



LAN Standards, News & Trends FOLS Meeting – Sept. 2009

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Tyco Electronics

September 8, 2009



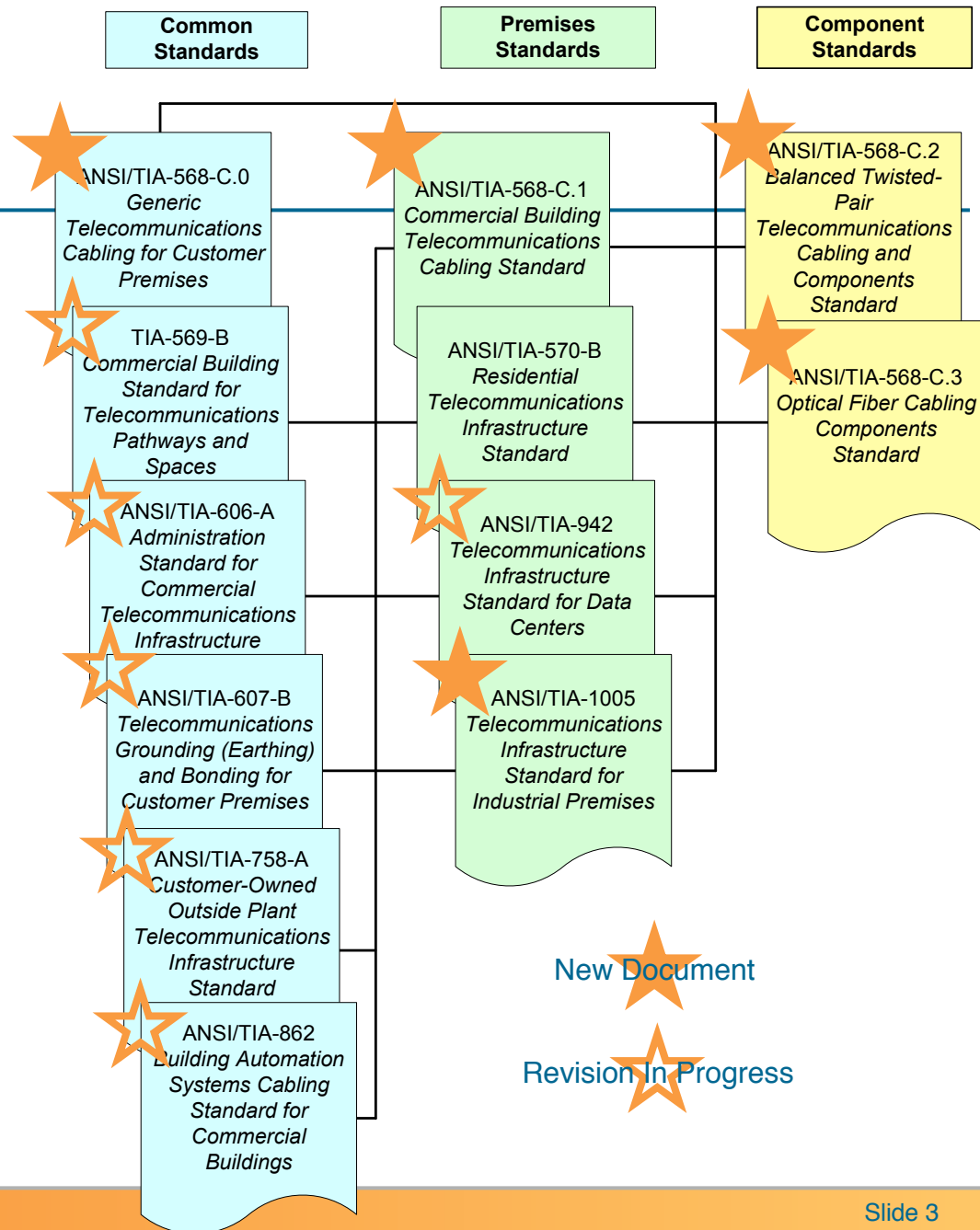
TR-42 Subcommittees

- “Original 9” Subcommittees
 - 42.1 Generic and Comm’l Building
 - 42.2 Residential
 - 42.3 Pathways & Spaces
 - 42.4 Outside Plant (Inactive)
 - 42.5 Terms, Definitions and Abbr.
 - 42.6 Administration
 - 42.7 Copper Components
 - 42.8 Optical Fiber Components
 - 42.9 Industrial
- Merged from FO-4
 - TR-42.11 Optical Systems
 - TR-41.12 Optical Fibers and Cables
 - TR-42.13 Passive Optical Devices and Components
 - TR-42.15 Fiber Optic Metrology
 - Merged into TR-42.13
- Newest Subcommittee
 - TR-42.16 Bonding and Grounding

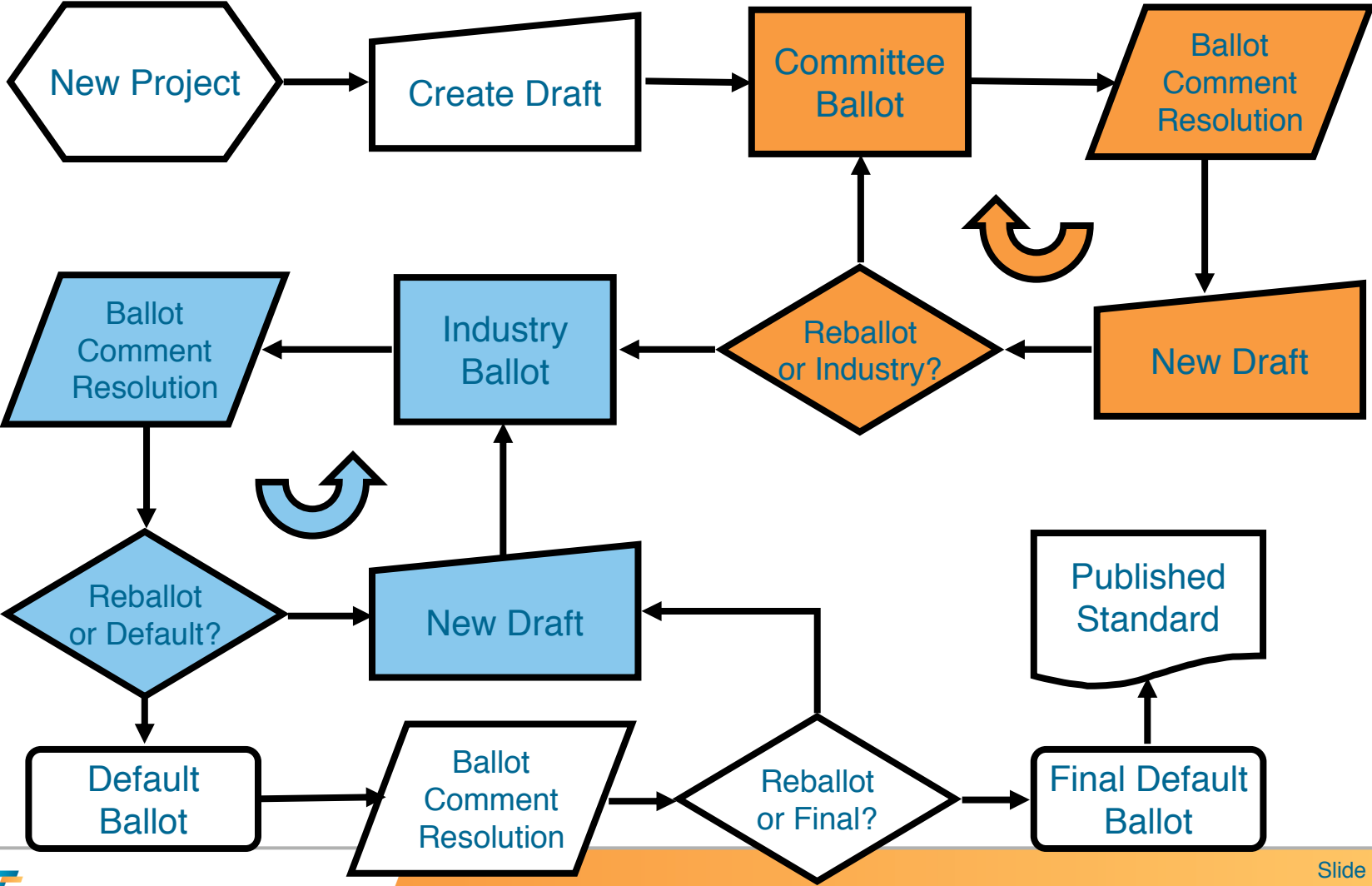
Most recent meetings held Aug 3-7, 2009 (Minneapolis)

TR-42 Suite

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



Ballot Process



568-C.0

- 568-C.0 Generic Cabling

– **PUBLISHED February 2009**

– Information common to structured cabling networks

- Establishes How a Star Network Topology Is Constructed
- Establishes cabling requirements applicable to all premises and premises Standards unless noted as an exception or allowance

568-C.1

- 568-C.1 – (Office-oriented) Commercial Building

- **PUBLISHED February 2009**

- Builds on information in 568-C.0

- Allowances and exceptions specific to office-oriented buildings and office-oriented parts of buildings

- Retains use of 568-B.1 nomenclature

TR-42.1: Healthcare Facility Cabling

- Healthcare Facility Cabling Task Group report
 - Task complete – Draft 0.2 turned over to subcommittee from TG
 - Draft 0.2 will become Draft 1.0 and be issued for committee ballot
 - Task Group disbanded
 - Standard will be TIA-1179 when complete

- TR-49 is a TIA Engineering Committee for Healthcare Communications Technology
 - Sharing information on structured cabling standard

TR-42.2 Residential

- The Residential Standard, ANSI/TIA-570-B, was reaffirmed



- Study Group for home theater, distributed audio and video cabling
- Scheduled meeting on MDU/MTU was cancelled

TR-42.4

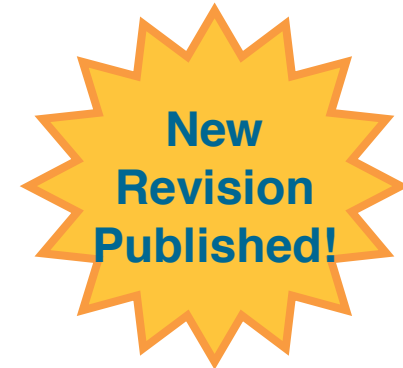
- Accepted 590-A Standard from TR-42.12
 - Installation of OSP optical fiber cable
 - Will likely be withdrawn after 758-B issued
- 758-B Revision Project
 - Recognize the existence of 568-C.0
 - New information or technology
 - First draft created circulated
 - Comments resolved
 - Pertinent content from 590-A added to draft
 - Second draft to be circulated



TR-42.7

- 568-C.2, Copper Cabling Components
 - Default ballot comment resolution completed
 - **Released for publication**
 - Completes 568-C Series

- TIA-1152, Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
 - Ballot closed and comments resolved
 - Released for publication
 - New document, but content mostly from 568-B.2/C.2



TR-42.7

- Broadband Coaxial Cabling and Components
 - New Project Approved for New Standard
 - To be 568-C.4

- Balunless Test Methods and Fixtures for Network Analyzer Measurements of Four-pair (16-Port) Passive Device Parameters
 - Facilitate measurement of all differential mode, mixed mode, and common mode transmission parameters up to at least 1 GHz



TR-42.7

- TSB-184 on Current Capacity of Balanced Twisted-pair Cabling
 - Specifies DC resistance
 - Implementations for remote powering of PD's
 - Bundling; cabling in conduits
 - Different categories and cable types
 - Released for publication in May
- Revision of TSB-155 (10G on Category 6)
 - Updating with latest information on balance
 - Issued for committee ballot



TR-42.7

- Pathway Separation Response to TR-42.3
 - Issued guidance on Category 6A U/UTP
 - “Mixing category 6A UTP and other lower category cables within the same pathway is acceptable provided that the other lower category cables are not used for 10GBASE-T operation. The lower category cable may be used to support non-10GBASE-T applications such as 1000BASE-T, 100BASE TX, 10BASE-T, ATM, DSL, baseband video, RS 485, analog or digital telephony. For new installations, category 6A cables should be used for all 10GBASE-T and lower speed applications and category 6 or category 5e cables should be used for 1000BASE-T or lower speed applications.”

TR-42.8

- Looking at polarity for 24 fiber array connector
 - 100 Gigabit Ethernet preferred option
 - Task Group to identify affected documents and propose modifications
- General support to investigate insertion loss of components
 - Array patch cords and transitions
 - Connector insertion loss

Optical Fiber Subcommittee Organization

- Consolidation
 - TR-42.15 dissolved and merged into TR-42.13

- Task Group created to:
 - Evaluate the titles and scopes of the remaining four optical fiber subcommittees
 - Develop proposed changes for precise, non-overlapping, succinct scopes for the optical fiber subcommittees prior to the November opening plenary

TR-42.11

- Polarization Mode Dispersion (PMD) comment resolution was completed (to be FOTP-243)
- Creating a draft test specification for screening extended reach 40/100GBASE-SR4/10 transceivers
 - Maybe to become a TSB

TR-42.11

- Proposing to adopt IEC 61280-4-1 as the TIA 526-14 (OFSTP-14)
Revision on attenuation of installed MM cabling
- Revising TSB-178 (Installed MM Cable Launch Conditions) to
harmonize with adjustments made in IEC

TR-42.12

- The OM4 standard (492AAAD) was released for publication
 - Currently, no published standard recognizes this fiber - but it's only a matter of time
 - Paves the way for OM4 to become a recognized media in the data center standard (best fit), but also in other standards as well
- The 598 standard (cable, wire and fiber colors) is being opened for revision

TR-42.12

- FOTP-240, Fiber Optic Connector Endface Cleaning System Evaluation, has been published

TR-42.12

- Looking at the PMD specifications with the intent of adopting the IEC test method
- Looking at skew measurements
- Revising FOTP-204, Measurement of Bandwidth on Multimode Fiber

TR-42.13

- FOTP-219, Multifiber Ferrule Endface Geometry Measurement, was approved for publication in October and is now available
- The SC opened a new project to create a TSB on fiber optic connector adhesives
- FOTP-240 (TIA-455-240) “Fiber Optic Connector Cleaning System Evaluation” has been released for publication and is awaiting publication
- FOTP-20 (TIA-455-20-B), Measurement of Change in Optical Transmittance, will be issued for reaffirmation ballot.

TR-42.15

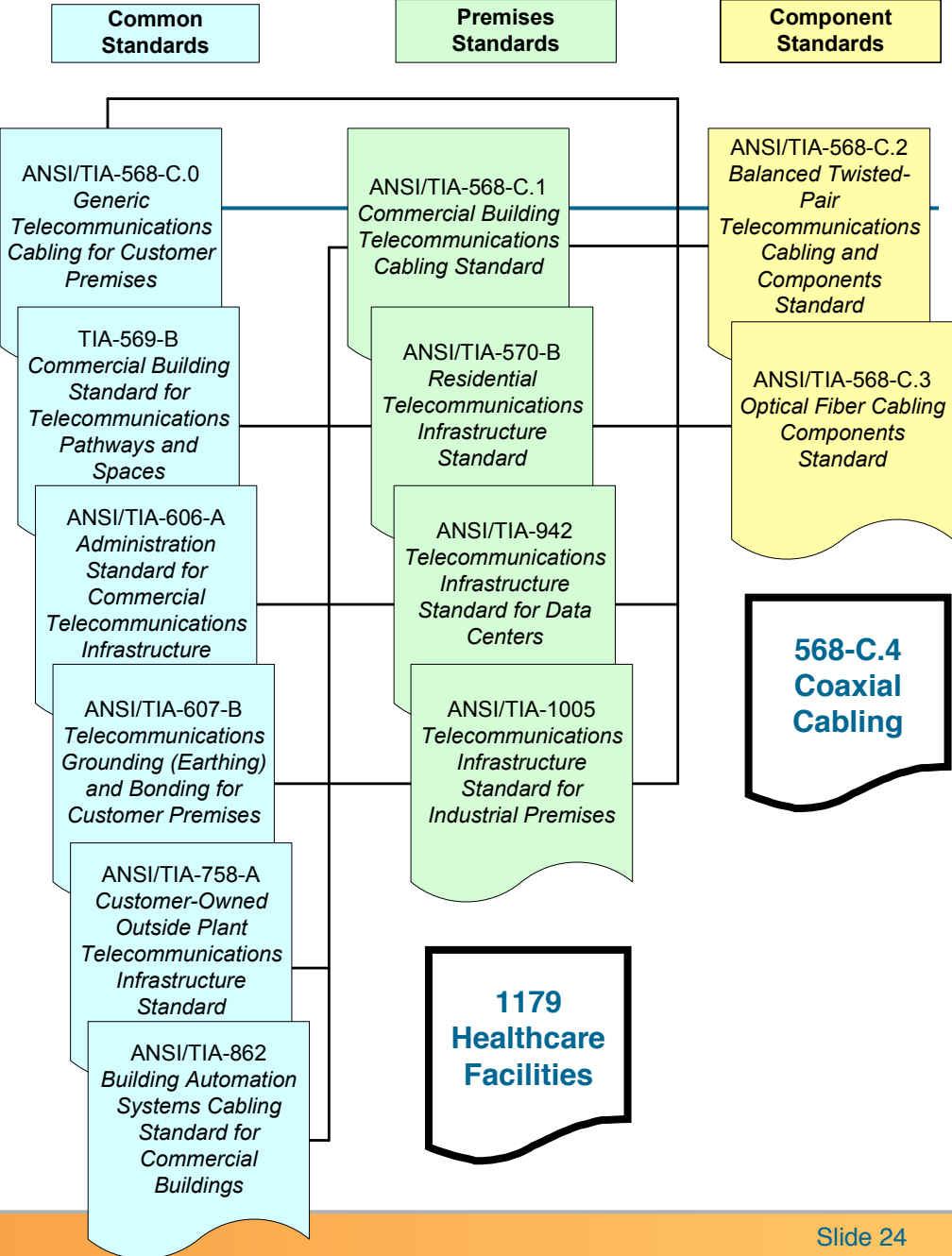
- Meeting cancelled

Next Meeting

- Next full TR-42 meeting will be in November

TR-42 Suite

- Looking Ahead



IEEE 802.3at – Power over Ethernet Plus

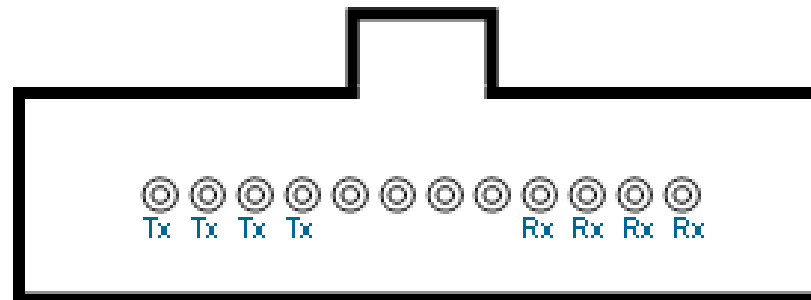
- Objectives changed in March
 - “shall support a minimum of 24W of power at the PD PI”
 - Formerly 30W
 - 802.3at argued that 30W is not practically feasible, so they will go with "the highest we can".
 - The current draft is 25.5W
 - Category 5 (or better) systems with a DC loop resistance no greater 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 ~~10m~~ 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 ~~10m~~ 7m over a copper cable assembly

IEEE 802.3ba – 40Gb/s

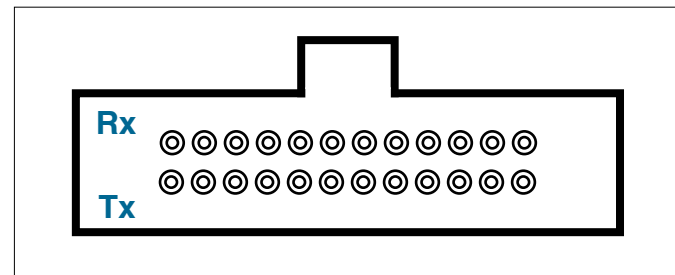
- Multimode solutions will be parallel
 - 4 TX and 4 RX for 40G
- 1 Option for 40 Gb/s
 - 1 MPO



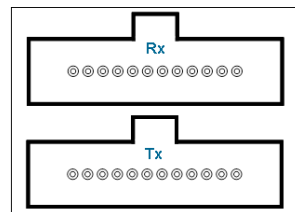
NOTE: all views are looking into transceiver

IEEE 802.3ba – 100 Gb/s

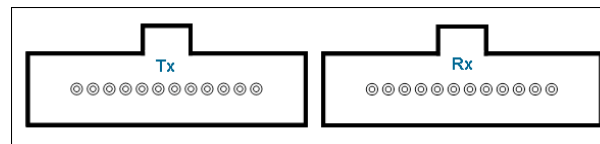
- Multimode solutions will be parallel
 - 10 TX and 10 RX for 100G
- 3 Options - all use the 10 center fibers
 - One 24-fiber MPO (preferred)
 - 2 MPO top and bottom



NOTE: all views are looking into transceiver



- 2 MPO side by side



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

IEEE 802.3az – Energy Efficient Ethernet

- Task Group IEEE 802.3az
 - Define a mechanism to reduce power consumption during periods of low link utilization for the following PHYs
 - 100BASE-TX (Full Duplex)
 - 1000BASE-T (Full Duplex)
 - 10GBASE-T
 - 10GBASE-KR
 - 10GBASE-KX4
 - Define a protocol to coordinate transitions to or from a lower level of power consumption
 - Timeline shows publication in early 2010, but already 3 months behind timeline



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