

The Standards Report

Quarter 3 2021

The latest industry changes and what they mean to you

{ See a full list of published cabling standards on page 5 }

IEEE 802.3 (Ethernet)

PUBLISHED AMENDMENTS TO IEEE 802.3™-2018 (SINCE LAST REPORT):

- **IEEE Std. 802.3cp™-2021** - IEEE Standard for Ethernet - Amendment 14: Bidirectional 10 Gb/s, 25 Gb/s, and 50 Gb/s Optical Access PHYs
- **IEEE Std. 802.3ct™-2021** - IEEE Standard for Ethernet Amendment 13: Physical Layers and Management Parameters for 100 Gb/s Operation Over DWDM Systems

ACTIVE IEEE 802.3 PROJECTS

IEEE P802.3ck 100 Gb/s, 200 Gb/s, and 400 Gb/s Electrical Interfaces

- This project supports 100 Gb/s, 200 Gb/s, and 400 Gb/s electrical interfaces based on 100 Gb/s signaling.
- Draft 2.2 is circulating for review at the November 2021 meeting. Target publication remains September 2022.

IEEE P802.3cs Increased-reach Ethernet Optical Subscriber Access (Super-PON)

- This standard supports Passive Optical Networks for distances up to 50 km.
- Draft 2.3 is circulating for review at the November 2021 meeting. Target publication is March 2022.

IEEE P802.3cw 400 Gb/s over DWDM systems

- This standard supports 400 Gb/s operation on a single wavelength of at least 80 km over a DWDM system.
- Draft 1.2 is circulating for review at the November 2021 meeting. Target publication is August 2023.

IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet

- This project will support point-to-point link segments up to 11m with 2 inline connectors for speeds of 25 Gb/s, 50 Gb/s, and 100 Gb/s for media and operating conditions for applications in the automotive environment.
- The Task Group continues to review contributions to generate content for the initial draft, which is targeted for November 2021. Estimated publication is between June and September 2023.

IEEE P802.3cz Multi-Gigabit Optical Automotive Ethernet

- This project will specify additions to and appropriate modifications of IEEE Std 802.3 to add Physical Layer specifications and management parameters for multi-gigabit optical Ethernet for application in the automotive environment.
- Comment resolution for Draft 1.1 continues during teleconference calls. Target publication is February 2023.

IEEE P802.3da 10 Mb/s Single Pair Multidrop Segments Enhancement

- This project supports 10 Mb/s single pair Ethernet mixing segments (multi-drop), including optional power delivery supporting multiple powered devices.
- The task group continues to develop incremental drafts leading to Draft 1.0 that will be officially circulated for comments. A target publication range has been established of May-July 2023.

IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber

- This project supports 100 Gb/s, 200 Gb/s, and 400 Gb/s optical interfaces for servers and other intra-data center applications using 100 Gb/s signaling over optical fiber. The project objectives include a reach of 50m and 100m over multimode fiber using 1 pair (100 Gb/s), 2 pairs (200 Gb/s) or 4 pairs (400 Gb/s).
- Draft 2.0 is circulating for review at the November 2021 meeting. Target publication is June 2022.

IEEE P802.3dc Revision to IEEE Std. 802.3-2018 (Maintenance #16)

- This revision will incorporate amendments and accumulated maintenance changes since publication of the 2018 standard.
- Draft 2.0 is circulating for review at the November 2021 meeting. Target publication is March 2022.

IEEE P802.3dd Power over Data Lines of SPE (Maintenance #17)

- This project implements editorial and technical corrections, refinements, and clarifications to Clause 104, Power over Data Lines (PoDL) of Single-Pair Ethernet, and related portions of the standard. No new features are added by this project.
- Draft 2.0 is circulating for review at the November 2021 meeting. A target publication date has not been established yet.

IEEE P802.3de Time Synchronization for Point-to-Point Single Pair Ethernet

- This project implements time synchronization features for 10 Mb/s Single Pair Ethernet. This feature is necessary for process control and automation applications.

- Task group is working to generate initial draft. A target publication has not been established yet.

Beyond 400 Gb/s Ethernet Study Group

- This Study Group was formed to investigate physical layer specifications more than 400 Gb/s. Data rates investigated are likely to be 800 Gb/s and 1.6 Tb/s.
- The study group is working to develop the Objectives that would guide the work of the eventual task group.

Greater than 10 Mb/s Long-Reach Single Pair Ethernet Study Group

- This Study Group was formed to investigate the addition of 100 Mb/s (and possibly 1000 Mb/s) data rates for Single Pair Ethernet.
- The study group is working to develop the Objectives that would guide the work of the eventual task group.

NEXT MEETINGS

Plenary - November 15-18, 2021 | Virtual

Interim - January 10-21, 2022 | Virtual (TBD)

Plenary - March 14-17, 2022 | Orlando, FL (TBD)

IEEE 802.11 (Wireless)

ACTIVE IEEE 802.11 PROJECTS:

IEEE P802.11be Extremely High Throughput WLAN (Wi-Fi 7)

- The target for the first ballot cycle (draft 1.0) is November 2022. The target publication date is May 2024.
- This standard supports wireless Ethernet operations in the 1 GHz, 7.25 GHz, 2.4 GHz, 5 GHz, and 6 GHz frequency bands, with a maximum throughput of 30 Mb/s.

TIA TR 42

RECENTLY PUBLISHED

- ANSI/TIA-568.0-E Generic Telecommunications Cabling for Customer Premises ERRATA
- ANSI/TIA-606-D Administration Standard for Telecommunications Infrastructure
- ANSI/TIA-492AAAF Multimode fiber ERRATA
- ANSI/TIA-492CAAC Single Mode fiber ERRATA
- TIA-455-3 (FOTP-3) Temperature Ramps and Precision

RE-AFFIRMED (NO CHANGES)

- TIA TSB-185 Environmental Classification (MICE) Tutorial
- TIA-TSB-5018 Structured Cabling Infrastructure Guidelines to Support Distributed Antenna Systems
- ANSI/TIA-1152A Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling

WITHDRAWN

- ANSI/TIA 4994 Standard for Sustainable ICT
- TIA TSB 5046 Sustainability for Manufacturers
- FOTP 30 Frequency Domain Measurement of Multimode Optical Fiber Information Transmission Capacity

TR-42.1 - Commercial Telecommunications Cabling

- An erratum for ANSI/TIA-568.0-E was approved to publish to correct errors in Table 10.
- Disposition for ANSI/TIA-568.0-E-1 was again deferred until the January 2022 meeting to align with the anticipated publication of ANSI/TIA-568.5, due to the SPE content.
- ANSI/TIA-862-C (Intelligent Building Systems) is complete, but action was deferred until the January 2022 meeting to align with the anticipated publication of ANSI/TIA-568.5, due to the SPE content.
- Comment resolution was completed the 1st Industry ballot of ANSI/TIA-942-B-1 (Edge Data Center addendum). A 1st Default ballot will circulate for review at the January 2022 meeting.
- A new project was approved at the June 2021 meeting for ANSI/TIA-942-C (Data Centers), but work will not begin until ANSI/TIA-942-B-1 has been published.
- Comment resolution was completed the 2nd Industry ballot for ANSI/TIA-4966-A (Education). A 1st Default ballot will circulate for review at the January 2022 meeting.
- The 3rd Industry ballot for ANSI/TIA-785-C (Outside Plant) is still in development and is expected to circulate for review at the January 2022 meeting.
- A 1st Committee ballot for ANSI/TIA-1179-B (Healthcare) will circulate for review at the January 2022 meeting.
- A 1st Committee ballot for ANSI/TIA-5017-A (Physical Security) will circulate for review at the January 2022 meeting.

TR-42.3 - Telecommunications Administration, Pathways, Spaces, Bonding and Grounding

- ANSI/TIA-606-D (administration) was published.

TR-42.7 - Telecommunications Copper Cabling Systems

- A 1st Default ballot for TIA-568.5 (SPE components) will circulate for review at the January 2022 meeting.
- A 2nd Industry ballot for ANSI/TIA-5071 (SPE field testing) will circulate for review at the January 2022 meeting.
- ANSI/TIA-1152A (Field Testing) was reaffirmed (no changes).
- A project was approved to start for TIA TSB-184-A-2, and addendum that will address SPE cable heating.

TR-42.9 - Industrial Telecommunications Infrastructure

- A 1st Committee ballot for ANSI/TIA-568.7 (SPE for Industrial) will circulate for review at the January 2022 meeting.
- Action for ANSI/TIA-1005-B (Industrial cabling) continues to be deferred until ANSI/TIA-568.7 progresses.

TR-42.11 - Optical Fiber Systems

- A 4th Industry ballot for ANSI/TIA-568.3-E (fiber cabling) will circulate for review at the January 2022 meeting.
- The 1st Default ballot for ANSI/TIA-PN-526.14-D (Power Loss Measurement, MM cable) will circulate for review at the January 2022 meeting. This document is an adoption of IEC 61280-4-1 ED3 2019.

- The re-affirmation ballot for TIA-576-7-A (Power Loss Measurement, SM cable) did not close before the October 2021 meeting, so it will be reviewed at the January 2022 meeting. This document is an adoption of IEC-61280-4-2.

TR-42.12 –Optical Fibers and Cables

- TIA-455-3 (FOTP-3, temperature ramps and precision) has published.
- A project was approved for TIA-455-111 (FOTP-111, fiber curl). This document is an adoption of IEC 60793-1-34, which published in March 2021.
- A new project was approved for ANSI/TIA-4920000-C (Generic fiber) with a ballot to circulate prior to January 2022 meeting. This document is an adaptation of IEC 60793-2:2019.
- An erratum for ANSI/TIA-492AAAF (MM fiber) to implement cross-reference corrections has been approved to publish. This document is an adaptation of IEC 60793-2-10.
- An erratum for ANSI/TIA-492CAAC (SM fiber) to implement cross-reference corrections has been approved to publish. This document is an adaptation of IEC 60793-2-50.
- FOTP 30 (Frequency Domain Measurement of Multimode Optical Fiber Information Transmission Capacity) has been withdrawn.

NEXT MEETINGS

Plenary – January 24-28, 2022 | Virtual

Plenary – June 6-10, 2022 (TBD) | TBD

ISO/IEC

ISO/IEC JTC1/SC25 WG3 – CUSTOMER PREMISES CABLING

Active Projects:

- **ISO/IEC 11801-1 AMD1:** Single-pair components & channels for Generic Cabling
 - Comment resolution was completed on 4th Committee Draft (CD4). A 5th Committee Draft (CD5) will be circulated for review at the February 2022 WG3 meeting. Target publication is November 2022.
- **ISO/IEC 11801-6 AMD1:** Single-pair components & channels for Distributed Building Systems
 - Comment resolution was completed on 3rd Committee Draft (CD3). A 4th Committee Draft (CD4) will be circulated for review at the February 2022 WG3 meeting. Target publication remains December 2022.
- **ISO/IEC TS 11801-9903 ED2:** Matrix Modeling of Channels and Links
 - Preliminary investigation continues to assess whether a 2nd edition to this TS document is required.
- **ISO/IEC TR 11801-9906 ED2:** Application Specific SPE Channels
 - An updated pre-Working Draft incorporating the discussion from the September 2021 meeting will be circulated for further discussion at the February 2022 WG3 meeting. Preliminary work continues, as a decision has not yet been made whether to pursue a 2nd edition of the TR.

- **ISO/IEC TR 11801-9911:** SPE Cable Sharing
 - A new project has been approved to develop a Technical Report on the use of cable sharing. The document title will be ISO/IEC TR 11801-9911 Part 11: Guidelines for the use of balanced single pair applications within a balanced 4-pair cabling system.
- **ISO/IEC TR 11801-991x:** SPE Multi-Drop (SPMD)
 - A preliminary Working Draft of the document was reviewed during the September 2021 meeting. Additional updates will be made during an interim meeting, with work on the pre-WD continuing at the February 2022 W3 meeting. A proposal for a New Work Item Proposal (NWIP) to develop the TR is a possible result at the February 2022 meeting.
- **ISO/IEC 14763-3 ED3:** Testing of Optical Fiber Cabling
 - Comment resolution was completed on 2nd Committee Draft (CD2). A 3rd Committee Draft (CD3) will be circulated for review at the February 2022 WG3 meeting. Target publication remains October 2023.
- **ISO/IEC 14763-5 ED1:** Sustainability
 - A 1st Committee Draft (CD) will be circulated for review at the February 2022 WG3 meeting. Target publication is January 2023.
- **ISO/IEC 24383 ED1:** Network Infrastructure Security
 - Comment resolution was completed on 4th Committee Draft (CD4). A 5th Committee Draft (CD5) will be circulated for review at the February 2022 WG3 meeting. Target publication is October 2022.
- **ISO/IEC 30129:** Bonding Networks
 - A new project has been approved to revise ISO/IEC 30129: 2016. The scope of the document will not change.

IEC SC46C WG7 – WIRES AND CABLES (PREMISES CABLE)

This committee did not meet in Q3, 2021. The next meeting will occur in December 2021.

IEC SC48B – ELECTRICAL CONNECTORS

Active Projects:

- **IEC 63171-4 ED1:** SPE 1-pair copper IP20 connector – type 4. A Committee Draft for Vote (CDV) was circulated with a closing date of September 2021 with comments to be reviewed at the March 2022 meeting. Target publication is September 2022.
- **IEC 63171-5 ED1:** SPE 1-pair IP67 style connector suitable for harsher environments. A 2nd Committee Draft for Vote (CDV2) was circulated with comments to be reviewed at the March 2022 meeting. Target publication is November 2022.
- **IEC 63171-6 ED2:** SPE 1-pair IP67 style connector suitable for harsher environments. This document has been approved to publish.
- **IEC 63171-1 ED2:** SPE 1-pair copper LC-style connector targeted for use in enterprise applications. A 1st Committee Draft (CD) is circulating with comments to be reviewed at the March 2022 meeting. Target publication is September 2022.
- **IEC 63171-7 ED:** SPE 1-pair copper M12-style connector targeted for use in industrial applications. A 1st Committee Draft (CD) is circulating with comments to be reviewed at the March 2022 meeting. Target publication is September 2023.

IEC SC86A WG3 - FIBRES AND CABLES

This committee did not meet in Q3, 2021. The next meeting will occur in October 2021.

IEC SC86B WG6 - FIBRE OPTIC DEVICES AND PASSIVE COMPONENTS

This committee did not meet in Q3, 2021. The next meeting will occur in October 2021.

NEXT MEETINGS

ISO/IEC JTC1/SC25 WG3

- **Interim** - February 28-March 4, 2022 | Virtual
- **Plenary** - September 26-29, 2022 | Reutlingen, Germany (TBD)
- **Interim** - February 27-March 3, 2023 | (TBD)
- **Plenary** - October 9-12, 2023 | (TBD) OR
October 16-19, 2023 | (TBD)

IEC SC46C

- **Plenary** - December 2021 | Virtual
- **Interim** - April 2022 | Virtual

IEC SC48B

- **Interim** - SMarch 14-18, 2022 | Virtual

IEC SC86A

- **Plenary** - October 2021 (TBD) | Virtual

IEC SC86B

- **Plenary** - October 2021 (TBD) | Virtual

Key Cabling Standards

Quarter 3 2021

IEEE

- **IEEE Std. 802.3-2018** Standard for Ethernet*
- **IEEE Std. 802.3bt-2018** 4-pair POE (up to 90W)
- **IEEE Std. 802.3cg-2019** 10Mb/s Single Pair Ethernet
- **IEEE Std. 802.3ca-2020** 25/50 Gb/s PON
- **IEEE Std. 802.3cm-2020** 400 Gb/s over MM Fiber
- **IEEE Std. 802.3cn-2020** 50/200/400 Gb/s over SM Fiber
- **IEEE Std. 802.3cu-2021** 100/400 Gb/s over SM Fiber at 100 Gb/s per Wavelength
- **IEEE Std. 802.11-2020** Wireless LAN*
- **IEEE Std. 802.11ax-2021** High Efficiency WLAN (Wi-Fi 6)

* Every 3 years, IEEE 802.3 and IEEE 802.11 are revised to include all amendments and maintenance work since the last publication.

TIA

Generic Standards

- **ANSI/TIA-568.0-E** Generic Premises Cabling
- **ANSI/TIA-569-E** Pathways and Spaces
- **ANSI/TIA-606-D** Administration
- **ANSI/TIA-607-D** Grounding and Bonding
- **ANSI/TIA-758-B** Outside Plant
- **ANSI/TIA-862-B** Intelligent Building Systems
- **ANSI/TIA-5017** Physical Network Security

Premises Standards

- **ANSI/TIA-568.1-E** Commercial Cabling
- **ANSI/TIA-570-D** Residential
- **ANSI/TIA-942-B** Data Center Cabling
- **ANSI/TIA-1005-A** Industrial Cabling
- **ANSI/TIA-1179-A** Healthcare
- **ANSI/TIA-4966** Education

Component Standards

- **ANSI/TIA-568.2-D** Copper Components
- **ANSI/TIA-568.3-D** Fiber Components
- **ANSI/TIA-568.4-D** Coaxial Components
- **ANSI/TIA-1152-A** Field Test Equipment 2GHz
- **ANSI/TIA-1183-A** Lab Test Equipment

Telecommunications System Bulletins

- **TIA TSB-162-B** Cabling for WAPs
- **TIA TSB-184-A** Power Delivery
- **TIA TSB-5018** DAS

ISO/IEC

Performance and Design

- **ISO/IEC 11801-1 ED1: 2017** Generic Cabling Systems
- **ISO/IEC 18598 ED1: 2016** Automated Infrastructure Management
- **ISO/IEC 30129 ED1: 2015** Grounding and Bonding

Premises Standards

- **ISO/IEC 11801-2 ED1: 2017** Office Premises Cabling
- **ISO/IEC 11801-3 ED1: 2017** Industrial Cabling
- **ISO/IEC 11801-4 ED1: 2017** Residential Cabling
- **ISO/IEC 11801-5 ED1: 2017** Data Center Cabling
- **ISO/IEC 11801-6 ED1: 2017** Distributed Building Cabling

Technical Reports

- **ISO/IEC TR 11801-9904:2017** 2.5G and 5GBASE-T Cabling
- **ISO/IEC TR 11801-9910:2020** MPTL Cabling

Implementation

- **IEC 14763-2 ED2: 2019** Planning and Implementation

Testing and Validation

- **IEC 61935-2 ED3: 2010** Testing Copper Cables (4-pair)
- **ISO/IEC 14763-3 ED2: 2014** Testing of Optical Fibre

CENELEC

Performance and Design

- **EN 50173-1: 2018** Generic Cabling Requirements
- **EN 50310:2016** Grounding and Bonding
- **EN 50667:2016** AIM Management Systems
- **EN 50174-99-1: 2015** Remote Powering (POE)

Premises Standards

- **EN 50173-2: 2018** Commercial Office Premises
- **EN 50173-3: 2018** Industrial Cabling
- **EN 50173-4: 2018** Cabling for Homes
- **EN 50173-5: 2018** Data Center Cabling
- **EN 50173-6: 2018** Distributed Building Systems

Implementation

- **EN 50174-1: 2018** Installation and Quality Assurance
- **EN 50174-2: 2018** Cabling Installation Inside Plant
- **EN 50174-3: 2013** Cabling Installation Outside Plant

Testing and Validation

- **EN 50346: 2002** Testing of installed cabling

BICSI

- **BICSI 001-2017** Educational Facilities
- **BICSI 002-2019** Data Center Design
- **BICSI 003-2014** BIM
- **BICSI 004-2018** Healthcare
- **BICSI 005** Electronic Safety & Security (ESS)
Withdrawn (content in BICSI-007)
- **BICSI 006-2020** Distributed Antenna Systems (DAS)
- **BICSI 007-2020** IoT/Intelligent Buildings
- **BICSI 008-2018** WLAN
- **BICSI 009-2019** Data Center Operations
- **BICSI N1-2019** ICT Installation
- **BICSI N2-2017** PoE Installation
- **BICSI N3-2020** Bonding & Grounding
- **BICSI G1-2017** Outside Plant (OSP)
- **TDMM-2020** Telecommunications Distribution
Methods Manual
- **ITSIMM-2017** Information Technology Systems Installation
Methods Manual
- **TPMM-2016** Telecommunications Project
Management Manual
- **OSPDRM-2018** Outside Plant Design Reference Manual