



LAN Standards, News & Trends Report

Fiber Optic LAN Section (FOLS)
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Standards Committee Chairman

March 16, 2010

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Fiber Optics LAN Section

Overview:

- Part of the Telecommunications Industry Association (www.tiaonline.org)
- Formed 16 years ago
- Mission: to educate users about the benefits of deploying fiber in customer-owned networks
- FOLS provides vendor-neutral information



Fiber Optics LAN Section

Current Members

- ADC
- AFL/Noyes Fiber Systems
- Berk-Tek, a Nexans Company,
- Corning Optical Fiber
- CommScope
- Draka Communications
- Fluke Networks
- OFS
- Ortronics
- Sumitomo Electric Lightwave
- Tyco Electronics



Fiber Optics LAN Section

Recent Webinars Available on Demand

- Data Center: Best Practices
- OM4 Fiber: The Next Generation of Multimode Fiber
- Green Aspects of Structured Cabling
- 40/100 Gbps Ethernet over Multimode Fiber

Visit www.fols.org or our channel on BrightTalk.



Objectives

Agenda

- Overview of Standards
 - *With Fiber*
- Review the recent events and activities of the TIA TR-42 Subcommittees
- Most recent meetings held in early February 2010
- Review the recent events and activities of some LAN application Subcommittees



Standards Overview

What is the process for developing a standard?

- Standards projects and technical documents at TIA are formulated according to the guidelines established by ANSI and in the association's Engineering Manual.
- Potential projects are initiated by a technical contribution to one of the engineering committees or subcommittees from an individual or company requesting the creation of a new standard or technical document in a particular area of technology.



Standards Overview

What is the process for developing a standard?

- Developing a new standard can take anywhere from a few months to many years (the TR-42.9 subcommittee, for example, worked in excess of 10 years on an industrial cabling standard).
- Once a project has been approved, contributions are reviewed in subcommittee, draft documents are created then balloted to remove or resolve contentious issues. When there is consensus that the document is ready for publication, the subcommittee can release the document

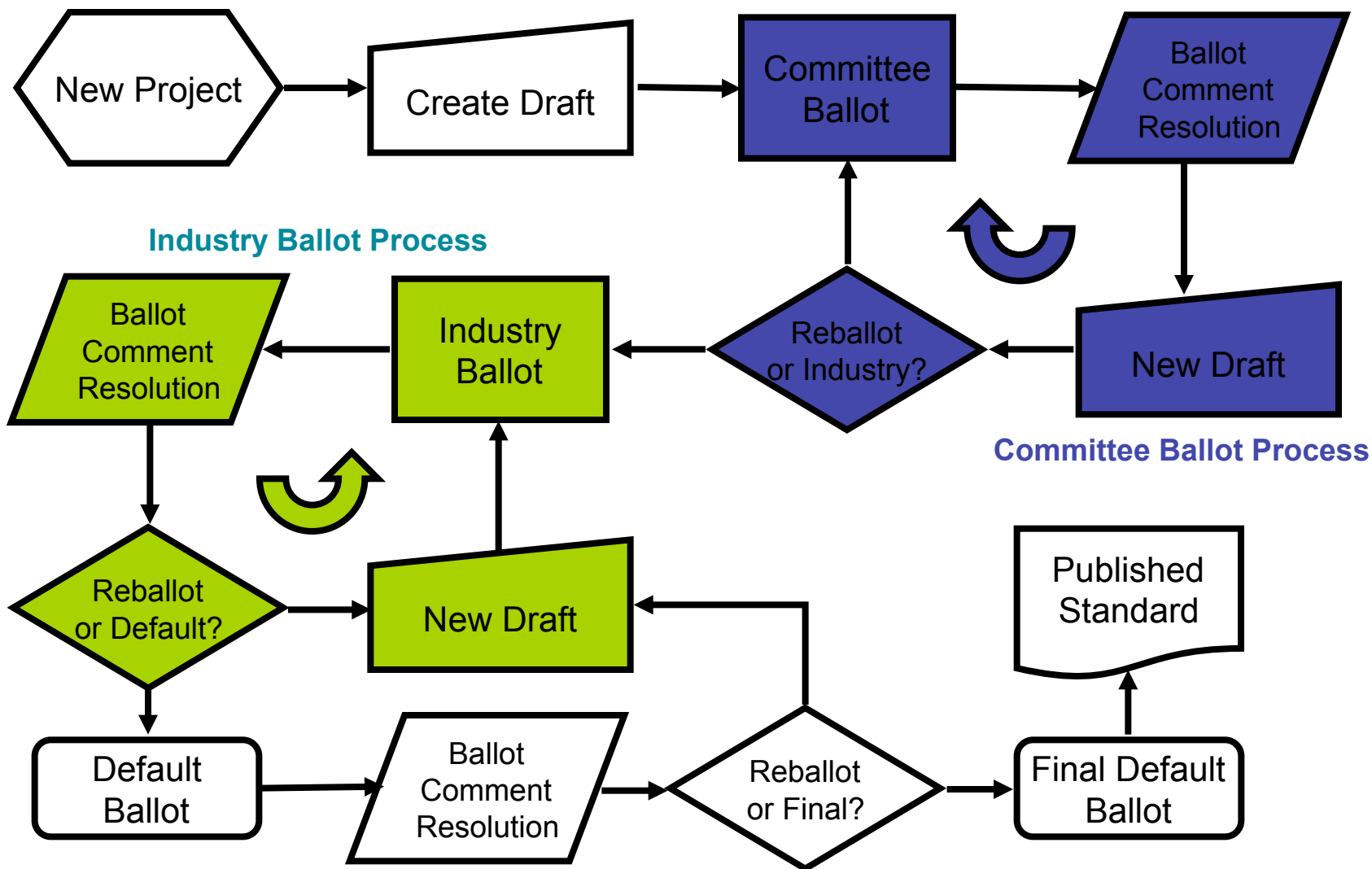


Standards Overview

How long are standards valid?

- Standards are living documents, which must constantly be revised to reflect emerging market needs. ANSI mandates a maximum 5-year lifespan for standards, after which they must be revised, re-affirmed or withdrawn.
- During that lifespan, many addenda may be added to keep the document growing with advances in technology. These addenda may then be incorporated into the new revision of the standard.

Ballot Process





TIA TR-42 Telecommunications Cabling Systems Engineering Committee

Scope:

- Engineering Committee TR-42 develops and maintains voluntary telecommunications standards for telecommunications cabling infrastructure in user-owned buildings, such as commercial buildings, residential buildings, homes, data centers, industrial buildings, etc. The generic cabling topologies, design, distances and outlet configurations as well as specifics for these locations are addressed. The committee's standards work covers requirements for copper and optical fiber cabling components (such as cables, connectors and cable assemblies), installation, and field testing in addition to the administration, pathways and spaces to support the cabling.

Composed of several components:

- TIA TR-41.8
- FO-2
- FO-6
- FO-4



Common Standards

- End-users
- Broadly Applicable

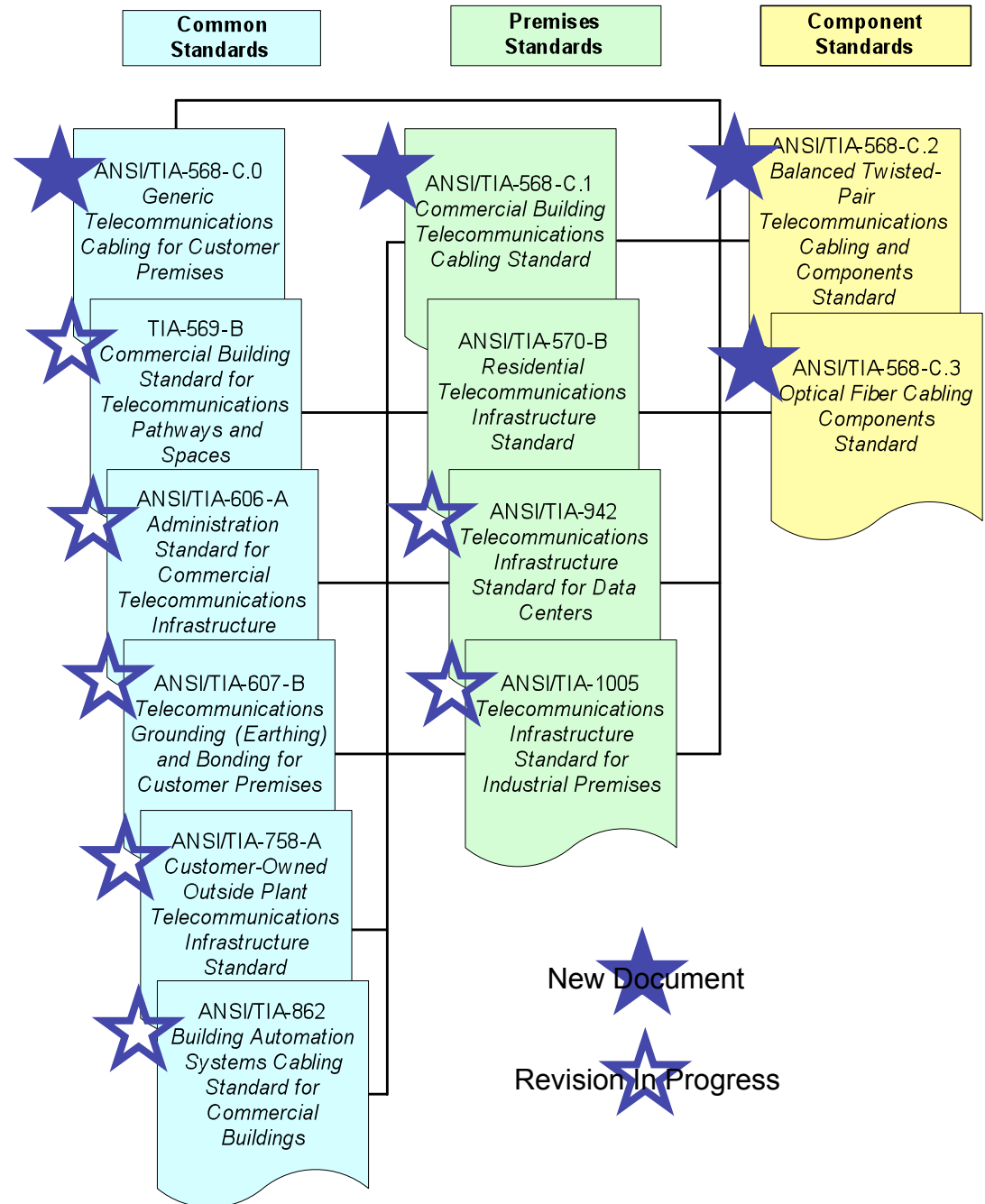
Premises Standards

Standards

- Narrow Focus
- Exceptions/ Allowances to Common Standards

Component Standards

- Manufacturers





TR-42.1

Subcommittee on Generic Cabling and Commercial Building Cabling

March 16, 2010

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TR-42.1

Generic Structured Cabling Addendum 1 ANSI/ TIA-568-C.0

– Why?

- To change the references in 568C.0 from the 568-B.2 document to the 568-C.2 and TIA-1152 documents for copper cabling

– Status?

- Ballot closed successfully
- A default ballot will be issued with conditional approval for publication
- May publish as early as March

– Importance?

- “Fixes” the disconnect in references for balanced twisted-pair cabling



TR-42.1

Generic Structured Cabling Addendum 2(?) – ANSI/TIA-568-C.0

- Why?
 - Address a growing list of proposed additions to 568-C.0
- Status?
 - Ongoing investigation in a task group
- Importance?
 - Changes would become generic
- Subjects?
 - Adding OM4 fiber to applications table
 - Passive Optical LANs (POL)
 - Making CPs and MUTOAs generic



TR-42.1

Building Automation Systems (BAS) revision ANSI/TIA-862

– Why?

- This document was primarily revised to make the BAS Standard a common standard. The ballot closed successfully.

– Status?

- A default ballot will be issued
- Possible the document will publish in June

– Importance?

- May garner more interest for IP-based BAS (and thus more Ethernet cabling) in the commercial buildings market



TR-42.1

The new Healthcare Facility Cabling Standard (to be TIA-1179)

– Why?

- Respond to the need for a premises cabling standard optimized for healthcare facilities

– Status?

- Ballot closed successfully
- A default ballot will be issued
- Possible to publish the document in June

– Importance?

- It's new and not familiar to many outside of TIA
- There are a lot of healthcare facilities that are seeking this material
- There's money for healthcare IT projects

The new Healthcare Facility Cabling Standard (to be TIA-1179)

- Noteworthy changes?
 - Added a note for backbone and horizontal cabling
 - "NOTE: category 6A is recommended for new installations"
 - Maximum horizontal distance for optical fiber is conditionally allowed to be longer than the 90m for copper
 - increased according to the application and upon the specific media chosen (see annex D of ANSI/TIA-568-C.0)
 - Category 3 cabling was removed from horizontal cabling
 - Still allowed in the backbone but "limited to analog voice applications"



TR-42.1

Data Center Networks Revision – ANSI/ TIA-942-A

– Why?

- Make it a premises standard based on 568-C.0

– Status?

- Comments to a mock ballot for the revision to the Data Center Standard were started, but not completed (March)

– Importance?

- Opens door for many other changes
 - Introduces IDA (intermediate distribution area)
 - Recommending LC and MPO connectors



TR-42.3

Subcommittee on Pathways and Spaces

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TR-42.3

Pathways and Spaces – Second Revision (to become TIA-569C)

– Why?

- Primarily to make the Pathways and Spaces Standard a common standard. The ballot closed successfully.

– Status?

- Ballot comment resolution was completed
- Re-ballot as 5th committee ballot

– Importance?

- Document scope would cover all premises standards and no longer be specific to office-oriented commercial buildings

Pathways and Spaces – Second Revision (to become TIA-569C)

– Noteworthy Changes?

- Much of the content regarding power and noise separation was specific to 1 Gigabit Ethernet, not 10 Gigabit Ethernet
 - Power Separation Task Group contributions indicate potential problems with current guidance and 10 Gb/s on U/UTP Cat 6A
 - » no issues on optical fiber or shielded
 - Content for 10 Gb/s is “Under Study” to allow document to move forward



TR-42.3

TIA-568-C.1 Addendum 1

- Why?
 - Move content specific to office-oriented commercial building cabling from 569-B to 568-C.1
- Status?
 - Ballot comment resolution was completed
 - Document deemed “finished”
 - Tabled the addendum, for now
 - Does not make sense to issue until 569C is published
- Noteworthy Changes?
 - None really – just moving content to the right document



TR-42.4

Subcommittee on Outside Plant Cabling

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TR-42.4

TIA-758 Second Revision (to become TIA-758B)

– Why?

- Make it a common standard rather than a premises standard

– Status?

- Waiting on first draft for committee ballot

– Noteworthy changes?

- Adding content from the TIA-790 standard on installing optical fiber cables in outdoor



TR-42.6

Subcommittee on Administration

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TR-42.6

TIA-606 Second Revision (to become TIA-606B)

- Why?
 - Make it a common standard rather than one focused on office-oriented commercial buildings
- Status?
 - Project is open, but in a “wait-and-see” status while work on administration continues internationally
- Noteworthy possibilities?
 - Create new identification formats, but allow old identifiers for office-oriented elements to continue being used
 - Optional administration of backbone cables is by pair groups corresponding to ports rather than copper pairs or single fibers



TR-42.7

Subcommittee on Copper Cabling Components

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TR-42.7

TSB-155 First Revision

- Why?
 - Primarily to harmonize and align terminology with the content in 568-C.2
- Status?
 - Released for publication in February meeting
- Importance?
 - Addresses use of Category 6 for 10GBASE-T
- Noteworthy Changes?
 - Attenuation to crosstalk ratio, far-end (ACRF) ELFEXT and PSACRF was PSELFEXT in the previous edition of this TSB



TR-42.7

New Standard to be TIA-568-C.4 (prelim title: “Broadband Coaxial Cabling and Components Standard”)

- Why?
 - Consolidate component information in TR-42 on coaxial cabling into one document for reference by all subcommittees
- Status?
 - Draft 1.1 approved and issued for second committee ballot
- Importance?
 - A new component standard
- Noteworthy Changes?
 - Mostly consolidating information from residential (Series 6 and Series 59) and data centers (734 and 735 type)



TR-42.7

New TSB to become TSB-190 (prelim title: “Guidelines on Shared Pathways and Shared Sheaths”)

- Why?
 - Update and consolidate information on multiple applications operating over different cable categories or cable constructions sharing the same pathways
- Status
 - Draft issued for first committee ballot
- Importance?
 - Address issues reported with mixing applications in the same pathways on Category 6A U/UTP cables, issues reported with mixing Category 6A cables manufactured by different vendors in the same pathways, and running multiple applications running within the same sheath

New TSB to become TSB-190 (continued)

- Noteworthy Content in draft
 - “Category 6A cabling should be used for all new installations intended to support the 10GBASE-T application”
 - “Supporting data demonstrates that compliant category 6A cable bundles from different manufacturers that are adjacent to one another comply with the alien cross-talk requirements specified in ANSI/TIA-568-C.2.”
 - Note: “bundles”
 - No issues for optical fiber



TR-42.8

Subcommittee on Optical Fiber Cabling Components

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TR-42.8

- Subcommittee Disbanded
 - Why?
 - Overlap with other optical fiber subcommittees in TR-42
 - Align optical fiber subcommittees with IEC
 - Status?
 - Plenary approved the disbanding
 - Work owned by TR-42.8 will roll into TR-42.11
 - Importance?
 - 568-C.3 will roll into TR-42.11
 - Polarity and attenuation task groups will roll into TR-42.11



TR-42.9

Subcommittee on Industrial Premises Cabling

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TR-42.9

First Revision to TIA-1005

– Why?

- This document was primarily revised to make the Industrial Standard a premises standard built on 568-C.0 (rather than 568-B.1)

– Status?

- The committee ballot closed successfully
- Ballot comment resolution ~one-third completed

– Noteworthy content?

- Power separation, noise issues for copper 10GbE “under study”
- Exiting content identified as based on 1 GbE
- Plastic Optical Fiber inclusion still under study



TR-42.11 Subcommittee on Optical Fiber Systems

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TR-42.11

Revision of TIA 526-14 (OFSTP-14)

– Why?

- TR-42.11 initiate adoption ballot of IEC 61280-4-1 ed.2 as revision of TIA-526-14-A
- Improvements include more complete direction on the application of various power reference methods as they relate to cable plant topologies, the addition of OTDR methods, and improved definition of launch conditions

– Status?

- Project approved

– Importance?

- Will become the reference standard for field-testing multimode optical fiber installations.



TR-42.11

Withdrawal of TSB-178 on Multimode Launch Conditions

– Why?

- Previously mentioned project (OFSTP-14) incorporates most all of this information

– Status?

- Withdrawal approved

– Importance?

- TSB-178 was mostly informational, serving to collect information that was developed in the course of the 10 GbE effort



TR-42.16 Subcommittee on Grounding and Bonding

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TR-42.16

Revision to J-STD-607-A

– Why?

- Update and revise document
- Develop document as a common standard

– Status?

- Mock ballot comment resolution completed
- Issuing as first industry ballot

– Importance?

- Adds a “signal integrity” perspective to the bonding and grounding content



LAN Applications Update

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40GBASE-SR4 and 100GBASE-SR10 News

40 Gigabit and 100 Gigabit Ethernet

- 40 GbE requires eight fibers; 100 GbE requires twenty fibers
- OM3 objective is 100m
- The draft indicates OM4 support for 150m reach
- Timeline for publication is still June 2010
- A new project for 40G serial on single-mode fiber with a 2 km reach will likely garner enough support as a new project
- Looking at a 40G on balanced twisted-pair project, but definition (reach, connectivity) are still under investigation



Question Review

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