Cl **FM** *SC* **FM** *P* **19** *L* **2** # r02-24

Yseboodt, Lennart — Philips Lighting

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

OOS

Missing space in TOC: 145.2.10 PSE Maintain ....

SuggestedRemedy

Add space

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.4.289** *P* **24** *L* **29** # r02-85

Thompson, Geoffrey — Individual

Comment Type **TR** *Comment Status* **A** *Definitions*

The definition for "link section" has been updated in the revision of 802.3 (Ref: P802.3cj, cl. 1.4.289 quoted below) therefore the change to the base standard requested on page 24, line 29 (1.4.254) is not needed.

1.4.289 link section: The point-to-point medium connection between the active PSE Power Interface (PI) and the PD PI.

SuggestedRemedy

Remove the change to the base standard detailed on page 24, lines 28 through 31 (labeled as cl. 1.4.254) from the draft for P802.3bt.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Editor to update amendment to be based on 802.3-2018 current revision.

Change definition of link section to:
link section: The portion of the link segment from the PSE to the PD.

Cl **1** *SC* **1.4.338** *P* **24** *L* **40** # r02-10

Jones, Chad — Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *Definitions*

here is this definition without the editing instructions (so, as it will be published):
1.4.338 Power Sourcing Equipment (PSE): A DTE or midspan device that provides the power to a single link section. PSEs are defined for use with two different types of balanced twisted-pair PHYs. When used with 2 or 4 pair balanced twisted-pair (BASE-T) PHYs, see IEEE Std 802.3, Clause 33 and Clause 145, Power over Ethernet is intended to provide a single 10BASE-T, 100BASE-TX, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, or 10GBASE-T device with a unified interface for both the data it requires and the power to process these data. When used with single balanced twisted-pair (BASE-T1) PHYs (see IEEE Std 802.3, Clause 104), Power over Data Lines is intended to provide a single 100BASE- T1 or 1000BASE-T1 device with a unified interface for both the data it requires and the power to process these data. A PSE used with balanced single twisted-pair PHYs is also referred to as a PoDL PSE.

Not sure why we chose to use a different sentence construct for PoE than used for PoDL. The PoE sentence reads poorly. Restore the PoDL sentence construct to the PoE sentence. WIthout the parenthesis around the pointers to the clauses, it feels like this is a sentence that is missing a period after 'Clause 145'.

SuggestedRemedy

Change: When used with 2 or 4 pair balanced twisted-pair (BASE-T) PHYs, see IEEE Std 802.3, Clause 33 and Clause 145, Power over Ethernet is intended to provide a single 10BASE-T, 100BASE-TX, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, or 10GBASE-T device with a unified interface for both the data it requires and the power to process these data.

to: When used with 2 or 4 pair balanced twisted-pair (BASE-T) PHYs (see IEEE Std 802.3, Clause 33 and Clause 145), Power over Ethernet is intended to provide a single 10BASE-T, 100BASE-TX, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, or 10GBASE-T device with a unified interface for both the data it requires and the power to process these data.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change definiton to:

Power Sourcing Equipment (PSE): A DTE or midspan device that provides power to a single link section which may also carry data (for 2 or 4 pair systems, see IEEE Std 802.3, Clause 33 and Clause 145; for single pair systems, see IEEE Std 802.3, Clause 104).

Cl **1** *SC* **1.4.338** *P* **24** *L* **46** # r02-2

Anslow, Peter — Ciena Corporation

Comment Type **ER** *Comment Status* **A** *Editorial*

The text on line 46 is "... , Power over Data Lines is intended to provide a ..." but this is different from the text of 1.4.338 as modified by IEEE Std 802.3bu-2016 which has "... , DTE powering is intended to provide a ...) and the change is not shown with appropriate change marking.

SuggestedRemedy

Show "DTE powering" in strikethrough font and "Power over Data Lines" in underline.

Response *Response Status* **W**

ACCEPT.

Cl **1** *SC* **1.4.418ad** *P* **25** *L* **33** # r02-123

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Definitions*

The text "1.4.418ad Type 4 PSE: A PSE that supports Class 8 power levels, short MPS, and 4-pair power. (See IEEE
802.3, Clause 145)." is not accurate. Type 4 is a PSE that supports Class 8 power level and lower as well for backwards compatibility.

SuggestedRemedy

Change from "1.4.418ad Type 4 PSE: A PSE that supports Class 8 power levels, short MPS, and 4-pair power. (See IEEE 802.3, Clause 145)."
To "1.4.418ad Type 4 PSE: A PSE that supports Class 8 power levels in addition to lower PD classes, short MPS, and 4-pair power. (See IEEE 802.3, Clause 145)."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This needs to be changed as we lowered Ptype for Type 4 to 75W.

Change definiton to: "Type 4 PSE: A PSE that supports at least Class 7 power levels, in addition to lower PD classes, short MPS, and 4-pair power. (See IEEE 802.3, Clause 145)."

Cl **30** *SC* **30.2.5** *P* **31** *L* **47** # r02-3

Anslow, Peter — Ciena Corporation

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

There are two "delete" editing instructions related to Table 30-4 and then an all-encompassing editing instruction "Change Table 30-4 as follows:" Since there are also a significant number of additions to the table that are not mentioned, it seems better to just have a simple "Change Table 30-4 as follows:" editing instruction

SuggestedRemedy

Remove "Delete the "oPD managed object class" and "aPDID" rows as well as the "PD Basic Package (mandatory)" column from Table 30-4. Delete the row for "aPSEShortCounter" in Table 30-4."
leaving just "Change Table 30-4 as follows:"
show the "PD Basic Package (mandatory)" heading in strikethrough font.
show the aPSEShortCounter row in strikethrough font
remove the underline attribute from empty cells in inserted rows as these show up as dots in the pdf.

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.1.1.2** *P* **38** *L* **25** # r02-4

Anslow, Peter — Ciena Corporation

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

Cross-references in 30.9.1.1.2 through 30.9.1.1.5, 30.9.1.1.8, 30.9.1.1.9, and 30.9.1.1.11 to locations in 33.5 are shown in black text, but should have character tag External applied.

SuggestedRemedy

Apply character tag External to these seven cross-references.

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.1.1.8a** *P* **42** *L* **47** # r02-5

Anslow, Peter — Ciena Corporation

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

spurious space in "s ubclause"

SuggestedRemedy

Remove the space

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.12.2.1.18h** *P* **49** *L* **54** # r02-127

Darshan, Yair

Comment Type **T** *Comment Status* **R** *Management*

Type 3 and 4 PSE when connected to class 0 PD need to support it as well. Currently, class 0 is ignored in the list. We need to address class 0 and class 3 as the same.

SuggestedRemedy

In page 50 line 2 change from: "class3 Class 3"
To: "class3 Class 0, or Class 3"

Response *Response Status* **C**

REJECT.

There is no requested Class 0 for Type 3 PDs and Type 3/4 PSEs do not assign Class 0. This field is the Extended field only used by Type 3 and 4.

Cl **30** *SC* **30.12.2.1.18p** *P* **52** *L* **2** # r02-105

Darshan, Yair

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

In the text "A SET attribute fthat...", typo in the "ftha"

SuggestedRemedy

change to "A SET atribute that..."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

delete the spurious f

Cl **30** *SC* **30.12.2.1.18p** *P* **52** *L* **2** # r02-6

Anslow, Peter Ciena Corporation

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

typo "fthat"

SuggestedRemedy

delete the spurious f

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.12.3.1.18h** *P* **60** *L* **49** # r02-128

Darshan, Yair

Comment Type **T** *Comment Status* **R** *Management*

Type 3 and 4 PSE when connected to class 0 PD need to support it as well. Currently, class 0 is ignored in the list. We need to address class 0 and class 3 as the same.

SuggestedRemedy

In page 60 line 52 change from: "class3 Class 3"
To: "class3 Class 0, or Class 3"

Response *Response Status* **C**

REJECT.

There is no requested Class 0 for Type 3 PDs and Type 3/4 PSEs do not assign Class 0. This field is the Extended field only used by Type 3 and 4.

Cl **33** *SC* **33.4.9.1b** *P* **76** *L* **18** # r02-7

Anslow, Peter Ciena Corporation

Comment Type **ER** *Comment Status* **A** *Editorial*

33.4.9.1b, 33.4.9.1b.1, and 33.4.9.1b.2 are new subclauses being inserted by the P802.3bt amendment. Consequently, the subclause numbers should not use strikethrough and underline font.

SuggestedRemedy

Delete the strikethrough subclause numbers (they never existed in the base document) and remove the underline from the inserted subclause numbers.

Response *Response Status* **W**

ACCEPT.

Cl **33** *SC* **33.4.9.1b** *P* **76** *L* **24** # r02-142

Mcclellan, Brett Marvell Semiconductor

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

LATE COMMENT -- is limited is unnecessary and makes the sentence confusing.

SuggestedRemedy

delete "is limited" as was done in 145.4.9.4

Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.6.3.3** *P* **78** *L* **2** # r02-8

Anslow, Peter — Ciena Corporation

Comment Type **ER** *Comment Status* **A** *Editorial*

The editing instruction says "Change 33.6.3.3 as follows:" but then not all of 33.6.3.3 is shown in the draft. The definitions from TempVar through to pse_power_type are missing.

SuggestedRemedy

Assuming that it is not desired to show a large number of unmodified definitions:
move the editing instruction to be after the heading for 33.6.3.3
delete the initial unmodified sentence
change the editing instruction to "Change the first nine definitions in 33.6.3.3 as follows:"
Before the final paragraph of 33.6.3.3, add an editing instruction: "Change the last paragraph of 33.6.3.3 as follows:"

Response *Response Status* **W**

ACCEPT.

Cl **79** *SC* **79.3.2** *P* **86** *L* **15** # r02-25

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *Maintenance*

OOS

"The DLL classification extension fields and Type 3 and Type 4 extension fields shown in Figure 79-3 can be used by the PSE only when it is supplying power to a PI encompassed within an MDI and by the PD only when it is drawing power from the PI."

Imagine a PD connected through a Midspan (supplying power) to a PSE (not supplying power, because midspan in the way).
If that PSE sends out PoE TLVs, whatever value it puts in the PSEAllocatedPowerValue would be wrong.
Hence the quoted statement, saying this is not allowed.

However, the word "can" is used, when it needs to be a "shall".
Because this suggested remedy would create a new requirement on legacy devices, an MR has been filed in support.

SuggestedRemedy

Change sentence to say:
"The DLL classification extension fields and Type 3 and Type 4 extension fields shown in Figure 79-3 shall not be sent by the PSE unless it is supplying power to a PI encompassed within an MDI and by the PD unless it is drawing power from the PI."

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2** *P* **86** *L* **22** # r02-143

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *LLDP*

LATE COMMENT --
OOS

Figure 79-3 says that the TLV information string length=29.
This is only true when the complete set of fields is sent, and for instance is NEVER true for Type 1/2 PD/PSEs.

SuggestedRemedy

Change the text in the second field of the TLV header to "TLV information string length"
Add the following text at the bottom of the figure:
"The TLV information string length is:
- basic fields: 7 octets
- basic fields and DLL classification extension: 12 octets
- basic fields, DLL classification extension, and Type 3 and Type 4 extension: 29 octets"

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2.3** *P* **88** *L* **34** # r02-11

Jones, Chad — Cisco Systems, Inc.

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

comment r01-103 made the change from 'power class' to 'Power class' to capitalize the field name. but we missed one in the last sentence of this section.

SuggestedRemedy

change 'power class' to 'Power class' on line 34.

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2.6C.3** *P* **92** *L* **50** # r02-126

Darshan, Yair

Comment Type **T** *Comment Status* **R** *LLDP*

In Table 79-6e, last item Power Class Ext class 0 need to be supported as well by Type 3 and 4.
Two options for solution:
a) bits 0000; It should be class 0 and not Reserved/Ignored OR
b) change "0011= class 3" to "0011=class 0, 3"

SuggestedRemedy

Option 1:
Change bits 0000 from Reserved/Ignored to class 0
Option 2 (preferred):
Change "0011= class 3" to "0011=class 0, 3"

Response *Response Status* **C**

REJECT.

There is no requested Class 0 for Type 3 PDs and Type 3/4 PSEs do not assign Class 0.
This field is the Extended field only used by Type 3 and 4.

Cl **79** *SC* **79.3.2.6d** *P* **93** *L* **51** # r02-26

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **A** *LLDP*

OOS

"The 'System setup' field shall contain the device bit-map of the Power Type ext and PD Load defined in Table 79-6f and is reported for the device generating the TLV. The value of the 'System setup' field transmitted by a PSE is undefined."

That last sentence is utter nonsense.

SuggestedRemedy

Strike "The value of the 'System setup' field transmitted by a PSE is undefined."

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2.6d** *P* **94** *L* **9** # r02-145

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **A** *LLDP*

LATE COMMENT --In Table 79-6f, "Power Type ext", the bit value 100 is missing (due to removing Type 1 / Type 2 stuff).

SuggestedRemedy

Change bit numbering such that it counts up properly.

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2.6e** *P* **94** *L* **42** # r02-146

Yseboodt, Lennart Philips Lighting

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

LATE COMMENT --The field "PSE maximum available power" should be called "PSE maximum available power value" in line with PSE allocated power value,
because the power value is expressed in 1/10th of a Watt, not in Watt directly.

SuggestedRemedy

Change "PSE maximum available power" to "PSE maximum available power value" and update the usage in the text.

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2.6f.2** *P* **95** *L* **24** # r02-20

Jones, Chad Cisco Systems, Inc.

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

"Autoclass request" field
convention is single quotes.

SuggestedRemedy

change to: 'Autoclass request' field

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.2.6g** *P* **95** *L* **34** # r02-27

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *LLDP*

OOS

We split the 'Power down' field, but did not update the text.

SuggestedRemedy

Replace text in 79.3.2.6g as follows:
"The 'Power down' field shall contain the bits defined in Table 79-6i. The 'Power down' field allows the PD to request power delivery to be terminated, either indefinitely, or for a certain period of time.

Add new subclause 79.3.2.6g.1:
"When the Power type is PD, this field may be set to 0x1D to indicate a request for power down. If power is to be maintained, the field shall be set to 0.
When the Power type is PSE, this field shall be set to 0."

And 79.3.2.6g.2:
"This field controls the amount of time in seconds the PD is requesting to be unpowered.
When the Power type is PD, this field shall be set per the description in Table 79-6i.
When the Power type is PSE, this field shall be set to 0."

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.8** *P* **96** *L* **11** # r02-144

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *LLDP*

LATE COMMENT -- The TLV information string length for the Measurements TLV is 22, however, it should be 26.

SuggestedRemedy

Change to 26.

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.8.1** *P* **96** *L* **20** # r02-28

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *LLDP*

"The measured voltage field carries the measured voltage value at the PI, the measured current field carries the measured current value at the PI, the measured power value field carries the measured power value at the PI, and the measured energy value field carries the measured energy consumption value at the PI, as defined in Table 79-7b."

Referred to field names are wrong.

Also, a SHALL is missing, making the table normative.

SuggestedRemedy

(field names corrected)

Insert at the beginning of 79.3.8.1
"This field shall be set according to Table 79-7b."

Replace existing text by:
"The 'Voltage measurement' field carries the measured voltage value at the PI, the 'Current measurement' field carries the measured current value at the PI, the 'Power measurement' field carries the measured power value at the PI, and the 'Energy measurement' field carries the measured energy consumption value at the PI, as defined in Table 79-7b."

Response *Response Status* **C**

ACCEPT.

Cl **79** *SC* **79.3.8.2** *P* **98** *L* **34** # r02-21

Jones, Chad — Cisco Systems, Inc.

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

missing single quote around DLL field: PSE power price index field

SuggestedRemedy

change to: 'PSE power price index' field

Response *Response Status* **C**

ACCEPT.

Cl **126** *SC* **126.5.1** *P* **108** *L* **15** # r02-93

Maytum, Michael RETIRED

Comment Type **G** *Comment Status* **R** *Isolation*

The document confuses isolation with insulation. Isolation is a function defined by the IEC as "function intended to make dead for reasons of safety all or a discrete section of the electrical installation by separating the electrical installation or section from every source of electric energy" What the cited tests do is verify the insulation, which can be a solid, a liquid or a gas (e.g. air), or any combination, voltage withstand. For impulses the IEC defines "impulse withstand voltage as the highest peak value of impulse voltage of prescribed form and polarity which does not cause breakdown of insulation under specified conditions. Thus the sentance "This electrical isolation shall withstand at least one of the following electrical strength tests:" should be "The electrical isolation insulation shall withstand at least one of the following electrical strength tests:" This sentence also occurs in 145.4.1,

SuggestedRemedy

The electrical isolation insulation shall withstand at least one of the following electrical strength tests:

Response *Response Status* **C**

REJECT.

(1) Since a PI and BASE-T MDI are the same in the vast majority of cases it wouldn't make sense to just change the PI isolation requirements without changing the BASE-T isolation requirements at the same time, in fact not doing this at the same time could result in conflicting requirements.
(2) There is already an Isolation Ad Hoc working on this issue that is chartered to consider the isolation subclauses throughout IEEE 802.3. It is therefore better to let this conclude its work and address this issues holistically, including Clause 145.
(3) Any change to this text needs to ensure that existing implementation remain conformant.
(4) This comment is out of scope as it is on unchanged text.

Cl **126** *SC* **126.5.1** *P* **108** *L* **18** # r02-94

Maytum, Michael RETIRED

Comment Type **GR** *Comment Status* **R** *Isolation*

TC 109 publishes the horizontal standard IEC 60664 series "Insulation coordination for equipment within low-voltage systems" the preferred impulse is 1.2/50 and as a starting point for testing the peak of the AC voltage, the DC voltage and impulse peak voltage should all be the same. So 1500 V a.c. is 2121 V, close enough to the quoted 2250 V d.c and not too different to the quoted 2400 V impulse peak. In practice the AC and DC voltages are somewhat lower than the impulse peak voltage as longer term effects can come into play. In operation the insulation will be subject to impulses of voltage rather an AC or DC voltages.

SuggestedRemedy

Ensure that the equivalent inpulse peak volrtage for insulation withstand testing is at least equal to the peak of the AC voltage or the DC voltage

Response *Response Status* **W**

REJECT.

(1) Since a PI and BASE-T MDI are the same in the vast majority of cases it wouldn't make sense to just change the PI isolation requirements without changing the BASE-T isolation requirements at the same time, in fact not doing this at the same time could result in conflicting requirements.
(2) There is already an Isolation Ad Hoc working on this issue that is chartered to consider the isolation subclauses throughout IEEE 802.3. It is therefore better to let this conclude its work and address this issues holistically, including Clause 145.
(3) Any change to this text needs to ensure that existing implementation remain conformant.
(4) This comment is out of scope as it is on unchanged text.

Cl **126** SC **126.5.1** P **108** L **21** # r02-96

Maytum, Michael RETIRED

Comment Type **G** *Comment Status* **R** *Isolation*

"The shape of the impulses is 1.2/50 micros (1.2 micros virtual front time, 50 micros virtual time or half value), as defined in Annex N of IEC 60950-1:2001." IEC 60950-1 will be killed off by TC 108. It is better to refer the the horizontal standard that defines the 1.2/50 impulse. That standard is IEC 60060-1:2010 High-voltage test techniques - Part 1: General definitions and test requirements from TC 42.

SuggestedRemedy

Replace " Annex N of IEC 60950-1:2001." with " IEC 60060-1"

Response *Response Status* **C**

REJECT.

(1) Since a PI and BASE-T MDI are the same in the vast majority of cases it wouldn't make sense to just change the PI isolation requirements without changing the BASE-T isolation requirements at the same time, in fact not doing this at the same time could result in conflicting requirements.
(2) There is already an Isolation Ad Hoc working on this issue that is chartered to consider the isolation subclauses throughout IEEE 802.3. It is therefore better to let this conclude its work and address this issues holistically, including Clause 145.
(3) Any change to this text needs to ensure that existing implementation remain conformant.
(4) This comment is out of scope as it is on unchanged text.

Cl **145** SC **145.1** P **109** L **21** # r02-71

Stover, David Analog Devices Inc.

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

Missing a space between sentences

SuggestedRemedy

Change:
"...or simply Midspans.The PD is an element..."
To:
"...or simply Midspans. The PD is an element..."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

add the space
change to: "or simply Midspans. The PD is an element"

Cl **145** SC **145.1** P **109** L **21** # r02-12

Jones, Chad Cisco Systems, Inc.

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

missing space between sentences. "or simply Midspans.The PD is an element "

SuggestedRemedy

add the space
change to: "or simply Midspans. The PD is an element"

Response *Response Status* **C**

ACCEPT.

Cl **145** SC **145.1.4** P **113** L **3** # r02-13

Jones, Chad Cisco Systems, Inc.

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

we reordered the elements of this sentence and now the commas are out of place.
Current text: Class D, or better, cabling as specified in ISO/IEC 11801:1995 with the additional requirement that the channel DC loop resistance is 25 [Ohm] or less is required to support operation as specified in this Clause.

SuggestedRemedy

Change to: Class D or better cabling as specified in ISO/IEC 11801:1995, with the additional requirement that the channel DC loop resistance is 25 [Ohm] or less, is required to support operation as specified in this Clause.

Response *Response Status* **C**

ACCEPT.

Cl **145** SC **145.2.2** P **114** L **49** # r02-72

Stover, David Analog Devices Inc.

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

Period placed inside quotation marks (2 locations)

SuggestedRemedy

Line 49
Change "Endpoint PSE."
To "Endpoint PSE".

Line 51
Change "Midspan PSE."
To "Midspan PSE".

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.2** *P* **115** *L* **1** # r02-73

Stover, David — Analog Devices Inc.

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

"PSEs can be compatible with any of the following: 10BASE-T, 100BASE-TX, 1000BASET, 2.5GBASE-T,
5GBASE-T, 10GBASE-T."

1000BASE-T is missing a hyphen

SuggestedRemedy

Change
"1000BASET"
To
"1000BASE-T"

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.1** *P* **123** *L* **25** # r02-106

Darshan, Yair

Comment Type **T** *Comment Status* **R** *Backoff*

A 4-pair Midspan is required to block DC path. So, if it switches to 2-pairs, it still can't get detection voltage from a switch since the DC path is blocked. As a result, no need to Enable backoff. Per the state machine in page 143 in the exit from the DETECT_EVAL to BACKOFF state, if a 4-pair midspan is set to pse_alternative = b and sig_pri = invalid, the PSE will have to do backoff which in this case is not required and incorrect.
Possible solution:
a) to add text on page 123 after line 24 that says "supporting backoff is not required for a 4-pair Midspan."
b) make changes in the state machine by changing the exit from DETECT_EVAL to BACKOFF from: (pse_alternative = b) * (sig_pri = invalid)
to: midspan*(pse_alternative = b) * (sig_pri = invalid) and to add a constant "midspan".

SuggestedRemedy

1. Add the following text on page 123 after line 24: "supporting backoff is not required for a 4-pair Midspan operating over 2-pairs or 4-pairs."
2. change the exit from DETECT_EVAL to BACKOFF from: (pse_alternative = b) * (sig_pri = invalid)
To: (midspan=1)*(pse_alternative = b) * (sig_pri = invalid)
3. Add the following constant to 145.2.5.3
midspan
A constant indicating the if PSE is a 4-pair Midspan.
Values:
0: The PSE is a 4-pair Midspan.
1: The PSE is not a 4-pair Midspan.

Response *Response Status* **C**

REJECT.

Here is the beginning of the paragraph you commented on:
"A PSE performing detection using only Alternative B may fail to detect a valid PD detection signature. When this occurs, the PSE shall back off for at least Tdbo as defined in Table 145-16 before attempting another detection, except in the case of an open circuit as defined in 145.2.6.6."

Clearly this requirement only applies to 2-pair operation on Alternative B.

Also, the logic you point out from DETECT_EVAL to BACKOFF: (pse_alternative = b) * (sig_pri = invalid) already makes it clear that this is 2-pair operation on alternative b (4-pair operation would use pse_alternative = both).

Cl **145** *SC* **145.2.5.4** *P* **127** *L* **20** # r02-108

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

The text "This variable is set per this description." that we add to several variables looks that it doesn't add any value.
See http://www.ieee802.org/3/bt/public/nov17/yseboodt_06_1117_final.pdf

SuggestedRemedy

Delete the text in this variable and all others where it is used or explain why we need it.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.2.5.4** *P* **127** *L* **51** # r02-107

Darshan, Yair

Comment Type **E** *Comment Status* **A** *Pres: Yseboodt2*

The link to MirroredPDAutoclassRequest is Table 145-39 and not Table 145-38.

SuggestedRemedy

Change from Table 145-38 to Table 145-39

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Adopt changes in yseboodt_0118_02_dllmappings.pdf

Also, on page 241, line 49 change Table 145-38 to Table 145-39.

[Editor's note added after the close of comment resolution:

the full file path is http://www.ieee802.org/3/bt/public/jan18/yseboodt_02_0118.pdf]

Cl **145** *SC* **145.2.5.4** *P* **128** *L* **36** # r02-103

Johnson, Peter

Comment Type **T** *Comment Status* **A** *PSE SD*

The state variable descriptions for 'option_class_probe_pri' and 'option_class_probe_sec' describe a process whereby the 3-event class probe is always followed by a Vreset for Trest, and then by a "normal classification procedure" (i.e. Class Event 1, LCE). The state diagrams on pages 149 and 153 show a second option whereby, if PSE power available is greater or equal to Class 4, the CLASS_PROBE_PRI (and SEC) return to IDLE_PRI (and SEC). So whatever is intended with this second branch out of CLASS_PROBE_PRI (SEC) is abiguous and in conflict with variable definition.

SuggestedRemedy

Either the state diagram needs to be altered to agree with the variable description or more clarification is required in the variable description to match the behavior in the state diagram.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Strike ", followed by a normal classification procedure" from the description of option_class_probe_pri and option_class_probe_sec.

Cl **145** *SC* **145.2.5.4** *P* **129** *L* **26** # r02-89

Law, David Hewlett Packard Enter

Comment Type **T** *Comment Status* **A** *PSE SD*

The variable option_vport_lim is defined but doesn't seem to be used anywhere.

SuggestedRemedy

If the variable option_vport_lim isn't used delete its definition from subclause 145.2.5.4 as well as its reference in function do_initialize in subclause 145.2.5.6.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

1) Delete option_vport_lim from variable list.
2) add "This variable is set per this description." to the end of option_vport_lim_pri (and _sec)
3) add "or the PSE does not implement this option." to the end of the FALSE description for both _pri and _sec variables.
4) remove all vport_lim entries from do_initialize

Cl **145** *SC* **145.2.5.4** *P* **130** *L* **34** # r02-124

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

In the variable pd_req_pwr, the text "If pse_avail_pwr is less than 4" is no longer correct. In addition, it doesn't add any additional value
that is not already clear by the state machine.

SuggestedRemedy

Change from "The variable indicates the PD requested Class. When a PD requests a higher Class than a PSE can support, the PSE assigns the PD to Class 3, Class 4, or Class 6, whichever is the highest Class it can support. If pse_avail_pwr is less than 4 and option_class_probe is FALSE, this variable may
not contain the PD requested Class; do_class_probe also returns this variable."
To: "The variable indicates the PD requested Class. When a PD requests a higher Class than a PSE can support, the PSE assigns the PD to Class 3, Class 4, or Class 6, whichever is the highest Class it can support. do_class_probe also returns this variable."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.2.5.4** *P* **130** *L* **49** # r02-101

Johnson, Peter

Comment Type **T** *Comment Status* **R** *PSE SD*

The state variables 'power_available', 'power_available_pri', and 'power_available_sec' are described as "This variable may be set by the PSE at any time." This does not seem to be true in the state machine as this variable only appears in the POWER_ON state. It is not a pre-condition of powering a PD.

SuggestedRemedy

Alter the description in each of these three variables to be "This variable is set per this description." Perhaps expand the variable description to include "during normal operating state" or something to that effect.

Response *Response Status* **C**

REJECT.

The PSE can set this variable at any time, but it is only checked in the PowerON states. "this variable is set per this description" is only used for variables that must follow the definition explicitely (in other words they act like an equation).

Cl **145** *SC* **145.2.5.4** *P* **131** *L* **6** # r02-97

Johnson, Peter

Comment Type **E** *Comment Status* **A** *PSE SD*

Variable definitions for power_available_pri and power_available_sec should be pairset specific.

SuggestedRemedy

Change each of these as follows:
FALSE: PSE is no longer capable of sourcing power on the Primary Alternative.
TRUE: PSE is capable to continue to source power on the Primary Alternative.
(replicate for power_available_sec)

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.4** *P* **133** *L* **14** # r02-102

Johnson, Peter

Comment Type **T** *Comment Status* **R** *PSE SD*

The state variables 'pse_reset', 'pse_reset_pri', and 'pse_reset_sec' include the description "This variable is set per this description". However, it's not clear why these variables cannot be manipulated at any time the by the PSE.

SuggestedRemedy

Change description to "This variable may be set by the PSE at any time."

Response *Response Status* **C**

REJECT.

While it does say that it is set according to the description, the description includes "It is also TRUE when implementation-specific reasons require reset of PSE functionality." In addition, this variable cannot be set FALSE at any time as this is not allowed when the power supply is not ready.

Cl **145** *SC* **145.2.5.4** *P* **133** *L* **39** # r02-109

Darshan, Yair

Comment Type **T** *Comment Status* **A** *PSE SD*

In the following text Class 0 should be adressed as well:
"pse_ss_mode
A variable that controls whether the PSE provides power over 2 pair or 4 pair to a single-signature
PD assigned to Class 1 through Class 4. This variable may be set by the PSE at any time.
0: Single-signature PD is powered over 2 pair.
1: Single-signature PD is powered over 4 pair."

Type 3 or 4 PSEs that detects PD with class 0 which they have to support over 2-pairs and allowed to support it over 4-pairs as well are not covered by the above variable description.

In adition, it is not sufficient that in Table 145-11 class 0 is adressed i.e. the rest of the spec in the PSE section need to be sync to it by simply change all ocurences of "class 3 = Class 3" to "Class 0, Class 3" and from "Class 1 to Class X" to "Class 0 to Class X". These are covered by seperate comments.

SuggestedRemedy

Change the text to:
"pse_ss_mode
A variable that controls whether the PSE provides power over 2 pair or 4 pair to a single-signature
PD assigned to Class 1 through Class 4. Class 0 PD is treated as Class 3 PD.This variable may be set by the PSE at any time.
0: Single-signature PD is powered over 2 pair.
1: Single-signature PD is powered over 4 pair."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace Table 145-11 on page 138, line 11 with Table 145-13

Cl **145** *SC* **145.2.5.4** *P* **134** *L* **20** # r02-99

Johnson, Peter

Comment Type **E** *Comment Status* **A** *PSE SD*

The state variables short_det_pri and short_det_sec should make reference to the applicable short circuit clause much like the state variables ovld_det_pri and ovld_det_sec. This better assures that the state machine behavior of these error conditions (bundled into error_pri and error_sec) are subject to the approprite rules such as Tlim.

SuggestedRemedy

Add "See 145.2.8.8" into each of the variable descriptions.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.4** *P* **134** *L* **31** # r02-88

Law, David Hewlett Packard Enter

Comment Type **E** *Comment Status* **A** *PSE SD*

Suggest that '... state diagram to kick off the ...' should be changed to read '... state diagram to initiate the ...'.

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.4** *P* **134** *L* **44** # r02-74

Stover, David Analog Devices Inc.

Comment Type **G** *Comment Status* **A** *Editorial*

"temp_var_sec" refers to "pd_class_sig_pri", should refer to "pd_class_sig_sec".

SuggestedRemedy

Change:
A variable used to store the previous value of the variable pd_class_sig_pri for the Secondary
Alternative.
To:
A variable used to store the previous value of the variable pd_class_sig_sec for the Secondary
Alternative.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.6** *P* **137** *L* **22** # r02-110

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Editorial*

The function do_autoclassification returns only one variable and not variables.

SuggestedRemedy

Change the text 'This function returns the following variables:"
To: "This function returns the following variable:"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the text 'This function returns the following variables:"
To: "This function returns the following variable:"
Make same change on line 35 for do_class_probe

Cl **145** *SC* **145.2.5.6** *P* **138** *L* **20** # r02-98

Johnson, Peter

Comment Type **T** *Comment Status* **R** *PSE SD*

The Functions 'do_classification_pri' and 'do_classification_sec' seem highly unconventional as they seem to operate at two levels of the Primary and Secondary PSE state machines. On a per class event level, they (presumably) produce class signatures. But additionally, they return the variables pd_req_pwr_pri (sec) and pd_allocated_pwr_pri (sec) that really should come from CLASS_EVAL_PRI and CLASS_EVAL_SEC, as seems to be the case in the top level (single signature) state machine where the Function 'do_classification' simply returns the class signature from a single event as shown in the state diagrams.

SuggestedRemedy

If this is truly seen to be an issue, then 'do_classification_pri' (and sec) should just return class signatures per class event and the variables pd_req_pwr_pri (sec) and pd_allocated_pwr_pri (sec) should be defined along with pd_req_pwr in 145.2.5.4.

Response *Response Status* **C**

REJECT.

While you are correct that we are inconsistent, the SD is technically correct and consensus was not reached to change it.

Cl **145** *SC* **145.2.5.6** *P* **140** *L* **18** # r02-29

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **A** *PSE SD*

Variables option_class_probe_pri and option_class_probe_sec are missing from returned variable in the do_initialize function.

SuggestedRemedy

Add both variables.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.6** *P* **140** *L* **26** # r02-100

Johnson, Peter

Comment Type **T** *Comment Status* **A** *PSE SD*

The state variable 'option_vport_lim' (and ..._pri , ... _sec) are shown as being returned by the Function 'do_initialize'. This does not seem to be consistent with the purpose of these variables that are defined to report an operating condition during the POWER_ON state, albeit the purpose of 'do_initialize' is not clear in the PSE state machine. First problem is that the variable 'option_vport_lim' is not used anywhere in state processing. Further, the 'pri' and 'sec' versions of these variables are processed identically to 'short_det_pri', 'short_det_sec', 'overld_det_pri' and 'overld_det_sec'. They all have meaning only during the POWER_ON state.

SuggestedRemedy

Remedies: 1) Remove from 'do_initialization' 2) Remove 'option_vport_lim' altogether 3) Specify in the definitions of 'option_vport_lim_pri' and 'option_vport_lim_sec' that "This variable is set per this description" much like the write-ups for 'overld_det_pri' and 'short_det_pri'.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

1) Delete option_vport_lim from variable list.
2) add "This variable is set per this description." to the end of option_vport_lim_pri (and _sec)
3) add "or the PSE does not implement this option." to the end of the FALSE description for both _pri and _sec variables.
4) remove all vport_lim entries from do_initialize

Cl **145** *SC* **145.2.5.6** *P* **140** *L* **49** # r02-9

Anslow, Peter Ciena Corporation

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

Three instances of references to 145.2.5.4 that are text rather than cross-references.

SuggestedRemedy

On page 140, lines 49 and 54, and page 141, line 5 make "145.2.5.4" a cross-reference. Check and fix other instances of missing cross-references by searching for "145." in FrameMaker (cross-references will not match).

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.7** *P* **142** *L* # r02-140

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

There is a problem that tcc2det_ timer is not used as a condition to the states and the flow after SISM_START in CC_DET_SEQ=0 or 3 as required by the definition of this timer. This can cause detection on primary to start after tcc2tdet timer has expried.
In fact, we need to ensure that all the inputs coming to START_DET_PRI need to be conditioned by tcc2det_ timer not done.

SuggestedRemedy

Make the following changes:
1. From INIT_PRI to START_DET_PRI: change from "CC_DET_SEQ!=2" to "(CC_DET_SEQ=0)+(CC_DET_SEQ=3)*!tcc2det_timer_done+ (CC_DET_SEQ=1)"
2. Add exit from INIT_PRI to IDLE_:
"(CC_DET_SEQ=0)+(CC_DET_SEQ=3)*tcc2det_timer_done

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.2.7** *P* **142** *L* **1** # r02-141

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Pres: Darshan3*

PSE state machine need to be updated per the updated simulation results

SuggestedRemedy

Adopt darshan_03_0118.pdf

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change transition from poweroff to nopower to Vpd < Vmark_th.

Move nopower <= TRUE assignment to poweroff.

Cl **145** *SC* **145.2.5.7** *P* **142** *L* **6** # r02-86

Law, David Hewlett Packard Enter

Comment Type **ER** *Comment Status* **A** *Editorial*

Suggest that 'do_initialialize' should read 'do_initialize' in the IDLE state in Figure 145-13.

SuggestedRemedy

See comment.

Response *Response Status* **W**

ACCEPT.

Cl **145** *SC* **145.2.5.7** *P* **142** *L* **7** # r02-30

Yseboodt, Lennart Philips Lighting

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

do_initialialize in IDLE is misspelled.

SuggestedRemedy

Change to do_initialize

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7** *P* **142** *L* **7** # r02-135

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Editorial*

Typo in "do_initialialize" in IDLE. Need to be "do_initialize"

SuggestedRemedy

Change from "do_initialialize" to "do_initialize"

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7** *P* **142** *L* **9** # r02-138

Darshan, Yair

Comment Type **T** *Comment Status* **R** *PSE SD*

pse_allocated_pwr is set to zero in the IDLE state although in CLASSIFICATION state (page 144) we have the same initialization. The proper place is to use it in CLASSIFICATION which is the first time we need it and we have it there.

SuggestedRemedy

Remove pse_allocated_pwr from IDLE.

Response *Response Status* **C**

REJECT.

Pse_allocated_pwr is set to 0 in idle as there are many ways of getting to IDLE. Once the the PSE is in the IDLE state, the PSE has released all power allocation. The definiton of pse_allocated_pwr = 0 is "no power has been assigned the the PD" which is correct.

Cl **145** *SC* **145.2.7** *P* **142** *L* **14** # r02-136

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

In the IDLE state, the do_initialize function return the variable alt_pri (in which "a" or "b" is set) and also pse_alternative is set (which Pinouts Alternative PSE uses A, B or both))".
Later, still in IDLE state, we have the following IF statement:
IF (pse_alternative != both) THEN
alt_pri <== pse_alternative
END
The problem is that to initialize alt_pri in two locations in the same state is redundant and confusing.
Proposal
1. To delete alt_pri from the function do_initialize on page 140 line 17.
2. To restore what we had in D3.1:
IF (pse_alternative != both) THEN
alt_pri <== pse_alternative
ELSE alt_pri <== user defined
END.

SuggestedRemedy

1. To delete alt_pri from the function do_initialize on page 140 line 17.
2. To restore what we had in D3.1:
IF (pse_alternative != both) THEN
alt_pri <== pse_alternative
ELSE alt_pri <== user defined
END

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.2.5.7** *P* **143** *L* **17** # r02-90

Law, David Hewlett Packard Enter

Comment Type **T** *Comment Status* **A** *PSE SD*

In Figure 145-13 the transition from BACKOFF to IDLE could be misread to require two conditions, 'tdbo_timer_done' and then the second (pse_alternative = both) * ((det_temp ... = b) * (sig_pri = open_circuit).

SuggestedRemedy

Suggest that the horizontal line and arrow from the BACKOFF state be lowered so that it connects to the IDLE arrow box in the lower right of the page.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7** *P* **143** *L* **19** # r02-139

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

There is error in the exit from CXN_CHK_DETECT_EVAL to SISM_START.
We got to this place after setting CC_DET_SEQ=2 where we did detection and connection check which required both pairs to be with valid signature to continue with sism=TRUE.
Therefore the condition (sig_type = dual) *((sig_pri = valid) +(sig_sec = valid)) need to be (sig_type = dual) *((sig_pri = valid) * (sig_sec = valid)).
As a result the condition from CXN_CHK_DETECT_EVAL to IDLE need to be updated accordingly to "(sig_type = invalid) +(sig_type = single) *((sig_pri != valid) +(sig_sec != valid)) +(sig_type = dual) *((sig_pri != valid) +(sig_sec != valid))"

SuggestedRemedy

1. Change the exit from CXN_CHK_DETECT_EVAL to SISM_START from:
(sig_type = dual) *((sig_pri = valid) +(sig_sec = valid))
To: (sig_type = dual) *((sig_pri = valid) * (sig_sec = valid))
2. Change the exit from CXN_CHK_DETECT_EVAL to IDLE from:
"(sig_type = invalid) +(sig_type = single) *((sig_pri != valid) +(sig_sec != valid)) +(sig_type = dual) *(sig_pri != valid) *(sig_sec != valid)"
To: "(sig_type = invalid) +(sig_type = single) *((sig_pri != valid) +(sig_sec != valid)) +(sig_type = dual) *((sig_pri != valid) +(sig_sec != valid))"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.2.7** *P* **144** *L* **33** # r02-137

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

In comment r01-174 (D3.1) we did some changes that are not required.
In the exit from CLASS_EV2 to MARK_EV2 we add the variable "*(pse_alternative=both)"
In the exit from CLASS_EV2 to MARK_EV_LAST we add the variable "*(pse_alternative != both)"
This is not required since the argument that was used to justify this change can't happen since pse_allocated_pwr is set to 4 in CLASS_EV2 and can't be higher then 4.

SuggestedRemedy

Restore to D3.1 all the changes done for comment r01-174.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.2.7** *P* **146** *L* **9** # r02-111

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE SD*

There is missing parenthesis in the logic of the POWER_UP state when alt_pwrd_sec=TRUE and tinrush timer sec is started.
The current logic is:
IF (pse_alternative = both) *(pse_ss_mode = 1) +(pse_allocated_pwr > 4) THEN
alt_pwrd_sec <== TRUE
start tinrush_timer_sec
END
It should be that alt_pwrd_sec=TRUE and tinrush timer sec is started when:
pse_alternative=BOTH and pse_ss_mode=1 [i.e. working over 4-pairs with class 1-4]
OR
Pse_alternative=BOTH and pse_allocated_pwr>4
which result with:
(pse_alternative=BOTH)* ((pse_ss_mode=1)+(pse_allocated_pwr>4))

SuggestedRemedy

Change from: "IF (pse_alternative = both) *(pse_ss_mode = 1) +(pse_allocated_pwr > 4) THEN "
To: "IF (pse_alternative = both) *((pse_ss_mode = 1) +(pse_allocated_pwr > 4)) THEN "

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.2.5.7** *P* **146** *L* **37** # r02-87

Law, David Hewlett Packard Enter

Comment Type **ER** *Comment Status* **A** *PSE SD*

In Figure 145-13, on the transition from POWER_ON to ERROR_DELAY, in the second line of the equation, 'error sec' should read 'error_sec' (space needs to be replaced with an underscore).

SuggestedRemedy

See comment.

Response *Response Status* **W**

ACCEPT.

Cl **145** *SC* **145.2.5.7** *P* **147** *L* **42** # r02-91

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A** *PSE SD*

The variable pse_dll_ready is not defined in subclause 145.2.5.4 'Variables', but used in Figure 145-14.

SuggestedRemedy

Suggest that the following is added to subclause 145.2.5.4 'Variables':

pse_dll_ready: See pse_dll_ready in 145.5.3.2.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Copy definiton of pse_dll_ready from 145.5.3.2.2 to 145.2.5.4

Change definition in 145.5.3.2.2 to:
pse_dll_ready: See pse_dll_ready in 145.2.5.4.

Cl **145** *SC* **145.2.5.7** *P* **148** *L* **17** # r02-133

Darshan, Yair

Comment Type **T** *Comment Status* **R** *PSE SD*

This comment is marked AVI_22 in D3.1 COMMENT 433 and was not resolved fully by http://www.ieee802.org/3/bt/public/nov17/yseboodt_03_1117_final.pdf as indicated by the remedy for r01-433.
The variable det_start_pri is set to TRUE in INIT_PRI. In case CC_DET_SEQ=2 the variable det_start_pri is set to TRUE after detection is done and the purpose of this variable is to indicate when detection is start which is the primary tells the secondary that it is between START_DETECT and POWER_UP.
In addition, in all other CC_DET_SEQ sequences, det_start_pri is set to TRUE in INIT_PRI and then again in START_DETECT_PRI which is redundant.
The solution is to move "det_start_pri <== TRUE" from INIT_PRI to START_CXN_CHK_DETECT which is the correct place for CC_DET_SEQ=2.
The same problem applies to the secondary as well.

SuggestedRemedy

1. Move "det_start_pri <== TRUE" from INIT_PRI to START_CXN_CHK_DETECT on page 142.
2. Move "det_start_sec <== TRUE" from INIT_SEC to START_CXN_CHK_DETECT on page 142.

Response *Response Status* **C**

REJECT.

This comment does not show a set of conditions under which the state diagram does not work.

Cl **145** *SC* **145.2.5.7** *P* **149** *L* **8** # r02-31

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *PSE SD*

OOS

From state CLASSIFICATION_PRI to CLASS_EV1_LCE_PRI the exit branch variable is !option_class_probe.
This should not depend on the Single signature variable but on the dual sig variable.

SuggestedRemedy

Change to: !option_class_probe_pri

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.7** *P* **152** *L* **7** # r02-32

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *PSE SD*

In state ENTRY_SEC the variable "alt_done_pri" is set to False.
This should be "alt_done_sec".

Copy paste mistake versus baseline yseboodt_03_1117_final.pdf

SuggestedRemedy

Change "alt_done_pri" to "alt_done_sec".

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.7** *P* **153** *L* **8** # r02-33

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *PSE SD*

OOS

From state CLASSIFICATION_SEC to CLASS_EV1_LCE_SEC the exit branch variable is !option_class_probe.
This should not depend on the Single signature variable but on the dual sig variable.

SuggestedRemedy

Change to: !option_class_probe_sec

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.6.1** *P* **157** *L* **17** # r02-34

Yseboodt, Lennart — Philips Lighting

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

OOS

Detection and connection check are two different things, operating at about the same level. And yet, the connection check subclause (145.2.6.1) is under the detection subclause (145.2.6).

It would make more sense to have connection check sit at the same level as detection. What do we do with the 4PID subclause, which has depencies on detection, cc, classification, and mutual ID.

If we structure things roughly in the same way as they happen, we should have all of them sit at the 145.X.Y level in this order:
145.2.6 Detection
145.2.6a Connection check
145.2.7 PSE classification of PDs and mutual ID
145.2.7a 4PID requirements
145.2.8 Power supply output

SuggestedRemedy

Reshuffle subclauses as follows:
145.2.6 PSE detection of PDs [NO CHANGE]
145.2.6a Connection check [Bump up 1 level, change subclause title, move here]
145.2.7 PSE classification of PDs and mutual ID [NO CHANGE]
145.2.7a 4PID requirements [Bump up 1 level, move here]
145.2.8 Power supply output [NO CHANGE]

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145** *P* **157** *L* **45** # r02-1

Anslow, Peter — Ciena Corporation

Comment Type **TR** *Comment Status* **A** *Editorial*

The response to unsatisfied comment r01-30 against D3.1 was:
"REJECT.
The comment resolution group believes that the em-dash is technically inaccurate for these entries as it means there is "a lack of data". In Clause 145 the empty cells are due to openended ranges, not a lack of data."
In order to clarify the meaning of an em-dash in tables within 802.3, a comment has been submitted against the revision project with the following suggested remedy
Add a new subclause 1.2.8:
1.2.8 Em dash (--) in a table cell
A table cell containing an em-dash (--) indicates a lack of data for that cell, or:
- For a units cell, that there is no unit for that parameter
- For a maximum cell, that there is no requirement on the maximum value of that parameter
- For a minimum cell, that there is no requirement on the minimum value of that parameter

SuggestedRemedy

Make sure all tables have an entry of em-dash or pointer to the requirement in currently blank min or max columns in accordance with all other recent amendments to IEEE 802.3. In particular, Tables 145-7, 145-8, 145-9, 145-10, 145-14, 145-15, 145-16, 145-21, 145-25, 145-28, 145-29, 145-32, 145-33.

Response *Response Status* **W**

ACCEPT.

Cl **145** *SC* **145.2.6.5** *P* **159** *L* **52** # r02-35

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **A** *PSE Detection*

OOS

"The PSE shall reject as an invalid detection signature, a pairset which exhibits any of the following characteristics as defined in Table 145-10."

Typical of AF-era text it refers to things by relative position. Problem is, what follows is Table 145-9, not the list that is being referred to.

SuggestedRemedy

Fix as follows:
"The PSE shall reject as an invalid detection signature, a pairset which exhibits any of the following characteristics:" [FRAME: keep with next]
" a) Resistance less than or equal to R bad min, or
b) Resistance greater than or equal to R bad max, or
c) Capacitance greater than or equal to C bad min. " [FRAME: keep with next]
"R bad min, R bad max, and C bad min are defined in Table 145-10."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.6.5** *P* **159** *L* **53** # r02-125

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Ediorial*

Typo: ".. Reject **as** an invalid..". Remove "as".

SuggestedRemedy

Remove "as".

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.2.6.4** *P* **160** *L* **1** # r02-14

Jones, Chad — Cisco Systems, Inc.

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

any way to keep Table 145-9 with 145.2.6.4? right now it's in the middle of 145.2.6.5 and right below a call to a table but not that table.

SuggestedRemedy

editor to tie Table 145-9 to 145.2.6.4

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7** *P* **161** *L* **25** # r02-36

Yseboodt, Lennart — Philips Lighting

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

OOS

"The PD responds to each class event with a current representing one of a limited number of class signatures. The class signatures generated by the PD indicate the PD requested Class. See Table 145-26 and Table 145-27 for a mapping of class signature to the PD requested Class."

This is the first attempt at defining the PD requested Class. Given that we have removed Class 0 (compared to Type 1), this seems a good place to mention that.

SuggestedRemedy

Add a note after this paragraph:
"NOTE --- For Type 3 PDs, a requested Class 0 is not defined. Type 1 PDs that did not implement Physical Layer classification requested Class 0, with a power level equivalent to Class 3."

Insert the same note in 145.3.6.1, on page 201, line 4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note after this paragraph:
"NOTE --- For Type 3 PDs, a requested Class 0 is not defined. Type 1 PDs that did not implement Physical Layer classification requested Class 0, with a power level equivalent to Class 3. PDs that request Class 0 are assigned Class 3 by Type 3 and Type 4 PSEs."

Insert the same note in 145.3.6.1, on page 201, line 4.

Cl **145** *SC* **145.2.7** *P* **161** *L* **33** # r02-37

Yseboodt, Lennart — Philips Lighting

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

OOS

The sentence "The minimum power output a PSE supports depends on the assigned Class."

The equivalent dual-sig sentence says "minimum output power".

SuggestedRemedy

Change to "The minimum output power a PSE supports depends on the assigned Class."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7** *P* **162** *L* **18** # r02-15

Jones, Chad — Cisco Systems, Inc.

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

missing space after comma: "increased by at least Pac_margin,as defined in". Add space.

SuggestedRemedy

change to: "increased by at least Pac_margin, as defined in"

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7** *P* **162** *L* **19** # r02-75

Stover, David — Analog Devices Inc.

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

Missing a space between words

SuggestedRemedy

Change:
"Pac_margin,as defined..."
To:
"Pac_margin, as defined..."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change to: "increased by at least Pac_margin, as defined in"

Cl **145** *SC* **145.2.7** *P* **162** *L* **19** # r02-112

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Pres: Darshan1*

In D3.1 we had the text "PSEs that have additional information about the actual link section DC resistance or temperature conditions may choose to use a lower Autoclass margin than that defined by Equation (145-4)." and it was removed in D3.2. It is better if it will be restored since the difference between worst case margin Pac_margin and the actual margin required is not negligible.

SuggestedRemedy

Add the following text after line 21 in page 162:
"PSEs that have additional information about the actual link section DC resistance or temperature conditions may choose to use a lower Autoclass margin than that defined by Table 145-15."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.2.7** *P* **162** *L* **22** # r02-113

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Autoclass*

I don't see the justification to remove the text from D3.1: "PSEs that have additional information about the actual link section DC resistance or temperature conditions may choose to use a lower Autoclass margin than that defined by Equation (145-4)."

SuggestedRemedy

Append the following text after line 21: "PSEs that have additional information about the actual link section DC resistance or temperature conditions may choose to use a lower Autoclass margin than that defined by Equation (145-4)."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.2.7.1** *P* **165** *L* **2** # r02-38

Yseboodt, Lennart — Philips Lighting

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

OOS

In the PD section, the class sig table is titled "Class signature, measured at the PD PI"

In the PSE section, the equivalent is called "PD class signatures"

The header in Table 145-13 is mentioning PD in PSE section.
Make consistent with PD table header.

SuggestedRemedy

Change table titles to
145-13: "Class signature evaluated at the PSE PI"
145-24: "Class signature generated at the PD PI"

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7.1** *P* **165** *L* **23** # r02-39

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *Classification*

OOS

"PSEs shall issue no more class events than the Class they are capable of supporting between the most recent time V PSE was at V Reset for at least T Reset and a transition to any of the power up states."

Nothing wrong with this sentence, however it is incomplete.
A PSE is also not allowed to create 'redundant extra' class events (eg. 2 events for a PD that requests Class 3).

While this proposed shall is duplicate to the state diagram, it is important enough to warrant a PICS entry of its own.

SuggestedRemedy

Add the following after the quoted sentence.

"PSEs connected to a single-signature PD shall issue no more than:
- one class event when the PD requests Class 1 through 3
- three class events when the PD requests Class 4
- four class events when the PD requests Class 5 or 6
- five class events when the PD requests Class 7 or 8
between the most recent time V PSE was at V Reset for at least T Reset and a transition to any of the power up states.

PSEs connected to a dual-signature PD shall issue, for a given pairset, no more than:
- three class events when the PD requests Class 1 through 4
- four class events when the PD requests Class 5
between the most recent time V PSE was at V Reset for at least T Reset and a transition to any of the power up states."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace page 165, line 21-23 with:

"PSEs connected to a single-signature PD shall issue no more class events than the Class they are able to support and no more than:
- one class event when the PD requests Class 0 through 3
- three class events when the PD requests Class 4
- four class events when the PD requests Class 5 or 6
- five class events when the PD requests Class 7 or 8
between the most recent time V PSE was at V Reset for at least T Reset and a transition to any of the power up states.
PSEs connected to a dual-signature PD shall issue, for a given pairset, no more class events than the Class they are able to support and no more than:

- three class events when the PD requests Class 1 through 4
- four class events when the PD requests Class 5

between the most recent time V PSE was at V Reset for at least T Reset and a transition to any of the power up states."

Cl **145** *SC* **145.2.7.1** *P* **165** *L* **33** # r02-76

Stover, David — Analog Devices Inc.

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

" If the Autoclass enabled PSE in CLASS EV1 AUTO measures"
state name is missing underscores

SuggestedRemedy

Change "CLASS EV1 AUTO" to "CLASS_EV1_AUTO"

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7.2** *P* **167** *L* **7** # r02-40

Yseboodt, Lennart — Philips Lighting

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

OOS

"If the PSE implements Autoclass it shall measure P Autoclass when it reaches the POWER_ON state and pd_autoclass is TRUE. P Autoclass is the power provided by the PSE measured throughout the period bounded by T AUTO_PSE1 and T AUTO_PSE2 , defined in Table 145-15. P ac_margin , defined in Table 145-15, is the mini- mum amount of power the PSE adds to P Autoclass in order to allocate enough power to cope with increases in the link section resistance due to temperature increase. T AUTO_PSE1 and T AUTO_PSE2 timing is referenced from the transition of the POWER_UP state to the POWER_ON state."

3 instances of "the XXX_YYY state"

SuggestedRemedy

Remove 'the' and 'state'.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7.2** *P* **167** *L* **7** # r02-41

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *Autoclass*

"If the PSE implements Autoclass it shall measure P Autoclass when it reaches the POWER_ON state and pd_autoclass is TRUE. P Autoclass is the power provided by the PSE measured throughout the period bounded by T AUTO_PSE1 and T AUTO_PSE2 , defined in Table 145-15."

For assigned Class 1-4, if the PSE measures Autoclass in 4P mode, and then switches to 2P mode, the channel losses will roughly double.
Given that the PSE does not know what the PD power is, it cannot guarantee interoperability.

Proposed solution is to require PSEs that plan to transition back into 2P mode, to also make the Autoclass measurement in 2P mode.

SuggestedRemedy

Append sentence at the end of the quoted text:

"Autoclass enabled PSEs that have assigned Class 1 through 4, and have measured PAutoclass in 4-pair mode, shall not transition to 2-pair mode".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Adopt changes yseboodt_03_0118.pdf

[Editor's note added after the close of comment resolution:

the full file path is http://www.ieee802.org/3/bt/public/jan18/yseboodt_03_0118.pdf]

Cl **145** *SC* **145.2.7.2** *P* **167** *L* **22** # r02-42

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *Pres: Yseboodt1*

OOS

The Autoclass timings T_AUTO_PSE1 and T_AUTO_PSE2 are referenced "from the transition of POWER_UP to POWER_ON".

This has two issues:
- it is not observable at the PSE PI when this happens, making it untestable
- the PSE and PD reference points can drift apart by as much as 75ms

While the timings do work out in any permutation, it makes it hard to comprehend.

SuggestedRemedy

Recommend to pick a new unified reference point, which is always the same for PSE and PD and possible adjust timings to compensate.
Adopt yseboodt_01_0118_autoclasstime.pdf

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.7.2** *P* **167** *L* **32** # r02-130

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Autoclass*

Type 3 and 4 PSE when connected to class 0 PD need to support it as well. Table 145-15 items 4: class 1-4 need to be Class 0 to 4

SuggestedRemedy

In Table 145-15:
Change "Class 1-4" to "Class 0 to 4"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.2.7** *P* **167** *L* **36** # r02-121

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Pres: Darshan1*

Pac_margin calculations has some errors and need to be updated. See updates for Pac_margin value in darshan_01_0118.pdf.

SuggestedRemedy

Adopt darshan_01_0118.pdf

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change 1.25 to 1.5 for class 7 and class 8 in Table 145-15

Cl **145** *SC* **145.2.8** *P* **167** *L* **39** # r02-43

Yseboodt, Lennart — Philips Lighting

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

Table 145-16 has been placed inside of 145.2.8.1.

SuggestedRemedy

Make 145.2.8.1 start AFTER Table 145-16.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.1** *P* **167** *L* **46** # r02-44

Yseboodt, Lennart — Philips Lighting

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

OOS

"145.2.8.1 Output voltage in the POWER_ON state"

We don't use 'the XXX state' construction

SuggestedRemedy

Change to:
"145.2.8.1 Output voltage in POWER_ON"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:
"145.2.8.1 Output voltage in a power on state"

Cl **145** *SC* **145.2.8.1** *P* **168** *L* **25** # r02-129

Darshan, Yair

Comment Type **T** *Comment Status* **A**

Type 3 and 4 PSE when connected to class 0 PD need to support it as well. Table 145-16 items 5, 6 and 7: Class 1-4 need to be Class 0 to 4

SuggestedRemedy

In Table 145-16 items 5, 6 and 7:
Change "Class 1-4" to "Class 0 to 4"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note after this paragraph:
"NOTE --- For Type 3 PDs, a requested Class 0 is not defined. Type 1 PDs that did not implement Physical Layer classification requested Class 0, with a power level equivalent to Class 3. PDs that request Class 0 are assigned Class 3 by Type 3 and Type 4 PSEs."

Insert the same note in 145.3.6.1, on page 201, line 4.

Cl **145** *SC* **145.2.8.1** *P* **169** *L* **14** # r02-131

Darshan, Yair

Comment Type **T** *Comment Status* **A**

Type 3 and 4 PSE when connected to class 0 PD need to support it as well. Table 145-16 items 11: Class 1-3 need to be Class 0 to 3

SuggestedRemedy

In Table 145-16 items 11:
Change "Class 1-3" to "Class 0 to 3"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note after this paragraph:
"NOTE --- For Type 3 PDs, a requested Class 0 is not defined. Type 1 PDs that did not implement Physical Layer classification requested Class 0, with a power level equivalent to Class 3. PDs that request Class 0 are assigned Class 3 by Type 3 and Type 4 PSEs."

Insert the same note in 145.3.6.1, on page 201, line 4.

Cl **145** *SC* **145.2.8.1** *P* **169** *L* **32** # r02-77

Lukacs, Miklos Silicon Laboratories

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

The reference to 145.1.3 in the "Additional Information" of row 13 of Table 145-16 is wrong. The cited sub-clause has no information about Ptype.

SuggestedRemedy

Remove the reference.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.1** *P* **169** *L* **45** # r02-132

Darshan, Yair

Comment Type **T** *Comment Status* **A**

Type 3 and 4 PSE when connected to class 0 PD need to support it as well. Table 145-16 items 18: Class 1-4 need to be Class 0 to 4 for 2-pair and 4-pair rows.

SuggestedRemedy

In Table 145-16 items 18 for 2-pair and 4-pair rows:
Change "Class 1-4" to "Class 0 to 4"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note after this paragraph:
"NOTE --- For Type 3 PDs, a requested Class 0 is not defined. Type 1 PDs that did not implement Physical Layer classification requested Class 0, with a power level equivalent to Class 3. PDs that request Class 0 are assigned Class 3 by Type 3 and Type 4 PSEs."

Insert the same note in 145.3.6.1, on page 201, line 4.

Cl **145** *SC* **145.2.8.2** *P* **170** *L* **43** # r02-16

Jones, Chad Cisco Systems, Inc.

Comment Type **E** *Comment Status* **R** *Editorial*

"in a power on state" just two paragraphs above in 145.2.8.1 we changed "a power on state" to "POWER_ON". Did we miss one?

SuggestedRemedy

change "a power on state" to "POWER_ON"

Response *Response Status* **C**

REJECT.

This spec applies to all power on states (SS and DS). The spec you site above only applies to SS PDs and thus only needs to reference POWER_ON.

Cl **145** *SC* **145.2.8.6** *P* **175** *L* **54** # r02-122

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Inrush*

"Power up occurs on each pairset between the transition to a power up state on that pairset and the expiration of TInrush. PSEs that have assigned Class 5 to 8 to a single-signature PD shall reach POWER_UP on both pairsets within TInrush max, starting with the first pairset transitioning into the power up state, and where the second pairset transitions to a power up state anytime within this time period."
1. The above text doesn't cover single-signature PD class 1-4 operating only over 4-pairs regarding power up requirements. They should have the same requirements as for single-signature PD class 5-8.
2. The current text in page 175 lines 54 and page 176 lines 1-2 take care of the possibility to flip between 2P and 4P and is good however this text is also true for class 1-4 operating only over 4-pairs as well.
3. If we are working over 2-pairs only, no special requirements are needed for powerup because it is straight forward and explained in page 175 lines 52-53 as for when powerup occurs.

SuggestedRemedy

Change from: "Power up occurs on each pairset between the transition to a power up state on that pairset and the expiration of TInrush. PSEs that have assigned Class 5 to 8 to a single-signature PD shall reach POWER_UP on both pairsets within TInrush max, starting with the first pairset transitioning into the power up state, and where the second pairset transitions to a power up state anytime within this time period."
To: "Power up occurs on each pairset between the transition to a power up state on that pairset and the expiration of TInrush. PSEs connected to single-signature PD that operates over 4-pairs shall reach POWER_UP on both pairsets within TInrush max, starting with the first pairset transitioning into the power up state, and where the second pairset transitions to a power up state anytime within this time period."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

adopt changes in yseboodt_05_0118.pdf

[Editor's note added after the close of comment resolution:

the full file path is http://www.ieee802.org/3/bt/public/jan18/yseboodt_05_0118.pdf]

Cl **145** *SC* **145.2.8.8** *P* **178** *L* **12** # r02-78

Lukacs, Miklos Silicon Laboratories

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

Ilps is referring to to a current on a pairset, but this is not shown in the name of this parameter.

SuggestedRemedy

Rename Ilps to Ilps-2p

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.8** *P* **178** *L* **32** # r02-79

Lukacs, Miklos Silicon Laboratories

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

Ilps is referring to to a current on a pairset, but this is not shown in the name of this parameter.

SuggestedRemedy

Rename Ilps to Ilps-2p

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.8** *P* **178** *L* **40** # r02-80

Lukacs, Miklos Silicon Laboratories

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

Ilps is referring to to a current on a pairset, but this is not shown in the name of this parameter.

SuggestedRemedy

Rename Ilps to Ilps-2p

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.12** *P* **179** *L* **52** # r02-81

Lukacs, Miklos — Silicon Laboratories

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

Ilps is referring to to a current on a pairset, but this is not shown in the name of this parameter.

SuggestedRemedy

Rename Ilps to Ilps-2p

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.12** *P* **180** *L* **4** # r02-82

Lukacs, Miklos — Silicon Laboratories

Comment Type **G** *Comment Status* **A** *Editorial*

Ilps is referring to to a current on a pairset, but this is not shown in the name of this parameter.

SuggestedRemedy

Rename Ilpsto Ilps-2p

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.2** *P* **183** *L* **16** # r02-83

Lukacs, Miklos — Silicon Laboratories

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

Adverb is missing from the following sentence:
The PD shall withstand any voltage from 0 V to 57 V applied per any of the valid configurations defined in Table 145-20 indefinitely without permanent damage.

SuggestedRemedy

add "to the PD PI"

... 57V applied to the PD PI per any ...

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.3.3.3** *P* **188** *L* **47** # r02-114

Darshan, Yair

Comment Type **T** *Comment Status* **A** *PD SD*

The definition of "tinrushpdmax_timer A timer used to prevent the PD from drawing more than IInrush_PD and IInrush_PD-2P from TInrush_PD to Tdelay; see TInrush_PD max in Table 145-29. " is incorrect this timer has nothing to do with Tdelay.

SuggestedRemedy

1. Change to:
"tinrushpdmax_timer A timer used to determine when the PD exits INRUSH; see TInrush_PD max in Table 145-29."
2. The same for dual-signature PD on page 195 clause 145.3.3.4.3:
Change to:
"tinrushpdmax_timer_mode(X) A timer used to determine when the PD exits INRUSH over Mode X; see TInrush_PD max in Table 145-29."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

1. Change to:
"tinrushpdmax_timer A timer used to determine when the PD exits INRUSH; see TInrush_PD max in Table 145-29."
2. The same for dual-signature PD on page 195 clause 145.3.3.4.3:
Change to:
"tinrushpdmax_timer_mode(X) A timer used to determine when the PD exits INRUSH on Mode X; see TInrush_PD max in Table 145-29."

Editor to review usage of "over Mode X", "for Mode X", and "on Mode X" and bring them into alignment (preference is to use "on").

Cl **145** *SC* **145.3.3.3.5** *P* **191** *L* **44** # r02-45

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **R** *PD SD*

Arc from POWERED to POWER_UPDATE became "pd_power_update * pd_dll_enable * (V PD >= V Off_PD)" compared to draft 3.1.

Our convention in these state diagrams is to use x>y and x<y and not include equality.

SuggestedRemedy

Change "VPD >= Voff_PD" back to "VPD > Voff_PD".

Response *Response Status* **C**

REJECT.

This would result in a case where neither arc leaving POWERED is true and the PD would not perform a POWER_UPDATE when it should.

Cl **145** *SC* **145.3.6.1.1** *P* **203** *L* **31** # r02-46

Yseboodt, Lennart — Philips Lighting

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

"Implementations should employ appropriate methods (such as hysteresis in V Mark_th) to avoid erroneous transitions."

Fails to explain what kind of transitions are meant.

SuggestedRemedy

Replace by:
"Implementations should employ appropriate methods (such as hysteresis in V Mark_th) to avoid erroneous transitions between class and mark states when the PSE switches from a class voltage to a mark voltage or vica versa."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.6.2** *P* **203** *L* **46** # r02-134

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Autoclass*

This is a repeat of comment r01-460 from D3.1 which was supposed to be addressed by http://www.ieee802.org/3/bt/public/nov17/yseboodt_05_1117_final.pdf and it didn't.
In the text "After power up, a PD that implements Autoclass shall draw its highest required power, PAutoclass_PD, subject to the requirements on PClass_PD in 145.3.8.2, throughout the period bounded by.....".
In 145.3.8.2 (page 208 line 32) the text says:"For single-signature PDs, the average value of PPort_PD shall not exceed PClass_PD for the assigned class"
And in the same page line 39 it says: "PClass_PD and PClass_PD-2P defined in Table 145-29 are determined per the assigned Class"
Per the following example we can see that PSE will enter to overload condition:
a) Per the physical layer, the requested class is 8, the assigned class is 4.
b) PD negotiates power through LLDP and asks for 34W and received 34W. The assigned class will now be 5 per table 145-12.
c) Now the PD requests Autoclass through LLDP and consumes 39W (it can consume more, up to the maximum of the assigned class=40W (class 5)) according to the description above in 145.3.6.2 and 145.3.8.2.
d) Now PSE will enter to overload condition and may shut the port off since the PSE is not ready to supply 39W (it knows that he has to supply 34W only).
Looking at the state machine, this issue is not handled.
Possible solution:
To keep it per the assigned class when layer 1 Autoclass is used
and limit the value of the Autoclass power to the pse_allocated_power when Autoclass is used through LLDP.

SuggestedRemedy

To add the following text "PD may ask for PAutoclass up to the latest pse allocated power when Autoclass is used through LLDP."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.3.6.2** *P* **204** *L* **8** # r02-47
Yseboodt, Lennart Philips Lighting

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

OOS

"Measured from transition to state DO_CLASS_EVENT1"

No need to say 'state'.

SuggestedRemedy

Strike 'state'.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8** *P* **205** *L* **16** # r02-48
Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **A** *Editorial*

Table 145-29, item 3, for dual-signature, last row is labelled "Class 7 to 8". Copy-paste mistake.

SuggestedRemedy

Change to "Class 5"

Also, both descriptions for item 3 need to be appended with "per the assigned Class".

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8** *P* **205** *L* **30** # r02-49
Yseboodt, Lennart Philips Lighting

Comment Type **ER** *Comment Status* **A** *Editorial*

OOS

Table 145-29, item 5 (IInrush_PD-2P), the values for dual-sig Class 1-4 and dual-sig Class 5 are both 0.4.

SuggestedRemedy

Merge into single entry.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8** *P* **205** *L* **36** # r02-50
Yseboodt, Lennart Philips Lighting

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

OOS

Table 145-29, item 7, Tdelay, description is "Inrush to operating state delay per pairset"

Per the changes we made to item 6, described as: "Inrush to PD current control delay" the 'per pairset' is redundant.

SuggestedRemedy

Remove 'per pairset' from the Parameter

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8** *P* **207** *L* **16** # r02-51
Yseboodt, Lennart Philips Lighting

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

Table 145-29, item 17, itemnumber is in bold when it should not be.

SuggestedRemedy

Unbold.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.1** *P* **208** *L* **7** # r02-52
Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **A** *Inrush*

"The PD shall turn off at a voltage in the range of V Off_PD."

Except when in the INRUSH state...

SuggestedRemedy

Replace by:
"The PD shall turn off at a voltage in the range of V Off_PD, except when in INRUSH."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to: "After reaching POWER_DELAY, the PD shall turn off at a voltage in the range of V Off_PD."

Cl **145** *SC* **145.3.8.1** *P* **208** *L* **15** # r02-53

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **R** *Editorial*

OOS

"The PD shall turn on at a voltage in the range of V On_PD . After the PD turns on, the PD shall stay on over the entire V Port_PD-2P range. The PD shall turn off at a voltage in the range of V Off_PD . For dual-signature PDs the requirements for V On_PD and V Off_PD apply to each pairset individually. A PD shall not turn off due to peak power draw, causing V PD to go as low as V Overload-2P , as specified in 145.3.8.4, or due to a voltage transient as defined in 145.3.8.6. This behavior is encoded in the variable pd_overload and pd_overload_mode(X).

The PD shall turn on or off without startup oscillation and within the first trial at any load value when fed by V Port_PSE-2P min to V Port_PSE-2P max (as defined in Table 145-16) with a series resistance less than or equal to R Ch . !!!V On_PD min is set at 30 V to align with V Off_PD min. It is recommended that a PD implements hysteresis between V On_PD and V Off_PD.!!!"

The part between !!! seems to be misplaced and belongs to the previous paragraph.

SuggestedRemedy

Move sentences highlighted with !!! to the paragraph above it.

Response *Response Status* **C**

REJECT.

That sentence is there because the hysteresis that it suggests is to solve startup oscillation

Cl **145** *SC* **145.3.8.1** *P* **208** *L* **18** # r02-54

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *NoPower*

"When the PD is in POWER_DELAY or POWERED and V PD falls below V Off_PD , the PD transitions to NOPOWER and may show a valid or invalid detection signature, and may or may not draw mark current, draw any class current, and show MPS. When nopower is TRUE interoperability between PSE and PD is no longer guaranteed."

Need to be synced with changes to the state diagram done in D3.1.

SuggestedRemedy

"When the PD is in POWEROFF and V PD falls below V Off_PD min, the PD transitions to NOPOWER and may show a valid or invalid detection signature, and may or may not draw mark current, draw any class current, and show MPS. When nopower is TRUE interoperability between PSE and PD is no longer guaranteed."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.2** *P* **208** *L* **25** # r02-104

Bennett, Ken

Comment Type **T** *Comment Status* **A** *Pres: Bennett1*

In table 145-29, the symbol for the parameter "input AVERAGE power" is defined as Pport_PD. Section 145.3.8.4.1, Peak Operating Power Exceptions, uses Pport_PD as an AVERAGE power for computations. (It's also described as an AVERAGE power in section 33.3.7.2.1 of the existing standard.)

The recent addition to 145.3.8.2 changes the Pport_PD definition to instantaneous power. This causes errors in 145.3.8.4.1 and it results in an ambiguity in table 145-29, where the symbol no longer matches the described parameter. The proposed solution changes Pport_PD and Pport_PD-2P back to an average power.

The Existing Text in Draft 3.2 is:

PPort_PD is the power drawn by a single-signature PD, defined in Equation (145-23).
PPort_PD-2P is the
power drawn by a given Mode of a dual-signature PD, defined in Equation (145-24).
Pport_PD = VPD*Iport (145-23)
Pport_PD-2P = VPD*Iport-2P (145-24)
For single-signature PDs, the AVERAGE value of PPort_PD shall not exceed PClass_PD for the assigned class. For
a dual-signature PD, the AVERAGE value of PPort_PD-2P shall not exceed PClass_PD-2P for the assigned class.

SuggestedRemedy

Move the word "average" in lines 32 and 33 to lines 25 and 26, and modify the equations to represent the following:

PPort_PD is the AVERAGE power drawn by a single-signature PD, defined in Equation (145-23). PPort_PD-2P is the AVERAGE power drawn by a given Mode of a dual-signature PD, defined in Equation (145-24).

Pport_PD = the integral of VPD(t)*Iport(t) dt from t=n to (n+1) (145-23)
Pport_PD-2P = the integral of VPD(t)*Iport-2P(t) dt from t=n to (n+1) (145-24)

For single-signature PDs, the value of PPort_PD shall not exceed PClass_PD for the assigned class. For a dual-signature PD, the value of PPort_PD-2P shall not exceed PClass_PD-2P for the assigned class.

OPTION 1: Remove the equations:

PPort_PD is the AVERAGE power drawn by a single-signature PD. PPort_PD-2P is the AVERAGE power drawn by a given Mode of a dual-signature PD.
For single-signature PDs, the value of PPort_PD shall not exceed PClass_PD for the assigned class. For a dual-signature PD, the value of PPort_PD-2P shall not exceed PClass_PD-2P for the assigned class.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

adopt yseboodt_04_0118.pdf

[Editor's note added after the close of comment resolution:

the full file path is http://www.ieee802.org/3/bt/public/jan18/yseboodt_04_0118.pdf]

Cl **145** *SC* **145.3.8.2** *P* **208** *L* **35** # r02-55

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **A** *Autoclass*

"The PD shall not draw more power than P Autoclass_PD , unless the PD successfully negotiates a higher power level, up to the PD requested Class, through Data Link Layer classification as defined in 145.5."

Only applies if the PD has either performed L1 Autoclass, or it has requested Autoclass through DLL.

SuggestedRemedy

"A PD that has enabled Autoclass during Physical Layer classification or has requested Autoclass through DLL, shall not draw more power than P Autoclass_PD , unless the PD successfully negotiates a different power level, up to the PD requested Class, through Data Link Layer classification as defined in 145.5."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.2** *P* **208** *L* **45** # r02-56

Yseboodt, Lennart Philips Lighting

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

Variable "PAutoclass_PD" is written without subscript.

SuggestedRemedy

Change to correct subscript.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.3** *P* **209** *L* **34** # r02-115

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Inrush*

In the text "A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P when:
-- CPort < 180 uF for single-signature PDs assigned to Class 1 through 6..."
, missing important piece of information that it is done within Tinrush which is the main point of this text.

SuggestedRemedy

Change to:
In the text "A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P within TInrush_PD max when:
-- CPort < 180 uF for single-signature PDs assigned to Class 1 through 6
....."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change from:
"A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P...."
To:
"A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P within TInrush_PD max when...."

Cl **145** *SC* **145.3.8.3** *P* **209** *L* **34** # r02-69

Peker, Arkadiy Microsemi Corporation

Comment Type **TR** *Comment Status* **A** *Inrush*

The objective of the following text is missing (charging within Tinrush) "A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P when ...."

SuggestedRemedy

Change from:
"A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P...."
To:
"A PSE limits the inrush current to IInrush and IInrush-2P, defined in Table 145-16, which is sufficient current to charge CPort or CPort-2P to VPort_PSE-2P within TInrush_PD max when...."

Response *Response Status* **W**

ACCEPT.

Cl **145** *SC* **145.3.8.3** *P* **210** *L* **32** # r02-116

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PD Power*

There is an error in the text "A dual-signature PD can also be implemented with a single load, resulting in a lower than Cx + Cy capacitance value as seen by the PSE.".
The value in this case generally will be lower than Cx+Cy but in this particular case of a single load it will be Cx.

SuggestedRemedy

Change from:
"A dual-signature PD can also be implemented with a single load, resulting in a lower than Cx + Cy capacitance value as seen by the PSE."
To: "A dual-signature PD can also be implemented with a single load, resulting in Cx capacitance value as seen by the PSE."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.3.8.4** *P* **211** *L* **1** # r02-57

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **A** *PD Power*

"These equations may be used to calculate P Peak_PD or P Peak_PD-2P after Data Link Layer classification and for Autoclass by substituting PDMaxPowerValue with P Autoclass_PD ."

The equations below say "for Class x", but that needs to be assigned Class. It doesn't fit in the equation, so suggest to add it to the quoted sentence.

SuggestedRemedy

Replace by:
"These equations may be used to calculate P Peak_PD or P Peak_PD-2P for Data Link Layer classification and for Autoclass by substituting PDMaxPowerValue with P Autoclass_PD.
The Class referred to in Equation (145-25) and Equation (145-26) are the assigned Class."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.4** *P* **211** *L* **4** # r02-58

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **A** *PD Power*

Equations 145-25 and 145-26 result in PDMaxPowerValue (which is an integer representing the max power in 1/10th of a Watt) multiplied by a constant, and the result being interpreted as Watts.

This results in PPeak_PD being 10x too large.

SuggestedRemedy

Divide every constant by 10.
So constants 1.29 1.11 1.05 become 0.129 0.111 0.105.
For both equations.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.4** *P* **211** *L* **4** # r02-59

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **A** *PD Power*

The sentence "These equations may be used to calculate P Peak_PD or P Peak_PD-2P after Data Link Layer classification and for Autoclass by substituting PDMaxPowerValue with PAutoclass_PD." is wrong.
A PowerValue cannot be mixed with a Power level

SuggestedRemedy

Change to "These equations may be used to calculate P Peak_PD or P Peak_PD-2P after Data Link Layer classification and for Autoclass by substituting PDMaxPowerValue with the __corresponding__ value of PAutoclass_PD."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.6** *P* **212** *L* **14** # r02-60

Yseboodt, Lennart Philips Lighting

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

Table 145-30, column "Source dv/dt" has unfortunate line break in the last row.

SuggestedRemedy

Fix.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.6** *P* **212** *L* **22** # r02-61

Yseboodt, Lennart — Philips Lighting

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

Sentence: "The TR1, TR2, and TR3 tests consists of a voltage source, with a current limit (for TR1 and TR2), driven from the 'initial voltage' to the 'final voltage' a the 'source dv/dt' rate." is misspelled.

SuggestedRemedy

Change to:
"The TR1, TR2, and TR3 tests consists of a voltage source, with a current limit (for TR1 and TR2), driven from the 'initial voltage' to the 'final voltage' at the 'source dv/dt' rate."

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.4** *P* **212** *L* **23** # r02-118

Darshan, Yair

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

At the text "The TR1, TR2, and TR3 tests consists of a voltage source, with a current limit (for TR1 and TR2), driven
from the 'initial voltage' to the 'final voltage' a the 'source dv/dt' rate" , the "a the" is a typo in need to be "at the".

SuggestedRemedy

Change from:
"The TR1, TR2, and TR3 tests consists of a voltage source, with a current limit (for TR1 and TR2), driven from the 'initial voltage' to the 'final voltage' a the 'source dv/dt' rate"
To:
"The TR1, TR2, and TR3 tests consists of a voltage source, with a current limit (for TR1 and TR2), driven from the 'initial voltage' to the 'final voltage' at the 'source dv/dt' rate"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:
"The TR1, TR2, and TR3 tests consists of a voltage source, with a current limit (for TR1 and TR2), driven from the 'initial voltage' to the 'final voltage' at the 'source dv/dt' rate."

Cl **145** *SC* **145.3.8.9** *P* **213** *L* **8** # r02-62

Yseboodt, Lennart — Philips Lighting

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

In table 145-31 in row Iunbalance_peak-2P the assigned class 1 to 4 also needs the note "a".

SuggestedRemedy

Add note "a" to this field.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.9** *P* **213** *L* **44** # r02-63

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *Unbalance*

"Single-signature PDs shall not exceed I Unbalance_PD-2P for longer than T CUT min and 5 % duty cycle, and shall not exceed I Unbalance_peak-2P , as defined in Table 145-31 on any pair when PD PI pairs of the same polarity are connected to any voltage in the range of V Port_PSE-2P min + 0.31 V to V Port_PSE-2P max through two common mode resistances, R source_min and R source_max, as defined in Equation (145-28) and shown in Figure 145-30."

... "when PD PI pairs of the same polarity are connected to any voltage in the range of" ... does not make sense.
We really want to indicate the PD is to be connected in 4-pair mode, with two positive pairs and two negative pairs.

Fortunately, we have a Table that lists all of those options!

SuggestedRemedy

"Single-signature PDs shall not exceed I Unbalance_PD-2P for longer than T CUT min and 5 % duty cycle, and shall not exceed I Unbalance_peak-2P , as defined in Table 145-31 on any pair when the PD is connected per any valid 4-pair configuration, as defined in Table 145-20, to any voltage in the range of V Port_PSE-2P min + 0.31 V to V Port_PSE-2P max through two common mode resistances, R source_min and R source_max, as defined in Equation (145-28) and shown in Figure 145-30."

Same change for dual.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.9** *P* **215** *L* **31** # r02-64

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *MPS*

"A single-signature PD shall use the I Port_MPS value associated with assigned Class 5 to 8 when pse_assigned_class is 5, 6, 7, or 8, or when PDRequestedPowerValue is greater than 255."

We need to weave in an exception for when PDRequestedPowerValue == 0xACAC, because in that case, assigned Class is leading.

SuggestedRemedy

Change as follows:
"A single-signature PD shall use the I Port_MPS value associated with assigned Class 5 to 8 when pse_assigned_class is 5, 6, 7, or 8, or when PDRequestedPowerValue is greater than 255, but not equal to 0xACAC."

This has become very ugly --- any better way to specify this ?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change as follows:
"A single-signature PD shall use the I Port_MPS value associated with assigned Class 5 to 8 when pse_assigned_class is 5, 6, 7, or 8, or when PDRequestedPowerValue is in the range of 256 to 999. When PDRequestedPowerValue or PSEAllocatedPowerValue is equal to 0xACAC, the PD shall use the I Port_MPS value associated with the assigned class.

Cl **145** *SC* **145.3.9** *P* **215** *L* **44** # r02-84

Abramson, David — Texas Instruments Inc

Comment Type **TR** *Comment Status* **A** *MPS*

When combining all of the PD MPS requirements into a table, we inadvertantly caused Type 3 and Type 4 PDs to draw more power (than Type 1 and 2) when connected to Type 1 and Type 2 PSEs.

This is because the 75ms for Tmps_pd number already accounted for the effect of the cable impedance and PD capacitance as the PSE limit was 60ms. For Type 3 and 4, we reduced the margin from 15ms to 1ms, but required the PD Tmps_pd to be measured with the cable impedance there (meaning that the PD designer had to account for the effect of the cap and impedance). However, the sentences (which were separate) got combined into a single sentence when all the numbers were moved to a table, adding the cap/impedance requirement on top of the 15ms margin for the 75ms requirement.

Also, we should make sure Tmpdo_pd is met with the cable impedance present.

SuggestedRemedy

Change: "A PD shall meet the TMPS_PD requirement with a series resistance of RCh, which represents the worst case cable resistance between the measurement point and the PD PI."

To: "A PD shall meet the TMPS_PD and TMPDO_PD requirements with any series resistance between 0 Ohms and RCh between the PD PI and the source when long_class_event = TRUE."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change: "A PD shall meet the TMPS_PD requirement with a series resistance of RCh, which represents the worst case cable resistance between the measurement point and the PD PI."

To: "A PD shall meet the TMPS_PD and TMPDO_PD requirements with any series resistance in the range of RChan between the PD PI and the source when long_class_event = TRUE."

Cl **145** *SC* **145.3.9** *P* **215** *L* **44** # r02-65

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **A** *MPS*

"A PD shall meet the T MPS_PD requirement with a series resistance of R Ch , which represents the worst case cable resistance between the measurement point and the PD PI."

Once again we have a requirement that only applies at a single point (RChan=RCh). Also, there is no reason to imply the measurement must be made at the far end of the resistance. We're measuring current, which is identical at either end.

SuggestedRemedy

Replace by:
"A PD shall meet the T MPS_PD requirement with a series resistance in the range of 0 Ohm to R Ch between the PD PI and the source."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change: "A PD shall meet the TMPS_PD requirement with a series resistance of RCh, which represents the worst case cable resistance between the measurement point and the PD PI."

To: "A PD shall meet the TMPS_PD and TMPDO_PD requirements with any series resistance in the range of RChan between the PD PI and the source when long_class_event = TRUE."

Cl **145** *SC* **145.4.1** *P* **217** *L* **26** # r02-95

Maytum, Michael — RETIRED

Comment Type **TR** *Comment Status* **R** *Isolation*

"c) An impulse test consisting of a 1500 V, 10/700 micros waveform, applied 10 times, with a 60 s interval between pulses." This is technically incorrect for two reasons: The peak voltage is way to low and it is applicable to long distance telephone lines. The 1.5 kV 10/700 was the result of an ITU-T global study on telephone lines. As the lightning surge propagates down the line dispersion increases the front time and time to half value, together with lowering the peak voltage. An Ethernet cable is nothing like a long distance telephone line. Hence the more appropriate waveshape is 1.2/50.

SuggestedRemedy

Replace item "c" of 145.4.1 (1.5 kV, 10/700) with item "c" of 126.5.1 (2.4 kV, 1.2/50)

Response *Response Status* **W**

REJECT.

(1) Since a PI and BASE-T MDI are the same in the vast majority of cases it wouldn't make sense to just change the PI isolation requirements without changing the BASE-T isolation requirements at the same time, in fact not doing this at the same time could result in conflicting requirements.
(2) There is already an Isolation Ad Hoc working on this issue that is chartered to consider the isolation subclauses throughout IEEE 802.3. It is therefore better to let this conclude its work and address this issues holistically, including Clause 145.
(3) Any change to this text needs to ensure that existing implementation remain conformant.
(4) This comment is out of scope as it is on unchanged text.

Cl **145** *SC* **145.4.1** *P* **217** *L* **39** # r02-70

Peker, Arkadiy Microsemi Corporation

Comment Type **TR** *Comment Status* **A** *Pres: Darshan2*

The requirement in "Dual-signature PDs shall have less than or equal to 10 uA of current between any one conductor of Mode A and any one conductor of Mode B when VPD, as defined in 145.1.3, of either Mode is less than VOff_PD min, as defined in Table 145-29. See Table 79-6f." is impossible to meet due to the following reasons:
There are diodes between some of the pins that are low impedance. It should be isolated between pairs of the same polarity that the PSE is required to support only i.e. the requirement should be the minimum requirement to keep interoperability.

SuggestedRemedy

Change from: "Dual-signature PDs shall have less than or equal to 10 uA of current between any one conductor of Mode A and any one conductor of Mode B when VPD, as defined in 145.1.3, of either Mode is less than VOff_PD min, as defined in Table 145-29. See Table 79-6f."
To: "Dual-signature PDs shall have less than or equal to 10 uA of current between any negative pairs when VPD, as defined in 145.1.3, of either Mode is less than VOff_PD min, as defined in Table 145-29. See Table 79-6f."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add sentence "The PSE shall meet all specifications related to current on the negative pair or pairs unless otherwise noted." as a new paragraph at the end of the PSE PI section (145.2.4).

On Page 217, line 39
Change: Dual-signature PDs shall have less than or equal to 10 uA of current between any one conductor of Mode A and any one conductor of Mode B when VPD, as defined in 145.1.3, of either Mode is less than Voff_PD min, as defined in Table 145-29.

To: Dual-signature PDs shall have less than or equal to 10 uA of current between any negative conductor of Mode A and any negative conductor of Mode B when VPD, as defined in 145.1.3, is less than Voff_PD min, as defined in Table 145-29, on either mode.

Cl **145** *SC* **145.4.1** *P* **217** *L* **39** # r02-119

Darshan, Yair

Comment Type **T** *Comment Status* **A** *Pres: Darshan2*

There are few errors in the text "Dual-signature PDs shall have less than or equal to 10 uA of current between any one conductor of Mode A and any one conductor of Mode B when VPD, as defined in 145.1.3, of either Mode is less than VOff_PD min, as defined in Table 145-29. See Table 79-6f.".
a) we can't ask for 10uA leakage current between any one conductor of Mode A and any one conductor of Mode B since there are pins that connected to diodes in forward bias conduction. The intent was to have isolation between pairs of the same polarity at polarity where the PSE guaranteed switching and measures the current/voltage when doing connection check and/or detection.
b) The requirement should apply to the negative pairs while for the positive pairs it should be optional and the reason is that the PSE has a mandatory requirement to switch on the negative pairs hence PD is guaranteed to be supported in terms of isolation on the negative pairs but there is not guaranteed for the positive pairs to be supported.
c) in addition to (b) there is no technical need to require both sides isolated in the PD since it is not cost effective and it doesn't give any technical value to do it. It actually limits the use of TVS connected to a common point.
d) The 10uA isolation requirement value is correct up to 10.1V but need to be higher than 10uA between 10.1V and 30V since the source of the leakage is voltage depended and leakage current is increased as voltage increased.

SuggestedRemedy

Adopt darshan_02_0118.pdf

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add sentence "The PSE shall meet all specifications related to current on the negative pair or pairs unless otherwise noted." as a new paragraph at the end of the PSE PI section (145.2.4).

On Page 217, line 39
Change: Dual-signature PDs shall have less than or equal to 10 uA of current between any one conductor of Mode A and any one conductor of Mode B when VPD, as defined in 145.1.3, of either Mode is less than Voff_PD min, as defined in Table 145-29.

To: Dual-signature PDs shall have less than or equal to 10 uA of current between any negative conductor of Mode A and any negative conductor of Mode B when VPD, as defined in 145.1.3, is less than Voff_PD min, as defined in Table 145-29, on either mode.

Cl **145** *SC* **145.4.9.4.1** *P* **229** *L* **50** # r02-66

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *AES*

"Calculations that result in PSANEXT loss values greater than 67 dB shall revert to a requirement of 67 dB minimum."

We can shave off a separate shall by incorporating this into the equation.

SuggestedRemedy

Replace Equation (145-36) as follows:

PSANEXT loss - min(67, 70.5 - 20 * log10(f/100))

and delete quoted text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor to update equation and requirement to align with clause 55.

[Editor's Note added after comment resolution: replacing a shall that limited the result to 67dB with text from clause 55 that instead states 'results that exceed 67dB are for information only.'
The goal is to harmonize 802.3 and get rid of redundant shalls.]

Cl **145** *SC* **145.4.9.4.2** *P* **230** *L* **4** # r02-92

Mcclellan, Brett — Marvell Semiconductor

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

multiple references to Equation (145-36) in this paragraph should be Equation (145-37)

SuggestedRemedy

change "Equation (145-36)" to "Equation (145-37)" in four instances of this paragraph

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.4.9.4.2** *P* **230** *L* **9** # r02-67

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **A** *AES*

"Calculations that result in PSAFEXT loss values greater than 67 dB shall revert to a requirement of 67 dB minimum."

We can shave off a separate shall by incorporating this into the equation.

SuggestedRemedy

Replace Equation (145-37) as follows:

PSAFEXT loss - min(67, 67 - 20 * log10(f/100))

and delete quoted text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor to update equation and requirement to align with clause 55.

[Editor's Note added after comment resolution: replacing a shall that limited the result to 67dB with text from clause 55 that instead states 'results that exceed 67dB are for information only.'
The goal is to harmonize 802.3 and get rid of redundant shalls.]

Cl **145** *SC* **145.5.2** *P* **230** *L* **40** # r02-22

Jones, Chad — Cisco Systems, Inc.

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

DLL field convention is: 'Name' field. 4 errors to this convention in 145.5.2:
L40: "PSE allocated power value" field
L42: "PD requested power value" field
L45: "PD requested power value" field
L47: "PD requested power value" field

SuggestedRemedy

change all to single quotes.
L40: 'PSE allocated power value' field
L42: 'PD requested power value' field
L45: 'PD requested power value' field
L47: 'PD requested power value' field

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.5.3.2.2** *P* **231** *L* **50** # r02-23

Jones, Chad — Cisco Systems, Inc.

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

many DLL field references missing the quotes:
p231, L50
p232, L3, L8, L14, L19
P241, L2, L7, L12, L20
P247, L9, L15

SuggestedRemedy

add single quotes around field names as is the convention.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.5.3.2.2** *P* **231** *L* **52** # r02-117

Darshan, Yair

Comment Type **E** *Comment Status* **D** *Pres: Yseboodt2*

The link to MirroredPDAutoclassRequest is Table 145-39 and not Table 145-38

SuggestedRemedy

Change from Table 145-38 to Table 145-39

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This comment was withdrawn before the start of comment resolution.

Cl **145** *SC* **145.5.3.2.5** *P* **239** *L* **14** # r02-68

Yseboodt, Lennart — Philips Lighting

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

Need Wider INITIALIZE block, same width as IDLE, to have statements on one line.

SuggestedRemedy

Change width of INITIALIZE block. Also on page 240

Response *Response Status* **C**

ACCEPT.

Cl **145C** *SC* **145C** *P* **295** *L* **11** # r02-120

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Annex*

It will be advantageous to mention that the current calculations done at 100% balanced system while in actual system the unbalance as specified by 145.2.8.1 and 145.3.8.9, reduces the current resulting with lower cable power dissipation .

SuggestedRemedy

Add the following text after line 11 page 295:
"The following models and calculations are derived for 100% balanced system (zero unbalance) while in all systems the actual resistance unbalance is greater than zero as specified by 145.2.8.1 and 145.3.8.9 which reduces the current and resulting with lower cable power dissipation."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145C** *SC* **145C.1** *P* **295** *L* **24** # r02-17

Jones, Chad — Cisco Systems, Inc.

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

move 'IL =0.6A up some so that it doesn't encroach the arrow.
Same for page 296 line 4

SuggestedRemedy

make the change as commented

Response *Response Status* **C**

ACCEPT.

Cl **145C** *SC* **145C.2** *P* **297** *L* **34** # r02-19

Jones, Chad — Cisco Systems, Inc.

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

missing space: along with other worstcase elements

SuggestedRemedy

change to: along with other worst case elements

Response *Response Status* **C**

ACCEPT.

Cl **145C** *SC* **145C.3** *P* **298** *L* **3** # r02-18

Jones, Chad
Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *Editorial*

contents of the column were converted to A but the heading was left mA.

SuggestedRemedy

Change heading of third column of Table 145C-1 from 'Icond (mA)' to 'Icond (A)'

Response *Response Status* **C**

ACCEPT.