

PAR, CSD and Objectives

IEEE Multi-Gigabit Optical Automotive
Ethernet Study Group

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Overview

- PAR, CSD, and Objectives basics
- Project document approvals
- Timing realities
- PAR – important items
- CSD – important items
- Objectives – examples

PAR, CSD, and Objectives basics

- IEEE 802.3 projects are governed by three documents
- PAR – Project Authorization Request
 - Formal permission to develop a standard (including an amendment)
 - A “contract” with the IEEE Standards Association
- CSD – Criteria for Standards Development
 - Additional information on project
 - A “contract” with the LAN/MAN Standards Committee
- Objectives
 - Objectives detail what the project will specify
 - A “contract” with the IEEE 802.3 Working Group
- All three are required for consideration of the PAR, which only occurs at a plenary session (Mar, Jul, Nov)

Project document approvals

- PAR drafted by SG and approved by SG, WG, , 802 EC, NesCom and SASB
- CSD drafted by SG and approved by SG, WG, and 802 EC
- Objectives are drafted by SG and approved by SG, and WG
- Modifications to any of the above also require the same approvals, and can be done after project approval

Timing realities

- Typically, the SG approves draft project documents at an interim for submission before the next plenary
- SGs are only expected to last for ~6 months
 - Extensions may be approved
 - Approved from 802 plenary to 802 plenary meeting
- SGs do not select technical proposals
 - Selection is done after project approval (in the TF)
 - Technical proposals may be presented as justification of the 5 Criteria (feasibility of the proposed project)

PAR – important items

- PAR form is completed on-line using the myProject system
 - Some fields are auto-filled by myProject
 - 9 fields require serious SG consideration
- When a draft is balloted, the balloter should consider if the draft is within the scope of the approved PAR

PAR item 2.1 – Title

2.1 Project title: Standard for Ethernet Amendment:

Help text: The title of the base standard is uneditable. Please enter the amendment title in the text box. The title should be sufficiently unambiguous, understandable by a NesCom member not from the society that submitted the PAR. All acronyms shall be spelled out in the title.

PAR item 4.2 and 4.3 Project dates

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Standards Association

Ballot: _____

Help text: Additional communication and input from other organizations or other IEEE Standards Sponsors should be encouraged through participation in the working group or the invitation pool prior to Sponsor Ballot.

4.3 Projected Completion Date for Submittal to RevCom:

Help text: Enter the date the draft standard is planned to be submitted to RevCom for processing (not to exceed four years from the date of PAR submission). It is suggested to allow at least six months after Initial Sponsor Ballot for the ballot process. Cutoff dates for submitting draft standards to RevCom are generally in February, May, August, and October. Check the appropriate calendars for the specific dates as the draft matures. Use a best guess estimate for the PAR.

5.2A Scope of the complete standard:

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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.

Help text: If this Amendment will change the scope statement of the complete document (base + Amendment), it can be edited and should be explained in the Additional Explanatory Notes field at the end of the PAR form. If this Amendment will not change the scope statement of the complete document the pre-populated text should be left as is.

Note: The above IEEE Std 802.3 scope was written broadly, so that amendments should not need to modify the scope.

PAR item 5.2B – Project scope

5.2B Scope of the Project: _____

Help text: State what the Amendment is changing or adding.

PAR item 5.3 – Project contingency

5.3 Is the completion of this standard contingent upon the completion of another standard (Yes or No)? If yes, please explain below:

Help text: Your explanation should include how the standard is dependent upon the completion of another standard. Also, if applicable, why a PAR request is being submitted if the standard currently under development is not yet complete. The title and number of the standard which this project is contingent upon shall be included in the explanation.

PAR item 5.4 – Project purpose

5.4 Will the completed document (base + amendment) contain a purpose clause:

☐ Yes ☒ No

Note: IEEE Std 802.3 does not contain a Purpose Clause.

PAR item 5.5 – Project need

5.5 Need for the Project: _____

Help text: The need for the project details the specific problem that the standard will resolve and the benefit that users will gain by the publication of the standard. The need statement should be brief, no longer than a few sentences.

PAR item 5.6 – Stakeholders

5.6 Stakeholders for the Standard: _____

Help text: The stakeholders (e.g., telecom, medical, environmental) for the standard consist of any parties that have an interest in or may be impacted by the development of the standard.

CSD – important items

- The CSD are specified in the IEEE 802/LMSC Operations Manual – <https://mentor.ieee.org/802-ec/dcn/17/ec-17-0090-22-0PNP-ieee-802-lmsc-operations-manual.pdf>
- The first two criteria are typically proforma for 802.3 projects the remaining criteria are still referred to as the 5 criteria (5C)
- IEEE 802.3 adds a few points to the 5C in the IEEE 802.3 Ethernet Working Group Operations Manual (OM) - http://www.ieee802.org/3/rules/P802_3_rules.pdf
- A fun, helpful tutorial on the 5 Criteria (5C) can be found at: http://www.ieee802.org/3/B10K/public/17_09/healey_b10k_01_0917.pdf

CSD – 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.

Note – Amendments to 802.3 usually answer “a”.

CSD – Coexistence

- A WG proposing a wireless project shall demonstrate coexistence through the preparation of a Coexistence Assurance (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.

Note – 802.3 projects typically answer “No, this is not a wireless project.”

CSD/5C – 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.

CSD/5C – 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.
- c) *Compatibility with IEEE Std 802.3*
- d) *Conformance with the IEEE Std 802.3 MAC*
- The review and response (a,b) 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.

Note: Items c and d are from the 802.3 Working Group Operations Manual

CSD/5C – 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.*
- *Note: The second point is from the 802.3 Working Group Operations Manual*

CSD/5C – 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*

Note: Item c is from the 802.3 Working Group Operations Manual

CSD/5C – 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) Balanced costs (infrastructure versus attached stations).
 - b) Known cost factors.
 - c) Consideration of installation costs.
 - d) Consideration of operational costs (e.g., energy consumption).
 - e) Other areas, as appropriate.

Objectives – example basic objectives

- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current Ethernet
- Specify optional Energy Efficient Ethernet (EEE) capability

Objectives – link specific objectives

- Support a MAC data rate of ____ Gb/s
- Support link lengths up to at least ____ m with ____ inline connections
- Support a BER of better than or equal to 10^{-xx} at the MAC/PLS service interface (or the frame loss ratio equivalent)

Note – The above objectives might be combined, be organized for being rate specific, and may be multiples (e.g., different link lengths/connections at a given data rate).

Objectives – other considerations

- Environmental, e.g., temperature range
- Timestamping support
- OAM channel support
- Asymmetric operation

Thank You
