

Issue 34 • Quarter 1, 2022

Standards Quarterly Update:

What you need to know now for the future of your network

Welcome to the 34th edition of the *Standards Advisor*. This report is issued quarterly and provides updates on the standards relevant to the structured cabling industry, and the impact they have on your network design, planning and operations.

This summary represents standards meetings held during the first quarter of 2022 and reports on activities from all aspects of the cabling industry. These activities range from the applications standards (IEEE 802.3 and T11 Fiber Channel) to the cabling standards (ANSI/TIA, ISO/IEC, IEC, ITU-T and CENELEC). It also covers new developments in the world of multi-source agreements (MSAs).

72nd ISO/IEC JTC1/ SC25 WG3 meeting: February 28-March 4, 2022, Virtual meeting

The 72nd ISO/IEC JTC1/SC25 Working Group 3 (WG3) virtual meeting was attended by 66 experts and observers from 16 countries including Australia, Belgium, Canada, China, Denmark, France, Germany, Great Britain, Ireland, Israel, Japan, Mexico, Singapore, Spain, Sweden, Switzerland, and the United States.

Working Group 3 resolved a large number of comments to the single pair content in the draft Amendments to ISO/IEC 11801-1 and ISO/IEC 11801-6. The first Committee Draft (CD) of the ISO/IEC 14763-5 standard for Sustainability was reviewed, with all comments resolved, and the document will be circulated as a second CD.

Comments to the fourth CD of the ISO/IEC 24383 Physical Network Security standard were reviewed, with the recommendation accepted to restructure the document, and a fifth CD will be circulated. There was much discussion and progress in the ISO/IEC 14763-3 optical fiber testing revision, and it was agreed to circulate a fourth CD for comments from national committees.

1. Development of generic single pair cabling specifications

- Comments to the fifth CD of the Amendment to ISO/IEC 11801-1 were resolved and the document was approved to proceed to a sixth CD for circulation.
- The single pair cabling Classes include:
 - Class T1-A-100, T1-A-250, T1-A-400 and T1-A-1000, specified up to 20 MHz
 - Class T1-B, specified up to 600 MHz
 - Class T1-C, specified up to 1,250 GHz
- Single pair Classes T1-A-100, T1-B and T1-C are specified to 100 m, and single pair Classes T1-A-250, T1-A-400 and T1-A-1000 are specified to 250 m, 400 m and 1000 m, respectively.

- The recognized single pair connectors are the IEC 63171-1 copper LC style connector and the IEC 63171-6 industrial connector.
- The specification of PSAFEXT for the T1-A classes was replaced with PSAACRF, with different levels for the different lengths. For classes T1-B and T1-C it was agreed to add a length scaling annex to show support for IEEE classifications.

2. Single pair cable current carrying capacity

- There was much discussion with comments concerning the current carrying capacity of the single pair channels. A letter from IEEE objecting to the inclusion of a 0.75 A exception to the 2 A requirement remains an open issue needing to be addressed.

3. Sheath sharing and single pair cabling

- In 11801-1, it was agreed to move sheath sharing to an informative annex. The first WD of Technical Report ISO/IEC 11801-9911 covering the use of four pair cables to support single pair applications was reviewed. There are a number of potential issues first highlighted at the Vienna meeting in 2019 that should be addressed during the work. The issues include concerns related to remote powering, bonding and earthing for circuits originating in different PSEs, and others. The Working Draft states that shared sheath requires an engineered approach, and should be limited to one type of application in the shared sheath, with signal and power from a single equipment source for all pairs, and equipment vendors should be consulted for support. Information on planning and administration, grounding, mitigation, and supported applications will also be added.

4. **ISO/IEC 11801-6 Amendment 1, to include single pair cabling**
 - Comments to the fourth CD were resolved, and the document will be circulated as a fifth CD. Single pair cabling specifications from the Service Consolidation Point (SCP) will be aligned with the specifications in the ISO/IEC 11801-1 Amendment.
5. **Single pair multi-drop cabling**
 - This Technical Report will cover the modeling and specification of multi-drop cabling constructed from balanced 1-pair cabling components intended for use in cooperation with ISO/IEC 11801 generic cabling systems. The outline of the proposed WD was reviewed, and an update will be available.
6. **ISO/IEC 14763-3 Testing of Optical Fiber**
 - Ad hoc group completed the comment resolution of third CD, and the document (with incorporated resolutions) will be circulated as fourth CD for comments.
 - The reference connector attenuation values (ref/ref, ref/std, and std/std) have been updated to reflect the current IEC SC86B development, some values have been confirmed by SC86B and some are under development. WG3 will continue to leverage and harmonize the on-going developments in SC86B.
 - The proposal to add requirement of inspection for scratches and defects of the reference connectors was rejected. Due to inspection equipment measurement inconsistency (on scratches and defects) discovered in the IEC SC86B round robin study.
 - WG3 agreed to clarify the directional testing requirements such that if all components within the link to be tested are known then uni directional testing is sufficient, and if the components are unknown then bidirectional testing is required.
7. **Optical trends ad-hoc**
 - The objective for this newly established ad-hoc group is to identify emerging fiber technologies for the possible inclusion WG3 standards and align with IEC SC86 developments. The identified topics can be new technology to the industry overall or existing technology that is not currently covered by WG3. It can include, but not limited to applications, fiber and connector technologies, and test methods. A preliminary list of topics was generated and will be further discussed at the next meeting. A proposed list will then be forwarded to WG3 for final decision for consideration.
8. **Addition of MPO16 as a recognized multifiber connector (in ISO/IEC 11801-1 AMD1)**
 - The proposal of adding MPO16 connector (IEC 61754-7-4) as a recognized multifiber connector in addition to the 12 (IEC 61754-7-1) and 24-fiber (IEC 61754-7-2) variants was accepted.
9. **Network Physical Security (NPS)**
 - Comments for the fifth CD of the ISO/IEC 24383 Physical Network Security standard were reviewed and will be recirculated as a sixth CD. While much content was added this time, there are still many areas where large amounts of information is missing and still needs to be added. The document covers the security of the telecommunications cables, pathways, spaces, and other infrastructure components of the telecommunications physical infrastructure to protect the telecommunications infrastructure from theft, vandalism, intrusions, and unauthorized modifications. The document adds levels of security to cabling, above the installation requirements of ISO/IEC 14763-2.
10. **Installation**
 - ISO/IEC 14763-2 for installation is due for review. A WD will be circulated.
11. **Bonding**
 - ISO/IEC 30129 for bonding is due for review. A WD will be circulated.
12. **New Standard on Sustainability of Cabling Installations 14763-5**
 - The ad hoc resolved comments to the first CD and a second CD will be circulated. The scope of this document includes requirements and recommendations to maximize the sustainability of cabling systems by addressing the cabling design, selection, packaging and transportation of components and related materials, operation and maintenance of the installation, management of waste, and related skillsets necessary for designers, installers and users.

The next scheduled ISO/IEC JTC1/SC25 WG3 meeting will be held September 26-30, 2022, Location TBD.

TIA TR-42 meeting: January 24-28, 2022, Virtual meeting

The following standards were approved for ballot, re-ballot, or default ballot:

- ANSI/TIA-568.3-E, Optical Fiber Cabling Component Standard
- ANSI/TIA-455-111 (FOTP-111), IEC 60793-1-34:2021 Optical fibres – Part 1-34: Measurement Methods and Test Procedures – Fibre Curl
- ANSI/TIA-492000-C, Adoption with modification of IEC 60793-2:2019 Optical fibres – Part 2: Product specifications – General
- ANSI/TIA-622.4, Adoption of IEC 61755-2-4:2015, Connector optical interfaces – Part 2-4: Connection parameters of non-dispersion shifted singlemode physically contacting fibres – Non-angled for reference connection applications
- ANSI/TIA-622.5, Adoption of IEC 61755-2-5:2015, Connector optical interfaces – Part 2-5: Connection parameters of non-dispersion shifted singlemode physically contacting fibres – Angled for reference connection applications
- ANSI/TIA-942-C, data centers

- ANSI/TIA 5071 draft standard for field testing of single pair cabling systems ANSI/TIA-568.5, single pair cabling and components

The following standards were re-affirmed or approved for publication:

- ANSI/TIA-568.5, single pair cabling systems
- ANSI/TIA-4966-A, Education
- ANSI/TIA-942-B-1, Edge Data Centers

The following standards were published:

- ANSI/TIA-492AAAF Errata, Adoption with modification of IEC 60793-2-10:2019 Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres
- ANSI/TIA-492CAAC Errata, Adoption with modification of IEC 60793-2-50:2018 Optical fibres – Part 2-50: Product specifications – Sectional specification for class B singlemode fibres
- ANSI/TIA-526-7-A, Adoption of IEC 61280-4-2 ed. 2 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant

1. TR-42.1 Commercial Building Cabling

- ANSI/TIA-758-C (OSP) Industry ballot has not been circulated yet – content from ANSI/TIA-590 to be added
- ANSI/TIA-862-C, Building Automation Systems, revision default ballot closed without comment, publication authorized
- ANSI/TIA-942-B-1, edge data centers: Comments were resolved, publication authorized
- ANSI/TIA-4966, education standard: Comments were resolved, publication authorized
- ANSI/TIA-942-C, data centers, industry ballot authorized

2. TR-42.3 Pathways and Spaces

- Reviewed NFPA response Re NEC Article 250.121(b) Impact on TIA-607
- ASHRAE fifth edition: impact on TIA standards being studied

3. TR-42.5 Telecommunications Infrastructure Terms and Symbols

- The new definitions for micro edge data center and edge data center, and the acronym, were approved.

4. TR-42.7 Copper Cabling Systems

- TR42.7 completed comment resolutions for the ballot of ANSI/TIA-568.5, single pair cabling and components standard. Publication was authorized.
- TR42.7 resolved comments for the ANSI/TIA 5071 draft standard for field testing of single pair cabling systems and authorized a default ballot
- A outline for an addendum to TSB 184-A for power delivery using single pair was reviewed. Instructions were given to the editor
- A task group to study single pair measurement was started
- A new project for the revision of ANSI/TIA-568.4D, coaxial cabling was started.
- A new project for the revision of ANSI/TIA-1183-A, balun-less measurements.
- Study of single pair multi-drop is ongoing.

5. TR-42.9 Industrial cabling

- All comments were resolved for the ANSI/TIA-568.7 industrial single pair ballot, revised ballot has been approved for circulation.

6. TR-42.11 Optical Fiber Systems

- ANSI/TIA-526-14-D, Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant
 - Approved to revise this project to adopt the most recent IEC publications (IEC 61280-4-1 ED3.1).
- ANSI/TIA-526-7-A, Adoption of IEC 61280-4-2 ed. 2, Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
 - Document was approved for publication.
- ANSI/TIA-568.3-E, Optical Fiber Cabling Component Standard
 - Resolved all ballot comments. Document was approved as default ballot.
- VSFF (Very-small Form Factor) connectivity standardization
 - The VSFF polarity task group presented the component and polarity proposals of SEC and MDC. Project will be initiated after ANSI/TIA-568.3-E publication.
 - Group discussed the possibility of incorporating TSB-5069 symbol content into the next 568.3 revision.

7. TR-42.12 Optical Fibers and Cables

- ANSI/TIA-492000, Adoption with modification of IEC 60793-2:2019.
 - Ballot will go out prior to the June 2022 meeting.
- ANSI/TIA-492AAAF, Adoption with modification of IEC 60793-2-10:2019.
 - Errata has been published.
- ANSI/TIA-492CAAC, Adoption with modification of IEC 60793-2-50:2018.
 - Errata has been published.
- ANSI/TIA-598-E, Revision of ANSI/TIA-598-D, Optical Fiber Cable Color Coding
 - Interim task group meeting was held to define next steps – generate preliminary CIELAB coordinates and ΔE thresholds of the 12 Munsell colors based on the round robin results. Round robin measurements of the additional 4 colors are still needed.
- Rescission/Obsolete Documents
 - FOTP-30, Frequency Domain Measurement of Multimode Optical Fiber Information Transmission Capacity.
 - Document has been obsoleted and superseded by TIA-455-204-A.
 - FOTP-54, Mode Scrambler Requirements for Overfilled Launching Conditions to Multimode Fibers.
 - Document has been obsoleted and superseded by TIA-455-204-A Annex D.
 - FOTP-124, Polarization-Mode Dispersion Measurement for Single-mode Optical Fibers by Interferometry.
 - Approved to obsolete document.

8. TR-42.13 Passive Optical Devices and Metrology

- Multiple projects were approved to adopt the below IEC 61755 publications (optical interfaces):
 - IEC 61755-1:2022* SM non-dispersion shifted fibres – General and guidance
 - IEC 61755-2-1:2022* SM non-angled physically contacting fibres
 - IEC 61755-2-2:2022* SM non-angled physically contacting fibres
 - IEC 61755-2-4:2015 SM non-dispersion shifted, non-angled physically contacting fibres for reference connections
 - IEC 61755-2-5:2015 SM non-dispersion shifted, angled physically contacting fibres for reference connections
 - * *Pending final IEC publication.*

The next scheduled TIA TR-42 meeting will be virtual June 6-10, 2022.

The next scheduled CLC TC86BXA meeting will be held on June 14-16, 2022, Brussels, Belgium.

IEEE 802.3 Ethernet meetings: Plenary meeting—March 4-18, 2022, Virtual meeting
Interim meeting—January 10-21, 2022, Virtual meeting

Due to COVID-19, IEEE 802 and IEEE 802.3 continue to hold telephonic meetings in place of the scheduled face-to-face meetings. This is expected to continue until at least July 2022, as IEEE 802 has decided to hold the March 2022 plenary meetings electronically, and IEEE 802.3 has decided to hold the May 2022 interim electronically. IEEE 802 plans to resume face-to-face meetings with the July 2022 plenary, additionally offering remote access.

Single-twisted-pair copper standards

1. IEEE P802.3da Single Pair Multidrop Segments Enhancement Task Force

- This project is developing extensions to the Clause 147 10BASE-T1S multidrop (10 Mbps shared media) PHY defined in 802.3cg, interoperable with the PHY in 802.3cg. The major objectives the project is working on include the following (for more objectives, see objectives on the [IEEE 802.3da site](#)):
 1. Adding interoperable multidrop power over Ethernet and reach extensions for multidrop to better accommodate building automation.
 2. Extending multidrop networks to support at least 16 nodes and 50m of reach (32 nodes and 70m are desired, but the objective is only 15 nodes and 50m)
 3. Define plug-and-play multidrop powering, and
 4. Selecting a single equipment connector.
- The Task Force has adopted a baseline and is in Task Force review of a protocol for automatically configuring the node ID's associated with the (IEEE 802.3cg) Clause 148 Physical Layer Collision Avoidance (PLCA) protocol. The task force is also reviewing minor corrections to the PLCA (Clause 148) state diagrams to eliminate potential race conditions and improve predictable behavior.
- The Task Force has been exploring proposals for powering a multidrop segment. The issue of defining the electrical loading of a new powered node as well as protocols for managing transients as new nodes are connected are being discussed, but no text has been adopted.
- The Task Force is focused on reusing the already specified active PHY components of the 10BASE-T1S PHY in IEEE Std 802.3cg clause 147. This means that focus has been on the electrical parameters for the shared-media 'mixing segment' – wiring that connects the various multidrop nodes, and on the interface to the media. While progress has been made, work remains to be done to account for the variability of multidrop connection points and loading on the line. This is necessary to enable less engineered solutions suitable for installation outside of carefully configured equipment interconnects.
- The Task Force adopted a formal timeline resulting in a standard in mid-2023. There is consensus that this timeline will not be met, and the task force is working to establish a new timeline.

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

- This project is developing new electrical (as opposed to optical) PHY specifications for 25 Gb/s, 50 Gb/s, and 100 Gb/s Ethernet, at distances of up to 11m, suitable for automotive use. It is primarily driven by requirements for autonomous vehicle networking, and the project scope includes both symmetric and asymmetric transmission (where one of the directions is at a much lower speed).
- The project adopted baselines for link segment electrical parameters, based on channels with shielded differential pair cabling suitable for automotive use, with 8 GHz bandwidth. Both twisted pair or parallel pair constructions are considered. Because it is required to operate in an automotive environment, this cabling differs from existing twinax data center cabling.
- The project has issued a draft 1.0 for Task Force review, including baseline text for most of the PHY clause, using PAM-4 line coding at about 14 Gbaud and Reed-Solomon FEC. The two remaining work items are to support energy-efficient operation on links with asymmetric data needs, and to combine two or four 25 Gb/s PHYs into a 50 Gb/s or 100 Gb/s Ethernet link.
- The project is on track to a completed standard in Q3 2023.
- While motivated by automotive applications, the standard does not limit the application of the PHY and may find use in short-range high-speed applications on shielded balanced pair cabling which could be used as an alternative to direct-attach twinaxial cables.

3. IEEE P802.3dd Maintenance #17: Power over Data Lines of Single Pair Ethernet

- This project has adopted corrections to the specifications introduced by IEEE 802.3bu and IEEE 802.3cg. These address several technical and editorial issues found during the implementation of single pair Ethernet powering using classification.
- Specifically, initial implementations for automotive applications did not use the classification functionality, and the interest and implementation of single pair powering for in-building applications uncovered several specifications requiring minor modification.
- As a maintenance project, no new features (e.g., powering levels) may be added.
- The project is in the final recirculations of the IEEE Standards Association ballot and is expected to conclude by June 2022.

4. IEEE P802.3de: IEEE Time Synchronization for Point-to-Point Single Pair Ethernet Task Force

- This project is making minor changes to support TSN with the new point-to-point 10 Mb/s Single Pair Ethernet PHYs (10BASE-T1L and 10BASE-T1S) specified by IEEE 802.3cg with the 802.3 specifications used for Time Sensitive Networking.

- The project completed the working group ballot and has entered initial Standards Association ballot (the final stage of balloting) following the March meeting. The draft makes no functional changes, and merely makes the documentation changes necessary to reflect that the new 10 Mb/s full-duplex PHYs will work with the existing specifications for MAC MERGE and TSSI, as well as noting how TSSI will behave under half-duplex operation. The standard is expected to be complete in mid-2022.

5. IEEE 802.3 Greater than 10 Mb/s Long-Reach Single-Pair Ethernet Study Group:

- The Enhancements to point-to-point Single Pair Ethernet Study Group was also working on the next speed enhancement for building automation and industrial automation distances with point-to-point single pair Ethernet, considering speeds of 100 Mb/s and 1 Gb/s. That study group has now concluded and transitioned to the “Greater than 10 Mb/s” Study Group, focused purely on this long-range work.
- The Greater than 10 Mb/s Long-Reach Single-Pair Ethernet Study Group has reached consensus and agreed on a draft PAR, CSD responses, and objectives for a long-reach 100 Mb/s single pair Ethernet project, with an objective of 500m reach. This is in-line with the reach of one of the operating modes of the 10BASE-T1L PHY specified in IEEE Std 802.3cg. The new 100BASE-T1L project objectives also include line powering and a discussion of a low latency mode.
- While the group also considered including 1 Gb/s long-reach PHYs in the project, the study group declined to specify 1 Gb/s operation.
- The study group completed project documentation for IEEE P802.3dg, a 100 Mb/s long-reach PHY Single-Pair Ethernet PHY project (with powering). This project will be a follow on to 10BASE-T1L and is expected to provide a speed enhancement with a reach of approximately 500m. With the approval of the project documentation at the March IEEE SA Standards Board meeting, this Study Group is now completed.
- The new project, IEEE P802.3dg is expected to be called 100 Mb/s Long-Reach Single-Pair Ethernet and Associated Powering (100BASE-T1L) and will have its first meetings at the May 2022 IEEE 802.3 Interim meeting.

Optical Fiber Standards

6. IEEE P802.3cs Central office consolidation (super PON) Task Force

- The main objectives of this Study Group are:
 - Support a passive point-to-multipoint ODN with a reach of at least 50 km with at least 1:64 split ratio per wavelength pair
 - Support at least 16 wavelength pairs for point-to-multipoint PON operation
 - Support the MAC data rate of 10 Gb/s downstream
 - Support the MAC data rates of 2.5 Gb/s and 10 Gb/s upstream
 - Support tunable transmitters
- Draft 3.0 is under Standards Association Review.

7. IEEE P802.3cw 400 Gb/s Operation over DWDM Systems Task Force

- This project was split from P802.3ct for the 400G objective.
- The main objective is:
 - 400 Gb/s operation on a single wavelength capable of at least 80 km over a DWDM system (400GBASE-ZR).
- DP-16QAM coherent modulation format will be used for 400GBASE-ZR.
- Draft 1.4 was reviewed by the Task Force.

8. IEEE P802.3cz Multi-Gigabit Optical Automotive Ethernet Task Force

- This project will define the performance characteristics of an automotive link segment and an optical PHY to support 2.5, 5, 10, 25, and 50 Gb/s over 40 m of automotive cabling.
- This Task Force will focus on glass fiber and P802.3dh will focus on plastic optical fiber.
- Task Force resolved comments against Draft 1.0.
- Draft 1.2 is under Task Force review.

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

- This project will define standards for 100, 200, and 400 Gb/s over 50 m multimode fiber and over 100 m multimode fiber.
- This will allow for Top-of-Rack switch elimination by connecting Middle-of-Row switches directly to servers (VR).
- This will also provide switch-to-switch connectivity and support the installed base of multimode fiber (SR).
- Draft 3.0 is currently in initial IEEE Standards Association ballot.

10. IEEE P802.3df 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Task Force

- This Task Force is a result of the Beyond 400G Study Group
- The objectives include:
 - 200G over 1 pair of SMF up to 500 m
 - 200G over 1 pair of SMF up to 2 km
 - 400G over 2 pairs of SMF up to 500 m
 - 800G over 8 pairs of MMF up to 50 m
 - 800G over 8 pairs of MMF up to 100 m
 - 800G over 8 pairs of SMF up to 500 m
 - 800G over 8 pairs of SMF up to 2 km
 - 800G over 4 pairs of SMF up to 500 m
 - 800G over 4 pairs of SMF up to 2 km
 - 800G over 1 pair of SMF with 4 wavelengths over 2 km
 - 800G over 1 pair of SMF up to 10 km
 - 800G over 1 pair of SMF up to 40 km
 - 1.6T over 8 pairs of SMF up to 500 m
 - 1.6T over 8 pairs of SMF up to 2 km
- Baseline proposals are being considered.

The next scheduled IEEE 802.3 meeting will be virtual May 16-26, 2022.

1. Common Electrical Interface – 224G Development Project (CEI-224G)

- This project will develop a body of knowledge summarized into a white paper that will enable new project launches for specific next generation 224 Gbps clauses.
- PAM4, PAM6, and PAM8 modulation formats are being considered.

2. Co-Packaging Framework Project

- The Co-Packaging Framework IA is an umbrella project that will study the application spaces and relevant technology considerations for co-packaging of communication interfaces with one or more ASICs.

- Co-packaging Framework Document was published.

3. Implementation Agreement for a 3.2 Tb/s Co-Packaged Optical (CPO) Transceiver

- This Implementation Agreement specifies key aspects and electro-optical-mechanical details of a 3.2 Tb/s Co-Packaged Optical Module.
- This project will draw on 400G-FR4 and 400G-DR4 IEEE standards as well as the CPO JDF.
- Project was launched at the February meeting.
- Draft Implementation Agreement is under review.

The next scheduled OIF Standards meeting will be held on May 10-12, 2022, Porto, Portugal

1. FC-PI-8 Ad Hoc (128GFC Serial)

- Ongoing discussions surrounding electrical and optical training. Presentation showed the benefits of optical training for MM links - more pre-emphasis can be applied to longer MM links to reduce TDECQ, but it increases BER at shorter MMF links. Optical training can potentially reduce cost by enabling lower bandwidth VCSELs but the module bring up time will be longer. There were debates whether optional training should be supported due to training not being a viable option for different fiber lengths. The document may contain multiple variants to allow different options.
- Discussions continued regarding the connector maximum discrete reflectance values – how they were derived and the relationship to overall link RL. The ad hoc group reviewed the proposal of reorganizing the document such that all cabling plant related contents are in one clause, and MM and SM connector IL and RL specifications.
- Multiple proposals will be reviewed in detail and be voted on at the April meeting. Agreed content will be incorporated into document and document will be circulated as first committee ballot.

The next scheduled INCITS T11 meeting will be virtual/face-to-face on April 5-7, 2022, New Orleans, LA, USA.

- The working draft of first CD of IEC63171 ED2 is out for comments and discussion.
- The second CD of IEC 63171-1 ED2 was completed and submitted to IEC for circulation and comments
- IEC 63171-7 ED1 CDV has been circulated for comments.
- Work is ongoing for clarifying contact resistance measurement points and vibration fixturing for typical connector measurement.

The next scheduled IEC SC48B meeting will be virtual September 12-16, 2022.

The next scheduled IEC SC86A meeting will be virtual April 4-8, 2022

The next scheduled IEC SC86B meeting will be held on May 9-13, 2022, Milano, Italy

IEC SC86C/WG1: Fibre optic systems and active devices/Fibre optic communications systems and sub-systems

Documents in revision:

- IEC 61280-1-4: General Communication Subsystems - Light source encircled flux measurement method. first CD is in ballot stage, closes on April 22, 2022.
- IEC 61280-4-2: Installed Cable Plant – Singlemode attenuation and return loss measurement. Published SC86B reference connector documents (IEC 61755-2-4 for non-angled (PC) and IEC 61755-2-5 for angled (APC)) as well as other developing documents (once published) will be reference in the IEC 61280-4 series. Working draft was reviewed at the meeting, first CD will be ready for circulation before July 2022.

New standards in progress:

- IEC 61280-2-xx Digital systems – Error vector magnitude. Anticipate reviewing the first working draft at the September 2022 meeting.
- IEC TR 61282-16 Ed1: Fibre optic communication system design guidelines - Coherent Systems. Document was approved for publication.
- IEC 61280-4-3 Ed1: Installed Cable Plant – Passive optical networks attenuation and return loss measurements. Document was approved for publication.

Published documents:

- IEC 61280-4-1 Ed3.1: Installed Cable Plant – Multimode attenuation measurement. The consolidated version was published, which includes the ED3 Amendment 1 and Corrigendum 1.
- IEC 61280-4-5 Ed1: Installed Cable Plant – Attenuation measurement of MPO terminated fibre optic cabling plant. Corrigendum 1 has been published.

The next scheduled IEC SC86C meeting will be virtual April 4-8, 2022

Highlights of the meeting include:

- The formation of a joint working group between SC18A and TC46 SC46C WG7 to work on "Ethernet cables for Shipboard". Various experts from WG7 joined.
- A discussion of the comments for the 61156-7 "Multicore and symmetrical pair/quad cables for digital communications - Part 7: Symmetrical pair cables with transmission characteristics up to 1,200 MHz - Sectional specification for digital and analog communication cables" document took place.
 - It has been decided to introduce ELTCTL to the document.
 - DC-resistance requirement is relevant for certain CATV application and will be retained.
 - The proposal to extend the frequency range to 1250 MHz was rejected.
 - A revised compilation of comments was circulated on April 1, 2022.

- The recommendations identified for the 61156-7 document will be applied to the 61156-8 "Multicore and symmetrical pair/quad cables for digital communications - Part 8: Symmetrical pair/quad cables with transmission characteristics up to 1,200 MHz - Work area wiring - Sectional specification" document covering work area cables.

The next scheduled IEC TC46 SC46C/WG7 meeting will be virtual April 25, 2022

The next scheduled ITU-T SG15 meeting will be virtual September 19-30, 2022.

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