Atras Network Communications Guide to Information and Communications Technology (ICT) Standards developed and published by the Telecommunications Industry Association (TIA)

The Telecommunications Industry Association (TIA) is a standards development organization (SDO) accredited by the American National Standards Institute (ANSI). Standards and technical bulletins developed by TIA are used by end users, manufacturers, engineers and contractors, primarily in the North American market.

TIA MEMBERSHIP

TIA membership is offered as two types of membership: General Membership and Associate Membership.

General Membership: Any company (or a division of a company) formed under the laws of the United States are eligible for general membership if the company is engaged in the business of developing, manufacturing, distributing, selling, installing, launching or consulting with respect to communications and information technology (ICT) products (including software) or offer services other than common carrier services.

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TIA ENGINEERING COMMITTEES AND SUBCOMMITTEES

TIA engineering committee TR-42 and their subcommittees develop and maintain voluntary telecommunications standards for telecommunications premises and campus cabling infrastructure, outside plant (OSP), pathways and spaces, bonding and grounding, administration, field testing, building automation, and more in a variety of building types including; commercial office buildings, educational facilities, healthcare facilities, residential multi-dwelling unit (MDU) buildings, homes, data centers, industrial buildings, etc. The TR-42 subcommittees develop, deliver and maintain voluntary ICT standards and informative technical bulletins; establishing requirements, recommendations and best practices for copper and optical fiber cabling components including cables, connecting hardware and cable assemblies, installation, and field testing in addition to the administration, pathways and spaces to support the cabling infrastructure.

Ask ICT Experts

If you have any general or specific questions about any of the voluntary ICT standards listed in this document for premises and campus cabling infrastructure, outside plant (OSP), pathways and spaces, wireless technologies, bonding and grounding, administration, field testing, building automation, and more, please visit: http://www.atrasusa.com/ask-ict-experts

STANDARDS ARE CLASSIFIED INTO THREE TYPES

TIAs TR-42 Engineering Committee and subcommittees separate their published standards into three document types. These three types include:

- Common Standards
  - Generic
  - Pathways & Spaces
  - Administration, etc.
- Premises Standards
  - Commercial Building
  - Residential
  - Data Centers, etc.
- Component Standards
  - Copper
  - Optical Fiber

Common Standards	Premises Standards	Component Standards
ANSI/TIA-568-C.0 Generic Telecommunications Cabling for Customer Premises	**ANSI/TIA-568-C.1** Commercial Building Telecommunications Cabling	**ANSI/TIA-568-C.2** Balanced Twisted-Pair Telecommunications Cabling and Components
ANSI/TIA-569-C Telecommunications Pathways and Spaces	**ANSI/TIA-570-C** Residential Telecommunications Infrastructure Standard	**ANSI/TIA-568-C.3** Optical Fiber Cabling and Components
ANSI/TIA-606-B Administration Standard for Telecommunications Infrastructure	**ANSI/TIA-758-A** Customer-Owned Outside Plant Telecommunications Infrastructure Standard	**ANSI/TIA-568-C.4** Broadband Coaxial Cabling and Components
ANSI/TIA-607-B Generic Telecommunications Grounding (Earthing) and Bonding for Customer Premises	**ANSI/TIA-942-A** Telecommunications Infrastructure Standard for Data Centers	
ANSI/TIA-862-A Building Automation Systems Cabling Standard	**ANSI/TIA-1005-A** Telecommunications Infrastructure Standard for Industrial Premises	
	ANSI/TIA-1179 Healthcare Facility Telecommunications Infrastructure Standard	

LIST OF TIA TR-42 SUBCOMMITTEES

The following list describes all of the TIA TR-42 subcommittees. In addition to listing each subcommittee, the following list provides a mission and scope of each of these subcommittees.

- TR-42.1 Commercial Building Telecommunications Cabling
  - According to TIA, the TR-42.1 Subcommittee mission and scope is:
  - "The TR-42.1 Subcommittee develops and maintains cabling standards for generic customer-owned telecommunications networks. These standards are intended to specify open systems designed to support a wide variety of voice, data, video, and other low voltage, power-limited applications. Also, this Subcommittee develops and maintains telecommunications cabling standards for premises networks such as commercial buildings, data centers, building automation, etc. This Subcommittee specifies cabling system topology, architecture, design, installation, testing and performance requirements."
- TR-42.1.1 Network Security Task Group
  - According to TIA, the TR-42.1.1 Subcommittee mission and scope is:
  - "Network security entails vast areas of specifications that range from data encryption, supply chain management, design, as well as incorporation of security considerations into all phases and aspects of a network. This task group focuses on the physical security of the telecommunications infrastructure as specified under the TIA TR-42 Telecommunications Cabling Systems Committee. The group specifies physical network security requirements, guidelines for the telecommunications infrastructure in customer owned premises, and compiles information that may be used for the design of physical network security system products. This work enables the planning and installation of physical network security systems that protect critical telecommunications infrastructure elements from theft, vandalism, intrusions, and unauthorized modifications, as well as establish minimum functional performance of different physical network security elements."
- TR-42.2 Residential Telecommunications Infrastructure (TIA-570)
  - According to TIA, the TR-42.2 Subcommittee mission and scope is:
  - "The TR-42.2 Subcommittee develops and maintains telecommunications standards for design, installation, testing and performance requirements of cabling, pathways, and spaces, for single and multi-tenant residential buildings, home offices, and campuses."
- TR-42.3 Commercial Building Telecommunications Pathways & Spaces (TIA-569-C)
  - According to TIA, the TR-42.3 Subcommittee mission and scope is:
  - "The TR-42.3 Subcommittee develops and maintains standards for telecommunications pathways and spaces within buildings into which cabling and equipment are placed."

- TR-42.5 Telecommunications Infrastructure Terms and Symbols
  - According to TIA, the TR-42.5 Subcommittee mission and scope is:
  - "The TR-42.5 Subcommittee develops and maintains the master glossary of terms and symbols including acronyms, abbreviations, units of measurement, and uses of templates for all standards developed in TR-42. It is a central point for resolving differences among committees in meaning or usage of telecommunications terms."
- TR-42.6 Telecommunications Infrastructure and Equipment Administration (TIA-606-B)
  - According to TIA, the TR-42.6 Subcommittee mission and scope is:
  - "The TR-42.6 Subcommittee develops and maintains standards for telecommunications administration. These standards include requirements for alphanumeric identification, labeling, color coding and record keeping for the telecommunications infrastructure and guidance for administration of equipment assets."
- TR-42.7 Telecommunications Copper Cabling Systems (TIA-568-C.0, C.1, C.2, C.4)
  - According to TIA, the TR-42.7 Subcommittee mission and scope is:
  - "The TR-42.7 Subcommittee develops and maintains telecommunications copper cabling component and system requirements for premises networks. This includes performance specifications, qualification procedures, and test methods for connecting hardware (including modular patch cords) and cable."
- TR-42.9 Industrial Telecommunications Infrastructure (TIA-1005-A)
  - According to TIA, the TR-42.9 Subcommittee mission and scope is:
  - "The TR-42.9 Subcommittee develops and maintains standards for industrial facilities that can contain severe environmental conditions (e.g., extreme temperature, dust, wetness, vibration, EMI/RFI, corrosive chemicals and hazardous gases). This Subcommittee specifies cabling system, topologies, architecture, design, installation, testing and performance requirements."
- TR-42.10 Sustainable Information Communications Technology
  - According to TIA, the TR-42.10 Subcommittee mission and scope is:
  - "The TR-42.10 Subcommittee develops and maintains voluntary standards, guidelines and recommendations for sustainable information communications technology"

- TR-42.11 Optical Systems (TIA-568-C.3)
  - According to TIA, the TR-42.11 Subcommittee mission and scope is:
  - "The TR-42.11 Subcommittee on Fiber Optic Systems develops and maintains standards, specifications and related documents for the performance, design, characterization, and description of optical fiber subsystems, systems and networks across all applications. TR-41.12 Optical Fibers and Cables."
- TR-42.12 Optical Fibers and Cables
  - According to TIA, the TR-42.12 Subcommittee mission and scope is:
  - "The TR-42.12 Subcommittee on Optical Fibers and Cables develops and maintains standards and specifications for optical fibers of all types, cables which utilize optical fibers, test procedures and methods for fibers and cables, and terminology related for fibers and cables."
- TR-42.13 Passive Optical Devices and Fiber Optic Metrology
  - According to TIA, the TR-42.13 Subcommittee mission and scope is:
  - "The TR-42.13 Subcommittee develops and maintains performance, test and measurement standards for passive optical devices and metrology of fiber optic test, measurement, calibration and inspection instrumentation."
- TR-42.16 Premises Telecommunications Bonding & Grounding (TIA-607-B)
  - According to TIA, the TR-42.16 Subcommittee mission and scope is:
  - "The TR-42.16 subcommittee develops and maintains standards for premises telecommunications bonding and grounding systems."

STANDARDS DEVELOPMENT PROCESS

Every new TIA standard project begins as a technical contribution in one of TIA's technology-oriented engineering committees or subcommittees as listed above. A Project Initiation Notice (PIN) form is completed and submitted for approval by TIA staff. After the project is approved by the applicable TIA engineering committee or subcommittee, the formulating engineering committee or subcommittee will continue to develop the technical parameters of the project. When the proposed standard nears completion, the engineering groups will chose to submit the document for approval as a "TIA Standard", an "American National Standard," or both.

TIA APPROVED STANDARDS

Name of Standard	Date	Brief Description
TSB-162-A Telecommunications Cabling Guidelines for Wireless Access Points	2013 November	This informative Telecommunications Systems Bulletin provides guidelines on the topology, design, installation, and testing of cabling systems intended to support wireless local area networks (WLANs), including the pathways and spaces to support the cabling and wireless access points (WAPs). This revision of the original TSB-162 published in 2006, now recommends Category 6A balanced twisted-pair cabling or OM3 optical fiber cabling for support of WLANs. Information was added on the use of link aggregation to support greater than 1 Gb/s Wi-Fi transmission rates and/or increased power requirements. Maximum link length calculations were modified to account for different equipment cord types. Wireless access point mounting options and physical security have been added to this revision.
ANSI/TIA-942-A-1 Telecommunications infrastructure standard for Data Centers – Addendum 1 – Cabling Guidelines for Data Center Fabrics.	2013 March	This Addendum specifies recommendations for telecommunications cabling to support data center switch fabrics.
ANSI/TIA-607-B-1 Generic Telecommunications Grounding (Earthing) and Bonding for Customer Premises- Addendum 1 for Building electrodes	2013 January	Building electrode specifications
ANSI/TIA-569-C-1 Telecommunications Pathways and Spaces Addendum 1- Revised Temperature and Humidity Requirements for Telecommunications Spaces	2013 February	Temperature and humidity requirements for telecommunications spaces

ANSI/TIA-569-C Telecommunications Pathways and Spaces	2012 May	Generic pathways and spaces for customer owned premises.
ANSI/TIA-570-C Residential Telecommunications Infrastructure Standard	2012 August	This Standard applies to telecommunications premises cabling systems and the related pathways and spaces for single- and multi-dwelling residential buildings.
ANSI/TIA-568-C.0-2 Generic Telecommunications Cabling for Customer Premises – Addendum 2,General Updates	2012 August	Updates to ANSI/TIA-568-C.0
ANSI/TIA-1183 Measurement methods and test fixtures for balun-less measurements of balanced components and systems	2012 August	Uses new balun-less measurement technology to facilitate more accurate measurements up to higher frequencies. Also, increases the number of parameters that can be measured
ANSI/TIA-568-C.1-1 Commercial Building Telecommunications Cabling Standard, Addendum 1 Pathway and Spaces	2012 May	Pathway and space requirements specific to commercial buildings
ANSI/TIA-568-C.0-1 Generic Telecommunications Cabling for Customer Premises-Addendum 1, Updated Reference for Balanced Twisted-Pair Cabling	2012 April	Updates to references and other changes
ANSI/TIA-607-B Generic Telecommunications Grounding (Earthing) and Bonding for Customer Premises	2012 April	Bonding and grounding standard for customer owned premises
ANSI/TIA-606-B Administration Standard for Telecommunications Infrastructure	2012 June	Administration Standard for Telecommunications Infrastructure including cables, connectors, pathways and spaces
ANSI/TIA-758-B Customer-Owned Outside Plant Telecommunications Infrastructure Standard	2012 April	Telecommunications cabling and infrastructure specifications for campus cabling

ANSI/TIA-1005-A Telecommunications Infrastructure Standard For Industrial Premises	2012 June	Telecommunications cabling standard for industrial premises
ANSI/TIA-568-C.3-1 Optical Fiber Cabling Component Standard- Addendum 1, Addition of OM4 Cabled Optical Fiber and array connectors	2011 December	Addition of array connectors and OM4 cabled fiber
ANSI/TIA-568-C.1-2 Commercial Building Telecommunications Cabling Standard, Addendum 2 General Updates	2011 November	Updates to ANSI/TIA-568-C.1-2
ANSI/TIA-568-C.4 Broadband Coaxial Cabling and Components Standard	2011 July	Coaxial cabling and components standard for use in residential and commercial premises
TSB-190 Guidelines on Shared Pathways and Shared Sheaths	2011 June	This informative Telecommunications Systems Bulletin offers guidance regarding the placement of different category cabling delivering both 10GBASE-T and non-10GBASE-T applications in pathways, bundling of cables from different manufacturers or of different construction, and the operation of different applications with the same cable sheath.
ANSI/TIA-862-A Building Automation Systems Cabling Standard	2011 April	Cabling and infrastructure in support of building automation devices such as fire alarms, energy management, security.
ANSI/TIA-1179 Healthcare Facility Telecommunications Infrastructure Standard	2010 July	The purpose of this Standard is to enable the planning and installation of a structured cabling system for healthcare facilities and buildings.
ANSI/TIA-526-14-B, OFSTP-14 Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant	2010 October	The intent of this document is to establish preferred measurement principles and practices to assure that meaningful data describing the optical loss performance of installed cable plant can be obtained.
ANSI TSB-155 Guidelines for the Assessment and Mitigation of Installed Category 6 Cabling to Support 10GBASE-T	2010 March	Guidelines for the Assessment and Mitigation of Installed Category 6 Cabling to Support 10GBASE-T.

ANSI/TIA-568-C.2 Commercial Building Telecommunications Cabling Standard Part 2: Balanced Twisted- Pair Cabling Components	2009 August	Balanced twisted pair cabling, components and test procedures for Category 3 thru Category 6A.
ANSI/TIA-568-C.0 Generic Telecommunications Cabling for Customer Premises	2009 February	Generic cabling standard for all media types and all premise types
ANSI/TIA-942-A Telecommunications Infrastructure Standard for Data Centers	2009 February	Data center telecommunications infrastructure standard
ANSI TSB-184 Guidelines for Supporting Power Delivery over Balanced Twisted-Pair Cabling	2009 July	The purpose of this document is to provide guidelines that will enable the support of a wide variety of safety extra low voltage (SELV) limited power source (LPS) applications using remote power supplied over balanced twisted-pair cabling.
ANSI TSB-185 Environmental Classification (MICE) Tutorial	2009 December	This TSB provides information on the MICE (Mechanical; Ingress; Climatic/Chemical; and, Electromagnetic) environmental classification system including some examples.
ANSI/TIA-568-C.3 Optical Fiber Cabling Components Standard	2008 June	Telecommunications cabling standard containing optical fiber cable, connector, and test specifications
ANSI/TIA-526-7-B, OFSTP-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant	2008 December	The intent of this document is to establish preferred measurement principles and practices to assure that meaningful data describing the optical loss performance of installed cable plant can be obtained.
ANSI TSB-162 Telecommunications Cabling Guidelines for Wireless Access Points	2006 March	This TSB includes the cabling between local area network (LAN) equipment and wireless access points including pathways and spaces to support the cabling and wireless access points.

ANSI/TIA-598 Optical Fiber Cabling Coding	2005 January	TIA identification scheme or system for individual fibers, fiber units, and groups of fiber units within a cable structure.

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