P802.3cn

Submitter Email: david_law@ieee.org
Type of Project: Amendment to IEEE Standard 802.3-2015
PAR Request Date: 01-Mar-2018
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.3cn
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for Ethernet
Amendment: Physical Layers and Management Parameters for 50 Gb/s, 100 Gb/s, 200 Gb/s, and 400 Gb/s Operation over Single-Mode Fiber and DWDM (dense wavelength division multiplexing) systems.

3.1 Working Group: Ethernet Working Group (C/LM/WG802.3)
Contact Information for Working Group Chair
Name: David Law
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Name: Adam Healey
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3.2 Sponsoring Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee (C/LM)
Contact Information for Sponsor Chair
Name: Paul Nikolich
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Contact Information for Standards Representative
Name: James Gilb
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 07/2020
4.3 Projected Completion Date for Submittal to RevCom
Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 02/2021

5.1 Approximate number of people expected to be actively involved in the development of this project: 80
5.2.a. Scope of the complete standard: This standard defines Ethernet local area, access and metropolitan area networks. Ethernet is specified at selected speeds of operation; and uses a common media access control (MAC) specification and management information base (MIB). The Carrier Sense Multiple Access with Collision Detection (CSMA/CD) MAC protocol specifies shared medium (half duplex) operation, as well as full duplex operation. Speed specific Media Independent Interfaces (MIIs) provide an architectural and optional implementation interface to selected Physical Layer entities (PHY). The Physical Layer encodes frames for transmission and decodes received frames with the modulation specified for the speed of operation, transmission medium and supported link length. Other specified capabilities include: control and management protocols, and the provision of power over selected twisted pair PHY types.

5.2.b. Scope of the project: Define physical layer specifications and management parameters for the transfer of Ethernet format frames at 50 Gb/s, 100 Gb/s, 200 Gb/s, and 400 Gb/s at reaches greater than 10 km over single-mode fiber and DWDM systems.
Make TDECQ (Transmitter and dispersion eye closure for PAM4) related changes to existing 200 Gb/s and 400 Gb/s physical medium dependent sublayers over single-mode fiber.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: This document will not include a purpose clause.

5.5 Need for the Project: Optical solutions targeting greater than 10 km over single-mode fiber will address the bandwidth requirements of mobile backhaul networks fueled by consumer video.
Optical solutions targeting greater than 10 km over a DWDM system will address the bandwidth growth and reach requirements of Cable/MSO (multiple system operator) distribution networks, mobile backhaul networks, and interconnect for distributed data centers where reaches greater than 10 km are required, or where fiber availability drives the need for multiple instances of Ethernet over a DWDM system.

5.6 Stakeholders for the Standard: Users and producers of systems and components for mobile backhaul networks, cable/multi-service operator (MSO) distribution networks, data center interconnect networks, and any other networks needing reaches in excess of 10 km over single-mode fiber or DWDM systems.

Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

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7.1 Are there other standards or projects with a similar scope?: Yes
If Yes please explain: While there are no other IEEE standards or projects with a similar scope, the IEEE 802.3 Working Group has received liaisons from two organizations indicating that the respective groups have related efforts underway.
ITU-T Study Group 15 has communicated that it is revising Recommendation ITU-T G.698.2 to include multi-vendor interoperable 100 Gb/s single channel optical interfaces, which specifically includes the rate for 100 Gb/s Ethernet signals, and will include an application code for 100G appropriate for 80 km distances, not precluding 120 km, and without OADMs (optical add-drop multiplexers).
The Optical Internetworking Forum (OIF) has communicated that it is developing the 400ZR implementation agreement (IA), which is targeted at (passive) single channel and (amplified) short-reach DWDM (dense wavelength division multiplexing) /DCI (data center interconnect) pluggable modules with distances supported from 80-120 km. The effort will support 400 Gb/s Ethernet via the 400GAUI-8 interface that is defined by IEEE 802.3, but other system-side formats may also be considered.
Stakeholders have expressed a desire to see an IEEE 802.3 standard address 100 Gb/s Ethernet and 400 Gb/s Ethernet over DWDM systems. Where appropriate, existing standards will be referenced, rather than duplicated.

and answer the following
Sponsor Organization: ITU-T SG15 and OIF
Project/Standard Number: ITU-T G.698.2 and 400ZR
Project/Standard Date:
Project/Standard Title: ITU-T G.698.2 Amplified multichannel dense wavelength division multiplexing applications with single channel optical interfaces
OIF 400ZR: Implementation Agreement for 400ZR
7.2 Joint Development
Is it the intent to develop this document jointly with another organization?: No

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8.1 Additional Explanatory Notes: Item 5.2b: PAM4 expands to 4-level pulse amplitude modulation