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Partners from RF to Light

IEEE 802.3 Liaison report (Oct 5 2017)



- T11-2017-00328-v000
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IEEE 802.3 Base Standards in Force



- The current version in force is IEEE Std 802.3-2015.
- Subsequent approved amendments include:
 - IEEE Std 802.3by-2016 - Media Access Control Parameters, Physical Layers and Management Parameters for 25 Gb/s Operation – Approved 30 June 2016, Published 29 July 2016
 - IEEE Std 802.3bz-2016 - Physical Layer and Management Parameters for 2.5 Gb/s and 5 Gb/s Operation, Types 2.5GBASE-T and 5GBASE-T, Approved 22 September 2016, Published 18 October 2016
- Details in:
http://ieee802.org/3/minutes/jul17/0717_state_of_std.pdf

IEEE 802.3 Projects, Study Groups, CFIs **MACOM**

- [802.3 Revision Project \(P802.3\)](#)
- P802.3bs 200 Gb/s and 400 Gb/s Ethernet Task Force
- P802.3cb 2.5 Gb/s and 5 Gb/s Backplane and Copper Cables Task Force
- P802.3cc Serial 25 Gb/s Ethernet Operation Over Single-Mode Fiber Task Force
- P802.3cd 50 Gb/s, 100 Gb/s, and 200 Gb/s Ethernet Task Force
- P802.3cg 10 Mb/s Single Twisted Pair Ethernet Task Force
 - Discussions about using this as a replacement for I2C in optical modules
- Next Generation Enterprise/Campus/Data Centre Ethernet Ad Hoc
 - Looking at 100G serial electrical
- Call for Interest – Beyond 10km Optical PHYs

P802.3bs 400 Gb/s Ethernet Task Force **MACOM**

- Interim meeting 11-14 Sept 2017, Charlotte, NC
- Meeting Materials:
http://www.ieee802.org/3/bs/public/17_09/index.shtml
- - The 4th Sponsor recirculation ballot on the Amendment IEEE P802.3bs 200 Gb/s and 400 Gb/s Ethernet closed successfully on 3rd October 2017. The ballot exceeded the required 75% for consensus to approve the draft. The October 2017 IEEE P802.3bs Task Force teleconference interim meeting http://ieee802.org/3/interims/bstelecon_2_0917.html will consider the 12 comments submitted and determine changes to the draft as appropriate. The availability of the comment database will be announced on the IEEE P802.3bs Task Force reflector.
 - The IEEE P802.3bs 200GbE and 400 GbE Task Force will be meeting during the IEEE 802 Plenary Session (week of Nov 5, 2017) in Orlando, FL, USA. Meeting details, hotel reservations and registration links may be found at the following URL: <http://802world.org/plenary/>.

802.3bs schedule



The 4 th Recirculation Ballot (D3.4)	Open 9/18 Closes 10/3
Comments received against D3.4 to be addressed at teleconference call	10/9
If necessary (based on resolution of comments from D3.4), there might be a fifth recirculation (D3.5).	Open 10/16 Close 10/27
Appropriate draft (D3.4 or D3.5) would be pre-submitted to RevCom.	10/16
If necessary, comments received against D3.5 would be considered at Nov Plenary. Any changes determined by the chair to be substantive, would result in the submitted draft to RevCom being pulled, and a recirculation would then be required.	11/6
P802.3bs then needs to wait for the 2018 revision to be completed before the appropriate draft can be submitted to RevCom.	After April 2018

P802.3bs 200 Gb/s and 400 Gb/s Ethernet Task Force Adopted objectives



- Support a MAC data rate of 200 Gb/s
- Support a MAC data rate of 400 Gb/s
- Support a BER of better than or equal to 10^{-13} at the MAC/PLS service interface (or the frame loss ratio equivalent)
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current Ethernet standard
- Provide appropriate support for OTN
- Provide physical layer specifications which support 200 Gb/s operation over:
 - At least 500 m of 4-lane parallel SMF
 - At least 2km of SMF
 - At least 10km of SMF
- Provide physical layer specifications which support 400 Gb/s operation over:
 - At least 100 m of MMF
 - At least 500 m of SMF
 - At least 2 km of SMF
 - At least 10 km of SMF
- Specify optional Energy Efficient Ethernet (EEE) capability
- Support optional Attachment Unit Interfaces for chip-to-chip and chip-to-module applications

P802.3cd 50 Gb/s, 100 Gb/s, and 200 Gb/s Ethernet Task Force

- Interim meeting 11-14 Sept 2017, Charlotte, NC
- Final comment responses;
- <http://www.ieee802.org/3/cd/comments/index.html>
- Minutes: <http://www.ieee802.org/3/cd/public/Sept17/>

- The next meetings will be held during the 802.3 Plenary meeting week in Orlando, Florida the week of Nov 5th- 10th, 2017
- Meeting details may be found at <http://802world.org/plenary/>
- The P802.3cd Task Force will be meeting on the full day Tuesday.

- The 802.3cd Working Group ballot recirculation of D2.2 is currently open (closes on Oct 11th). The goal of the meeting will be to resolve all the received comments against D2.2. Anticipating moving to Sponsor Ballot in November.

P802.3cd Objectives – 1/3



- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support optional Energy-Efficient Ethernet operation
- Provide appropriate support for OTN
- Support a MAC data rate of 50 Gb/s and 100 Gb/s
- Support a BER of better than or equal to 10^{-12} at the MAC/PLS service interface (or the frame loss ratio equivalent) for 50 Gb/s and 100 Gb/s operation
- Support a MAC data rate of 200 Gb/s
- Support a BER of better than or equal to 10^{-13} at the MAC/PLS service interface (or the frame loss ratio equivalent) for 200 Gb/s operation

P802.3cd Objectives – 2/3

50 Gb/s Ethernet PHYs

- Define single-lane 50 Gb/s PHYs for operation over
 - copper twin-axial cables with lengths up to at least 3m.
 - printed circuit board backplane with a total channel insertion loss of \leq 30dB at 13.28125 GHz.
 - MMF with lengths up to at least 100m
 - SMF with lengths up to at least 2km
 - SMF with lengths up to at least 10km

100 Gb/s Ethernet PHYs

- Define a two-lane 100 Gb/s PHY for operation over
 - Copper twin-axial cables with lengths up to at least 3m
 - Printed circuit board backplane with a total channel insertion loss of \leq 30dB at 13.28125 GHz
 - MMF with lengths up to at least 100m
- Define a single-lane 100 Gb/s PHY for operation over duplex SMF with lengths up to at least 500m, consistent with IEEE P802.3bs clause 124

P802.3cd Objectives – 3/3

200 Gb/s Ethernet PHYs

- Define four-lane 200 Gb/s PHYs for operation over
 - copper twin-axial cables with lengths up to at least 3m.
 - printed circuit board backplane with a total channel insertion loss of $\leq 30\text{dB}$ at 13.28125 GHz.
- Define a 200 Gb/s PHY for operation over MMF with lengths up to at least 100m

Next Generation Enterprise/Campus/Data Centre Ethernet Ad Hoc/New Ethernet Applications (NEA) Ad Hoc

- Sept interim meeting in Charlotte:
- Meeting Materials:
http://www.ieee802.org/3/ad_hoc/ngrates/public/17_09/index.html.
- Topics Covered:
 - Next generation MMF PMDs:
http://www.ieee802.org/3/ad_hoc/ngrates/public/17_09/linge_nea_01_0917.pdf.
 - 100Gb/s Electrical Signaling
 - There will be a CFI at the Nov plenary
 - Single-pair Ethernet

Future IEEE 802.3 Meetings



Meeting	Location	Dates
IEEE 802.3 interim	Charlotte, NC	11-15 September 2017
IEEE 802 plenary	Orlando, FL	6-9 November 2017
IEEE 802.3 interim	Geneva, Switzerland	22-26 January 2018
IEEE 802 plenary	Rosemont, IL	4-9 March 2018
IEEE 802.3 interim	TBD	21-25 May 2018
IEEE 802 plenary	San Diego, CA	9-12 July 2018
IEEE 802 interim	TBD	10-14 September 2018
IEEE 802 plenary	Bangkok, Thailand	12-15 November 2018

Upcoming meeting details at:
<http://802world.org/plenary/>