

The Standards Report

The latest industry changes and what they mean to you

Quarter 2 2021

IEEE 802.3 (Ethernet)

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

- **IEEE Std. 802.3cu-2021** - IEEE Standard for Ethernet - Amendment 11: Physical Layers and Management Parameters for 100 Gb/s and 400 Gb/s Operation over Single-Mode Fiber at 100 Gb/s per Wavelength
- **IEEE Std. 802.3cv-2021** - IEEE Standard for Ethernet Amendment 12: Maintenance #15: Power over Ethernet

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 2.0 was approved to circulate following the March 2021 meeting. Transitioning from draft 1.x to 2.0 indicates that the technical content of the draft is complete. Target publication remains September 2022.

IEEE P802.3cp Bidirectional 10 Gb/s, 25 Gb/s, and 50 Gb/s Optical Access PHYs

- This standard supports bidirectional transmission over a single strand of single mode fiber using a single wavelength in each direction, will support data rates of 10 Gb/s, 25 Gb/s, and 50 Gb/s and will support distances of 10 km, 20 km, and 40 km.
- The draft 3.1 ballot closed on April 24th with 27 comments, which will be resolved during the July 2021 meeting. Publication should occur in Q3 2021.

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

- This standard supports Passive Optical Networks for distances up to 50 km.
- Draft 2.0 was approved to circulate following the March 2021 meeting. Transitioning from draft 1.x to 2.0 indicates that the technical content of the draft is complete. Target publication is March 2022.

IEEE P802.3ct 100 Gb/s over DWDM systems

- This standard supports 100 Gb/s operation on a single wavelength of at least 80 km over a DWDM system.
- The draft 3.2 ballot closed on April 22nd with 7 comments, which will be resolved during the July 2021 meeting. Publication should occur in Q3 2021.

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.
- With the planned publication of 802.3ct in July 2021, progress will ramp up on 802.3cw. Target publication is June 2022.

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. A target publication range has been established of June-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 1.1 closed in June 2021 with comments to be reviewed during the July 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.
- The task group is working towards circulation of draft 2.0 in July 2021 and draft 3.0 in November 2021. Estimated 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 0.2 was completed in June 2021. A target publication date 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.

Single Pair Ethernet Enhancements Study Group

- This Study Group was formed to evaluate enhancements for SPE point-to-point applications.
- Two potential PARs from this CFI:
 - Short term - TSN (time sensitive networking) Enhancements
 - Long term - Next generation point-to-point SPE (T1L)

NEXT MEETINGS

Plenary - July 12-15, 2021 | Virtual

Interim - September 20-24, 2021 | Virtual

Plenary - November 15-18, 2021 | Vancouver, BC (TBD)

IEEE 802.11 (Wireless)

RECENTLY PUBLISHED

- **IEEE Std. 802.11ax (Wi-Fi 6)** - IEEE Standard for Information Technology - Telecommunications and Information Exchange between Systems Local and Metropolitan Area Networks - Specific Requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment 1: Enhancements for High-Efficiency WLAN

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.

NEXT MEETINGS

Plenary - July 11-16, 2021 | Virtual

Interim - September 12-17, 2021 | Waiakoloa, HI (TBD)

Plenary - November 15-18, 2021 | Vancouver, BC (TBD)

TIA TR 42

RECENTLY PUBLISHED OR RE-AFFIRMED

- TIA-5048-1 Amendment 1 - Information technology - Automated infrastructure management (AIM) systems - Requirements, data exchange and applications
- ANSI/TIA-PN-607-D-1 Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises Addendum 1: Harmonization with ANSI/TIA-222
- ANSI/TIA-PN-526.28 Fibre-optic communication subsystem test procedures - Part 4-5: Installed cabling plant - Attenuation measurement of MPO terminated fibre optic cabling plant using test equipment with MPO interfaces
- TIA-604-10C FOCIS 10 Fiber Optic Connector Interchangeability Standard- Type LC
- TIA-604-19 FOCIS 19 CS Connector

WITHDRAWN

- TIA TSB 5046 Sustainability for Manufacturers

TR-42.1 - Commercial Telecommunications Cabling

- Disposition for ANSI/TIA-568.0-E-1 was again deferred until the October 2021 meeting to align with the anticipated publication of ANSI/TIA-568.5.
- A 1st Default ballot for ANSI/TIA-862-C (Intelligent Building Systems) will circulate for review at the October 2021 meeting. Key changes for this revision include **requiring** (vs recommending) **two Cat 6A cables for each wireless access point**, and the removal of clauses A.4 and A.5 that address operating voltages for legacy applications.
- Comment resolution was completed the 2nd Committee ballot of ANSI/TIA-942-B-1 (Edge Data Center addendum). A 1st Industry ballot will circulate for review at the October 2021 meeting.
- The 2nd Industry ballot for ANSI/TIA-4966-A (Education) will circulate for review at the October 2021 meeting.
- The 3rd Industry ballot for ANSI/TIA-785-C (Outside Plant) will circulate for review at the October 2021 meeting.
- New projects were approved to start revisions for ANSI/TIA-942-C (Data Centers), ANSI/TIA-1179-B (Healthcare), and ANSI/TIA-5017 (Physical Security).
- An Industry ballot will circulate seeking approval to **withdraw** ANSI/TIA-4994 (Standard for Sustainable ICT).

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

- Comment resolution was completed the 1st Industry ballot for ANSI/TIA-606-D (administration). A 2nd Industry ballot will circulate for review at the October 2021 meeting.
- ANSI/TIA-607-D-1 (Addendum 1: Harmonization with ANSI/TIA-222) has been approved to publish.
- ANSI/TIA-PN-5048-1 (adoption of ISO/IEC 18598 AMD1 ED1) has been approved to publish.

TR-42.7 – Telecommunications Copper Cabling Systems

- A 4th Industry ballot for TIA-568.5 (SPE components) will circulate for review at the October 2021 meeting. This document is expected to publish by the end of 2021.
- A 1st Industry ballot for ANSI/TIA-5071 (SPE field testing) did not close before the June 2021 meeting. Comment resolution will occur at the October 2021 meeting.
- A re-affirmation ballot will circulate for ANSI/TIA-1152A *Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling*. The document has been pre-approved to publish if the ballot closes without any “no” votes.
- The committee continues to review contributions and develop content for the first draft of ANSI/TIA-568.6 (Single Pair Multi-Drop).
- Instead of developing a standalone TSB, the SPE cable heating content will be an addendum to TSB-184-A.

TR-42.9 – Industrial Telecommunications Infrastructure

- Action for ANSI/TIA-1005-B (Industrial cabling) continues to be deferred until ANSI/TIA-568.7 progresses.
- The committee continues to review contributions and develop content for the first draft of ANSI/TIA-568.7 (SPE for Industrial). This document will complement the 568.5 standard and will focus on SPE cabling for $M_{2,2}C_{2}E_{2}$ and $M_{3,3}C_{3}E_{3}$ environments.

TR-42.11 – Optical Fiber Systems

- A 3rd Industry ballot for ANSI/TIA-568.3-E (fiber cabling) will circulate for review at the October 2021 meeting.
- The 1st Industry ballot for ANSI/TIA-PN-526.14-D (Power Loss Measurement, MM cable) did not close in time for the June 2021 meeting and will be reviewed at the October 2021 meeting. This document is an adoption of IEC 61280-4-1 ED3 2019.
- ANSI/TIA-PN-528 (attenuation measurement of MPO cables) has been approved to publish. This document is an adoption of IEC 61280-4-5.
- A re-affirmation ballot will circulate for TIA-576-7-A (Power Loss Measurement, SM cable). This document is an adoption of IEC-61280-4-2.

TR-42.12 – Optical Fibers and Cables

- The 1st Industry ballot for TIA-455-3 (FOTP-3, temperature ramps and precision) did not close in time for the June 2021 meeting and will be reviewed at the October 2021 meeting.
- Activity for TIA-455-111 (FOTP-111, fiber curl) is estimated to begin in October 2021. This document is an adoption of IEC 60793-1-34, which published in March 2021.
- The project to revised ANSI/TIA-492AAAF (MM fiber) has been cancelled. Cross-reference corrections will be made through an erratum to the published document. This document is an adaptation of IEC 60793-2-10.
- The project to revised ANSI/TIA-492CAAC (SM fiber) has been cancelled. Cross-reference corrections will be made through an erratum to the published document. This document is an adaptation of IEC 60793-2-10.
- Re-affirmation ballots will be circulated for review at the October 2021 meeting for:
 - TIA-455-133 (IEC-60796-1-22, length measurement)
 - TIA-455-203 (IEC-62180-1-4, encircled flux measurement)
 - TIA-455-204 (IEC-60793-1-41, bandwidth)

- The sub-committee is considering the **withdrawal** of the following documents and is communicating with other organizations with standards that reference them:
 - FOTP 30 - Frequency Domain Measurement of Multimode Optical Fiber Information Transmission Capacity
 - FOTP 54 - Mode Scrambler Requirements for Overfilled Launching Conditions to Multimode Fibers
 - FOTP124 - Polarization-Mode Dispersion Measurement for Single-Mode Optical Fibers by Interferometry

TR42.13 – Passive Optical Devices and Fiber Optic Metrology

- TIA-604.19 (FOCIS 19, CS connector) has been approved to publish.
- TIA-604-10C (FOCIS 10, LC connector) has been approved to publish.

NEXT MEETINGS

Plenary – October 4-8, 2021 | Virtual

ISO/IEC

ISO/IEC JTC1/SC25 WG3 – CUSTOMER PREMISES CABLING

- This committee did not meet in Q2, 2021. The next meeting will occur September 20-24, 2021.

IEC SC46C - COPPER CABLE

Active Projects:

- **IEC 61156-13 ED1:** SPE 1-pair patch cable up to 20 MHz, supporting a 10 Mb/s data rate.
 - A 4th Committee Draft (CD4) document was circulated with a closing date of July 30, 2021. Comments will be reviewed during the plenary meeting in November 2021. The target publication date is July 2022.
- **IEC 61156-11 ED2:** SPE 1-pair patch cable up to 1250 MHz, supporting a 1Gb/s data rate.
 - A 1st Committee Draft (CD1) document was circulated with a closing date of July 2, 2021. Comments will be reviewed during the plenary meeting in November 2021. The target publication date is September 2023.

IEC SC48B – ELECTRICAL CONNECTORS

Recently Published:

- **IEC 63171-2:2021:** Connectors for electrical and electronic equipment – Part 2: Detail specification for 2-way, shielded or unshielded, free and fixed connectors: mechanical mating information, pin assignment and additional requirements for type 2.

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 August 2020. No further action was taken yet in 2021 so comments will be reviewed at the November 2021 meeting. Target publication is August 2022.
- **IEC 63171-5 ED1:** SPE 1-pair IP67 style connector suitable for harsher environments. A Committee Draft for Vote (CDV) was circulated with a closing date of August 2020. No further action was taken yet 2021 so comments will be reviewed at the November 2021 meeting. Target publication is March 2022.

- **IEC 63171-6 ED2:** SPE 1-pair IP67 style connector suitable for harsher environments. This document will advance to a Final Draft International Standard (FDIS), which will circulate for review in July 2021. Target publication is December 2021.
- **IEC 63171-1 ED2:** SPE 1-pair copper LC-style connector targeted for use in enterprise applications. The 2nd edition of this standard is being reviewed to begin work on a 1st Committee Draft (CD1). Target publication is May 2022.

IEC SC86A WG3 - FIBRES AND CABLES

WG3 has 19 active projects. Status for select documents is shown below. Meetings were conducted virtually March 30-31, 2021.

- **IEC 60793-2-10/AMD1 ED7:** Amendment 1 - Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres. A Committee Draft for Vote (CDV) has circulated for review at the October 2021 meeting. Target publication is August 2022.
- **IEC 60794-1-1 ED5:** Optical fibre cables - Part 1-1: Generic specification - General. A 1st Committee Draft (CD1) will circulate for review at the October 2021 meeting. Target publication is June 2023.
- **IEC 60794-2-24 ED1:** Optical fibre cables - Part 2-24: Indoor optical fibre cables - Detailed specification for multiple multi-fibre unit cables for use in MPO connector terminated breakout cable assemblies. A 1st Committee Draft (CD1) will circulate for review at the October 2021 meeting. Target publication is March 2023.

IEC SC86B WG6 - FIBRE OPTIC DEVICES AND PASSIVE COMPONENTS

WG6 has 34 active projects. Status for select documents is shown below. Meetings were conducted virtually between April 28 - May 16, 2021.

- **IEC 61754-4 ED3:** Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 4: Type SC connector family. This document has progressed to a Final Draft International Standard (FDIS). The target publication date is December 2021.
- **IEC 61754-6 ED3:** Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 6: Type MU connector family. This document has progressed to a Final Draft International Standard (FDIS). The target publication date is December 2021.
- **IEC 61754-7-4 ED1:** Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 7-4: Type MPO connector family - One fibre row 16 fibres wide. A 3rd Committee Draft (CD3) closed in June 2021, for review at the October 2021 meeting. The target publication date is June 2022.
- **IEC 61754-36 ED1:** Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces-Part 36: Type SAC connector family. A 2nd Committee Draft (CD2) has been circulated with a closing date of August 2021, to be discussed at the October 2021 meeting. The target publication date is December 2022.
- **IEC 61754-37 ED1:** Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces-Part 37: Type MDC connector family. A 2nd Committee Draft (CD2) will be circulated in July 2021 for review at the October 2021 meeting. The target publication date is December 2022.

NEXT MEETINGS

ISO/IEC JTC1/SC25 WG3

- **Plenary** - September 20-24, 2021 | Virtual
- **Interim** - February 28-March 4, 2022 | Virtual
- **Plenary** - September 26-29, 2022 | Reutlingen, Germany (TBD)

IEC SC46C

- **Plenary** - November 11-December 1, 2021 | Virtual

IEC SC48B

- **Plenary** - September 13-23, 2021 | Virtual

IEC SC86A

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

IEC SC86B

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