

LAN Standards, News & Products

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November 5, 2009

Topics

- Tyco Electronics AMP NETCONNECT overview
- Review the recent events and activities of TIA TR-42 Subcommittees
- Review the recent events and activities of the LAN application Subcommittees
- New Products



Product Capabilities for Building Networks

AMP NETCONNECT Structured Cabling Systems



Data Center Solutions



Office Networks



SECURE Products



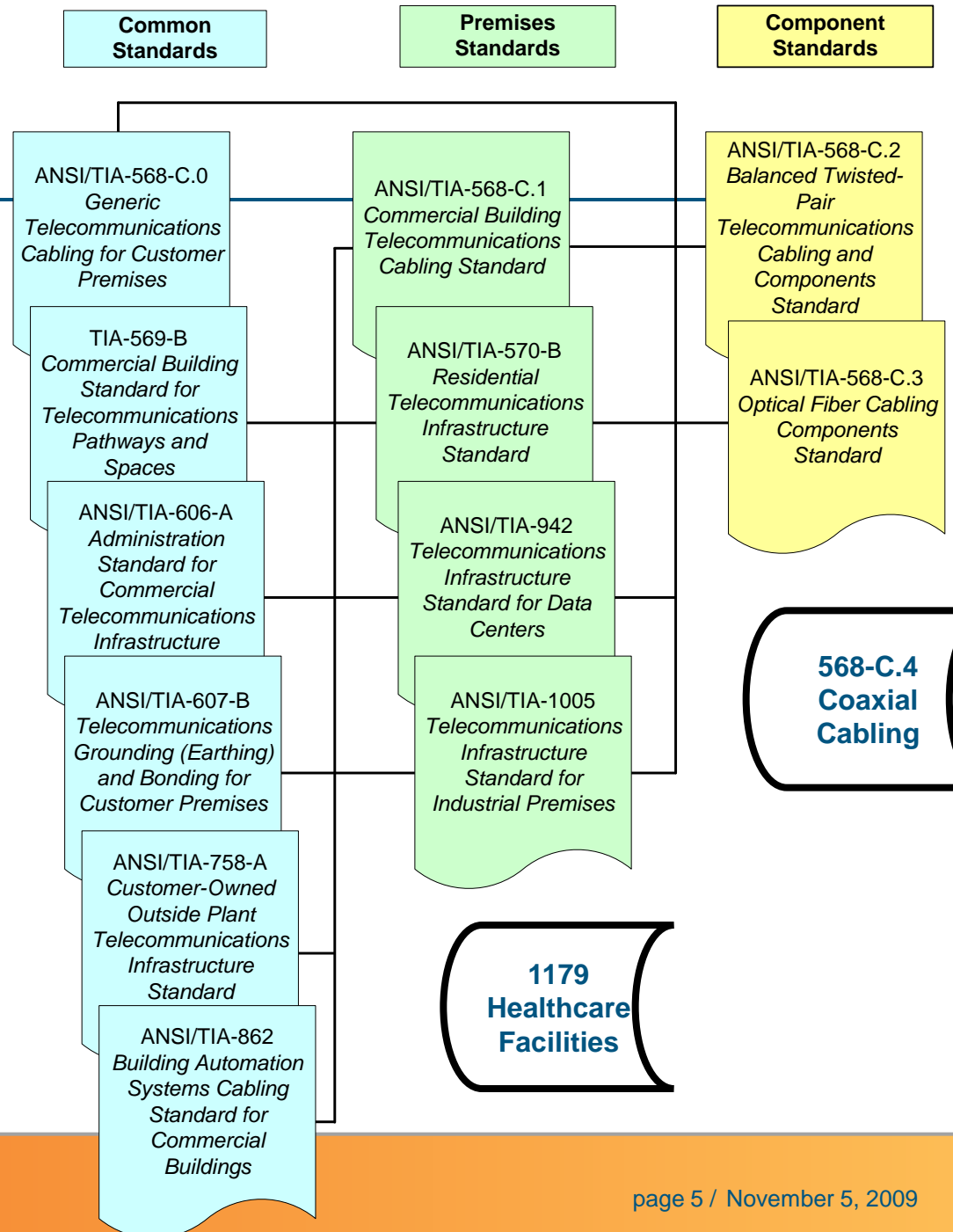
10 Gbps Products



Infrastructure Management

TR-42 Suite

- Common Standards
 - End-users
 - Broadly Applicable
- Premises Standards
 - End-users
 - Narrow Focus
 - Exceptions/Allowances to Common Standards
- Component Standards
 - Manufacturers





TR-42.1 - Generic and Commercial Building Cabling

November 5, 2009

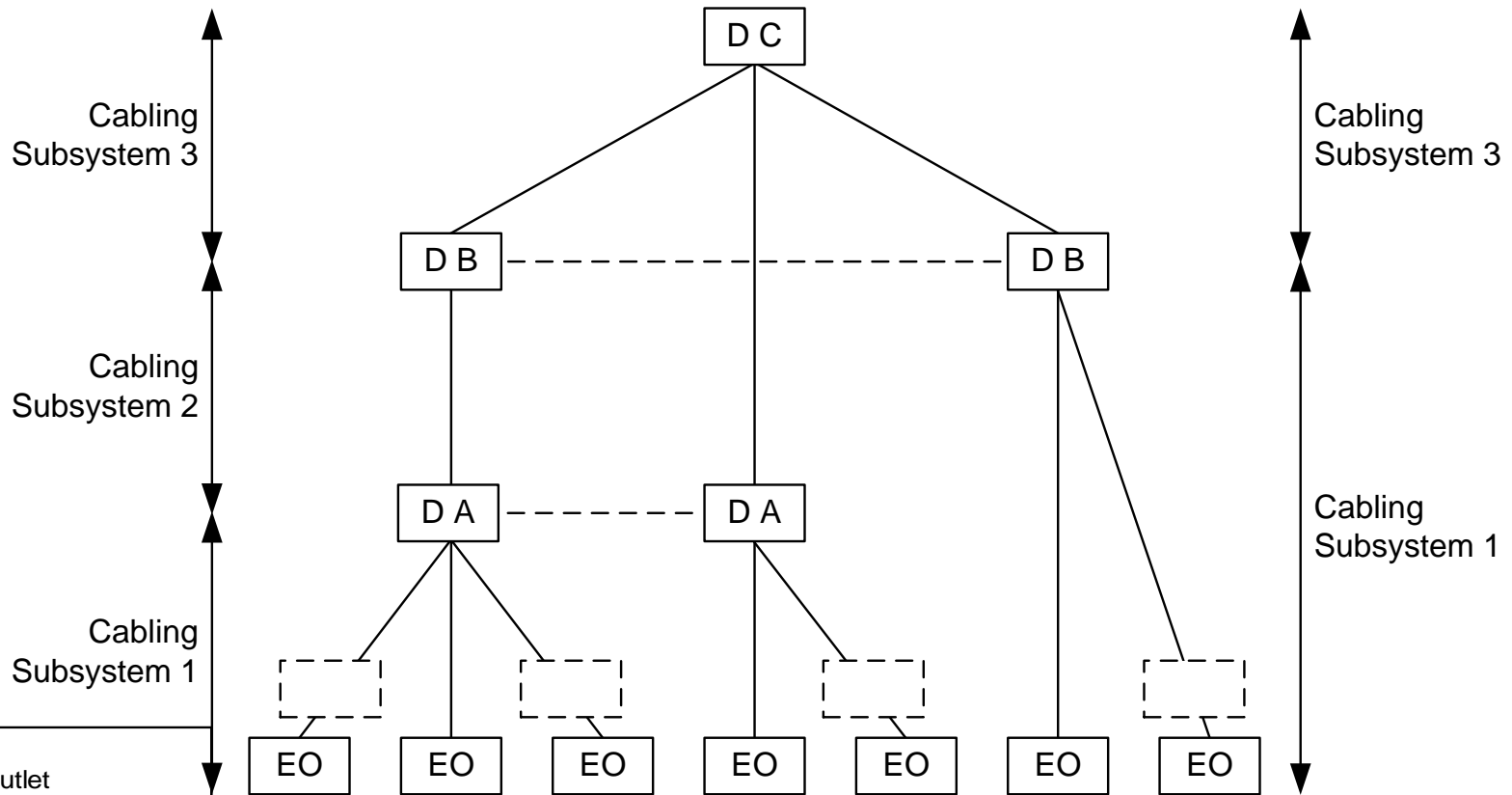
ANSI/TIA-568-C.0 Generic Cabling



- PUBLISHED February 2009
- Information common to structured cabling networks
 - Star Network Topology
 - Cabling Requirements

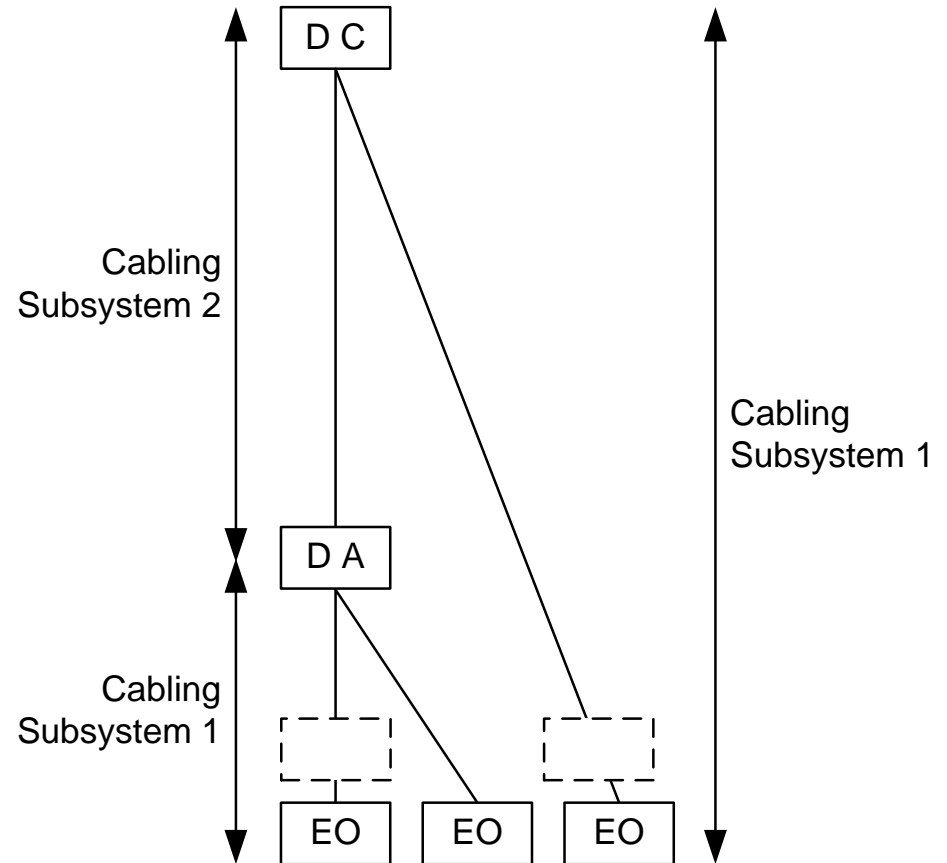
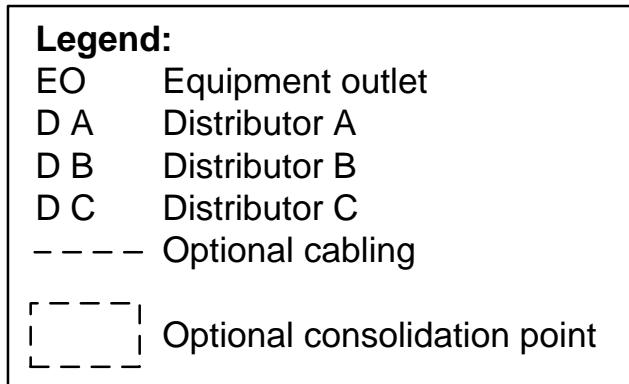
Applicable to all premise Standards unless noted
- 568-C.0 Uses Generic Cabling Nomenclature
 - Cabling Subsystem 1, 2 and 3
 - Distributor A, B, C and Equipment Outlet
 - Specific nomenclature assigned in premises Standards

ANSI/TIA-568-C.0 - Generic Cabling Topology



- Legend:**
- EO Equipment Outlet
 - DA Distributor A
 - DB Distributor B
 - DC Distributor C
 - Optional cabling
 - Optional consolidation point

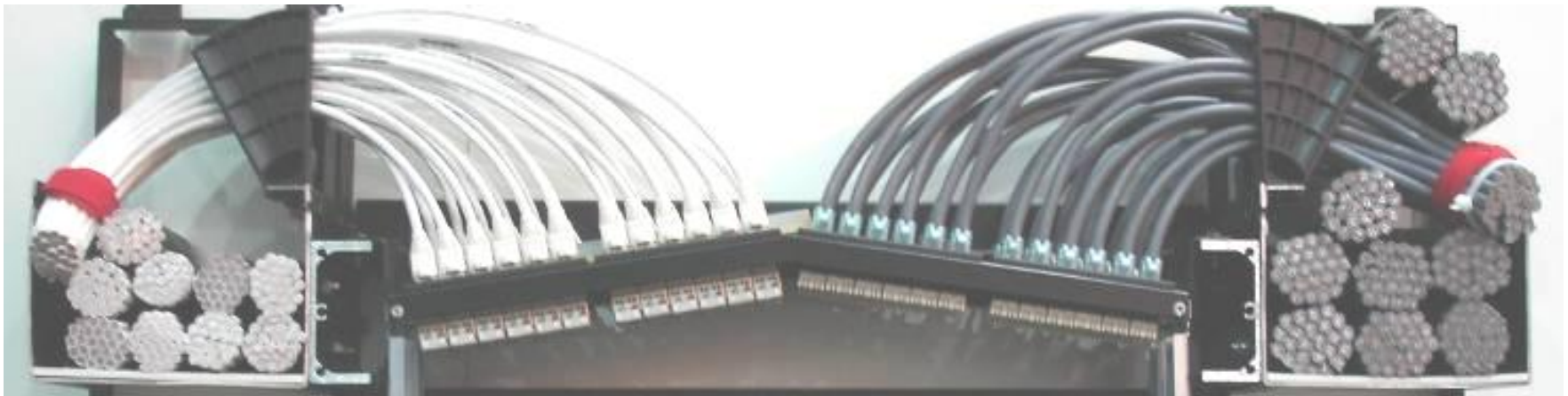
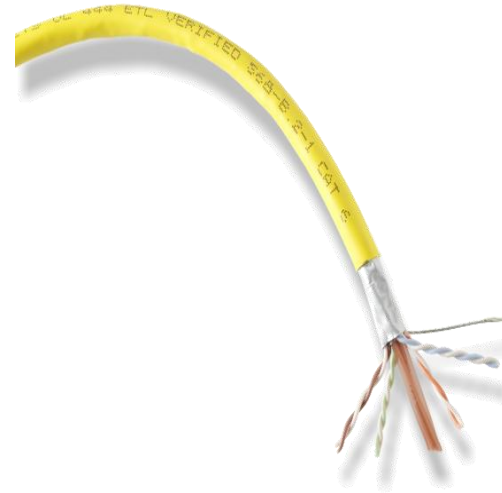
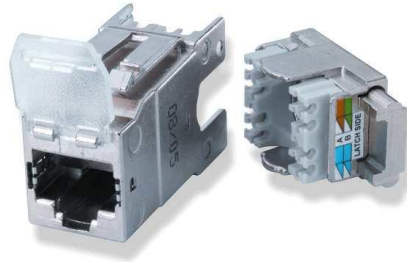
568-C.0 - Generic Cabling Topology



ANSI/TIA-568-C.0 – Technical Changes

- Installation minimum bend radius for balanced twisted-pair cable
 - 4x cable OD for both shielded and unshielded
 - Largest allowable cable OD (0.354 inches per 568-B.2-11)
 - Note: Worst case minimum bend radius is now 1.5 inches
 - Not 1.0 inch
- Maximum untwist for Category 6A cable termination
 - ½ inch same as Category 6
- Single-mode recognized in horizontal

10 Gigabit Ethernet System



SL Series Termination Tool Cat 6



Installation of the AMP-TWIST® 6A Jack

①



③



②



④



Where would ANSI/TIA-568-C.0 apply?

- Foundation Document
 - Applies to 568-C.1
 - Will apply to all premises standards as revisions are released
- Generic Document
 - Applies to premises without a premise standard
 - Examples
 - Non-office areas of an airport
 - Non-office areas of a stadium

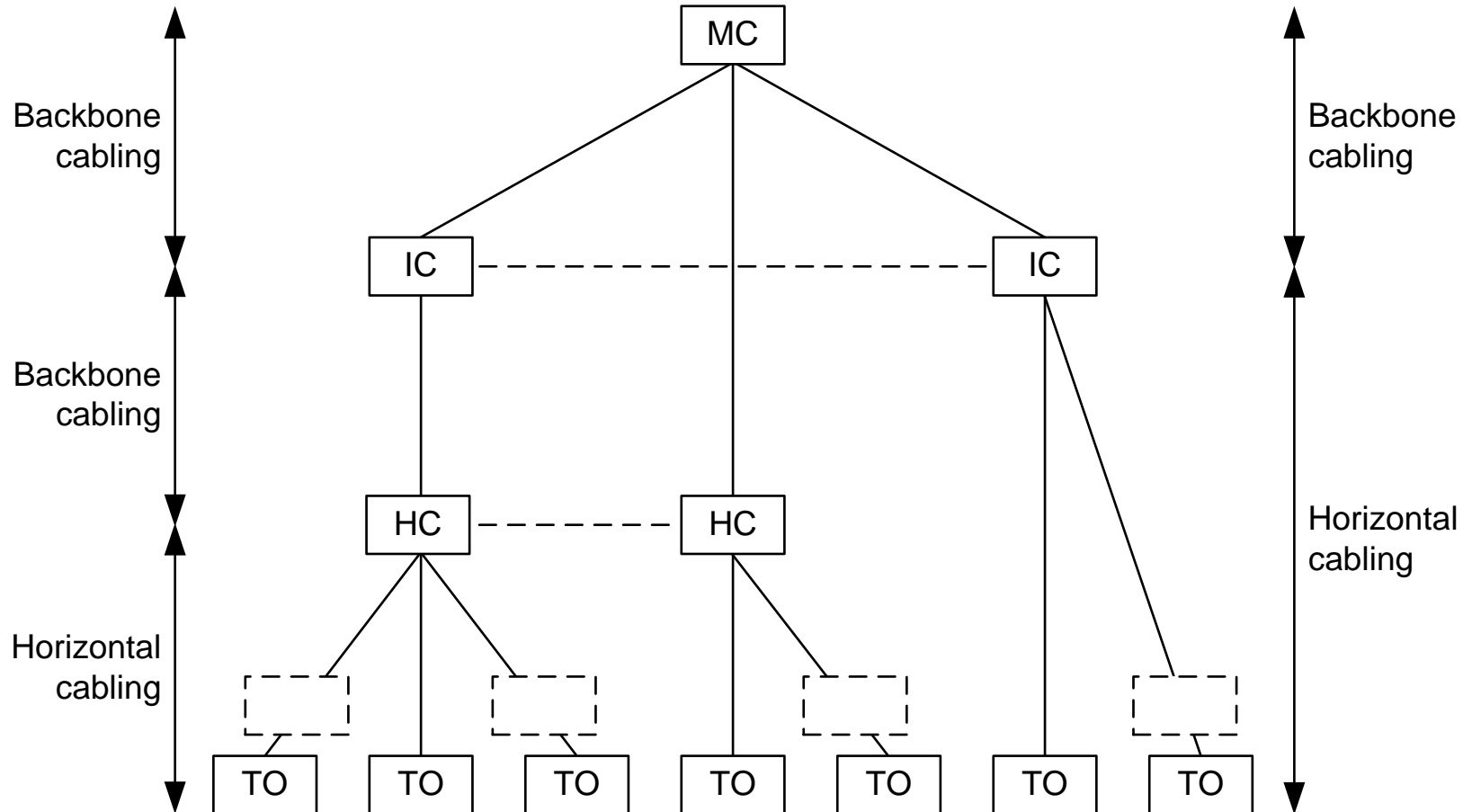
ANSI/TIA-568-C.1



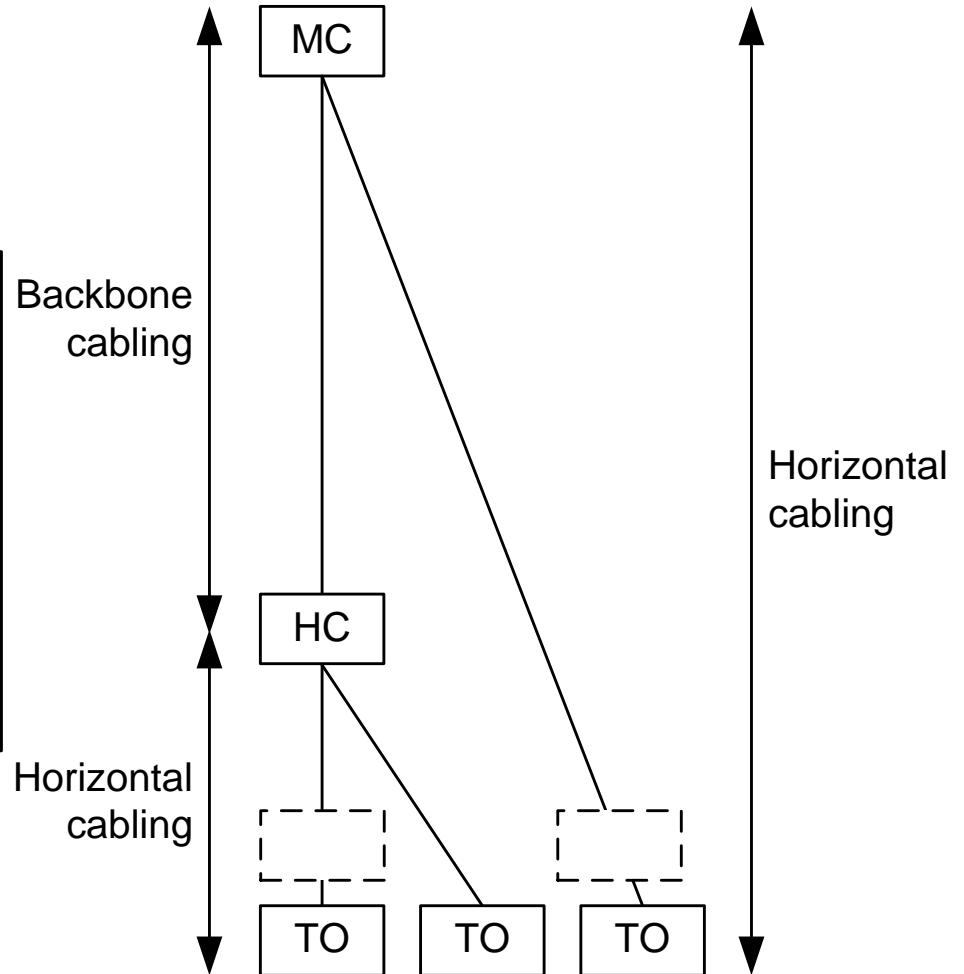
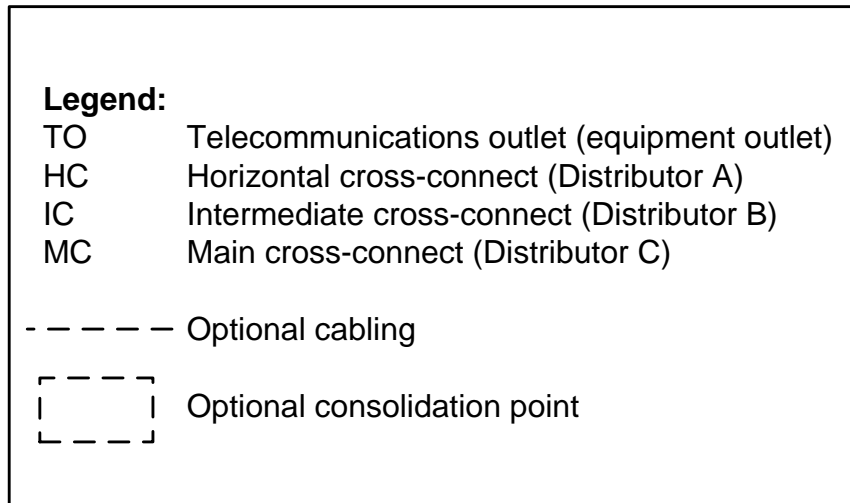
**New
Standard
Published!**

- 568-C.1 – (Office-oriented) Commercial Building
 - Builds on 568-C.0
 - Specific to office-oriented buildings
 - Retains use of 568-B.1 nomenclature
 - Main Cross-connect (Distributor C in 568-C.0)
 - Intermediate Cross-connect (Distributor B)
 - Horizontal Cross-connect (Distributor A)
 - The Telecommunications Outlet (Equipment Outlet)
 - Interbuilding backbone cabling (Cabling Subsystem 3 in 568-C.0)
 - Intrabuilding backbone cabling (Cabling Subsystem 2)
 - Horizontal cabling (Cabling Subsystem 1)

ANSI/TIA-568-C.1



ANSI/TIA-568-C.1



ANSI/TIA-568-C.1 – Technical Changes

- From Addenda
 - Includes:
 - Category 6 balanced twisted-pair
 - Category 6A twisted-pair
 - 850 nm laser-optimized 50/125 μm MM fiber
 - Telecommunications enclosures (TEs)
- A recommendation to select 850 nm laser-optimized 50/125 μm as the multimode fiber for commercial buildings

MM Fiber Distance Parameters

		10G Ethernet		
Fiber		850NM	1300 NM	1310 NM
MM 62.5/125	OM1	33M	300M	
MM 50/125	OM2	82M	300M	
LO MM 50/125	OM3	300M	300M	
LO MM 50/125	OM4	550M		
Singlemode				10km

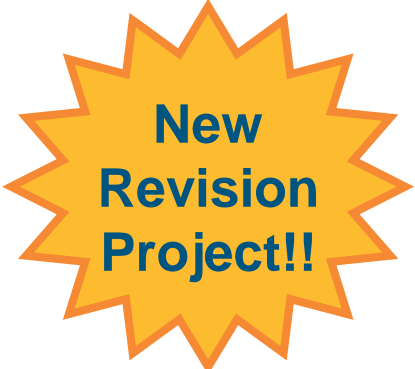
M = Meters

TR-42.1: TIA-942 (Data Center)

- 2nd Addendum comment resolution completed; released for publication
- New media type (Category 6A)
- RF Noise (cell phones, radios, etc.)
- Temp/Humidity (“greening” the limits)
- Reliability tiers revision up to date with latest guidance
- First Revision Project Initiated
- 568-C.0 Harmonization
- Incorporate the two addenda
- New technologies and requirements



**New
Addendum
Published!!**



**New
Revision
Project!!**

Healthcare Facility Cabling

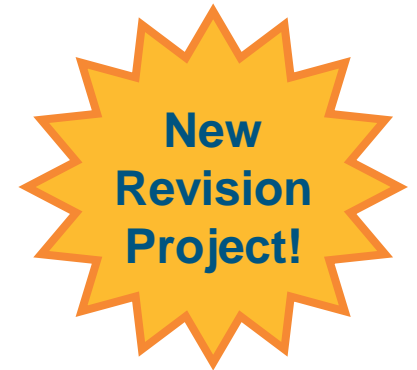
- Healthcare Facility Cabling Task Group has been Reactivated
 - Herb Congdon (hvcongdon@tycoelectronics.com) appointed chair
- Draft standard for healthcare facilities based on using the 568-C.0 document as a foundation
 - Soliciting contributions on what makes healthcare facility cabling different from traditional commercial building cabling



**New Standard
Project!**

TR-42.7

- Approved a project to revise TSB-155 (10G on category 6)
 - Updating with latest information
 - Completion predicted in February 2010





TR-42.12 – Optical Fibers and Cables

November 5, 2009

TR-42.12

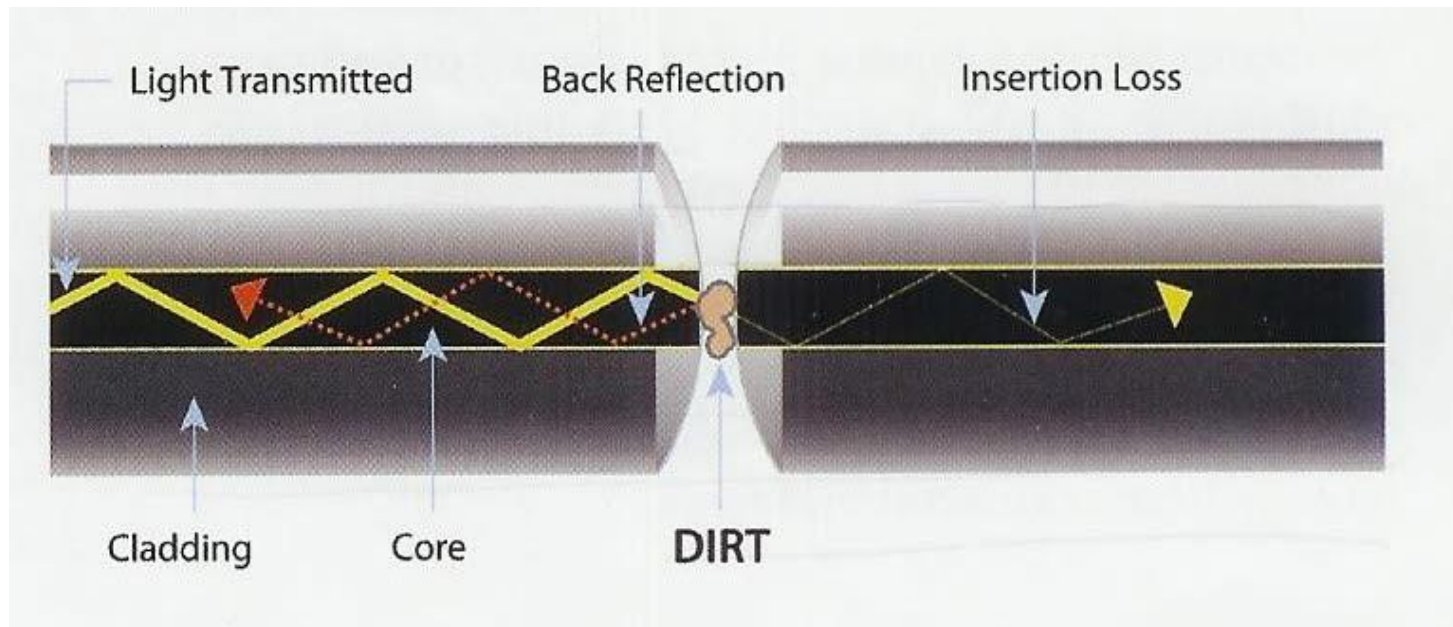
- OM4 standard (492AAAD) was released for publication
 - Currently, no published standard recognizes this fiber
 - Paves the way for OM4 to become a recognized media in the data center standard (best fit), but also in other standards as well
- • FOTP-240, Fiber Optic Connector Endface Cleaning System
 - Evaluation, has been published

MM Fiber Distance Parameters

		10G Ethernet		
Fiber		850NM	1300 NM	1310 NM
MM 62.5/125	OM1	33M	300M	
MM 50/125	OM2	82M	300M	
LO MM 50/125	OM3	300M	300M	
LO MM 50/125	OM4	550M		
Singlemode				10km

M = Meters

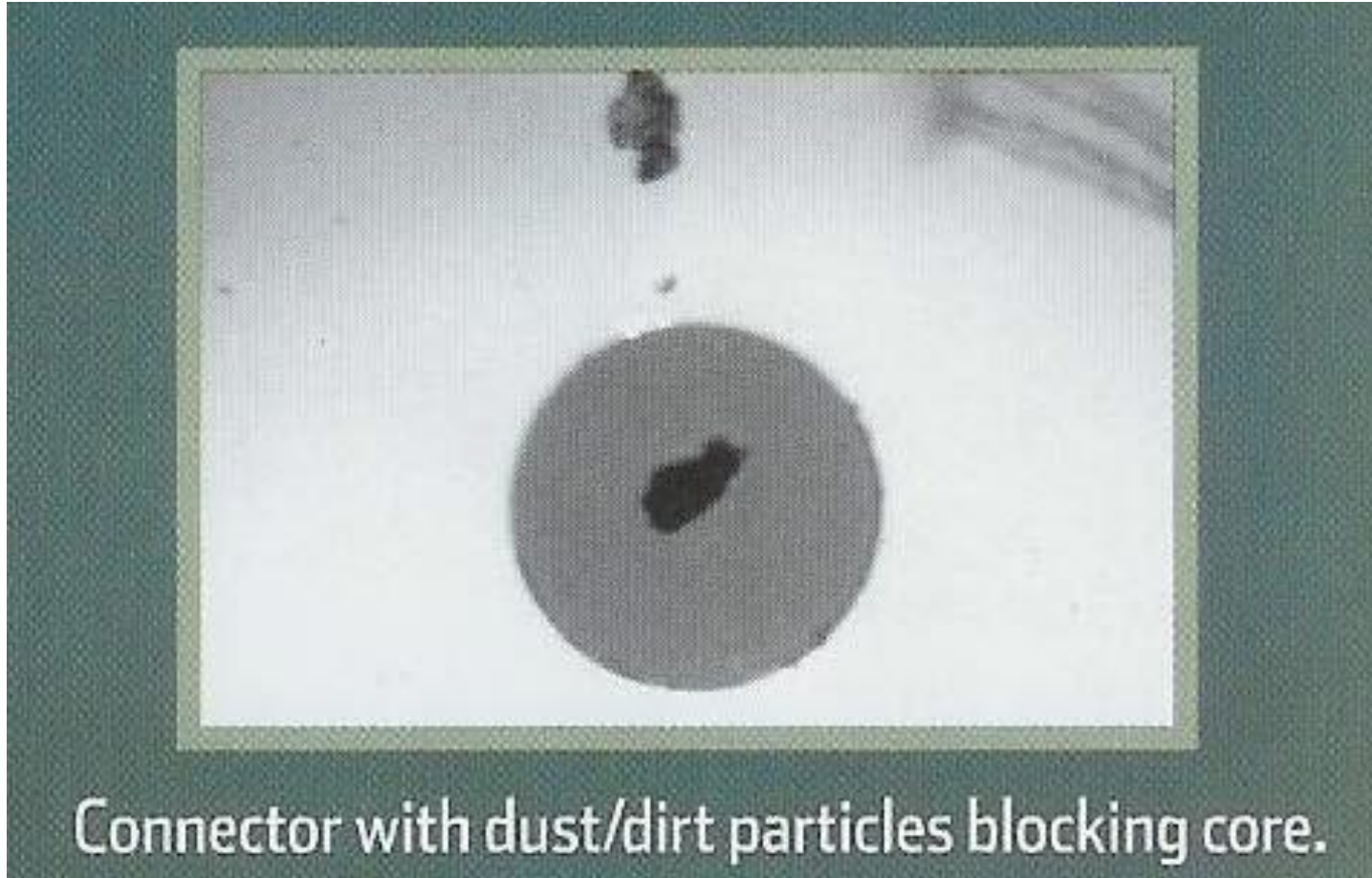
Cleaning Ports



Cleaning Ports



Cleaning Ports





Application Standards Activity

November 5, 2009

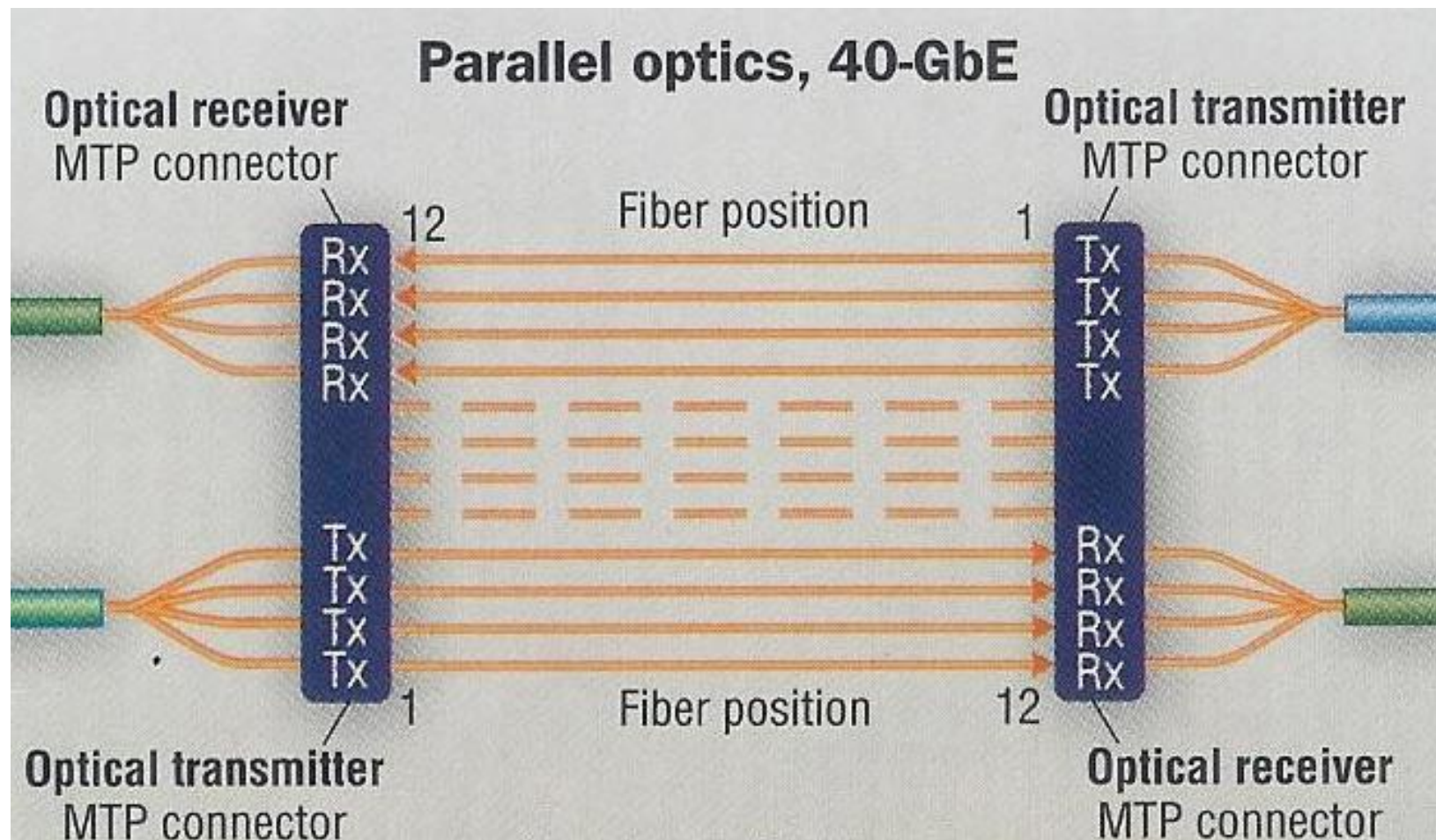
IEEE 802.3at – Power over Ethernet Plus

- Objectives changed in March
 - “shall support a minimum of 24W of power at the PD (Powered Device)”
 - Formerly 30W
 - 802.3at argued that 30W is not practically feasible, so they will go with "the highest we can".
 - The current draft is 25.5W
 - Category 5 (or better) systems with a DC loop resistance no greater than 25 ohms
- Released for publication – approval likely at next IEEE meeting

IEEE 802.3ba – 40G/100G

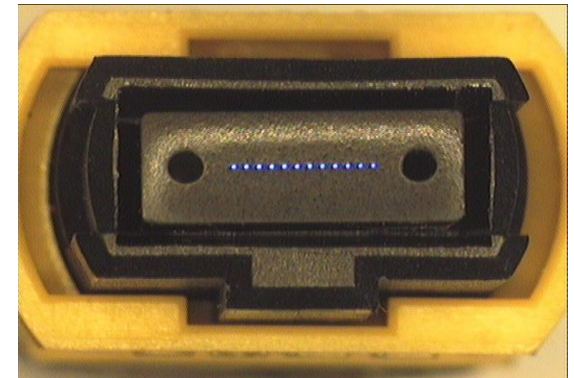
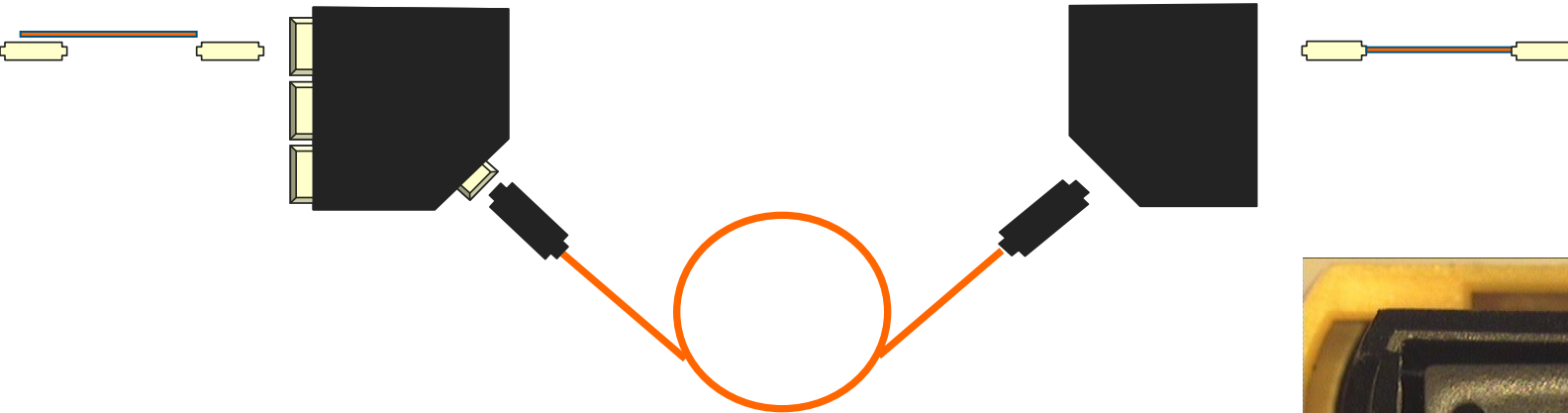
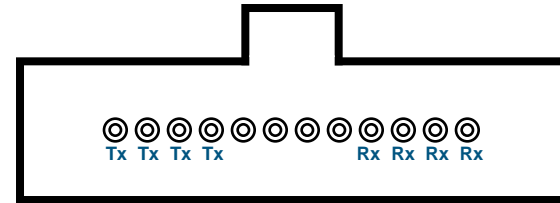
- Provide Physical Layer specifications which support 40 Gb/s over:
 - at least 10km on SMF
 - at least 100m on OM3 MMF
 - at least 7m over a copper cable assembly
 - at least 1m over a backplane
- Provide Physical Layer specifications which support 100 Gb/s over:
 - at least 40km on SMF
 - at least 10km on SMF (note: will be CWDM)
 - at least 100m on OM3 MMF
 - at least 7m over a copper cable assembly

MM Fiber

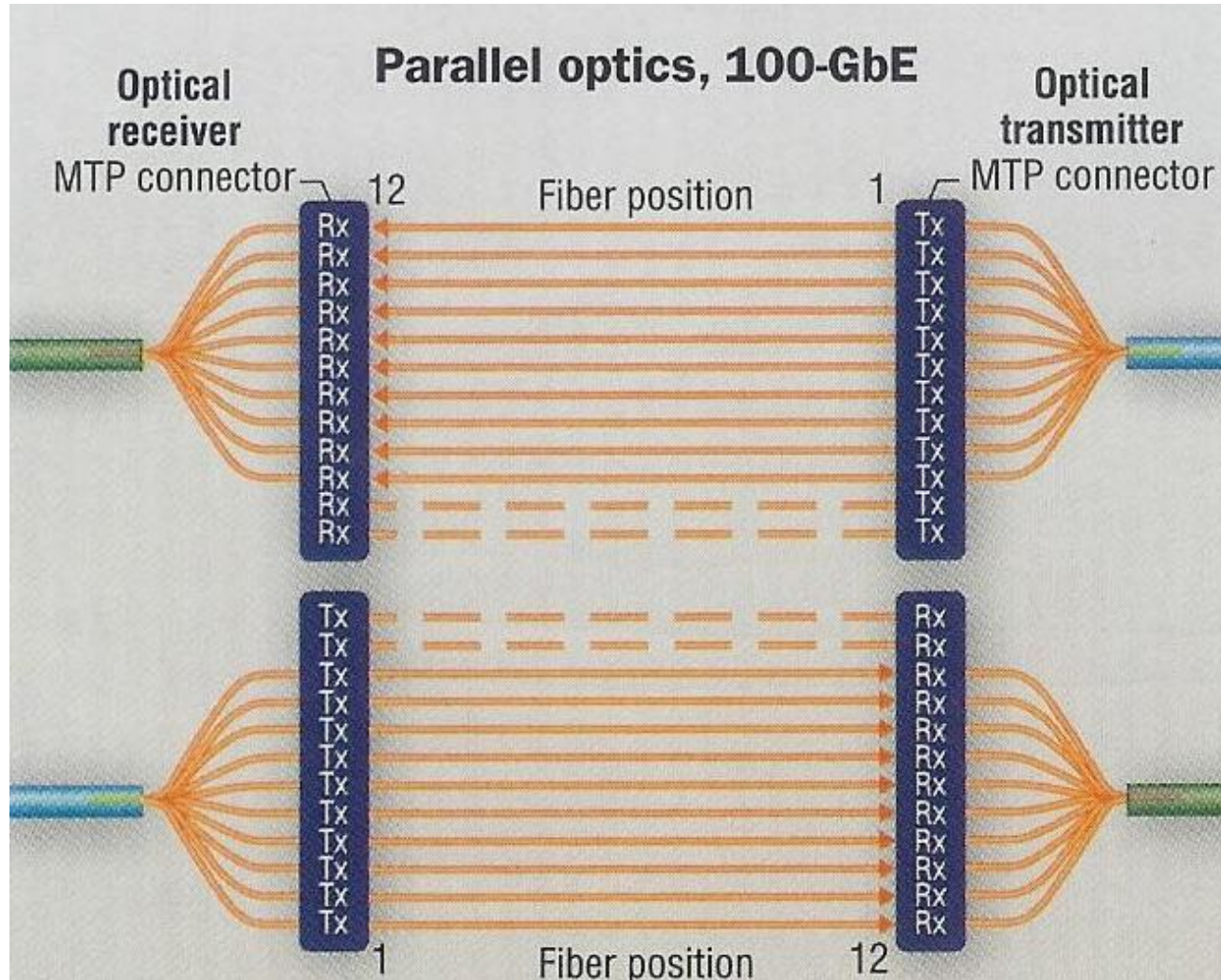


IEEE 802.3ba 40 Gb/s

- Multimode solutions will be parallel
 - 4 TX and 4 RX for 40G
- 1 Option for 40 Gb/s
 - 1 MPO

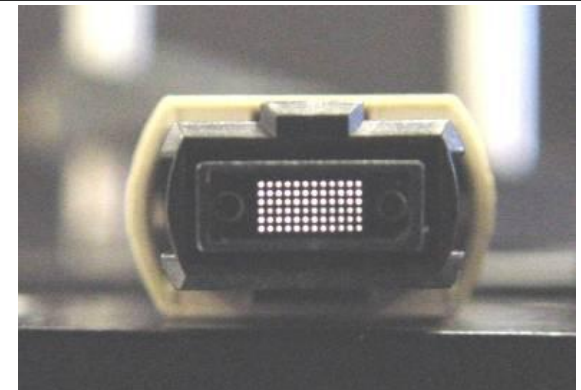
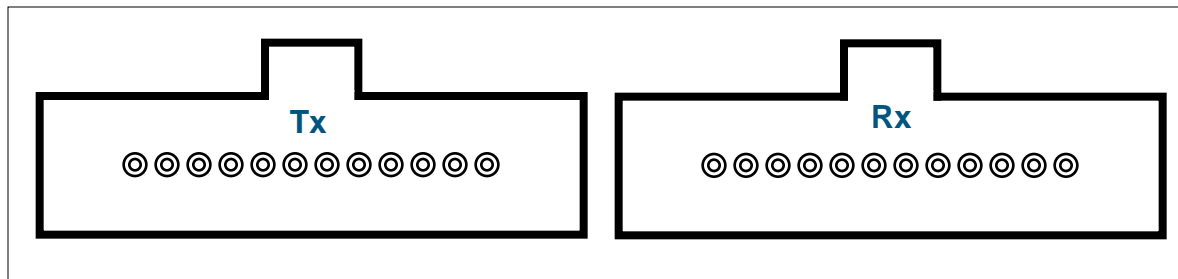
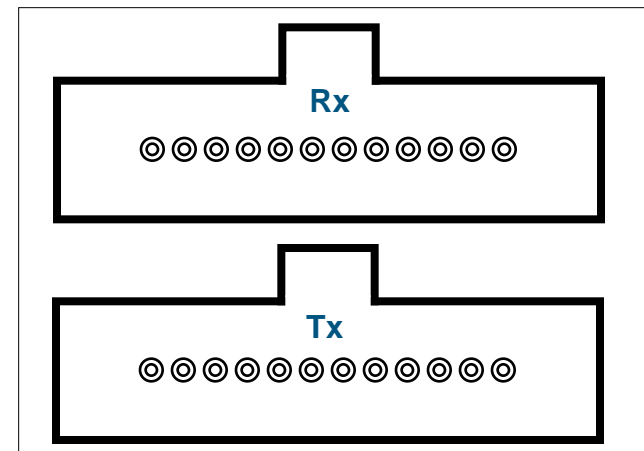
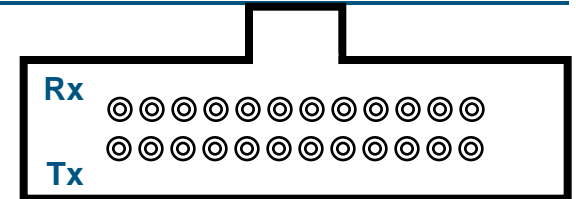


MM Fiber



IEEE 802.3ba 100 Gb/s

- Multimode solutions will be parallel
 - 10 TX and 10 RX for 100G
- 3 Options all use 10 center fibers
 - 1 24 fiber MPO (preferred)
 - 2 MPO top and bottom
 - 2 MPO side by side



ParaOptics Fiber



IEEE 802.3ba

- No lane assignments (1-4 or 1-10)
 - Protocol will self-detect
 - Reduces importance of polarity for these applications
- Skew budget very generous
 - Not likely to be a concern unless building with duplex links with a length differential more than 15 meters
- Longer distances on “OM4” fiber under consideration
 - Minimal support in the full task group
- Timeline shows publication in June 2010

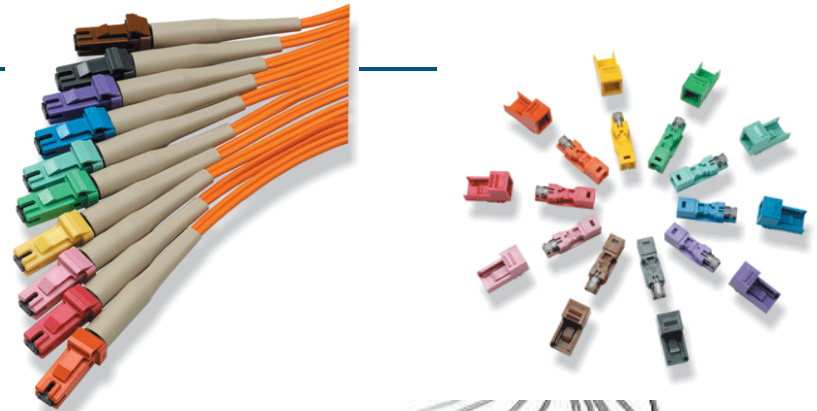


New Products

November 5, 2009

SECURE Cabling Solutions - Fiber

- Slotted and Keyed Connectivity
 - Prevents improper mating
 - Color-coded
- Numerous Applications
 - Government, Military, Research Labs
 - Etc.
- All fiber types
- Three connector types; 10 Variants
 - MPO SECURE
 - MT-RJ SECURE
 - LC SECURE
- Patented



SECURE Cabling Solutions - Copper

- Same premise as SECURE fiber in RJ45 Connectivity
 - Six unique key configurations
- Provides ability to segregate network connections
 - Another security barrier
- Patented



Multimedia Inserts

SL Series 2-Port
Straight Module
1116409-1

AMP Netconnect SL Series
Double Gang Faceplate
1479035-1

SL Series 3-Port angled
Module
1116408-1

SL Series Cat
6 RJ45 Jack
1375055-x

Speaker
1479190-1
1479191-1

SVGA 110
Module
1479288-1

S-Video
1375149-1

F-Connector
1339121-1

Mini Headphone
1479086-1

SL Series RCA -
110 Style

(red) 1479230-1
(white) 1479231-1
(yellow) 1479232-1



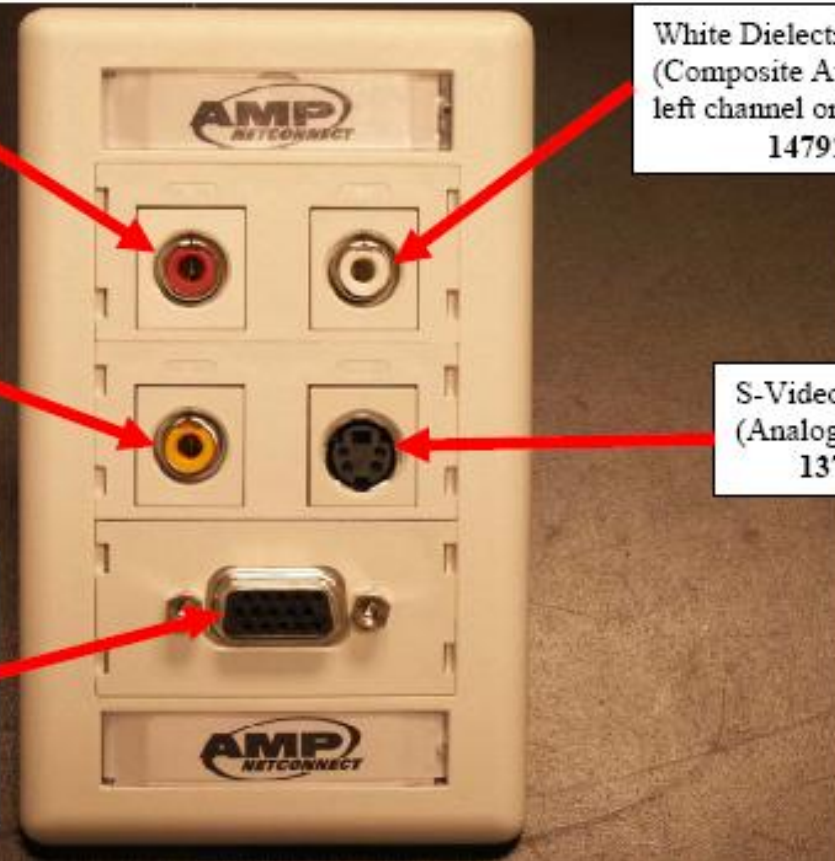
Red Dielectric RCA / 110
(Composite Audio, Analog,
right channel)
1479230-x

White Dielectric RCA / 110
(Composite Audio, Analog
left channel or mono)
1479231-x

Yellow Dielectric RCA / 110
(Composite Video, Analog)
1479232-x

S-Video RCA / 110
(Analog video)
1375149-x

SVGA Screw Terminal (use with
75 ohm 5 condc mini coax cable,
150 ft max) 1479079-x
SVGA / 110 (use with 100 ohm 4
pair performance cable, 35 ft max)
1479288-x
Both used for Video, Analog



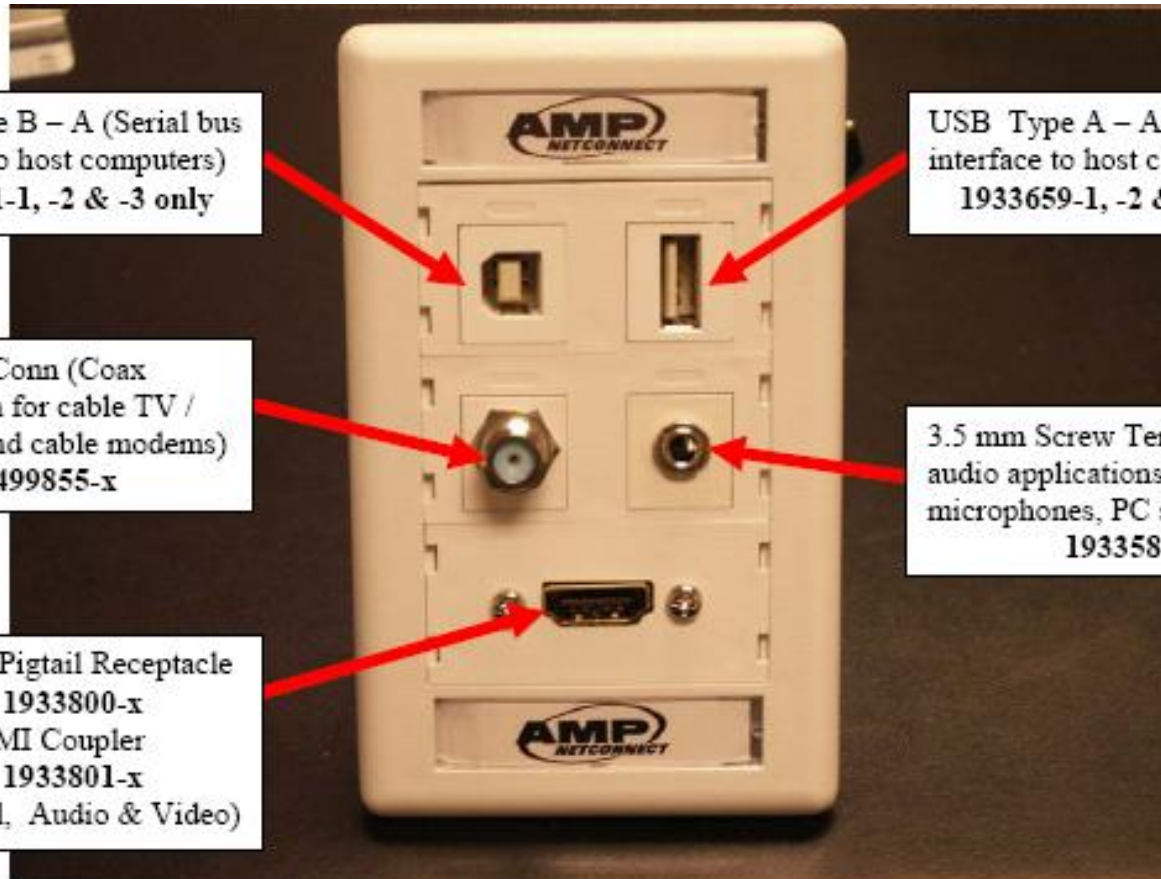
USB Type B – A (Serial bus interface to host computers)
1933661-1, -2 & -3 only

USB Type A – A (Serial bus interface to host computers)
1933659-1, -2 & -3 only

2 GHz F Conn (Coax connection for cable TV / Satellite and cable modems)
1499855-x

3.5 mm Screw Terminal Stereo audio applications (Headsets, microphones, PC speaker, etc..)
1933582-x

HDMI Pigtail Receptacle
1933800-x
Or HDMI Coupler
1933801-x
(Digital, Audio & Video)





www.ampnetconnect.com

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