Cl **1** *SC* **1.4.338** *P* **24** *L* **40** # r01-60

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

We pulled in the definition of PSE as modified by 802.3bu.
The term "DTE powering" is still used here, which we now refer to as Power over Ethernet.
To be consistent, we call it "Power over Data Lines" for Clause 104.
There also seems to be a repeat of a sentence in the definition.
Given the extensive changes, we should just replace the definition completely.

SuggestedRemedy

1. Change the editing instruction from "Change 1.4.338 (as modified by IEEE Std 802.3bu-2016) as follows:"
to "Replace 1.4.338 (incorporating the changes made by IEEE Std 802.3bu-2016) as follows:"

2. New text:
"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."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD PA
OBE by 3

Cl **1** *SC* **1.4.338** *P* **24** *L* **41** # r01-3

Anslow, Peter — Ciena Corporation

Comment Type **ER** *Comment Status* **D** *Editorial*

Comment i-2 was accepted in principle, but the change to the base text of 1.4.338 has not been done correctly.
When an amendment changes text that has already been changed by a prior amendment, the base text for the second amendment is the text as amended by the first amendment. This text is therefore shown without underline or strikethrough font. The only text in underline or strikethrough font is for changes being made by this amendment, not for changes already made by IEEE Std 802.3bu-2016.

SuggestedRemedy

Replace the current text of 1.4.338 with:
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<u> or Clause 145</u>), DTE powering is intended to provide a single 10BASE-T, 100BASE-TX, <s> or </s>1000BASE-T<u>, 2.5GBASE-T, 5GBASE-T, or 10GBASE-T</u> 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), DTE powering 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.
<u>A DTE Power over Ethernet (Clause 33 and Clause 145) device that provides the power to a single link section. 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.</u>
Where <u> and </u> denote the start and end of underline font and <s> and </s> denote the start and end of strikethrough font.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 60

TFTD PA
comment r01-60 is ACCEPT with part of the suggested remedy:
Change the editing instruction from "Change 1.4.338 (as modified by IEEE Std 802.3bu-2016) as follows:"
to "Replace 1.4.338 (incorporating the changes made by IEEE Std 802.3bu-2016) as follows:"

The IEEE Style manual (and also the P802.3bt draft) contains:
Replace is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one.

Consequently, “Replace” is not appropriate as an editing instruction for the text of 1.4.338. The change should be made in the format as proposed by comment r01-3 where the

changes from the base text as modified by IEEE Std 802.3bu-2016 are show. Of course, I don't have an issue with changes to the wording of the definition as proposed by r01-60, but these should be shown with underline and strikethrough with respect to the base definition in order to avoid a comment on the next recirculation.

Cl **1** *SC* **1.4.417** *P* **25** *L* **17** # r01-54

Agnes, Andrea STMicroelectronics

Comment Type **G** *Comment Status* **D** *Definitions*

The definition:
1.4.417 Type 2 PD: A PD that provides a Class 4 signature during Physical Layer classification, understands 2-Event classification, and is capable of Data Link Layer classification requests Class 4 during Physical Layer classification, supports Multiple-Event Classification, and supports Data Link Layer
classification (see IEEE 802.3, Clause 33).

uses a Multiple-Event Classification, but it is not defined in Clause 33.

SuggestedRemedy

Use the 2-Event Classification in the defintion as called in Clause 33. Then the definition became:

1.4.417 Type 2 PD: A PD that provides a Class 4 signature during Physical Layer classification, understands 2-Event classification, and is capable of Data Link Layer classification requests Class 4 during Physical Layer classification, supports 2-Event Classification, and supports Data Link Layer
classification (see IEEE 802.3, Clause 33).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Mulitple-Event" to "2"

TFTD CJ
if implemented as proposed the definition would change to 'supports 2 Classification'.
response should be: AIP
Change "Multiple-Event" to "2-Event"

Cl **1** *SC* **1.4.418ac** *P* **25** *L* **35** # r01-288

Zimmerman, George Aquantia, ADI, Comm

Comment Type **T** *Comment Status* **D** *Definitions*

Definition of Type 4 PD doesn't work for dual-signature PDs.

SuggestedRemedy

Change 1.4.418aa and 1.4.418ac to read:

1.4.418aa Type 3 PD: A single-signature PD that requests Class 1 to Class 6, or a dual-signature PD that requests Class 1 to Class 4 on both Modes during Physical Layer classification. Additionally, the PD implements Multiple-Event classification, and accepts power on both Modes simultaneously. (See IEEE 802.3, Clause 145).

1.4.418ac Type 4 PD: A single-signature PD that requests Class 7 or Class 8, or a dual-signature PD that request Class 5 on at least one Mode during Physical Layer classification. Additionally, the PD implements Multiple-Event classification, is capable of Data Link Layer classification, and accepts power on both Modes simultaneously. (See IEEE 802.3, Clause 145).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
Add commas at **

1.4.418aa Type 3 PD: A single-signature PD that requests Class 1 to Class 6, or a dual-signature PD that requests Class 1 to Class 4 on both Modes** during Physical Layer classification. Additionally, the PD implements Multiple-Event classification, and accepts power on both Modes simultaneously. (See IEEE 802.3, Clause 145).

1.4.418ac Type 4 PD: A single-signature PD that requests Class 7 or Class 8, or a dual-signature PD that request Class 5 on at least one Mode** during Physical Layer classification. Additionally, the PD implements Multiple-Event classification, is capable of Data Link Layer classification, and accepts power on both Modes simultaneously. (See IEEE 802.3, Clause 145).

Cl **25** *SC* **25.4.5** *P* **29** *L* **12** # r01-61

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PMD*

"A 100BASE-TX transmitter in a Type 2, Type 3, or Type 4 Endpoint PSE or Type 2, Type 3, or Type 4 PD delivering or accepting more than 13.0 W average power shall meet either the Open Circuit Inductance (OCL) requirement in 9.1.7 of TP- PMD, or meet the requirements of 25.4.5.1."

The reference to 13.0 W is incorrect as the equivalent number on the PSE side is 15.4W. We really should be referring to Class here. But... do we mean assigned Class ? It would be strange that a data requirement depends on the assigned Class.
It seems this whole construction with "more than 13.0 W" was introduced not to add a requirement to Type 1.
Let's simplify.

SuggestedRemedy

- Change quoted sentence to read:
"A 100BASE-TX transmitter in a Type 2 Endpoint PSE or Type 2 PD delivering or accepting more than 13 W average power shall meet either the Open Circuit Inductance (OCL) requirement in 9.1.7 of TP- PMD, or meet the requirements of 25.4.5.1."

- Add new sentence:
"A 100BASE-TX transmitter in a Type 3 or Type 4 Endpoint PSE or Type 3 or Type 4 PD shall meet either the Open Circuit Inductance (OCL) requirement in 9.1.7 of TP- PMD, or meet the requirements of 25.4.5.1."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD HS
Add commas at **

A 100BASE-TX transmitter** in a Type 2 Endpoint PSE or Type 2 PD delivering or accepting more than 13 W average power** shall meet either the Open Circuit Inductance (OCL) requirement in 9.1.7 of TP- PMD, or meet the requirements of 25.4.5.1.

A 100BASE-TX transmitter** in a Type 3 or Type 4 Endpoint PSE or Type 3 or Type 4 PD** shall meet either the Open Circuit Inductance (OCL) requirement in 9.1.7 of TP- PMD, or meet the requirements of 25.4.5.1.

Response DNA: These comments are not needed and only confuse the shall.

Cl **30** *SC* **30.9.1.1.5** *P* **36** *L* **11** # r01-368

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *Management*

*** Comment submitted with the file 94876100003-stewart_01_1117.pdf attached ***

Changes incorrectly pushed out to aPSEPowerDetectionStatus instead of aPSEPowerDetectionStatusS. This brings the removal of test mode into conflict with Clause 33.

SuggestedRemedy

See stewart_01_1117.pdf for remedy.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Adopt changes shown in 94876100003-stewart_01_1117.pdf with the following change: make the "true" in the text "…due to the variable error_condition = true" all caps ("TRUE") in both aPSEPowerDetectionStatus and aPSEPowerDetectionStatusS.

TFTD LY
We should not create aPSEPowerDetectionStatusS. I assumed that this was a typo in the (confusing) baseline, hence not implementing it.
Regardless, adding aPSEPowerDetectionStatusS does not help us since a Type 3/4 PSE still needs to support the old object anyway.
In stead:
- undo the strikeouts for 'test' and 'otherFault' as we can't remove stuff from an existing object
- Change add "or Figure 145-13" after "Figure 33-9"
- Insert "Type 3 and Type 4 PSEs do not use the values "test" or "otherFault".
- Capitalize TRUE

Cl **30** *SC* **30.9.1.1.6** *P* **37** *L* **32** # r01-363

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *Management*

*** Comment submitted with the file 94875700003-stewart_02_1117.pdf attached ***

The aPSEPowerDetectionStatus was split into 3 versions. One for Cl 33, One for cl 145 single-signature and two for Cl 145 dual-signature A/B. The aPSE PowerClassification should get the same treatment.

SuggestedRemedy

See stewart_02_1117.pdf for remedy.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
There is no reason to split this per the same logic of r01-368

Cl **30** *SC* **30.9.1.1.7a** *P* **41** *L* **24** # r01-488

Thompson, Geoffrey — Individual

Comment Type **E** *Comment Status* **D** *Editorial*

LATE COMMENT: Balloting draft seems to be OK. Compare doc does not seem to match balloting draft.

SuggestedRemedy

Make sure compare doc is correct next time.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

Compare docs are produced by Frame. Editor to make sure all settings are used correctly.

TFTD LY
The compare book is generated by Frame. As far as I can tell it produces a correct differential document. Not that all numbering goes out the window in a compare file as Frame introduces many new Tables/Figures/Equations to show differences. Please indicate what is not right.

Cl **30** *SC* **30.12.2.1.14** *P* **42** *L* **30** # r01-75

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **X** *Management*

aLldpXdot3LocPowerType::
"The second bit indicates PSE or PD. A PSE shall set this bit to indicate a PSE. A PD shall set this bit to indicate a PD."

Why do we have 'shalls' on PSEs and PDs in Clause 30 ? That is to be handled by Clause 33/145 or Clause 79, not here. Clause 79 already has a shall for this.

SuggestedRemedy

Strike last two sentences in quoted text.

Proposed Response *Response Status* **W**

TFTD as to the shalls…there are other instances of this as well (30.12.2.1.9 for example).

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **30** *SC* **30.12.2.1.18** *P* **43** *L* **4** # r01-490

Thompson, Geoffrey — Individual

Comment Type **E** *Comment Status* **X** *Management*

LATE COMMENT: RE: 'in units of 0.1 W.' Would that be expressed in straight binary or BCD?

SuggestedRemedy

Clarify.

Proposed Response *Response Status* **W**

TFTD

OOS

Cl **30** *SC* **30.12.2.1.18a** *P* **43** *L* **15** # r01-78

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **D** *Management*

aLldpXdot3LocReadyA and aLldpXdot3LocReadyB were the objects for the independent pse_dll_ready_alt(X) and pd_dll_ready_mode(X).
Those variables no longer exist and are no longer needed.

SuggestedRemedy

Remove in the entire draft aLldpXdot3LocReadyA and aLldpXdot3LocReadyB (Clause 30, Clause 79, Clause 145).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
Agree to remove but keep aLldpXdot3LocReady in the Tables of clause 79

Cl **30** *SC* **30.12.2.1.18c** *P* **43** *L* **49** # r01-79

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

aLldpXdot3LocPDRequestedPowerValueA is 30.12.2.1.18c.
It makes more sense to put these after 30.12.2.1.17 aLldpXdot3LocPDRequestedPowerValue.

SuggestedRemedy

Move 30.12.2.1.18c aLldpXdot3LocPDRequestedPowerValueA and 30.12.2.1.18d aLldpXdot3LocPDRequestedPowerValueB to after 30.12.2.1.17 aLldpXdot3LocPDRequestedPowerValue.
Do the same for the remove variants.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **30** *SC* **30.12.2.1.18g** *P* **44** *L* **44** # r01-81

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

"APPROPRIATE SYNTAX: The same as used for aPSEPowerPairsExt"

Referenced object does not exist.

SuggestedRemedy

Copy APPROPRIATE SYNTAX from aPSEPowerPairs to here, however remove the line with "both" as this is not supported by Table 79-3a.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
The APPROPRIATE SYNTAX should be:
An ENUMERATED VALUE that has one of the following entries:
altA: Alternative A
altB: Alternative B
both: Both Alternatives

Cl **30** *SC* **30.12.2.1.18h** *P* **45** *L* **2** # r01-364

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **X** *Management*

*** Comment submitted with the file 94875800003-stewart_03_1117.pdf attached ***

aLldpXdot3Loc/RemDualSigPowerClassExtModeA/B are all seemingly redundant with the ill-formed aLldpXdot3Loc/RemPowerClassExtA/B versions. By collapsing and combining these definitions it will make more sense.

SuggestedRemedy

See stewart_03_1117.pdf for remedy.

Proposed Response *Response Status* **W**

TFTD

Cl **30** *SC* **30.12.2.1.18h** *P* **45** *L* **6** # r01-83

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **X** *Management*

aLldpXdot3LocDualSigPowerClassExtModeA is missing an enumerated value to indicate 'single-signature'.

SuggestedRemedy

Add value "singlesig :: Single-signature PD" to aLldpXdot3LocDualSigPowerClassExtModeA, aLldpXdot3LocDualSigPowerClassExtModeB and their remote counterparts.

Proposed Response *Response Status* **W**

TFTD

possibly OBE by 364

Cl **30** *SC* **30.12.2.1.18k** *P* **45** *L* **48** # r01-85

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **D** *Management*

Objects aLldpXdot3LocPowerClassExtA and aLldpXdot3LocPowerClassExtB seems to be junk-remnants... there is no corresponding Clause 79 field.

SuggestedRemedy

Delete aLldpXdot3LocPowerClassExtA, aLldpXdot3LocPowerClassExtB, aLldpXdot3RemPowerClassExtA, aLldpXdot3RemPowerClassExtA throughout the draft.

Proposed Response *Response Status* **W**

TFTD

possibly OBE by 364

Cl **30** *SC* **30.12.2.1.18m** *P* **46** *L* **17** # r01-86

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **X** *Management*

aLldpXdot3LocPowerClassExt
- The enumerated values only list PSE and PD... when they should list the possible Classes.
- The descriptive text is incomplete.

SuggestedRemedy

- Replace the ENUMERATED VALUEs by:
* dualsig :: Dual-signature PD
* class8 :: Class 8
* class7 :: Class 7
* class6 :: Class 6
* class5 :: Class 5
* class4 :: Class 4
* class3 :: Class 3
* class2 :: Class 2
* class1 :: Class 1

- Replace the "BEHAVIOUR DEFINED AS:" by:
"For a single-signature PD, a read-only value that indicates the requested Class during Physical Layer Classification (see 145.3.6). For a dual-signature PD, a read-only value set to 'dualsig'.

For a PSE connected to a single-signature PD, a read-only value that indicates the currently assigned Class (see 145.2.7). For a PSE connected to a dual-signature PD, a read-only value set to 'dualsig'."

- Change the "BEHAVIOUR DEFINED AS:" for aLldpXdot3LocDualSigPowerClassExtModeA and aLldpXdot3LocDualSigPowerClassExtModeB to follow the style above.

Proposed Response *Response Status* **W**

TFTD

OOS

possibly OBE by 364

Cl **30** *SC* **30.12.2.1.18t** *P* **47** *L* **51** # r01-88

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **X** *Management*

aLldpXdot3LocPowerDownRequest is a BIT STRING of size 6, but it is used as a numeric value.

SuggestedRemedy

Change to INTEGER. Also change the remote.

Proposed Response *Response Status* **W**

TFTD

OOS

Does this work with the description? ("A SET attribute for a bit string that indicates the local PD system is requesting a power down when the value is 0x1D.")

Cl **30** *SC* **30.12.2.1.18ab15** *P* **52** *L* **9** # r01-90

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **D** *Management*

aLldpXdot3LocPSEPowerPriceIndex:: "A GET attribute that returns an index of the price of power.;"

Very terse, does not explain this is a PSE value only.

SuggestedRemedy

Replace by:
"A GET attribute that returns an index of the price of power being sourced by the PSE. For a PD this value is undefined.;"

Add same last sentence to the remote variant.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **30** *SC* **30.12.3.1.18k** *P* **56** *L* **17** # r01-370

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **X** *Management*

*** Comment submitted with the file 94876200003-stewart_03_1117.pdf attached ***

The aLldpXdot3Loc/RemPowerClassExt variable should contain Class enumerations but instead has a cut/paste error containing PSE/PD enumerations. Similar error to aLldpXdot3Loc/RemPowerClassExtA/B.

SuggestedRemedy

See stewart_03_1117.pdf for remedy.

Proposed Response *Response Status* **W**

TFTD

OOS

Cl **30** *SC* **30.12.3.1.18k** *P* **56** *L* **17** # r01-94

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **X**

aLldpXdot3RemPowerClassExt
- The enumerated values only list PSE and PD... when they should list the possible Classes.
- The descriptive text is incomplete.

SuggestedRemedy

- Replace the ENUMERATED VALUEs by:
* dualsig :: Dual-signature PD
* class8 :: Class 8
* class7 :: Class 7
* class6 :: Class 6
* class5 :: Class 5
* class4 :: Class 4
* class3 :: Class 3
* class2 :: Class 2
* class1 :: Class 1

- Replace the "BEHAVIOUR DEFINED AS:" by:
"For a single-signature PD, a read-only value that indicates the currently assigned Class by the remote PSE. For a dual-signature PD, a read-only value set to 'dualsig' by the remote PSE.
For a PSE connected to a single-signature PD, a read-only value that indicates the requested Class during Physical Layer classification (see 145.2.7) by the remote PD.
For a PSE connected to a dual-signature PD, a read-only value set to 'dualsig' by the remote PD."

- Change the "BEHAVIOUR DEFINED AS:" for aLldpXdot3RemDualSigPowerClassExtModeA and aLldpXdot3RemDualSigPowerClassExtModeB to follow the style above.

Proposed Response *Response Status* **W**

TFTD

OOS

possibly OBE by 364

Cl **33** *SC* **33.4.6** *P* **68** *L* **31** # r01-403

Darshan, Yair

Comment Type **T** *Comment Status* **X** *AES*

The coupled noise of 1mV for 2.5GHz to 10GHz is too small.

SuggestedRemedy

Change to 2mV

Proposed Response *Response Status* **W**

TFTD

OOS

What is the technical justification of this?

TFTD YD
"1. What is the technical justification for 1mV? Based on the replay to this question we will know if 2mV is too low or too high..2. Still checking results in the lab however we need worst case theoretical calculations as well."

Cl **33** *SC* **33.4.9.2.1** *P* **71** *L* **42** # r01-14

Anslow, Peter — Ciena Corporation

Comment Type **ER** *Comment Status* **D** *Editorial*

The editing instructions and subclause numbering for 33.4.9.2.1 up to 33.4.9.3.2 are garbled (e.g. a change instruction for a new subclause, etc.).
The base document has:
33.4.9.1.3 Return loss
33.4.9.1.4 Work area or equipment cable Midspan PSE
33.4.9.2 Midspan signal path requirements
33.4.9.2.1 Alternative A Midspan PSE signal path transfer function

Attempting to understand the intent of the draft, it appears to be to create:
33.4.9.1.3 Return loss [changed subclause]
33.4.9.2 Cord Midspan PSE [changed subclause re-numbered from 33.4.9.1.4]
33.4.9.2.1 Maximum link delay [new subclause]
33.4.9.2.2 Maximum link delay skew [new subclause]
33.4.9.3 Coupling parameters between link segments [new subclause]
33.4.9.3.1 Multiple disturber power sum alien near-end crosstalk (PSANEXT) loss [new subclause]
33.4.9.3.2 Multiple disturber power sum alien far-end crosstalk (PSAFEXT) loss [new subclause]
33.4.9.4 Midspan signal path requirements [re-numbered subclause]
33.4.9.4.1 Alternative A Midspan PSE signal path transfer function [re-numbered subclause]

Assuming that this is correct, then a scheme in line with usual 802.3 re-numbering rules would be:
33.4.9.1.3 Return loss [changed subclause]
33.4.9.1a Cord Midspan PSE [changed subclause re-numbered from 33.4.9.1.4]
33.4.9.1a.1 Maximum link delay [new subclause]
33.4.9.1a.2 Maximum link delay skew [new subclause]
33.4.9.1b Coupling parameters between link segments [new subclause]
33.4.9.1b.1 Multiple disturber power sum alien near-end crosstalk (PSANEXT) loss [new subclause]
33.4.9.1b.2 Multiple disturber power sum alien far-end crosstalk (PSAFEXT) loss [new subclause]
33.4.9.2 Midspan signal path requirements [unaltered subclause]
33.4.9.2.1 Alternative A Midspan PSE signal path transfer function [unaltered subclause]

SuggestedRemedy

On page 71, line 21, change the editing instruction to:
"Change the title and text of 33.4.9.1.4 and re-number it to 33.4.9.1a as follows:"
On page 71, line 42, change the editing instruction to:
"Insert 33.4.9.1a.1, 33.4.9.1a.2, and 33.4.9.1b (including its subclauses) as follows:"
On page 72, line 18, remove the "change" editing instruction.
Re-number the headings to:
33.4.9.1a Cord Midspan PSE
33.4.9.1a.1 Maximum link delay
33.4.9.1a.2 Maximum link delay skew
33.4.9.1b Coupling parameters between link segments
33.4.9.1b.1 Multiple disturber power sum alien near-end crosstalk (PSANEXT) loss
33.4.9.1b.2 Multiple disturber power sum alien far-end crosstalk (PSAFEXT) loss

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD LY
George - I stumbled over this if you recall. Please verify this IS your intent.

Cl **33** *SC* **33.6.3.3** *P* **73** *L* **19** # r01-97

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *DLL*

In 802.3-2015, in Clause 79, the permitted value range for the PD requested power and PSE allocated power value fields ranged 1 to 255.
By mistake, in Clause 33 the permitted range started at zero.
The value of zero is undefined in DLL.

In 802.3bt we are changing Clause 79 to permit value zero, this is required to support dual-signature power negotiation.
However that, in combination with the current value ranges in 33.6.3.3 makes zero a legal value for legacy devices.
Since this is undefined, we must prevent this.
The proposed solution is to restrict the value range in 33.6.3.3.
In summary, we are moving a restriction from Clause 79 to 33.6.3.3, the net result is an identical permitted value range for legacy devices.

A supporting MR has been filed for this comment.

SuggestedRemedy

In subclause 33.6.3.3 (variables, DLL classification), change the
"Values:0 through 255" to "Values 1 through 255" for the following:
- MirroredPDRequestedPowerValue
- MirroredPSEAllocatedPowerValue
- PDRequestedPowerValueEcho
- PDRequestedPowerValue (here change to "0 through PD_DLLMAX_VALUE")
- PSEAllocatedPowerValue
- PSEAllocatedPowerValueEcho

Proposed Response *Response Status* **W**

TFTD

Does this need to be maintenance?

Cl **79** *SC* **79.3.2** *P* **80** *L* **51** # r01-46

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *LLDP*

LLDPDU is a field in the LLDP frame (see 79.1.1.4). LLDPDU does not have extension fields; it is the Power Via MDI TLV that may include them.

SuggestedRemedy

Change "in transmitted LLDPDU's" to "in the transmitted Power Via MDI TLV".

Proposed Response *Response Status* **W**

TFTD

is this correct?

Cl **79** *SC* **79.3.2.4** *P* **83** *L* **3** # r01-16

Anslow, Peter — Ciena Corporation

Comment Type **ER** *Comment Status* **D** *Editorial*

The editing instruction only refers to Table 79-4, so the text of 79.3.2.4 (which is unchanged) should not be shown.

SuggestedRemedy

delete the text in 79.3.2.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
OBE to r01-104

Cl **79** *SC* **79.3.2.6c.1** *P* **86** *L* **50** # r01-109

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *LLDP*

Table 79-6c, Power status field, item 'Power Class ext' contains a value for Class 0. This class is not requested or assigned by Type 3/4 devices.

SuggestedRemedy

Replace by "0 0 0 0 = Reserved/Ignore"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

OOS

The description says this is for Type 1 and Type 2 PDs as well…

When the ‘power type ext’ field indicates a PD for a single-signature PD or Type 1 and Type 2 PD the ‘power Class ext’ field shall be set to the requested Class of the PD during Physical Layer Classification as defined in 145.3.6.

TFTD LY
Good catch. The description is wrong however.
This field is part of the Type 3/Type 4 extension.
On page 87, line 34 change:
"When the ‘power type ext’ field indicates a PD for a single-signature PD or Type 1 and Type 2 PD the ‘power Class ext’ field shall be set to the requested Class of the PD during Physical Layer Classification as defined in 145.3.6."
to
"When the power type is PD the 'power Type ext field' shall be set to the requested Class of the PD during Physical Layer Classification as defined in 145.3.6."

Cl **79** *SC* **79.3.2.6c.4** *P* **87** *L* **19** # r01-111

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *LLDP*

"PSEs connected to a Type 1, Type 2 or single-signature PD set this field to value 7."

The PSE is not always able to distinguish the Type of the PD (for Class <= 4).
There is also the open issue of Type 3 PSEs that are 2P only... how are they to set this field ?

This also should be a requirement.

SuggestedRemedy

"PSEs connected to a single-signature PD, or Type 3 PSEs that operate only in 2-pair mode, shall set this field to value 7."

- Do the same for 79.3.2.6c.5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
Invert the logic

PSEs not connected to a dual-signature PD, or Type 3 PSEs that operate only in 2-pair mode, shall set this field to value 7.

Response DNA: why? What does this help?

Cl **79** *SC* **79.3.2.6d.3** *P* **88** *L* **32** # r01-404

Darshan, Yair

Comment Type **T** *Comment Status* **X** *LLDP*

This comment is marked PDISO-1.
In the text for 79.3.2.6d.3 PD Load: "This field shall be set according to Table 79-6d when the power type is PD. Electrically isolated for this bit
field shall mean greater than or equal to 50 k ohm resistance between any one connection of Mode A and any one connection on Mode B, when measured using at least VPort_PSE-2P minimum for Type 4 PSEs. This field shall be set to 0 when the power type is PSE." we have few issues:
1) The part ".....between any one connection of Mode A and any one connection on Mode B..." is not clear and may lead to overdesign. The current isolation requirement of 50 Kohm is for the load during power up and power on states and not during detection and classification states.
2) The isolation during detection of dual-signature PD need to be higher than 50K (at least 500K) and is required between the negative connections of Mode A and Mode B. Regarding the positive pairs, this requirement is optional.
3) These requirements are for Type 3 and 4 PSEs and not just for Type 4 PSE.

SuggestedRemedy

Change from "This field shall be set according to Table 79-6d when the power type is PD. Electrically isolated for this bit field shall mean greater than or equal to 50 k ohm resistance between any one connection of Mode A and any one connection on Mode B, when measured using at least VPort_PSE-2P minimum for Type 4 PSEs. This field shall be set to 0 when the power type is PSE."
To:
"This field shall be set according to Table 79-6d when the power type is PD. Electrically isolated for this bit field shall mean greater than or equal to 50 k ohm resistance between any one connection of Mode A and any one connection on Mode B in the powerup and power on states and 500K between the negative pairs of Mode B during connection check, detection and classification states, when measured using at least VPort_PSE-2P minimum for Type 3 and Type 4 PSEs. This field shall be set to 0 when the power type is PSE."

Proposed Response *Response Status* **W**

TFTD

OOS

TFTD LY
Already TFTD, but some thoughts:
This is a detailed ELECTRICAL requirement. What is it doing in Clause 79 when there is no mention of this in Clause 145 ?
What is the purpose of this bit ? There is zero hint as to what the PSE might do with this information.

Cl **79** *SC* **79.3.8.2** *P* **92** *L* **33** # r01-123

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt1*

"The PSE power price index field shall contain a linear index of the current value of electricity within the PSE. This is a 15 bit unsigned integer in the range 0 through 32767, as defined in Table 79-7d. The PSE shall set the value of this field taking the availability of power from any external and internal resources, and the relative supply and demand balance, into account. A value of zero means that no power price index is available. The meaning of this field is implementation dependent."

Contradicts itself: it needs to be both a linear index, but it's also implementation dependent.

As currently specified this isn't terribly useful. We should come up with a specification.

SuggestedRemedy

Adopt yseboodt_01_1117_powerpriceindex.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.1** *P* **103** *L* **19** # r01-32

Jones, Chad — Cisco Systems, Inc.

Comment Type **E** *Comment Status* **D** *Editorial*

"The PSE is normally an element of the powering DTE but may, instead, be located within the cabling portion of the system."
This seems like a good spot to introduce the term Midspan which just pops up unintroduced a few pages later.

SuggestedRemedy

Add this sentence to the end of the 2nd paragraph in 145.2:
PSEs located within the cabling portion of the system are called Midspan PSEs, or simply Midspans.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add this sentence after sentence quoted in the comment (the sentence may be moved by other comments) in the 2nd paragraph in 145.2:
PSEs located within the cabling portion of the system are called Midspan PSEs, or simply Midspans.

TFTD LY
There are 24 occurences of "midspan" in the draft and 173 of "Midspan".
Make them all Midspan ?

TFTD CJ
responding to Lennarts TFTD - not all occurrences of midspan warrant capitalization.
1.4.338 for instance. found three on P221 L45, L46, L48 need caps (the ones before PSE).
three more on P222, L12, 13,16.

Cl **145** *SC* **145.1.3** *P* **105** *L* **31** # r01-131

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

Table 145-1 lists the system parameters. The Nominal highest current per pair is derived from the PSE Type and the number of powered pairs.
As such, it would make sense to swap the order of those columns.

SuggestedRemedy

Swap position of columns 2 and 3 in Table 145-1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.1.3** *P* **105** *L* **45** # r01-376

Stover, David — Analog Devices Inc.

Comment Type **T** *Comment Status* **D** *PSE Types*

"For 2-pair systems that provide Class 4 power or less, two twisted pairs are required to source Icable" easily misinterpreted as though there is a minimum current requirement.
Add "in order for", which matches related Icable statements elsewhere in this paragraph.

SuggestedRemedy

Change "For 2-pair systems that provide Class 4 power or less, two twisted pairs are required to source Icable" to "For 2-pair systems that provide Class 4 power or less, two twisted pairs are required in order for the PSE to source Icable"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.1.3** *P* **106** *L* **28** # r01-132

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

TOPIC:SIGNATURE
These comments fix inconsistencies in the word 'signature'.
When referring to detection, we should talk about "PD detection signature".
When referring to signature configuration, we should either say "single-signature PD, dual-signature PD, or PD signature configuration".
The draft contains 12 instances of the ambiguous "PD signature".

"When connected to a dual- signature PD, when operating in 2-pair mode, or when the PD signature has not yet been identified, V PSE is measured between any positive conductor of the pairset and any negative conductor of the corresponding pairset, for the given Alternative."

SuggestedRemedy

"When connected to a dual- signature PD, when operating in 2-pair mode, or when the PD signature **configuration** not yet been identified, V PSE is measured between any positive conductor of the pairset and any negative conductor of the corresponding pairset, for the given Alternative."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.2.1** *P* **107** *L* **28** # r01-135

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

"PSE Type is a constant."

False. A PSE could be reconfigured between Type 3 and Type 4 (if it meets all the requirements) when it is in the IDLE/DISABLED state.
Rather than open that can of worms, how about we just remove this text.
This is one of those sentences that causes more trouble than what it tried to solve.

SuggestedRemedy

Remove quoted sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CJ
This is not false. A Type 3 PSE cannot be a Type 4 PSE and does not need to change to power less than Type 3 PDs. A Type 4 PSE does not need to change to power less than Type 4 PDs. Furthermore, if the PSE needed to change it's Type to power PDs that weren't the same Type then we failed. And a power limited PSE should not need to change it's Type to use it's last bit power power. did we fail here too?

TFTD HS
Chad put this in to limit the ability to change PSE Type during power up / on states. Fixing is okay but removing is not an good option.
Propose:
PSE Type may only be modified in DISABLED or IDLE.

Cl **145** *SC* **145.2.1** *P* **107** *L* **30** # r01-136

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE Types*

I lost count of how many times we have changed Table 145-2, and it is STILL wrong and confusing.

Issues:
- 'Supports 4-pair power' has entry 'Optional' and 'Yes' ==> this overlaps.
- "Range of maximum Class supported" ==> requires a PhD in subtle standards language to understand
- Every single one of the values for "Range of maximum Class supported" is wrong per the changes to D3.0

SuggestedRemedy

Will use column,row coordinates for changes, the heading row counts as row 0.
Change:
(2,1) replace "Optional" by "No"
(3,0) replace "Range of maximum Class supported" by "Highest Class supported"
(3,1) replace "Class 3 to 4" by "1 to 4"
(3,2) replace "Class 5 to 6" by "1 to 6"
(3,3) replace "Class 8" by "7 to 8"

Straddle columns with identical content where appropriate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD CJ
I want to see the new table before i agree to yet another tweak to this table - and an OOS tweak. I don't like the terminology, you are making me do your work. Please provide a modified table for review.

WORK

Cl **145** *SC* **145.2.4** *P* **115** *L* **1** # r01-291

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *PSE PI*

This subclause it titled "PI pin assignments" but it also defines alternatives and has normative requirements about them, so it's not just pin assignments.

The parallel subclause for the PI is titled "PD PI".

SuggestedRemedy

Rename this subclause "PSE PI".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD CJ
This is called PI pin assignments because it applies to both the PSE and the PD. We found that readers tend to read only the section that concerns them (145.3 if they are designing a PD) so we included a PD PI section with pointers back to 145.2.4 to get the whole story. This is an out of scope editorial change that harms the document. Reject

Cl **145** *SC* **145.2.5.1** *P* **116** *L* **26** # r01-138

Yseboodt, Lennart Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

TOPIC:SIGNATURE
These comments fix inconsistencies in the word 'signature'.
When referring to detection, we should talk about "PD detection signature".
When referring to signature configuration, we should either say "single-signature PD, dual-signature PD, or PD signature configuration".
The draft contains 12 instances of the ambiguous "PD signature".

"If a PSE performing detection using Alternative A detects an invalid signature, it should complete a second detection in less than T dbo after the beginning of the first detection attempt. This allows an Alternative A PSE to complete a successful detection cycle prior to an Alternative B PSE present on the same link section that may have caused the invalid signature."

SuggestedRemedy

Change as follows:
"If a PSE performing detection using Alternative A detects an invalid **detection** signature, it should complete a second detection in less than T dbo after the beginning of the first detection attempt. This allows an Alternative A PSE to complete a successful detection cycle prior to an Alternative B PSE present on the same link section that may have caused the invalid **detection** signature."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.2.5.1** *P* **116** *L* **49** # r01-405

Darshan, Yair

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

It will help the reader if we add text in the intro to the state machine that the PSE state machine is based on the following concept:
The primary alternative is the OmasterO and powering secondary is pending if primary is valid, so if primary fails detection, we donOt power the secondary regardless if its signature is valid or not.
(As a result, if we want to power secondary if primary fails detection, we can flip by going to IDLE and set the other alternative as primary.)

SuggestedRemedy

Add the following text after line 49:
"When PSE supports dual-signature PD, powering secondary is enabled if primary is valid regardless if secondary is valid. If powering secondary is needed when primary is not valid during 4-pair operation, it may be necessary to swap the roles pf Alternative A and Alternative B in IDLE in order to power the secondary."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

OOS

The suggested remedy implies that when a DS PD is connected, the PSE powers both alternatives even without a valid detection signature on the secondary alternative. This is not true. Any pairset cannot be powered until a valid detection signature has been detected on that pairset.

Furthermore, if the intent of the comment is to alert the reader that a DS PD that has an invalid signature on the primary alternative (for some reason) will never have its secondary alternative powered, we already have a note for that. Quoting from line 39 on the same page:

NOTE—During 4-pair operation, it may be necessary to swap the roles of Alternative A and Alternative B in IDLE in order to detect a PD.

TFTD YD
"a) David is correct that in the proposed text it may wrongly interpreted that secondary can powerup without detection on the secondary.b) The NOTE in line 9 is not sufficiently clear in explaining the state machine concept.c) Yes, the intent is what you said in the ""Further more...."" but this is far from how it explained in the NOTE in line 9. Change the proposed remedy to:1. ""The semi independent PSE state machine is based on the concept that the behavior of the secondary depends on a valid signature on the primary. As a result, when PSE supports dual-signature PD, powering secondary after successful detection on secondary is not possible if primary failed detection. If powering secondary is needed when primary is not valid during 4-pair operation, it may be necessary to swap the roles pf Alternative A andAlternative B in IDLE.""2. Delete the NOTE in line 39."

Cl **145** *SC* **145.2.5.1** *P* **116** *L* **51** # r01-139

Yseboodt, Lennart Philips Lighting

Comment Type **E** *Comment Status* **D** *PSE SD*

"Monitoring of inrush is described by the state diagram in Figure 145-19."
This sentence is to be removed when the inrush statediagrams are included in the top level PSE statediagram.

SuggestedRemedy

Remove this sentence when the inrush statediagrams are included in the top level PSE statediagram.
(Wait for other comment and revisit if adopted).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

OBE by 179

TFTD YD
The issue is not clear

Cl **145** *SC* **145.2.5.2** *P* **117** *L* **1** # r01-140

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt6*

Our state diagrams are inordinately complex, with a very large number of variables (current count 163 for the PSE).
Given that our state diagrams mutated out of the Clause 33 state diagrams, we have low consistency in our variable descriptions.
Specifically, it is unclear what the rules are pertaining to each variable:
- may it be set externally ?
- only in IDLE, or at any time ?
- is it a state diagram internal variable ?
- is it a variable that must be set according to certain rules (eg. mps_valid) ?

The current descriptions don't help.
Some examples:
alt_done_pri: A variable used to coordinate... [this one is reserved for the state diagram]
alt_pri: A variable used to select... [this is a config variable]
alt_pwrd_pri: A variable that controls... [also reserved for the state diagram]
autoclass_enable: A control variable indicating... [configuration]
class_4PID_mult_events_pri: A variable indicating... [configuration]
det_once_sec: This variable indicates... [reserved for state diagram]
MirroredPDAutoclassRequest: A control variable output... [reserved for state diagram]
mps_valid: This variable indicates the presence or absence of a valid MPS... [mandatory set per requirements]

If we don't specify the 'usage rules' of variables, the state diagram can be made to do anything.

SuggestedRemedy

Adopt yseboodt_06_0117_variablerules.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

TFTD YD
"For most of the issues showed in this comment are really not a problem. I believe that this is out of scope for most of the issues and not only out of scope due to procedural arguments. The only issue that we may need to address is the question which parameters are set once only yin IDLE and are never changed afterwards.First we need to check in the manual what are the usage rules before we add new once"

Cl **145** *SC* **145.2.5.3** *P* **117** *L* **49** # r01-141

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE SD*

A bunch of descriptive text was added after CC_DET_SEQ:
"For a single-signature PD, parallel detection means that detection on both pairsets is done within the T det time period.
For a dual-signature PD, parallel detection means that detection on both pairsets is done within the same T det time period.
For a single-signature PD, staggered detection means that detection on both pairsets is done in different T det cycles.
For a dual-signature PD, parallel detection means that detection both pairsets is done in different T det cycles."

I feel this text adds more confusion / risk of contradiction than that it clarifies. Do we want to keep it ?

If yes, the following issues:
- last sentence seems to want to say 'staggered detection' rather than parallel detection.
- That means the definition for staggered detection is the same for single and dual is the same.
- Is there a difference between the first two sentences ? If yes... it feels like it should be reversed ?

Descriptive text like this does NOTHING technically.
If we're worried about 'parallel detection' being interpreted as the actual detection happining precisely at the same time, I would offer that a do_detection_xxx function is perfectly allowed to be called, and wait around doing nothing for a while, (eg. while the other function is doing it's thing), as long as it meets the Tdet timing.
In fact, as we discovered, the functions MUST be able to wait in order to correctly be able to use CC_DET_SEQ=2 where the two detection functions and the cxn function are called at the same time.

SuggestedRemedy

Option 1: remove quoted text.

Option 2: [my suggestion based on some guess work]
Replace by:
"Parallel detection refers to detection on both pairsets being performed in the same Tdet time period.
Staggered detection refers to detection on both pairsets being performed in a different Tdet cycle."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace by:
"Parallel detection refers to detection on both pairsets being performed in the same Tdet time period.

Staggered detection refers to detection on both pairsets being performed in a different Tdet cycle."

TFTD YD
"We need both definitions for parallel and staggered detection. Change the propose remedy to:""Parallel detection refers to detection on both pairsets being performed in the same Tdettime period. Staggered detection means that detection on both pairsets is done in different Tdetcycles. See Annex 145B.1 for details."""

Cl **145** *SC* **145.2.5.3** *P* **117** *L* **52** # r01-408

Darshan, Yair

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

1) The definition of staggered detection for single-signature and for dual-signature are the same. As a result text can be simplified.
2) In addition, typo in page 118 line 1, the "parallel" need to be staggered".

SuggestedRemedy

Change from: "For a single-signature PD, staggered detection means that detection on both pairsets is done in different Tdet cycles. For a dual-signature PD, parallel detection means that detection both pairsets is done in different Tdet cycles."
To: "Staggered detection means that detection on both pairsets is done in different Tdet cycles. See Annex 145B.1 for details. "

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 141

TFTD YD
"This comment is talked about staggered detection and not parallel detection, therefore it can't be OBE to 141 unless the proposed remedy is as I suggested for comment 141."

Cl **145** *SC* **145.2.5.4** *P* **118** *L* **31** # r01-143

Yseboodt, Lennart Philips Lighting

Comment Type **E** *Comment Status* **X** *Altpwrd*

Variable alt_pwrd_pri, TRUE:
"The PSE has detected, classified, and will power a PD on the Primary Alternative, is powering the Primary Alternative."

Missing 'or'.

SuggestedRemedy

"The PSE has detected, classified, and will power a PD on the Primary Alternative, **or** is powering the Primary Alternative."

Ignore if comment marked ALT_PWRD is accepted.

Proposed Response *Response Status* **W**

TFTD

waiting on 142

Cl **145** *SC* **145.2.5.4** *P* **118** *L* **31** # r01-142

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Altpwrd*

COMMENT: ALT_PWRD
The TRUE definition of alt_pwrd_pri and alt_pwrd_sec is:
"The PSE has detected, classified, and will power a PD on the Primary Alternative, is powering the Primary Alternative."
and
"The PSE has detected, classified, and will power a PD on the Secondary Alternative."

Other comments fix the editorial issues with these sentences.

We discussed this at the last meeting and I feel we did not end up with a good solution.

The definition of variables should be restricted to what the variable does or represents. These variables' "TRUE" description includes behaviour that (should have) happened in the past, as well as making a forward looking statement.

If we look at how these variables are actually used, the definition really is very simple:

FALSE = The PSE is not to apply power to the XYZ Alternative.
TRUE = The PSE is to apply power to the XYZ Alternative.

SuggestedRemedy

Replace quoted sentences by:
"FALSE: The circuitry that applies operating voltage to the Primary Alternative is disabled."
and
"TRUE: The circuitry that applies operating voltage to the Primary Alternative is enabled."

And the same for Secondary.

Proposed Response *Response Status* **W**

TFTD

Cl **145** *SC* **145.2.5.3** *P* **118** *L* **36** # r01-410

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Altpwrd*

The text of alt_pwrd_pri variable "TRUE: The PSE has detected, classified, and will power a PD on the Primary Alternative,
is powering the Primary Alternative.", looks it has a copy past error. The part "is powering the Primary Alternative" need to be deleted. It should be similar to what we have in alt_pwrd_sec variable.

SuggestedRemedy

Change from: "TRUE: The PSE has detected, classified, and will power a PD on the Primary Alternative, is powering the Primary Alternative."
To: "TRUE: The PSE has detected, classified, and will power a PD on the Primary Alternative."

Proposed Response *Response Status* **W**

TFTD

waiting on 142

Cl **145** *SC* **145.2.5.4** *P* **118** *L* **38** # r01-146

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Altpwrd*

Variable alt_pwrd_sec, TRUE:
"The PSE has detected, classified, and will power a PD on the Secondary Alternative."

Missing the bit where it is already powering the Secondary.

SuggestedRemedy

"The PSE has detected, classified, and will power a PD on the Secondary Alternative**, or is powering the Secondary Alternative**."

Proposed Response *Response Status* **W**

TFTD

waiting on 142

Cl **145** *SC* **145.2.5.4** *P* **118** *L* **38** # r01-145

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **X** *Altpwrd*

Variable alt_pwrd_sec, TRUE:
"The PSE has detected, classified, and will power a PD on the Secondary Alternative."

Does not match Primary definition.

SuggestedRemedy

Replace by:
"The PSE has detected, classified, and will power a PD on the Primary Alternative, or is powering the Secondary Alternative."

Ignore if comment marked ALT_PWRD is accepted.

Proposed Response *Response Status* **W**

TFTD

waiting on 142

Cl **145** *SC* **145.2.5.4** *P* **118** *L* **42** # r01-58

Agnes, Andrea — STMicroelectronics

Comment Type **E** *Comment Status* **X** *Altpwrd*

alt_pwrd_sec has value TRUE also when power is applied (as alt_pwrd_pri)

SuggestedRemedy

Change the definition of TRUE:

TRUE: The PSE has detected, classified, and will power a PD on the Secondary Alternative, or is powering Secondary Alternative.

Proposed Response *Response Status* **W**

TFTD

OOS

waiting on 142

Cl **145** *SC* **145.2.5.4** *P* **125** *L* **32** # r01-155

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

TOPIC:SIGNATURE
These comments fix inconsistencies in the word 'signature'.
When referring to detection, we should talk about "PD detection signature".
When referring to signature configuration, we should either say "single-signature PD, dual-signature PD, or PD signature configuration".
The draft contains 12 instances of the ambiguous "PD signature".

"NOTE---Care should be taken when negating this variable in a PSE performing detection using Alternative A after an invalid signature is detected due to the delay it introduces between detection attempts (see 145.2.5.1)."

SuggestedRemedy

Change as follows:
"NOTE---Care should be taken when negating this variable in a PSE performing detection using Alternative A after an invalid **detection** signature is detected due to the delay it introduces between detection attempts (see 145.2.5.1)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.2.5.4** *P* **126** *L* **7** # r01-157

Yseboodt, Lennart — Philips Lighting

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

"pse_ss_mode: A variable that controls whether the PSE provides power over 2 pair or 4 pair to a Class 0 to 4 single-signature PD."

This refers to assigned Class, and as such, it should be Class 1 to 4.

SuggestedRemedy

Replace by: "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 4."
Also fix the bad indenting.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.2.5.5** *P* **128** *L* **14** # r01-161

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

TOPIC:SIGNATURE
These comments fix inconsistencies in the word 'signature'.
When referring to detection, we should talk about "PD detection signature".
When referring to signature configuration, we should either say "single-signature PD, dual-signature PD, or PD signature configuration".
The draft contains 12 instances of the ambiguous "PD signature".

tdbo_timer: "A timer used to regulate backoff upon detection of an invalid signature; see T dbo in Table 145-16."

SuggestedRemedy

Change as follows:
"A timer used to regulate backoff upon detection of an invalid **detection** signature; see T dbo in Table 145-16."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD GZ
REJECT
Comment is out of scope of the recirculation. Comment is on unchanged text and proposes a substantive text change which does not identify a material problem in the draft.

Cl **145** *SC* **145.2.5.6** *P* **129** *L* **18** # r01-421

Darshan, Yair

Comment Type **T** *Comment Status* **X** *PSE SD*

The function do_class_probe_pri doesnOt return a value for error code (we have it only if we go through the states). We can fix it in two ways:
Option A: To add output for the function do_class_probe_pri such as class_error_pri OR
Option B (preferred) : To add new variable class_error_pri to the variable list and add it to the input to the IDLE_PRI state in page 141.
Repeat this solution for the secondary as well.

SuggestedRemedy

1. Add the variable class_error_pri to the variable list:
class_error_pri
A variable indicating if during do_class_probe_pri function, invalid class result was detected.
Values:
FALSE: No invalid class result was detected.
TRUE: Invalid class result was detected.
2. Change the input condition to IDLE in page 141 from:
sism * (pse_reset_pri + error_condition_pri + iclass_lim_det_pri)
To:
sism * (pse_reset_pri + error_condition_pri + iclass_lim_det_pri+class_error_pri)
3. repeat the above solution for the secondary.

Proposed Response *Response Status* **W**

TFTD

Waiting for 420

TFTD YD
"""Answer: Because errors in class codes i.e. getting different codes when expecting same code is not defined error during the state machine progress i.e. why if I am getting different class codes in sig_A it should be error?. That is why we need to define new variable as proposed etc."""

Cl **145** *SC* **145.2.5.6** *P* **129** *L* **18** # r01-420

Darshan, Yair

Comment Type **T** *Comment Status* **X** *PSE SD*

The function do_class_probe doesnOt return a value for error code (we have it only if we go through the states in the procedure when available power >=4). We can fix it in two ways:
Option A: To add output for the function do_class_probe such as class_error OR
Option B (Preferred) : To add new variable class_error to the variable list and add it to the input to the IDLE state in page 135.

SuggestedRemedy

1. Add the variable class_error to the variable list:
class_error
A variable indicating if during do_class_probe function, invalid class result was detected.
Values:
FALSE: No invalid class result was detected.
TRUE: Invalid class result was detected.
2. Change the input condition to IDLE in page 130 from:
(pse_enable = enable) * (pse_reset + iclass_lim_det + error_condition)
To:
(pse_enable = enable) * (pse_reset + iclass_lim_det + error_condition+class_error)

Proposed Response *Response Status* **W**

TFTD

Why can't error_condition be used for this?

TFTD LY
Recommend to add to the function description that it returns "0" in case of error, as this is compatible with later logic in the SD.
Also, this really only matters for the case that the PD shows an invalid signature during probing, but a valid one on the subsequent real classification.

TFTD YD
"Answer: Because errors in class codes i.e. getting different codes when expecting same code is not defined error during the state machine progress i.e. why if I am getting different class codes in sig_A it should be error?. That is why we need to define new variable as proposed etc."

Cl **145** *SC* **145.2.5.6** *P* **130** *L* **6** # r01-162

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

The function do_class_probe returns the variable pd_req_pwr.
This variable is also defined in the variables section 145.2.5.4.

A double definition needs to be kept in perfect sync or it can lead to ambiguity.
It would be better simply to point to the variable than re-describe it.

SuggestedRemedy

Replace line 6-15 on page 130 by:
"pd_req_pwr: See 'pd_req_pwr' in 145.2.5.4."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD HS
This creates a circular reference.
pd_req_pwr states (in part).
If pse_avail_pwr is less than 4 and option_class_probe is FALSE, this variable may not contain the PD requested Class; see do_class_probe.

Cl **145** *SC* **145.2.5.6** *P* **130** *L* **21** # r01-163

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

The function do_class_probe_pri returns the variable pd_req_pwr_pri, as does the function do_classification_pri.
A double definition needs to be kept in perfect sync or it can lead to ambiguity.
It would be better simply to point to the variable than re-describe it.

Case in point, the definitions of pd_req_pwr_pri in both functions has drifted apart (one has Class 0, the other does not).

SuggestedRemedy

Replace lines 21 to 28 on page 130 with:
"pd_req_pwr_pri: See 'pd_req_pwr_pri' in the function do_classification defined in 145.2.5.6."

Same fix for pd_req_pwr_sec in do_classification_sec.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
The remedy OK. It is line 6 and not 21.

Response DNA: No, it is line 21.

TFTD HS
in the function do_classification"_pri"

Cl **145** *SC* **145.2.5.6** *P* **130** *L* **30** # r01-164

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

The function do_class_probe_pri returns the variable pd_cls_4PID_pri.
This variable is also defined in the variables section 145.2.5.4.

A double definition needs to be kept in perfect sync or it can lead to ambiguity.
It would be better simply to point to the variable than re-describe it.

SuggestedRemedy

Replace line 30-36 on page 130 by:
"pd_cls_4PID_pri: See 'pd_cls_4PID_pri' in 145.2.5.4."

Same fix for do_class_probe_sec.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
The remedy OK but I tis secondary not primary. In addition it is 21 and not 30.

Response DNA: No it is line 30 and it is primary. The comment notes to do the same for the secondary.

Cl **145** *SC* **145.2.5.7** *P* **135** *L* **6** # r01-170

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE SD*

We need to reset a couple of variables / timers in the IDLE state to allow multiple passes through the state diagram as indicated by simulation.

SuggestedRemedy

Add in state "IDLE" the following statements:
"stop tcc2det_timer"
"stop tdet2det_timer"
"sig_pri = FALSE"
"sig_sec = FALSE"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD LY
-1 for Lennart.
Should be sig_pri = invalid and sig_sec = invalid

TFTD HS
FALSE is not a valid sig_xxx enumeration
Propose
sig_pri = open_circuit
sig_sec = open_circuit

Cl **145** *SC* **145.2.5.7** *P* **135** *L* **13** # r01-172

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt6*

In IDLE we have "alt_pri = user defined". The value 'user defined' is not a valid value for alt_pri.
This is the only instance in the state diagram where we do this.
We're trying to textually describe that this variable may/must be set by the "user".

SuggestedRemedy

Remove this ELSE statement.
Setting alt_pri is done 'outside' of the state diagram, and use of this variable will be clarified by yseboodt_06_0117_variablerules.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.2.5.7** *P* **137** *L* **33** # r01-174

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE SD*

There is a cornercase bug in single-signature classification.
If:
- pse_alternative = a or b (so, 2-pair PSE)
- option_2ev = True (PSE only wants to do 2 class events when it has class 4 power)
- pse_allocated_pwr > 4 (a bit strange, but it is an allowed permutation...)

Then the branch logic out of CLASS_EV2 is wrong and it makes a third class event even though option_2ev is set.

Also, we should reset allocated power to zero in IDLE.

SuggestedRemedy

- Change logic from CLASS_EV2 to MARK_EV_LAST to:
"tcev_timer_done * option_2ev * ((pse_avail_pwr = 4) + (pse_alternative != both)) * (pd_class_sig = 4)"

- Change logic from CLASS_EV2 to MARK_EV2 to:
"tcev_timer_done * (pd_class_sig = 4) * (((pse_avail_pwr > 4) * (pse_alternative = both)) + !option_2ev)"

- Add to IDLE
"pse_allocated_pwr = 0"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD HS
Propose we fix illogical selection of variables used as test condition.
Change Table 145-6 to add pse_alternative column
split Type 3 row into 2 rows
1st row: a/b 1-4
2nd row: both 1-6

Cl **145** *SC* **145.2.5.7** *P* **137** *L* **45** # r01-425

Darshan, Yair

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

This comment will be OBE to the comment marked GIL_1 if GIL_1 will be accepted.
In the exit from CLASS_EV3 to MARK_EV3 we have the following condition:
tcev_timer_done * (pse_alternative = both) * (pd_class_sig 4) *
(pse_avail_pwr > 4) * ((pd_class_sig = 0) + (pse_avail_pwr > 5))

The part (pse_avail_pwr > 4) * ((pd_class_sig = 0) + (pse_avail_pwr > 5)) is logically identical to:
(pse_avail_pwr > 4)* (pd_class_sig = 0)+(pse_avail_pwr > 4)*(pse_avail_pwr > 5) which mean:
(X>4)*(X>5) which is X>5.

SuggestedRemedy

Change from:
tcev_timer_done * (pse_alternative = both) * (pd_class_sig != 4) *
(pse_avail_pwr > 4) * ((pd_class_sig = 0) + (pse_avail_pwr > 5))
to:
tcev_timer_done * (pse_alternative = both) * (pd_class_sig != 4) *
((pse_avail_pwr > 4) * (pd_class_sig = 0) + (pse_avail_pwr > 5))

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

TFTD

If we want to make the intent of the logic as clear as possible we should consider this change:

Change from:
tcev_timer_done * (pse_alternative = both) * (pd_class_sig != 4) *
(pse_avail_pwr > 4) * ((pd_class_sig = 0) + (pse_avail_pwr > 5))
to:
tcev_timer_done * (pse_alternative = both) * (pd_class_sig != 4) *
(((pse_avail_pwr = 5) * (pd_class_sig = 0)) + (pse_avail_pwr > 5))

TFTD LY
Suggested response confirmed by simulation to be OK.

TFTD DS
Also change CLASS_EV3->MARK_EV_LAST to be more obvious:
tcev_timer_done * ((pse_alternative != both) + (pd_class_sig = 4) + (((pse_avail_pwr = 5) * (pd_class_sig != 0)) + (pse_avail_pwr < 5))

Cl **145** *SC* **145.2.5.7** *P* **139** *L* **33** # r01-427

Darshan, Yair

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

This comment is marked AVI_1.
In the exit from POWER_ON to SEMI_PWRON_SEC, the usage of alt_pwrd_sec may not be accurate since this signal is set prior to inrush while pwr_app_sec also address passing inrush successfully.
So it is recommended to replace the signal alt_pwrd_sec with pwr_app_sec because this signal indicates that the alternative is delivering power after passing the inrush check.

SuggestedRemedy

Replace the signal alt_pwrd_sec with pwr_app_sec

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Since this arc is from POWER_ON to SEMI_PWRON_SEC, inrush no longer comes into play.
This is a redundant change that makes the logic weaker because the value of pwr_app_sec is far more nebulous than that of alt_pwrd_sec.
Also, logic to ERROR_DELAY also uses alt_pwrd_sec, creating an inconsistency in how we check.

TFTD DS
Original logic is correct; rightfully samples "alt_pwrd_sec", which is a logical test of PSE intent to power. If there is a fault on SEC, it will be handled in SEMI_PWR_SEC.

Cl **145** *SC* **145.2.5.7** *P* **139** *L* **40** # r01-428

Darshan, Yair

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

in the exit from POWER_ON to ERROR_DELAY, the usage of alt_pwrd_sec may not be accurate (but it is good enough in this case, however for consistency with comment AVI_1, it is better to change it too) since this signal is set prior to inrush while pwr_app_sec also address passing inrush successfully.

SuggestedRemedy

Replace the signal alt_pwrd_sec with pwr_app_sec.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
See 427, no need to change this.

TFTD DS
Do not change original logic. See response to #427.

Cl **145** *SC* **145.2.5.7** *P* **141** *L* **7** # r01-177

Yseboodt, Lennart Philips Lighting

Comment Type **T** *Comment Status* **X** *Pres: Yseboodt3*

State "ENTRY_PRI" and state "ENTRY_SEC" are evaluated constantly when sism is false.
This corrupts the "sig_pri" assignment of a single signature pd detection.
Also variable "pd_4pair_cand" is constantly set to False.

SuggestedRemedy

Adopt "yseboodt_03_1117_psesdconcur.pdf".

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.2.5.7** *P* **141** *L* **8** # r01-432

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Pres: Yseboodt3*

we need to set the sig_pri and sig_sec to FALSE in the top level state machine at IDLE state otherwise, we will have cross issues between two state machines parts.
Analysis:
When a single-signature is connected, ENTRY_PRI is processed continuously because "!sism" is TRUE which sets sig_pri to 'invalid' continuously, which breaks the main state diagram.
Same happen in the secondary.
To resolve it, we need to set the sig_pri and sig_sec to FALSE in the top state machine at idle state. This will also reset the signals for the single signature state machine, something that is not happening currently.

SuggestedRemedy

Add the following assignments to the IDLE state in page 135 line 7.:
sig_pri <==FALSE
sig_sec <== FALSE

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.2.5.7** *P* **141** *L* **12** # r01-433

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Pres: Yseboodt3*

This comment is marked AVI_22.
In the ENTRY_PRI state, the variable "det_start_pri <== TRUE" is in the wrong place since we will be always in ENRY_PRI when !sism=TRUE which will set det_start_pri<==TURE even if we didn't do_detect_pri. We need to move it to the to state START_CXN_CHK_DETECT in page 135 line 47.
Other issue that ends with the same remedy for "det_start_sec <== TRUE" which is in wrong location in DETECT_EVAL_SEC state. The problem is that "det_start_sec <== TRUE" is set after do_detect_sec was done.

SuggestedRemedy

1. Move "det_start_pri <== TRUE" to state START_CXN_CHK_DETECT in page 135 line 47
2. Move "det_start_sec <== TRUE" to state START_CXN_CHK_DETECT in page 135 line 47

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.2.5.7** *P* **142** *L* **6** # r01-434

Darshan, Yair

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

In D3.1 we add the CLASSIFICATION_PRI and DO_CLASS_PROBE_PRI states for achieving some objectives, and after simulating some parts and analyzing the changes we did, we found some errors in state machine and variable definitions that need to be corrected. Same applies for secondary parts.

SuggestedRemedy

Adopt darshan_03_117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.2.5.7** *P* **142** *L* **6** # r01-312

Peker, Arkadiy Microsemi Corporation

Comment Type **TR** *Comment Status* **D** *PSE SD*

This comment is marked CLASS_PROB_PRI_1.
Wrong and impossible logic of pse_avail_pwr_pri >= 4) in the exit from CLASS_PROBE_PRI to IDLE_PRI if the input to CLASS_PROBE_PRI is only allowed for pse_avail_pwr_pri < 4 per the current option_class_probe definition. The option_class_probe definition is good for single-signature PD but cannot be used in the dual-signature part of the PSE state machine per the current implementation of the CLASS_PROBE_PRI exit logics.

SuggestedRemedy

1. In the exit from CLASSIFICATION_PRI to CLASS_PROBE_PRI, replace option_class_probe with option_class_probe_pri.
2. Add new variable option_class_probe_pri to the variable list with the following definition:
"option_class_probe_pri
This variable indicates if the PSE should determine the PD requested Class on the Primary Alternative by issuing 3 class events. When set to TRUE, the PSE will issue 3 class events to determine the PD requested Class, perform a classification reset by applying VReset for at least TReset to the PI (see Table 145-14), followed by a normal classification procedure.
Values:
FALSE: The PSE will not probe for the PD requested Class.
TRUE: The PSE probes for the PD requested Class."
3. Repeat the solution for the secondary.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
"It is not clear why we used single option_class_probe for both primary and secondary with dual-signature and for single-signature."
We asked you (Yair) at the D3.0 meeting if you were OK with using option_class_probe (in your own baseline) for this and you were.
Now this.
Also, if we adopt this, need to change option_class_probe in the arc from CLASSIFICATION_PRI to CLASS_EV1_LCE_PRI.

TFTD HS
The sism state machine already allows classification for pse_avail_pwr_xxx >= 4.
pse_avail_pwr_xxx is not externally observable. Use CLASS_EV1_LCE_XXX branch instead of class_probe.

Cl **145** *SC* **145.2.5.7** *P* **143** *L* **10** # r01-317

Peker, Arkadiy — Microsemi Corporation

Comment Type **TR** *Comment Status* **X** *Pres: Darshan3*

A problem was identified with the primary (and secondary) state machine that results with issuing 3 class events when the available power is 3 and powering up while the concept is to issue only one class event and powering up. The problem has been created at 4PID3_PRI state which doesn't allow going to CLASS_RESET_PRI in this scenario due to the questions if (temp_var_pri = 4) or not in the conditions at the exits of 4PID3_PRI.
Example: Let's assume the following conditions:
pse_avail_pwr_pri<4
Option_class_probe=FALSE
class_4PID_mult_event_pri=TRUE
pd_req_pwr_pri = class 3 (code 3,3,0).
Now we are in CLASS_EV3_PRI.

Now, the previous temp_var_pri=3, the current pd_class_sig_pri=0, resulting with moving to 4PID3_PRI due to (pd_class_sig_pri not equal temp_var_pri)* (pd_class_sig_pri = 0)=TRUE. As a result, moving to MARK_EV_LAST_PRI, CLASS_EVAL_PRI and then POWER_UP.
The end result is doing 3 class events and power up even if pse_avail_pwr_pri<4
While the concept requires doing 1 class event and power up.
The problem resulted from the 4PID3_PRI exit that doesn't allow to go CLASS_RESET_PRI due to redundant question if (pse_avail_pwr_pri < 4) * (temp_var_pri = 4) while what is important is only if (pse_avail_pwr_pri < 4).
If we remove the part (temp_var_pri = 4) and (temp_var_pri not equal 4) from both exits, this problem will be solved.
This is not the end of this problem. Now After fixing it and doing CLASS_RESET_PRI and going to CLASS_EV1_LCE_4PID_PRI, we will not power because the access to MARK_EV_LAST_PRI is blocked by the condition tlce_timer_pri_done * (pd_class_sig_pri = 4) while pd_class_sig_pri=3. The proposed fix for it is to delete the part (pd_class_sig_pri = 4) and to delete the exit from CLASS_EV1_LCE_4PID_PRI to IDLE_PRI.

SuggestedRemedy

1. Change the exit from 4PID3_PRI to CLASS_RESET_PRI from:
   (pse_avail_pwr_pri < 4) * (temp_var_pri = 4)
   To (pse_avail_pwr_pri < 4)
2. Change the exit from 4PID3_PRI to MARK_EV_LAST_PRI from:
   (pse_avail_pwr_pri >= 4) + (temp_var_pri not equal 4)
   To: (pse_avail_pwr_pri >= 4)
3. Change the exit from CLASS_EV1_LCE_4PID_PRI to to MARK_EV_LAST_PRI from:
   tlce_timer_pri_done * (pd_class_sig_pri = 4)
   To: tlce_timer_pri_done
4. Delete the exit from CLASS_EV1_LCE_4PID_PRI to IDLE_PRI

Proposed Response *Response Status* **W**

TFTD

I need people to review this and confirm it works.

TFTD CJ
please mark WORK. will filter out in adhoc and ask people to get this done asap. 136 needs marked with WORK too.

TFTD YD
See darshan_03_1117Rev001.pdf for updated comment and remedy.

TFTD DS
WFP stover_02

Cl **145** *SC* **145.2.5.7** *P* **143** *L* **22** # r01-391

Stover, David — Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *Pres: Darshan3*

*** Comment submitted with the file 94876300003-stover_02_1117.pdf attached ***

"In PSE dual-sig class diagrams, CLASS_EV1_LCE_4PID_X states check for ""pd_class_sig_x = 4"" as a double-check that PD class_ev1 response has not changed between class reset events. Now that class_probe dumps into this state, pd_class_sig_x could have been any valid class_sig (not just 4).
To fix:
1) ensure that pd_class_sig_x from class_ev1 is recorded to temp_var_x in all cases, and,
2) compare temp_var_x to pd_class_sig_x when exiting state CLASS_EV1_LCE_4PID_X."

SuggestedRemedy

Adopt stover_02_1117.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD YD
"I believe that you forgot to add ""I need people to review this and confirm it works."" as you did in r01-317. The proposed solution in my opinion doesn't work. See details in darshan_03_1117Rev001.pdf"

WORK

Cl **145** *SC* **145.2.5.7** *P* **144** *L* **10** # r01-484

Darshan, Yair

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

This is similar ot earlier comment but with updated remedy.
The exits from CLASS_EVAL_PRI to POWER_DENIGED_PRI and POWER_UP_PRI doesn't contain the logics for power demotion.

SuggestedRemedy

1. Change the exit from CLASS_EVAL_PRI to POWER_DENIED_PRI from:
!ted_timer_pri_done + !ted_timer_done + (pd_req_pwr_pri > pse_avail_pwr_pri) + (!pd_4pair_cand * alt_pwrd_sec)
To:
!ted_timer_pri_done + !ted_timer_done + (pd_req_pwr_pri > pse_avail_pwr_pri) * (pse_avail_pwr_pri < 3) +
((pd_req_pwr_pri = 0) * (pse_avail_pwr_pri < 3)) + (!pd_4pair_cand * alt_pwrd_sec)
2. Change the exit from CLASS_EVAL_PRI to POWER_UP_PRI from:
ted_timer_pri_done * ted_timer_done * (pd_req_pwr_pri <= pse_avail_pwr_pri) * (pd_4pair_cand + !alt_pwrd_sec)
To:
ted_timer_pri_done * ted_timer_done * ((pd_4pair_cand + !alt_pwrd_sec) + (pd_req_pwr_pri 0) * (pd_req_pwr_pri <= pse_avail_pwr_pri) + (pse_avail_pwr_pri > 2))

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

WFP

ALSO, make sure "less than or equal to" sign in instruction 2 is implemented correctly.

TFTD LY
Logic in item 2 is invalid. "(pd_req_pwr_pri 0)"

WORK

TFTD YD
"Missing ""not equal"" in item 2. In addition darshan_03 shows simplified logic without ((pd_req_pwr_pri = 0) and ((pd_req_pwr_pri NE 0) that doesn't exists in dual-sig. See darshan_03 in which the proposed remedy there is:

1. Change the exit from CLASS_EVAL_PRI to POWER_DENIGED_PRI to:!ted_timer_pri_done + !ted_timer_done + (!pd_4pair_cand * alt_pwrd_sec) +((pd_req_pwr_pri > pse_avail_pwr_pri) * (pse_avail_pwr_pri < 3))
2. Change the exit from CLASS_EVAL_PRI to POWER_UP_PRI to:ted_timer_pri_done * ted_timer_done * (pd_4pair_cand + !alt_pwrd_sec) *((pd_req_pwr_pri ≤ pse_avail_pwr_pri) + (pse_avail_pwr_pri > 2))"

TFTD DS
Remedy can be simplified. Replace (pd_req_pwr_pri > pse_avail_pwr_pri) with (pse_allocated_pwr_pri > pse_avail_pwr_pri) in both arcs. Repeat remedy for SEC state machines using (pse_allocated_pwr_sec > pse_avail_pwr_sec).

Cl **145** *SC* **145.2.5.7** *P* **145** *L* **7** # r01-436

Darshan, Yair

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

This comment marked as AVI5.
In CC_DET_SEQ=3 and CC_DET_SEQ=2 the state machine can allow the secondary pair to power up (pri signature was valid) but primary fails in classification.
(Details: If sig_pri=valid and primary fails classification, it goes to IDLE_PRI. There is nothing in IDLE_PRI that resets sig_pri to invalid. Now secondary has valid detection and classification and powerup. If our intention is to not allow powering the secondary if primary fails to power up, then we need to add sig_pri=invalid to IDLE_PRI state.
Adding sig_pri<==invalid and sig_sec<==invalid in the IDLE_PRI and IDLE_SEC will resolve this issue. In addition, the lack of resetting sig_pri and sig_sec cause additional issues in simulations that are covered in other comments. See simulation results if needed in darshan_06_1117.pdf.

SuggestedRemedy

1. Add sig_pri<==invalid in the IDLE_PRI.
2. Add sig_sec<==invalid in the IDLE_SEC.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Not needed if those statements are added to IDLE.
OBE to 170

Cl **145** *SC* **145.2.5.7** *P* **145** *L* **10** # r01-365

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *PSE SD*

*** Comment submitted with the file 94875900003-stewart_04_1117.pdf attached ***

A few issues exist. The usage of pd_req_pwr_pri in CLASS_EVAL_PRI is dated and does not account for the updated usage of pse_allocated_pwr_xxx. The main PSE state diagram correctly references pse_allocated_pwr to decide if enough power exists to turn on PD. The pd_req_pwr_xxx variable is intended to communicate how much the PD requested, to the limit of the PSEs ability to know that information.
The state machine CLASS_EVAL_PRI/SEC exit arcs need to reference the correct variable.
The description of pd_req_pwr_pri/sec need to be updated to correctly describe the usage.
The Class 0 encoding needs to be removed from the do_class_probe_pri/sec return variable enumeration since it is not a legal return value (see do_classification_pri/sec.)

SuggestedRemedy

See stewart_04_1117.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Adopt changes in stewart_04_1117.pdf while combining with the result of comments 484 and 485.

TFTD LY
Baseline and comments are in conflict. This is asking for mistakes.
Please merge in changes of 484 and 485 into stewart_04.
Stewart_004 uses different logic to check for power demotion than the single-signature version. Harmonize.

TFTD CJ
WORK - based on Lennart's TFTD comment.

TFTD YD
"1. Possible conflict in pages 3 and 4 in stewart_04_1117 with comment r01-484. In addition, the remedy is not complete.2. Pages 1 and 2 in stewart_04_1117 .pdf, are OK and proposed to ACCEPT it. They doesn't conflict with other comments.3. To prevent confusion to the editor and make this comment orthogonal to comment 484, 485 and others, please ACCEPT Heath only for pages 1 and 2 in stewart_04_1117 .pdf, and the rest of page 3 and 4 that deals with state machine leave it to be resolved by darshan_03_1117Rev00x that addresses comments 484, 485 and others that need to be review as a whole solution.4. Delete the comment editor response ""while combining with the result of comments 484 and 485"" to prevent unclarity from the editor for what how to integrate different results of comment responses."

Cl **145** *SC* **145.2.5.7** *P* **148** *L* **10** # r01-440

Darshan, Yair

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

The exits from CLASS_EVAL_SEC to POWER_DENIGED_SEC and POWER_UP_SEC doesn't contain the logics for power demotion.

SuggestedRemedy

1. Change the exit from CLASS_EVAL_SEC to POWER_DENIGED_SEC from:
!ted_timer_sec_done + !ted_timer_done + (pd_req_pwr_sec > pse_avail_pwr_sec) + (!pd_4pair_cand * alt_pwrd_pri)
To:
!ted_timer_sec_done + !ted_timer_done + (pd_req_pwr_sec > pse_avail_pwr_sec) * (pse_avail_pwr_sec < 3) +
((pd_req_pwr_sec= 0) * (pse_avail_pwr_sec < 3)) + (!pd_4pair_cand * alt_pwrd_pri)
2. Change the exit from CLASS_EVAL_SEC to POWER_UP_SEC from:
ted_timer_sec_done * ted_timer_done * (pd_req_pwr_sec?? pse_avail_pwr_sec) * (pd_4pair_cand + !alt_pwrd_pri)
To:
ted_timer_sec_done * ted_timer_done * ((pd_4pair_cand + !alt_pwrd_pri) + (pd_req_pwr_sec 0) * (pd_req_pwr_sec ?? pse_avail_pwr_sec) + (pse_avail_pwr_sec > 2))

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 485

TFTD DS
Copy-paste error; needs clarification. See response to #485.

Cl **145** *SC* **145.2.5.7** *P* **148** *L* **10** # r01-485

Darshan, Yair

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

This is similar ot earlier comment but with updated remedy.
The exits from CLASS_EVAL_SEC to POWER_DENIGED_SEC and POWER_UP_SEC doesn't contain the logics for power demotion.

SuggestedRemedy

1. Change the exit from CLASS_EVAL_SEC to POWER_DENIGED_SEC from:
!ted_timer_sec_done + !ted_timer_done + (pd_req_pwr_sec > pse_avail_pwr_sec) + !pd_4pair_cand
To:
!ted_timer_sec_done + !ted_timer_done +
(pd_req_pwr_sec > pse_avail_pwr_sec) * (pse_avail_pwr_sec < 3) +
((pd_req_pwr_sec= 0) * (pse_avail_pwr_sec < 3)) + !pd_4pair_cand

2. Change the exit from CLASS_EVAL_SEC to POWER_UP_SEC from:
ted_timer_sec_done * ted_timer_done * (pd_req_pwr_sec ?? pse_avail_pwr_sec) * pd_4pair_cand)
To:
ted_timer_sec_done * ted_timer_done * pd_4pair_cand *
((pd_req_pwr_sec 0) * (pd_req_pwr_sec ?? pse_avail_pwr_sec) + (pse_avail_pwr_sec > 2))

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD LY
There are question marks in the logic for item 2.

TFTD HS
What is ??

TFTD DS
Proposed remedy has copy-paste error; uses "??" as an equality statement. What is the intended symbol?

Response DNA: Yeah, they imported wrong. Something to do with the foreign keyboard…

?? Should be <= (less than or equal to)

TFTD YD
"Missing ""not equal"" in item 2. In addition darshan_03 shows simplified logic without

((pd_req_pwr_sec= 0) that doesn't exists in dual-signature ((pd_req_pwr_sec NE 0). See darshan_03 in which the proposed remedy there is:1. Change the exit from CLASS_EVAL_SEC to POWER_DENIGED_SEC to:!ted_timer_sec_done + !ted_timer_done + (!pd_4pair_cand * alt_pwrd_pri) +((pd_req_pwr_sec > pse_avail_pwr_sec) * (pse_avail_pwr_sec < 3))2. Change the exit from CLASS_EVAL_SEC to POWER_UP_SEC to:ted_timer_sec_done * ted_timer_done * (pd_4pair_cand + !alt_pwrd_pri) *((pd_req_pwr_sec ≤ pse_avail_pwr_sec) + (pse_avail_pwr_sec > 2))"

Cl **145** *SC* **145.2.5.7** *P* **150** *L* **1** # r01-179

Yseboodt, Lennart Philips Lighting

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

The inrush monitor state diagrams... don't really monitor anything do they ?
They've just become a complicated way to start the inrush timer when alt_pwrd_pri/sec is asserted.

SuggestedRemedy

- Remove Figure 145-19
- in POWER_UP, after 'alt_pwrd_pri <= TRUE', add 'start tinrush_pri_timer'
- in POWER_UP, after 'alt_pwrd_sec <= TRUE', add 'start tinrush_sec_timer'
- in POWER_UP_PRI, add 'start tinrush_pri_timer'
- in POWER_UP_SEC, add 'start tinrush_sec_timer'
- Remove last sentence of paragraph at page 116, line 51.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

- Remove Figure 145-19
- in POWER_UP, after 'alt_pwrd_pri <= TRUE', add 'start tinrush_pri_timer'
- in POWER_UP, after 'alt_pwrd_sec <= TRUE', add 'start tinrush_sec_timer'
- in POWER_UP_PRI, add 'start tinrush_pri_timer'
- in POWER_UP_SEC, add 'start tinrush_sec_timer'
- Remove last sentence of paragraph at page 116, line 51.

Also, add stops for these two timers to the IDLE state(s) if not done in other comments/presentations.

TFTD YD
Where you stop Tinrush timer?

Cl **145** *SC* **145.2.6.1** *P* **150** *L* **37** # r01-181

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **X** *Connection Check*

"PSEs that will source power on both pairsets shall complete a connection check prior to the classification of a PD as defined in 145.2.7 to determine if the PSE is connected to a single-signature PD configuration, a dual-signature PD configuration, or neither."

While I certainly agree with this requirement, ... how are we going to test this ?
Can we somehow derive the result of cc-check at the PI ?

SuggestedRemedy

Rewrite this requirement such that it can be tested or remove it.
[I know this is not remedy, but I don't have a solution offhand on how to do this].

Proposed Response *Response Status* **W**

TFTD

TFTD YD
Fair question but Reject (no remedy) or leave it out of scope how to test it since there are many differences between the operation required from the PSE when connected to SSPD or DS PD that based on it we can differentiate.

Cl **145** *SC* **145** *P* **151** *L* **10** # r01-30

Anslow, Peter — Ciena Corporation

Comment Type **TR** *Comment Status* **X** *Editorial*

The response to unsatisfied comment i-1 against D3.0 was:
"We will work with editorial staff to try to clarify the style guide. Here is our opinion:
There is a distinction between an em-dash, which indicates 'a lack of data', and leaving a cell blank. Eg. For parameters that convey a range, having a blank 'Min' cell, does NOT indicate there is lack of data, rather that the minimum value is open-ended. An em-dash would convey an incorrect message. Em-dashes have been put in all cells where it is appropriate."
This interpretation of the style manual is different from the interpretation that has been used in recent amendments to IEEE Std 802.3. There is nothing different about Clause 145 that means that max or min cells without a value should be shown differently to those in other recent amendments.

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, 145-16, 145-21, 145-28, 145-29, 145-32, 145-33.

Proposed Response *Response Status* **W**

TFTD

I need a response from the Editor or Chair…

Cl **145** *SC* **145.2.7** *P* **155** *L* **39** # r01-187

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PD Power*

"Measurements should be averaged using any sliding window with a width of 1 s."

Rejected comment i-79 against D3.0 wanted to remove this sentence with the following rationale:
This sentence follows after the definition of PClass and PClass-2P.
That whole section is informative in nature.
- Why is this a should ?
- Measurements of what ? PClass is a capability.
- The actual power requirement of a PSE is encoded in ICon-2P.

We need to find the appropriate place to indicate that PSE output power capability is to be measured with a sliding window.

SuggestedRemedy

Output 'power' is encoded in ICon-2P, hence it makes sense to put a sentence there.

- Remove quoted sentence
- In 145.2.8.5, page 164, line 43, after:
"PSEs shall be able to source I Con-2P , the current the PSE supports on each powered pairset, as defined in Equation (145-8)."
append:
"ICon-2P should be measured using a sliding window with a width of 1 second."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD HS
What about 145.3.8.2.1 usage of PClass(-2P)? Is there an unintended cascaded change by moving this specification?

Cl **145** *SC* **145.2.7.2** *P* **160** *L* **32** # r01-190

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt2*

Autoclass minimum margin was calculated with overly pessimistic assumptions on cable resistance and operating conditions.
The current curve fits lead to excessive margin being provisioned for cable heating.
New information obtained during recent testing (by UL and the measurements presented at the July plenary) allow for optimized curve fits.

SuggestedRemedy

Adopt yseboodt_02_1117_autoclassmargin.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.2.8** *P* **161** *L* **25** # r01-366

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **X** *Pres: Paul1*

*** Comment submitted with the file 94876000003-paul_1117_01.pdf attached ***

Changes made to unbalance in Draft 3.1 have created interoperability issues. The Iunbalance-2P values should be reverted to the Draft 3.0 values.

SuggestedRemedy

See paul_01_1117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
"This comment is based on incorrect assumptions for the reason for the numbers changed in last cycle and mainly the wrong conclusion that interoperability has been compromised.

The numbers for Icon-2P_unb in D3.0 where changed per the following reasons:a) class 7 numbers in May 2017 presentation (simulation) where wrongly interpreted and should have been copied as is in May 2017 draft. Lennart and I found it when we calculated Rpse_min/Rpse_max range with the test verification model.b) I run the same calculation for all classes while checking Rpse_min valid range that the equation is still accurate with the existing test verification model + test verification accuracy and further updated some other classes.c) The numbers that where changed as you can see, has nothing to do with the equations or test verifications load resistance values that remains the same. d) In short, the margins we add to handle the range for Rpse_min are based on the existing equations.See comment i-420 from D3.0 and http://www.ieee802.org/3/bt/public/sep17/darshan_02_0917_final.pdf for why we did the changes.See darshan_05_1117.pdf for simulation data and other updates (such as Icon-2P_unb, Ipeak-2P_unb, ILIM-2P ,Iunbalance) we need to do after unbalance requirements became stable (I hope) and after the addition of Iunbalance parameter.See darshan_07_1117.pdf to see how the equation and test verification model where derived.The only issue that we must address regarding this comment is the addition of Iunabalnce parameter and what its values should be which is addressed by comment r01-444 and darshan_05_1117.pdf.Recomendations: OBE this comment to r01-444 where Iunbalance numbers are discussed and resolved. In addition see updated version of darshan_05_1117Rev001 that was not sent yet. "

Cl **145** *SC* **145.2.8** *P* **162** *L* **15** # r01-441

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Pres: Darshan5*

ILIM_2P numbers need to in sync to Icon-2P_unb and Ipeak-2P_unb after latest changes in Icon-2P_unb values.

SuggestedRemedy

Adopt darshan_05_1117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.2.8.2** *P* **163** *L* **51** # r01-193

Yseboodt, Lennart Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

"VPort_PSE_diff, as defined in Table 145-16, is the maximum voltage difference between pairs with the same polarity, at no load condition, when operating over 4 pairs, in the power on state."

Multiple power on states, do not use "the power on state".

SuggestedRemedy

Change to:
"VPort_PSE_diff, as defined in Table 145-16, is the maximum voltage difference between pairs with the same polarity, at no load condition, when operating over 4 pairs, in a power on state."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
editorial. One of few closed subclauses. Use of singular a is not even correct.

Cl **145** *SC* **145.2.8.5** *P* **164** *L* **23** # r01-195

Yseboodt, Lennart Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

"IPort-2P and IPort-2P-other are the currents on the pairs with the same polarity of the two pairsets and are defined in Equation (145-5) and in Equation (145-6)."
"of the two pairsets" does not add anything, remove this part.

SuggestedRemedy

Change to:
"IPort-2P and IPort-2P-other are the currents on the pairs with the same polarity and are defined in Equation (145-5) and in Equation (145-6)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD CJ
I disagree that this sentence shouldn't include the term pairset. compromise: Change to: "IPort-2P and IPort-2P-other are the currents on the pairsets with the same polarity and are defined in Equation (145-5) and in Equation (145-6)."

Cl **145** *SC* **145.2.8.5** *P* **164** *L* **43** # r01-443

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PSE Power*

Modified comment from i-204 in D3.0.
In the text "PSEs shall be able to source ICon-2P, the current the PSE supports on each powered pairset, as defined in Equation (145-8).".
The text says that Icon-2P is the current that the PSE must support on each pair set per Eq 145-8. This current cannot be calculated per Equation 145-8 since Iport-2P_other has no numerical definition or can be calculated per the data in the spec as we do for all our equations in the spec. One may ask why we need to calculate it? The answer is because it is a spec and we cannot leave spec parameter/equation that has no solution. Otherwise why to spec it if it not needed?

SuggestedRemedy

In the definition of Iport-2P_other in the where list of Equation 145-8 append the following text to the existing definition:
"Iport-2P_other can be found by the measurement of the current difference between two pairs of the same polarity when PSE is connected to the test verification model and its operating conditions as described in 145.2.8.5.1"

Proposed Response *Response Status* **W**

TFTD

The suggested remedy text is misleading. Iport-2p_other is the current in the other pairset and has nothing to do with the current difference between the pairsets.

TFTD YD
Change the remedy to: "Iport-2P and Iport-2P_other can be found by the measurement of the currents (i1, i2 and i3, i4 in Figure 145-22) over the pairs with the same polarity when PSE is connected to the test verification model and its operating conditions as described in 145.2.8.5.1."

Cl **145** *SC* **145.2.8.5** *P* **166** *L* **16** # r01-51

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *Editorial*

Per the style manual, the use of the word will is deprecated.

Also in 145.3.8.10.

SuggestedRemedy

Change "the current will not equally divide" do "the current does not equally divide" or "the current may not equally divide".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CJ
two solutions in the suggested remedy. this need to be AIP.
change "the current will not equally divide" to "the current may not equally divide"

TFTD HS
Can't accept a choice. Choose one.
the current does not equally divide

Response DNA: Yep, missed that.

Cl **145** *SC* **145.2.8.5.1** *P* **166** *L* **26** # r01-198

Yseboodt, Lennart — Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

In table 145-17 which defined IUnbalance-2P the column "Value" does not convey this is a maximum.

SuggestedRemedy

Change column name to "Max"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Max does not add any new information. The table conveys the value of Iunblance-2p which is used in a requirement on page 165 line 10 which makes it clear how to use this value:

When powering a single-signature PD over 4 pairs, a PSE supports:
— A total current of ICon, defined in Equation (145–9), over both pairs with the same polarity;
— A minimum current of IUnbalance-2P over one of the pairs of the same polarity under maximum unbalance condition (see 145.2.8.5.1) in POWER_ON.

TFTD YD
"I believe that there is misunderstanding here.-Table 145-17 for Iunbalance was added to:(a) define a number for unbalance that is a maximum constant number that is used by the PSE and PD specs.(b) to differentiate from Icon-2P_unb which is a minimum unbalance current capacity that PSE has to support. Iunbalance just need to be epsilon above Icon-2P_unb e.g. epsilon=2mA.The response David supplied is based on page 165 line 10 and the Iunbalance appear there is error and should be Icon-2Punb which is a current capacity, which still require us to make sure that table 145-17 values are maximum values. This explanation exist in page 166 line 20: ""The maximum pair current in a system depends on the assigned Class (see 145.2.7), and is defined in Table 145–17."" which means that no need to change the ""value"" Colum to ""Max value"" etc."

Cl **145** *SC* **145.2.8.5.1** *P* **166** *L* **27** # r01-199

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt7*

In the last cycle the values of IUnbalance-2P were increased without corresponding changes to RSource and RLoad.
This leads to the 'extra' unbalance margin being assigned to both the PSE and the PD.
PSEs and PDs that meet their respective unbalance requirements will now exceed IUnbalance-2P when hooked up together.

I suspect we need updates to RSource and RLoad.

SuggestedRemedy

Adopt yseboodt_07_0117_unbalance.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
"This comment is based on incorrect assumptions for the reason for the number increase for Icon-2P_un in last cycle and mainly the wrong conclusion that it may lead to 'extra' unbalance margin and the commenter also wrongly expected that RSource and RLoad should be updated due to the changes.Here are the facts:The numbers for Icon-2P_unb in D3.0 where changed per the following reasons:a) class 7 numbers in May 2017 presentation (simulation) where wrongly interpreted and should have been copied as is in May 2017 draft. Lennart and I found it when we calculated Rpse_min/Rpse_max range with the existing test verification model.b) I run again the same calculation for all classes while checking Rpse_min valid range that the equation is still accurate with the existing test verification model + test verification accuracy and further updated some other classes. Please not that Rsource, Rload, Rpse, Rpd are derived from the same equations and was not change i.e. The results in the draft are due to the current equation so they are not need to be changed due to the increase of Icon-2P_unbc) The numbers that where changed as you can see, has nothing to do with the equations or test verifications load resistance values that remains the same and it is was updated just to cover the range for valid Rpse_min until the equation loose its accuracy so all of this is based on the existing equations.See comment i-420 from D3.0 and http://www.ieee802.org/3/bt/public/sep17/darshan_02_0917_final.pdf for why we did the changes.See darshan_05_1117.pdf for simulation data and other updates (such as Ipeak-2P_unb, ILIM-2P ,Iunbalance) we need to do after unbalance requirements became stable which I belive is the time now (I hope) and after the addition of Iunbalance parameter.See darshan_07_1117.pdf to see how the equation and test verification model where derived from the same equation.The only issue that we must address regarding this comment is the addition of Iunabalnce parameter and what its values should be which is addressed by comment r01-444 and darshan_05_1117.pdf.Recommendations: OBE this comment to r01-444 where Iunbalance numbers are discussed and resolved. In addition, see updated version of darshan_05_1117Rev001 that was not sent yet."

Cl **145** *SC* **145.2.8.5.1** *P* **166** *L* **29** # r01-444

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Unbalance*

Table 145-17 has values that are the same as the values for Icon-2P_unb in Table 145-16. This intention of adding Iunbalance and Table 145-17 was to clearly specify what is minimum value of the current that PSE has to source and what is to maximum value of the current during unbalance conditions that PSE and PD should not cross. For this purpose, it is sufficient to define that Iunbalance-2P=Icon-2P_unb+2mA. This will set clear boundary between min/max values of these two parameters and also result with simpler spec.

SuggestedRemedy

In Table 145-17 make the following changes:
1) In the 2nd row, in the assigned class column change from "5" to "5 to 8".
2) In the 2nd row, in the Value column change from "0.56" to "Iunbalance-2P=Icon-2P_unb+0.002".
3) Delete rows 4-6.

Proposed Response *Response Status* **W**

TFTD

Icon-2p_unb is the sourcing capability of the PSE. Iunbalance is the limit for testing when using the unbalance test circuit. Thus, Iunbalance needs to be less than Icon-2p_unb.

In Table 145-17 make the following changes:
1) In the 2nd row, in the assigned class column change from "5" to "5 to 8".
2) In the 2nd row, in the Value column change from "0.56" to "Iunbalance-2P=Icon-2P_unb-0.002".
3) Delete rows 4-6.

TFTD YD
"David took my proposal and changed it from Iunbalance=Icon-2P_unb+0.002 To Iunbalance=Icon-2P_unb-0.002 and explain it. He said that Icon-2p_unb is the sourcing capability of the PSE which I agree and therefore Icon-2P_unb has to be a minimum value.Iunbalance on the other hand is the current that we should not cross due to testing current unbalance when using the unbalance test circuit. Thus, Iunbalance needs to be less than Icon-2p_unb per David opinion. Per my opinion it is a maximum number not to cross therefore it need to be higher by epsilon from Icon-2P_unb otherwise how we can guarantee that you support current capacity of Icon-2P_unb as minimum value while you are not allowing the port current maximum value to exceed Iunbalance if Iunbalnce < Icon-2P_unb?In any case the difference between Icon-2P_unb to Iunbalance need to be very small to not over design (after all theoretically Icon-2P_unb is Iunbalance but we had problem how to describe the same number once as a minimum to support and the other as the maximum not to cross. Conclusion: Iunbalance=Icon-2P_unb + 0.002 as proposed."

Cl **145** *SC* **145.2.8.5.1** *P* **166** *L* **44** # r01-286

Zimmerman, George Aquantia, ADI, Comm

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

"The PSE PI connector (jack) when mated with a specified balanced cabling connector (plug) shall meet the requirements of 145.2.8.5.1." - this is nonsensical. There is actually only one other requirement listed in 145.2.8.5.1, and I believe the intent is that that requirement should be stated so that it applies when the PSE PI is mated to a connector.

SuggestedRemedy

delete page 166, lines 44-45 (the quoted sentence in the comment), and insert new sentence after the sentence ending on line 30 of page 167 (sentence begins on line 29 "A PSE shall not source..."), new sentence to read ""This unbalance current requirement applies at the PSE PI connector (jack) when mated with a specified balanced cabling connector (plug)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD YD
The remedy is OK however Figure 145-22 seems not sync to the proposed text. See darshan_01_1117Rev001.pdf for updates and verify that the proposed drawing is sync with the new text proposed.

Cl **145** *SC* **145.2.8.5.1** *P* **167** *L* **36** # r01-445

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Editorial*

It is not clear in the following text to what the power sink is correctly need to be set "The load resistances Rload_min and Rload_max are split into two series resistances Rload1_min and Rload2_min, and Rload1_max and Rload2_max respectively, as shown in Figure 145-
22, to correctly be able to set the power sink.". The power sink need to be adjusted to get Pclass-PD at the load.

SuggestedRemedy

Change from "The load resistances Rload_min and Rload_max are split into two series resistances Rload1_min and Rload2_min, and Rload1_max and Rload2_max respectively, as shown in Figure 145-22, to correctly be able to set the power sink."
To:
"The load resistances Rload_min and Rload_max are split into two series resistances Rload1_min and Rload2_min, and Rload1_max and Rload2_max respectively, as shown in Figure 145-22, to correctly be able to set the power sink to generate Pclass_PD at the input of Pload."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to:
"The load resistances Rload_min and Rload_max are split into two series resistances Rload1_min and R load2_min, and Rload1_max and Rload2_max respectively, as shown in Figure 145-22, such that the power sink can be set to generate Pclass_PD at the input of Pload."

TFTD LY
It's a sink, as such it does not generate power.
"such that the power sink can be set that the power consumption inside the Pload box equals PClass_PD."

Cl **145** *SC* **145.2.8.6** *P* **169** *L* **30** # r01-208

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE Inrush*

"IInrush-2P" is a range for dual-signature, thus the maximum value should be used.

SuggestedRemedy

Change "IInrush-2P" to "IInrush-2P max", 5 occurances.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD HS
Propose reject
The all 5 uses are defined in a single Where block. The Where definition states is the maximum value of IInrush-2P or IInrush as defined in Table 145–16

Cl **145** *SC* **145.2.8.9** *P* **172** *L* **32** # r01-213

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE Power*

See comment i-126 / D3.0. which proposed a change to the turn off text.
That remedy was changed in the room, but we failed to look at the sentence that follows.
Those two are now in contradiction:

"The specification for T Off in Table 145-16 shall apply to the discharge time from VPort_PSE-2P min to V Off of a pairset with a test resistor of 320 kOhm attached to that pairset. In addition, it is recommended that the pairset be discharged when voltage is not applied. T Off starts when V PSE drops 1 V below the steady-state value after the alt_pwrd_pri and alt_pwrd_sec variables are cleared (see Figure 145-13). T Off ends when V PSE <= V Off max."

SuggestedRemedy

Either:
a) Change first sentence to:
"The specification for TOff in Table 145-16 shall apply to the discharge time from operating voltage to VOff of a pairset with a test resistor of 320 kohm attached to that pairset."

or;
b) Remove the sentence "T Off starts when V PSE drops 1 V below the steady-state value after the alt_pwrd_pri and alt_pwrd_sec variables are cleared (see Figure 145-13)."

Change middle sentence as follows:
"In addition, it is recommended that the pairset be discharged when operating voltage is not applied."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove the sentence "T Off starts when V PSE drops 1 V below the steady-state value after the alt_pwrd_pri and alt_pwrd_sec variables are cleared (see Figure 145-13)."

Change middle sentence as follows:
"In addition, it is recommended that the pairset be discharged when operating voltage is not applied."

TFTD HS
Do we need to consider 145.2.8.10 and 145.2.8.9 as a whole?

Cl **145** *SC* **145.2.8.10** *P* **172** *L* **44** # r01-216

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE Power*

"The voltage at the PI shall be equal or less than V Off , as defined in Table 145-16, when the PSE is in DISABLED, IDLE, or ERROR_DELAY."

Also applies to BACKOFF state.
Or does that mess up detection by the other PSE ?

SuggestedRemedy

Add BACKOFF to the listed states.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD DS
This requirement applies to PSE/PD when returning to an idle state from a powered state; BACKOFF does not apply in this case. Also, the intent of BACKOFF is to let another PSE win a multi-PSE detection conflict. The voltage at the PSE PI will certainly not be below VOff when one PSE is on BACKOFF, even if the "backoff" PSE is not driving that voltage.

Cl **145** *SC* **145.2.8.12** *P* **173** *L* **8** # r01-217

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PSE Power*

"Type 4 PSEs shall not source more power than P Type max, as defined in Table 145-16, measured using a sliding window with a width up to 4 seconds."

PSEs may source more than PType for up to 4 seconds. Text allows any sliding window smaller than 4 seconds to be used. Also this doesn't work.
We need a similar construct as for PPeak.

SuggestedRemedy

Replace by:
"Type 4 PSEs shall not source more power than P Type max, as defined in Table 145-16, for longer than 4 seconds, with a maximum duty cycle of 1%."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
Where the 1% came from?

TFTD HS
Does 1% duty cycle mean 4 seconds out of 400 or 40ms out of 4s?

Cl **145** *SC* **145.2.8.12** *P* **173** *L* **15** # r01-448

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Pres: Darshan4*

Equation 145-22 accuracy need to be addressed. See proposed changes in darshan_04_1117.pdf.

SuggestedRemedy

Adopt darshan_04_1117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.2.10** *P* **174** *L* **10** # r01-218

Yseboodt, Lennart Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

Subclause 145.2.10 "PSE power removal" contains just one sentence:
"Figure 145-17, Figure 145-18, and Figure 145-19 show the PSE monitor state diagrams. These state diagrams monitor for inrush current and the absence of the Maintain Power Signature (MPS)."

It is followed by 145.2.11 which describes MPS.

In the base standard, the MPS requirements were a subclause of PSE power removal and subdivided in to AC and DC MPS.
The current 145.2.10 as-is makes little sense.
145.2.11 (on MPS), does a poor job of introducing the topic.

SuggestedRemedy

- Delete 145.2.10
- Add as new first paragraph to 145.2.11:
"A PSE is required to remove power when a powered connected PD no longer draws a minimum amount of current.
This is referred to as the 'Maintain Power Signature'. The PSE state diagrams in Figure 145-17 and Figure 145-18 monitor for the absence of MPS."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD CJ
this is a purely editorial change that is out of scope. beyond that, it is not a complete solution as there are references in the doc to 145.2.10 that would need adjusted and the editor would (maybe) discover this as he's generating D3.2 - leading to more comments next time. this is why we don't make silly editorial changes like this late in the process.
Here's my proposed remedy:
Reject. comment is a purely editorial change that is out of scope and does not add clarity. In addition, it is not a complete solution and would require searching the doc for cross references to the deleted section and adjustment of those cross references.

TFTD HS
Proposed reject
Editorial. Let's close a major technical subclause. This subclause has been word-smithed repeatedly.

Cl **145** *SC* **145.2.11** *P* **174** *L* **18** # r01-219

Yseboodt, Lennart — Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

"The specification for T MPS in Table 145-16 applies only to the DC MPS component."

Remnant from the past: we only have DC MPS in Clause 145, which we just call "MPS".

SuggestedRemedy

- Remove quoted sentence
- Search and replace "DC MPS" by "MPS" in Clause 145

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
Proposed reject
Editorial
DC MPS is over 10 years old. Let's maintain jargon with at as we can.

Cl **145** *SC* **145.3.2** *P* **176** *L* **41** # r01-52

RAN, ADEE — Intel Corporation

Comment Type **G** *Comment Status* **D** *Editorial*

The NOTE seems to repeat (informatively) what the clause text above it is stating (normatively).

Saying that something is not allowed does not belong in an informative note.

SuggestedRemedy

Delete the note.

If it isn't clear that both Mode A and Mode B need to be supported, add a "shall" statement in the preceding paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD

Now that we refer to Table 145-20, is there any confusion about what needs to be supported? Do we still need these notes?

TFTD CJ
piling on the the TFTD. first, this is OOS. yes there are change bars but the change was replacing implement with support and removing a comma. the sentence is not new. historically, this text existed as a gentleman's agreement to keep some shalls out of the text, so that people could 'do what they want'. I like the text because it explicitly states what is in the text above, in case anyone had questions. our job is to clearly convey the rules. this note makes it clear. my suggested response:
reject
The shalls do exist and yes this is a restatement of the text above. It is in a note for emphasis. This comment is out of scope and does not add clarity to the document and is therefore rejected.

Cl **145** *SC* **145.3.3.1** *P* **177** *L* **53** # r01-289

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **D** *PD SD*

Three subclauses (this one, 145.2.5.2, and 145.5.3.1) define conventions for state diagrams, which are all the same.

It may be more clear for readers to have one subclause for conventions under 145.1, instead of having multiple "conventions" subclauses.

SuggestedRemedy

Move the content of 145.2.5.2 to a new subclause 145.1.5.

Refer to that subclause in 145.2.5, in 145.3.3, and in 145.5.3.

Delete 145.2.5.2, 145.3.3.1, and 145.5.3.1.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

OOS

This comment is Out of Scope and does not fix anything technically broken.

TFTD YD
"I agree with Lennart but prefer different remedy. PSE state machine, PD state machine and DLL state machine should be in depended parts in the spec. Especially regarding rules how to read the state machine (I remember many times argument such ""the PD designer often will not go to read PSE part etc.). 145.2.5.2 is in the PSE section but relevant for the PD section as well in 145.3.3.1. 145.5.3.1 is for DLL so the content of 145.2.5.2 apply to it as well. Therefor, I suggest to accept this comment in principle and copy 145.2.5.2 to 145.3.3.1, and 145.5.3.1."

Response DNA: Adee actually authored this comment, not Lennart.

Cl **145** *SC* **145.3.3.3** *P* **178** *L* **13** # r01-293

RAN, ADEE — Intel Corporation

Comment Type **G** *Comment Status* **D** *Editorial*

Subclauses 145.3.3.3 through 145.3.3.7 discuss single-signature PDs.

Subclauses 145.3.3.4 through 145.3.3.12 are the equivalent of the above for dual-signature PDs.

It would be friendlier for readers (who may be interested in only one kind of PDs) to separate these clauses hierarchically. It would also be consistent with the similar structure of 145.5.3.

SuggestedRemedy

Create a subclause hierarchy as follows:

145.3.3.3 Single-signature PD state diagrams
145.3.3.3.1 Constants
145.3.3.3.2 Variables
145.3.3.3.3 Timers
145.3.3.3.4 Functions
145.3.3.3.5 State diagram
145.3.3.4 Dual-signature PD state diagram
145.3.3.4.1 Constants
145.3.3.4.2 Variables
145.3.3.4.3 Timers
145.3.3.4.4 Functions
145.3.3.4.5 State diagram

Consider also moving the following text from 145.3.3:

"Single-signature PDs shall provide the behavior of the state diagram shown in Figure 145-26 and Figure 145-27" - to the new 145.3.3.3 (and change to "diagrams" per other comment)

"Dual-signature PDs (...)" (the whole second paragraph) to the new 145.3.3.4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

OOS

This comment is out of scope and does not fix anything technically broken.

TFTD CJ
while this comment is OOS it does offer improvement in document clarity and I think the TF should vote to accept or reject.

Cl **145** *SC* **145.3.3.4** *P* **178** *L* **39** # r01-449

Darshan, Yair

Comment Type **T** *Comment Status* **D** *Pres: Yseboodt8*

The variable nopower is not clearly defined in the following text:
"A variable that indicates the PD has been in NOPOWER, which indicates VPD was below VOff_PD while being powered, since the last time VPD was below VReset for at least TReset.
Values:
FALSE: The PD has not been in NOPOWER.
TRUE: The PD has been in NOPOWER.".

Few issues:
1. Vreset need to be Vreset_PD.
2. Better text needed to clarify where it is used (How we can be below Voff_PD while being powered? We where in a powering state actually)

SuggestedRemedy

1. Change to:
"nopower
"A variable that indicates the PD has been in NOPOWER, which indicates VPD was below VOff_PD while being in powering state, since the last time VPD was below Vreset for at least Treset.
Values:
FALSE: The PD has not been in NOPOWER.
TRUE: The PD has been in NOPOWER."
2. The nopower_mode(X) variable is missing from the variable list. This is covered by the comment marked nopower_mode(X). If this comment will be accepted, to make sure that similar language are used in both variables.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

WFP

Change arc from POWERED to NOPOWER from "VPD < Voff_PD" to "VPD < 30V"

Change nopower variable to:
"nopower
"A variable that indicates the PD has been in NOPOWER, which indicates VPD went below 30V after reaching POWERED, since the last time VPD was below Vreset for at least Treset. When this variable is TRUE interoperability between the PSE and the PD is no longer guaranteed.
Values:
FALSE: The PD has not been in NOPOWER.
TRUE: The PD has been in NOPOWER."

Add nopower_mode(X) variable to DS PD SD with similar text.

TFTD HS
Implementations can't conform to single scalar 30V threshold, must be a range…
Vreset_PD not Vreset
No tReset in SM, variable definition is thus not normative
Instructions to editor regarding "Similar text" is a bit vague
See 353

Response DNA: since everything in the nopower state is optional, thus the 30V (which would be listed as Voff min) is actually just a maximum value that you can transition at.

Cl **145** *SC* **145.3.3.4** *P* **178** *L* **52** # r01-224

Yseboodt, Lennart Philips Lighting

Comment Type **E** *Comment Status* **D** *Editorial*

pd_acs_req: "This variable indicates whether the PD performs an Autoclass request during Physical Layer classification. See 145.3.6.2."

That is a very poor description of what this variable does.

SuggestedRemedy

Replace by:
"This variable indicates if a PD will draw P_Autoclass_PD in the Autoclass time window after reaching POWERED. See 145.3.6.2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
Proposed reject
Better as it was. New text contains will.

Cl **145** *SC* **145.3.3.5** *P* **181** *L* **25** # r01-349

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *PD SD*

A PD is allowed to rely on the PSE inrush limiting for the entire tinrush_PD time (50ms). All text subclauses refer correctly to tInrush_PD max.

SuggestedRemedy

Change "tInrush_PD" to "tInrush_PD max"
Also change on page 188, lines 3 and 6.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

TFTD

Are you suggesting that by changing this, the PD will stay in INRUSH for exactly 50ms and then transition to POWER_DELAY? This actually solves one of the NoPower issues, so I am ok with this. It seems to imply that the PD needs an infinitely precise timer, but in reality the PD just needs to be done with INRUSH by 50ms, so if it uses a timer for anything, it just needs to be 50ms max.

Change "see TInrush_PD in Table 145–29." to "This timer has the value of Tinrush_PD max in Table 145-29."

Cl **145** *SC* **145.3.3.7** *P* **183** *L* **22** # r01-321

Abramson, David — Texas Instruments Inc

Comment Type **TR** *Comment Status* **D** *PD SD*

In order to allow for the mark change in my other comments, we need to change the SD to allow for possibly valid detect signatures.

SuggestedRemedy

in state DO_CLASS_EVENT1:
change "present_det_sig <= invalid"
to:
IF pd_req_class>3
present_det_sig=invalid
ELSE
present_det_sig=either
END

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD YD
The issue in the comment is not clear

TFTD DS
See response to #319.

Cl **145** *SC* **145.3.3.7** *P* **184** *L* **30** # r01-227

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PD SD*

There is a possibility for intentional abuse of the NOPOWER state in the PD state diagram.
A PD can exit the INRUSH state at any time less than 50ms to POWER_DELAY.
If it does so while the PSE is still in inrush, and VPD is less than Voff_pd, the state diagram loops through NOPOWER and defeats classification.
It is PD undemotion essentially.

To close this hole we need to remove the arc from POWER_DELAY to NOPOWER.

SuggestedRemedy

- Remove the arc from POWER_DELAY to NOPOWER.
- Same fix in the dual-signature state diagram.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

TFTD, waiting on 349 AIP.

This problem is fixed by changing the tinrushpd_timer value to be Tinrush_PD max. This is done in comment 349.

Cl **145** *SC* **145.3.3.7** *P* **184** *L* **30** # r01-452

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Pres: Yseboodt8*

The PD state machine for single signature (and dual signature) has few issues concerning NOPOWER state and going back to INRUSH and back to POWER_DELAY.
1) Violation of tpowerdelay_timer when going from POWER_DELAY to NOPOWER.
2) Possible overload condition due to the assignment of (pse_power_level <== 8).
3) Allowing incompliant behavior of PDs that doesnOt lock their class event counter and sensitive to 2nd inrush counted as additional class event (I understand the need for this but we need to allow it as optional behavior and not mandatory behavior for PDs. For example: If PD didnOt lost its data when going to Vpd < Voff_pd, it doesnOt need to set (pse_power_level <== 8) in NOPOWER spec so the correct assigned class will not be destroyed.
Details of issue 1:
When actual Tinrush_PD<25msec and transitioning from POWER_DELAY to NOPOWER state due to VPD<VOff_PD, sets nopower variable to TRUE.
nopower variable=TRUE will lead to bypassing tpowerdelay_timer (80msec) when returning back to POWERED through INRUSH and POWER_DELAY states which will lead to PD overloading the PSE which is still in INRUSH state. (The 25msec number is due to the fact that we are going through INRUSH state twice in the above scenario)
This scenario happens whenever Vpd is lowered below Voff_pd in POWER_DELAY or POWERED states, causing a transition to NOPOWER state, then raised above Von_pd (regardless of the time VPD was below Voff_pd).
In the case where Tinrush_PD = 0 to 25ms, then the PD state-machine will do the transition from INRUSH to POWER_DELAY to NOPOWER to INRUSH to POWER_DELAY to POWERED in 2xTirush_PD.
This is a violation of Tdelay, which is minimum 80ms and may overload PSE by PD during INRUSH.
Same issue in dual-signature PD state machine.
Details of issue 2:
In the NOPOWER state, the assignment "pse_power_level <==8" will cause PD to have pse_available_power=8 even if originally prior to getting to NOPOWER state is was lower than 8.
As long as VPD>VReset_th, PD remembers its data. In the arguments why we add it in the past, it was claimed that PD may think that we have additional class event when transitioning from NOPOWER to INRUSH again. This argument seems not correct since PD required by spec to lock itself to ignore additional counts after first time going through inrush. Any way, we have big hole here.
Regarding PDs that doesn't lock class event counting, they are not compliant. I understand that we want to support this case in the field as well so we need to make the use of pse_available_power=8 optional as function if we lost the data or not i.e. compliant PDs will not have to do it otherwise they may go to overload conditions while they behaves correctly.
In addition, we need to add text that explains that the NOPOWER state was meant to be use for abnormal use cases and not as the typical behaviour otherwise we by pass the mandory requirements of the spec.
Bottom line: We have tried to allow supporting non-compliant PDs or PDs that their behavior is not defined by making the state machine to support those PDs but on the way we create problems that compliant PDs doesnOt have and we force them to behave in

noncompliant way by violating other spec requirements.
Below is proposal to support those PDs without creating problems to PDs that behaves correctly.

SuggestedRemedy

1. In the exit from POWER_DELAY to NOPOWER and in the exit from POWERED to NOPOWER, change the condition from VPD < VOff_PD to (VPD < VOff_PD)*go2nopower.
2. Add the new variable go2nopower:
go2nopower
Implementation specific variable that indicates if PD will go to NOPOWER in case VPD < VOff_PD during POWER_DELAY or POWERED.
Values
FALSE PD will not use NOPOWER in case VPD < VOff_PD during POWER_DELAY or POWERED
TRUE PD will use NOPOWER in case VPD < VOff_PD during POWER_DELAY or POWERED
3. Repeat only steps 1 for dual-signature PD in page 190 for the above states.
4. [This solution allow not using pse_power_level <==8 in case PD didn't lost its data or change its data during the transition to POWER_DELAY through NOPOWER)]
Append the following text to the definition of nopower variable:
"If pse_power_level data was not lost or changed in the event of transitioning to POWER_DELAY through NOPOWER, the assignment pse_power_level<==8 may not be implemented in NOPOWERO

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.3.3.7** *P* **184** *L* **30** # r01-314

Peker, Arkadiy Microsemi Corporation

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt8*

PD state machine (and any other state machine) doesn't need to contain states to describe uncompliant behavior. We have infinite numbers of them.
-If PD PI voltage is drop due to overload or short circuit, this PD is not compliant since the PD is required to limit its power consumption to PClass_PD by design.
-If PSE PI voltage is drop for a duration longer than allowed by the transient spec, it is non-compliant PSE.
As a result, falling below VPD<VOff_PD while PD was powered is non-compliant behavior.
-This behavior should not be described in the PD state machine.
-Specifically, if this behavior cause violation of other requirements in the spec, it should be avoided or corrected.
-The need to cover in the PD state machine legacy PD behavior and newly designs of 802.3bt is understood but we should not force this behavior on compliant PDs and at least make it optional.
Having the NOPOWER state route creates new non-compliant behavior such
1) Violation of tpowerdelay_timer when going from POWER_DELAY to NOPOWER.
2) Possible overload condition due to the assignment of (pse_power_level <== 8) (Compliant PDs doesn't have this problem.
It is suggested to delete the NOPOWER state or to make the inputs to it selectable by the implementer.

SuggestedRemedy

Option 1:
Delete NOPWER state from the PD state machine with all the inputs/outputs to it and from it, including the variables associated with it.
Option 2:
1. Delete the exit from POWER_DELAY to NOPOWER. [This will resolve the issue of bypassing the 80msec timer.]
2a. Delete the assignment pse_avail_pwr<==8 from the NOPOWER state OR
2b) add the following text to the variable pse_power_level definition: "When in NOPOWER state, the assignment to the value 8 is optional."
"
Option 3:
1. Make the two inputs to NOPWER optional and pending in implementation specific variable. Change the condition of these two inputs to (VPD<VOff_PD) *option_nopower.
2. Add the variable option_nopower to the variable list.
option_nopower
Implementation specific variable that indicates if PD will go to NOPOWER in case VPD < VOff_PD during POWER_DELAY or POWERED.
Values
FALSE PD will not use NOPOWER in case VPD < VOff_PD during POWER_DELAY or POWERED
TRUE PD will use NOPOWER in case VPD < VOff_PD during POWER_DELAY or POWERED.

After selecting one of the proposed solutions or any other solution, Repeat it for dual-

signature PD in page 190 and update variable list accordingly.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.3.5** *P* **192** *L* **22** # r01-392

Stover, David Analog Devices Inc.

Comment Type **TR** *Comment Status* **X** *PD Signature*

*** Comment submitted with the file 94876400003-stover_01_1117.pdf attached ***

Missing description of single-signature PD behavior for VPD < 10.1V

SuggestedRemedy

Adopt stover_01_1117.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.3.6** *P* **195** *L* **12** # r01-319

Abramson, David Texas Instruments Inc

Comment Type **TR** *Comment Status* **D** *PD Mark*

The group has expressed a desire to deprecate clause 33 in the future. I have found one case in which the clause 145 makes it harder/more expensive to build a compliant PD (without any real benefit) and thus I doubt users would move over the Type 3 and thus clause 33 would never be deprecated.

The case is that of Type 1 PDs. Clause 145 currently requires all Type 3 PDs to include a mark signature, even class 1-3 PDs. This is a burden to the PD and we can elimate it easily.

I suggest that we only lower the minimum Mark Current for Class 1-3 Type 3 PDs which would allow the detect circuit already present in these PDs to be a compliant mark current.

SuggestedRemedy

Split item 3 of table 145-25 into two rows. The first row for class 1-3 with a minimum of 180uA. The second row for classes 4-8, with a minimum of 250uA.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD YD
The issue in the comment is not clear

TFTD DS
Propose we maintain original requirement. I'm trying to follow the commentor's line of reasoning: If the argument is, "Class 1-3 PDs may present a valid detection signature resistance in the mark voltage range," then Vmark,min/Rsig,max already exceeds the original 250uA minimum. Furthermore, dual-signature PDs (Class 1-3 included) must support Mark because Type 3/4 PSEs will issue multiple class events for all PD requested Class to determine 4PID. Am I overlooking something?

Response DNA: Yes, if you account for two diode drops from the bridge you end up below the Mark current requirements. You are correct about the 3rd event class sig change, but that only applies to DS PDs. We will need to make this SS PD specific if we want to do it. I still think it is a good idea.

Cl **145** *SC* **145.3.6.1.1** *P* **196** *L* **22** # r01-320

Abramson, David Texas Instruments Inc

Comment Type **TR** *Comment Status* **D** *PD Mark*

"When the PD is presenting a mark event signature in a DO_MARK_EVENT state, as shown in the state diagram of Figure 145-26 and Figure 145-28, the PD shall draw IMark as defined in Table 145-25 and present a non-valid detection signature as defined in Table 145-22."

This would prevent class 1-3 PDs from being able to show their detect signature during the MARK state. Since these PDs are not required to count the class events, this requirement should not apply to them (the reason for the requirement is that PDs that count class pulses can count an extra pulse if they have a valid signature during mark and if plugged in during a detect cycle).

NOTE: I haven't considered DS PDs...

SuggestedRemedy

Make this requirement only apply to class 4-8 PDs.

"When the PD is presenting a mark event signature in a DO_MARK_EVENT state, as shown in the state diagram of Figure 145-26 and Figure 145-28, the PD shall draw IMark as defined in Table 145-25 and Class 4-8 PDs shall present a non-valid detection signature as defined in Table 145-22."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD LY
We need to say this is PDs requesting Class 4 through 8 and also deal
with dual-sig somehow.
"When the PD is presenting a mark event signature in a DO_MARK_EVENT state, as shown in the state diagram of Figure 145-26 and Figure 145-28, the PD shall draw Imark as defined in Table 145-25.
Single-signature PDs that request and Class 4 through 8 PDs, and dual-signature PDs shall present a non-valid detection signature as defined in Table 145-22."

Response DNA: Looks good except for that extra comma…

TFTD YD
I guess this comments relates to 319. To discuss implications.

TFTD DS
See response to #319.

Cl **145** *SC* **145.3.6.2** *P* **196** *L* **46** # r01-460

Darshan, Yair

Comment Type **T** *Comment Status* **D** *PD Class*

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....." we have the following issue:
According to the existing Autoclass text In 145.3.8.2 the text says that the limits of the autoclass power value is the assigned class. This may generate an overload condition according to the following example:
1) When we negotiate power through LLDP and we asked for 34W and received 34W. The assigned class will be 5 per table 145-12.
2) Now the PD requests Autoclass through LLDP and consumes 39W (it can consume more, up to the maximum of the assigned class=40W).
3) PSE will enter to overload condition/overpower and may shut the port off.
Possible solutions:
a) The fix for this is to limit autoclass power not according to the assigned class but to limit it to the PSE allocated power which is in the above example 34W and not 40W.
b) (Preferred, simpler) 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

Change from:
"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 TAUTO_PD1 and TAU-TO_PD2, measured from when VPD rises above VPort_PD-2P min. The PD shall not draw more power than PAutoclass_PD at any point until VPD falls below VReset_PD max, 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."
To:
"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 TAUTO_PD1 and TAU-TO_PD2, measured from when VPD rises above VPort_PD-2P min.
When using Autoclass through LLDP, a PD that implements Autoclass shall draw its highest required power, PAutoclass_PD, up to PSEAllocatedPowerValue, throughout the period bounded by TAUTO_PD1 and TAU-TO_PD2, measured from the time MirroredPDAutoclassRequest is TRUE.
The PD shall not draw more power than PAutoclass_PD at any point until VPD falls below VReset_PD max, 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."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

OBE by 239

TFTD YD
This comment marked OBE by 239. Not clear how 239 resolves 460?

Cl **145** *SC* **145.3.8** *P* **198** *L* **10** # r01-235

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **D** *PD Power*

Last cycle we removed the PD Type column in Table 145-29, and in the process we found 1 parameter that seemed to depend on Type: V_Overload-2P.
That is false, like other power related parameters, this also depends on assigned Class, not on Type.
Furthermore, the value for "Type 3" aka "Class 1-6" is wrong, it should be 39.4V

SuggestedRemedy

Replace rows:
- Single-signature PD, Class 1-6 and dual-signature PD Class 1-4 = 39.4V
- Single-signature PD, Class 7-8 and dual-signature PD Class 5 = 40.4V

Editor to split VOverload into a single-signature and dual-signature subitem in order to prevent large amount of text in the Parameter cell.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"1. per assigned class, we have different values for each class. Why we have the same umber for class 1-6?2. How you got 39.4V ? At the worst case which is class 6: Vpse=52V, Ppeak_PD=74.86v, Rchan=6.25 ohm results with 40.425V and not 39.4V.3. In dual sig I get also different numbers per class."

WORK

Cl **145** *SC* **145.3.8** *P* **198** *L* **39** # r01-394

Johnson, Peter

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

Draft 3.1 still has the issue where parameters entered as Maximums with no Minimums in Table 145-29 are sometimes treated as ranges and sometimes treated as constants. Example: Pport_PD (Items 8 and 9) are CLEARLY ranges, effectively from 0W to Pclass_PD. However Pclass_PD, Ppeak_PD, and their 2P equivalents are CLEARLY constants and are used as such in the text (e.g. 145.3.8.2, 145.3.8.3) and similarly in the PSE section (e.g. EQ 145-2). The PSE section does not have this problem as Pclass (and Pclass_2P) are defined in equations with maximum possible values in Table 145-11.

SuggestedRemedy

Expand Table 145-11 to include Pclass_PD, Pclass_PD-2P, Ppeak_PD, and Ppeak_PD-2P (adding 2 columns). It is not inappropriate to place these in the PSE section because there are equations in the PSE section that use all four parameters. Table 145-11 includes the column "Assigned Class" - so it has the correct index for these values. THEN... remove them from Table 145-29.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove Pport_pd and Pport_pd-2p from table 145-29.

Add as new second paragraph of 145.3.8.2: "Pport_PD and Pport_PD-2P are the power drawn by a single-signature PD, and by a Mode of a dual-signature PD respectively, and defined in Equation 145-23a.

Equation 145-23a:
Pport_PD = VPD * Iport
Pport_PD-2P = VPD * Iport-2P

TFTD PJ
Our (Ken and myself) goal here was (and has been for a long time) to get Pclass_PD and Ppeak_PD out of a table that is designed to describe ranges of Minimum to Maximum because Pclass_PD and Ppeak_PD (and their “-2P” counterparts) are not ranges, they are constants that define a maximum possible quantity.

I then used Pport_pd and Pport_pd-2P as examples of parameters in this same table that similarly have no minimum value but are in fact ranges where the inferred minimum could be zero W. I could have chosen other parameters like Inrush_PD or Vnoise_PD in this same table that also show no minimum value but should be interpreted as ranges.

The alternative remedy appears to be to extract Pport_PD and Pport_PD-2P from Table 149-25. This seems weird because it seems that they belong in this table with maximum value= Pclass_PD and Pclass_PD-2P respectively.

Also, the equations suggested seem to remove the restriction that Pport_PD cannot exceed Pclass_PD and Pport_PD-2P cannot exceed Pclass_PD-2P. There is nothing

about the terms Iport and VPD that introduce this fundamental restriction. Iport in fact is very seldom, if ever, seen in the PD section of the spec.

My solution here is to create the 802.3bt “super table” in 145-11. It solves the technical problem here and it provides technical background to the Pclass and Ppeak equations in the PSE section.

I know it “feels like” a big change but I think it consolidates highly related information into one single, easy-to-read place. :-}

Cl **145** *SC* **145.3.8** *P* **199** *L* **40** # r01-236

Yseboodt, Lennart Philips Lighting

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

Table 145-29, items 15 and 16:
"PI capacitance during MDI_POWER states for single-signature PDs"
and
"Pairset capacitance during MDI_POWER states for dual-signature PDs"

MDI_POWER states haven't existed for a while now...

SuggestedRemedy

Replace item 15 description by:
"Single-signature PD capacitance while in INRUSH, POWER_DELAY, or POWERED"
and item 16:
"Dual-signature PD pairset capacitance while in INRUSH, POWER_DELAY, or POWERED"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
What about SEMI_PWR_xxx
No such dual signature states exist
Propose "inrush, power delay or powered states."

Cl **145** *SC* **145.3.8** *P* **200** *L* **16** # r01-238

Yseboodt, Lennart Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt8*

Table 145-29, item 18: VOff_PD is a range from 30V to VPort_PD-2P min.

This is in direct contradiction with the peak and transient specification, both of which are conditions that require the PD to continue operating, but both cause VPD to go into the VOff_PD range.
In addition, per the state diagram, drawing peak power would warrant a loop through the NOPOWER state, which should never happen.

We can't just change the max value though, as for normal operation a PD is only guaranteed to work in the VPort_PD-2P range.

Proposed:

30V - 42V = Von_PD ==> PD shall turn on in this range
30V - 36V = Voff_PD ==> PD shall turn off in this range
36V - VPort-2P min ==> PD may turn off if condition persists longer than TCUT min
VPort_PD-2P ==> PD shall stay on in this range

SuggestedRemedy

- Change VOff_PD max to 36 volt. (# This is the minimum voltage during transients)
- Add sentence after p201,line 6: "The PD shall turn off at a voltage in the range of V Off_PD." as follows:
"The PD may turn off if the voltage in the range of VOff_PD to VPort_PD-2P min persists for longer than TCUT min".

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.3.8.1** *P* **201** *L* **16** # r01-322

Lukacs, Miklos — Silicon Laboratories

Comment Type **E** *Comment Status* **X** *PD Power*

It is confusing that multiple behaviors are listed in the sentence.

SuggestedRemedy

Change the text to:
When the PD is in POWER_DELAY or POWERED and Vpd falls below VOff_PD, the PD transitions to NOPOWER and - depending on the value of Vpd - may show a valid or invalid detection signature, and may or may not draw mark current, draw any class current, and show MPS.

Proposed Response *Response Status* **W**

TFTD

Wait for 238

Cl **145** *SC* **145.3.8.2.1** *P* **201** *L* **37** # r01-239

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PD Power*

A PD has three different parameters that govern it's maximum DC average power consumption, with precendence for the lesser value in this order:
- P_Autoclass_PD
- PDMaxPowerValue
- PClass_PD

A successful DLL negotiation disables the P_Autoclass_PD limit.

The input average power exceptions currently do not take PDMaxPowerValue into account.

In 145.3.8.2 we should cluster all of the PD power requirements (Autoclass currently sits in 145.3.6.2).

SuggestedRemedy

- Change:
"For single-signature PDs assigned to Class 6 or Class 8, when additional information ..."
to:
"For single-signature PDs assigned to Class 6 or Class 8, and PDMaxPowerValue set to 510 or above 712, when additional information..."

- Change:
"For dual-signature PDs assigned to Class 5, when additional information ..."
to:
"For dual-signature PDs assigned to Class 5 and a PDMaxPowerValue_mode(X) set above 355, when additional information ..."

- In 145.3.8.2 (line 26) change:
"The maximum average power, P Class_PD or P Class_PD-2P in Table 145-29 or PDMaxPowerValue in 145.5.3.3.3, including any peak power drawn per 145.3.8.4 is averaged over a 1 second sliding window."
to:
"The maximum average power, P Class_PD or P Class_PD-2P in Table 145-29, or PDMaxPowerValue in 145.5.3.3.3, **or P_Autoclass_PD in 145.3.6.2**, including any peak power drawn per 145.3.8.4 is averaged over a 1 second sliding window."

- Append new paragraph to 145.3.8.2:
"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."

- Replace on page 196-197, line 54:
"The PD shall not draw more power than P Autoclass_PD at any point until V PD falls below V Reset_PD max , 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."
by:

"The PD is restricted to a maximum power draw of P Autoclass_PD until the PD successfully negotiates a higher power level through Data Link Layer classification as defined in 145.5."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD HS
I'm surprised this was not TFTD.
"PDMaxPowerValue set to 510" is a bit suspect

Cl **145** *SC* **145.3.8.4** *P* **203** *L* **25** # r01-2

Brillhart, Theodore Fluke Corporation

Comment Type **T** *Comment Status* **X** *PD Power*

The note under Figure 145-30 points out that a dual signature PD may have a single load. It does not indicate whether that common load is isolated from the pair-sets or not. This implies that a dual signature PD might tie Vpse- (Mode A) to Vpse- (Mode B), and leaving Vpse+ (mode A) and VPse+ (mode B) independent. This would meet all the requirements for measuring signature resistors and classification currents. Alternatively, the PD could tie Vpse+ (Mode A) to Vpse+ (Mode B) together, leaving the negative sides independent. This would also meet all the signature and classification requirements. However, the first connection would prevent the PSE from correctly measuring currents on the low side of the PSE output, and the second would prevent the PSE from measuring currents on the high side of the PSE output. Since the specification seems to allow both, there is no way to create a reliable connection check from the PSE.

It would appear that somewhere in the specification, a dual signature PD must be constrained to prevent 'sharing' of current between the two pairsets. This constraint does not appear to exist in the current draft. Recommend to explicitly add this constraint. One place to do this might be in the definition of a dual-signature PD; section 1.4.186a.

SuggestedRemedy

Page 24, SubClause 1.4, line 19

From:
1.4.186a dual-signature PD: A PD that has independent detection signatures, class signatures, and maintain power signatures on each pairset (See IEEE 802.3, Clause 145).

Change to:
1.4.186a dual-signature PD: A PD that has independent detection signatures, class signatures, and maintain power signatures on each pairset, and where outgoing and return currents related to detection signatures, class signatures, and maintain power signatures are restricted to that pairset. (See IEEE 802.3, Clause 145).

Note: this is one among several likely options for introducing this constraint into the standard. The commenter is not wed to this proposal and will likely accept any resolution that produces clear guidance.

Proposed Response *Response Status* **W**

OOS

TFTD

TFTD YD
"OBE this comment to r01-463. The proposal as written is costly and not practical. It is recommended to use what is already working in the field which is to require not tying the negative rails only, keep negative rails isolated during detection and classification and require PSE to measure current on the negative rails.."

Cl **145** *SC* **145.3.8.6** *P* **204** *L* **25** # r01-242

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt4*

During the last meeting it was identified that "Source resistance" and "Source current" are ambiguous and require re-simulation of the transient requirements.

SuggestedRemedy

Adopt yseboodt_04_0117_pdtransients.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.3.8.6** *P* **204** *L* **40** # r01-372

Lemahieu, Joris — ON Semiconductor

Comment Type **GR** *Comment Status* **D** *Pres: Yseboodt4*

It is confusing what is actually meant by The Source resistance specified in Table 145-30.

SuggestedRemedy

The Source resistance specified in Table 145-30 is actually the per pairset resistance. For single-signature PDs, the equivalent resistance between source and load is actually half this value.

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
Are you asking to add this text? Where?

Cl **145** *SC* **145.3.8.6** *P* **204** *L* **40** # r01-371

Lemahieu, Joris — ON Semiconductor

Comment Type **GR** *Comment Status* **X** *Pres: Yseboodt4*

It is confusing what is actually meant by The Source current specified in Table 145-30.

SuggestedRemedy

The Source current specified in Table 145-30 is actually the per pairset current limit. For single-signature PDs, a voltage source with a current limit of twice this value may be used.

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
Are you asking to add this text? Where?

Cl **145** *SC* **145.3.8.6** *P* **204** *L* **47** # r01-373

Lemahieu, Joris — ON Semiconductor

Comment Type **G** *Comment Status* **X** *Pres: Yseboodt4*

"aThe source resistance is the effective 4-pair resistance."
This seems to contradict with 'Rch' in the table that is defined as "RCh is the maximum pairset DC loop resistance, as defined in Table 145-1." on page 106 in 145.1.3.

SuggestedRemedy

Replace Rch by Rchan or replace 4-pair by pairset.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.3.8.6** *P* **204** *L* **50** # r01-325

Lemahieu, Joris — ON Semiconductor

Comment Type **GR** *Comment Status* **X** *Pres: Yseboodt4*

"When transient TR1 or TR2 is applied, the PD shall meet the operating power limits after TTransient as
defined in Table 145-30."
It is unclear what exactly is meant by 'the operating power limits'. The limits could be at PSE side as well as PD side. Moreover because the voltage at the PI is no longer static the power limits at PSE and the PD are no longer "in sync". Alsothe 'after TTransient' is not clearly defined.

SuggestedRemedy

Referring back to 802.3-2015_SECTION2.pdf (p653) where "PD upperbound template" is used, the term "PSE lowerbound template" (p170-172 in Draft3.1) is related.
Also note 'TTransient' is the same as 'TLIM min'.

Replace "the operating power limits after TTransient as
defined in Table 145-30." by "the PSE lowerbound template (see Figure 145-24 and Figure 145-25)"

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.3.8.6** *P* **204** *L* **52** # r01-393

Lemahieu, Joris — ON Semiconductor

Comment Type **GR** *Comment Status* **X** *Pres: Yseboodt4*

What is the benefit of defining TR3?
TR1 and TR2 cover long ("lasting more than 250 is") transients related to the switchover of backup power supplies.
TR3 is a very fast (0.71us is way below 250us and even 30us). For relatively fast transients related to load changes one would expect the initial and final voltage to be the same and having a lower intermediate voltage. If the fall and rise times are small, one would not expect the Cport to discharge and recharge much.
Peak currents way below Ilim are listed and expected to happen.
For the rest the definition seems completely arbitrary: where do the 5A 1.5ohm and 4ms come from. Also how should the 1.5ohm and 5A be interpreted for single signature and dual signature?
The definition of TR3 needs to be reworked completely anyhow.

SuggestedRemedy

I think it is better to just delete the TR3 requirement.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.3.8.9** *P* **205** *L* **24** # r01-461

Darshan, Yair

Comment Type **E** *Comment Status* **D** *PD Power*

Missing link to Annex 145A.

SuggestedRemedy

Append the text "See Annex 145 for details" after line 24

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Append the text "See Annex 145A for details." after line 24

TFTD HS
There are already quite a few references in appropriate locations to Annex 145A. Editorial and redundant.
Propose reject.

Cl **145** *SC* **145.3.8.9** *P* **205** *L* **26** # r01-244

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **D** *PD Power*

Table 145-31 (Maximum pair-to-pair current unbalance) is the duplicate of 145-17 for the PD section.
Some modifications are needed to make it work here.

SuggestedRemedy

1. ICon is not a parameter known to the PD. Replace ICon by "PClass_PD / VPD"
2. Add a footnote to assigned Class "1 to 4" that says
"There is no maximum unbalance current requirement for these assigned Classes."
3. By duplicating the Table we get a duplicate parameter name.
Even though the values are the same, we should give them proper names.
Rename I_Unbalance-2P to I_Unbalance_PD-2P in subclause 145.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD HS
We should have one table and reference it as needed. We do not want the PSE/PD numbers to diverge.

Cl **145** *SC* **145.3.8.9** *P* **205** *L* **50** # r01-356

Stewart, Heath — Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *Unbalance*

It is extremely unclear how to interpret the shall which shalls the entire sections requirements. Are the requirements limited to the sections shalls? Thus did we shall the shall?

SuggestedRemedy

Delete
The PD PI connector (jack) when mated with a specified balanced cabling connector (plug) shall meet the requirements of 145.3.8.9.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 287

TFTD HS
Not OBE
It is extremely unclear how to interpret the shall which shalls the entire sections requirements. Are the requirements limited to the sections shalls? Thus did we shall the shall?

Cl **145** *SC* **145.3.8.9** *P* **205** *L* **50** # r01-287

Zimmerman, George — Aquantia, ADI, Comm

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

"The PD PI connector (jack) when mated with a specified balanced cabling connector (plug) shall meet the requirements of 145.3.8.9" - this is nonsensical. This is a dual of a comment on 145.2.8.5.1. There is actually only one other requirement (one for single-sig, and the same for dual-sig) listed in 145.3.8.9 and I believe the intent is that that requirement should be stated so that it applies when the PD PI is mated to the specified balanced cabling connector.

SuggestedRemedy

delete page 205 lines 50-51 (the quoted sentence in the comment), and insert new paragraph after the sentence ending on line 34 of page 206 (previous paragraph begins on line 29 "Dual-signature PDs shall not exceed..."), new paragraph to read ""The unbalance current requirement for both single-signature and dual-signature PDs applies at the PD PI connector (jack) when mated with a specified balanced cabling connector (plug)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD YD
The remedy is OK however Figure 145-31 seems not sync to the proposed text. See darshan_01_1117Rev001.pdf for updates and verify that the proposed drawing is sync with the new text proposed.

Cl **145** *SC* **145.3.8.9** *P* **206** *L* **25** # r01-246

Yseboodt, Lennart — Philips Lighting

Comment Type **T** *Comment Status* **D** *Pres: Darshan5*

"Single-signature PDs shall not exceed I Unbalance-2P for longer than T CUT min and 5 % duty cycle, and shall not exceed I Peak-2P-unb , as defined in Equation (145-12) on any pair"

This links back to a PSE parameter in the PD section. We are now able to clean that up because we have local PD unbalance numbers.

Note: values are I_LIM-2P minus 2mA.

SuggestedRemedy

- To Table 145-31, add new parameter I_Unbalance_peak-2P:

Assigned Class	Value
1 to 4	PPeak_PD / VPD
5	0.56
6	0.7
7	0.827
8	0.994

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD LY
To sync up with Yair's comment on this, replace the rows 5 through 8 with a single row "5 to 8" "ILIM-2P - 0.002".
While this re-introduces a link back to the PSE section, that is the lesser evil compared with duplicating numbers all over the place and risking they get out of sync

TFTD YD

The numbers need to be updated per darshan_05_1117Rev001

TFTD HS
WFP paul_1117_01

Cl **145** *SC* **145.3.8.9** *P* **207** *L* **17** # r01-378

Stover, David — Analog Devices Inc.

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

Vsource appears to be "any voltage in the range of Vport_PSE-2P" per the shall statements on page 206. Vsource is specified behind Rsource, while Rsource lumped resistance model includes PSE resistance contributions. Actually, Vsource should be tuned to achieve VPort_PSE-2P at the virtual PSE output.

SuggestedRemedy

Split Rsource into Rsource1, Rsource2. Specify Vsource as Vport_PSE-2P, measured between Rsource1 and Rsource2. TFTD values of Rsource1, Rsource2.

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD LY
Given that we're dealing with a 10mV difference, this is a lot of complexity for nothing.

TFTD YD
No clear remedy was supplied however David may be correct. Yair to verify.See darshan_01_1117Rev001.pdf for remedy.

Cl **145** *SC* **145.3.8** *P* **207** *L* **22** # r01-462

Darshan, Yair

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

Per the latest changes we did to include Equipment connector in the PSE PI and in the PD PI for unbalance tests, Figure 145-31 and NOTE 1 in line 33 need some adjustments.

SuggestedRemedy

Adopt darshan_01_1117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
Need check that the new proposed text for comments 286 and 287 is sync with drawing 145-22 and 145-31. See darshan_01_1117Rev001.pdf.

Cl **145** *SC* **145.4.1.1.1** *P* **210** *L* **7** # r01-463

Darshan, Yair

Comment Type **T** *Comment Status* **X** *AES*

To ensure proper operation of connection check and detection, we need to require that PSE measures the current on the same side it switches the current
(We have already a requirement that PSE will switch the current on the negative side. Switching the positive side is possible as an option but not instead of the negative side).
The PD must show valid detection on each pairset set per the dual-signature definitions when connected to the PSE above.
As a result, we don't need to require dual-sigs to not tie negatives together however if we do, it surely make the standard clearer.
In addition 79.3.2.6d.3 needs updated and will be addressed in separate comment marked as PDISO-1.

SuggestedRemedy

1) On page 210 line 7, change from:
"An Environment A PSE shall switch the more negative conductor. It is allowed to switch both conductors."
To: "An Environment A PSE shall switch the more negative conductor and shall measure the current through it. It is allowed to switch both conductors."
2) On page 210 line 18, change from:
"An environment B PSE that supports 4-pair power shall switch the more negative conductor. It is allowed to switch both conductors."
To:
"An environment B PSE that supports 4-pair power shall switch the more negative conductor and shall measure the current through it. It is allowed to switch both conductors."
3) On page 209 clause 145.4.1 after line 38, add the following text: ODual-signature PDs shall not tie the negative pairs during detection and classification states.O

Proposed Response *Response Status* **W**

TFTD

OOS

I don't know how you require a PSE to measure current somewhere. I can see saying that all specs shall be met on the negative conductors, but how will you ever know where the PSE is measuring?

TFTD YD
"After reading David A response, I am suggesting the following revised remedy:1) On page 209 clause 145.4.1 after line 38, add the following text: ""Dual-signature PDsshall not tie the negative pairs during detection and classification states (See clause ...for isolation requirements) [in different comment].2) Add the following text in .....
:""The requirements of connection check, detection and classification shall be met on the negative conductors"""

Cl **145** *SC* **145.4.4** *P* **213** *L* **12** # r01-464

Darshan, Yair

Comment Type **T** *Comment Status* **D** *AES*

After adding 2.5/5/10G we need to update the maximum frequency range in the text "**Capacitor impedance less than 1 ohm from 1 MHz to 100 MHz"

SuggestedRemedy

Change from" **Capacitor impedance less than 1 ohm from 1 MHz to 100 MHz"
To: "**Capacitor impedance less than 1ohmrom 1 MHz to maximum operating frequency of the device."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

Change from" **Capacitor impedance less than 1 ohm from 1 MHz to 100 MHz"
To: "**Capacitor impedance less than 1ohm from 1 MHz to maximum operating frequency of the device."

TFTD LY
Takes a testable, well defined range, and turns it into an untesteable range with unspecified upperbound.

Cl **145** *SC* **145.4.4** *P* **213** *L* **21** # r01-465

Darshan, Yair

Comment Type **T** *Comment Status* **D** *AES*

The text "1) For a PSE, the PI that supplies power is terminated as illustrated in Figure 145-35. The PSE load, R, in Figure 145-35 is adjusted so that the PSE output current, Iout, is 10 mA and then 350 mA, while measuring Ecm_out on the PI." was good for 802.3af when we had only 350mA. Need to adjust it to Icon or Icon-2P.

SuggestedRemedy

Change from: "1) For a PSE, the PI that supplies power is terminated as illustrated in Figure 145-35. The PSE load, R, in Figure 145-35 is adjusted so that the PSE output current, Iout, is 10 mA and then 350 mA, while measuring Ecm_out on the PI."
To: "1) For a PSE, the PI that supplies power is terminated as illustrated in Figure 145-35. The PSE load, R, in Figure 145-35 is adjusted so that the PSE output current, Iout, is 10 mA and then Icon for single-signature PD or Icon-2P on each pairset for dual-signature PD, while measuring Ecm_out on the PI."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

TFTD

Should we also not use Ihold? What was 10mA meant to represent? MPS can be pulses, so technically the Iout can be 0 for long periods of time (300ms)

TFTD LY
ICon and ICon-2P are dynamic values depending on system conditions.
You want to test at ICable (and 2xICable), not ICon.

TFTD YD
The 10mA was for Ihold in its DC form.

Cl **145** *SC* **145.4.4** *P* **214** *L* **33** # r01-466

Darshan, Yair

Comment Type **T** *Comment Status* **D** *AES*

After adding 2.5/5/10G we need to update the maximum frequency range in the text "**Capacitor impedance less than 1 ohm from 1 MHz to 100 MHz"

SuggestedRemedy

Change from" **Capacitor impedance less than 1 ohm from 1 MHz to 100 MHz"
To: "**Capacitor impedance less than 1ohmrom 1 MHz to maximum operating frequency of the device."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD LY
Takes a testable, well defined range, and turns it into an untesteable range with unspecified upperbound.

TFTD YD
Correct the typo in the remedy: "**Capacitor impedance less than 1ohm from 1 MHz to maximum operating frequency of the device."

Cl **145** *SC* **145.4.6** *P* **215** *L* **39** # r01-467

Darshan, Yair

Comment Type **T** *Comment Status* **X** *AES*

The coupled noise of 1mV for 2.5GHz to 10GHz is too small.

SuggestedRemedy

Change to 2mV

Proposed Response *Response Status* **W**

TFTD

Is there any reasoning or justification behind this? (not my area of expertise)

TFTD LY
There is only one reason….

TFTD YD
Checking with experts.

Cl **145** *SC* **145.5** *P* **222** *L* **28** # r01-251

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt5*

There is a basic conflict between DLL power negotiation and Autoclass.
This is what happens:

CC, Detect, Class happens. An initial Class is assigned and power allocated. Assume the PD requests Autoclass
The PSE performs the Autoclass measurement and based on this reduces the power budget.
DLL is initialized
Per the DLL state diagrams, the PSE uses a PSE_INITIAL_VALUE based on the assigned Class.
At this point the Autoclass optimization is forgotten... after all, whatever power the PSE puts in PSEAllocatedPowerValue is the amount of power the PSE guarantees at the PD PI.

The same happens when DLL Autoclass is used, right after the measurement, the result is invalidated because the value in PSEAllocatedPowerValue prevails.
The root cause of this is that DLL always requires both PSE and PD to negotiate to some value. The whole point of Autoclass is that neither party necessarily knows about cable resistance and power at the PD PI.

We need a way to indicate at DLL level that Autoclass is being used and that the normal DLL operation is suspended.
Ideally what I would want is that a PD or PSE can, at any time, switch out of this mode and go back to "normal" power allocation.
Thus, I would suggest that we take a magic number for the PDRequestedPowerValue and PSEAllocatedPowerValue fields that indicates that the power allocation = the most recent Autoclass power.
A logical value for this would be 0xACAC.

So, what would happen after a Physical Layer Autoclass is that the PD initializes with a PDRequestedPowerValue=0xACAC which indicates Autoclass.
The PSE, if it supports Autoclass, would use PSEAllocatedPowerValue=0xACAC.
If it doesn't, the PSE can set PSEAllocatedPowerValue to the assigned Class.

This way, a PD that operates under Autoclass, is able to 'renegotiate' to a fixed PD PI value, and then later on even redo Autoclass using DLL.

SuggestedRemedy

Adopt yseboodt_05_0117_dllautoclass.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145** *SC* **145.5** *P* **222** *L* **28** # r01-250

Yseboodt, Lennart — Philips Lighting

Comment Type **TR** *Comment Status* **X** *Pres: Yseboodt5*

There is a basic timing issue in DLL power negotiations which is currently not addressed.

When a PD negotiates power DOWN:
- it must conform to the newly requested power immediately as the requests goes out (through pd_max_power)
- it must wait for the PSE to be in sync before it triggers power update (otherwise it can flip to lower MPS current before the PSE is ready for it)

When a PD negotiates power UP:
- it must wait for the PSE to be in sync before changing pd_max_power
- it must immediately trigger power update to conform to potentially higher MPS requirements as the request goes out

SuggestedRemedy

This issue, as well as the Autoclass DLL issue is addressed in yseboodt_05_0117_dllautoclass.pdf.

Adopt yseboodt_05_0117_dllautoclass.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.5.3** *P* **223** *L* **19** # r01-304

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *Editoiral*

"diagram" was changed to "diagrams" in the previous paragraph, but this paragraph still has "diagram" referring to two different diagrams, twice.

Also, figure 145-42 (as numbered in the clean document) seems to deal with Autoclass, which is optional. Is the "shall" appropriate for it too? Is there a parallel requirement for Dual-signature PD? (I am not sure about this)

SuggestedRemedy

Change "diagram" to "diagrams" twich in the second paragraph.

Consider what to do with the Autoclass state diagram.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD for Autoclass shall

Cl **145** *SC* **145.5.5.5.52** *P* **226** *L* **28** # r01-468

Darshan, Yair

Comment Type **T** *Comment Status* **D** *DLL*

In the pse_power_review function definition, missing "or changes in PD requested power value" to the text "This function evaluates the power allocation or budget of the PSE based on local system changes.". See for reference how pd_power_review is defined.

SuggestedRemedy

Change from " "This function evaluates the power allocation or budget of the PSE based on local system changes.""
To: "This function evaluates the power allocation or budget of the PSE based on local system changes or changes in PD requested power value."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
"This function evaluates the power allocation or budget of the PSE based on local system changes or changes of the PD requested power value."

Cl **145** *SC* **145.5.3.5** *P* **233** *L* **33** # r01-269

Yseboodt, Lennart Philips Lighting

Comment Type **ER** *Comment Status* **D** *Editorial*

In Table 145-41 we find the mappings between state diagram variables and Clause 30 objects.
For dual-signature, we've used the notation "PDRequestedPowerValueEcho_alt(X=A)" to indicate we refer to variable PDRequestedPowerValueEcho_alt(A).

Given that we now also use "P" as a variable pointing to the active state diagram, this notation no longer feels right.

SuggestedRemedy

Replace in Table 145-41 every instance of "(X=A)" with "(A)" and "(X=B)" with "(B)".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OOS

TFTD YD
Not clear how this comments resolves 460

Cl **145** *SC* **145.5.5.1** *P* **245** *L* **20** # r01-400

Skinner, John

Comment Type **E** *Comment Status* **D** *DLL*

The statement "When the PSE is not in sync with the PD, the PSE is allowed to change its power allocation." is too broad, based on the conditions shown in Figure 145-39. The transition from PSE_POWER_REVIEW to MIRROR_UPDATE is governed by the conditions: Either (pse_new_value < PSEAllocatedPowerValue) OR (PSEAllocatedPowerValue=MirroredPSEAllocatedPowerValueEcho). Therefore, the transition can only occur when the PSE is reducing the allocation OR when the PSE and PD are in sync.

SuggestedRemedy

Change the statement in line 20 to "When the PSE is not in sync with the PD, the PSE is allowed to reduce its power allocation.". Alternatively, remove the statement, as the conditions are correctly discussed in the paragraph starting on line 23.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

Change the statement in line 20 to "When the PSE is not in sync with the PD, the PSE is allowed to reduce its power allocation."

TFTD LY
We should not textually describe behavior covered by the state diagram.
Remove quoted sentence.

Cl **145** *SC* **145.5.6.2** *P* **247** *L* **4** # r01-401

Skinner, John

Comment Type **E** *Comment Status* **D** *DLL*

The statement "When the PSE is not in sync with the PD, the PSE is allowed to change its power allocation." is too broad, based on the conditions shown in Figures 145-43 and 145-44. The transition from PSE_POWER_REVIEW to MIRROR_UPDATE in Figure 145-43 is governed by the conditions: Either (pse_new_value_alt(X) < PSEAllocatedPowerValue_alt(X)) OR (PSEAllocatedPowerValue_alt(X)=MirroredPSEAllocatedPowerValueEcho_alt(X)). The transition from PSE_POWER_REVIEW to MIRROR_UPDATE in Figure 145-44 is governed by the conditions: Either (pse_new_value_alt(P) < PSEAllocatedPowerValue) OR (PSEAllocatedPowerValue=MirroredPSEAllocatedPowerValueEcho). Therefore, in both cases, the transition can only occur when the PSE is reducing the allocation OR when the PSE and PD are in sync.

SuggestedRemedy

Change the statement in line 4 to "When the PSE is not in sync with the PD, the PSE is allowed to reduce its power allocation.". Alternatively, remove the statement, as the conditions are correctly discussed in the paragraph starting on line 7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OOS

Change the statement in line 4 to "When the PSE is not in sync with the PD, the PSE is allowed to reduce its power allocation."

TFTD LY
We should not textually describe behavior covered by the state diagram.
Remove quoted sentence.

Cl **145** *SC* **145.7** *P* **250** *L* **1** # r01-318

Jones, Chad Cisco Systems, Inc.

Comment Type **E** *Comment Status* **D** *Pres: Chabot1*

Submitted by the Chair on behalf of Craig Chabot:
PICS need to be updated to reflect changes in the normative text of the Clause 145

SuggestedRemedy

Adopt changes in chabot_01_1117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.7.2.4** *P* **252** *L* **19** # r01-310

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **X** *Pres: Chabot1*

Item "*MID" has status "O/1" which means it is mutually exclusive with item "*CL" (per 21.6.2 definition: "one and only one of the group of options labeled by the same numeral <n> is required"

Is Midspan PSE incompatible with "Implementation supports Physical Layer classification"?

From reading the corresponding subclauses, 145.2.3 and 145.2.7, it isn't clear to me why this is so.

I suspect that the table is garbled and there should be mutually exclusive items for alternative A and alternative B (which currently does not appear at all), while Physical layer classification is simply optional.

SuggestedRemedy

Edit the PICS item list to make it correct.

If there is indeed a reason for this mutual exclusion, include clear statements in the referenced subclauses.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **145** *SC* **145.7.3.3** *P* **265** *L* **12** # r01-369

Lemahieu, Joris ON Semiconductor

Comment Type **G** *Comment Status* **D** *PICS*

"Meet the operating power limits after TLIM min"
It is unclear what exactly is meant by 'the operating power limits'.

SuggestedRemedy

Re-use "In accordance with ILIM-2P and TLIM in Table 145-16" as in PSE76

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by ???

TFTD

will be OBE by Yseboodt4 and Chabot1

Cl **145B** *SC* **145B.1** *P* **281** *L* **21** # r01-475

Darshan, Yair

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

For clarity, to add drawings to Annex 145B.1 demonstrating the definition of parallel/staggered detection

SuggestedRemedy

Adopt darshan_02_1117.pdf

Proposed Response *Response Status* **W**

TFTD

OOS

WFP

Cl **145B** *SC* **145B.1.3** *P* **283** *L* **32** # r01-476

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Annex*

The text "Figure 145B-8 illustrates a PSE implementing CC_DET_SEQ=2 when the connection check result is dual and pd_4pair_cand is initially TRUE." is incorrect. "pd_4pair_cand is initially TRUE" should be "class_4PID_mult_events_pri or class_4PID_mult_events_sec is TRUE"

SuggestedRemedy

Change from: "Figure 145B-8 illustrates a PSE implementing CC_DET_SEQ=2 when the connection check result is dual and pd_4pair_cand is initially TRUE."
To: "Figure 145B-8 illustrates a PSE implementing CC_DET_SEQ=2 when the connection check result is dual and class_4PID_mult_events_sec is TRUE."

Proposed Response *Response Status* **W**

TFTD

OOS

Does this match the SD?

Cl **145B** *SC* **145B.1.3** *P* **283** *L* **45** # r01-477

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Annex*

In "Figure 145B-8NPSE implementing CC_DET_SEQ=2, do_cxn_chk result is dual, simultaneous power on". remove the text "simultaneous power on" which may be incorrect for dual-signature PD case.

SuggestedRemedy

remove the text "simultaneous power on" which may be incorrect for dual-signature PD case

Proposed Response *Response Status* **W**

TFTD

OOS

This diagram is showing simultaneous power on, right?

Cl **145B** *SC* **145B.1.3** *P* **284** *L* **2** # r01-478

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Annex*

The text "Figure 145B-9 illustrates a PSE implementing CC_DET_SEQ=2 when the connection check result is dual and pd_4pair_cand is initially FALSE." is incorrect. "pd_4pair_cand is initially TRUE" should be "class_4PID_mult_events_pri or class_4PID_mult_events_sec is TRUE"

SuggestedRemedy

Change from: "Figure 145B-9 illustrates a PSE implementing CC_DET_SEQ=2 when the connection check result is dual and pd_4pair_cand is initially FALSE."
To: "Figure 145B-9 illustrates a PSE implementing CC_DET_SEQ=2 when the connection check result is dual and class_4PID_mult_events_sec is TRUE."

Proposed Response *Response Status* **W**

TFTD

OOS

does this match the SD?

Cl **145B** *SC* **145B.1.4** *P* **284** *L* **34** # r01-479

Darshan, Yair

Comment Type **T** *Comment Status* **X** *Annex*

The text "Figure 145B-11 illustrates a PSE implementing CC_DET_SEQ=3 when the connection check result is dual." is incomplete.

SuggestedRemedy

Change from: ""Figure 145B-11 illustrates a PSE implementing CC_DET_SEQ=3 when the connection check result is dual." "
To: "Figure 145B-11 illustrates a PSE implementing CC_DET_SEQ=3 when the connection check result is dual and class_4PID_mult_events_sec is FALSE."

Proposed Response *Response Status* **W**

TFTD

OOS

I thought that SEQ=3 was for staggered turn on of DS PDs. Why do we have to note that the other variable is false? Is SEQ=3 also used for simultaneous power on?

The definition is "Connection check is followed by staggered detection."

Cl **145C** *SC* **145C.1** *P* **287** *L* **1** # r01-42

Jones, Chad Cisco Systems, Inc.

Comment Type **E** *Comment Status* **X** *Pres: Jones1*

*** Comment submitted with the file 94817600003-Annex_145C_markup.docx attached ***

section is new and contains many editorial errors.

SuggestedRemedy

see the attached Annex_145C_markup.docx for editorial corrections, submitted for adoption.

Proposed Response *Response Status* **W**

TFTD

WFP

There are some mistakes that need to be cleaned up in the markup document.