Draft P802.3bv CSD
(for 802.3 and EC approval)

As amended in July and September meetings

9 September 2014

Status

- The p802.3bv PAR and CSD were submitted but withdrawn from EC consideration during the July plenary meeting week.
- The PAR and CSD are largely the same a previously submitted.
  - The PAR is the same except for 8.1 (a note to 7.1) where a sentence was added in response to a July 802.11 comment asking who VDE was.
  - The CSD that follows is change marked to simplify consideration by those that have previously reviewed. Changes are in response to either comments from 802.11, comments from 802.3 members made during the July closing plenary, or actions of the Study Group in September.
- IEEE 802.3 votes each item of the CSD and the PAR separately.
  - The Managed Objects response has been approved by 802.3.
  - The Five Criteria are yet to be approved by 802.3.
  - The PAR is yet to be approved by 802.3

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 P802.3bv PAR"

Items required by the IEEE 802 CSD are shown in Black text, supplementary items required by IEEE 802.3 are shown in **Blue** text. It is expected that items shown in **Red** text will be proposed to be added to the IEEE 802.3 Operating Rules.

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.

- The definition of protocol independent managed objects and/or extension of existing managed objects will be part of this project.
- In addition it is expected that the definition and/or extension of SNMP managed objects, through reference to the protocol independent managed objects provided by this project, will be added in a future amendment to, or revision of, IEEE Std 802.3.1 IEEE Standard for Management Information Base (MIB) Definitions for Ethernet.

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.
c) Balanced Costs (LAN versus attached stations) [Removed from IEEE 802 5 Criteria Nov 2012]

- IEEE 802.3 specifications for Gigabit Ethernet operation over plastic optical fiber has broad support from industry, representing multiple market applications. This includes application in home and small office networking, automotive, industrial, medical and other market segments where harsh environmental requirements exist and/or use of long link lengths is not required.
- Study group presentations and participation reflects the breadth of this support and includes service providers, users, component, and system manufacturers from networking, industrial, automotive and other markets.
- As a PHY project, no significant change to the existing balance of costs between LAN and stations is anticipated.
- It is anticipated that there will be sufficient participation to effectively complete a standards 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 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
e) Managed object definitions compatible with SNMP (see Managed Objects)

- As an amendment to IEEE Std 802.3, the proposed project shall comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q.
- The proposed project will utilize existing IEEE Std 802.3 compatibility interfaces and an architecture consistent with existing Ethernet PHYs.
- The proposed project will conform to the full-duplex operating mode of the IEEE 802.3 MAC.
- As a new PHY, most, if not all, management capability will be additions (e.g., new enumeration(s)) to existing managed objects. If any new objects are required, they will be compatible with SNMP management.

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.

- The proposed amendment will be the first IEEE 802.3 PHY for use of plastic optical fiber (POF) as the medium.
- There are standardized specifications for data transmission over POF (VDE V 0885-763, withdrawn at request of IEEE). The project will be able to consider leveraging those specifications in adding IEEE Std 802.3 specifications for such transmission.

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. [Removed from IEEE 802 CSD Nov 2013]

- Technical feasibility is demonstrated by products providing Gigabit Ethernet compatible operation over plastic optical fiber (POF).
- Presentations to the study group reinforce the technical feasibility of Gigabit data communication over POF.
- The bandwidth and attenuation characteristics of POF and the characteristics of optical transmission elements are well understood and can be integrated into a channel model for 802.3 specifications.
- The reliable use of POF cabling and optical components in harsh environments (e.g., industrial and automotive) is well established.

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.

- A plastic optical fiber (POF) PHY is not expected to significantly change the balance between infrastructure and stations. POF network technology allows more connectivity options and flexible architecture for networks, with very low infrastructure cost.
- Costs of transmitters and receivers, supporting logic and medium are well understood.
- POF provides significant installation advantages compared to glass optical fiber, both for termination of fiber and the minimal training required of installers.
- The project will specify optional Energy Efficient Ethernet capability to reduced energy consumption.