IEEE 802.3 Five Criteria

The IEEE 802 Criteria for Standards Development (Five Criteria) are defined in subclause 12.5 of the 'IEEE project 802 LAN/MAN Standards Committee (LMSC) operations manual'. These 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 Five Criteria Responses in relation to the IEEE P802.3bu PAR

Items required by the IEEE 802 five criteria are shown in Black text, supplementary items required by IEEE 802.3 are shown in Blue text.

Broad Market Potential

A standards project authorized by IEEE 802 LMSC shall have a broad market potential. Specifically, it shall have the potential for:
a) Broad sets of applicability.
b) Multiple vendors and numerous users.
c) Balanced costs (LAN versus attached stations). [Removed from IEEE 802 5 criteria 11/12]

- PODL will be driven by the emerging markets for Ethernet over a single pair, such as:
    - Automotive systems
    - Transportation systems (e.g. trains, buses, aircraft, traffic control systems, etc.)
    - Industrial solutions for factory and process automation
- At the Call for Interest, 26 companies supported this initiative and stated an intention to work on this development.

Compatibility

IEEE 802 LMSC defines a family of standards. All standards should be in conformance : IEEE Std 802, IEEE 802.1D, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG. In order to demonstrate compatibility with this criterion, the Five Criteria statement must answer the following questions.

    a) **Does the PAR mandate that the standard shall comply with IEEE Std 802, IEEE Std 802.1D and IEEE Std 802.1Q?**

    b) **If not, how will the WG ensure that the resulting draft standard is compliant, or if not, receives appropriate review from the IEEE 802.1 WG?**

Compatibility with IEEE Std 802.3
Conformance with the IEEE Std 802.3 MAC
Managed object definitions compatible with SNMP

- This PAR does not mandate that the standard shall comply with IEEE Std 802, IEEE Std 802.1D, and IEEE Std 802.1Q. This standard is a power standard, not a MAC/PHY standard and this requirement is not relevant.

- These enhancements will be compatible with IEEE Std 802.3

- There will be no changes to the current MAC client interface

- The project will include a protocol independent specification of managed objects with SNMP management capability to be provided in the future by an amendment to or revision of IEEE Std 802.3.1

Distinct Identity

Each IEEE 802 LMSC standard shall have a distinct identity. To achieve this, each authorized project shall be:
a) Substantially different from other IEEE 802 LMSC standards.
b) One unique solution per problem (not two solutions to a problem).
c) Easy for the document reader to select the relevant specification.
d) Substantially different from other IEEE 802.3 specifications/solutions.

a) There is no IEEE 802 power standard that operates over a single twisted pair.

b) This proposed standard will provide one solution.

c) The proposed amendment to the existing IEEE 802.3 standard will be formatted as a collection of new clauses, making it easy for the reader to select the relevant specification.

d) There is no IEEE Std 802.3 power standard that operates over a single twisted pair.

Technical Feasibility

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:
a) Demonstrated system feasibility.
b) Proven technology, reasonable testing.
c) Confidence in reliability.

- Delivering power over a single twisted pair has been in existence for decades (e.g. telephones and DSL).

- There is experience within 802.3 (Clause 33) on providing and testing power delivery.

- The reliability of Ethernet components and systems can be projected in the target environments with a high degree of confidence.

Economic Feasibility

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated) for its intended applications. At a minimum, the proposed project shall show:
a) Known cost factors, reliable data.
b) Reasonable cost for performance.
c) Consideration of installation costs.

- The cost factors for Ethernet power components and systems are well known. The proposed project may introduce new cost factors which can be quantified.

- Prior experience in the development of other twisted pair copper power specifications for Ethernet indicates that the specifications developed by this project will entail a reasonable cost for the resulting performance.

- The availability of power on the single pair data interface will remove the need for separate power wiring.