CSD DRAFT
IEEE 802.3 E-PLCA Study Group

IEEE 802.3 November 2026 Plenary Session

Bangkok, Thailand

Edited by: PLCA Enhancement (eplca) SG

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 4.5 ‘Criteria for Standards Development’ of the ‘IEEE 802.3 Ethernet Working Group Operations Manual’.

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

Managed Objects

Describe the plan for developing a definition of managed objects. The plan shall specify one of the following:

1. **The definitions will be part of this project.**
2. **The definitions will be part of a different project and provide the plan for that project or anticipated future project.**
3. **The definitions will not be developed and explain why such definitions are not needed.**

a) The definition of protocol independent managed objects, to be included in Clause 30 of IEEE Std 802.3, will be part of this project.

Coexistence

A WG proposing a wireless project shall prepare a Coexistence Assessment (CA) document unless it is not applicable.

1. **Will the WG create a CA document as part of the WG balloting process as described in Clause 13? (yes/no)**
2. **If not, explain why the CA document is not applicable.**

a) No.

b) A CA document is not applicable because the proposed project is not a wireless project.

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.

- 10BASE-T1S or 10BASE-T1M single-pair multidrop PHYs with Physical Layer Collision Avoidance (PLCA) are widely adopted in automotive and industrial networks. Some network control closed-loop applications require improved deterministic and bounded latency.

- Enhancements to the PLCA Reconciliation Sublayer to reduce maximum latency, differentiated by station and/or by frame priority, e.g. Priority Code Point (PCP), and improve determinism to allow broader application of 10BASE-T1S/M technology to existing and emerging market segments such as automotive, aerospace, controls, automation, and robotics.

- At the Call for Interest, held at the July 2026 Montreal Plenary, 29 individuals from 23 affiliations indicated they would support this project.

Compatibility

Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Standards Committee.

a) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?

b) If the answer to a) is "no", supply the response from the IEEE 802.1 WG.

c) Compatibility with IEEE Std 802.3

d) Conformance with the IEEE Std 802.3 MAC

- a) & b) As a Physical Layer amendment to IEEE Std 802.3, the proposed project will remain in conformance with IEEE Std 802, IEEE Std 802.1AC, and IEEE Std 802.1Q.
- c) As an amendment to IEEE Std 802.3, new service interface(s) may be defined and PLCA sublayers may be updated.
- d) The proposed amendment will conform to the IEEE 802.3 MAC as defined in Clause 4.

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.

- There is no IEEE 802.3 standard that constrains latency bounds sufficiently over a shared-medium multidrop network for control applications.

Technical Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility:

a) Demonstrated system feasibility.

b) Proven similar technology via testing, modeling, simulation, etc.

c) Confidence in reliability.

- a) The proposed project will build on the array of Ethernet component and system design experiences, and the broad knowledge base of Ethernet network operation.
- a) & b) Multidrop Ethernet utilizing PLCA over a single balanced pair of conductors has been proven both technically and operationally under IEEE Std 802.3cg and Std 802.3da.
- a & b) Several methods and models have been shown to address feasibility.
- c) The reliability of Ethernet components and systems can be projected in the target environments with a high degree of confidence.

Economic Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications. Among the areas that may be addressed in the cost for performance analysis are the following:

a) Known cost factors
b) Balanced cost factors.
c) Consideration of installation costs.
d) Consideration of operational costs (e.g., energy consumption).
e) Other areas, as appropriate.

- The cost factors for Ethernet components and systems are well known.
- The proposed project is not expected to alter these cost factors.
- Installation cost is expected to be similar to current installation cost.
- Network design, installation and maintenance costs are minimized by preserving network architecture, management, and software.
- In consideration of operational costs associated with power consumption, the project will have negligible added impact.