The Standards Report

The latest industry changes and what they mean to you

Quarter 1 2021

IEEE 802.3 (Ethernet)

RECENTLY PUBLISHED

- **IEEE Std. 802.3cu** - 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

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. It will support data rates of 10 Gb/s, 25 Gb/s, and 50 Gb/s and distances of 10 km, 20 km, and 40 km.
- The draft 3.1 ballot will close on April 28. In anticipation that the ballot will close without issues, the 802.3 Working Group has provided conditional approval to submit the draft to IEEE 802 RevCom for publication. The target publication date is July 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 capable of at least 80 km over a DWDM system.
- The draft 3.2 ballot will close on March 25. In anticipation that the ballot will close without issues, the 802.3 WG has provided conditional approval to submit the draft to IEEE 802 RevCom for publication. The target publication date is July 2021.

IEEE P802.3cv Power over Ethernet (Maintenance #15)

- This project implements editorial and technical corrections, refinements, and clarifications. No new features are added by this project.
- The 802.3 WG will submit draft 3.1 to IEEE 802 RevCom for publication. Target publication is July 2021.

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

- This standard supports 400 Gb/s operation on a single wavelength capable 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 11 meters 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 802.3 to add Physical Layer specifications and management parameters for multi-gigabit optical Ethernet for application in the automotive environment.
- Draft 1.0 closed on February 26 with 352 comments received. Comment resolution is in process 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.
- Draft 0.2 has been developed (drafts are not circulated for comments until 1.0). The Task Group continues progress towards draft 1.0. 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 50 and 100 meters over multimode fiber using 1 pair (100 Gb/s), 2 pairs (200 Gb/s) or 4 pairs (400 Gb/s).

- Draft 0.1 has been developed (drafts are not circulated for comments until 1.0). The Task Group continues progress towards draft 1.0. 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. Estimated publication is March 2022.

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.

Single Pair Ethernet Enhancements Study Group

- This Study Group was formed to evaluate enhancements for SPE point-to-point applications, including the addition of TSN (time sensitive networking) to the current SPE specifications, and longer term to evaluate higher data rates for the next generation point-to-point SPE (T1L).

NEXT MEETINGS

Interim – May 17-21, 2021 | Virtual
Plenary – July 12-15, 2021 | Virtual
Interim – September 20-24, 2021 | Virtual
Plenary – November 15-18, 2021 | Vancouver, BC (TBD)

IEEE 802.11 (Wireless)

IEEE Std. 802.11™-2020

- IEEE Std 802.11 -2020 was published February 26, 2021. The 2020 standard incorporates previously published amendments and maintenance updates.

IEEE P802.11ax™ High Efficiency WLAN (Wi-Fi 6)

- IEEE P802.11ax D8.0 was ratified by the IEEE Standards Association Standards Board in February 2021. This document will become IEEE Std 802.11ax-2021, with expected publication in May 2021.
- This standard supports wireless Ethernet operations in the 2.4 GHz and 5 GHz frequency bands, with a maximum data rate of 10 Gb/s.

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

Interim – May 10-18, 2021 | Virtual
Plenary – July 11-16, 2021 | Virtual
Interim – September 12-17, 2021 | Waikoloa, HI (TBD)
Plenary – November 15-18, 2021 | Vancouver, BC (TBD)

TIA TR 42

RECENTLY PUBLISHED OR RE-AFFIRMED

- TIA TSB-162-B Telecommunications Cabling Guidelines for Wireless Access Points
- TIA-5021 Guidelines for the Use of Installed Category 5e and Category 6 Cabling to Support 2.5GBASE-T and 5GBASE-T
- ANSI/TIA-455-3 (FOTP-3) Procedure to Measure Temperature Cycling Effects on Optical Fiber Units, Optical Cable, and Other Passive Fiber Components
- TIA-455-178 (FOTP-178) IEC-60793-1-32 Optical Fibres – Part 1-32: Measurement Methods and Test Procedures – Coating Stripability

TR-42.1 – Commercial Telecommunications Cabling

- Comment resolution on the 1st Industry ballot for ANSI/TIA-568.0-E-1 was completed at the February 2021 meeting. Further action was deferred until the June 2021 meeting to align with publication of ANSI/TIA-568.5.
- A 2nd Industry ballot for ANSI/TIA-862-C (Intelligent Building Systems) will circulate for review at the June 2021 meeting. The primary focus for this revision is to add Single Pair Ethernet as a recognized media, along with necessary updates for cabling topologies.
- Comment resolution was completed the 1st Committee ballot of ANSI/TIA-942-B-1 (Edge Data Center addendum). A 2nd Committee ballot will circulate for review at the Jun 2021 meeting.
- The 2nd Industry ballot for ANSI/TIA-4966-A (Education) will circulate for review at the Jun 2021 meeting.

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

- A 1st Industry ballot will circulate for ANSI/TIA-606-D (administration) for review at the June 2021 meeting.
- A 1st Industry ballot will circulate for ANSI/TIA-607-D-1 for review at the June 2021 meeting. This addendum will harmonize the document with content from ANSI/TIA-222.
- A 1st Industry ballot will circulate for ANSI/TIA-PN-5048-1 (adoption of ISO/IEC 18598 AMD1 ED1) for review at the June 2021 meeting.

TR-42.7 – Telecommunications Copper Cabling Systems

- A 3rd Industry ballot for TIA-568.5 (SPE components) will circulate for review at the June 2021 meeting, where it is very likely that this document will be approved to publish.
- A 1st Industry ballot for ANSI/TIA-5071 (SPE field testing) will circulate for review at the June 2021 meeting.
- The committee continues to review contribution and develop content for the first draft of ANSI/TIA-568.6 (Single Pair Multi-Drop)
- A new project has been activated for TSB-5070 Guidelines for Supporting Power Delivery over Balanced Single Twisted-Pair Cabling
- A ballot will circulate to reaffirm (without changes) ANSI/TIA-1152A Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling

TR-42.9 – Industrial Telecommunications Infrastructure

- Comment resolution was completed for the 2nd Committee ballot for ANSI/TIA-1005-B (Industrial cabling). Further action has been deferred until progress is made for ANSI/TIA-568.7.
- The committee continues to review contribution 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 $M_2I_2C_2E_2$ and $M_3I_3C_3E_3$ environments.

TR-42.11 – Optical Fiber Systems

- A 2nd Industry ballot for ANSI/TIA-568.3-E (fiber cabling) will circulate for review at the June 2021 meeting.
- A 1st Industry ballot for ANSI/TIA-PN-526.14-D (Power Loss Measurement, MM cable) will circulate for review at the June 2021 meeting. This document is an adoption of IEC 61280-4-1 ED3 2019.
- A 1st Industry ballot for ANSI/TIA-PN-528 (attenuation measurement of MPO cables) will circulate for review at the June 2021 meeting. This document is an adoption of IEC 61280-4-5.
- A project was activated for TIA-576-7-A (Power Loss Measurement, SM cable), which is an adoption of IEC-61280-4-2.

TR-42.12 –Optical Fibers and Cables

- TIA-455-3 (FOTP-3, temperature ramps and precision) was **approved to publish**.
- TIA-455-178 (adoption of IEC-60793-1-32, Coating Stripability) was **approved to publish**.
- A project was activated for TIA-455-111 (FOTP-111, fiber curl), which is an adoption of IEC 60793-1-34.
- A 1st Industry ballot will for ANSI/TIA-492AAAF (MM fiber) will circulate for review at the June 2021 meeting. This document is an adaptation of IEC 60793-2-10 to update cross references.
- A 1st Industry ballot will for ANSI/TIA-492CAAC (SM fiber) will circulate for review at the June 2021 meeting. This document is an adaptation of IEC 60793-2-50 to update cross references.
- Ballots will be circulated to reaffirm (no changes) the following documents:
  - TIA-455-133 (IEC-60796-1-22, length measurement)
  - TIA-455-203 (IEC-62180-1-4, encircles flux measurement)
  - TIA-455-204 (IEC-60793-1-41, bandwidth)

TR42.13 – Passive Optical Devices and Fiber Optic Metrology

- A 2nd Industry ballot for TIA-604.19 (FOCIS 19, CS connector) will circulate for review at the June 2021 meeting.
- A 1st Default ballot for TIA-604-10C (FOCIS 10, LC connector) will circulate for review at the June 2021 meeting, at which point it is expected to be approved for publication.

NEXT MEETINGS

Plenary – June 7-11, 2021 | Virtual
Plenary – October 4-8, 2021 (TBD) | Virtual

ISO/IEC

ISO/IEC JTC1/SC25 WG3 – CUSTOMER PREMISES CABLING

Recently Published or Reaffirmed:

- **ISO/IEC 18598:2016** Information technology - Automated infrastructure management (AIM) systems - Requirements, data exchange and applications
- **ISO/IEC 18598 AMD1: 2021** – Amendment 1 - Information technology - Automated infrastructure management (AIM) systems - Requirements, data exchange and applications

Active Projects:

- **ISO/IEC 11801-1 AMD1** – Single-pair components & channels for **Generic Cabling**
  - Comment resolution was completed on 3rd Committee Draft (CD3). A 4th Committee Draft (CD4) will be circulated for review at the September 2021 WG3 meeting. Estimated publication remains April 2022.
- **ISO/IEC 11801-3 AMD1** – Single-pair components & channels for **Industrial Cabling**
  - The Final Draft Amendment (FDAM) was unanimously approved for publication. Editorial comments will be reviewed by the IEC Central Office and implemented as needed prior to publication. Estimated publication is July 2021.
- **ISO/IEC 11801-6 AMD1** – Single-pair components & channels for **Distributed Building Systems**
  - Comment resolution was completed on 2nd Committee Draft (CD2). A 3rd Committee Draft (CD3) will be circulated for review at the September 2021 WG3 meeting. Target publication is December 2022 but will likely coincide with publication of ISO/IEC 11801-1 AMD1.
- **ISO/IEC TS 11801-9903 ED2** – Mixed Mode Matrix Model
  - The Joint Modelling Task Group (JMTG) will prepare a pre-Working Draft (red-lined version of ED1). The decision on whether to pursue a revision will be made at the September 2021 WG3 meeting. JMTG is a collaboration between WG3, SC46C (copper cables) and SC48B (copper connectors).
- **ISO/IEC TR 11801-9906 ED2** – Application Specific SPE Channels
  - A pre-Working Draft (redlined version of ED1) will be circulated to WG3 to be prepared in case a decision to move forward with a document revision. A decision will be made at the September 2021 WG3 meeting.
- **ISO/IEC 11801-991x** – 1-Pair Channels up to 600 MHz (SPMD)
  - Multiple ad hoc meetings will be conducted before the Sep 2021 WG3 meeting to further refine a Working Draft (WD). The expectation is that a New Work Item Proposal (NWIP) ballot will be issued following the September 2021 meeting seeking approval to begin the project.
- **ISO/IEC 14763-3 ED3** – Testing of Optical Fiber Cabling
  - Comment resolution was completed on 1st Committee Draft (CD). A 2nd Committee Draft (CD2) will be circulated for review at the September 2021 WG3 meeting. Estimated publication is October 2023.
- **ISO/IEC 14763-4 ED2** – Measurement of End-to-End (E2E) Link
  - The Final Draft Amendment (FDAM) was unanimously approved for publication. Editorial comments will be reviewed by the IEC Central Office and implemented as needed prior to publication. Estimated publication is July 2021.

- **ISO/IEC 14763-5 ED1** – Sustainability
  - A 2nd Working Draft (WD2) will be circulated for review at the September 2021 WG3 meeting. A target publication date has not yet been established.
- **ISO/IEC 18598** – Automation Infrastructure Management (AIM)
  - Reaffirmed with no changes.
- **ISO/IEC 18598 AMD1** – Automation Infrastructure Management (AIM), Amendment 1
  - **Published**
- **ISO/IEC TR 24704** – Guidelines for Wireless Access Point Cabling
  - **Withdrawn**. Content is included in ISO/IEC 11801-6.
- **ISO/IEC TR 24746** – Guidelines for Mid-Span DTE Cabling
  - **Withdrawn**.
- **ISO/IEC TR 24750** – Guidelines for Supporting 10Gb/s With Installed Cat 6 Cabling
  - WG3 defers to SC25 the decision on whether this document should be confirmed, revised, or withdrawn.
- **24383 ED1** – Network Infrastructure Security
  - A significant restructuring of the document occurred during resolutions of comments for the 3rd Committee Draft (CD3). A 4th Committee Draft (CD4) will be circulated for review at the September 2021 WG3 meeting. The target publication of February 2022 will be pushed out.
- **30129** – Bonding Networks
  - Contributions are requested for the September 2021 WG3 meetings to determine if a revision to this document is needed.

IEC SC46C WG7 – WIRES AND CABLES (PREMISES CABLE)

Recently Published:

- **IEC 61156-12 ED1:** Multicore and Symmetrical Pair/Quad Cables for Communications – Part 12: Symmetrical single pair cables with transmission characteristics up to 600 MHz – work area wiring

Active Projects:

- **IEC 61156-13 ED1:** SPE 1-pair patch cable up to 20 MHz, supporting a 10 Mb/s data rate.
  - A 3rd Committee Draft (CD3) document was circulated with a closing date of January 8, 2021. The target publication date is March 2022.
- **IEC 61156-11 ED2:** SPE 1-pair patch cable up to 1250 MHz, supporting a 1Gb/s data rate
  - This document revision will extend the frequency of the cabling from 600 to 1250 MHz. The target publication is September 2023.

IEC SC46C WG7 – WIRES AND CABLES (PREMISES CABLE)

This committee did not meet in Q1, 2021. The next meeting will occur in April 2021.

IEC SC48B – ELECTRICAL CONNECTORS

Recently Published:

- **IEC 63171 ED1:2021** Connectors for electrical and electronic equipment — Shielded or unshielded free and fixed connectors for balanced single-pair data transmission with current-carrying capacity — General requirements and tests

Active Projects:

- **IEC 63171-2 ED1**: SPE 1-pair copper IP20 connector targeted for use in enterprise applications. This document has progressed to a Final Draft International Standard (FDIS). Target publication is June 2021.
- **IEC 63171-4 ED1**: SPE 1-pair copper IP20 connector – type 4. A Committee Draft for Vote (CDV) was circulated in December 2020. Comments will be reviewed at the interim meeting in 2021. Target publication is April 2022.
- **IEC 63171-5 ED1**: SPE 1-pair IP67 style connector suitable for harsher environments. Target publication is March 2022.
- **IEC 63171-6 ED2**: SPE 1-pair IP67 style connector suitable for harsher environments. The 2nd edition for this document includes some technical improvements. Target publication is April 2022.

IEC SC86A – FIBRES AND CABLES

This committee did not meet in Q1, 2021. The next meeting will occur in April 2021.

IEC SC86B – FIBRE OPTIC DEVICES AND PASSIVE COMPONENTS

This committee did not meet in Q1, 2021. The next meeting will occur in April 2021.

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
Interim – April 2021 | Virtual
Plenary – October 2021 | Virtual

IEC SC48B
Plenary – September 20211 | Virtual

IEC SC86A
Interim – March 29-April 01, 2021 | Virtual
Plenary – October 15-26, 2021 | Virtual

IEC SC86B
Interim – April 26-May 28, 2021 | Virtual
Plenary – October 15-26, 2021 | Virtual