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'.

The following are the CSD Responses in relation to the IEEE P802.3dw PAR

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

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 will be part of this project. In addition, it is expected that the protocol-specific definition of managed objects will be added in a future amendment to an IEEE 802.3 Standard for Management

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.

- No. A CA document is not applicable because the proposed project is not a wireless project.

Broad Market Potential

Sam Kocsis	A
[Analog] Gyudong Ki	A
Brian Mowad	C
Chad Jones	C
Jason Potterf	C
Joel Goergen	C
Peter Jones	C
George Zimmerman	C
Val	C
Jon	D
Theo	F
Yan Zhuang/Huawei	H
Olindo Savi	H
John Calvin [Keysigh	K
[LGE] Do Kyun Kim	L
Arkadiy Peker - C320	M
Bob Voss	P
Paul Vanderlaan -	P
Paul	P

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.**

Broad sets of applicability:

Numerous devices require more than the 90 W currently available from PoE with data rates that span the whole bandwidth gamut provided by Ethernet (sub-Mbps to 100s of Gbps). FMP expands upon the success of PoE by bringing Ethernet and power to these over 100 W applications. Examples include remotely-powered PoE switch, small and large appliances, HVAC units, 5G transmitters and distributed antenna systems, EV chargers, and even data centers.

Multiple vendors and numerous users:

At the Call for Interest, 19 individuals from 14 organizations indicated they would support this project. These included companies from infrastructure, silicon, cabling, connector, and test equipment vendors.

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) The proposed standard will comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q.

b) Answer was yes, NA

c) Changes to existing 802.3 data interfaces may be required.

d) Any changes will conform to the IEEE Std 802.3 MAC

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 are no other IEEE standards that define interoperability for Fault Managed Power Systems (FMPS), nor that define coexistence of FMP and Ethernet in the same cable.

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) There are at least four vendors that offer systems that have a Fault Managed Power (FMP) listing (or are attempting an FMP listing). There are others in development. It is unclear that any transmitters are compatible with a competitor's receiver.

b) Laboratory testing has shown that at least one vendor version is compatible with SPE (10BASE-T1(S,L?), 100BASE-T1)

c) Published reports indicate well over 1000 installation sites, some dating back to the 2010s.

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.

a) The proposed project defines a power scheme that competes with traditional AC and DC powering schemes. The costs are well understood in those markets, and this technology will need to meet similar cost structures.

b) It is anticipated that the cost burden will fall on the power supply (transmitter) and only an incremental cost adder for the load (receiver), similar to, and compatible with, how a network bridge may bear a greater cost burden than an edge device.

c) These systems use cabling comparable to the structured cabling used for PoE and will have similar installation costs. Installation will be cheaper than a traditional AC circuit (if only because it won't require conduit), while providing enhanced personnel and property protection.

d) In general, these systems are DC based and can benefit from one high efficiency rectification stage when supplied from AC mains versus disparate AC/DC conversions at each load. As many Fault Managed Power Systems are DC native, they pair well with renewable power sources and battery energy storage systems.

e) No other areas to discuss.