IEEE 802.3 Criteria for Standards Development (CSD)

The IEEE 802 Criteria for Standards Development (CSD) are defined in Clause 14 of the IEEE 802 LAN/MAN Standards Committee (LMSC) Operations Manual. The criteria include project process requirements ("Managed Objects") and 5 Criteria (5C) requirements. The 5C are supplemented by subclause 7.2 'Five Criteria' of the 'Operating Rules of IEEE Project 802 Working Group 802.3, CSMA/CD LANs'.

The following are the CSD Responses in relation to the IEEE P802.3**cm Standard for Ethernet Amendment: Physical Layer and Management Parameters for 400 Gb/s over Multimode Fiber** PAR

Items required by the IEEE 802 CSD are shown in Black text and supplementary items required by IEEE 802.3 are shown in **blue** text.

Broad Market Potential

Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

a) Broad sets of applicability.

b) Multiple vendors and numerous users.

- Broad Sets of Applicability:
  - The rate of deployment of multimode fiber (MMF) continues to grow both globally and in North America, adding to a substantial installed base of both OM3 & OM4 1-pair and 4-pair cable.
  - Recent market evidence shows that higher speeds over both duplex and parallel MMF cable have been needed in the first year that new switch speeds enter the market, including the rapid uptake of 100GBASE-SR4 in QSFP.
  - Market applications for low-cost, high density, short-reach MMF links at higher speeds include switch-to-switch, server-to-switch and switch-to-router connections in cloud and large enterprise data centers and CO transformation at service providers. Implementations exist or could be developed to support breakout topologies over both 4 and 8 pairs of MMF.
  - It has been shown that the electrical specifications for 50 Gb/s lanes from 802.3bs can be re-used, such that PMDs from this project can share the same ports.
- Standardizing lower cost applications for MMF facilitates upgrades and enlarges Ethernet market.
- Multiple vendors and numerous users:
  - 55 individuals from 38 companies were Supporters for Call For Interest (CFI), including cloud and enterprise end-users. At the CFI, 56 individuals from 24 companies indicated participation in this project.
  - It is anticipated that there will be sufficient participation to effectively complete the standardization process including representatives from end-users, equipment manufacturers and component suppliers.

Distinct Identity

Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.

Substantially different from other IEEE 802.3 specifications / solutions.

DI as approved by Study Group on 23 January, 2018:

- The proposed amendment will be the first IEEE 802.3 standard defining operation at 400 Gb/s over fewer than 16 pairs of multimode fiber physical media.
- Strong desire to use 8 pairs for new 400 Gb/s topologies and supporting breakout capability.
- Need to support 400 Gb/s Ethernet over existing parallel MMF deployments.

Option 1:

- There are no existing standards, or projects developing standards, addressing the specification of 400 Gb/s over 4 pairs of multimode fiber, supporting existing parallel multimode fiber topologies and installed base deployments.
- There are no existing standards, or projects developing standards, addressing the specification of 400 Gb/s over 8 pairs of multimode fiber, supporting newer 400 Gb/s topologies.

Option 2: (Revert to wording prior to the Geneva SG meeting, 22-23 January, 2018)

- The proposed amendment will be the first IEEE 802.3 standard defining operation at 400 Gb/s over fewer than 16 pairs of multimode fiber physical media.