



POWER OVER DATA LINES

Closing Plenary Report

IEEE 802.3 Ethernet Working Group
14 November 2013

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Reflector and Web

- To subscribe to the 1PPoDL reflector, send an email to:

ListServ@ieee.org

with the following in the body of the message (do not include “<>”):

subscribe stds-802-3-1PPODL <yourfirstname> <yourlastname>

- Send 1PPoDL reflector messages to:

stds-802-3-1PPODL@listserv.ieee.org

- Study Group web page URL:

www.ieee802.org/3/1PPODL/index.html

- Nothing in the private area yet, so no password to remember

Progress for the Week

- Held a joint session Tuesday morning with the 4PPoE group to review the Draft creation process
- Spent Wednesday resolving a single comment on the Draft 5C. No changes were made to the 5C, and the commenter's concerns are satisfied. PAR modified to change Vice Chair.
- Met Thursday morning to plan upcoming work for the January 2014 interim
- Held a second joint session Thursday morning with 4PPoE to review cable heating parameters

Objectives

- Specify a power distribution technique for use over a single twisted pair link segment.
- Allow for operation if data is not present.
- Support voltage and current levels for the automotive, transportation, and industrial control industries.
- Do not preclude compliance with standards used in automotive, transportation, and industrial control industries when applicable.
- Support fast-startup operation using predetermined voltage/current configurations and optional operation with run-time voltage/current configuration.
- Ensure compatibility with IEEE P802.3bp (e.g., EMI, channel definition, noise requirements).

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]**
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- 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.



PAR (IEEE P802.3bu)

- [http://www.ieee802.org/3/1PPODL/
Draft P802 3bu PAR Detail.pdf](http://www.ieee802.org/3/1PPODL/Draft_P802_3bu_PAR_Detail.pdf)

Motion 2

- Approve the IEEE P802.3bu PoDL Project Objectives

- M: Dave Dwelley

- S: Mehmet Tazebay

- Technical ($\geq 75\%$)

Y: N: A:

Motion 3

- Approve the IEEE P802.3bu PoDL Project response to the Broad Market Potential criterion

- M: Dave Dwelley
- S: Mehmet Tazebay
- Technical ($\geq 75\%$)

Y: N: A:

Motion 4

- Approve the IEEE P802.3bu PoDL Project response to the Compatibility criterion

- M: Dave Dwelley
- S: Mehmet Tazebay
- Technical ($\geq 75\%$)

Y: N: A:

Motion 5

- Approve the IEEE P802.3bu PoDL Project response to the Distinct Identity criterion
- M: Dave Dwelley
- S: Mehmet Tazebay
- Technical ($\geq 75\%$)
Y: N: A:

Motion 6

- Approve the IEEE P802.3bu PoDL Project response to the Technical Feasibility criterion
- M: Dave Dwelley
- S: Mehmet Tazebay
- Technical ($\geq 75\%$)
Y: N: A:

Motion 7

- Approve the IEEE P802.3bu PoDL Project response to the Economic Feasibility criterion
- M: Dave Dwelley
- S: Mehmet Tazebay
- Technical ($\geq 75\%$)
Y: N: A:

Motion 8

- Approve the IEEE P802.3bu PoDL PAR
- M: Dave Dwelley
- S: Mehmet Tazebay
- Technical ($\geq 75\%$)
Y: N: A:

Motion 9

- Extend the Power over Data Lines Study Group until the next Plenary session

- M: Dave Dwelley

- S: John D'Ambrosia

- (>50%)

Y: N: A:



Straw Poll

- Who will be attending the Interim Meeting in Indian Wells in January?
- Yes: 19
- Maybe: 14
- No: 1

Future Work

- Meet at the 802.3 interim in Indian Wells in January
 - Appoint an Editor
 - Begin technical work on PoDL power and electrical characteristics
 - Begin generation of baseline text for draft

Thank You

- Next stop Indian Wells...