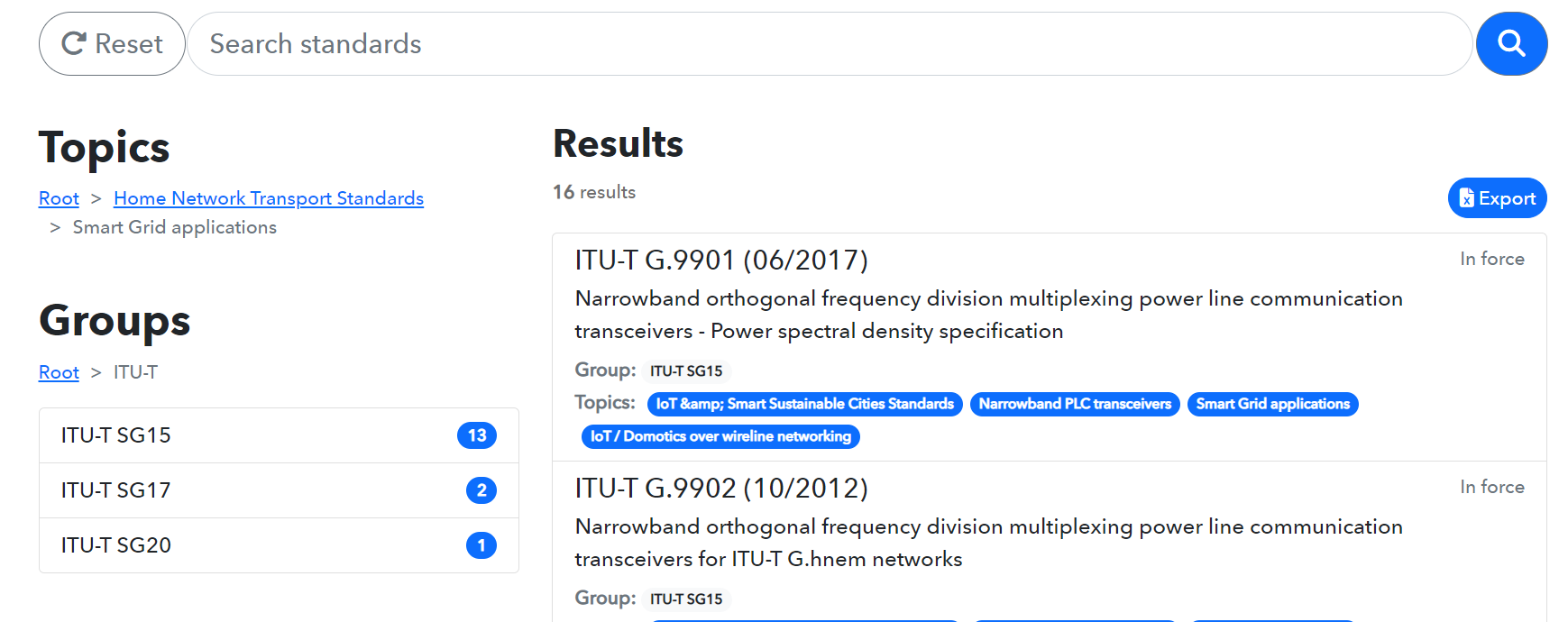
**Click on**

  
  
**Step 3**: click on the Groups ITU-T.



**Click on**

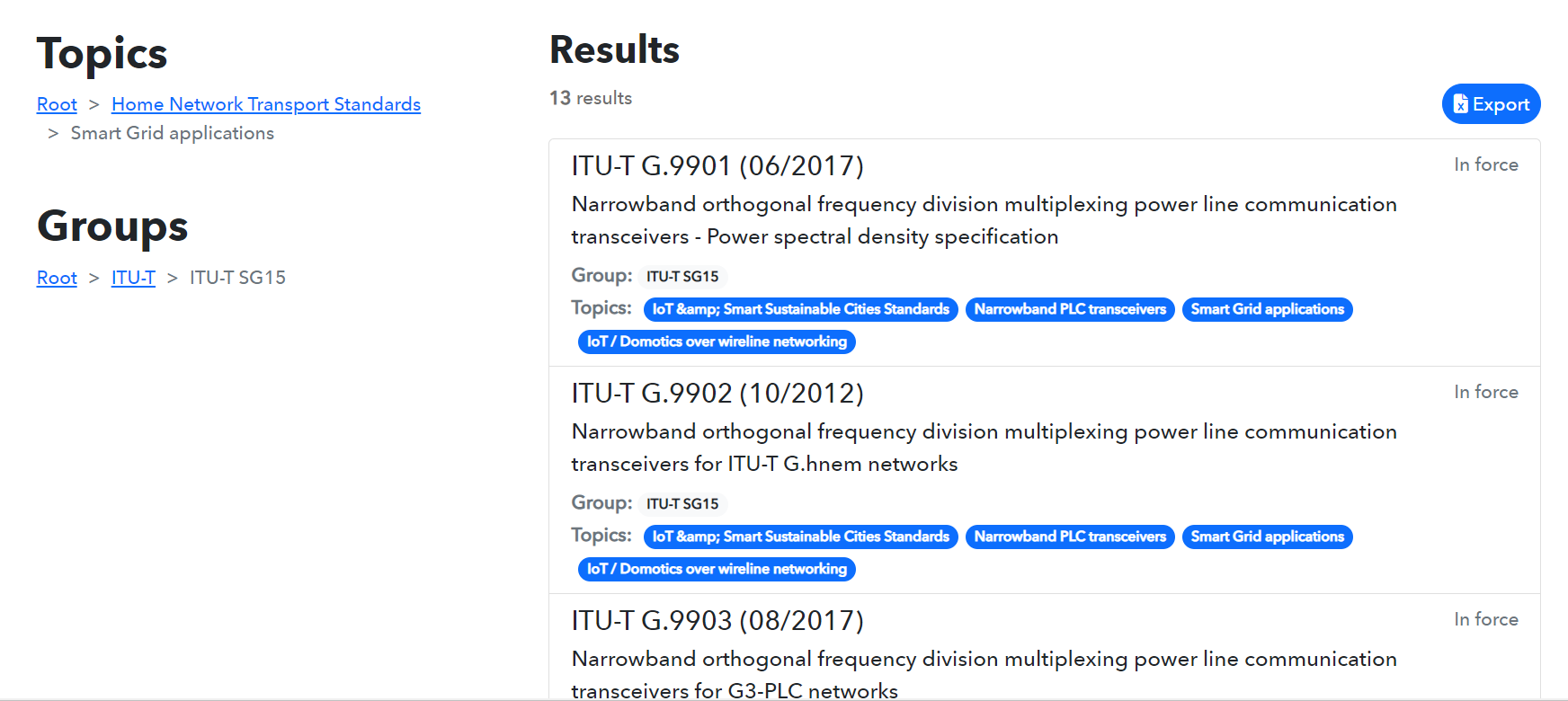
**Step 4**



**Click on**

**Step 5**: The list of all ITU-T SG15 Recommendations related to “Smart Grid applications” is displayed. The list can be downloaded and exported on an excel table.

Proceed as for steps 6 and 7 in above search example 1 to download the list in excel.



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