

IEEE P802.3bt
4-Pair Power over Ethernet
(4PPoE) Task Force
12 July 2018
San Diego, CA

Chad Jones
Chair, IEEE 802.3 4PPoE Task Force
cmjones@cisco.com

Reflector and Web

- To subscribe to the 4PPoE reflector, send an email to:

ListServ@ieee.org

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

subscribe stds-802-3-4PPOE <yourfirstname> <yourlastname>
end

- Send 4PPoE reflector messages to:

[stds-802-3-4PPOE @listserv.ieee.org](mailto:stds-802-3-4PPOE@listserv.ieee.org)

- Task Force webpage URL:

<http://www.ieee802.org/3/bt/>

Private Area

Username: *****

Password: *****

Progress this week

- Met Wednesday
- 17 on sign in sheet
- Processed two comments
- Reviewed and updated the 5C
- Motioned to charter D3.7
- Talked about the remaining process

Comments

CI 79 **SC 79.3.2.6c.6** **P94** **L43** # **r06-2**

Skinner, John

Comment Type **E** **Comment Status** **A** **LLDP**

Statements: "A dual-signature PD shall set this field to value 7." and "A PSE connected to a dual-signature PD shall set this field to value 7." in P802.3bt/D3.5 define an incorrect integer value for the Power Class ext field Dual-signature PD indication, as defined in Table 79-6e. The field is 4 bits wide, and the required integer value is 15.

SuggestedRemedy

Change the statements to: "A dual-signature PD shall set this field to value 15." and "A PSE connected to a dual-signature PD shall set this field to value 15."

Response **Response Status** **C**

ACCEPT.

CI 79 **SC 79.3.2.6e** **P96** **L34** # **r06-1**

Anslow, Peter

Ciena Corporation

Comment Type **E** **Comment Status** **A** **Editorial**

Typo: "to a dual-signature PDs" should be "to a dual-signature PD"

SuggestedRemedy

Change: "PDs" to "PD".

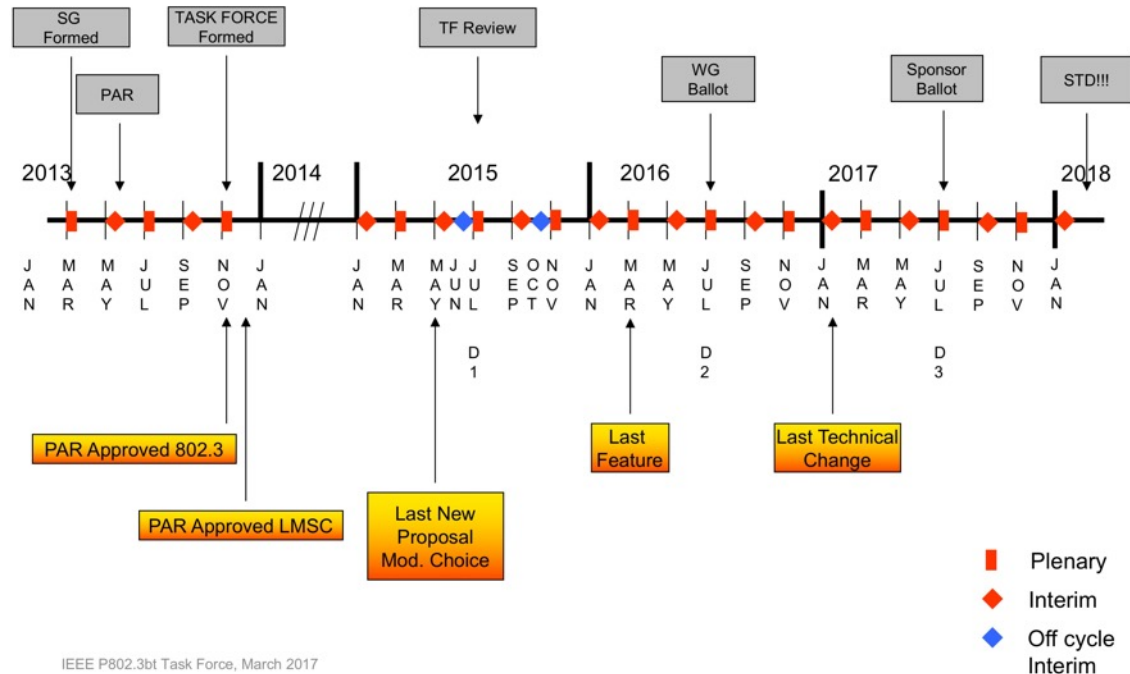
If no other changes are being made to the draft, this could be done via a request to the IEEE publication editor.

Response **Response Status** **C**

ACCEPT.

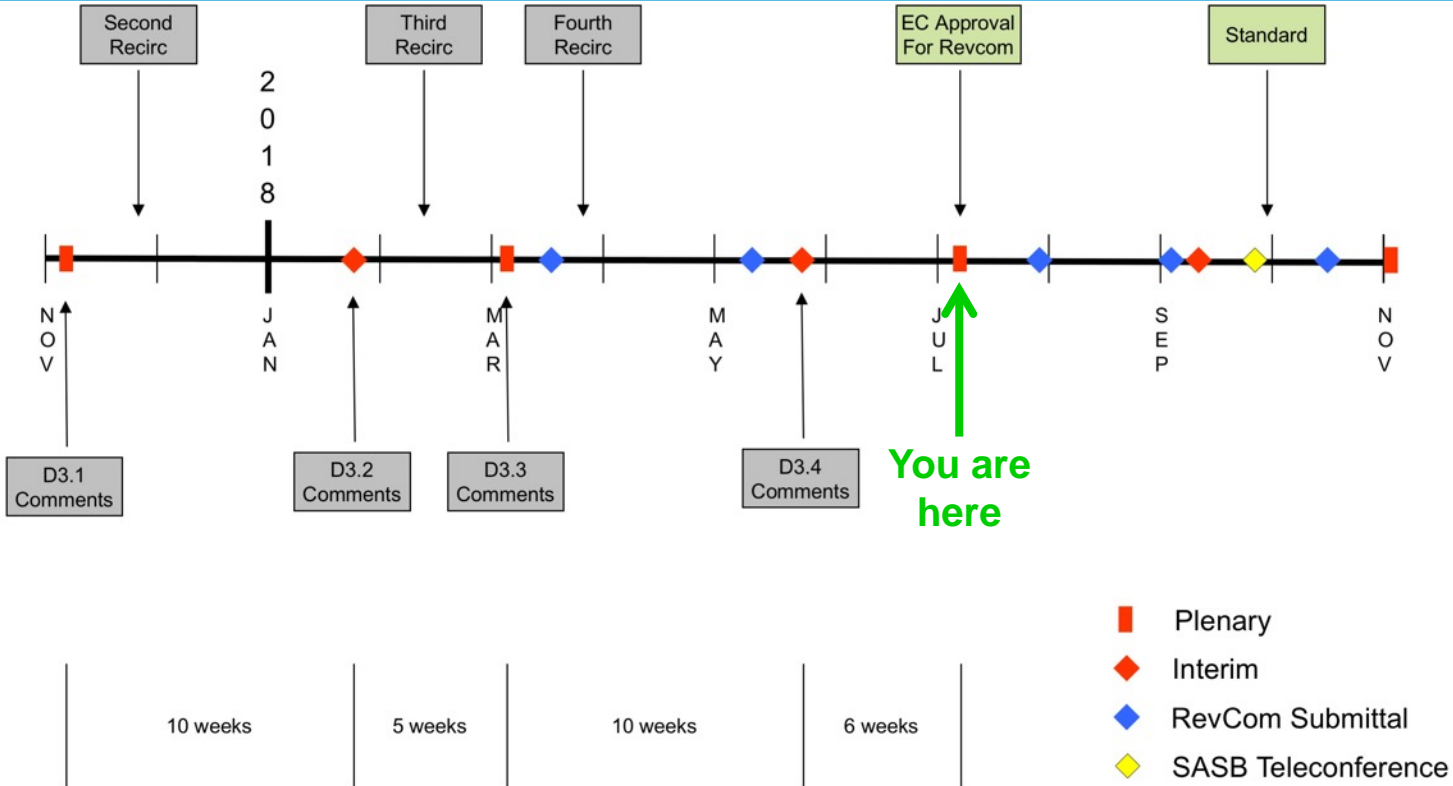
IEEE P802.3bt 4PPoE Adopted timeline

Accepted Timeline v4



IEEE P802.3bt Task Force, March 2017

IEEE P802.3bt 4PPoE Finish Details

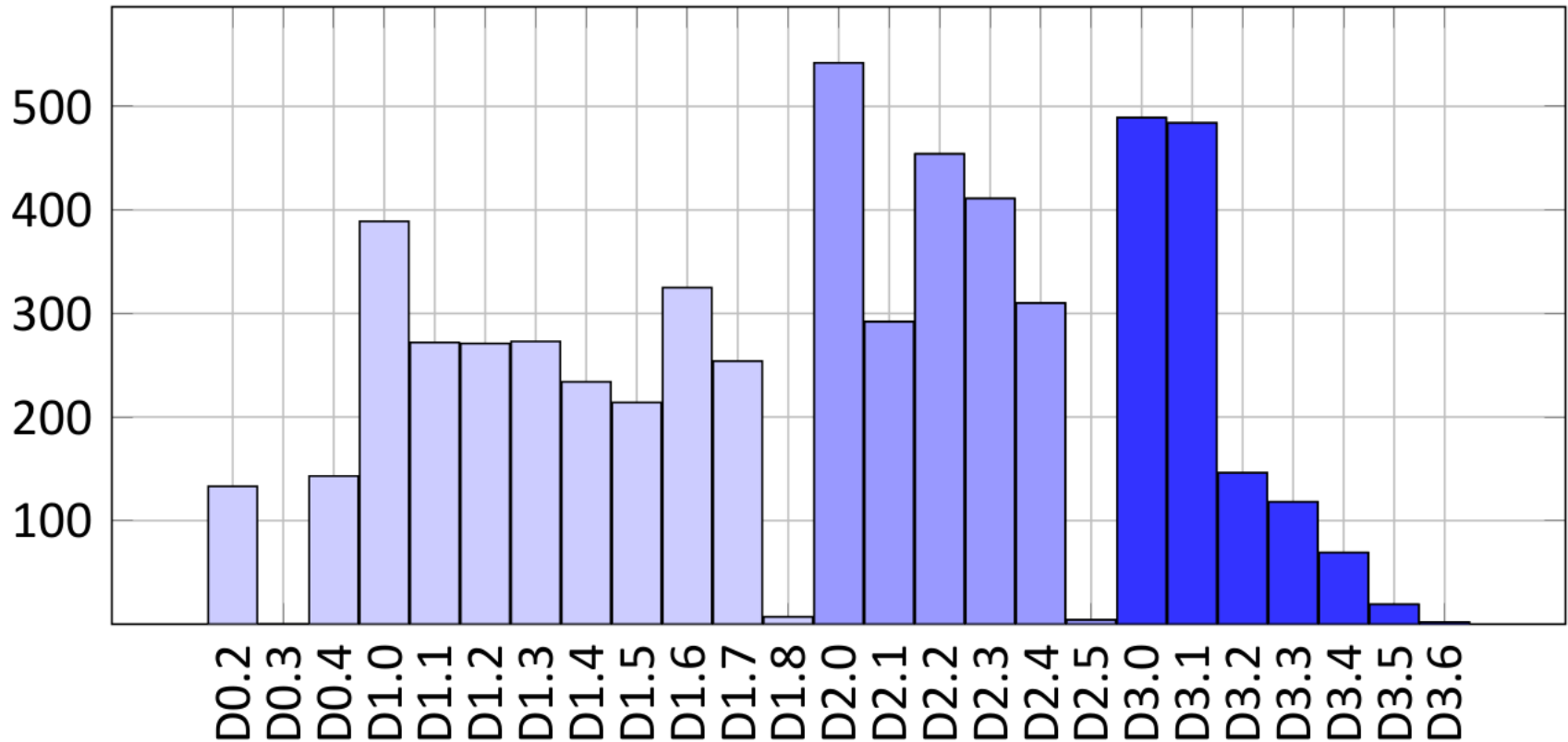


Future Work

D3.7 recirc and comment resolution

Contingent Interim Teleconference Meeting
Monday August 13, 2018, 10AM ET

IEEE P802.3bt Comment History



IEEE P802.3bt Sponsor Ballot Stats

	Draft 3.0	Draft 3.1	Draft 3.2	Draft 3.3	Draft 3.4	Draft 3.5	Draft 3.6
affirmative votes	71	81	89	91	97	101	101
total negative votes with comments	15	14	13	13	7	0	0
negative votes with new comments	15	11	8	9	3	0	0
negative votes without comments	0	0	0	0	0	0	0
Abstain	2	1	3	3	4	5	5
Ballots returned	99	96	104	107	108	108	108
Voters	114	114	114	114	114	114	114
Percent Returned	77	84	91	93	94	94	94
Percent Abstain	2	1	2	2	3	4	4
Comments	483	484	146	118	68	19	2

Outstanding Unsats

- 2 disapprove votes, one with no outstanding comments.

CI Patents	SC Patents	P3	L46	# i-316
Crayford, Ian		Network Generation LL		
Comment Type	GR	Comment Status	R	IP
*** Comment submitted with the file 94180000003-802.3bt - Crayford Ballot Comments.xls attached ***				
<p>This is a general comment regarding Intellectual Property. The use of PoE has been the subject of multiple litigations from NPEs (Non Practicing Entities), otherwise known as "Patent Trolls". Two in particular, Chrimar Systems and Network 1, have litigated against a significant group of companies in the Ethernet industry who ship products that implement PoE. Since 802.3bt increases the available power, this will no doubt attract new companies to utilize PoE in many new applications. What assurances have been made by companies who believe they have intellectual property that relates to 802.3bt (by at least Chrimar Systems and Network 1), such that licensing under RAND terms can be secured?</p>				
Suggested Remedy				
Issue a much stronger warning indicating the use of 802,3bt may result in alleged infringement of Intellectual Property,				
Response	Response Status W			
REJECT.				
<p>The process for requesting an LOA for the IEEE P802.3bt project has been followed in respect to the two holders of potentially essential patent claims named in this comment, as well as for all other holders of potentially essential patent claims identified during this project.</p>				

Outstanding Unsat – Whole Response

The process for requesting an LOA for the IEEE P802.3bt project has been followed in respect to the two holders of potentially essential patent claims named in this comment, as well as for all other holders of potentially essential patent claims identified during this project.

The IEEE is not responsible for: (a) identifying Essential Patent Claims for which a license may be required; (b) determining the validity, essentiality, or interpretation of Patent Claims; or (c) determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory; or (d) determining whether an implementation is a Compliant Implementation.

See subclause 6.2 'Policy' of the IEEE-SA Standards Board

Bylaws<<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6.2>>.

Discussion or other communications regarding: (a) the status or substance of ongoing or threatened litigation; and (b) the essentiality, interpretation, or validity of Patent Claims; is prohibited during IEEE-SA standards-development meetings or other duly authorized IEEE-SA standards-development technical activities. See subclause 6.2 'Policy' of the IEEE-SA Standards Board Bylaws<<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6.2>>and subclause 5.3.10.2 'Discussion of litigation, patents, and licensing' of the IEEE-SA Standards Board Operations Manual<<https://standards.ieee.org/develop/policies/opman/sect5.html#5.3.10.2>>.

The text contained in the 'Notice and Disclaimer of Liability Concerning the Use of IEEE Standards Documents' in respect to patents is mandated by subclause 6.3.1 'Public notice' of the IEEE-SA Standards Board Operations Manual<<https://standards.ieee.org/develop/policies/opman/sect6.html#6.3.1>>and as such suggestions for change to this text should be directed to the IEEE-SA Standards Board Patent Committee Administrator at<patcom@ieee.org>.

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 P802.3bt 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]**

As of 2012, market forecasts showed that by 2017 the 4-Pair PoE market size will exceed 125M ports. There is a demonstrated need for more power to support applications like Pan/Tilt/Zoom security cameras, IP videophones, kiosks, POS terminals, thin client, 802 multiband wireless nodes and access points, laptop computers, RFID readers and building management. 4 Pair PoE can also be used to increase the efficiency of PoE systems. The proposed increase in the supplied power and increased efficiency will result in substantial additions to the PoE market.

At the Call for Interest, 57 individuals from 42 companies supported this initiative, and 33 organizations stated an intention to work on the development of such a standard and Study Group participation has been consistent with this. There are existing proprietary solutions in the market demonstrating an active demand. The goal of the standard is to reduce the issue of interoperability in the powered LAN market.

For some markets, the cost of providing AC power is a barrier to the use of a LAN solution. Increasing the power available at the MDI will increase the market potential and station functionality.

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 Working Group. In order to demonstrate compatibility with this criterion, the Five Criteria statement must answer the following questions. Each standard in the IEEE 802 family of standards shall include a definition of managed objects that are compatible with systems management standards.
 - 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 Working Group ensure that the resulting draft standard is compliant, or if not, receives appropriate review from the IEEE 802.1 Working Group
- Compatibility with IEEE Std 802.3
- Conformance with the IEEE Std 802.3 MAC
- Managed object definitions compatible with SNMP

All enhancements will be backward compatible with IEEE Std 802.3-~~2012~~2018 Clause 33

These enhancements will be compatible with 10BASE-T, 100BASE-TX, 1000BASE-T and 10GBASE-T with no changes to these interfaces.

There will be no changes to any data interface

The proposed standard will conform to the 802.1D, 802.1Q and 802. This is not mandated in the PAR. This standard is a power standard, not a MAC/PHY standard and this requirement is not relevant.

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 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.

The project will increase the maximum PD power available beyond current 802.3 standards by utilizing all four pairs in the structured wiring plant, which represents a substantial change to the capabilities of Ethernet. The power classification information exchanged during negotiation will be extended to allow meaningful power management capability. Together these enhancements will make the project substantially different from existing IEEE 802 standards.

Readers will find the specification for 2-pair PoE in Clause 33 and the specification for 4-pair PoE in Clause 145.

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.

There are numerous system and silicon vendors shipping products, based on proprietary 4-pair powering technology, which exceed the power limits in IEEE Std 802.3-~~2012~~2018.

4-pair technology has been used in the industry for many years and has been reasonably tested and proven reliable.

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.

Extrapolation from the experience of over a decade of installed devices provides a reliable baseline. The power supply industry is well established and has many years of practice. The cost factors are well known.

In the expected range of increased power capability, there is a declining curve of cost per watt. Additionally, increased power efficiency by moving to a 4-pair system and intelligent power management will reduce operational expenses (OpEx) for PoE systems.

PoE installation costs have been demonstrated to be significantly lower in most cases when compared to traditional powering methods that rely on a separate power distribution systems. The utilization of the additional wire pairs to carry power increases efficiency and power delivery at no additional cabling cost.

Motion BT1

Move that the IEEE 802.3 Working Group approve the IEEE P802.3bt DTE power via MDI Task Force modified CSD (grandfathered 5C), in <https://mentor.ieee.org/802-ec/dcn/18/ec-18-0139-00-00EC-ieee-p802-3bt-draft-modified-csd.pdf>

Mover: Chad Jones

Seconder: David Abramson

Technical, 75%

Y: xx

N: xx

A: xx

Motion BT2

Move that the IEEE 802.3 Working Group re-affirm the CSD responses (grandfathered 5C) responses in <https://mentor.ieee.org/802-ec/dcn/18/ec-18-0139-00-00EC-ieee-p802-3bt-draft-modified-csd.pdf> and request conditional approval to progress the IEEE P802.3bt draft to RevCom once the Sponsor ballot process has been successfully completed.

Mover: Chad Jones

Second: Lennart Yseboodt

Technical, 75%

Y: xx

N: xx

A: xx

Thank You!