

# P802.3cn

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**Submitter Email:** [david\\_law@ieee.org](mailto:david_law@ieee.org)

**Type of Project:** Amendment to IEEE Standard 802.3-2015

**PAR Request Date:** 14-Jul-2018

**PAR Approval Date:** 27-Sep-2018

**PAR Expiration Date:** 31-Dec-2022

**Status:** PAR for an Amendment to an existing IEEE Standard

**Root Project:** 802.3-2015

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**1.1 Project Number:** P802.3cn

**1.2 Type of Document:** Standard

**1.3 Life Cycle:** Full Use

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**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

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**3.1 Working Group:** Ethernet Working Group (C/LM/WG802.3)

**Contact Information for Working Group Chair**

**Name:** David Law

**Email Address:** [david\\_law@ieee.org](mailto:david_law@ieee.org)

**Phone:** +44 1631 563729

**Contact Information for Working Group Vice-Chair**

**Name:** Adam Healey

**Email Address:** [adam.healey@broadcom.com](mailto:adam.healey@broadcom.com)

**Phone:** 6107123508

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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

**Email Address:** [p.nikolich@ieee.org](mailto:p.nikolich@ieee.org)

**Phone:** 8572050050

**Contact Information for Standards Representative**

**Name:** James Gilb

**Email Address:** [gilb@ieee.org](mailto:gilb@ieee.org)

**Phone:** 858-229-4822

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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**

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**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.

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## 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 that operate over a DWDM system for approximately 80 km distances. 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.

Stakeholders have expressed the desire for this project, as it will define physical layer specifications and Protocol Implementation Conformance Statements (PICS) for 100 Gb/s and 400 Gb/s Ethernet operation over DWDM systems that are consistent and completely integrated with existing IEEE 802.3 Ethernet specifications.

**and answer the following**

**Sponsor Organization:** ITU-T SG15 and OIF

**Project/Standard Number:** Recommendation ITU-T G.698.2 and OIF 400ZR Implementation Agreement

**Project/Standard Date:**

**Project/Standard Title:** Recommendation ITU-T G.698.2 Amplified multichannel dense wavelength division multiplexing applications with single channel optical interfaces and OIF 400ZR Implementation Agreement

**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

Item 7.1 Project/Standard date: Recommendation ITU-T G.698.2 anticipated 'consent' date of 19th Oct 2018

Item 7.1 Project/Standard date: OIF 400ZR Implementation Agreement project start date 3rd Nov 2016