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| ITU-T Study Group 15 |
| Networks, Technologies and Infrastructures for Transport, Access and Home |
| Report of ITU-T SG15 to the World Telecommunication Standardization Assembly (WTSA-16), Part I: General |

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| **Abstract:** | This contribution contains the report of ITU-T Study Group 15 to WTSA-16 concerning its activities during the 2013-2016 study period. |

TSB NOTE − The report of Study Group 15 to WTSA-16 is presented in the following documents:

Part I: **Document 15 Revision 1** – General

Part II: **Document 16** – Questions proposed for study during the study period 2017-2020

**CONTENTS**

|  Page |
| --- |
| [1 Introduction 2](#_Toc454871713)[2 Organization of work 15](#_Toc454871714)[3 Results of the work accomplished during the 2013-2016 study period 18](#_Toc454871715)[4 Observations concerning future work 20](#_Toc454871716)[5 Updates to the WTSA Resolution 2 for the 2017-2020 study period 20](#_Toc454871717)[ANNEX 1 - List of Recommendations, Supplements and other materials produced or deleted during the study period 21](#_Toc454871718)[ANNEX 2 - Proposed updates to the Study Group 15 mandate and Lead Study Group roles 43](#_Toc454871719) |

# 1 Introduction

## 1.1 Responsibilities of Study Group 15

Study Group 15 was entrusted by the World Telecommunications Standardization Assembly (Dubai, 2012) with the study of 18 Questions in the area of the development of standards on optical transport network, access network, home network and power utility network infrastructures, systems, equipment, optical fibres and cables, and their related installation, maintenance, management, test, instrumentation and measurement techniques, and control plane technologies to enable the evolution toward intelligent transport networks, including the support of smart-grid applications. This encompasses the development of related standards for the customer premises, access, metropolitan and long-haul sections of communication networks, as well as for power utility networks and infrastructures from transmission to load.

## 1.2 Management team and meetings held by Study Group 15

Study Group 15 met six times in Plenary and twice in Working Partiesin the course of the study period (see Table 1) under the chairmanship of Mr Stephen Trowbridge (Alcatel-Lucent, USA) assisted by Vice-Chairmen Mr Ghani Abbas (Ericsson, UK), Mr Fahad Alfallaj (Saudi Arabia), Mr Noriyuki Araki (NTT, Japan), Mr Viktor Katok (Ukraine), Mr Dan Li (Huawei, China), Mr Francesco Montalti (Italy), Mr Atilio Reggiani (CPqD, Brazil), Mr Jeong-dong Ryoo (ETRI, Korea), Mr Helmut Schink (NSN, Germany).

In addition many Rapporteurs’ meetings (including e-meetings) took place during the study period in different locations, see Table 1-bis.

TABLE 1
Meetings of Study Group 15 and its Working Parties

| Meetings | Place, date | Reports |
| --- | --- | --- |
| Working Party 1/15 | Geneva, 1 February 2013 | COM 15 –R 1 to R 2 |
| Study Group 15 | Geneva, 1-12 July 2013 | COM 15 –R 3 to R 7 |
| Working Party 1/15 | Geneva, 6 December 2013 | COM 15 –R 8 to R 9 |
| Study Group 15 | Geneva, 24 March - 4 April 2014 | COM 15 –R 10 to R 13 |
| Study Group 15 | Geneva, 24 November - 5 December 2014 | COM 15 –R 14 to R 17 |
| Study Group 15 | Geneva, 22 June - 3 July 2015 | COM 15 –R 18 to R 22 |
| Study Group 15 | Geneva, 15-26 February 2016 | COM 15 –R 23 to R 28 |
| Study Group 15 | Geneva, 19-30 September 2016 | COM 15 –R 29 to R 34 |

TABLE 1-bis
Rapporteur meetings organized under Study Group 15 during the study period

| Dates | Place/Host | Question(s) | Event name |
| --- | --- | --- | --- |
| 2012-10-04 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1109&Group=15) | G.fast |
| 2012-10-09 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1099&Group=15) | G.989.2 |
| 2012-10-15 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1111&Group=15) | Data gathering for DSL |
| 2012-11-05to2012-11-09 | China [Chengdu] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1110&Group=15) | DSL and G.fast |
| 2012-11-13to2012-11-16 | United States | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1121&Group=15) | G.hn |
| 2012-11-20 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1124&Group=15) | All Q15/15 topics |
| 2012-11-20 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1100&Group=15) | Q2/15 LC comment resolution |
| 2012-12-10to2012-12-14 | Germany | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1145&Group=15) | Equipment Management except MPLS-TP |
| 2012-12-11 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1101&Group=15) | Q2/15 LC comments, multi-rate |
| 2012-12-11 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1112&Group=15) | DSL |
| 2013-01-15 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1102&Group=15) | Q2/15 LC comments |
| 2013-01-17 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1113&Group=15) | SG15 rapporteur group meeting |
| 2013-01-21 | Switzerland [Geneva] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1122&Group=15) | G.hn |
| 2013-01-21to2013-01-25 | United States [Dallas, Texas] | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1125&Group=15) | G.hnem & G.wnb |
| 2013-01-21to2013-01-25 | France [Paris] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1143&Group=15) | G.826x and G.827x series |
| 2013-01-28to2013-02-01 | Japan [Hiroshima] | [Q3/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1132&Group=15)[Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1133&Group=15)[Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1134&Group=15)[Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1135&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1136&Group=15) | MPLS-TP topics |
| 2013-01-28to2013-02-01 | Switzerland [Geneva] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1114&Group=15) | G.fast |
| 2013-02-04to2013-02-08 | China [Shenzhen] | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1141&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1142&Group=15) | All Q12 topics (except MPLS-TP) and ASON management |
| 2013-02-05 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1103&Group=15) | Q2/15 LC comments |
| 2013-02-21 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1116&Group=15) | All Q4/15 topics |
| 2013-02-25to2013-03-01 | United States [Dallas, Texas] | [Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1137&Group=15) | OTN SMP, MECP, Protection Interworking, Signal Degrade |
| 2013-02-25to2013-03-01 | United States [Dallas, Texas] | [Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1139&Group=15) | Finish G.8011.x series, G.8013, G.8012.1 |
| 2013-02-25to2013-03-01 | United States [Dallas, Texas] | [Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1140&Group=15) | G.709, Beyond 100G, 1GE + FEC for access/metro, PM of timing adaptation |
| 2013-02-28 | China | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1104&Group=15) | All Q2/15 topics |
| 2013-03-11to2013-03-15 | United States [Orlando, Florida] | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1131&Group=15) | 40G and 100G Application Codes; G.680, G.693, G.697, G.698.2, G.698.3, G.959.1 and G.Sup39 |
| 2013-03-18to2013-03-22 | United States | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1115&Group=15) | DSL and G.fast |
| 2013-03-19 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1126&Group=15) | G.hnem and G.g3-plc Last Call comment resolution |
| 2013-03-26 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1127&Group=15) | G.hnem and G.g3-plc Last Call comment resolution |
| 2013-04-02 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1128&Group=15) | G.hnem and G.g3-plc Last Call comment resolution |
| 2013-04-08 | Germany | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1146&Group=15) | Equipment management (including G.8152 MPLS-TP NE info model) |
| 2013-04-08to2013-04-12 | Switzerland [Geneva] | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1129&Group=15) | G.hnem & G.wnb |
| 2013-04-08to2013-04-12 | United States [San Jose, California] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1144&Group=15) | G.827x series |
| 2013-04-08 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1117&Group=15) | All Q4/15 topics |
| 2013-04-09 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1105&Group=15) | G.984.3 and G.984.5 |
| 2013-04-10to2013-04-12 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1118&Group=15) | All Q4/15 topics |
| 2013-04-22to2013-04-26 | United States | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1123&Group=15) | G.hn |
| 2013-04-30 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1106&Group=15) | NG-PON2 TC layer |
| 2013-05-06to2013-05-10 | Canada [Ottawa] | [Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1138&Group=15) | Protection Recommendations, Protection Interworking, OTN SMP, MECP |
| 2013-05-13to2013-05-17 | United States | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1119&Group=15) | G.fast |
| 2013-05-23 | China [Chengdu] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1107&Group=15) | Progress G.989 series; maintain G.984, G.987, G.988; other business as needed |
| 2013-05-23 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1120&Group=15) | All Q4/15 topics |
| 2013-05-30 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1130&Group=15) | All Q15/15 topics |
| 2013-06-06 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1108&Group=15) | NG-PON PMD |
| 2013-08-29 | Germany | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=213&Group=15) | All Q2/15 projects |
| 2013-09-30to2013-10-04 | Spain [Barcelona] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=217&Group=15) | DSL and G.fast |
| 2013-10-25 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=229&Group=15) | All projects (except G.fast) |
| 2013-10-28to2013-10-31 | United Kingdom | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=218&Group=15) | G.fast and G.int |
| 2013-10-28to2013-11-01 | Japan [Osaka] | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=225&Group=15) | All Q15/15 projects |
| 2013-11-06 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=232&Group=15) | All projects (except G.fast) |
| 2013-11-07 | China [Shanghai] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=214&Group=15) | All Q2/15 projects |
| 2013-11-11to2013-11-15 | United States | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=227&Group=15) | G.hn |
| 2013-11-11 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=241&Group=15) | G.9903 editing |
| 2013-11-11 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=230&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=231&Group=15) | PLC interference ADHOC |
| 2013-11-12 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=233&Group=15) | All projects (except G.fast) |
| 2013-11-13 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=234&Group=15) | G.fast |
| 2013-11-15 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=242&Group=15) | G.9903 editing |
| 2013-11-26 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=244&Group=15) | Q2/15 |
| 2013-11-26 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=252&Group=15) | Editorial improvements of revised G.9901/G.9903 |
| 2013-12-02to2013-12-03 | Switzerland [Geneva] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=215&Group=15) | All Q2/15 projects |
| 2013-12-02to2013-12-06 | Switzerland [Geneva] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=219&Group=15) | G.fast and G.int |
| 2013-12-09to2013-12-13 | United States | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=237&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=238&Group=15) | All Q12/15 topics with priority given to SDN |
| 2013-12-09to2013-12-13 | Denmark [Copenhaguen] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=239&Group=15) | G.827x series and other Q13/15 topics |
| 2013-12-11 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=235&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=236&Group=15) | PLC interference ADHOC |
| 2014-01-14 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=266&Group=15) | Q2/15 teleconference |
| 2014-01-16 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=270&Group=15) | DSL projects |
| 2014-01-20to2014-01-24 | Israel [Tel Aviv] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=228&Group=15) | G.hn |
| 2014-01-23 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=378&Group=15) | Q15/15 LC comment resolution |
| 2014-01-29 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=273&Group=15) | DSL projects |
| 2014-02-10to2014-02-14 | United States | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=224&Group=15) | DSL and G.fast |
| 2014-02-11 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=267&Group=15) | Q2/15 teleconference |
| 2014-02-20 | United States [San Jose, California] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=269&Group=15)] | Q2/15 meeting |
| 2014-02-20 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=277&Group=15) | G.fast (and related G.hs/ploam/int) |
| 2014-02-25 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=413&Group=15) | Q15/15 teleconference |
| 2014-02-26 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=274&Group=15) | DSL projects |
| 2014-02-27 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=278&Group=15) | G.fast (and related G.hs/ploam/int) |
| 2014-03-03 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=414&Group=15) | PLC/VDSL2 interference AD HOC teleconference |
| 2014-03-04 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=268&Group=15) | Q2/15 teleconference |
| 2014-03-06 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=424&Group=15) | Q2/15 teleconference |
| 2014-03-06 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=279&Group=15) | G.fast (and related G.hs/ploam/int) |
| 2014-03-19 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=417&Group=15) | G.fast LCC resolution |
| 2014-04-16 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=562&Group=15) | Q18/15 Ad Hoc |
| 2014-04-16 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=526&Group=15) | G.fast LCC resolution |
| 2014-04-23 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=527&Group=15) | G.fast LCC resolution; ETSI liaison on RPF noise limits |
| 2014-04-28 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=520&Group=15) | G.989 and G.989.2 |
| 2014-05-05 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=528&Group=15) | DSL projects |
| 2014-05-07 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=529&Group=15) | G.fast LCC resolution |
| 2014-05-27 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=521&Group=15) | G.989 and G.989.2 |
| 2014-05-28 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=530&Group=15) | G.fast LCC resolution |
| 2014-05-29 | E-Meeting | [Q18/1](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=575&Group=15) | New project: Establishment of secure domain |
| 2014-06-02to2014-06-06 | United States | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=552&Group=15) | ITU-T Q13/15 meeting on Synchronization |
| 2014-06-02to2014-06-06 | Belgium | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=221&Group=15) | DSL and G.fast |
| 2014-06-11 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=531&Group=15) | G.fast LCC resolution |
| 2014-06-20 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=532&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=533&Group=15) | VDSL2/PLT interference (AD HOC) |
| 2014-06-23to2014-06-26 | United States [Denver, Colorado] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=513&Group=15) | All Q2/15 projects |
| 2014-07-02 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=534&Group=15) | G.fast LCC resolution |
| 2014-07-07to2014-07-11 | Germany | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=511&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=512&Group=15) | Joint Q12, 14/15 meeting on SDN, ASON, and DCN |
| 2014-07-10 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=538&Group=15) | All Q15/15 projects |
| 2014-07-16 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=535&Group=15) | G.fast LCC resolution |
| 2014-07-21to2014-07-25 | Switzerland [Geneva] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=516&Group=15) | G.fast |
| 2014-07-22 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=522&Group=15) | G.989(.x) |
| 2014-07-28to2014-07-30 | Spain [Barcelona] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=518&Group=15) | All Q18/15 projects |
| 2014-08-07 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=600&Group=15) | G.fast LCC resolution |
| 2014-08-12 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=617&Group=15) | G.989(.x) |
| 2014-08-12 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=690&Group=15) | G.9961 revised Amd.1 |
| 2014-08-13 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=601&Group=15) | G.fast LCC resolution |
| 2014-08-19 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=602&Group=15) | G.fast LCC resolution |
| 2014-08-21 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=536&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=537&Group=15) | VDSL2/PLT interference |
| 2014-08-25to2014-08-29 | China | [Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=548&Group=15) | ITU-T Q11/15 meeting on G.709, B100G, proposed new CPRI mapping(s), G.798, and G.7041 |
| 2014-08-25to2014-08-29 | United States | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=222&Group=15) | DSL and G.fast |
| 2014-08-25to2014-08-29 | China | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=540&Group=15) | Q6/15 interim |
| 2014-08-27 | China | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=549&Group=15)[Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=550&Group=15)[Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=551&Group=15) | Joint Q6, 11 and Q12/15 meeting on OTN Terminology and OTN Beyond 100G |
| 2014-09-01to2014-09-05 | China [Shanghai] | [Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=546&Group=15) | ITU-T Q9/15 meeting on network protection |
| 2014-09-01to2014-09-05 | China [Shanghai] | [Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=547&Group=15) | ITU-T Q10/15 meeting on Transport equipment management |
| 2014-09-01to2014-09-05 | China [Shanghai] | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=554&Group=15) | ITU-T Q14/15 meeting on Transport equipment management |
| 2014-09-08 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=604&Group=15) | G.fast LCC resolution |
| 2014-09-10to2014-09-12 | United States | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=514&Group=15) | All Q2/15 projects |
| 2014-09-15to2014-09-19 | France [Sophia Antipolis] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=553&Group=15) | ITU-T Q13/15 meeting on Synchronization |
| 2014-09-22 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=692&Group=15) | Approve G.9979 draft for LC2 |
| 2014-09-24 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=730&Group=15) | G.8152 MPLS-TP Info modelling drafting |
| 2014-09-25 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=605&Group=15) | G.fast |
| 2014-09-29 | E-Meeting | [Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=737&Group=15) | G.8021 drafting |
| 2014-09-30 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=720&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=721&Group=15) | VDSL2/PLT |
| 2014-10-08 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=731&Group=15) | G.8152 MPLS-TP Info modelling drafting |
| 2014-10-08 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=742&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=743&Group=15) | DSL/PLT interference mitigation |
| 2014-10-09 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=539&Group=15) | All Q15/15 projects |
| 2014-10-13to2014-10-17 | China [Shenzhen] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=517&Group=15) | G.fast |
| 2014-10-14 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=524&Group=15) | G.989.3 and other topics |
| 2014-10-15 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=732&Group=15) | G.8152 MPLS-TP Info modelling drafting |
| 2014-10-22 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=733&Group=15) | G.8152 MPLS-TP Info modelling drafting |
| 2014-10-23 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=722&Group=15) | G.fast |
| 2014-10-28 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=723&Group=15) | DSL |
| 2014-10-28to2014-10-31 | China [Shanghai] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=519&Group=15) | All Q18/15 projects |
| 2014-10-29 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=734&Group=15) | G.8152 MPLS-TP Info modelling drafting |
| 2014-11-04 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=525&Group=15) | G.989.3 and other topics |
| 2014-11-05 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=735&Group=15) | G.8152 MPLS-TP Info modelling drafting |
| 2014-11-05 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=785&Group=15) | G.fast |
| 2014-11-12 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=779&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=780&Group=15) | DSL/PLT interference mitigation |
| 2014-11-17 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=795&Group=15) | Q18/15 teleconference |
| 2014-11-18 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=786&Group=15) | G.fast |
| 2015-01-20 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=862&Group=15) | G.996sa |
| 2015-01-20 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=846&Group=15) | All Q2/15 topics |
| 2015-01-21 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=860&Group=15) | All Q15/15 topics |
| 2015-01-22 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=851&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=852&Group=15) | DSL/PLT interference mitigation |
| 2015-01-29 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=853&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=854&Group=15) | Technical paper on G.hn over access and in-premises phone line medium |
| 2015-02-02to2015-02-06 | United Kingdom | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=724&Group=15) | DSL and G.fast |
| 2015-02-10to2015-02-11 | Italy | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=842&Group=15) | All Q15/15 topics |
| 2015-02-10 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=864&Group=15) | G.996sa |
| 2015-02-12 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=855&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=856&Group=15) | DSL/PLT interference mitigation |
| 2015-02-17 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=847&Group=15) | All Q2/15 topics |
| 2015-02-17 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=857&Group=15) | DSL LCC |
| 2015-02-24 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=858&Group=15) | DSL LCC |
| 2015-02-26 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=859&Group=15) | G.fast (2014) Amd.1 |
| 2015-03-02to2015-03-06 | United States [San Jose, California] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=875&Group=15) | Q13/15 on synchronization |
| 2015-03-02to2015-03-05 | China [Shenzhen] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=840&Group=15) | All Q2/15 topics |
| 2015-03-02to2015-03-06 | Canada [Ottawa] | [Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=866&Group=15) | G.mdsp, G.odusmp, other Q9 topics |
| 2015-03-02to2015-03-06 | Canada [Ottawa] | [Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=867&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=868&Group=15) | MPLS-TP (Q10/15) and management (Q14/15) of MPLS-TP, Ethernet equipment management, G.gim |
| 2015-03-09to2015-03-13 | Korea (Rep. of) | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=873&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=874&Group=15) | Joint Q12 and Q14/15 on SDN, ASON, and DCN |
| 2015-03-10 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=952&Group=15) | DSL (LCC and projects) |
| 2015-03-16to2015-03-20 | United States | [Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=869&Group=15) | G.709, G.798 and G.7041, and completion of work on CPRIm (except FEC code proposals) |
| 2015-03-16to2015-03-19 | Germany [Berlin] | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=865&Group=15) | Q6/15 topics |
| 2015-03-17 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=848&Group=15) | All Q2/15 topics |
| 2015-03-19 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=953&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=954&Group=15) | DSL/PLT interference mitigation |
| 2015-03-23to2015-03-26 | United States | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=844&Group=15) | All Q18/15 topics |
| 2015-03-26 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=977&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=978&Group=15) | Technical paper on G.hn over access and in-premises phone line medium |
| 2015-03-31 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=955&Group=15) | G.fast Amd.1 and Cor.1 |
| 2015-04-09 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=984&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=985&Group=15) | DSL/PLT interference mitigation |
| 2015-04-13to2015-04-17 | United States [San Francisco] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=725&Group=15) | DSL and G.fast |
| 2015-04-15 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=861&Group=15) | All Q15/15 topics |
| 2015-04-16to2015-04-17 | France | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=841&Group=15) | All Q2/15 topics |
| 2015-04-16 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1013&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1014&Group=15) | Technical paper on G.hn over access and in-premises phone line medium |
| 2015-04-21 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=956&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=957&Group=15) | DSL/PLT interference mitigation |
| 2015-04-28to2015-05-01 | Netherlands [Amsterdam] | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=870&Group=15)[Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=871&Group=15)[Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=872&Group=15) | Terminology alignment and Editing for G.872, G.709 and G.798 |
| 2015-04-30 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=958&Group=15) | G.fast Amd.1 and Cor.1 |
| 2015-05-04to2015-05-07 | China [Shenzhen] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=845&Group=15) | All Q18/15 topics |
| 2015-05-12 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=850&Group=15) | All Q2/15 topics |
| 2015-05-13 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1026&Group=15) | All Q15/15 topics |
| 2015-05-19 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=986&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=987&Group=15) | DSL/PLT interference mitigation |
| 2015-05-27 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1029&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1030&Group=15) | G.hn technical paper; G.fast Amd.1 and Cor.1 |
| 2015-06-02 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1028&Group=15) | DSL |
| 2015-06-03 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1060&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1061&Group=15) | DSL/PLT interference mitigation |
| 2015-06-04 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1153&Group=15) | All Q18/15 topics |
| 2015-07-28 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1247&Group=15) | All Q2/15 topics |
| 2015-08-05 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1251&Group=15) | G.fast Annex X |
| 2015-08-20 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1248&Group=15) | All Q2/15 topics |
| 2015-09-14to2015-09-18 | Italy | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1274&Group=15) | ITU-T Q13/15 interim meeting on synchronization |
| 2015-09-14 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1266&Group=15) | All Q18/15 topics |
| 2015-09-15 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1249&Group=15) | All Q2/15 topics |
| 2015-09-16 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1253&Group=15) | LCC resolution |
| 2015-09-21to2015-09-25 | Canada [Ottawa] | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1272&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1273&Group=15) | ITU-T Q12 and Q14 Joint Interim Meeting on SDN, ASON, and information models |
| 2015-09-23 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1254&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1255&Group=15) | G.dpm |
| 2015-09-24 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1256&Group=15) | LCC resolution |
| 2015-10-05to2015-10-09 | Estonia [Tallinn] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=950&Group=15) | DSL and G.fast |
| 2015-10-07to2015-10-08 | United States [Atlanta, Georgia] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1242&Group=15) | All Q2/15 topics |
| 2015-10-12to2015-10-16 | Italy [Turin] | [Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1271&Group=15) | Interim meeting of Q11/15 |
| 2015-10-12to2015-10-16 | Italy [Turin] | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1276&Group=15) | Q12/15 interim meeting |
| 2015-10-12to2015-10-15 | Italy [Turin] | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1267&Group=15) | Q6/15 interim meeting |
| 2015-10-14 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1257&Group=15) | G.fast and G.ploam LCC resolution |
| 2015-10-15 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1258&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1259&Group=15) | G.dpm LCC and iLS |
| 2015-10-19to2015-10-23 | China [Wuhan] | [Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1268&Group=15) | Interim meeting of Q9/15 |
| 2015-10-19to2015-10-23 | China [Wuhan] | [Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1269&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1270&Group=15) | ITU-T Q10/15 and Q14/15 Joint Interim Meeting on Equipment Functions and Management |
| 2015-10-19to2015-10-23 | France [Paris] | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1245&Group=15) | All Q15/15 topics |
| 2015-10-21 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1260&Group=15) | G.fast and G.ploam LCC resolution |
| 2015-10-22 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2335&Group=15)[Q18/1](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2336&Group=15) | G.dpm LCC resolution |
| 2015-10-26to2015-10-30 | Korea (Rep. of) [Seoul] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1246&Group=15) | All Q18/15 topics |
| 2015-10-27 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1250&Group=15) | All Q2/15 topics |
| 2015-10-28 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1261&Group=15) | G.fast and G.ploam LCC resolution, DSL and G.fast projects |
| 2015-11-04 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1262&Group=15) [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1263&Group=15) | G.dpm LCC resolution |
| 2015-11-16to2015-11-20 | Israel [Tel Aviv] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1275&Group=15) | ITU-T Q13/15 interim meeting on Synchronization |
| 2015-11-24 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2337&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2338&Group=15) | G.dpm LCC resolution |
| 2015-11-25 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2370&Group=15) | G.9701 Amd.1 and G.997.2 Amd.1 LCC resolution |
| 2015-11-30to2015-12-04 | Switzerland [Geneva] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=951&Group=15) | DSL and G.fast |
| 2015-12-09to2015-12-10 | Malaysia [Kuala Lumpur] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1243&Group=15) | All Q2/15 topics |
| 2015-12-10 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2339&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2340&Group=15) | G.dpm LCC resolution |
| 2015-12-17 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1265&Group=15) | All Q15/15 topics |
| 2016-01-13 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2408&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2409&Group=15) | G.dpm LCC resolution |
| 2016-01-14 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2405&Group=15) | G.9701 Amd.1 and G.997.2 Amd.1 LCC resolution |
| 2016-01-20 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2410&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2411&Group=15) | G.dpm LCC resolution |
| 2016-01-22 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2431&Group=15) | Q2/15 teleconference |
| 2016-01-27 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2412&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2413&Group=15) | G.dpm LCC resolution |
| 2016-01-28 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2406&Group=15) | G.9701 Amd.1 and G.997.2 Amd.1 LCC resolution |
| 2016-01-28 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2452&Group=15) | Q2/15 teleconference |
| 2016-02-10 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2414&Group=15)[Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2415&Group=15) | G.dpm LCC resolution |
| 2016-04-04to2016-04-08 | Germany [Berlin] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2434&Group=15) | DSL and G.fast |
| 2016-04-11 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3532&Group=15) | G.vlc project |
| 2016-04-13 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3520&Group=15) | LCC resolution + DSL/G.fast overflow |
| 2016-04-25to2016-04-29 | Hungary [Budapest] | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3541&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3542&Group=15) | Joint Q12/15 and Q14/15 meeting: SDN, ASON, and information models |
| 2016-04-26 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3521&Group=15) | All Q2/15 topics |
| 2016-04-26 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3529&Group=15) | LCC resolution: G.hn |
| 2016-04-27 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3522&Group=15) | DSL/G.fast |
| 2016-05-11 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3561&Group=15) | DSL/G.fast |
| 2016-05-16to2016-05-19 | China [Shenzhen] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3517&Group=15) | All Q18/15 topics |
| 2016-05-17to2016-05-20 | Germany [Munich] | [Q9/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3536&Group=15) | Q9/15 topics |
| 2016-05-17to2016-05-20 | Germany [Munich] | [Q10/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3537&Group=15)[Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3538&Group=15) | Joint Q10/15 and Q14/15 meeting: OAM, equipment and synchronization functions and management |
| 2016-05-31 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3523&Group=15) | All Q2/15 topics |
| 2016-06-01 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3524&Group=15) | All Q15/15 topics |
| 2016-06-06to2016-06-10 | China [Shenzhen] | [Q11/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3539&Group=15) | Q11/15 topics |
| 2016-06-06to2016-06-10 | United States [Washington D.C.] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3543&Group=15) | Q13/15 on synchronization |
| 2016-06-07to2016-06-09 | China [Shenzhen] | [Q12/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3540&Group=15) | Q12/15 on G.872 |
| 2016-06-16 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3562&Group=15) | LCC resolution |
| 2016-06-20to2016-06-22 | Italy [Pisa] | [Q6/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1267&Group=15" \o "• Progress draft revised G.959.1 towards consent at the February 2016 SG15 Plenary Meeting; • Establish sets of parameters and associated values to enable multi-vendor interoperability for the various modulation formats for 40...) | Q6/15 topics |
| 2016-06-20to2016-06-24 | Belgium [Antwerp] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=2435&Group=15) | DSL and G.fast |
| 2016-06-22to2016-06-23 | United States [Louisville, Colorado] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3514&Group=15) | All Q2/15 topics |
| 2016-06-22 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=4609&Group=15) | Progress draft new G.8152/Y.1375 |
| 2016-07-06 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=4610&Group=15) | Progress draft new G.8152/Y.1375 |
|  |  |  |  |
| 2016-07-07 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | G.fast/DSL |
| 2016-07-11to2016-07-14 | United States [Santa Clara, California] | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3518&Group=15) | All Q18/15 topics |
| 2016-07-20 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | G.fast/DSL |
| 2016-07-20 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=4611&Group=15) | Progress draft new G.8152/Y.1375 |
| 2016-07-21 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3530&Group=15) | All Q2/15 topics |
| 2016-08-03 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | G.fast/DSL |
| 2016-08-03 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=4612&Group=15) | Progress draft new G.8152/Y.1375 |
| 2016-08-17 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=4613&Group=15) | Progress draft new G.8152/Y.1375 |
| 2016-08-30to2016-09-01 | Japan [Kanazawa] | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1265&Group=15" \o "Click here for more details) | All Q15/15 topics |
| 2016-08-31 | E-Meeting | [Q14/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=4614&Group=15) | Progress draft new G.8152/Y.1375 |
| 2016-09-01 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3531&Group=15) | All Q2/15 topics |
| 2016-09-01 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | G.fast/DSL |
| 2016-10-06 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3531&Group=15" \o "Click here for more details) | Joint BBF/Q2 work |
| 2016-10-18 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3531&Group=15" \o "Click here for more details) | All Q2/15 topics |
| 2016-10-20 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | Ad Hoc G.fast NLP  |
| 2016-11-03 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | G.fast/DSL |
| 2016-11-08 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3518&Group=15" \o "Click here for more details) | G.hn |
| 2016-11-16to2016-11-17 | China [Hangzhou] | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3531&Group=15" \o "Click here for more details) | All Q2/15 topics |
| 2016-11-14to2016-11-18 | China [Hangzhou] | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3516&Group=15) | DSL and G.fast |
| 2016-11-29 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1265&Group=15" \o "Click here for more details) | AAP Comment resolution |
| 2016-11-29 | E-Meeting | [Q18/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3518&Group=15" \o "Click here for more details) | G.vlc |
| 2016-12-01 | E-Meeting | [Q4/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3527&Group=15" \o "Click here for more details) | G.fast/DSL |
| 2016-12-13 | E-Meeting | [Q15/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=1265&Group=15" \o "Click here for more details) | AAP Comment resolution |
| 2016-12-12to2016-12-16 | China [Shanghai] | [Q13/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3543&Group=15" \o "Click here for more details) | All Q13 topics |
| 2016-12-15 | E-Meeting | [Q2/15](http://www.itu.int/net/itu-t/lists/rgmdetails.aspx?id=3531&Group=15" \o "Click here for more details) | All Q2/15 topics |

# 2 Organization of work

## 2.1 Organization of studies and allocation of work

**2.1.1** At its first meeting of the study period, Study Group 15 decided to establish three Working Parties.

During the study period, Joint Coordination Activity on Smart Grid and Home Networking (JCA-SG&HN) continued its activities until it successfully concluded in June 2013. The scope of this JCA was the coordination, both inside and outside of the ITU-T, of standardization work concerning all network aspects of Smart Grid and related communication as well as Home Networking. This JCA is led by experts from WP1/15, especially Q15 and 18/15. After its closure, ITU-T SG15 succeeded the coordination task on smart grid and home networking.

The Focus Group on Disaster Relief Systems, Network Resilience and Recovery (FG-DR&NRR) continued its activities until it successfully concluded in June 2014. This FG was led by experts from SG15. It produced several technical reports. ITU-T SG2 and SG15 continued the work based on these technical reports to develop Recommendations.

**2.1.2** Table 2 shows the number and title of each Working Party, together with the number of Questions assigned to it and the name of its Chairman.

**2.1.3** SG15 did not create any regional groups, focus groups, JCAs, GSIs or JCGs during this study period (Table 3).

**2.1.4** Study Group 15 established no Regional Group groups (as per WTSA-12 Resolution 54) during the study period.

TABLE 2
Organization of Study Group 15

| Designation | Questions to be studied | Title of the Working Party | Chairmanand Vice-Chairmen |
| --- | --- | --- | --- |
| WP 1/15 | Q1, 2, 4, 15, 18/15 | Transport aspects of access, home and smart grid networks | Chairman: Mr Tom StarrVice-Chairman: Mr Hubert Mariotte |
| WP 2/15 | Q5, 6, 7, 8, 16, 17, 18/15 | Optical technologies and physical infrastructures | Chairman: Mr Francesco MontaltiVice-Chairman: Mr Viktor Katok |
| WP 3/15 | Q3, 9, 10, 11, 12, 13, 14/15 | Transport network characteristics | Chairman: Mr Ghani AbbasVice-Chairman: Mr Malcolm Betts |

TABLE 3
Other Groups (if any)

| Title of the Group | Chairman | Vice-Chairmen |
| --- | --- | --- |
| None. |  |  |

## 2.2 Questions and Rapporteurs

**2.2.1** WTSA-12 assigned to Study Group 15 the 18 Questions listed in Table 4.

**2.2.2** The Questions listed in Table 5 have been adopted during this period.

**2.2.3** The Questions listed in Table 6 have been deleted during this period.

TABLE 4
Study Group 15 – Questions assigned by WTSA-12 and Rapporteurs

| Questions | Title of the Questions | WP | Rapporteur |
| --- | --- | --- | --- |
| 1/15 | Coordination of access and Home Network Transport standards | 1/15 | **Rapporteur**: Jean-Marie Fromenteau**Associate rapporteur**: Tetsuya Yokotani |
| 2/15 | Optical systems for fibre access networks | 1/15 | **Rapporteur**: Frank Effenberger**Associate rapporteur**: Junichi Kani |
| 3/15 | General characteristics of transport networks | 3/15 | **Rapporteur**: Naotaka Morita, Takuya Ohara (-11/2014), Yoshinori Koike (-03/2014) |
| 4/15 | Broadband access over metallic conductors | 1/15 | **Rapporteur**: Frank Van der Putten**Associate rapporteurs**: Les Brown, Hubert Mariotte, Massimo Sorbara |
| 5/15 | Characteristics and test methods of optical fibres and cables | 2/15 | **Rapporteur**: Kazuhide Nakajima**Associate rapporteur**: Paola Regio |
| 6/15 | Characteristics of optical systems for terrestrial transport networks | 2/15 | **Rapporteur**: Peter Stassar**Associate rapporteur**: Pete Anslow |
| 7/15 | Characteristics of optical components and subsystems | 2/15 | **Rapporteur**: Bernd Teichmann**Associate rapporteur**: Alessandro Percelsi |
| 8/15 | Characteristics of optical fibre submarine cable systems | 2/15 | **Rapporteur**: Kazuyuki Shiraki**Associate rapporteur**: Omar Ait Sab |
| 9/15 | Transport network protection/restoration | 3/15 | **Rapporteur**: Tom Huber**Associate rapporteur**: Han Li |
| 10/15 | Interfaces, Interworking, OAM and Equipment specifications for Packet based Transport Networks | 3/15 | **Rapporteur**: Jessy Rouyer, Huub Van Helvoort (- 06/2015)**Associate rapporteur**: Alessandro D'Alessandro |
| 11/15 | Signal structures, interfaces, equipment functions, and interworking for transport networks | 3/15 | **Rapporteur**: Mark Loyd Jones**Associate rapporteur**: Steve Gorshe |
| 12/15 | Transport network architectures | 3/15 | **Rapporteur**: Stephen Shew |
| 13/15 | Network synchronization and time distribution performance | 3/15 | **Rapporteur**: Stefano Ruffini, Jean-Loup Ferrant (- 12/2014)**Associate rapporteur**: Silvana Rodrigues, Stefano Ruffini (-12/2014) |
| 14/15 | Management and control of transport systems and equipment | 3/15 | **Rapporteur**: Hing-Kam Lam**Associate rapporteur**: Scott Mansfield |
| 15/15 | Communications for Smart Grid | 1/15 | **Rapporteur**: Stefano Galli**Associate rapporteur**: Paolo Treffiletti, Thierry Lys (- 02/2016) |
| 16/15 | Outside plant and related indoor installation | 2/15 | **Rapporteur**: Edoardo Cottino**Associate rapporteur**: Osman Gebizlioglu |
| 17/15 | Maintenance and operation of optical fibre cable networks | 2/15 | **Rapporteur**: Kunihiro Toge**Associate rapporteur**: Xiong Zhuang |
| 18/15 | Broadband in-premises networking | 1/15 | **Rapporteur**: Les Brown**Associate rapporteur**: Marcos Martinez, Erez Ben-Tovim (- 03/2014) |

TABLE 5
Study Group 15 – New Questions adopted and Rapporteurs

| Questions | Title of the Questions | WP | Rapporteur |
| --- | --- | --- | --- |
|  | None. |  |  |

TABLE 6
Study Group 15 – Questions deleted

| Questions | Title of Questions | Rapporteurs | Results |
| --- | --- | --- | --- |
|  | None. |  |  |

# 3 Results of the work accomplished during the 2013-2016 study period

## 3.1 General

During the study period, Study Group 15 examined 2164 contributions and generated a large number of TDs and liaison statements. It also:

– drew up 39 new Recommendations;

– approved 206 revised Recommendations, amendments and corrigenda;

– developed twelve Supplements;

– produced two technical papers and one technical report;

## 3.2 Highlights of achievements

The main results achieved on the various Questions assigned to Study Group 15 are briefly summarized below. Formal replies to the Questions are given in a synoptic table in Annex 1 of this report.

a) Working Party 1/15 achievements

– 40Gbit/s-capable PON systems; NG-PON2 (G.989 series)

– 10Gbit/s-capable symmetric PON systems; XGS-PON (G.9807.1)

– G.fast for up to 1 Gb/s for very short copper access lines (G.970x series)

– Broadband PLC for home networking G.hn (G.996x-series)

– Narrowband PLC for smart grid (G.990x-series)

– Mitigation of interference between DSL and PLC systems (G.9977)

– New work on Radio over Fibre (RoF) for fronthaul of mobile systems (G.RoF)

– New work on Visible Light Communication (VLC) systems (G.vlc)

b) Working Party 2/15 achievements

– Single-mode fibre Recommendations (G.652, G.654 and G.657)

– Optical monitoring for dense wavelength division multiplexing systems (G.697)

– Multichannel bi-directional DWDM applications with port agnostic single-channel optical interfaces (G.metro)

– Various modulation formats for 40G and 100G application (G.698.2)

– New work item on field mountable single-mode optical fibre connectors (G.fmc)

– Optical fibre submarine cable systems including 100 Gbit/s applications (G.97x series)

– Outside plants

– Disaster management for improving network resilience and recovery with movable and deployable ICT resource units (L.392)

c) Working Party 3/15 achievements

– OTN hierarchy and Interfaces (G.709) for beyond 100G bit/s signals (n x 100 Gbit/s)

– Network restoration and protection for OTN, Ethernet and MPLS-TP

– OAM functions for Ethernet and MPLS-TP

– Architecture of transport networks and architecture of transport SDN

– Network synchronization and time distribution (G.82xx series)

– Core information model for transport resources for transition to Software-Defined Networking (SDN) architectures (G.7711/Y.1702)

– Management and control of transport systems and equipment

– New work on flexible OTN (n x 100 Gbit/s)

## 3.3 Report of lead study group activities, GSIs, JCAs and regional groups

### 3.3.1 Lead study group activities on

Study Group 15 served as the lead study Group on:

– Access network transport

– Optical technology

– Optical transport networks

– Smart grid

SG15 developed and updated the following documents:

– Access Network Transport Standards Overview

– Access Network Transport Standards Work Plan

– The Optical Transport Networks & Technologies Standardization Work Plan

– Smart Grid overview and work plan

These documents are posted on the SG15 web page at:
<http://www.itu.int/en/ITU-T/studygroups/2013-2016/15/Pages/default.aspx> .

### 3.3.2 GSI/JCA

None.

### 3.3.3 Regional Group

None.

# 4 Observations concerning future work

Study Group 15 is responsible in ITU-T for the development of standards for the optical transport network, access network, home network and power utility network, infrastructures, systems, equipment, optical fibres and cables. Its future work includes the following work items (but not limited to):

– 40 Gbit/s and higher bit rate optical access (fiber to the home) (NG-PON2)

– Radio over fiber (RoF) – fronthaul for IMT-2020/5G mobile

– G.fast – optical class broadband access using existing metallic cables

– Narrowband PLC for smart grid

– Home networking/in-house broadband communication (G.hn)

– High speed indoor visible light communication (G.vlc)

– Applications of the flexible DWDM grid

– Multichannel bi-directional DWDM applications with port agnostic single-channel optical interfaces (G.metro)

– Field mountable single-mode optical fibre connectors (G.fmc)

– Passive node elements with automated ID tag detection (L.pneid)

– Optical fibre cables for direct surface application (L.dsa)

– Resilient network infrastructure for disaster relief and recovery

– Multi-domain segment network protection (G.mdsp)

– OTN (optical transport network) Shared Mesh Protection (G.otnsmp)

– New optical transport network (OTN) beyond 100G (n x 100Gbit/s) including flexible OTN

– Transport of CPRI signals over OTN or other transport technology

– OTN Module Framer Interfaces (MFI)

– Synchronization solutions to support operation of future mobile networks (e.g., IMT2020) and relevant new applications, e.g. as related to the Internet of things (IoT)

– Synchronization of packet networks and future OTN interfaces e.g. beyond 100Gbit/s

– Architecture for transport SDN (G.asdtn)

# 5 Updates to WTSA Resolution 2 for the 2017-2020 study period

Annex 2 contains the updates to WTSA Resolution 2 proposed by Study Group 15 concerning the general areas of study, title, mandate, lead roles and points of guidance in the next study period.

ANNEX 1

List of Recommendations, Supplements and
other materials produced or deleted during the study period

The list of new and revised Recommendations approved during the study period is found in Table 7.

The list of Recommendations determined/consented at the last meeting of Study Group 15 is found in Table 8.

The list of Recommendations deleted by Study Group 15 during the study period is found in Table 9.

The List of Recommendations submitted by Study Group 15 to WTSA-16 for approval is found in Table 10.

Tables 11 onwards list other publications approved and/or deleted by Study Group 15 during the study period.

TABLE 7
Study Group 15 – Recommendations approved during the study period

| **Recommendation** | **Approval** | **Status** | **TAP/AAP** | **Title** |
| --- | --- | --- | --- | --- |
| [G.650.1 (2010) Cor. 1](http://handle.itu.int/11.1002/1000/11981) | 2013-08-29 | In force | AAP | Definitions and test methods for linear, deterministic attributes of single-mode fibre and cable: Corrigendum 1 |
| [G.650.2](http://handle.itu.int/11.1002/1000/12528) | 2015-08-13 | In force | AAP | Definitions and test methods for statistical and non-linear related attributes of single-mode fibre and cable |
| [G.664 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12360) | 2014-12-05 | In force | Agreement | Optical safety procedures and requirements for optical transmission systems: Amendment 1 |
| [G.695](http://handle.itu.int/11.1002/1000/12362) | 2015-01-13 | In force | AAP | Optical interfaces for coarse wavelength division multiplexing applications |
| [G.703](http://handle.itu.int/11.1002/1000/12788) | 2016-04-13 | In force | AAP | Physical/electrical characteristics of hierarchical digital interfaces |
| [G.703 (2001) Amd. 1](http://handle.itu.int/11.1002/1000/11989) | 2013-08-29 | Superseded | AAP | Physical/electrical characteristics of hierarchical digital interfaces: Amendment 1 - Specifications for the physical layer of the new ITU-T G.8271/Y.1366 time synchronization interfaces |
| [G.7041/Y.1303](http://www.itu.int/ITU-T/aap/aapid/3511/show.aspx) | 2016-08-06 | In force | AAP | Generic Framing Procedure (GFP) |
| [G.7041/Y.1303 (2011) Amd. 3](http://handle.itu.int/11.1002/1000/12378) | 2015-01-13 | Superseded | AAP | Generic Framing Procedure (GFP): Amendment 3 |
| [G.709/Y.1331](http://handle.itu.int/11.1002/1000/12789) | 2016-06-22 | In force | AAP | Interfaces for the optical transport network |
| [G.709/Y.1331 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/11982) | 2013-10-22 | Superseded | AAP | Interfaces for the Optical Transport Network (OTN): Amendment 2 |
| [G.709/Y.1331 (2012) Amd. 3](http://handle.itu.int/11.1002/1000/12363) | 2014-12-05 | Superseded | Agreement | Interfaces for the Optical Transport Network (OTN): Amendment 3 |
| [G.709/Y.1331 (2012) Amd. 4](http://handle.itu.int/11.1002/1000/12364) | 2015-01-13 | Superseded | AAP | Interfaces for the Optical Transport Network (OTN): Amendment 4 |
| [G.709/Y.1331 (2012) Cor. 2](http://handle.itu.int/11.1002/1000/12365) | 2015-01-13 | Superseded | AAP | Interfaces for the Optical Transport Network (OTN): Corrigendum 2 |
| [G.7711/Y.1702](http://handle.itu.int/11.1002/1000/12567) | 2015-08-13 | In force | AAP | Generic protocol-neutral information model for transport resources |
| [G.7712/Y.1703 (2010) Amd. 1](http://handle.itu.int/11.1002/1000/12000) | 2013-10-07 | In force | AAP | Architecture and specification of data communication network: Amendment 1 |
| [G.7712/Y.1703 (2010) Amd. 2](http://handle.itu.int/11.1002/1000/12553) | 2016-02-26 | In force | AAP | Architecture and specification of data communication network: Amendment 2 |
| [G.7714.1/Y.1705.1](http://handle.itu.int/11.1002/1000/12379) | 2015-01-13 | In force | AAP | Protocol for automatic discovery in transport networks |
| [G.783 (2006) Amd. 4](http://handle.itu.int/11.1002/1000/11983) | 2013-08-29 | In force | AAP | Characteristics of synchronous digital hierarchy (SDH) equipment functional blocks : Amendment 4 |
| [G.783 (2006) Cor. 1](http://handle.itu.int/11.1002/1000/12366) | 2015-01-13 | In force | AAP | Characteristics of synchronous digital hierarchy (SDH) equipment functional blocks: Corrigendum 1 |
| [G.798](http://handle.itu.int/11.1002/1000/11778) | 2012-12-22 | In force | AAP | Characteristics of optical transport network hierarchy equipment functional blocks |
| [G.798 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12179) | 2014-05-14 | In force | AAP | Characteristics of optical transport network hierarchy equipment functional blocks: Amendment 1 |
| [G.798 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12367) | 2015-01-13 | In force | AAP | Characteristics of optical transport network hierarchy equipment functional blocks: Amendment 2 |
| [G.798 (2012) Cor.1](http://handle.itu.int/11.1002/1000/12529) | 2015-08-13 | In force | AAP | Characteristics of optical transport network hierarchy equipment functional blocks: Corrigendum 1 |
| [G.798.1](http://handle.itu.int/11.1002/1000/11779) | 2013-01-13 | In force | AAP | Types and characteristics of optical transport network equipment |
| [G.798.1 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/11984) | 2013-08-29 | In force | AAP | Types and characteristics of optical transport network equipment: Amendment 1 |
| [G.800](http://handle.itu.int/11.1002/1000/12790) | 2016-04-13 | In force | AAP | Unified functional architecture of transport networks |
| [G.8001/Y.1354](http://handle.itu.int/11.1002/1000/12001) | 2013-09-13 | Superseded | AAP | Terms and definitions for Ethernet frames over transport |
| [G.8001/Y.1354](http://handle.itu.int/11.1002/1000/12802) | 2016-04-13 | In force | AAP | Terms and definitions for Ethernet frames over transport |
| [G.8011.1/Y.1307.1](http://handle.itu.int/11.1002/1000/12003) | 2013-08-29 | Superseded | AAP | Ethernet private line service |
| [G.8011.2/Y.1307.2](http://handle.itu.int/11.1002/1000/12004) | 2013-08-29 | Superseded | AAP | Ethernet virtual private line service |
| [G.8011.3/Y.1307.3](http://handle.itu.int/11.1002/1000/12026) | 2013-08-29 | Superseded | AAP | Ethernet virtual private LAN service |
| [G.8011.4/Y.1307.4](http://handle.itu.int/11.1002/1000/12027) | 2013-08-29 | Superseded | AAP | Ethernet private tree and Ethernet virtual private tree services |
| [G.8011.5/Y.1307.5](http://handle.itu.int/11.1002/1000/12028) | 2013-08-29 | Superseded | AAP | Ethernet private LAN service |
| [G.8011/Y.1307](http://handle.itu.int/11.1002/1000/12380) | 2015-01-13 | In force | AAP | Ethernet service characteristics |
| [G.8011/Y.1307 (2012) Cor. 1](http://handle.itu.int/11.1002/1000/12002) | 2013-08-29 | Superseded | AAP | Ethernet over Transport – Ethernet service characteristics: Corrigendum 1 |
| [G.8012.1/Y.1308.1](http://handle.itu.int/11.1002/1000/11812) | 2012-12-22 | In force | AAP | Interfaces for the Ethernet transport network |
| [G.8013/Y.1731](http://handle.itu.int/11.1002/1000/12029) | 2013-11-06 | Superseded | AAP | OAM functions and mechanisms for Ethernet based networks |
| [G.8013/Y.1731 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12381) | 2015-02-22 | Superseded | AAP | OAM functions and mechanisms for Ethernet-based networks: Amendment 1 |
| [G.8013/Y.1731](http://handle.itu.int/11.1002/1000/12552) | 2015-08-13 | In force | AAP | Operations, administration and maintenance (OAM) functions and mechanisms for Ethernet-based networks |
| [G.8021/Y.1341 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12030) | 2013-08-29 | Superseded | AAP | Characteristics of Ethernet Transport network equipment functional blocks: Amendment 2 - Updates to the description of performance measurement functions, ETH sublayering model and MIP OAM extraction process |
| [G.8021/Y.1341](http://handle.itu.int/11.1002/1000/12382) | 2015-04-06 | In force | AAP | Characteristics of Ethernet transport network equipment functional blocks |
| [G.8021/Y.1341 (2015) Cor. 1](http://handle.itu.int/11.1002/1000/12551) | 2015-08-13 | In force | AAP | Characteristics of Ethernet transport network equipment functional blocks: Corrigendum 1 |
| [G.8031/Y.1342 (2011) Amd.1](http://handle.itu.int/11.1002/1000/12031) | 2013-08-29 | Superseded | AAP | Ethernet linear protection switching: Amendment 1 - Clarificatins to APS format |
| [G.8031/Y.1342](http://handle.itu.int/11.1002/1000/12383) | 2015-01-13 | In force | AAP | Ethernet linear protection switching |
| [G.8032/Y.1344 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12025) | 2013-07-12 | Superseded | Agreement | Ethernet Ring Protection Switching: Amendment 1 - Deletion of Appendices V, VI, VII, IX, X and XI |
| [G.8032/Y.1344](http://handle.itu.int/11.1002/1000/12550) | 2015-08-13 | In force | AAP | Ethernet ring protection switching |
| [G.8051/Y.1345](http://handle.itu.int/11.1002/1000/12024) | 2013-08-29 | Superseded | AAP | Management aspects of the Ethernet Transport (ET) capable network element |
| [G.8051/Y.1345 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12186) | 2014-05-14 | Superseded | AAP | Management aspects of the Ethernet Transport (ET) capable network element: Amendment 1 - Updates to the requirements for on-demand and proactive measurements |
| [G.8051/Y.1345](http://handle.itu.int/11.1002/1000/12549) | 2015-08-13 | In force | AAP | Management aspects of the Ethernet transport (ET) capable network element |
| [G.8052/Y.1346](http://handle.itu.int/11.1002/1000/12023) | 2013-08-29 | In force | AAP | Protocol-neutral management information model for the Ethernet transport capable network element |
| [G.806 (2012) Cor. 2](http://handle.itu.int/11.1002/1000/12791) | 2016-04-13 | In force | AAP | Characteristics of transport equipment - Description methodology and generic functionality: Corrigendum 2 |
| [G.808.1](http://handle.itu.int/11.1002/1000/12180) | 2014-05-14 | In force | AAP | Generic protection switching – Linear trail and subnetwork protection |
| [G.808.2](http://handle.itu.int/11.1002/1000/7504) | 2013-11-22 | In force | AAP | Generic protection switching – Ring protection |
| [G.8101/Y.1355](http://handle.itu.int/11.1002/1000/12022) | 2013-09-13 | Superseded | AAP | Terms and definitions for MPLS transport profile |
| [G.8101/Y.1355](http://handle.itu.int/11.1002/1000/12384) | 2015-01-13 | In force | AAP | Terms and definitions for MPLS transport profile |
| [G.8112/Y.1371 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12187) | 2014-04-04 | Superseded | Agreement | Interfaces for the MPLS Transport Profile (MPLS-TP) layer network: Amendment 1 - New Appendix II |
| [G.8112/Y.1371 (2012) Cor. 1](http://handle.itu.int/11.1002/1000/12385) | 2015-01-13 | Superseded | AAP | Interfaces for the MPLS Transport Profile (MPLS-TP) layer network: Corrigendum 1 |
| [G.8112/Y.1371](http://handle.itu.int/11.1002/1000/12547) | 2015-08-13 | In force | AAP | Interfaces for the MPLS transport profile layer network  |
| [G.8113.1/Y.1372.1 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12032) | 2013-08-29 | Superseded | AAP | Operations, administration and maintenance mechanism for MPLS-TP in packet transport network (PTN): Amendment 1 |
| [G.8113.1/Y.1372.1](http://handle.itu.int/11.1002/1000/12803) | 2016-04-13 | In force | AAP | Operations, administration and maintenance mechanism for MPLS-TP in packet transport networks |
| [G.8113.2/Y.1372.2 (2012) Amd.1](http://handle.itu.int/11.1002/1000/12021) | 2013-08-29 | Superseded | AAP | Operations, administration and maintenance mechanisms for MPLS-TP networks using the tools defined for MPLS: Amendment 1 - Security considerations for MPLS -TP and updates to references |
| [G.8113.2/Y.1372.2](http://handle.itu.int/11.1002/1000/12546) | 2015-08-13 | In force | AAP | Operations, administration and maintenance mechanisms for MPLS-TP networks using the tools defined for MPLS |
| [G.8121.1/Y.1381.1](http://handle.itu.int/11.1002/1000/12019) | 2013-11-06 | Superseded | AAP | Characteristics of MPLS-TP equipment functional blocks supporting ITU-T G.8113.1/Y.1372.1 OAM mechanisms |
| [G.8121.1/Y.1381.1](http://handle.itu.int/11.1002/1000/12805) | 2016-04-13 | In force | AAP | Characteristics of MPLS-TP equipment functional blocks supporting ITU-T G.8113.1/Y.1372.1 OAM mechanisms |
| [G.8121.2/Y.1381.2](http://handle.itu.int/11.1002/1000/12018) | 2013-11-06 | Superseded | AAP | Characteristics of MPLS-TP equipment functional blocks supporting ITU-T G.8113.2/Y.1372.2 OAM mechanisms |
| [G.8121.2/Y.1381.2](http://handle.itu.int/11.1002/1000/12806) | 2016-04-13 | In force | AAP | Characteristics of MPLS-TP equipment functional blocks supporting ITU-T G.8113.2/Y.1372.2 OAM mechanisms |
| [G.8121/Y.1381](http://handle.itu.int/11.1002/1000/12020) | 2013-11-06 | Superseded | AAP | Characteristics of MPLS-TP equipment functional blocks |
| [G.8121/Y.1381 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11800) | 2012-12-22 | Superseded | AAP | Characteristics of MPLS-TP equipment functional blocks: Amendment 1 |
| [G.8121/Y.1381](http://handle.itu.int/11.1002/1000/12804) | 2016-04-13 | In force | AAP | Characteristics of MPLS-TP equipment functional blocks |
| [G.8131/Y.1382](http://handle.itu.int/11.1002/1000/12188) | 2014-07-07 | In force | AAP | Linear protection switching for MPLS transport profile |
| [G.8131/Y.1382 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12807) | 2016-04-13 | In force | AAP | Linear protection switching for MPLS transport profile (MPLS-TP): Amendment 1 |
| [G.8151/Y.1374 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12017) | 2013-10-07 | Superseded | AAP | Management aspects of the MPLS-TP network element: Amendment 2 |
| [G.8151/Y.1374](http://handle.itu.int/11.1002/1000/12386) | 2015-01-13 | In force | AAP | Management aspects of the MPLS-TP network element |
| [G.8151/Y.1374 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12825) | 2016-04-13 | In force | AAP | Management aspects of the MPLS-TP network element: Amendment 1 |
| [G.8201 (2011) Cor. 1](http://handle.itu.int/11.1002/1000/12387) | 2015-01-13 | In force | AAP | Error performance parameters and objectives for multi-operator international paths within optical transport networks: Corrigendum 1 |
| [G.824 (2000) Cor. 1](http://handle.itu.int/11.1002/1000/12560) | 2015-08-13 | In force | AAP | The control of jitter and wander within digital networks which are based on the 1544 kbit/s hierarchy: Corrigendum 1 |
| [G.8260 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12016) | 2013-08-29 | Superseded | AAP | Definitions and terminology for synchronization in packet networks: Amendment 1 |
| [G.8260 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12189) | 2014-05-14 | Superseded | AAP | Definitions and terminology for synchronization in packet networks: Amendment 2 - Amendment to the definition of time error |
| [G.8260](http://handle.itu.int/11.1002/1000/12545) | 2015-08-13 | In force | AAP | Definitions and terminology for synchronization in packet networks |
| [G.8260 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12808) | 2016-04-13 | In force | AAP | Definitions and terminology for synchronization in packet networks: Amendment 1 |
| [G.8261.1/Y.1361.1 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12190) | 2014-05-14 | In force | AAP | Packet Delay Variation Network Limits applicable to Packet Based Methods (Frequency Synchronization): Amendment 1 - Revision to clause 8 on packet delay variation |
| [G.8261/Y.1361](http://handle.itu.int/11.1002/1000/12015) | 2013-08-29 | In force | AAP | Timing and synchronization aspects in packet networks |
| [G.8261/Y.1361 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12388) | 2015-01-13 | In force | AAP | Timing and synchronization aspects in packet networks: Amendment 1 |
| [G.8261/Y.1361 (2013) Cor. 1](http://handle.itu.int/11.1002/1000/12809) | 2016-04-13 | In force | AAP | Timing and synchronization aspects in packet networks: Corrigendum 1 |
| [G.8262/Y.1362](http://handle.itu.int/11.1002/1000/12389) | 2015-01-13 | In force | AAP | Timing characteristics of a synchronous Ethernet equipment slave clock |
| [G.8263/Y.1363 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12014) | 2013-08-29 | In force | AAP | Timing characteristics of packet-based equipment clocks: Amendment 1 |
| [G.8263/Y.1363 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12191) | 2014-05-14 | In force | AAP | Timing characteristics of packet-based equipment clocks: Amendment 2 |
| [G.8264/Y.1364](http://handle.itu.int/11.1002/1000/12192) | 2014-05-14 | In force | AAP | Distribution of timing information through packet networks |
| [G.8264/Y.1364 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12390) | 2015-01-13 | In force | AAP | Distribution of timing information through packet networks: Amendment 1 |
| [G.8264/Y.1364 (2014) Amd. 2](http://handle.itu.int/11.1002/1000/12810) | 2016-04-13 | In force | AAP | Distribution of timing information through packet networks: Amendment 2 |
| [G.8265.1/Y.1365.1](http://handle.itu.int/11.1002/1000/12193) | 2014-07-22 | In force | AAP | Precision time protocol telecom profile for frequency synchronization |
| [G.8265.1/Y.1365.1 (2014) Cor. 1](http://handle.itu.int/11.1002/1000/12811) | 2016-04-13 | In force | AAP | Precision time protocol telecom profile for frequency synchronization: Corrigendum 1 |
| [G.8271.1/Y.1366.1](http://handle.itu.int/11.1002/1000/12034) | 2013-08-29 | In force | AAP | Network limits for time synchronization in packet networks |
| [G.8271.1/Y.1366.1 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12194) | 2014-05-14 | In force | AAP | Network limits for time synchronization in Packet networks: Amendment 1 |
| [G.8271.1/Y.1366.1 (2013) Amd. 2](http://handle.itu.int/11.1002/1000/12392) | 2015-01-13 | In force | AAP | Network limits for time synchronization in Packet networks: Amendment 2 |
| [G.8271/Y.1366 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12033) | 2013-08-29 | Superseded | AAP | Time and phase synchronization aspects of Packet Networks: Amendment 1 |
| [G.8271/Y.1366 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12391) | 2015-01-13 | Superseded | AAP | Time and phase synchronization aspects of Packet Networks: Amendment 2 |
| [G.8271/Y.1366](http://www.itu.int/ITU-T/aap/aapid/3523/show.aspx) | 2016-07-07 | In force | AAP | Time and phase synchronization aspects of Packet Networks |
| [G.8272/Y.1367 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12013) | 2013-08-29 | Superseded | AAP | Timing characteristics of primary reference time clock: Amendment 1 |
| [G.8272/Y.1367](http://handle.itu.int/11.1002/1000/12393) | 2015-01-13 | In force | AAP | Timing characteristics of primary reference time clocks |
| [G.8272/Y.1367 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12813) | 2016-04-13 | In force | AAP | Timing characteristics of primary reference time clocks: Amendment 1 |
| [G.8273.2/Y.1368.2](http://handle.itu.int/11.1002/1000/12196) | 2014-05-14 | In force | AAP | Timing characteristics of telecom boundary clocks and telecom time slave clocks |
| [G.8273.2/Y.1368.2 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12395) | 2015-01-13 | In force | AAP | Timing characteristics of telecom boundary clocks and telecom time slave clocks: Amendment 1 |
| [G.8273.2/Y.1368.2 (2014) Amd. 2](http://handle.itu.int/11.1002/1000/12543) | 2015-08-13 | In force | AAP | Timing characteristics of telecom boundary clocks and telecom time slave clocks: Amendment |
| [G.8273/Y.1368](http://handle.itu.int/11.1002/1000/12012) | 2013-08-29 | In force | AAP | Framework of phase and time clocks |
| [G.8273/Y.1368 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12394) | 2015-01-13 | In force | AAP | Framework of phase and time clocks: Amendment 1 |
| [G.8273/Y.1368 (2013) Amd. 2](http://handle.itu.int/11.1002/1000/12544) | 2015-08-13 | In force | AAP | Framework of phase and time clocks: Amendment 2 |
| [G.8273/Y.1368 (2013) Cor. 1](http://handle.itu.int/11.1002/1000/12195) | 2014-05-14 | In force | AAP | Framework of phase and time clocks: Corrigendum 1 |
| [G.8275.1/Y.1369.1](http://handle.itu.int/11.1002/1000/12197) | 2014-07-22 | Superseded | AAP | Precision time protocol telecom profile for phase/time synchronization with full timing support from the network |
| [G.8275.1/Y.1369.1 (2014) Cor. 1](http://handle.itu.int/11.1002/1000/12397) | 2015-01-13 | Superseded | AAP | Precision time protocol telecom profile for phase/time synchronization with full timing support from the network: Corrigendum 1 |
| [G.8275.1/Y.1369.1](http://handle.itu.int/11.1002/1000/12815) | 2016-06-22 | In force | AAP | Precision time protocol telecom profile for phase/time synchronization with full timing support from the network |
| [G.8275.2/Y.1369.2](http://handle.itu.int/11.1002/1000/12833) | 2016-06-22 | In force | AAP | Precision time Protocol Telecom Profile for time/phase synchronization with partial timing support from the network |
| [G.8275/Y.1369](http://handle.itu.int/11.1002/1000/12011) | 2013-11-22 | In force | AAP | Architecture and requirements for packet-based time and phase distribution |
| [G.8275/Y.1369 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12396) | 2015-01-13 | In force | AAP | Architecture and requirements for packet-based time and phase delivery: Amendment 1 |
| [G.8275/Y.1369 (2013) Amd. 2](http://handle.itu.int/11.1002/1000/12814) | 2016-04-13 | In force | AAP | Architecture and requirements for packet-based time and phase delivery: Amendment 2 |
| [G.870/Y.1352 (2012) Cor. 1](http://handle.itu.int/11.1002/1000/11985) | 2013-08-29 | In force | AAP | Terms and definitions for Optical Transport Networks (OTN): Corrigendum 1 |
| [G.872 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11986) | 2013-11-06 | In force | AAP | Architecture of optical transport networks: Amendment 1 |
| [G.873.1](http://handle.itu.int/11.1002/1000/12181) | 2014-05-14 | In force | AAP | Optical transport network (OTN): Linear protection |
| [G.873.1 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12368) | 2014-12-05 | In force | Agreement | Optical Transport Network (OTN): Linear protection: Amendment 1 - New Appendix III - Optical layer protection |
| [G.873.2](http://handle.itu.int/11.1002/1000/12530) | 2015-08-13 | In force | AAP | ODUk shared ring protection |
| [G.874](http://handle.itu.int/11.1002/1000/11987) | 2013-08-29 | In force | AAP | Management aspects of optical transport network elements |
| [G.874 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12559) | 2015-08-13 | In force | AAP | Management aspects of optical transport network elements: Amendment 1 |
| [G.874.1 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11988) | 2013-08-29 | In force | AAP | Optical transport network (OTN): Protocol-neutral management information model for the network element view: Amendment 1 |
| [G.874.1 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12558) | 2015-08-13 | In force | AAP | Optical transport network: Protocol-neutral management information model for the network element view: Amendment 2 |
| [G.959.1](http://handle.itu.int/11.1002/1000/12793) | 2016-04-13 | In force | AAP | Optical transport network physical layer interfaces |
| [G.9700](http://handle.itu.int/11.1002/1000/12010) | 2014-04-04 | In force | TAP | Fast access to subscriber terminals (G.fast) - Power spectral density specification |
| [G.9700 (2014) Amd.1](http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12010) | 2016-09-30 | In force | TAP | Fast access to subscriber terminals (G.fast) - Power spectral density specification (2014) – Amendment 1 |
| [G.9701](http://handle.itu.int/11.1002/1000/12090) | 2014-12-05 | In force | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification |
| [G.9701 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12542) | 2016-05-07 | In force | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification: Amendment 1 |
| [G.9701 (2014) Amd.2](http://www.itu.int/ITU-T/aap/aapid/3489/show.aspx) | 2016-07-22 | In force | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification: Amendment 2 |
| [G.9701 (2014) Cor. 1](http://handle.itu.int/11.1002/1000/12541) | 2015-11-22 | In force | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification: Corrigendum 1 |
| [G.9701 (2014) Cor. 2](http://handle.itu.int/11.1002/1000/12817) | 2016-05-07 | In force | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification: Corrigendum 2 |
| [G.975.1 (2004) Cor. 2](http://handle.itu.int/11.1002/1000/11990) | 2013-07-12 | In force | Agreement | Forward error correction for high bit rate DWDM submarine systems: Corrigendum 2 |
| [G.976](http://handle.itu.int/11.1002/1000/12182) | 2014-05-14 | In force | AAP | Test methods applicable to optical fibre submarine cable systems |
| [G.977](http://handle.itu.int/11.1002/1000/12369) | 2015-01-13 | In force | AAP | Characteristics of optically amplified optical fibre submarine cable systems |
| [G.979 (2012) Cor. 1](http://handle.itu.int/11.1002/1000/12183) | 2014-05-14 | In force | AAP | Characteristics of monitoring systems for optical submarine cable systems: Corrigendum 1 |
| [G.9801](http://handle.itu.int/11.1002/1000/12009) | 2013-08-29 | In force | AAP | Ethernet passive optical networks using OMCI |
| [G.9802](http://handle.itu.int/11.1002/1000/12398) | 2015-04-06 | In force | AAP | Multiple-wavelength passive optical networks (MW-PONs) |
| [G.9802 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12540) | 2015-08-13 | In force | AAP | Multiple-wavelength passive optical networks (MW-PONs): Amendment 1 |
| [G.9807.1](http://handle.itu.int/11.1002/1000/12834) | 2016-06-22 | In force | AAP | 10-Gigabit-capable symmetric passive optical network (XGS-PON) |
| [G.984.3](http://handle.itu.int/11.1002/1000/12099) | 2014-01-13 | In force | AAP | Gigabit-capable passive optical networks (G-PON): Transmission convergence layer specification |
| [G.984.5](http://handle.itu.int/11.1002/1000/12184) | 2014-05-14 | In force | AAP | Gigabit-capable passive optical networks (G-PON): Enhancement band |
| [G.987.1](http://handle.itu.int/11.1002/1000/12794) | 2016-03-29 | In force | AAP | 10-Gigabit-capable passive optical networks (XG-PON): General requirements |
| [G.987.2](http://handle.itu.int/11.1002/1000/12832) | 2016-02-26 | In force | Agreement | 10-Gigabit-capable passive optical networks (XG-PON): Physical media dependent (PMD) layer specification |
| [G.987.3](http://handle.itu.int/11.1002/1000/12098) | 2014-01-13 | In force | AAP | 10-Gigabit-capable passive optical networks (XG-PON): Transmission convergence (TC) layer specification |
| [G.988 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/12185) | 2014-05-14 | In force | AAP | ONU management and control interface (OMCI) specification: Amendment 1 - Maintenance |
| [G.988 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12795) | 2016-06-22 | In force | AAP | ONU management and control interface (OMCI) specification: Amendment 2 |
| [G.989](http://handle.itu.int/11.1002/1000/12561) | 2015-10-22 | In force | AAP | 40-Gigabit-capable passive optical networks (NG-PON2): Definitions, abbreviations and acronyms |
| [G.989.1](http://handle.itu.int/11.1002/1000/11810) | 2013-03-09 | In force | AAP | 40-Gigabit-capable passive optical networks (NG-PON2): General requirements |
| [G.989.1 (2013) Amd. 1](http://handle.itu.int/11.1002/1000/12557) | 2015-08-13 | In force | AAP | 40-Gigabit-capable passive optical networks (NG-PON2): General requirements: Amendment 1 |
| [G.989.2](http://handle.itu.int/11.1002/1000/12097) | 2014-12-05 | In force | AAP | 40-Gigabit-capable passive optical networks 2 (NG-PON2): Physical media dependent (PMD) layer specification |
| [G.989.2 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12556) | 2016-04-13 | In force | AAP | 40-Gigabit-capable passive optical networks 2 (NG-PON2): Physical media dependent (PMD) layer specification: Amendment 1 |
| [G.989.3](http://handle.itu.int/11.1002/1000/12562) | 2015-10-22 | In force | AAP | 40-Gigabit-capable passive optical networks (NG-PON2): Transmission convergence layer specification |
| [G.9901](http://handle.itu.int/11.1002/1000/12089) | 2014-04-04 | In force | TAP | Narrowband orthogonal frequency division multiplexing power line communication transceivers - Power spectral density specification |
| [G.9901 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11895) | 2013-07-12 | Superseded | TAP | Narrow-band orthogonal frequency division multiplexing power line communication transceivers - power spectral density specification: Amendment 1 |
| [G.9902 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11896)  | 2013-03-16 | In force | AAP | Narrow-band orthogonal frequency division multiplexing power line communication transceivers for ITU-T G.hnem networks: Amendment 1 |
| [G.9902 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/12008) | 2013-08-29 | In force | AAP | Narrow-band orthogonal frequency division multiplexing power line communication transceivers for ITU-T G.hnem networks: Amendment 2 - Clarifications on payload encoder and addition of a network admission procedure |
| [G.9903](http://handle.itu.int/11.1002/1000/12049) | 2013-05-07 | Superseded | Agreement | Narrowband orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks |
| [G.9903 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11897) | 2013-05-07 | Superseded | AAP | Narrow-band orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks: Amendment 1 |
| [G.9903](http://handle.itu.int/11.1002/1000/12088) | 2014-02-22 | In force | AAP | Narrowband orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks |
| [G.9903 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12539) | 2015-08-13 | In force | AAP | Narrowband orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks: Amendment 1 |
| [G.9905](http://handle.itu.int/11.1002/1000/12007) | 2013-08-29 | In force | AAP | Centralized metric-based source routing |
| [G.992.3 (2009) Cor. 3](http://handle.itu.int/11.1002/1000/11991) | 2013-08-29 | In force | AAP | Asymmetric digital subscriber line transceivers 2 (ADSL2): Corrigendum 3 - Accuracy of test parameters (clarification) |
| [G.993.2 (2011) Amd. 2](http://handle.itu.int/11.1002/1000/11795) | 2012-12-07 | Superseded | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment 2 |
| [G.993.2 (2011) Amd. 3](http://handle.itu.int/11.1002/1000/11888) | 2013-04-22 | Superseded | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment 3 |
| [G.993.2 (2011) Amd. 4](http://handle.itu.int/11.1002/1000/11992) | 2013-08-29 | Superseded | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment 4 |
| [G.993.2 (2011) Amd. 5](http://handle.itu.int/11.1002/1000/12096) | 2014-01-13 | Superseded | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment - Short reach VDSL2 with reduced power and enhanced data rate |
| [G.993.2 (2011) Amd. 6](http://handle.itu.int/11.1002/1000/12371) | 2015-05-22 | Superseded | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment 6 |
| [G.993.2](http://handle.itu.int/11.1002/1000/12370) | 2015-01-13 | In force | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2) |
| [G.993.2 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12563) | 2015-11-06 | In force | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment 1 |
| [G.993.2 (2015) Amd. 2](http://handle.itu.int/11.1002/1000/12796) | 2016-03-29 | In force | AAP | Very high speed digital subscriber line transceivers 2 (VDSL2): Amendment 2 |
| [G.993.5 (2010) Amd. 3](http://handle.itu.int/11.1002/1000/11889) | 2013-04-22 | Superseded | AAP | Self-FEXT cancellation (vectoring) for use with VDSL2 transceivers: Amendment 3 |
| [G.993.5 (2010) Amd. 4](http://handle.itu.int/11.1002/1000/11993) | 2013-08-29 | Superseded | AAP | Self-FEXT cancellation (vectoring) for use with VDSL2 transceivers: Amendment 4 |
| [G.993.5 (2010) Amd. 5](http://handle.itu.int/11.1002/1000/12095) | 2014-04-04 | Superseded | AAP | Self-FEXT cancellation (vectoring) for use with VDSL2 transceivers: Amendment 5 - Exchange of transceiver IDs during initialization |
| [G.993.5](http://handle.itu.int/11.1002/1000/12372) | 2015-01-13 | In force | AAP | Self-FEXT cancellation (vectoring) for use with VDSL2 transceivers |
| [G.994.1 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/11994) | 2013-08-29 | In force | AAP | Handshake procedures for digital subscriber line (DSL) transceivers: Amendment 2 - Extended duration of new functionality O-P-VECTOR 1 |
| [G.994.1 (2012) Amd. 3](http://handle.itu.int/11.1002/1000/12093) | 2014-01-13 | In force | AAP | Handshake procedures for digital subscriber line transceivers: Amendment 3 - Codepoints for ITU-T G.998.4 extensions and exchange of transfer ID |
| [G.994.1 (2012) Amd. 4](http://handle.itu.int/11.1002/1000/12094) | 2014-12-05 | In force | AAP | Handshake procedures for digital subscriber line transceivers: Amendment 4 - Additional codepoints for the support of ITU-T G.9701 |
| [G.994.1 (2012) Amd. 5](http://handle.itu.int/11.1002/1000/12373) | 2015-02-13 | In force | AAP | Handshake procedures for digital subscriber line transceivers: Amendment 5 - Additional codepoints for the support of SAVN |
| [G.994.1 (2012) Amd. 6](http://handle.itu.int/11.1002/1000/12564) | 2015-08-29 | In force | AAP | Handshake procedures for digital subscriber line transceivers: Amendment 6 - Codepoints for the support of ITU-T G.993.2 profile 35b |
| [G.994.1 (2012) Amd. 7](http://handle.itu.int/11.1002/1000/12797) | 2016-06-13 | In force | AAP | Handshake procedures for digital subscriber line transceivers: Amendment 7 |
| [G.995.2](http://handle.itu.int/11.1002/1000/12565) | 2015-08-29 | In force | AAP | Enhanced common mode limits and measurement methods for customer premises equipment operating on copper pairs |
| [G.9959 (2012) Amd.1](http://handle.itu.int/11.1002/1000/12006) | 2013-10-07 | Superseded | AAP | Short range narrow-band digital radiocommunication transceivers – PHY, MAC, SAR and LLC layer specifications – Amendment 1 |
| [G.9959](http://handle.itu.int/11.1002/1000/12399) | 2015-01-13 | In force | AAP | Short range narrow-band digital radiocommunication transceivers – PHY, MAC, SAR and LLC layer specifications |
| [G.996.2 (2009) Amd. 3](http://handle.itu.int/11.1002/1000/11892) | 2013-03-16 | In force | AAP | Line testing for digital subscriber lines (DSL): Amendment 3 - Definition of accuracy values for MELT-PMD and MELT-P in Annex E |
| [G.996.2 (2009) Amd. 4](http://handle.itu.int/11.1002/1000/11995) | 2013-08-29 | In force | AAP | Single-ended line testing for digital subscriber lines (DSL): Amendment 4 - Updates to Annex E |
| [G.9960 (2011) Amd.1](http://handle.itu.int/11.1002/1000/12087) | 2014-01-13 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - System architecture and physical layer specification: Amendment 1 |
| [G.9960 (2011) Amd.1](http://handle.itu.int/11.1002/1000/12087) | 2014-01-13 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - System architecture and physical layer specification: Amendment 1 |
| [G.9960](http://handle.itu.int/11.1002/1000/12400) | 2015-07-03 | In force | AAP | Unified high-speed wireline-based home networking transceivers - System architecture and physical layer specification |
| [G.9960 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12537) | 2015-11-22 | In force | AAP | Unified high-speed wireline-based home networking transceivers - System architecture and physical layer specification: Amendment 1 |
| [G.9960 (2015) Amd. 2](http://handle.itu.int/11.1002/1000/12818) | 2016-04-13 | In force | AAP | Unified high-speed wireline-based home networking transceivers - System architecture and physical layer specification: Amendment 2 |
| [G.9960 (2015) Cor. 1](http://handle.itu.int/11.1002/1000/12538) | 2015-11-22 | In force | AAP | Unified high-speed wireline-based home networking transceivers - System architecture and physical layer specification: Corrigendum 1 |
| [G.9960 (2015) Cor. 2](http://handle.itu.int/11.1002/1000/12824) | 2016-04-13 | In force | AAP | Unified high-speed wireline-based home networking transceivers - System architecture and physical layer specification: Corrigendum 2 |
| [G.9961 (2010) Amd.2](http://handle.itu.int/11.1002/1000/12085) | 2014-04-04 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification: Amendment 2 |
| [G.9961 (2010) Cor. 2](http://handle.itu.int/11.1002/1000/11899) | 2013-07-12 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification: Corrigendum 2 |
| [G.9961](http://handle.itu.int/11.1002/1000/12086) | 2014-04-04 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification |
| [G.9961](http://handle.itu.int/11.1002/1000/12401) | 2015-07-03 | In force | AAP | Unified high-speed wireline-based home networking transceivers - Data link layer specification |
| [G.9961 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12536) | 2015-11-22 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification: Amendment 1 |
| [G.9961 (2015) Amd.2](http://www.itu.int/ITU-T/aap/aapid/3498/show.aspx) | 2016-07-22 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification: Amendment 2 |
| [G.9961 (2015) Cor. 1](http://handle.itu.int/11.1002/1000/12535) | 2015-11-22 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification: Corrigendum 1 |
| [G.9961 (2015) Cor. 2](http://handle.itu.int/11.1002/1000/12822) | 2016-04-13 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Data link layer specification: Amendment 2 |
| [G.9962](http://handle.itu.int/11.1002/1000/11901) | 2013-07-12 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Management specification |
| [G.9962 (2013) Amd.1](http://handle.itu.int/11.1002/1000/12005) | 2013-08-29 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Management specification: Amendment 1 |
| [G.9962](http://handle.itu.int/11.1002/1000/12084) | 2014-10-14 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Management specification |
| [G.9962 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12821) | 2016-04-13 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Management specification: Amendment 1 |
| [G.9963 (2011) Amd.1](http://handle.itu.int/11.1002/1000/12083) | 2014-01-13 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Multiple input/multiple output specification: Amendment 1 - Alignment with modifications to ITU-T G.9961 |
| [G.9963 (2011) Cor.1](http://handle.itu.int/11.1002/1000/12082) | 2014-04-04 | Superseded | AAP | Unified high-speed wire-line based home networking transceivers - Multiple input/multiple output specification: Corrigendum 1 |
| [G.9963](http://handle.itu.int/11.1002/1000/12402) | 2015-07-03 | In force | AAP | Unified high-speed wireline-based home networking transceivers - Multiple input/multiple output specification |
| [G.9963 (2015) Amd.1](http://www.itu.int/ITU-T/aap/aapid/3495/show.aspx) | 2016-07-22 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Multiple input/multiple output specification: Amendment 1 |
| [G.9963 (2015) Cor. 1](http://handle.itu.int/11.1002/1000/12819) | 2016-04-13 | In force | AAP | Unified high-speed wire-line based home networking transceivers - Multiple input/multiple output specification: Corrigendum 1 |
| [G.9964 (2011) Amd.1](http://handle.itu.int/11.1002/1000/12579) | 2016-02-26 | In force | TAP | Unified high-speed wire-line based home networking transceivers - Power spectral density specification: Amendment 1 |
| [G.9964 (2014) Amd.2](http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11406) | 2016-09-30 | In force | TAP | Unified high-speed wireline-based home networking transceivers – Power spectral density specification (2011) – Amendment 2 |
| [G.997.1 (2012) Amd. 1](http://handle.itu.int/11.1002/1000/11798) | 2012-12-07 | In force | AAP | Physical layer management for digital subscriber line (DSL) transceivers: Amendment 1 |
| [G.997.1 (2012) Amd. 2](http://handle.itu.int/11.1002/1000/11893) | 2013-04-22 | In force | AAP | Physical layer management for digital subscriber line transceivers: Amendment 2 |
| [G.997.1 (2012) Amd. 3](http://handle.itu.int/11.1002/1000/11996) | 2013-08-29 | In force | AAP | Physical layer management for digital subscriber line transceivers: Amendment 3 |
| [G.997.1 (2012) Amd. 4](http://handle.itu.int/11.1002/1000/12374) | 2015-02-13 | In force | AAP | Physical layer management for digital subscriber line transceivers: Amendment 4 |
| [G.997.1 (2012) Amd. 5](http://handle.itu.int/11.1002/1000/12566) | 2015-11-06 | In force | AAP | Physical layer management for digital subscriber line transceivers: Amendment 5 |
| [G.997.1 (2012) Amd. 6](http://handle.itu.int/11.1002/1000/12798) | 2016-03-29 | In force | AAP | Physical layer management for digital subscriber line transceivers: Amendment 6 |
| [G.997.2](http://handle.itu.int/11.1002/1000/12375) | 2015-05-22 | In force | AAP | Physical layer management for G.fast transceivers |
| [G.997.2 (2015) Amd. 1](http://handle.itu.int/11.1002/1000/12555) | 2016-05-07 | In force | AAP | Physical layer management for G.fast transceivers: Amendment 1 |
| [G.997.2 (2015) Amd.2](http://www.itu.int/ITU-T/aap/aapid/3487/show.aspx) | 2016-07-22 | In force | AAP | Physical layer management for G.fast transceivers: Amendment 2 |
| [G.997.2 (2015) Cor. 1](http://handle.itu.int/11.1002/1000/12800) | 2016-03-29 | In force | AAP | Physical layer management for G.fast transceivers: Corrigendum 1 |
| [G.9972 (2010) Cor.1](http://handle.itu.int/11.1002/1000/12081) | 2014-04-04 | In force | AAP | Coexistence mechanism for wireline home networking transceivers: Corrigendum 1 - Revised definition of coexisting systems categories - Revised definition of coexisting systems categories |
| [G.9977](http://handle.itu.int/11.1002/1000/12548) | 2016-02-26 | In force | AAP | Mitigation of interference between DSL and PLC |
| [G.9979](http://handle.itu.int/11.1002/1000/12080) | 2014-12-05 | In force | AAP | Implementation of the generic mechanism in the IEEE 1905.1a-2014 Standard to include applicable ITU-T Recommendations |
| [G.9979 (2014) Amd. 1](http://handle.itu.int/11.1002/1000/12534) | 2016-02-26 | In force | AAP | Implementation of the generic mechanism in the IEEE 1905.1a 2014 Standard to include applicable ITU-T Recommendations: Amendment 1 |
| [G.998.1 (2005) Amd. 1](http://handle.itu.int/11.1002/1000/11997) | 2013-08-29 | In force | AAP | ATM-based multi-pair bonding: Amendment 1 |
| [G.998.2 (2005) Amd. 3](http://handle.itu.int/11.1002/1000/11998) | 2013-08-29 | In force | AAP | Ethernet-based multi-pair bonding: Amendment 3 - Intentional temporary shutdown of some bonded bodies |
| [G.998.2 (2005) Amd. 4](http://handle.itu.int/11.1002/1000/12554) | 2015-08-29 | In force | AAP | Ethernet-based multi-pair bonding: Amendment 4 - New Annex D |
| [G.998.3 (2005) Amd. 1](http://handle.itu.int/11.1002/1000/11999) | 2013-08-29 | In force | AAP | Intentional temporary shutdown of some bonded lines |
| [G.998.4 (2010) Amd. 3](http://handle.itu.int/11.1002/1000/12092) | 2014-01-13 | Superseded | AAP | Extended memory for enhanced bit rates with retransmission |
| [G.998.4 (2010) Amd. 4](http://handle.itu.int/11.1002/1000/12377) | 2015-05-22 | Superseded | AAP | Improved impulse noise protection for DSL transceivers: Amendment 4 |
| [G.998.4 (2010) Cor. 5](http://handle.itu.int/11.1002/1000/11894) | 2013-03-16 | Superseded | AAP | Improved impulse noise protection for DSL transceivers: Corrigendum 5 |
| [G.998.4](http://handle.itu.int/11.1002/1000/12376) | 2015-01-13 | In force | AAP | Improved impulse noise protection for digital subscriber line (DSL) transceivers |
| [G.999.1 (2009) Amd.1](http://handle.itu.int/11.1002/1000/12091) | 2014-04-04 | In force | AAP | Interface between the link layer and the physical layer for digital subscriber line (DSL) transceivers: Amendment 1 - Extension for flow control on the PHY-to-LINK data stream over gamma reference point |
| [L.100/L.10](http://handle.itu.int/11.1002/1000/12532) | 2015-08-13 | In force | AAP | Optical fibre cables for duct and tunnel application |
| [L.101/L.43](http://handle.itu.int/11.1002/1000/12531) | 2015-08-13 | In force | AAP | Optical fibre cables for buried application |
| [L.102/L.26](http://handle.itu.int/11.1002/1000/12533) | 2015-08-13 | In force | AAP | Optical fibre cables for aerial application |
| [L.103/L.59 (2008) Amd. 1](http://handle.itu.int/11.1002/1000/12578) | 2015-07-03 | Superseded | Agreement | Optical fibre cables for indoor applications: Amendment 1 - New appendix on low friction indoor cable and wiring (Japanese experience) |
| [L.103](http://handle.itu.int/11.1002/1000/12835) | 2016-04-13 | In force | AAP | Optical fibre cables for indoor applications |
| [L.160/L.82 (2010) Amd. 1](http://handle.itu.int/11.1002/1000/12413) | 2014-12-05 | In force | Agreement | Optical cabling shared with multiple operators in buildings: Amendment 1 - New Appendix II |
| [L.262/L.94](http://handle.itu.int/11.1002/1000/12414) | 2015-01-13 | In force | AAP | Use of global navigation satellite systems to create a referenced network map |
| [L.300/L.25](http://handle.itu.int/11.1002/1000/12411) | 2015-01-13 | In force | AAP | Optical fibre cable network maintenance |
| [L.310](http://handle.itu.int/11.1002/1000/12836) | 2016-04-13 | In force | AAP | Optical fibre maintenance depending on topologies of access networks |
| [L.311/L.93](http://handle.itu.int/11.1002/1000/12199) | 2014-05-14 | In force | AAP | Optical fibre cable maintenance support, monitoring and testing systems for optical fibre trunk networks |
| [L.392](http://handle.itu.int/11.1002/1000/12837) | 2016-04-13 | In force | AAP | Disaster management for improving network resilience and recovery with movable and deployable ICT resource units |
| [L.402/L.36](http://handle.itu.int/11.1002/1000/12412) | 2015-01-13 | In force | AAP | Single-mode fibre optic connectors |

TABLE 8
Study Group 15 – Recommendations consented/determined at the last meeting

| Recommendation | Consent/‌Determination | TAP/AAP | Title |
| --- | --- | --- | --- |
|  |  |  |  |
| G.9700 Amd.2 | Determination | TAP | Fast access to subscriber terminals (G.fast) - Power spectral density specification (2014) – Amendment 2 |
| G.9901 | Determination | TAP | Narrowband power line communication transceivers – Power Spectral Density specification |
| G.652 | Consent | AAP | Characteristics of a single-mode optical fibre cable |
| G.654 | Consent | AAP | Characteristics of a cut-off shifted single-mode optical fibre and cable |
| G.657 | Consent | AAP | Characteristics of a bending-loss insensitive single-mode optical fibre and cable |
| G.697 | Consent | AAP | Optical monitoring for dense wavelength division multiplexing systems |
| G.709.1/Y.1331.1 | Consent | AAP | Flexible OTN short reach interface |
| G.709/Y.1331 (2016) Amd.1 | Consent | AAP | Interfaces for the Optical Transport Network (OTN): Amendment 1 |
| G.7701 (ex G.cca) | Consent | AAP | Common Control Aspects |
| G.7710/Y.1701 (2012) Amd.1 | Consent | AAP | Common equipment management function requirements: Amendment 1 |
| G.7711/Y.1702 | Consent | AAP | Generic protocol-neutral information model for transport resources |
| G.798 (2012) Amd.3 | Consent | AAP | Characteristics of optical transport network hierarchy equipment functional blocks |
| G.8011/Y.1307 | Consent | AAP | Ethernet service characteristics |
| G.8012/Y.1308 (2004) Amd.2 | Consent | AAP | Ethernet UNI and Ethernet NNI: Amendment 2 |
| G.8021/Y.1341 | Consent | AAP | Characteristics of Ethernet transport network equipment functional blocks |
| G.8032/Y.1344 (2015) Amd.1 | Consent | AAP | Ethernet ring protection switching: Amendment 1 |
| G.8052/Y.1346 | Consent | AAP | Protocol-neutral management information model for the Ethernet Transport capable network element |
| G.808 | Consent | AAP | Terminology for protection and restoration |
| G.8101/Y.1355 | Consent | AAP | Terms and definitions for MPLS transport profile |
| G.8113.1/Y.1372.1 (2016) Cor.1 | Consent | AAP | Operations, administration and maintenance mechanisms for MPLS-TP in packet transport network, Corrigendum 1 |
| G.8121.1/Y.1381.1 (2016) Cor.1 | Consent | AAP | Characteristics of MPLS-TP equipment functional blocks supporting ITU-T G.8113.1/Y.1372.1 OAM mechanisms: Corrigendum 1 |
| G.8121.2/Y.1381.2 (2016) Cor.1 | Consent | AAP | Characteristics of MPLS-TP equipment functional blocks supporting ITU-T G.8113.2/Y.1372.2 OAM mechanisms: Corrigendum 1 |
| G.8121/Y.1381 (2016) Cor.1 | Consent | AAP | Characteristics of MPLS-TP equipment functional blocks, Corrigendum 1 |
| G.813 (2003) Cor.2 | Consent | AAP | Timing characteristics of SDH equipment slave clocks (SEC): Corrigendum 2 |
| G.8131/Y.1382 (2014) Amd.2 | Consent | AAP | Linear protection switching for MPLS transport profile (MPLS-TP): Amendment 2 |
| G.8152/Y.1375 | Consent | AAP | Protocol-neutral management information model for the MPLS-TP network element |
| G.8262 (2015) Cor.1 | Consent | AAP | Timing characteristics of a synchronous Ethernet equipment slave clock: Corrigendum 1  |
| G.8266/Y.1366 | Consent | AAP | Timing characteristics of packet master clock for frequency synchronization |
| G.8272.1/Y.1367.1 | Consent | AAP | Timing characteristics of enhanced primary reference time clock |
| G.8273.2/Y.1368.2 | Consent | AAP | Timing characteristics of telecom boundary clocks and telecom time slave clocks |
| G.870/Y.1352 | Consent | AAP | Terms and definitions for optical transport networks |
| G.872 | Consent | AAP | Architecture of optical transport networks |
| G.874.1 | Consent | AAP | Optical transport network (OTN): Protocol-neutral management information model for the network element view |
| G.9701 Amd.3 | Consent | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification (2014) – Amendment 3 |
| G.9701 Cor.3 | Consent | AAP | Fast access to subscriber terminals (G.fast) - Physical layer specification (2014) – Corrigendum 3 |
| G.971 | Consent | AAP | General features of optical submarine cable systems |
| G.972 | Consent | AAP | Definition of terms relevant to optical fibre submarine cable systems |
| G.973 | Consent | AAP | Characteristics of repeaterless optical fibre submarine cable systems |
| G.979 | Consent | AAP | Characteristics of monitoring systems for optical submarine cable systems |
| G.989.3 Amd.1 | Consent | AAP | 40-Gigabit-capable passive optical networks (NG PON2): Transmission Convergence Layer Specification - Amendment 1 |
| G.9905 Amd.1 | Consent | AAP | Centralized metric-based source routing – Amendment 1 |
| G.993.2 Cor.1 | Consent | AAP | Very high speed digital subscriber line transceivers 2 (2015) – Corrigendum 1 |
| G.993.5 Amd.1 | Consent | AAP | Self-FEXT cancellation (vectoring) for use with VDSL2 transceivers (2015) – Amendment 1 |
| G.993.5 Cor.1 | Consent | AAP | Self-FEXT cancellation (vectoring) for use with VDSL2 transceivers (2015) – Corrigendum 1 |
| G.994.1 Amd.8 | Consent | AAP | Handshake procedures for digital subscriber line transceivers (2012) – Amendment 8 |
| G.994.1 Cor.1 | Consent | AAP | Handshake procedures for digital subscriber line transceivers (2012) – Corrigendum 1 |
| G.9960 Cor.3 | Consent | AAP | Unified high-speed wireline-based home networking transceivers – System architecture and physical layer specification (2015) – Corrigendum 3 |
| G.9961 Cor.3 | Consent | AAP | Unified high-speed wireline-based home networking transceivers – Data link layer specification (2015) – Corrigendum 3 |
| G.9962 Cor.1 | Consent | AAP | Unified high-speed wireline-based home networking transceivers – Management specification (2015) – Corrigendum 1 |
| G.997.1 Cor.1 | Consent | AAP | Physical layer management for digital subscriber line transceivers (2012) – Corrigendum 1 |
| G.997.2 Amd.3 | Consent | AAP | Physical layer management for G.fast transceivers (2015) – Amendment 3 |
| G.997.2 Cor.2 | Consent | AAP | Physical layer management for G.fast transceivers (2015) – Corrigendum 2 |
| L.155 (ex L.83) | Consent | AAP | Low impact trenching technique for FTTx networks |
| L.162 (ex L.coi) | Consent | AAP | Microducts Technology and Its Applications |

TABLE 9
Study Group 15 – Recommendations deleted during study period

| Recommendation | Last version | Withdrawal date | Title |
| --- | --- | --- | --- |
| G.9955 | 2011-12-16 | 2014-04-04 | Narrowband orthogonal frequency division multiplexing power line communication transceivers - Physical layer specification |
| G.9956 | 2011-12-16 | 2014-04-04 | Narrowband orthogonal frequency division multiplexing power line communication transceivers – Data link layer specification |
| [X.87/Y.1324](http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=7011) | 2003-10-29 | 2016-09-30 | Multiple services ring based on RPR |

TABLE 10
Study Group 15 – Recommendations submitted to WTSA-16

| Recommendation | Proposal | Title | Reference |
| --- | --- | --- | --- |
| None. |  |  |  |

TABLE 11
Study Group 15 – Supplements

| Recommendation | Date | Status | Title |
| --- | --- | --- | --- |
| [G Suppl. 39](http://handle.itu.int/11.1002/1000/12840) | 2016-02-26 | In force | Optical system design and engineering considerations |
| [G Suppl. 42](http://handle.itu.int/11.1002/1000/12198) | 2014-04-04 | In force | Guide on the use of the ITU-T Recommendations related to optical fibres and systems technology |
| [G Suppl. 51](http://handle.itu.int/11.1002/1000/12841) | 2016-02-26 | In force | Passive optical network protection considerations |
| [G Suppl. 53](http://handle.itu.int/11.1002/1000/12361) | 2014-12-05 | In force | Guidance for Ethernet OAM performance monitoring |
| [G Suppl. 54](http://handle.itu.int/11.1002/1000/12574) | 2015-07-03 | In force | Ethernet linear protection switching |
| [G Suppl. 55](http://handle.itu.int/11.1002/1000/12575) | 2015-07-03 | In force | Radio-over-fibre (RoF) technologies and their applications |
| [G Suppl. 56](http://handle.itu.int/11.1002/1000/12576) | 2015-07-03 | Superseded | OTN Transport of CPRI signals |
| [G Suppl. 56](http://handle.itu.int/11.1002/1000/12838) | 2016-02-26 | In force | OTN transport of CPRI signals |
| [G Suppl. 57](http://handle.itu.int/11.1002/1000/12577) | 2015-07-03 | In force | Smart home profiles for 6LoWPAN devices |
| [G Suppl. 58](http://handle.itu.int/11.1002/1000/12839) | 2016-02-26 | In force | Optical transport network (OTN) module framer interfaces (MFIs) |
| G Suppl. 59 | 2016-09-30 | In force | Guidance on optical fibre and cable reliability |
| G Suppl. 60 | 2016-09-30 | In force | Ethernet Linear Protection Switching with Dual Node Interconnection |

TABLE 12
Study Group 15 – Technical Papers

| Recommendation | Date | Status | Title |
| --- | --- | --- | --- |
| [TPLS.G-HN](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=10309) | 2015-07-03 | New | Operation of G.hn technology over access and in-premises phone line medium |
| [TPLS.GUIDE](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=10050) | 2014-04-04 | Rev. | Guide to the use of the ITU-T Recommendations of the L-series related to optical technologies for the Outside Plant |

TABLE 13
Study Group 15 – Technical Reports

| Recommendation | Date | Status | Title |
| --- | --- | --- | --- |
| [TR-OFCS](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=10655) | 2015-07-03 | New | Technical Report on Optical fibres, cables and systems |

TABLE 14
Study Group 15 – Other publications

| Recommendation | Date | Status | Title |
| --- | --- | --- | --- |
|  | 2016-09-30 | Revised | Access Network Transport Standards Work Plan (Issue 26, September 2016) |
|  | 2016-09-30 | Revised | [Access Network Transport Standards Overview (Issue 28, September 2016)](http://www.itu.int/en/ITU-T/studygroups/2013-2016/15/Documents/Overviews_WorkPlans/ANT_Standards_Overview_V27_500P.docx) |
|  | 2016-09-30 | Revised | The [Optical Transport Networks & Technologies Standardization Work Plan](http://www.itu.int/en/ITU-T/studygroups/2013-2016/15/Documents/Overviews_WorkPlans/OTNT_Standardization_WorkPlan_v21_504P.docx) (Issue 22) |
|  | 2016-09-30 | Revised | [Smart Grid overview and work plan (Issue 5, September 2016)](http://www.itu.int/en/ITU-T/studygroups/2013-2016/15/Documents/Overviews_WorkPlans/SmartGrid_Overview_WorkPlan_V4_435P.doc) |
|  | 2016-09-30 | Revised | [Home Network Transport Standards Overview and Work Plan (version 5, September 2016)](http://www.itu.int/en/ITU-T/studygroups/2013-2016/15/Documents/Overviews_WorkPlans/HNT_Standards_Overview-Work_Plan_v4_502PR1.doc) |

ANNEX 2

Proposed updates to the Study Group 15 mandate and Lead Study Group roles

**(WTSA Resolution 2)**

The following are the proposed changes to the Study Group 15 mandate and Lead Study Group roles agreed at the last Study Group 15 meeting in this study period, based on the relevant portions of [Resolution 2 (2016)](http://www.itu.int/en/ITU-T/wtsa16/Documents/CPI/ITU-T_Res2_2016-E.docx).

PART 1 ‑ General areas of study

Study Group 15

Networks, technologies and infrastructures for transport, access and home

Study Group 15 is responsible in ITU-T for the development of standards for the optical transport network, access network, home network and power utility network infrastructures, systems, equipment, optical fibres and cables. This includes the related installation, maintenance, management, test, instrumentation and measurement techniques, and control plane technologies to enable the evolution toward intelligent transport networks, including the support of smart-grid applications.

PART 2 ‑ Lead Study Groups in specific areas of study

Lead study group on access network transport
Lead study group on home networking
Lead study group on optical technologyLead study group on smart grid

Annex B
(to WTSA Resolution 2)

Points of guidance to study groups for the development
of the post-2016 work programme

ITU-T Study Group 15 is the focal point in ITU‑T for the development of standards on networks, technologies and infrastructures for transport, access and home. This encompasses the development of related standards for the customer premises, access, metropolitan and long-haul sections of communication networks.

Within this framework, the study group will handle the entire range of fibre and cable performance, field deployment and installation, taking into account the need for additional specifications driven by new optical fibre technologies and new applications. The activity on the field deployment and installation will address reliability, security aspects and social issues − such as the reduction of excavation, the problems caused to traffic and the generation of construction noise, and will include the investigation and standardization of new techniques allowing faster, cost-effective and safer cable installation. Planning, maintenance and management of the physical infrastructure will take into account the advantages of emerging technologies. Solutions for improving network resilience and recovery against disasters will be studied.

Particular emphasis is given to providing global standards for a high-capacity (terabit) optical transport network (OTN) infrastructure, and for high‑speed (multi‑Mbit/s and Gbit/s) network access and home networking. This includes the related work on modelling for network, system and equipment management, transport network architectures and layer interworking. Special consideration is being given to the changing telecommunication environment towards packet networks as part of the evolving next-generation and future networks, including networks supporting the evolving needs of mobile communications.

Access network technologies addressed by the study group include passive optical network (PON), point-to-point optical, and copper-based digital subscriber line technologies, including ADSL, VDSL, HDSL, SHDSL and G.fast. These access technologies find application in their traditional uses as well as backhaul and fronthaul networks for emerging services such as broadband wireless and data center interconnect. Home networking technologies, include wired broadband, wired narrowband and wireless narrowband. Both access and home networking for smart-grid applications are supported.

Network, system and equipment features covered include routing, switching, interfaces, multiplexers, cross-connect, add/drop multiplexers, amplifiers, transceivers, repeaters, regenerators, multilayer network protection switching and restoration, operations, administration and maintenance (OAM), network synchronization for both frequency and precision time, transport resource management and control capabilities to enable increased transport network agility, resource optimization, and scalability (e.g. the application of software defined networking (SDN) to transport networks). Many of these topics are addressed for various transport media and technologies, such as metallic and terrestrial/submarine optical fibre cables, dense and coarse wavelength division multiplexing (DWDM and CWDM) optical systems, optical transport network (OTN) including the evolution of OTN beyond 100Gb/s rates, Ethernet and other packet-based data services.

In its work, Study Group 15 will take into account related activities in other ITU study groups, SDOs, forums and consortia, and collaborate with them to avoid duplication of effort and identify any gaps in the development of global standards.

Annex C
(to WTSA Resolution 2)

List of Recommendations under the responsibility of the respective
study groups and TSAG in the 2017-2020 study period

**Study Group 15 (No change is proposed)**

ITU-T G-series, except those under the responsibility of Study Groups 2, 12, 13 and 16

ITU-T I.326, ITU-T I.414, ITU-T I.430-series, ITU-T I.600-series and ITU-T I.700-series, except ITU-T I.750-series

ITU-T L-series, except those under the responsibility of Study Group 5

ITU-T O-series (including ITU-T O.41/ITU-T P.53), except those under the responsibility of Study Group 2

ITU-T Q.49/ITU-T O.22 and ITU-T Q.500-series, except ITU-T Q.513 (see Study Group 2)

Maintenance of the ITU-T R-series

ITU-T X.50-series, ITU-T X.85/ITU-T Y.1321, ITU-T X.86/ITU-T Y.1323, ITU-T X.87/ITU-T Y.1324

ITU-T V.38, ITU-T V.55/ITU-T O.71, ITU-T V.300

ITU-T Y.1300 − ITU-T Y.1309, ITU-T Y.1320 − ITU-T Y.1399, ITU-T Y.1501 and ITU-T Y.1700-series

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