

IEEE 802 LAN/MAN STANDARDS COMMITTEE (LMSC)

CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 4 August 2020
Last edited 31 August 2020

P802.1A Sed Standard for Local and Metropolitan Area Networks – Timing and Synchronization for Time-Sensitive Applications Amendment: Fault-Tolerant Timing with Time Integrity

1. IEEE 802 criteria for standards development (CSD)

The CSD documents an agreement between the WG and the Sponsor that provides a description of the project and the Sponsor's requirements more detailed than required in the PAR. The CSD consists of the project process requirements, 1.1, and the 5C requirements, 1.2.

1.1 Project process requirements

1.1.1 Managed objects

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

- a) The definitions will be part of this project.
- b) The definitions will be part of a different project and provide the plan for that project or anticipated future project.
- c) The definitions will not be developed and explain why such definitions are not needed.

Item a) is applicable. Managed objects will be specified as part of this amendment.

1.1.2 Coexistence

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

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

Item b) is applicable. This project is not a wireless project.

1.2 5C requirements

1.2.1 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.
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- a) This project applies to time-sensitive applications in which the loss of time or the acceptance of erroneous time due to a fault in the system could impact system operation (e.g., in aerospace systems).
 - b) This project is needed for IEEE P802.1DP / SAE AS6675, which applies to many applications such as commercial aircraft, military aircraft, satellites, spacecraft, and space stations. Multiple vendors and numerous users are participating in the development of this project.

1.2.2 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 Sponsor.

- 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.
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- a) Yes.

The review and response is not required if the proposed standard is an amendment or revision to an existing standard for which it has been previously determined that compliance with the above IEEE 802 standards is not possible. In this case, the CSD statement shall state that this is the case.

1.2.3 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.

This project addresses time integrity. No existing IEEE 802 standard or approved project addresses time integrity.

1.2.4 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.

The feasibility of co-existing redundant time domains is already enabled by gPTP, per IEEE Std 802.1AS-2020. Algorithms for combining redundant time information for enhancing time integrity are in use in proven similar technology such as fieldbus networks and aerospace networks.

1.2.5 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 costs.
 - c) Consideration of installation costs.
 - d) Consideration of operational costs (e.g., energy consumption).
 - e) Other areas, as appropriate.
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- a) The cost factors are known for the IEEE 802.1AS standard and will apply to the proposed standard. Specifically, it is expected that fault-tolerant timing with time integrity can be implemented with the additional costs that are associated with adding redundancy.
 - b) The well-established cost balance between infrastructure and attached stations will not be changed by the proposed standard.
 - c) Incremental installation costs associated with adding redundancy will apply to the proposed standard.
 - d) Incremental operational costs associated with adding redundancy will apply to the proposed standard.
 - e) Time integrity provisions defined in this project could enable the use of less complex network components.