Cl **1** *SC* **1.4.254** *P* **20** *L* **20** # 1
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'link section' definition still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **1** *SC* **1..4.415** *P* **20** *L* **31** # 2
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'Type 1 PD' definition still has underline/strikethrough

SuggestedRemedy
remove underline/strikethrough

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.425** *P* **21** *L* **3** # 3
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'V_PD' definition still has underline/strikethrough

SuggestedRemedy
remove underline/strikethrough

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.426** *P* **21** *L* **7** # 4
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'V_PSE' definition still has underline/strikethrough

SuggestedRemedy
remove underline/strikethrough

Proposed Response *Response Status* **O**

Cl **25** *SC* **25.4.5** *P* **24** *L* **1** # 5
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'Worst case droop of transformer' paragraph still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **25** *SC* **25.4.7** *P* **25** *L* **44** # 6
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'Receiver' paragraph still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.9.1.1.4** *P* **29** *L* **10** # 7
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'aPSEPowerPairs' paragraph still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.9.1.1.6** *P* **30** *L* **9** # 8
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'aPSEPowerClassification' paragraph still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.2.1.18a** *P* **37** *L* **31** # 9
Van den Eeckhout, Koenraad ON Semiconductor

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

Bad reference to table 79-6c

SuggestedRemedy

Change reference to table 79-6f

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.2.1.18b** *P* **37** *L* **43** # 10
Van den Eeckhout, Koenraad ON Semiconductor

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

Bad reference to table 79-6c

SuggestedRemedy

Change reference to table 79-6f

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.2.1.18c** *P* **38** *L* **2** # 11
Van den Eeckhout, Koenraad ON Semiconductor

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

Bad reference to table 79-6c

SuggestedRemedy

Change reference to table 79-6f

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.2.1.18d** *P* **38** *L* **14** # 12
Van den Eeckhout, Koenraad ON Semiconductor

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

Bad reference to table 79-6c

SuggestedRemedy

Change reference to table 79-6f

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.3.1.14** *P* **40** *L* **2** # 13
Van den Eeckhout, Koenraad ON Semiconductor

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

'aLldpXdot3RemPowerType' only distinguishes between Type 1 and 2 PSE/PD.

SuggestedRemedy

Bits should be added for Type 3/4

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.4** *P* **92** *L* **1** # 14
Van den Eeckhout, Koenraad ON Semiconductor

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

In Table 33-9 'Valid PD detection signature electrical characteristics', the word 'tolerance' was removed from 'signature voltage offset tolerance' and 'signature offset current tolerance'. This however slightly changes the meaning of the parameter, as 'offset tolerance' implies it can deviate up or down from the expected value by the given value, while 'offset' means the sign of the min/max values must be respected. If voltage offset is positive, the current offset will be negative and vice versa.
This was changed from D1.1 to D1.2, possibly related to comments #3 and #179 on D1.1, but these comments only deal with the accompaning text of this table.

SuggestedRemedy

Either:
* Return the word 'tolerance'
* Allow for negative voltage and current offset values
* Remove the minimum current offset and minimum voltage offset from the table
* Add absolute value signs: |I_os|, |V_os|

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.10** *P* **113** *L* **23** # 15
Van den Eeckhout, Koenraad ON Semiconductor

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

Bad reference to equation 33-3

SuggestedRemedy

Change reference to equation 33-2

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.10** *P* **113** *L* **26** # 16

Van den Eeckhout, Koenraad ON Semiconductor

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

Bad reference to equation 33-4

SuggestedRemedy

Change reference to equation 33-3

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.9** *P* **117** *L* **4** # 17

Van den Eeckhout, Koenraad ON Semiconductor

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

Paragraphs have been added to this section saying "A Type 1 and Type 2 PSE shall not remove power from the port PI when IPort is greater than or equal to
IHold max continuously for at least TMPS every TMPS + TMPDO, as defined in Table 33–17." and "A Type 3 or Type 4 PSE, when connected to a
single-signature PD, shall not remove power from the PI when DC MPS has been present within the TMPS + TMPDO window.".
These have been added according in D1.6 to hstewart_01_0116_baseline_v6.pdf

There are many situations where the PSE shall need to remove power when Iport is above Ihold (including when Iport is WAY above Ihold). These sentence do not add anything to the standard.

SuggestedRemedy

Remove these sentences.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.6** *P* **123** *L* **1** # 18

Van den Eeckhout, Koenraad ON Semiconductor

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

When the PD experiences a pd_reset that lasts a time t < T_MPDO_PD, the PSE will not remove power, and the PD state diagram will continue from OFFLINE -> DO_DETECTION -> DO_CLASS_EVENT1 -> MDI_POWER1 and will end up with pse_power_level = 1

SuggestedRemedy

Add a requirement 'V < V_mark_th' to the transition OFFLINE -> DO_DETECTION

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **128** *L* **47** # 19

Van den Eeckhout, Koenraad ON Semiconductor

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

"Until successful Multiple-Event Physical Layer classification or Data Link Layer classification has completed, a Type 2, Type 3 and Type 4 PD's pse_power_level state variable is set to '1'. Type 2, Type 3 and Type 4 PDs shall conform to the electrical requirements as defined by Table 33–28 for the level defined in the pse_power_level state variable."

This text conflicts with the PD state diagram, where pse_power_level is set in states while Multiple-Event Physical Layer classification has not yet been completed.

SuggestedRemedy

Remove this paragraph, the state diagram explains sufficiently when pse_power_level has to be set.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **11** # 20

Van den Eeckhout, Koenraad ON Semiconductor

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

"Inrush current is drawn during the startup period beginning with the application of input voltage at the PI compliant with Vport_PD-2P requirements as defined in Table 33–28, and ending when CPort has reached a
steady state and is charged to 99% of its final value."

The word 'value' here is ambiguous: it can refer either to capacitor charge (voltage) or energy (voltage^2).

SuggestedRemedy

replace 'value' by 'charge'

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **141** *L* **10** # 21
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
Period at the end of the line still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **142** *L* **9** # 22
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
Conditions in this table refer to P_class_PD, which is derived from the pse_power_level. To avoid confusion with the requested class, and better demonstrate that I_PORT_MPS is depending on the PSE type, it would be better implement the suggested remedy.

SuggestedRemedy
Change 'P_class_PD <= PD Class 4 power limit' to 'pse_power_level <= 2'.
Change 'P_class_PD > PD Class 4 power limit' to 'pse_power_level > 2'.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.1.1.2** *P* **144** *L* **2** # 23
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'IEC 62368-1' paragraph still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.1** *P* **152** *L* **34** # 24
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'in dB' still has underline

SuggestedRemedy
Remove underline

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.2** *P* **153** *L* **12** # 25
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
'in dB' still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.5.1.1** *P* **156** *L* **39** # 26
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
Table 33-34: 'Reserved' still has strikeout

SuggestedRemedy
remove strikeout

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3** *P* **194** *L* **16** # 27
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
In table 79-1 'Power Via MDI Measurement' still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.4.1** *P* **197** *L* **32** # 28
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
Paragraph 'Power Type' still has underline

SuggestedRemedy
remove underline

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.6a.2** *P* **199** *L* **37** # 29
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
paragraph 'PSE power classes' still has strikethrough

SuggestedRemedy
remove strikethrough

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.4.2** *P* **208** *L* **33** # 30
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
Table 79-8 still has underlines

SuggestedRemedy
remove underlines

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.4.2** *P* **210** *L* **30** # 31
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **E** *Comment Status* **X**
Table 79-9 still has underlines

SuggestedRemedy
remove underlines

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.3** *P* **120** *L* **18** # 32
Van den Eeckhout, Koenraad ON Semiconductor

Comment Type **T** *Comment Status* **X**
The PD state diagram does not track if short MPS is allowed.

SuggestedRemedy
Add to 33.3.3.3:
pse_short_mps_allowed: A control variable that indicates to the PD if the PSE supports short MPS. Values:
FALSE: The PSE does not support short MPS. The PD shall keep short_MPS=FALSE
TRUE: The PSE does support short MPS. The PD may set short_MPS=TRUE

Add to Figure 33-31:
- in state DO_DETECTION: pse_short_mps_allowed <= FALSE
- in state DO_CLASS_EVENT_AUTO: pse_short_mps_allowed <= TRUE

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **130** *L* **5** # 33
Bennett, Ken Sifos Technologies, In

Comment Type **E** *Comment Status* **X**
Pautoclass is defined as a measured value at the PSE. There is currently no variable in the PD section that can be referenced for the power drawn during autoclass by a PD.

The remedy suggests PAutoclass_PD, which is consistent with PClass/PClass_PD terminology.

SuggestedRemedy
Add the underlined text to the statement below:

After power up, a PD implementing Autoclass shall draw its highest required power, PAutoclass_PD, subject to the requirements on PClass_PD in 33.3.7.2,

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.4** *P* **56** *L* **15** # 34

Bennett, Ken — Sifos Technologies, In

Comment Type **ER** *Comment Status* **X**

The following two terms are used inconsistently when referencing Class-Events and Class-Event counts:

"Class Event(s)" (approx. 90 instances)
"Classification Event(s)" (approx. 30 instances)

"Class Events" should be used when addressing Class Events. "Classification Events" is ambiguous and/or incorrect because it encompasses both Class Events and Mark Events.

SuggestedRemedy

Change the following instances of "Classification Events" to "Class Events":

Pg 56 ln 15, pg 60 ln 28, pg 66 ln 40, pg 67 ln 9, pg 72 ln 34/37/40/43/46/50, pg 73 ln 30/33/36, pg 75 ln 14/49, pg 76 ln 27, pg 93 ln 23,
Table 33-11 pg 94 ln 24 heading column 2,
Table 33-12 pg 95 ln 4 Heading Column 2,
pg 114 ln 33, pg 120 ln 34, pg 121 ln 25, pg 122 ln 38, pg 133 ln 19

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **127** *L* **10** # 35

Bennett, Ken — Sifos Technologies, In

Comment Type **ER** *Comment Status* **X**

The text states:

"Since Single-Event classification is a subset of Multiple-Event classification, Type 2, Type 3, and Type 4 PDs operating with a maximum power draw corresponding to Class 4 or higher, respond to Single-Event classification with a Class 4 signature."

The underlined phrase is confusing and unnecessary. Also, "respond to single event classification with" needs a minor fix.

SuggestedRemedy

Remove the underlined text and Change it to:

"Type 2, Type 3, and Type 4 PDs operating with a maximum power draw corresponding to Class 4 or higher, respond to a Single-Event classification with a Class 4 signature"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.3** *P* **99** *L* **42** # 36

Bennett, Ken — Sifos Technologies, In

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

This section states:

PAutoclass is the power consumption of a connected PD measured throughout the period...

The word "Connected" is ambiguous. It should be clear that the PAutoclass value is the power value at the PSE end.

SuggestedRemedy

Change to the following:

PAutoclass is the power provided by the PSE measured throughout the period...

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **18** # 37

Bennett, Ken — Sifos Technologies, In

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

Table 33-2 shows "Single-Event" for Type 3 with a footnote to Table 33-15 Row 11, 12.

This hasn't been updated to be consistent with the editor's note on page 118, line 43:

Editor's Note: Classification section to be updated to move all Type 3 and Type 4 PSEs to multiple-event (Mark is considered an event).

SuggestedRemedy

Change the entry for Type-3 to "Multiple Event".

Either delete the footnote, or change it to:
"Multiple event in this instance refers to one Class Event and one Mark Event.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **135** *L* **9** # 38

Bennett, Ken — Sifos Technologies, In

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

The text:

"These equations may be used to calculate peak operating power for PPeak_PD or PPeak_PD-2P values obtained via Data Link Layer classification or Autoclass."

does not describe how to use the equations. PClass_PD must be replaced with the DLL or Autoclass power.

SuggestedRemedy

Change the sentence as follows:

These equations may be used to calculate Ppeak_PD or Ppeak_PD-2P for Data Link Layer Classification and for Autoclass by substituting PClass_PD with PDMaxPowerValue and PAutoclass_PD respectively.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **29** # 39

Johnson,Peter — Sifos Technologies

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

The phrase;

Physical Layer classification encompasses two methods, known as Single-Event Physical Layer classification (see 33.2.7.1) and Multiple-Event Physical Layer classification (see 33.2.7.2).

seems out of place as it has nothing to do with Pclass computation.

SuggestedRemedy

Suggest moving it to 3rd paragraph in 33.2.7 on line 18 in D1.6 so that paragraph becomes:

There are two forms of classification: Physical Layer classification and Data Link Layer (DLL) classification. Physical Layer classification encompasses two methods, known as Single-Event Physical Layer classification (see 33.2.7.1) and Multiple-Event Physical Layer classification (see 33.2.7.2).

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **26** # 40

Johnson,Peter — Sifos Technologies

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

Based on the response of a single-signature PD, the minimum power level at the output of the PSE is PClass as shown in Equation (33–2). PClass is the power the PSE supports at the PI. Based on the response of a dual signature PD, the minimum power level supported for a pairset at the output of the PSE is PClass-2P as shown in Equation (33–3).

In truth, as previous paragraph before this one points out, PClass is not just based on "the response of a PD". Pclass_PD is an assigned value. To be fully consistent, we should say:

SuggestedRemedy

Based on the assigned class to a single-signature PD, the minimum power level at the output of the PSE is PClass as shown in Equation (33–2). PClass is the power the PSE supports at the PI. Based on the assigned class to a dual signature PD pairset, the minimum power level supported for a pairset at the output of the PSE is PClass-2P as shown in Equation (33–3).

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **101** *L* **18** # 41

Johnson,Peter Sifos Technologies

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

Table 33-17 Item 5 is Icon specified as minimum= Pclass/Vport_PSE-2P.

Table 33-17 should also include Icon_2P with reference to paragraph 33.2.8.4 because that is the comparable power supply requirement for furnishing power to Dual Signature PD's.

Paragraph 33.2.7 stipulates that Pclass (EQ 33-2) applies to 2-Pair powering and 4-Pair powering of single signature PD's. Therefore, Icon (with minimum value Pclass / Vport_PSE-2P) in Table 33-17 applies to both of those cases but not to 4-Pair powering of Dual Signature PD's.

This change would also enable a radical simplification of paragraph 33.2.8.4 that I will suggest in another comment.

SuggestedRemedy

Add new item Icon_2P to Table 33-17.

Specify Minimum Power = Pclass_2P / Vport_PSE-2P.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **36** # 42

Johnson,Peter Sifos Technologies

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

We have an opportunity to make the relationship between DLL classification and Pclass a bit clearer. Current text says:

"The minimum power output by the PSE for a particular PD Class, when powering a single-signature PD, or supplying power in 2-pair mode, is defined by Equation (33–2). Alternatively, PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh when powering using a single pairset, or RChan = RCh/2 when powering using two pairsets to arrive at over-margined values as shown in Table 33–11."

SuggestedRemedy

Add to this paragraph:

"Pclass may subsequently be adjusted using Data Link Layer classification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **53** # 43

Johnson,Peter Sifos Technologies

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

We have an opportunity to make the relationship between DLL classification and Pclass_2P a bit clearer. Current text says:

"The minimum output power on a pairset for Type 3 and Type 4 PSEs that apply 4-pair power to a dual-signature PD is defined by Equation (33–3). Alternatively, PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh to arrive at over-margined values as shown in Table 33–12."

SuggestedRemedy

Add to this paragraph:

"Pclass_2P may subsequently be adjusted using Data Link Layer classification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **105** *L* **20** # 44

Johnson,Peter Sifos Technologies

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

Paragraph 33.2.8.4 is a bit challenging to comprehend and consumes over 2 pages in order to communicate the concept that, given pair-to-pair unbalance, total current must add up to Icon while maximum per-pairset current is Icon-2P-unb. To do this, it introduces variables Iport-2P and Iport-2P-other that do not relate to state diagram very well.

In addition, Icon-2P as presently defined in 33.2.8.4 is not consistent with Pclass and Pclass_2P as defined in 33.2.7 where there is clear separation of 2-pair/4-pair Single Signature from 4-Pair Dual Signature powering requirements.

Recommendation is to simplify and better tie to state diagrams and to 33.2.7. This comment addresses the Icon / Icon_2P portion of 33.2.8.4.

SuggestedRemedy

Replace all text (p. 105 line 20 to p. 106 line 4) related to Iport, Icon, and Icon-2P with:

"PSE's providing power on one pairset shall be able to source Icon, as specified in Table 33-11, on that pairset. Type 3 and Type 4 PSE's providing power on two pairsets to a single-signature PD shall be able to source Icon as the total of currents on both pairsets. Type 3 and Type 4 PSE's providing power on two pairsets to a dual-signature PD shall be able to source Icon_2P on each pairset.

When Type 3 or Type 4 PSE provides power on two pairsets to a single signature PD, pair-to-pair unbalance effects necessitate that one of the two powered pairsets shall source Icon-2P-unb as specified in Table 33-11. The pairset sourcing Icon-2P-unb could be either the Primary Alternative or the Secondary Alternative. Assuming that Iport-2P-pri is the current on the Primary Alternative and Iport-2P-sec is the current on the Secondary Alternative, the following equation shall be met regardless of how current is split between the two pairsets:

Icon = Iport-2P-pri + Iport-2P-sec

provided that;

Iport-2P-pri < Icon_2P-unb and
Iport-2P-sec < Icon_2P-unb.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **106** *L* **6** # 45

Johnson,Peter Sifos Technologies

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

Similar to my other comment regarding Icon/Icon_2P in 33.2.8.4, there is an opportunity to improve consistency in the description of Ipeak, Ipeak-2P_unb, and Ipeak-2P with paragraph 33.2.7 and the state diagrams.

In the following remedy, equations 33-8, 33-9, and 33-10 are unchanged from draft 1.6. Equation 33-11 is simplified to cover 4-Pair powering of Dual Signature PD's only.

SuggestedRemedy

Replace all text (p. 106 line 6 to p. 107 line 20) related to Iport, Icon, and Icon-2P with:

In addition to continuous current Icon, PSE's providing power on one pairset shall be able to support the transient current Ipeak, as specified in Equation 33-4, on that pairset. Type 3 and Type 4 PSE's providing power on two pairsets to a single-signature PD shall be able to support the transient current Ipeak as the total of simultaneous transient currents on both pairsets.

*** Ipeak (EQ 33-8) here ***

PSE's shall source Ipeak for a minimum duration of Tcut-2P as specified in Table 33-11 and also support a minimum duty cycle of 5% on each powered pairset.

When Type 3 or Type 4 PSE provides power on two pairsets to a single signature PD, pair-to-pair unbalance effects necessitate that one of the two powered pairsets shall source Ipeak-2P-unb as specified in Equation 33-4a.

*** Ipeak-2P-unb (EQ 33-9 and EQ 33-10) here ***

The pairset sourcing Ipeak-2P-unb could be either the Primary Alternative or the Secondary Alternative. Assuming that Ipeak-2P-pri is the transient current on the Primary Alternative and Ipeak-2P-sec is the transient current on the Secondary Alternative, the following equation shall be met regardless of how current is split between the two pairsets:

Ipeak = Ipeak-2P-pri + Ipeak-2P-sec

provided that;

Ipeak-2P-pri < Ipeak-2P-unb and
Ipeak-2P-sec < Ipeak-2P-unb.

Type 3 and Type 4 PSE's providing power on 4 pairs to a dual-signature PD shall be able to support the transient current Ipeak_2P on each pairset independently.

Ipeak_2P = (Quadratic using Rchan and Ppeak_PD-2P) (Revised EQ 33-11)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **131** *L* **28** # 46

Johnson,Peter Sifos Technologies

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

Table 33-28, item 4, infers that all PD's can operate up to Pclass_PD continuous power draw. There is, however, one case where this is not true.

A Dual Signature PD with a single electrical load is subject to DC pair-to-pair unbalance that occurs outside of the PD and is fully independent of the PD's intrinsic pair-to-pair unbalance. Yet this PD, in accordance with teh normative testing of paragraph 33.3.7.10, must meet Icon_2P on both pairsets under conditions of PSE and channel unbalance. Unless the PD deploys some method of active pairset load balancing, the only way it can pass the testing of 33.3.7.10 is to operate at some level below Pclass_PD.

SuggestedRemedy

Add a seond footnote (2) to Pclass_PD on Item 4.

In this footnote:

2) The maximum Pport_PD may be limited to less than Pclass_PD for a dual signature PD with a single electrical load in order to meet the requirements of 33.3.7.10.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **118** *L* **30** # 47

Bullock, Chris Cisco Systems

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

Since PDs have always been powered by 2-pair PSEs, all PDs have always been required to withstand the PD maximum rated power over each pair-set. With the introduction of 4-pair PSEs, the maximum power that a PD should withstand on a pair-set without incurring damage is no longer clear. Since there is no mechanism to enforce current balance between pair-sets, it is possilbe that a PD could be exposed to power levels up to the PSE upper-bound template for an indefinite period of time.

SuggestedRemedy

Add the following text to section 33.3.1

"PDs shall implement each Mode to withstand, without permanent damage, either the PDs maximum rated power or a Type-4 PSE uppoer-bound template, I(pseut-Type-4-2p), whichever is lower.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.186a** *P* **20** *L* **15** # 48

Dove, Daniel Dove Networking Solut

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

The text is inaccurate as it does not communicate the fact that a "dual-signature PD" must be Type 3 or Type 4.

SuggestedRemedy

Replace "A PD that" with "A Type 3 or Type 4 PD that"

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.418b** *P* **20** *L* **41** # 49

Dove, Daniel Dove Networking Solut

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

The text leaves out that a Type 3 PSE may support power on all 4 pairs.

SuggestedRemedy

Replace "A PSE that supports PD Types 1–3 and supports Low MPS" with "A PSE that supports PD Types 1–3, supports Low MPS and depending upon class, may support 4-pair power"

Proposed Response *Response Status* **O**

Cl **1** *SC* **1** *P* **1** *L* **1** # 50

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

Do you want me to reset the change bars in Clause 33 for D1.7 ?

SuggestedRemedy

Indicate YES/NO.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1** *P* **1** *L* **1** # 51

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

The IEEE SA Style guide prohibits the use of a hyphen or dash to denote a range.
Constructs like "Type 1-4" or Class "5-8" are not allowed.
We have quite a few of these in our draft.

SuggestedRemedy

Bulk replace all of these by the construct "x to y", so Type 1-4 becomes Type 1 to 4.
Idem for Class.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.418b** *P* **20** *L* **40** # 52

Yseboodt, Lennart Philips

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

"1.4.418a Type 3 PSE: A PSE that supports PD Types 1-3 and supports Low MPS (see IEEE 802.3, Clause 33)."

IEEE Style guide disallows "Types 1-3".
Also, Low MPS should not be capitalized (why do we even mention this in the definitions ?)
Also, all PSEs support all PD Types, but not at all power levels.

SuggestedRemedy

"1.4.418a A PSE that supports PDs up to Type 3 power levels and may support 4-pair power (see IEEE 802.3, Clause 33)."

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.418d** *P* **20** *L* **47** # 53

Yseboodt, Lennart Philips

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

"1.4.418d Type 4 PSE: A PSE that supports PD Types 1-4 and supports 4-pair power and Low MPS (see IEEE 802.3, Clause 33)."

IEEE Style guide disallows "Types 1-4".
Also, Low MPS should not be capitalized (why do we even mention this in the definitions ?)
Also, all PSEs support al PD Types, but not at all power levels.

SuggestedRemedy

"1.4.418d A PSE that supports PDs up to Type 4 power levels and supports 4-pair power (see IEEE 802.3, Clause 33)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.2** *P* **45** *L* **19** # 54

Yseboodt, Lennart Philips

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

"Editor's Note: Editor to consult with staff on duplication of definitions. Waiting for response from staff - note will be removed once response is received."

This note is ancient. Should we not simply refer to the latest .bx revision ?

SuggestedRemedy

Remove note.
Change references to .bx revision.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **45** *L* **30** # 55

Yseboodt, Lennart Philips

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

Table 33-1 System parameters shows the nominal highest current per pair.
What this Table does not show is the (maximum) number of powered pairs, which seems essential information.

SuggestedRemedy

Insert a column after the 'Icable' column title "Number of powered pairs"
Values:
Type 1 => 2
Type 2 => 2
Type 3 => 2 or 4
Type 4 => 2 or 4

Also check the thickness of the internal lines in the Table, near the bottom two lines seem a bit thicker. Carried over from 802.3-2012.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **46** *L* **7** # 56

Yseboodt, Lennart Philips

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

Section 33.2 and 33.3 make extensive use of the parameter "Rchan" which is nowhere defined.
The first mention of Rchan is in the classification section.

Rchan is the actual DC resistance between a PSE and a PD. This is influenced by channel length and resistance, but also
whether the PSE is operating 2P or 4P AND whether the PD is a single or dual signature device.

A definition is needed, 33.1.3 which talks about Rch seems like a good place.

SuggestedRemedy

- Insert at the end of 33.1.3:

"R_Chan is the actual DC loop resistance between the PI of the PSE and the PI of the PD.
R_Chan-2P is the actual DC loop resistance of a pairset from the viewpoint of the PSE and PD PI."

- Editor to scan the document for all mention of Rchan and change to Rchan-2P where used in the context of dual-signature.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **3** # 57

Yseboodt, Lennart Philips

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

Table 33-2a does not exist anymore.

SuggestedRemedy

Change to Table 33-2

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **9** # 58

Yseboodt, Lennart Philips

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

Table 33-2 Permissble PSE Types.
Column lists "Low MPS support".
The new MPS is actually shorter rather than lower.
Also the state machine variable is called "short_mps".

SuggestedRemedy

Change "Low MPS" to "Short MPS".
Editor to change Low MPS to short MPS everywhere.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **18** # 59

Yseboodt, Lennart Philips

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

Table 33-2 lists "Single-Event" for Type 3 which is no longer true.
Type 3, Class 3, Optional, Yes, Single-Event^2, Optional, Optional.

Also the Table would be more logical if the "Supports 4-pair" is the second column.
Class is a consequence of 4-pair.

SuggestedRemedy

- Remove this line (4th line) along with footnote 2.
- Swap column 3 and 2

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **26** # 60

Yseboodt, Lennart Philips

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

Table 33-2 Permissble PSE Types.
Has a footnote pointing the reader to section "33.3.8 for details".
None of the other terms has a footnote with section reference.

SuggestedRemedy

Remove footnote.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **36** # 61

Yseboodt, Lennart Philips

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

"... are illustrated in Figure 33-4, Figure 33-5, Figure 33-6, Figure 33-7, Figure 33-8, Figure 33-9, Figure 33-10, and Figure 33-11."

Why?

SuggestedRemedy

"... are illustrated in Figure 33-4 through Figure 33-11."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **56** *L* **9** # 62

Yseboodt, Lennart Philips

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

"... of the state diagrams shown in Figure 33-13, Figure 33-13 continued, and Figure 33-14."

Reference to "Figure 33-13 continued" is not needed

SuggestedRemedy

"... of the state diagrams shown in Figure 33-13 and Figure 33-14."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **73** *L* **39** # 63

Yseboodt, Lennart Philips

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

tme1_timer:
"A timer used to limit mark event times for all but the last the first mark event time in during Multiple-Event classification; see T ME1 in Table 33-15."

SuggestedRemedy

"A timer used to limit mark event times for all but the last mark event during Multiple-Event classification; see T ME1 in Table 33-15."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **73** *L* **42** # 64

Yseboodt, Lennart Philips

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

tme1_timer_pri:
"A timer used to limit mark event times for all but the last the first mark event time in during Multiple-Event classification on the Primary Alternative; see T ME1 in Table 33-15."

SuggestedRemedy

"A timer used to limit mark event times for all but the last mark event during Multiple-Event classification on the Primary Alternative; see T ME1 in Table 33-15."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **73** *L* **46** # 65

Yseboodt, Lennart Philips

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

tme1_timer_sec:
"A timer used to limit mark event times for all but the last the first mark event time in during Multiple-Event classification on the Secondary Alternative; see T ME1 in Table 33-15."

SuggestedRemedy

"A timer used to limit mark event times for all but the last mark event during Multiple-Event classification on the Secondary Alternative; see T ME1 in Table 33-15."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **73** *L* **49** # 66

Yseboodt, Lennart Philips

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

tme2_timer:
"A timer used to limit the second final mark event time in Multiple-Event classification; see T ME2 in Table 33-15."

SuggestedRemedy

Strike "second"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **73** *L* **52** # 67

Yseboodt, Lennart Philips

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

tme2_timer_pri:
"A timer used to limit the second final mark event time in Multiple-Event classification on the Primary Alternative; see T ME2 in Table 33-15."

SuggestedRemedy

Strike "second"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **74** *L* **52** # 68

Yseboodt, Lennart Philips

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

tme2_timer_sec:
"A timer used to limit the second final mark event time in Multiple-Event classification on the Secondary Alternative; see T ME2 in Table 33-15."

SuggestedRemedy

Strike "second"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **17** # 69

Yseboodt, Lennart Philips

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

In the function do_classification, variable mr_pd_class_detected, lists up to class signature '8' which doesn`t exist. Only 0 through 4 is valid.

SuggestedRemedy

Remove all values greater than 4.
Change the description to the format:
n: class signature n
Remove the editor`s note on line 27.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **28** # 70

Yseboodt, Lennart Philips

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

Editors notes telling us that we need to take dual-signature classification into account are no longer needed.

SuggestedRemedy

Remove notes on:
- page 75, line 28
- page 76, line 4
- page 76, line 25

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **77** *L* **31** # 71

Yseboodt, Lennart Philips

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

parameter_type is incorrectly indented. It should be a variable returned by set_parameter_type.

SuggestedRemedy

Indent parameter_type.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **77** *L* **31** # 72

Yseboodt, Lennart Philips

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

"A variable used by a PSE to pick between Type 1, Type 2, Type 3 and Type 4 PI electrical requirement parameter values defined in Table 33-17. Values 1 through 4."

This is the SM for Type 3 and Type 4 PSEs.
Type 3 and Type 4 PSE parameter values are chosen such that they are backwards compatible with Type 1 and Type 2 PDs.

SuggestedRemedy

This should not be a variable, but a constant.
Since it is used in the state machine as well as the LLDP state machine, it is best to keep the name unchanged.

- Remove the set_parameter_type function.
- Add parameter_type to 33.2.5.8 Constants section:
parameter_type
A constant indicating the Type of the PSE. This is used to pick the Type 3 and Type 4 PI electrical requirement parameter values defined in Table 33-17.
Values:
3: Type 3 parameter values
4: Type 4 parameter values

- Remove the state SET_PARAMETERS in Figure 33-17 and 33-18

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **17** # 73

Yseboodt, Lennart Philips

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

SM in Figure 33-15, IDLE state.
"IF (mr_pse_alternative != both) THEN
alt_pri <= mr_pse_alternative
ELSE
alt_pri <= UserDefined
END"

UserDefined doesn`t exist.

SuggestedRemedy

Change to:
"IF (mr_pse_alternative != both) THEN
alt_pri <= mr_pse_alternative
END"

Append the following sentence to the description of 'alt_pri':
"A variable that is set in an implementation dependent manner."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **80** *L* **24** # 74

Yseboodt, Lennart Philips

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

PSE SM, state POWER_ON says "IF ((PD_4pair_cand = 1) +"

This is a boolean.

SuggestedRemedy

Replace by "IF (PD_4pair_cand +"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **8** # 75

Yseboodt, Lennart Philips

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

The Autoclass part in the State Diagram can be further improved for clarity.

SuggestedRemedy

Adopt yseboodt_07_0316_Autoclass3.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **88** *L* **45** # 76

Wendt, Matthias Philips

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

"Editor`s Note: The State diagram shown in figure 33-9(TBD) needs to incorporate the 4PID requirements that are also covered in section 33.2.5.6. The state diagram for Type 3 and Type 4 does not address dual-signature. Preferably this goes into a separate diagram to keep complexity manageable."

- Dual signature work has been done.
- Figure reference is wrong.

SuggestedRemedy

"Editor`s Note: The State diagram shown in Figure 33-15 needs to incorporate the 4PID requirements that are also covered in section 33.2.5.6."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **14** # 77

Yseboodt, Lennart Philips

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

Space missing in header

SuggestedRemedy

Add space between 33.2.6.1 and Connection.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **20** # 78

Yseboodt, Lennart Philips

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

"The exact method of the connection check is not specified."

Redundant. The standard never specifies specific implementations.
What it is supposed to do is very clearly stated in the first paragraph.

SuggestedRemedy

Remove sentence.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **90** *L* **5** # 79

Wendt, Matthias Philips

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

original text: "Editor?s Note: An informative annex should be considered. Test setup/compliance testing needs to be defined."

SuggestedRemedy

Either:
- Create the Annex as empty with title "Connection Check"
- or, delete Editor`s Note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.7** *P* **92** *L* **50** # 80

Yseboodt, Lennart Philips

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

4PID requirements
4PID shall be initially (TBD) determined as a logical function of the detection state of both pairsets, the result of connection check as described in 33.2.6.1, mutual identification, and the results of other system information. It shall be stored in the variable PD_4pair_cand, defined in 33.2.5.4.

Doesn`t say what the actual requirements are.

SuggestedRemedy

Adopt yseboodt_01_0316_4pid.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **23** # 81

Yseboodt, Lennart Philips

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

"The assigned Class is the Class that results from the PDs requested Class and the number of classification events produced by the PSE as shown in Table 33-11 and Table 33-12."

Rephrase.

SuggestedRemedy

"The assigned Class is the result of the PDs requested Class and the number of classification events produced by the PSE as shown in Table 33-11 and Table 33-12."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **52** # 82

Yseboodt, Lennart Philips

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

"The minimum output power on a pairset for Type 3 and Type 4 PSEs that apply 4-pair power to a dual-signature PD is defined by Equation (33-3)."

This seems a remnant from D1.5. It does not matter if 4P power is applied or not.

SuggestedRemedy

"The minimum output power on a pairset for Type 3 and Type 4 PSEs connected to a dual-signature PD is defined by Equation (33-3)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **53** # 83

Yseboodt, Lennart Philips

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

"V_Port_PSE-2P" is split over 2 lines.

SuggestedRemedy

Insert non-breaking hyphen.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **94** *L* **2** # 84

Yseboodt, Lennart Philips

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

Equation 33-3 is not properly shrinkwrapped.

SuggestedRemedy

Fix.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **96** *L* **35** # 85

Yseboodt, Lennart Philips

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

"Type 2 PSEs shall provide a maximum of 2 class events and 2 mark events. Type 3 PSEs shall provide a maximum of 4 class events and 4 mark events for single-signature PDs and a maximum of 3 class events and 3 mark events for dual-signature PDs. Type 4 PSEs shall provide a maximum of 5 class events and 5 mark events for single-signature PDs and a maximum of 4 class events and 4 mark events for dual-signature PDs."

IEEE Style Guide says that numbers less than 10 should be spelled out in general text.

SuggestedRemedy

Change "2 class events" to "two class events" and so on for the entire paragraph.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **96** *L* **35** # 86

Yseboodt, Lennart Philips

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

"Type 3 PSEs shall provide a maximum of 4 class events and 4 mark events for single-signature PDs and a maximum of 3 class events and 3 mark events for dual-signature PDs. Type 4 PSEs shall provide a maximum of 5 class events and 5 mark events for single-signature PDs and a maximum of 4 class events and 4 mark events for dual-signature PDs."

Not correct for dual-signature PDs (they class each pairset independently).

SuggestedRemedy

"Type 3 PSEs shall provide a maximum of 4 class events and 4 mark events for single-signature PDs and a maximum of 3 class events and 3 mark events on each pairset for dual-signature PDs. Type 4 PSEs shall provide a maximum of 5 class events and 5 mark events for single-signature PDs and a maximum of 4 class events and 4 mark events on each pairset for dual-signature PDs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **96** *L* **40** # 87

Yseboodt, Lennart Philips

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

"A Type 1 or Type 2 PSE in the state CLASS_EV1 or a Type 3 or Type 4 PSE in the state CLASS_EV1_LCE shall provide to the PI V Class as defined in Table 33-15. The timing specification for Type 1 and Type 2 PSEs shall be as defined by Table 33-15 value T CLE1 , and by T LCE for Type 3 or Type 4 PSEs. The PSE shall measure I Class and classify the PD based on the observed current according to Table 33-14 within T pdc as defined in Table 33-15. Type 3 and Type 4 PSEs may continue to monitor the current past T pdc . If the Type 3 or Type 4 PSE does not measure I Class in the range of Class 0 before T ACS min and the PSE measures I Class in the range of Class 0 after T ACS max this indicates the PD will perform Autoclass. (see 33.3.5.3)."

We mix "Type 3 or Type 4 PSEs ..." and "Type 3 and Type 4 PSEs...". Which is it again ? Or ?

SuggestedRemedy

Make consistent.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **96** *L* **40** # 88

Yseboodt, Lennart Philips

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

"A Type 1 or Type 2 PSE in the state CLASS_EV1 or a Type 3 or Type 4 PSE in the state CLASS_EV1_LCE shall provide to the PI V Class as defined in Table 33-15. The timing specification for Type 1 and Type 2 PSEs shall be as defined by Table 33-15 value T CLE1 , and by T LCE for Type 3 or Type 4 PSEs. The PSE shall measure I Class and classify the PD based on the observed current according to Table 33-14 within T pdc as defined in Table 33-15. Type 3 and Type 4 PSEs may continue to monitor the current past T pdc . If the Type 3 or Type 4 PSE does not measure I Class in the range of Class 0 before T ACS min and the PSE measures I Class in the range of Class 0 after T ACS max this indicates the PD will perform Autoclass. (see 33.3.5.3)."

Many improvements:
- some akwardly worded
- replace Class 0 by class signature 0
- Class not determined by Table 33-14 alone, also involve Pclass tables
- to the PI => pairset

SuggestedRemedy

A Type 1 or Type 2 PSE in the state CLASS_EV1 or a Type 3 or Type 4 PSE in the state CLASS_EV1_LCE shall provide to the PI **or pairset** V Class as defined in Table 33-15. The timing specification for Type 1 and Type 2 PSEs shall be as defined by Table 33-15 value T CLE1 , and by T LCE for Type 3 or Type 4 PSEs. The PSE shall measure I Class and classify the PD based on the observed current according to **Table 33-11, Table 33-12, and **Table 33-14 within T pdc as defined in Table 33-15. Type 3 and Type 4 PSEs may continue to monitor the current past T pdc . If the Type 3 or Type 4 PSE does not measure I Class in the range of **class signature 0** before T ACS min and the PSE measures I Class in the range of **class signature 0** after T ACS max this indicates the PD will perform Autoclass. (see 33.3.5.3).

- Note: merge these changes with other comments!

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **22** # 89

Yseboodt, Lennart Philips

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

Multiple Event classification section:
"All measurements of I Class shall be taken after the minimum relevant class event timing of Table 33-15. This measurement is referenced from the application of V Class min to ignore initial transients."

The minimum time for the duration of a class event doubles as the minimum time at which a class current measurement may be taken.
This works, except for T_LCE which has a minimum of 88ms (at this time an Autoclass PD already has dropped it`s current).

SuggestedRemedy

- Rename the existing T_class (which is used in the PD section), to T_class_PD
- Introduce a new T_class in Table 33-15:
Parameter: "Class event Iclass measurement timing"
Symbol: T_class
Units: ms
Min: 6.00
Max:
Single or Multiple-Event: Multiple
Additional information:
- Change the comment text to:
"All measurements of I Class shall be taken after T_class, as defined in Table 33-15. This measurement is referenced from the application of V Class min to ignore initial transients."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **26** # 90

Yseboodt, Lennart Philips

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

"The PSE shall complete 2Multiple-Event Physical Layer classification..."

Lingering strikeout "2" and underlined "Multiple".

SuggestedRemedy

Change to: "The PSE shall complete Multiple-Event Physical Layer classification..." without underline.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **38** # 91

Yseboodt, Lennart Philips

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

"If the result of the first class event is any of Classes 0, 1, 2, or 3, a Type 2 PSE treats the PD as a Type 1 PD and may omit the subsequent mark and class events and classify the PD according to the result of the first class event."

Classes => class signature

SuggestedRemedy

"If the result of the first class event is any of class signature 0, 1, 2, or 3, a Type 2 PSE treats the PD as a Type 1 PD and may omit the subsequent mark and class events and classify the PD according to the result of the first class event."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **40** # 92

Yseboodt, Lennart Philips

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

"If the result of the first class event is any of Class 0, 1, 2, or 3, a Type 3 or Type 4 PSE treats a single-signature PD as a Type 1 PD and shall omit the subsequent class events, transition directly to MARK_EV_LAST,..."

Class => class signature

SuggestedRemedy

"If the result of the first class event is any of class signature 0, 1, 2, or 3, a Type 3 or Type 4 PSE treats a single-signature PD as a Type 1 PD and shall omit the subsequent class events, transition directly to MARK_EV_LAST,..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **46** # 93

Yseboodt, Lennart Philips

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

"Editor's Note (Remove prior to D2.0): We need to address behavior for matched and unmatched classes for mixed Type PDs."

No we don't. All dual-signature PDs will operate under the same rules.

SuggestedRemedy

Remove note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **98** *L* **42** # 94

Yseboodt, Lennart Philips

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

Table 33-15 on Class timing has a column "Single- or Multiple-Event".
Item 1 and 2 apply to both, and list "Single, Multiple". This fits badly in the table.

SuggestedRemedy

Replace "Single, Multiple" by "Both".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **99** *L* **24** # 95

Yseboodt, Lennart Philips

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

Table 33-15, Item 12 and 13 do not use consistent amount of digits.

SuggestedRemedy

Change:
88 => 88.0
6 => 6.00
20 => 20.0

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.3** *P* **99** *L* **43** # 96
Yseboodt, Lennart Philips

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

"P Autoclass is the power consumption of a connected PD measured throughout the period bounded by T AUTO_PSE1 and T AUTO_PSE2 , defined in Table 33-16a."

Bad Table reference.

SuggestedRemedy

Change to Table 33-16.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.3** *P* **99** *L* **47** # 97
Yseboodt, Lennart Philips

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

"Average power is calculated using any sliding window with a width in the range of T AUTO_Window as defined in Table 33-16a."

Bad Table reference.

SuggestedRemedy

Change to Table 33-16.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **102** *L* **1** # 98
Yseboodt, Lennart Philips

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

Table 33-17 uses mostly seconds as the unit for time parameters, with the exception of Trise which is in microseconds.
The IEEE Styleguide forbids this, it needs to be all the same.

Since most values are in the millisecond range, propose to change all units in 33-17 from seconds to milliseconds.

SuggestedRemedy

Convert 33-17 to milliseconds.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **102** *L* **22** # 99
Yseboodt, Lennart Philips

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

In Table 33-17 we have item 10 for Icut-2P.
The minimum value for Type 1 and 2 is "PClass / VPSE".
The minimum value for Type 3 and 4 is "ICon-2P"

This distincion is a relic from 802.3at and no longer needed.
For Type 1 & 2, Icon-2P = PClass / Vpse

SuggestedRemedy

Replace "PClass / Vpse" by "Icon-2P" and merge with the Type 3/4 line below.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **102** *L* **51** # 100
Yseboodt, Lennart Philips

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

Ptype = 75W for Type 4.
This allows for two different Type 4 PSEs, one that supports Class 8 and one that does not.
The difference is only 15W, which is negligible from a hardware viewpoint.
This means not every Type 4 PD will work with a Type 4 PSE.

SuggestedRemedy

Change Ptype(min) = 90W for Type 4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **104** *L* **23** # 101
Yseboodt, Lennart Philips

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

There is a large 4 point Editor's Note after Table 33-17 which hasn't moved for a while.

SuggestedRemedy

Delete the items which are already addressed.
Keep 2, remove the others.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.1** *P* **104** *L* **41** # 102

Yseboodt, Lennart Philips

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

"A Type 3 or Type 4 PSE that has assigned Class 1-4 to a single-signature PD and is in the POWER_ON state may transition between 2-pair and 4-pair power at any time, including after the expiration of T pon ."

We have plenty of requirements when NOT to apply 4-pair power, but we never actually state when a PSE SHALL provide 4-pair power. PSE that assign Class 5 through 8 must provide 4P power.
This seems like a good section to state this.

Note: Depending on the outcome of the "When connected to a single-signature PD, a Type 3 or Type 4 PSE should (TBD) remove power from both pairsets before the current exceeds the "PSE upperbound template" on either pairset." issue we may need to revisit/reword this statement, hence the TBD.

SuggestedRemedy

"(TBD) A Type 3 or Type 4 PSE that has assigned Class 5 to 8 to a single-signature PD shall apply power to both pairsets while in the POWER_ON state."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.1** *P* **104** *L* **42** # 103

Yseboodt, Lennart Philips

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

"The specification for V Port_PSE-2P in Table 33-17 shall be met with a (I Hold max x V Port_PSE-2P min) to P Type min load step at a rate of change of at least 15 mA/ms."

This broke due to the new definition of PType.
We need something that says "The highest supported power for a given Type"

SuggestedRemedy

"The specification for V Port_PSE-2P in Table 33-17 shall be met with a (I Hold max x V Port_PSE-2P min) to P_Class load step at a current rate of change of at least 15 mA/ms, where P_Class is the power of the highest Class the PSE supports."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.3** *P* **105** *L* **14** # 104

Yseboodt, Lennart Philips

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

"The specification for power feeding ripple and noise in Table 33-17 shall be met for common-mode and/or pair-to-pair noise values for power outputs from (I Hold max x V Port_PSE-2P min) to P Type min for PSEs at static operating V_Port_PSE-2P."

This broke due to the new definition of PType.
We need something that says "The highest supported power for a given Type"

SuggestedRemedy

"The specification for power feeding ripple and noise in Table 33-17 shall be met for common-mode and/or pair-to-pair noise values for power outputs from (I Hold max x V Port_PSE-2P min) to P_Class for PSEs at static operating V_Port_PSE-2P, where P_Class is the power of the highest Class the PSE supports."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **106** *L* **26** # 105

Yseboodt, Lennart Philips

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

Ipeak-2P_unb is calculated using the KIpeak parameter. Which in turn is calculated using a Class dependent curve fit.
Icon-2P_unb which serves exactly the same function as IPeak-2P_unb is simply listed with numbers in Table 33-17.

For simplicity`s sake we should adopt the same approach for both.
In addition, while Icon-2P_unb is defined for all Classes, Ipeak-2P_unb is only defined for Class 5 through 8.

SuggestedRemedy

- Add new item to Table 33-17 called Ipeak-2P_unb with min values (values derived from Equation 33-8, 33-9 and 33-10 with worst-case values)
  Class 0 to 4 => Ipeak
  Class 5 => 0.634
  Class 6 => 0.828
  Class 7 => 0.975
  Class 8 => 1.160

- Change the reference to Equation 33-9 on page 106, line 24 to a reference to Table 33-17.
- Remove Equation 33-9 and 33-10

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4.1** *P* **107** *L* **30** # 106

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

"The contribution of PSE PI pair-to-pair effective resistance unbalance (PSE_P2PRunb) to the whole effective system end to end resistance unbalance (E2EP2PRunb), is specified by PSE maximum (R PSE_max) and minimum (R PSE_min) common mode effective resistance in the powered pairs of same polarity."

The abbreviation PSE_P2PRunb is used twice in the whole doc. Both times in 33.2.8.4.1.
Tongtwister E2EP2PRunb is used once (and a few times in Annex 33B).

SuggestedRemedy

Replace PSE_P2PRunb by "PSE PI pair-to-pair effective resistance unbalance".
Replace E2EP2PRunb by "effective system end to end resistance unbalance" except in Annex 33B.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4.1** *P* **108** *L* **9** # 107

Yseboodt, Lennart Philips

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

"Editor's Note: Numbers to be updated for DS PDs."

Has this been done ?

SuggestedRemedy

If yes => Remove note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5** *P* **108** *L* **11** # 108

Yseboodt, Lennart Philips

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

PSE inrush needs a good cleanup.

SuggestedRemedy

Adopt yseboodt_08_0316_pseinrush.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5** *P* **108** *L* **35** # 109

Yseboodt, Lennart Philips

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

"For Type 1 PSE, measurement of minimum I Inrush-2P requirement to be taken after 1 ms to allow startup transients."

SuggestedRemedy

"For Type 1 PSEs, measurement of minimum I Inrush-2P requirement is to be taken after 1 ms to allow for startup transients."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5** *P* **109** *L* **8** # 110

Yseboodt, Lennart Philips

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

In Figure 33-26 it says: "I Inrush-2P and I Inrush at V PSE-2P > 30 V"

Vpse-2P is not defined in the definitions section.
Vpse is (see definition below) and the way it is defined allows us to use Vpse in both a single-signature and dual-signature context as well as in 2P contexts.

Use of Vpse-2P is not widespread in the text. Propose to use V_PSE everywhere.
The same applies to V_PD.

The definition of Vpd is: "The voltage at the PD PI measured between any positive conductor of a powered pair and any negative conductor of the corresponding powered power pair"
The definition of Vpse is: "The voltage at the PSE PI measured between any positive conductor of a powered pair and any negative conductor of the corresponding powered power pair"

SuggestedRemedy

Change V_PSE-2P into V_PSE.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5.1** *P* **109** *L* **26** # 111

Yseboodt, Lennart Philips

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

"33.2.8.5.1 I Inrush-2P minimum and I Inrush minimum requirements"

Reword.

SuggestedRemedy

"33.2.8.5.1 Type 4 minimum inrush current requirements"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5.1** *P* **109** *L* **28** # 112

Yseboodt, Lennart Philips

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

"A Type 4 PSE, when connected to a single signature PD with assigned Class 7 or Class 8, may optionally implement a minimum I Inrush-2P and I Inrush lower than defined in Table 33-17, but not less than 0.15A and 0.4A respectively."

Reword + get rid of "may optionally".

SuggestedRemedy

"A Type 4 PSE, when connected to a single signature PD assigned to Class 7 or Class 8, may implement a minimum I Inrush-2P and I Inrush lower than those defined in Table 33-17, but not less than 0.15A and 0.4A respectively."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5.1** *P* **109** *L* **30** # 113

Yseboodt, Lennart Philips

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

"When a Type 4 PSE is connected to a single-signature PD with assigned Class 7 or Class 8 and uses a lower I Inrush-2P and I Inrush than those defined in Table 33-17, it shall successfully power up a single-signature PD comprised of a parallel combination of C Port per pairset as defined in 33.3.7.3 and a Class 2 load within T Inrush-2p min without startup oscillations during the POWER_UP period, when connected to the PD through channel resistance of 0.1 ohm to 12.5 ohm per pairset."

This requirement applies to all PSEs in this situation. Obviously it is automatically met by PSEs that use the values in Table 33-17.
Also, why must this be met in Tinrush-2P min ? PSEs may use up to Tinrush-2P max for inrush.

SuggestedRemedy

"A Type 4 PSE connected to a single-signature PD assigned to Class 7 or Class 8 shall successfully power up a parallel combination of C Port per pairset as defined in 33.3.7.3 and a Class 2 load within T Inrush-2P. The power up shall be without startup oscillations during the POWER_UP period, when connected to the PD through channel resistance in the range of Rch."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.7** *P* **110** *L* **2** # 114

Yseboodt, Lennart Philips

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

"When connected to a single-signature PD, a Type 3 or Type 4 PSE should (TBD) remove power from both pairsets before the current exceeds the 'PSE upperbound template' on either pairset."

We should settle this.

SuggestedRemedy

See yseboodt_09_0316_4pbehaviour.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.10.1.2** *P* **115** *L* **50** # 115

Yseboodt, Lennart Philips

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

The DC MPS text can be further improved by introducing I_Hold-2P for pairset currents and I_Hold for 4P currents.

SuggestedRemedy

Adopt yseboodt_02_0316_mps.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **118** *L* **28** # 116

Yseboodt, Lennart Philips

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

"The PD shall be implemented to be insensitive to the polarity of the power supply and shall be able to operate per the PD Mode A column and the PD Mode B column in Table 33-19."

The 'operate' part of that requirement does not hold for >= Class 5 PDs or dual-signature PDs,
they need 4-pair in order to operate.

SuggestedRemedy

"The PD shall be implemented to be insensitive to the polarity of the power supply.
Single-signature PDs with a power demand lower or equal to Class 4 power shall be able to operate per the PD Mode A column and the PD Mode B column in Table 33-19.
All other PDs may require being supplied over Mode A and Mode B simultaneously to operate at their nominal power level."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **118** *L* **43** # 117

Yseboodt, Lennart Philips

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

"Editor's Note: Classification section to be updated to move all Type 3 and Type 4 PSEs to multiple-event (Mark is considered an event)."

- next few comments will address this

SuggestedRemedy

Remove editors note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **4** # 118

Yseboodt, Lennart Philips

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

In Table 33-20, the new MPS scheme is called "Low MPS", when this would more accurately be called "Short MPS".
The state machine variable is called short_mps.

SuggestedRemedy

- Change "Low MPS support" to "Short MPS support"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **4** # 119

Yseboodt, Lennart Philips

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

In Table 33-20 we have 3 footnotes.
^1 "See 33.3.8 for details. "Low" means lower standby MPS power, "high" means higher standby MPS power."
^2 "Need to support High MPS when connected to Type 1 or Type 2 PSEs for backward compatibility."
^3 "Type 3/SS Class 1-3 PDs are not required to implement DLL classification."

SuggestedRemedy

All of this information is covered in the text. Nor is it such critical information that it must be presented with the table.
Remove the 3 footnotes.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **5** # 120

Yseboodt, Lennart Philips

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

Misspelling "Capbilties"

SuggestedRemedy

Change to Capabilities.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **22** # 121

Yseboodt, Lennart Philips

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

"Type 3 single-signature PDs operating up to a maximum power draw corresponding to Class 3 or less implement a minimum of Multiple-Event Physical Layer Classification and advertise a Single-Event class signature of 1, 2, or 3."

Reference to Single-Event is wrong.

SuggestedRemedy

"Type 3 single-signature PDs operating up to a maximum power draw corresponding to Class 3 or less implement a minimum of Multiple-Event Physical Layer Classification and advertise Class 1, 2, or 3."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **35** # 122

Yseboodt, Lennart Philips

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

"Type 4 single-signature PDs only advertise Class 7 and 8. Type 4 dual-signature PDs advertise Class 5 on at least one pairset."

Nothing is said here that the two previous paragraph don`t also state.

SuggestedRemedy

Remove this line.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **38** # 123

Yseboodt, Lennart Philips

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

"A Type 2, Type 3 or Type 4 PD that does not successfully observe a Multiple-Event Physical Layer classification or Data Link Layer classification shall conform to Type 1 PD power restrictions and shall provide the user with an active indication if underpowered. The method of active indication is left to the implementer."

This section is about PD Type descriptions and we should not have shalls here.

SuggestedRemedy

Move this paragraph to 33.3.5 "PD Classifications", page 126, line 52.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **43** # 124

Yseboodt, Lennart Philips

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

"Type 2, Type 3 and Type 4 PDs implementing 100BASE-TX (Clause 25) PHYs shall meet the requirements of 25.4.5 in the presence of (I unb / 2)."

This section is about PD Type descriptions and we should not have shalls here.
On page 148 we have a section "33.4.8 100BASE-TX transformer droop" which contains:

"100BASE-TX Type 2 Endpoint PSEs and 100BASE-TX Type 2 PDs shall meet the requirements of Clause 25 in the presence of (I unb /2)."
This seems to cover what is in 33.3.2 (except for Type).

SuggestedRemedy

- Remove the sentence in 33.3.2 as well as the Note (and format the Note properly, needs an em-dash)
- Change the sentence in 33.4.8 as follows:
"100BASE-TX Type 2, Type 3, and Type 4 Endpoint PSEs and 100BASE-TX Type 2, Type 3, and Type 4 PDs shall meet the requirements of Clause 25 in the presence of (I unb /2)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **49** # 125

Yseboodt, Lennart Philips

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

"Editor's Note: Need to move two normative requirements from section 33.3.2."
Comments have been filed to move both requirements.

SuggestedRemedy

Remove note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3** *P* **120** *L* **1** # 126

Yseboodt, Lennart Philips

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

"Editor's Note: To review state machine that clearly specify behavior of single-signature and dual-signature PDs regarding the detection , classification, powerup and power on requirements for each pairset/mode."

The SM does not handle dual-signature at all. If the comment to split the SM is adopted, we can remove this editors note.

SuggestedRemedy

Remove Editors note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.2** *P* **120** *L* **19** # 127

Yseboodt, Lennart Philips

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

The PD state machine contains a few historic shortcomings that make it handle edge cases poorly.
See presentation yseboodt_04_0316_pdsmissues.pdf for specifics.
Fixing these without changing legacy behaviour is not possible.
Also the current SM is written for single-signature behaviour and does not properly address dual-signature.

SuggestedRemedy

1. Reintroduce the original PD state machine and constant/variable/timers/functions from 802.3bx (latest draft) and rename this the "Type 1 and Type 2 PD state machine" as appropriate.
2. Rename the D1.6 PD constant/variable/timers/functions sections to "Type 3 and Type 4 constant/variable/timers/functions". These will serve both for single-signature and dual-signature.
3. Rename the D1.6 state diagram (Figure 33-31) to "Type 3 and Type 4 single-signature PD state diagram"
4. Duplicate the D1.6 state diagram (Figure 33-31) and call this "Type 3 and Type 4 single-signature PD state diagram"
5. Add Editors Note to this last Figure reminding readers this needs to be turned into a proper dual-signature SD.

6. Editor to apply all changes against the PD SD from the D1.6 comment cycle against the Type 3 / Type 4 single-signature PD, with the possible exception of the MR comment.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.3** *P* **120** *L* **39** # 128

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

PD state machine variable list.
Variable is called "pd_multi-event". Per the style guide, use of "-" unless subtracting is highly discouraged.

SuggestedRemedy

Rename to pd_multi_event throughout the document.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **123** *L* **12** # 129

Yseboodt, Lennart Philips

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

PD State machine in Figure 33-31.
The DO_CLASS_EVENT_AUTO state is a 'class' state and should have a path towards MDI_POWER1 in case the power gets turned on.
It currently can only go through DO_MARK_EVENT1.

SuggestedRemedy

From DO_CLASS_EVENT_AUTO add an arc to MDI_POWER1 with condition "power_received".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.6** *P* **124** *L* **20** # 130

Yseboodt, Lennart Philips

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

PD State diagram in Figure 33-31 cont`d.
State DLL_ENABLE does "pse_power_level = pse_dll_power_level"

pse_dll_power_level is output by the DLL state diagram, but has a default value of 1.
This has the effect of restricting every PD to Class 3 power, regardless of Physical Layer classification.
The original SD does not have this assignment.

SuggestedRemedy

Remove "pse_power_level <- pse_dll_power_level" from the DLL_ENABLE state.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **124** *L* **26** # 131

Yseboodt, Lennart Philips

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

"Editor's Note: PD state diagram needs to be updated for Autoclass and detecting long first class events."

This work has been completed, see DO_CLASS_EVENT_AUTO and do_class_timing.

SuggestedRemedy

Remove Editors note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.6** *P* **124** *L* **33** # 132

Yseboodt, Lennart Philips

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

"NOTE 2--In general, there is no requirement for a PD to respond with a valid classification signature for any DO_CLASS_EVENT duration less than T class ."

Refer to where Tclass is defined.

Note: in another comment/baseline, we rename Tclass to Tclass_PD.

SuggestedRemedy

"NOTE 2--In general, there is no requirement for a PD to respond with a valid classification signature for any DO_CLASS_EVENT duration less than T class as defined in Table 33-28.".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **124** *L* **50** # 133

Yseboodt, Lennart Philips

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

"Any PD may indicate the ability to accept power on both pairsets using TLV variable PD 4P-ID in Table 79-6b or other (TBD) means."

As per yseboodt_01_0316_4pid.pdf there is only one option that fitts the bill for the TBD.

SuggestedRemedy

"Any PD may indicate the ability to accept power on both pairsets using TLV variable PD 4P-ID in Table 79-6b or or by presenting a valid detection signature on the unpowered pairset, when it is powered over only one pairset."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **125** *L* **1** # 134

Yseboodt, Lennart Philips

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

"Editor's Note: The above sentence requires further study based on the outcome of the 4PID work."

Comment submitted to address this.

SuggestedRemedy

Remove Editors note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **125** *L* **34** # 135

Yseboodt, Lennart Philips

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

"See Figure 33-32" in Table 33-21 is not a condition but is in the condition column.

SuggestedRemedy

Add last column "Additional information" and put the "See Figure 33-32" into this column.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **125** *L* **47** # 136

Yseboodt, Lennart Philips

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

Table 33-22 contains V_PD with underlines (2x).

SuggestedRemedy

Remove underline

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5** *P* **126** *L* **31** # 137

Yseboodt, Lennart Philips

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

"The Physical Layer classification of the PD is the maximum power that a Type 1 or Type 2 PD draws across all input voltages and operational modes. The advertised Class during Physical Layer classification of the PD is the maximum power that a Type 3 or Type 4 PD shall draw across all input voltages and operational modes."

This is quite ugly.
Is there any reason by the second sentence doesn't apply to Type 1 and Type 2 ?
A Type 2 PD will return class_sig 4 on the first class event, thereby indicating it wants Class 4 power.
If it only gets 1 event, it is allowed to LLDP up to Class 4 layer, this is allowed by the second sentence.

I don't think we are adding a requirement to Type 1 and Type 2 by adopting the remedy.

SuggestedRemedy

Replace by:
"The advertised Class during Physical Layer classification of the PD is the maximum power that a PD shall draw across all input voltages and operational modes."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5** *P* **126** *L* **44** # 138

Yseboodt, Lennart Philips

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

"All PDs shall provide physical layer classification. Type 1 PDs and Class 1 to 3 Type 3 PDs optionally provide DLL classification (see 33.6) while Type 2 PDs, Class 4 to 6 Type 3 PDs, and Type 4 PDs shall provide DLL classification.

A Type 1 PD may implement any of the class signatures in 33.3.5 and 33.6.

Type 2, Type 3, and Type 4 PDs at Class 4 or greater power levels shall implement both Multiple-Event class signature (see 33.3.5.2) and Data Link Layer classification (see 33.6)."

There is a lot of duplication in these 3 paragraphs.

SuggestedRemedy

Replace by:
"PDs shall provide Physical Layer classification. A Type 1 PD may implement any of the class signatures defined for Single-Event classification as defined in 33.3.5.1. Type 2, Type 3, and Type 4 PDs shall implement Multiple-Event classification (see 33.3.5.2).

Type 1 PDs and Class 1 to 3 Type 3 PDs optionally provide Data Link Layer classification (see 33.6) while Type 2 PDs, Class 4 to 6 Type 3 PDs, Type 4 PDs, and dual-signature PDs shall provide DLL classification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5** *P* **126** *L* **48** # 139

Yseboodt, Lennart Philips

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

"A Type 1 PD may implement any of the class signatures in 33.3.5 and 33.6."

Type 1 PDs typically do Single-Event classification => refer to 33.3.5.1.
Do not rely on section number for requirements, spell them out.

Note: Type 1 PD are allowed to do Multiple-Event classification, this allowance is noted in 33.3.5.1 so changing
the referred section does not change a legacy requirement.

SuggestedRemedy

"A Type 1 PD may implement any of the class signatures defined for Single-Event classification as defined in 33.3.5.1, and Data Link Layer classification as defined in 33.6."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **127** *L* **6** # 140

Yseboodt, Lennart Philips

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

"... P Class_PD , as specified in Table 33-24a and the responses ..."
Bad Table reference (twice).

SuggestedRemedy

Change to Table 33-24.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **127** *L* **13** # 141

Yseboodt, Lennart Philips

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

33.3.5.1 PD Single-Event class signature:
"The Type 2, Type 3 and Type 4 PD's classification behavior shall conform to the electrical specifications defined by Table 33-26."

33.3.5.2 PD Multiple-Event class signature (page 128, line 45):
"The PD's classification behavior shall conform to the electrical specifications defined by Table 33-26."

What is that requirement in 33.3.5.1 doing there ?
Type 2-4 PDs must implement Multiple-Event, and are there already required to confirm to 33-26.

SuggestedRemedy

Strike the line in 33.3.5.1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **127** *L* **22** # 142

Yseboodt, Lennart Philips

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

Table 33-23 lists the classification signatures.
For class sig. 0 we have a different current range for Type 3 than for the other Types.
- This also applies to Type 4 (Autoclass uses class signature 0)
- The Type needs its own column

SuggestedRemedy

Add a new column titled "PD Type" to become the second column.
For all rows the content is "All", except the 2nd row, where it is "3, 4".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **127** *L* **40** # 143

Yseboodt, Lennart Philips

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

"PDs implementing Multiple-Event Physical Layer classification shall present class_sig_A during DO_CLASS_EVENT1 and DO_CLASS_EVENT2 and ..."

We also need a 'shall' for Autoclass.

SuggestedRemedy

Add the following line on page 128, line 3.
"PDs implementing Autoclass shall present class_sig_0 during DO_CLASS_EVENT_AUTO as defined in 33.3.5.3."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **129** *L* **1** # 144

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

"It is recommended that dual-signature PDs with a single electrical load use the same class signature."

This recommendation does not really help readers. We do not define what a 'single electrical load' is and we shouldn`t as this is implementation dependent and invisble from the PI. Since the 'rules' for dual-signature are now uniform and clear, this recommendation is no longer needed.

SuggestedRemedy

Strike sentence.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **129** *L* **4** # 145

Yseboodt, Lennart Philips

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

"Type 3 and Type 4 PDs may determine if the PSE they are connected to supports low MPS by measuring the length of the first class event. The default value for short_mps is FALSE. If it chooses to implement low MPS, a PD may set short_mps to TRUE if the first class event is longer than T LCE_PD min and shall set short_mps to TRUE if the first class event is longer than T LCE_PD max."

Change "low MPS" to "short MPS"

SuggestedRemedy

"Type 3 and Type 4 PDs may determine if the PSE they are connected to supports short MPS by measuring the length of the first class event. The default value for short_mps is FALSE. If it chooses to implement short MPS, a PD may set short_mps to TRUE if the first class event is longer than T LCE_PD min and shall set short_mps to TRUE if the first class event is longer than T LCE_PD max."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **129** *L* **27** # 146

Yseboodt, Lennart Philips

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

"NOTE--See Table 33-23 for definition of class signatures 1-4."

Note serves no purpose.

SuggestedRemedy

Delete note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2.1** *P* **129** *L* **42** # 147

Yseboodt, Lennart Philips

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

"The PD shall draw I Mark until the PD transitions from a DO_MARK_EVENT state to the IDLE state."

This requirement would prevent a PD from drawing anything but a Mark current as soon as it went through a Mark state.

The intent is to make sure the PD keeps drawing IMark to discharge its front capacitor and force a clean reset.
It doesn`t seem to take into account that the PD can also go to a CLASS state.

Note: applies to Type 2 as well - verify we do not change legacy requirement.

SuggestedRemedy

Replace by:
"The PD shall draw I Mark until the PD transitions from a DO_MARK_EVENT state to the IDLE state or to a DO_CLASS_EVENT state."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **130** *L* **3** # 148
Yseboodt, Lennart Philips

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

Reference to Table 33-27a

SuggestedRemedy

Change to Table 33-27

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **130** *L* **8** # 149
Yseboodt, Lennart Philips

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

Reference to Table 33-27a

SuggestedRemedy

Change to Table 33-27

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **130** *L* **12** # 150
Yseboodt, Lennart Philips

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

Table 33-27 uses both milliseconds and seconds, which is not allowed by the Style Guide.

SuggestedRemedy

Change all to milliseconds (results in least required digits).

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **130** *L* **19** # 151
Yseboodt, Lennart Philips

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

Table 33-27 on Autoclass timing requirements, refers to state "DO_CLASS_EVENT_1" in Item 1.
State does not exist.

SuggestedRemedy

Replace by "DO_CLASS_EVENT1".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **130** *L* **19** # 152
Yseboodt, Lennart Philips

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

Table 33-27 on Autoclass timing requirements, items 2 and 3:
"Measured from when V Port_PD rises above V Port_PD min".

SuggestedRemedy

Replace in Item 2 and 3 by:
"Measured from when V_PD rises above V_Port_PD-2P min"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **131** *L* **1** # 153
Yseboodt, Lennart Philips

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

Table 33-28 contains time in seconds, but all values are << 1000 ms. Change to ms.

SuggestedRemedy

Change seconds to milliseconds in Table 33-28.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **131** *L* **48** # 154

Yseboodt, Lennart Philips

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

Iinrush_PD-2P value is "0.300 / TBD"
Looks like a division.

SuggestedRemedy

If we don`t have a value yet, make it "0.300 (TBD)".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.1** *P* **133** *L* **4** # 155

Yseboodt, Lennart Philips

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

"Note, V PD-2P = V PSE-2P - (R Chan x I Port-2P)"

Vpd-2P is not defined in the definitions section.
Vpd is (see definition below) and the way it is defined allows us to use Vpd in both a single-signature and dual-signature context as well as in 2P contexts.

Use of Vpd-2P is not widespread in the text (only twice). Propose to use V_PD everywhere.
The same applies to V_PSE.

The definition of Vpd is: "The voltage at the PD PI measured between any positive conductor of a powered pair and any negative conductor of the corresponding powered power pair"
The definition of Vpse is: "The voltage at the PSE PI measured between any positive conductor of a powered pair and any negative conductor of the corresponding powered power pair"

SuggestedRemedy

"Note, V_PD = V_PSE - (R Chan x I Port-2P)"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **17** # 156

Yseboodt, Lennart Philips

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

"T delay-2P for each pairset starts when V PD-2P crosses the PD power supply turn on voltage..."

Vpd-2P is not defined in the definitions section.
Vpd is (see definition below) and the way it is defined allows us to use Vpd in both a single-signature and dual-signature context as well as in 2P contexts.

Use of Vpd-2P is not widespread in the text. Propose to use V_PD everywhere.
The same applies to V_PSE.

The definition of Vpd is: "The voltage at the PD PI measured between any positive conductor of a powered pair and any negative conductor of the corresponding powered power pair"
The definition of Vpse is: "The voltage at the PSE PI measured between any positive conductor of a powered pair and any negative conductor of the corresponding powered power pair"

SuggestedRemedy

Change V_PD-2P into V_PD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **19** # 157

Yseboodt, Lennart Philips

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

"This delay is required so that the Type 2, Type 3 and Type 4 PD does not enter a high power state before the PSE has had time to switch current limits on each pairset from I Inrush-2P to I LIM-2P."

The delay is required such that a PD doesn't start consuming it's Class current while the PSE is still in inrush.
The real issue is that PSEs don`t provide Icon-2P yet (during inrush) and the PD might try to draw that.

SuggestedRemedy

"This delay is required so that the Type 2, Type 3 and Type 4 PD does not enter a high power state before the PSE has had time to change the available current on each pairset from I_Inrush-2P to I_Con-2P."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **25** # 158

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

"Input inrush currents at startup, I Inrush_PD and I Inrush_PD-2P are limited by the PSE if C Port per pairset is less than 180 mF for:
- single-signature PDs, assigned to Class 0 to 6
- dual-signature PDs assigned to Class 1 to 5
and if C Port per pairset is less than 360 mF for single-signature PDs assigned to Class 7 to 8, as specified in Table 33-17."

There is no reason to use a itemized list here.

SuggestedRemedy

Incorporate the list into the sentence.
"Input inrush currents at startup, I Inrush_PD and I Inrush_PD-2P are limited by the PSE if C Port per pairset is less than 180 mF for single-signature PDs, assigned to Class 0 to 6, and dual-signature PDs assigned to Class 1 to 5, and if C Port per pairset is less than 360 mF for single-signature PDs assigned to Class 7 to 8, as specified in Table 33-17."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **134** *L* **34** # 159

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

The current definition of "Cport per pairset" is highly confusing as it produces different values
for single and dual signature. This will trip up readers.

"C Port in Table 33-28 is the total PD input capacitance during POWER_UP and POWER_ON states that a PSE encounters when operating one or both pairsets, when connected to a single-signature PD. When a PSE is connected to a dual-signature PD, C Port value requirements are specified in 33.3.7.6. See Figure 33-33 for a simplified PSE-PD C Port interpretation model."

SuggestedRemedy

Adopt yseboodt_06_0316_cport.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.6** *P* **138** *L* **42** # 160

Yseboodt, Lennart Philips

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

"A Type 2 or Type 3 PD that demands less than Class 5 power levels shall meet both of the following:"
...
"b) The PD shall not exceed the PD upperbound template beyond T LIM-2P min under worst-case current draw under the following conditions."

T_LIM-2P has a different value depending on PSE Type. Which one ?
A Type 1 (Class 0-3) has Tlim-2P min=50ms, whereas Type 3 (Class 0-6) has Tlim-2P min=10ms.
A Type 3 PSE has T_LIM-2P=10ms, whereas a Type 4 PSE has T_LIM-2P=6ms.
The PD only knows the assigned Class, not the PSE Type.

The same issue exists on page 139, line 9 and line 20.

SuggestedRemedy

Either:
- Change T_LIM-2P to link with assigned Class rather than PSE Type
- or, specify which T_LIM-2P is meant here. That should be the Type 4 T_LIM-2P as it is the shortest.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.6** *P* **139** *L* **6** # 161

Yseboodt, Lennart Philips

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

"4ms" is missing space.

SuggestedRemedy

Change to "4 ms".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.10** *P* **140** *L* **3** # 162

Yseboodt, Lennart Philips

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

"Dual-signature PDs shall not exceed Icon-2P as defined in Equation 33-3c for longer than TCUT-2P min as defined in Table 33-11."

This requirement is already captured in 33.3.7.2.

SuggestedRemedy

Remove sentence.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.6.3.2** *P* **162** *L* **17** # 163

Yseboodt, Lennart Philips

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

Changes to the DLL section to D1.5 broke the combination of DLL and extended power. Specifically the corner case of a PSE that reclaims power and a PD that uses extended power no longer works.

SuggestedRemedy

Adopt yseboodt_10_0316_lldpextended.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.6.3.4** *P* **166** *L* **10** # 164

Yseboodt, Lennart Philips

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

Table 33-36 got garbled in Draft 1.3.

SuggestedRemedy

Restore version of the Table from D1.2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.6.3.5** *P* **167** *L* **1** # 165

Yseboodt, Lennart Philips

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

The PSE power control SD in Figure 33-45 makes use of pd_dll_power_type and parameter_type.
These variables are 'shared' with the PSE state diagrams.

The new PSE SD uses different variables. I don`t know how to fix this.

A similar situation exists for the PD power control SD in Figure 33-46.

SuggestedRemedy

Add Editor`s note: "LLDP power control state diagrams must be changed such that they also work with the new Type 3/4 PSE and PD state diagrams."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.6.3.5** *P* **168** *L* **17** # 166

Yseboodt, Lennart Philips

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

PD LLDP state machine in Figure 33-46.
State "PD POWER REALLOCATION 2" is too narrow, text does not fit.

SuggestedRemedy

Resize state box.

Proposed Response *Response Status* **O**

Cl **33** *SC* **Annex33A** *P* **217** *L* **33** # 167

Yseboodt, Lennart Philips

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

"Four pair operation requires the specification of resistance unbalance between each two pairs of the channel, ...".

We never use "four pair", always "4-pair".

SuggestedRemedy

"Operation using 4-pair requires the specification of resistance unbalance between each two pairs of the channel, ..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **Annex33A** *P* **218** *L* **21** # 168

Yseboodt, Lennart Philips

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

"The effective resistance R n is the measured voltage V eff_pd_n , divided by the current through the path as described below and as shown in the example in Figure 33A-4."

'n' is not defined.

SuggestedRemedy

"The effective resistance R n is the measured voltage V eff_pd_n , divided by the current through the path as described below and as shown in the example in Figure 33A-4, where n is the pair number."

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2** *P* **195** *L* **28** # 169

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

"Clause 33 defines two option power entities: a Powered Device (PD) and Power Sourcing Equipment (PSE)."

I guess that should be 'optional' ?

SuggestedRemedy

"Clause 33 defines two optional power entities: a Powered Device (PD) and Power Sourcing Equipment (PSE)."

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.7** *P* **201** *L* **47** # 170

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X**

"Clause 33 defines two option power entities: a Powered Device (PD) and Power Sourcing Equipment (PSE)."

I guess that should be 'optional' ?

SuggestedRemedy

"Clause 33 defines two optional power entities: a Powered Device (PD) and Power Sourcing Equipment (PSE)."

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.7** *P* **202** *L* **4** # 171

Yseboodt, Lennart Philips

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

In Figure 79-3a, the TLV string length says 26, but should be 30.
3+1+12+12+2 = 30.

SuggestedRemedy

Change 26 to 30.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **22** # 172

Picard, Jean Texas Instruments

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

mr_pd_class_detected is The PD classification signature seen during a classification event. Valid signatures are 0 through 4.
5-8 don't exist. There is also an editor's note below it that says same thing.

SuggestedRemedy

Eliminate items 5 to 8 and remove the Editor's note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **30** # 173

Picard, Jean Texas Instruments

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

"The specification of Tdet2det, defined in Table 33–7, applies to the time between the end of detection on the
first pairset to the beginning of detection on the other pairset when connected to a single-signature PD".
This is incomplete, tdet2det should also apply when connected to dual signature PD if detection is initially performed prior to connection.

SuggestedRemedy

Add this sentence:
" When connected to a dual-signature PD and if a detection is performed on a pairset prior to connection check, Tdet2det also applies to the time between the end of this detection to the beginning of next detection following connection check"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.3** *P* **100** *L* **20** # 174
Picard, Jean Texas Instruments

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

Autoclass margin equation for Type 4 over 2P is defined. Type 4 should be 4P only.

SuggestedRemedy

Delete the equation applicable to "for Type 4 over 2-pair"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **4** # 175
Picard, Jean Texas Instruments

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

Needs an Updated PSE state diagram (Type 3 and 4) for SS and DS PD.

SuggestedRemedy

See SD presentation (JP)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.8** *P* **65** *L* **29** # 176
Picard, Jean Texas Instruments

Comment Type **ER** *Comment Status* **X**

The meaning of CC_DET_SEQ needs to be updated.

SuggestedRemedy

See SD presentation (JP)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.10** *P* **113** *L* **23** # 177
Picard, Jean Texas Instruments

Comment Type **ER** *Comment Status* **X**

Pclass is referredd to the wrong equation (33-3)

SuggestedRemedy

Change Equation 33-3 to Equation 33-2

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.10** *P* **113** *L* **26** # 178
Picard, Jean Texas Instruments

Comment Type **ER** *Comment Status* **X**

Pclass-2P is referred to the wrong equation (33-4)

SuggestedRemedy

Changed equation 33-4 to equation 33-3

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **42** # 179
Darshan, Yair Microsemi

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

Does the requirement to finish Iirush within Tinrus-2P min is only if PSE is in charge of controlling Iinrus i.e. Cpd<=180uF and if PD is limiting Iinrush than there is no Tinrush_max requirement for the PD? This interpretation makes sense to me since when I worked on it during the 802.3af project, my intent was to support Cport>>180uF so time is not a concern. If this is correct than it is not clear from clause 33.3.7.3 first paragraph that talks about only the case when PSE is limiting the current.
It is OK also if we require to meet the 50msec even if Cport>Cpd but we need to verify that it is feasible and clear from the spec that this is what we want.

SuggestedRemedy

Option 1:
If we don't care about Tinrsh_max=50msec in teh PD for Cport>180uF etc. we should say it explicitly since it is not addressed at all in the current spec.
Option 2: If we want to keep the PD max Tinrush=50msec for any capacitance, we need to verify that it is possible and express the requirement clearly.
Group to discuss.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **128** *L* **52** # 180

Darshan, Yair Microsemi

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

The following text in page 128 lines 52-53 and page 129 lines 1-2:
"Dual-signature PDs shall advertise a class signature corresponding with Class 1, 2, 3, 4, or 5 on each pairset as defined in Table 33–25. The Class advertised on each pairset is the power requested by the PD on that pairset. Dual-signature PDs may advertise different class signatures on each pairset. It is recommended that dual-signature PDs with a single electrical load use the same class signature."

It is not complete for describing the requirements for dual signature PD in the sense that if one pairset of the dual-signature PD is powered, the 2nd pairset should present a valid classification signature too in addition to valid detection signature as done for detection in clause 33.3.4 page 124 lines 47-48.

SuggestedRemedy

Add the following text at page 129 after line 2:
"A Type 3 or Type 4 dual-signature PD that is powered over only one pairset shall present a valid classification signature on the unpowered pairset."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.2** *P* **97** *L* **30** # 181

Darshan, Yair Microsemi

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

To add text that we can do class and reset at any time between detection and power_up without doing CC and detection again.
(There is a separate comment to address it also in the state machine.)
I saw that for DS PDs it is covered by Figure 33-20 at the CLASS_RESET_PRI state. For the SS PD it is not covered.

SuggestedRemedy

Add the following text to classification section page 97 line 30:
"PSE is allowed to reset the PD classification during class event sequence and redo its classification sequence at any time between the end of detection and POWER_UP time duration (Tpon) without redoing connection check and detection."

or equivalent wording.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **48** # 182

Darshan, Yair Microsemi

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

In the following text:
"The minimum power output by the PSE for a particular PD Class, when powering a single-signature PD, or supplying power in 2-pair mode, is defined by Equation (33-2). Alternatively, PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh when powering using a single pairset, or RChan = RCh/2 when powering using two pairsets to arrive at over-margined values as shown in Table 33-11."
It is not clear for the first sentence in this paragraph that:
-It addressed single-signature that operates in 4-pairs
-Equation 33-2 is the general case
-Vpse and Rchan is the allowed operating range for 2-pairs and 4-pairs

SuggestedRemedy

Change the first sentence of the paragraph above from:
"In the following text:
"The minimum power output by the PSE for a particular PD Class, when powering a single-signature PD, or supplying power in 2-pair mode, is defined by Equation (33-2)."

To:
"The minimum power output by the PSE for a particular PD Class, when powering a single-signature PD over 4-pairs, or supplying power in 2-pair mode, is defined by Equation (33-2) representing the general case for Vpse and Rchan."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.10** *P* **115** *L* **8** # 183

Darshan, Yair Microsemi

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

See darshan_03_0316.pdf for details.
Short MPS (the 7msec PD pulse) subject need to be addressed in terms of recommended guidelines in the PSE, in the PD and during testing for compliance regarding potential issue.

SuggestedRemedy

See darshan_03_0316.pdf for suggested remedy.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **106** *L* **18** # 184

Darshan, Yair Microsemi

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

See darshan_02_0316.pdf for details. The complete comment and remedy are shown here as well.
In the definition of Rchan for Equation 33-10 we see the following text:
"RChan is the channel loop resistance"

Equation 33-10 was develpoed based on Ipeak-2P_unb/Ipeak_2P ratio so Rchan need to be clearlry defined so Rchan can accept only 2-pairs Rchan values.

SuggestedRemedy

Change the definition for Rchan for Equation 33-8 from:
"RChan is the channel loop resistance"

To:
"RChan is the channel DC loop resistance; this parameter has a worst-case value of RCh. RCh is defined in Table 33-1."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **106** *L* **47** # 185

Darshan, Yair Microsemi

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

See darshan_02_0316.pdf for details. The complete comment and remedy are shown here as well.
In the definition of Rchan for Equation 33-8 we see the following text:
"RChan is the channel loop resistance; this parameter has a worst-case value of RCh. RCh is defined in Table 33-1."

Equation 33-8 is for Ipeak (total current on both pairsets) and and it is using Ppeak-PD (total PD peak power) but it is only using Rchan defined for 2-pairs while this equation is used for 4-pairs and 2-pairs.

SuggestedRemedy

Change the definition for Rchan for Equation 33-8 from:
"RChan is the channel loop resistance; this parameter has a worst-case value of RCh. RCh is defined in Table 33-1."

To:
"RChan is the channel loop resistance; this parameter has a worst-case value of RCh when 2-pairs mode is used and Rch/2 when 4-pairs is used."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **45** *L* **54** # 186

Darshan, Yair Microsemi

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

The text:
"All four twisted pairs, connected from PSE PI to PD PI are required in order for the PSE to source greater than Class 4 power at the PSE PI—two pairsets each having one twisted pair carrying (+ ICable) and one twisted pair carrying (– ICable), from the perspective of the PI."

Is not accurate.
We can use up to class 5 to source power from PSE for Type 4 connected to DS PD.

SuggestedRemedy

Change to:
"All four twisted pairs, connected from PSE PI to PD PI are required in order for the PSE to source greater than Class 4 power with Type 3 systems and greater than class 5 power for Type 4 systems at the PSE PI—two pairsets each having one twisted pair carrying (+ ICable) and one twisted pair carrying (– ICable), from the perspective of the PI."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.9** *P* **114** *L* **32** # 187

Darshan, Yair Microsemi

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

In the following text:
"A PSE shall not initiate power provision to a link or a pairset if the connected PD is not able to ascertain the available power based on the number of classification events produced by the PSE. For example, a PSE that has less than Class 3 power would not provision power to the link or pairset for a PD requesting a Class 3 or higher power level."
The problems with this text are:
1.The PSE cannot know if the PD is not able to ascertain the available power based on the number of classification events.
2.The massage of the example shown in the text is clear but it has nothing to do with what the first sentence tries to convey and again, how the PSE can know that the PD is able or not to work at the PSE available power budget?

SuggestedRemedy

Option 1: Delete this text and the Editor Note.
Option 2: Modify the text to:
"A PSE shall not provision power to a link or pairset if the PSE cannot supply Class 3 power and the PD has requested a Class the PSE cannot support."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.10.1.2** *P* **116** *L* **49** # 188

Darshan, Yair Microsemi

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

In the text:
"A Type 1 and Type 2 PSE shall consider the DC MPS component to be present if IPort-2P is greater than or equal to the applicable IHold max continuously for a minimum of TMPS"

-The word continuously was not used in D1.5 and also not in IEEE802.3-2012.
-It doesn't clear what it means?
-In addition to use the word "continuously" and right after it "for a minimum of TMPS" is confusing or contradicting or both.

SuggestedRemedy

Delete the word "continuously" from the following locations:
Page 116 line 49.
Page 117 line 5.
Page 117 line 10.
Page 117 line 26.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.4** *P* **122** *L* **31** # 189

Darshan, Yair Microsemi

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

The text:
"tpowerdly_timer
A timer used to prevent the Type 2, 3, or 4 PD from drawing more than inrush current during the PSE's inrush period; see Tdelay-2P in Table 33-28."

This Timer is used to prevent Type 2-3 PDs from drawing more than Type 1 power and more than class 2 power for Type 4 PDs.

SuggestedRemedy

Change from:
"tpowerdly_timer
A timer used to prevent the Type 2, 3, or 4 PD from drawing more than inrush current during the PSE's inrush period; see Tdelay-2P in Table 33-28."

To:
"tpowerdly_timer
A timer used to prevent the Type 2, 3, or 4 PD from drawing more than Type 1 power for Type 2 and 3 PDs and Class 2 power for Type 4 PDs, during the PSE's inrush period; see Tdelay-2P in Table 33-28."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3** *P* **119** *L* **53** # 190

Darshan, Yair Microsemi

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

The PD state diagram text and drawing can cover single-signature and dual-signature PD with the same state machine.
The following facts help us to determine that the current state machine can support dual-signature PDs as well:
a) Dual signature PDs required to consume up to Pclass-PD per pairset.
b) The PSE can powerup each pairset in different timings. This is true for single-signature PDs and dual- signature PDs. Therefore the power_recived variable is true if there is power on both pairsets for single-signature and one or both pairsets on dual-signature PD.
c) The detection signature is presented is seen pair pairset. The same is for dual_signature.
As a result, we can define that the state machine describes the externally observable behavior of a PD over each pairset and the state machine definitions applies per pairset.

SuggestedRemedy

Change the folowing text from:
"The PD state diagram specifies the externally observable behavior of a PD. The PD shall provide the behavior of the state diagram shown in Figure 33–31."

To:
"The PD state diagram specifies the externally observable behavior of a PD over each pairset. The PD shall provide the behavior of the state diagram shown in Figure 33–31 for single-signature PDs and dual-signature PDs over each pairset independently."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.5** *P* **136** *L* **23** # 191

Darshan, Yair Microsemi

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

We need to clarify that even if drawings 33-34 and 33-35 shows that if the PD was using Ppeak_PD>Pclass_PD for t<Tcut_2P min and for the rest of the cycle it uses Pclass_PD it still need to meet equation 33-24 by using a bit smaller Pclass_PD for the rest of the cycle or alternatively to update drawings 33-34 and 33-35 to show that for t>=Tcut-2P_min PSSUT(T)is <Pclass_PD and not Pclass_Pd and accordingly update the equations. The same concept applies to drawings 33-34 and 33-35 and Equations 33-27, 33-28 and 33-29.

SuggestedRemedy

Option 1:
Add the following text after line 23.
"Note: In addition, Figures 33-34, Figure 33-35, Equations 33-27, Equations 33-28 and Equations 33-29 need to meet equation 33-24 as well by using lower power than shown after Tcut-2P minimum in the above figures and equations."

Option 2:
a)Update drawings 33-34 to show that after Tcut-2P PD extended template and PD upperbound template are below PSE Pclass and Pclass_PD respectively.
b) Update drawings 33-35 to show that after Tcut-2P PD PD upperbound template is below Pclass_PD-2P.
c) Accordingly update Equation 33-27 to <Pclass_PD instead of <Pclass_PD.
Equation 33-28 to <Pclass instead of Pclass.
Equation 33-29 to <Pclass_PD-2P instead of Pclass_PD-2P.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.2** *P* **105** *L* **8** # 192

Darshan, Yair Microsemi

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

Missing Type 3 and 4 in the following text:
"Transients less than 30 us in duration may cause the voltage at the PI to fall more than KTran_lo. The minimum PD input capacitance allows a Type 1 or Type 2 PD to operate for any input voltage transient lasting less than 30 us. Transients lasting more than 250 us shall meet the VPort_PSE-2P specification."

SuggestedRemedy

Change to:
"Transients less than 30 us in duration may cause the voltage at the PI to fall more than KTran_lo. The minimum PD input capacitance allows all PD types to operate for any input voltage transient lasting less than 30 us. Transients lasting more than 250 us shall meet the VPort_PSE-2P specification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.6** *P* **138** *L* **11** # 193

Darshan, Yair Microsemi

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

Clause 33.3.7.6 "PD behavior during transients at the PSE PI" needs to be updated to include dual_signature PDs.

SuggestedRemedy

See proposed update in darshan_06_0316.pdf.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.3** *P* **99** *L* **43** # 194

Darshan, Yair Microsemi

Comment Type **ER** *Comment Status* **X**

Typo in Table name. It is Table 33-16 and not 33-16a.
Same in line 47.

SuggestedRemedy

Change to "Table 33-16" in two locations.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **107** *L* **23** # 195

Darshan, Yair Microsemi

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

Delete Editor Note since the request was addressed in 33.3.7.10.

"Editor's Note: Text needs to be inserted in 33.3.7.10 to address dual-signature PD test requirements to make sure they work with PSEs that exhibit unbalance. This is required to make sure that dual-signature PDs correctly police PClass PD-2P also under unbalance conditions."

SuggestedRemedy

Delete Editor Note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4** *P* **105** *L* **21** # 196

Darshan, Yair Microsemi

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

Missing "in" in the following text:
"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 (33–5) in and Equation (33–6)."

SuggestedRemedy

Change:
IPort-2P and IPort-2P-other are the currents on the pairs with the same polarity of the two pairsets and are defined Equation (33-5) in and Equation (33-6).
To:
"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 (33-5) in and Equation (33-6)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **104** *L* **20** # 197

Darshan, Yair Microsemi

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

Notes 3 and 4 need to be updated due to the fact that Item 17 and 17a is now item 20 for all MPS options.

"3Item 17 applies to PSEs that measure currents per pairset to check the MPS.
4Item 17a applies to PSEs that measure the sum of the pair currents of the same polarity to check the MPS."

SuggestedRemedy

Change to:
"3Applies to PSEs that measure currents per pairset to check the MPS.
4Applies to PSEs that measure the sum of the pair currents of the same polarity to check the MPS."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **46** # 198

Darshan, Yair Microsemi

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

We can remove the Editor Note:
"Editor's Note (Remove prior to D2.0): We need to address behavior for matched and unmatched classes for mixed Type PDs."

SuggestedRemedy

Delete Editor Note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **86** *L* **6** # 199

Darshan, Yair Microsemi

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

There are redundant parentheses in the 2nd exit from CLASS_EV1_LCE_PRI to "I"the following text:
tlce_timer_pri_done *[!class_4PID_mult_events_pri * [(mr_pd_class_detected_pri < 4) + (class_num_events_pri = 1)] + (mr_pd_class_detected_pri = 0)]

SuggestedRemedy

Change to:
tlce_timer_pri_done * !class_4PID_mult_events_pri * [(mr_pd_class_detected_pri < 4) + (class_num_events_pri = 1) + (mr_pd_class_detected_pri = 0)]

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **22** # 200

Darshan, Yair Microsemi

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

When PSE Type 3 is connected to single-signature PD with class 5 and wishes to know that this PD is 4-pairs capable due to the fact that it has new class code that says "I am Type 3 PD, capable of working at 4-pairs, at class 5 power" but has a power budget of only Type 1, therefore need to issue only one class event. To enable this scenario, the PSE need to be allowed to do 3 class events, evaluate the class code, reset classification by applying Vreset for Treset and then issue one classification event.
All of this looks doesn't supported in Figure 33-19 as it does in dual-signature classification state diagram in figures 33-20 and 33-21.

In addition, to allow generate 1 class event if PSE knows that the power avalable is Type 1 without the need to know what is the PD requested power.

The above was meant to increase PSE design flexibility.

SuggestedRemedy

To add the following Editor Notes:
"Editor Note: To add in Figure 33-19 the ability to reset classification after at least 3 classification events with long first class event or with short first class event and issue single class event when power available is Type 1 power."

"Editor Note: To add in Figure 33-19 the ability generate 1 class event if PSE knows that the power available is Type 1 without the need to know what is the PD requested power."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **131** *L* **38** # 201

Darshan, Yair Microsemi

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

See darshan_09_0316.pdf for detailed comment and remedy.
We need to do some adjustments to Table 33-28 item 6 and Item 7 after the last changes we did in D1.6 to delete the "with the same class over each pairset" and "with different class over each pairset" for the dual-signature description that causes some ambiguity and inconsistency to the definitions in Table 33-28.

SuggestedRemedy

See darshan_09_0316.pdf for detailed comment and remedy.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **80** *L* **34** # 202

Darshan, Yair Microsemi

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

In the exit from POWER_ON to ERROR_DELAY Turning off the power due to overload is optional and not mandatory. According to the state machine it is mandatory.
The current text is:
short_det_pri + short_det_sec + ovld_det_pri + ovld_det_sec + option_vport_lim
If we remove: + ovld_det_pri + ovld_det_sec it will fix the problem. The text outside the state machine (in 33.2.8.6 Overload current) allows shutting of the power in case of overload"
So if state machine have the priority to set the requirements, the text will clarify the optional features.

SuggestedRemedy

Option 1: Change the text exit to:
short_det_pri + short_det_sec + ovld_det_pri + ovld_det_sec + option_vport_lim

Option 2 (preferred to simplify state machine and to cover for similar cases): To add a text in 33.2.5 after line 12: A state machine requirement or a state machine behavior may be optional if it is allowed specifically by other parts of clause 33.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **12** # 203

Darshan, Yair Microsemi

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

See darshan_10_0316.pdf for marked document. The full remedy is shown here as well.
1.In the text below, Tinrush need to be addressed and not only Tinrush-2P.
2.Adding link to Table 33-28 where we can find the relevant data and requirements.
3. Not "all PDs shall consume maximum of Type 1 power for at least Tdelay-2P min per Table 33-28." This requirement applies only for Type 2,3 and 4 PDs. So striking "All" will fixed it while the rest of the relevant data regarding single and dual signature PDs and PD types are in Table 33-28.

SuggestedRemedy

Change the text from:
"Inrush current is drawn during the startup period beginning with the application of input voltage at the PI
compliant with Vport_PD-2P requirements as defined in Table 33–28, and ending when CPort has reached a steady state and is charged to 99% of its final value. This period shall be less than TInrush-2P min per Table
33–17, with the PSE minimum inrush behavior defined in 33.2.8.5. All PDs shall consume a maximum of Type 1 power for at least Tdelay-2P min. This allows the PSE to properly complete inrush."

To:
"33.3.7.3 Input inrush current
Inrush current is drawn during the startup period beginning with the application of input voltage at the PI compliant with Vport_PD-2P requirements as defined in Table 33-28, and ending when CPort has reached a steady state and is charged to 99% of its final value. This period shall be less than TInrush-2P min per Table 33-17. PDs shall consume maximum of Type 1 power for at least Tdelay and Tdelay-2P min per Table 33-28. This allows the PSE to properly complete inrush."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.7** *P* **109** *L* **54** # 204

Darshan, Yair Microsemi

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

In the text:
"A PSE may remove power from the PI if the PI current meets or exceeds the “PSE lowerbound template” in Figure 33–14, Figure 33–28, and Figure 33–29."

It is Figure 33-27 and not Figure 33-14.

SuggestedRemedy

Change to "Figure 33-27"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.7** *P* **110** *L* **1** # 205

Darshan, Yair Microsemi

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

In the text:
"...pairset current exceeds the “PSE upperbound template” in Figure 33–14, Figure 33–28, and Figure 33–29.” in Figure 33–14, Figure 33–28, and Figure 33–29."

It is Figure 33-27 and not Figure 33-14.

SuggestedRemedy

Change to "Figure 33-27"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.7** *P* **110** *L* **51** # 206

Darshan, Yair Microsemi

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

The text:
"The maximum value of ILIM-2P is the PSE upperbound template described by Equation **(33–14), Equation (33–15), **Equation (33–15), Equation (33–16), **Figure 33–14, Figure 33–28, Figure 33–29, and Figure 33–27. ILIM-2P minimum value in Table 33–17 item 9 for Class 5 and above includes E2EP2PRunb effect."

Contains erros in Figure # and duplications.

SuggestedRemedy

Change the text to:
"The maximum value of ILIM-2P is the PSE upperbound template described by Equation (33–14), Equation (33–15), Equation (33–16), Figure 33–27, Figure 33–28 and Figure 33–29. ILIM-2P minimum value in Table 33–17 item 9 for Class 5 and above includes E2EP2PRunb effect."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.7** *P* **111** *L* **21** # 207

Darshan, Yair Microsemi

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

The title of Figure 33-29: missing space in "...Type 4PSEs"

SuggestedRemedy

Change to: "....Type 4 PSEs"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.6** *P* **124** *L* **27** # 208

Darshan, Yair Microsemi

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

The text:
"Editor's Note: PD state diagram needs to be updated for Autoclass and detecting long first class events."

Need to add to it that the state machine need to be updated to include dual-signature PDs.

SuggestedRemedy

Update the Editor Note:
"Editor's Note: PD state diagram needs to be updated for Autoclass, detecting long first class events and dual-signature PDs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **127** *L* **3** # 209

Darshan, Yair Microsemi

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

The Table is 33-24 and not 33-24a in two locations.
Also in line 8.

SuggestedRemedy

1. Line 3: Change from "Table 33-24a" to "Table 33-24" in two loactions.
2. Line 8: Change from "Table 33-24a" to "Table 33-24".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **35** # 210

Darshan, Yair Microsemi

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

In the text:
"CPort in Table 33–28 is the total PD input capacitance during POWER_UP and POWER_ON states that a PSE encounters when operating one or..."

Replace "encounters" with "sees"

SuggestedRemedy

Replace "encounters" with "sees"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **142** *L* **36** # 211

Darshan, Yair Microsemi

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

In the text:
"NOTE—PDs may not be able to meet the IPort_MPS specification in Table 33–30a during the maximum allowed..."

It is Table 33-30 and not 33-30a.

SuggestedRemedy

Change to:
"NOTE—PDs may not be able to meet the IPort_MPS specification in Table 33–30 during the maximum allowed..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **31** # 212

Darshan, Yair Microsemi

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

Typo in the left exit from CLASS_EV4, it should be "mr_pd_class_detected" and not "md_pd_class_detected":

"tcle3_timer_done * (md_pd_class_detected = temp_var) *
[(mr_pd_class_detected<2) + (class_num_events = 4) +
[(mr_pd_class_detected = 3) * (pse_avail_pwr < 8)]]"

SuggestedRemedy

Change to:
"tcle3_timer_done * (mr_pd_class_detected = temp_var) *
[(mr_pd_class_detected<2) + (class_num_events = 4) +
[(mr_pd_class_detected = 3) * (pse_avail_pwr < 8)]]"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **72** *L* **32** # 213

Darshan, Yair Microsemi

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

It will be easier to read the spec if all the classification timers on page 72 and 73 will be located in the same place and will not be interrupted by other times like detection timers, inrush timers etc.

SuggestedRemedy

Locate all classification timers in one place in the order it appears in Table 33-15.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **86** *L* **43** # 214

Darshan, Yair Microsemi

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

Typo in the left exit from CLASS_EV4 to 4PID4_PRI, it should be "mr_pd_class_detected" and not "md_pd_class_detected_pri":

"tcle3_timer_pri_done * (md_pd_class_detected = 3) "

SuggestedRemedy

Change to:
"tcle3_timer_pri_done * (mr_pd_class_detected = 3) "

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **4** *L* **39** # 215

Darshan, Yair Microsemi

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

Remove Editor Note #4. We have done with this item.
"4. Item 4a still under investigation with respect to PD Vdiff."

SuggestedRemedy

Remove Editor Note #4.
"4. Item 4a still under investigation with respect to PD Vdiff."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **22** # 216

Darshan, Yair Microsemi

Comment Type **ER** *Comment Status* **X**

In the text:
"Input inrush currents at startup, IInrush_PD and IInrush_PD-2P are limited by the PSE if CPort per pairset is less than 180 ìF for:
— single-signature PDs, assigned to Class 0 to 6
— dual-signature PDs assigned to Class 1 to 5
and if CPort per pairset is less than 360 ìF for single-signature PDs assigned to Class 7 to 8, as specified in Table 33–17."

The link for Table 33-17 is in the wrong place so it makes it hard to understand that the link to Table 33-17 is for Iinrush and Inrush-2P.

SuggestedRemedy

Change the text to:
"Input inrush currents at startup, IInrush_PD and IInrush_PD-2P are limited by the PSE **as specified by Table 33-17** if CPort per pairset is less than 180 ìF for:
— single-signature PDs, assigned to Class 0 to 6
— dual-signature PDs assigned to Class 1 to 5
and if CPort per pairset is less than 360 ìF for single-signature PDs assigned to Class 7 to 8. [** delete ", as specified in Table 33–17.]"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.23.7** *P* **132** *L* **9** # 217

Darshan, Yair Microsemi

Comment Type **ER** *Comment Status* **X**

Missing "See 33.3.7.3" in the additional information column of item 9.

SuggestedRemedy

Change from:
"Dual-signature PDs only"
To:
"See 33.3.7.3 Single-signature PDs only"

Or merge the additional information column of item 8 and 9 and use the text of item 8:
"See 33.3.7.3 Single-signature PDs only"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **87** *L* **53** # 218

Darshan, Yair Microsemi

Comment Type **ER** *Comment Status* **X**

The title:
"Figure 33–21—Type 3 and Type 4 PSE dual-signature classification state diagram on the Primary Alternative" has error. It is "Secondary Alternative"

SuggestedRemedy

Change to: "Figure 33–21—Type 3 and Type 4 PSE dual-signature classification state diagram on the Secondary Alternative"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **72** *L* **27** # 219

Darshan, Yair Microsemi

Comment Type **ER** *Comment Status* **X**

Missing link to Table 33-7 in the following text:
"tcc_timer
A timer used to monitor the duration of Connection Check."

SuggestedRemedy

Change from:
"tcc_timer
A timer used to monitor the duration of Connection Check."

To:
"tcc_timer
A timer used to monitor the duration of Connection Check. See Table 33–7."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.5** *P* **108** *L* **23** # 220

Darshan, Yair Microsemi

Comment Type **ER** *Comment Status* **X**

In the following text, it is not clear when the PSE is following the template in Figure 33-26 and Equation (33-13) due to the fact that some PD implementations start to show Iinrush only after significant time (10-30msec) after the application of Vpd but still within Tinrus_min time duration.

"The PSE shall limit IInrush-2P and IInrush during POWER_UP per the requirements of Table 33-17. The maximum inrush current sourced by the PSE per pairset shall not exceed the per pairset inrush template in Figure 33-26 and Equation (33-13)."

SuggestedRemedy

Change the text to:

"The PSE shall limit IInrush-2P and IInrush during POWER_UP per the requirements of Table 33-17. The maximum inrush current sourced by the PSE per pairset shall not exceed the per pairset inrush template in Figure 33-26 and Equation (33-13) whenever Iport-2P or Iport crosses Iinrush-2P or Iinrush respectively."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.10** *P* **140** *L* **3** # 221

Darshan, Yair Microsemi

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

The proposed updates is additional improvements for this text and is addressing the following discussion on D1.6 and previous comments on D1.3-D1.5:
David Abramson: Clarifying that the requirements need to be met at Rsorce_min/max and not below it.
Yair Darshan: Addressing Type 4 that worst case unbalance happen at short cable but worst case Icon-2P_unb happens at long channels by specifying a range for Rsource_min/max values. Using ONLY the lower range of Rsource_min/max is still possible if the tested parameter is E2EP2PRunb and not Icon-2P_unb but Icon-2P_unb is more practical to use so it is better to check the two use cases of Rsource_min/max.
Lennart Yseboodt: To quantify the common source voltage.
Yair Darshan: To use table with the conditions and link the text to it, it may simplify the text.
David Abramson: To use the proposed minimum channel resistance range and for the maximum use 1.16*Minimum range. Yair: It looks that explicite value is clearer.

SuggestedRemedy

Change the text per darshan_01_0116.pdf.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4.1** *P* **108** *L* **6** # 222

Darshan, Yair Microsemi

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

To update 33.2.8.4.1 and Annex B per the guidelines and proposed remedy in darshan_04_0316.pdf."

SuggestedRemedy

See darshan_04_0316.pdf.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **134** *L* **38** # 223

Darshan, Yair Microsemi

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

The current spec allows PSEs to power up both pairset with substantial time delay. As a result we need to add informative note to the PD section that a PD needs to be aware of this situation regarding the availability of the power he requires during this time delay.

SuggestedRemedy

Add the following note after line 38:
"Note: PD implementer needs to take in account Type 3 and Type 4 PSEs that are allowed to power up their pairsets within Tinrush time delay which may affect the PD performance after Tdelay when PD is consuming above class 4 power levels when both pairset are not powered yet."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.7** *P* **93** *L* **1** # 224

Darshan, Yair Microsemi

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

The TBD in the text:
"4PID shall be initially (TBD) determined as a logical function..."
is not required.

SuggestedRemedy

Delete "(TBD)"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **39** # 225

Darshan, Yair Microsemi

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

In the text:
"pd_req_pwr_pri: This variable indicates the power class requested by the PD. When a PD requests a higher class than a PSE can support, the PSE shall assign the PD Class 3, 4, or 6, whichever is the highest that it can support. See 33.2.7."

How the PSE can assign class 6 for pd_req_pwr_pri?
Same for pd_req_pwr_sec in page 76 line 14.

SuggestedRemedy

Group to explain or change to:
"pd_req_pwr_pri: This variable indicates the power class requested by the PD. When a PD requests a higher class than a PSE can support, the PSE shall assign the PD Class 3, 4, or 5, whichever is the highest that it can support. See 33.2.7."

Same in page 76 line 14:
"pd_req_pwr_sec: This variable indicates the power class requested by the PD. When a PD requests a higher class than a PSE can support, the PSE shall assign the PD Class 3, 4, or 5, whichever is the highest that it can support. See 33.2.7."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **44** # 226

Darshan, Yair Microsemi

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

Table 33-7 item 3, connection check timing, Tcc:
1. This item is not linked to the text.
2. Connection check timing is not defined here as the other parameters in Table 33-7 (Tcc2det and Tdet2det).

SuggestedRemedy

Add the following text after line 31:
"The specification of Tcc, defined in Table 33–7, applies to the time duration of Connection Check."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.4.1** *P* **107** *L* **37** # 227

Darshan, Yair Microsemi

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

The text;
"ICon-2P-unb is the pairset current in the case of maximum unbalance and will be higher than ICon/2."

Icon-2P_unb is the pairset with the maximum current in the case of maximum unbalance...

SuggestedRemedy

Change from:
"ICon-2P-unb is the pairset current in the case of maximum unbalance and will be higher than ICon/2."

To:
"ICon-2P-unb is the pairset with maximum current in the case of maximum unbalance and will be higher than ICon/2."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.10** *P* **113** *L* **34** # 228

Darshan, Yair Microsemi

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

The text and Editor Note:
"A PSE may remove power from a PD that causes the PSE to source more than PClass.
Editor's Note: Effects of single and dual-signature PDs to be considered."

We can change to the following to address the Editor Note:
A PSE may remove power from a single signature PD that causes the PSE to source more than PClass.
A PSE may remove power from a pairset of dual-signature PD that causes the PSE to source more than PClass-2P on that pairset.

SuggestedRemedy

Change from:
"A PSE may remove power from a PD that causes the PSE to source more than PClass.
Editor's Note: Effects of single and dual-signature PDs to be considered."

To:
1. "A PSE may remove power from a single signature PD that causes the PSE to source more than PClass.
A PSE may remove power from a pairset of dual-signature PD that causes the PSE to source more than PClass-2P on that pairset."
2. Remove the Editor Note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **88** *L* **25** # 229

Darshan, Yair Microsemi

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

See darshan_08_0316.pdf for new Figure 33-23.
Figure 33-23-Type 3 and Type 4 inrush monitor state diagram does not reflect the case where POWER_UP for ALT A and ALT B may be done in different time and not simultaneously.

SuggestedRemedy

Replace Figure 33-23 as proposed in darshan_08_0316.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* *L* # 230

Darshan, Yair Microsemi

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

This comment is marked as AL1.
List of proposed changes in PSE state machine.
See details in darshan_07_0316.pdf.

SuggestedRemedy

See details in darshan_07_0316.pdf.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **86** *L* **10** # 231

Darshan, Yair Microsemi

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

In the following text of the exit from CLASS_EV1_LCE_PRI to MARK_EV1_PRI:
tlce_timer_pri_done * [[class_4PID_mult_events_pri +
((mr_pd_class_detected_pri = 4) * (class_num_events_pri > 1))] *
(mr_pd_class_detected_pri > 0)]

There is two issues:
1. Redundant round parantesis in the part:
((mr_pd_class_detected_pri = 4) * (class_num_events_pri > 1))
2. Redundant rectangular parantesis.
3. The part "(mr_pd_class_detected_pri > 0)" is not required if (mr_pd_class_detected_pri = 4) is already there.

SuggestedRemedy

Change to:
tlce_timer_pri_done*[class_4PID_mult_events_pri+
(mr_pd_class_detected_pri = 4)*(class_num_events_pri > 1)]

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.7** *P* **110** *L* **2** # 232

Darshan, Yair Microsemi

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

Referring to the text (see darshan_05_0316.pdf for details):
"[**Part-1**] Power shall be removed from a pairset PI of a PSE before the pairset PI current exceeds the "PSE upperbound template" in Figure 33-14, Figure 33-14a, and Figure 33-14b.
[**Part-2**] When connected to a single signature PD, a Type 3 or Type 4 PSE should (TBD) remove power from both pairsets before the current exceeds the "PSE upperbound template" on either pairset."

Due to the fact that for single-signature PD:
a)Each pairset is already protected by [**part-1**].
b)Shutting off both pairset doesn't add extra protection to the PD.
c)Forcing the PSE to shut off both pairset in case of fault, kills PD applications that was designed to work at lower power in case of fault when 4-pairs is required for full power.

We don't need [**Part-2**] due to the fact that in single-signature PD if current over a pairset approaches the upper bound template, this pairset will be powered off, if the PD was not designed to handle lower power mode, the whole current will flow through the remaining pairset and it will be disconnected as well, so there is no need for the redundant text in [**Part-2**].

SuggestedRemedy

Delete:
"When connected to a single signature PD, a Type 3 or Type 4 PSE should (TBD) remove power from both pairsets before the current exceeds the "PSE upperbound template"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.6** *P* **138** *L* **14** # 233

Darshan, Yair Microsemi

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

In the text:
"A PD shall continue to operate without interruption in the presence of transients at the PSE PI as defined in 33.2.7.2."

33.2.7.2 defines the transients at the PSE PI so when connected to the PD, the PD need to continue to operate.

The problem is that it is not clear what should we expect from the PD when it is tested when this transient behavior is applied directly to the PD PI?
It is obvious that the transients in the PSE PI are identical to PD PI transients at short cable which is one of the operating scenarios.

SuggestedRemedy

Change from:
"A PD shall continue to operate without interruption in the presence of transients at the PSE PI as defined in 33.2.7.2."
To:
"A PD shall continue to operate without interruption in the presence of transients applied at the PSE PI as defined in 33.2.7.2 or applied at the PD PI through TBD resistance"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.10.1.2** *P* **115** *L* **50** # 234

Lukacs, Miklos Silicon Labs

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

The AC MPS requirements in table 33-18 are shown in the middle of the DC MPS text.

SuggestedRemedy

Move Table 33–18 before paragraph "33.2.10.1.2 PSE DC MPS component requirements"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.10.1.2** *P* **117** *L* **8** # 235

Lukacs, Miklos Silicon Labs

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

The text in this paragraph call out "A Type 3 or Type 4 PSE, when connected to a single-signature PD" multiple times, making the text hard to follow.

SuggestedRemedy

Simplify the text (from line 8 to 21) by pulling out "A Type 3 or Type 4 PSE, when connected to a single-signature PD" like this:
A Type 3 or Type 4 PSE, when connected to a single-signature PD
- shall consider the DC MPS component to be present if IPort-2P of the pairset with the highest current or the sum of IPort-2P of both pairsets of the same polarity is greater than or equal to the applicable IHold max continuously for a minimum of TMPS.
- shall consider the DC MPS component to be absent if IPort-2P of the pairset with the highest current or the sum of IPort-2P of both pairsets of the same
polarity are less than or equal to the applicable IHold min.
- may consider the DC MPS component to be either present or absent if IPort-2P of the pairset with the highest current or the sum of IPort-2P of both pairsets of the same polarity is within the range of the applicable IHold.
- shall remove power from the PI when DC MPS has been absent for a duration greater than TMPDO.
- shall not remove power from the PI when DC MPS has been present within the TMPS + TMPDO window. This allows a PD to minimize its power consumption.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.10.1.2** *P* **117** *L* **23** # 236

Lukacs, Miklos Silicon Labs

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

The text in this paragraph call out "A Type 3 or Type 4 PSE, when connected to a dual-signature PD" multiple times, making the text hard to follow.

SuggestedRemedy

Simplify the text (from line 23 to 38) by pulling out "A Type 3 or Type 4 PSE, when connected to a dual-signature PD" like this:
A Type 3 or Type 4 PSE, when connected to a dual-signature PD,
- shall consider the DC MPS component to be present or absent on a pairset independently from the other pairset.
- shall consider the DC MPS component to be present on a pairset if IPort-2P is greater than or equal to the applicable IHold max continuously for a minimum of TMPS.
- shall consider the DC MPS component to be absent on a pairset if IPort-2P is less than or equal to the applicable IHold min.
- may consider the DC MPS component on a pairset to be either present or absent if IPort-2P is within the range of the applicable IHold.
- shall remove power from a pairset when DC MPS has been absent on that pairset for a duration greater than TMPDO.
- shall not remove power from a pairset when DC MPS has been present on both pairsets every TMPS + TMPDO.
- may maintain power on a pairset if DC MPS has been present on that pairset every TMPS + TMPDO. This allows a PD to minimize its power consumption

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **22** # 237

Lukacs, Miklos Silicon Labs

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

The text "implement a minimum of Multiple-Event Physical Layer Classification" is confusing. Hard to understand if one doesn't read note3 of table 33-20.

SuggestedRemedy

Change the paragraph to:
Type 3 single-signature PDs operating up to a maximum power draw corresponding to Class 3 or less has to implement Multiple-Event Physical Layer classification and advertise a Single-Event class signature of 1, 2, or 3. DLL classification is optional for these PDs.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **119** *L* **31** # 238

Lukacs, Miklos Silicon Labs

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

The word "minimum" is not needed.

SuggestedRemedy

Change the sentence as follows:
Dual-signature Type 3 and Type 4 PDs implement Multiple-Event Physical Layer classification and Data Link Layer Classification (see 33.6).

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **67** *L* **30** # 239

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Existing text,
"det_temp
A temporary variable that indicates whether a 4-pair PSE has completed detection on a first alternative
but not on a second alternative.
Values:
0: The PSE has completed detection on both alternatives or neither alternatives.
1: The PSE has completed detection on only one alternative."

should be change to make state diagrams easier to read.

SuggestedRemedy

Change values as follows:
"Values:
both_neither: The PSE has completed detection on both alternatives or neither alternatives.
one : The PSE has completed detection on only one alternative."

Make the matching changes to locations where the variables are used. For example, page 78, "det_temp <= 0" is replaced by "det_temp <= both_neither".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **72** *L* **26** # 240

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Timer tcc_timer is not attached to a PSE parameter.

SuggestedRemedy

Replace existing text,
"tcc_timer
A timer used to monitor the duration of Connection Check."

with,
"tcc_timer
A timer used to monitor the duration of Connection Check, Tcc in Table 33-7."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **36** # 241

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

State CXN_CHK_EVAL exit condition,
"(sig_type = dual) *(((CC_DET_SEQ = 0) +(CC_DET_SEQ = 3)) *!tcc2det_timer_done +(CC_DET_SEQ = 1) *!tdet2det_timer_done)"

may be simplified. The condition that applies to all checks may be checked globally. This reduces text on the state diagram.

SuggestedRemedy

Replace the exit condition with,
"!tdet2det_timer_done*((sig_type = dual) *(((CC_DET_SEQ = 0) +(CC_DET_SEQ = 3)) +(CC_DET_SEQ = 1))"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **31** # 242

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

State CXN_CHK_EVAL exit condition,
"(sig_type = single) *(((CC_DET_SEQ = 0) + (CC_DET_SEQ = 3)) *!tcc2det_timer_done + (CC_DET_SEQ = 1) *(sig_pri = valid) *!tdet2det_timer_done)"

may be simplified. The condition that applies to all checks may be checked globally. This reduces text on the state diagram.

SuggestedRemedy

Replace the exit condition with,
"!tdet2det_timer_done*((sig_type = single) *(((CC_DET_SEQ = 0) + (CC_DET_SEQ = 3)) + (CC_DET_SEQ = 1) *(sig_pri = valid))"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **31** # 243

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

State CXN_CHK_EVAL exit condition,
"(sig_type = open_circ) + (sig_type = single) * (CC_DET_SEQ = 1) * (sig_pri = invalid) + tcc2det_timer_done + tdet2det_timer_done"

may be simplified. This reduces text on the state diagram. This has a repeated term.

SuggestedRemedy

Replace the exit condition with,
"(sig_type = open_circ) + (sig_type = single) * (CC_DET_SEQ = 1) * (sig_pri = invalid) + tcc2det_timer_done"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **5** # 244

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Variables ovld_det_pri and ovld_det_sec are not defined but are used in the state diagram.

SuggestedRemedy

On page 69 above variable pd_4pair_cand add the following definitions,
"ovld_det_pri
This variable is used by the PSE to indicate the status of an overload, see 33.2.8.6, condition exists on the primary Alternative.
Values:
FALSE: The PSE primary Alternative does not have an overload condition.
TRUE: The PSE primary Alternative has an overload condition.

ovld_det_sec
This variable is used by the PSE to indicate the status of an overload, see 33.2.8.6, condition exists on the secondary Alternative.
Values:
FALSE: The PSE secondary Alternative does not have an overload condition.
TRUE: The PSE secondary Alternative has an overload condition."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **25** # 245

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

State TEST_ERROR_BOTH uses the incorrect assignment symbol.

SuggestedRemedy

Use the correct symbol. Replace <- with <=.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **39** # 246

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

The exit condition from START_CXN_CHK_DETECT uses "do_cxn_chk_done", "do_detect_pri_done, and do_detect_sec_done", which is understandable but not defined. I could not find IEEE requirements for functions in state diagrams.

Note that detection does not have a timer that indicates detection is done. However, do_nc_chk has tcc_timer and, therefore, does not require do_cxn_chk_done. In the solution provide for comments marked, COMMENT-1, either do_cxn_chk_done or timer_tcc-done may be used.

SuggestedRemedy

Add a definition to the start of 33.2.5.11,
"Functions appended with _done indicate that the function has completed and returned its variables."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3** *P* **117** *L* **44** # 247

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Comments were made during the IEEE 802.3bu Draft 2.0 and D2.1 cycle to improve text borrowed from Clause 33, should also be consider by this Task Force. Existing legacy text,

"A device that is capable of becoming a PD may or may not have the ability to draw power from an alternate power source and, if doing so, may or may not require power from the PI."

is not clear. The existing text has unnecessary words and also appears to cover something that is not a PD in the same sentence that is trying to define a PD. For example, a device capable of being a PD and is capable of drawing power from an alternate power source may not require from power the PI. Which will result in a disconnect because the device is no longer a PD. The proposed text focus on what a PD is and does not change the requirements (Task Force to confirm).

SuggestedRemedy

Replace the called out text with,
"A device that is capable of becoming a PD may have the ability to draw power from an alternate power source. A PD requiring power from the PI may simultaneously draw power from an alternate power source."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **23** # 248

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

State diagrams use symbols [], which Section 21.5.1 Actions inside state blocks, provide guidance,
"The characters o and [bracket] are not used to denote any special meaning."

No formal guidance is provided for the use of [].

SuggestedRemedy

TFTD use of [] in state diagrams.

The preferred solution is to add the following text on page 56 after the existing sentence ending in "21.5."

"State diagrams use both () and [] to indicate precedence."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **49** # 249

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Existing text,
"When a PD requests a higher Class than a Type 3 or Type 4 PSE can support, the PSE assigns the PD Class 3, 4, or 6, whichever is the highest that it can support."

covers class demotion without indicating this. The Task Force knows this the reader does not, which leads to questions like "why is class 5 not assigned?"

SuggestedRemedy

Add the following text after the called sentence,
"A PSE stops at class events 1, 2, or 3, when it is not able to provide power levels represented by classes greater or equal to 4, 5, or 7, respectively. Class power levels of 5 and 7 may be provided when the PSE supports these power levels. A PSE only provides class events 3 and 4 when the PSE supports at least class power levels of 5 and 7, respectively. "

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.6** *P* **109** *L* **54** # 250

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Existing text,
"A PSE may remove power from the PI if the PI current meets or exceeds the "PSE lowerbound template" in Figure 33-14, Figure 33-28,"

Figure 33-14 is not a correct reference.

SuggestedRemedy

Replace Figure 33-14 with Figure 33-27.

Do this same correction for the same error on page 110 Line 1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.6** *P* **110** *L* **52** # 251

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Existing text,
"The maximum value of ILIM-2P is the PSE upperbound template described by Equation (33-14), Equation (33-15), Equation (33-15), Equation (33-16),"

Repeats Equation (33-15).

SuggestedRemedy

Remove the repeated information.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.6** *P* **112** *L* **7** # 252

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

To be consistent, reference ILPS in the entries below "where".

SuggestedRemedy

ILPSis the current defined in 33.2.8.12.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.6** *P* **112** *L* **51** # 253

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

To be consistent, reference variables in the entries below "where" using the same language as the prior reference that is on line 17.

SuggestedRemedy

Replace with the reference definition with,
"VPSE is the voltage at the PSE PI as defined in 1.4.423"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **102** *L* **29** # 254

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

The legacy specification permits Type-2 PSE to use a higher ILIM values in classes 0 - 3 so that all classes 0 - 4 have the same short-circuit value. There is a grey area that results in two ILIM current values for classes 0 - 3 (Type 1 and Type 2/3/4 values ILIMs). This should be made more visible to the reader and can be made more accommodating for PSE designers.

This comment is related to other comments marked COMMENT-3.

SuggestedRemedy

Information is shown in column order with extra text to help make the intent clear.

Modify Table 33-17, the first row of item 12 from,
All Classes, 0.4 A, Type 1 to
Classes 0 - 3, 0.4 A, Type All

Add a foot note to this row 0.400 Min value that indicates,
"Type 2, 3, and 4 PSEs may use class 4 ILIM-2P current values for classes 0 - 4."

Modify the next row of item 12 from
All Classes, 0.684A, Type 2 to
Class 4, 0.684A, Type 2, 3, 4

Modify the next row of item 12 (third row) from
Class 0-4, 0.684, Type 3,4 to
Class 0-4, 0.684, Type 2,3,4
Add a foot note to this row 0.684 Min value that references the same footnote just added.

This change is provided in a presentation schindler_3_0316.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **77** *L* **31** # 255

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

The Task Force should discuss, reusing the same name for multiple state diagrams. For example, on p61, parameter_type is used for Type 1 & 2 state diagrams, on page 77 the same name is used for Type 3 & 4 state diagrams. This is understandable but is this recommend or an allowed IEEE practice? Note that names for state, timers, variables, and functions are reused.

SuggestedRemedy

Requested that the .3bt Editor check this with the IEEE Editor and provide a recommendation back to the Task Force.

At the minimum we should add sentence to 33.2.5 that indicates,
"Editor's Note: Names used for state diagrams apply to the section where they are defined. If is not correct, then we will have to find a new mechanism for keeping names used correct and potential change names. Transfer this intent to the appropriate section before Draft 2.0 so that the reader is aware of the solution used."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.7** *P* **65** *L* **23** # 256

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Figure 33-14 is for Type 1 and 2 PSEs only but this is not clear from the Figure title.

SuggestedRemedy

Replace the existing title,
"Figure 33-14-PSE monitor inrush and monitor MPS state diagrams", with

"Figure 33-14-Type 1 and Type 2 PSE monitor inrush and monitor MPS state diagrams"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.8** *P* **65** *L* **28** # 257

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

During the draft 1.5 cleanup, I remember the Task Force adding Type information to sentences in a section for a specific Type. If this is correct practice, then the existing sentence,
"The PSE state diagrams use the following constants:", could be improved.

SuggestedRemedy

Replace the sentence with,
"The Type 3 and Type 4 PSE state diagrams use the following constants:"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **65** *L* **46** # 258

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

The term "global" is used to cover IDLE on page 65, Lines 46, and 48, and on page 66 lines 1, and 3. This may confuse readers.

SuggestedRemedy

Delete the word "global" in the referenced sentences.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **66** *L* **26** # 259

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Existing text,
"autoclass_enabled
A control variable indicating that the PSE is enabled to check if the PD is requesting Autoclass via
Physical Layer classification. Autoclass is an optional extension of Physical Layer classification
PSEs may support; see 33.2.7.3 and 33.3.5.3."

Provides unnecessary information already provided on page 99, which is referenced by the above text.

SuggestedRemedy

Strike,
"Autoclass is an optional extension of Physical Layer classification
PSEs may support;" Move the "see …" to the end of the remaining sentence.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **66** *L* **31** # 260

Schindler, Fred — Seen Simply

Comment Type **ER** *Comment Status* **X**

Existing text,
"class_4PID_mult_events_pri
A variable indicating if the PSE uses the method consisting in generating 3 class events to determine
if the dual signature PD is a candidate for 4-pair power.
Values:
FALSE: the PSE does not need to generate 3 class events to determine if the PD is a candidate
for 4-pair power.
TRUE: the PSE generates at least 3 class events to determine if the PD is a candidate for 4-pair
power."

can be improved.

SuggestedRemedy

Replace "A variable indicating if the PSE uses the method consisting in generating 3 class events to determine if the dual signature PD is a candidate for 4-pair power." with,

"A variable indicating if the PSE generates 3 class events to determine if a dual signature PD is a candidate for 4-pair power."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **44** # 261

Schindler, Fred — Seen Simply

Comment Type **ER** *Comment Status* **X**

Add a note to the bottom of Table 33-7 to clarify the intent of tcc without forcing implementation requirements.

SuggestedRemedy

Add the following note below Table 33-77,
"Note: When an Ethernet cable is connected to an MDI, not all contacts are made simultaneously. Therefore, a minimum time is required for Tcc so that a full mated MDI exist when the connection check is performed."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **68** *L* **5** # 262

Schindler, Fred — Seen Simply

Comment Type **ER** *Comment Status* **X**

Legacy and new text reference specific control bits using names and bit position of PSE Control register detailed on page 156. Because specifics may change, it may be better to use the name and register references only.

Note that references are also incorrect they were extended from a single but (11.6) to two bits (11.7:6).

It is also questionable whether indicating what values go into a register belongs in this section-see line 49.

SuggestedRemedy

Delete register bit references on lines page 68. For example, on line 5 text,
"mapped to the PSE Control register Pair Control bit (11.6) or other equivalent function."
may become,
"mapped to the PSE Control register Pair Control bits Force Power Test Mode Pairset Selection or other equivalent function."

or
"mapped to the PSE Control register (11) Pair Control bits Force Power Test Mode Pairset Selection or other equivalent function."

Generically, the reference (reg.bit(s)) has been replaced by the register name. The second choices also references the register the bits appear in.

Replace starting on line 48,
"This value corresponds to MDIO register bits 11.1:0 = '00'.
enable: Normal PSE operation. This value corresponds to MDIO register bits 11.1:0 = '01'.
force_power: Test mode selected that causes the PSE to apply power to the PI when there are
no detected error conditions. This value corresponds to MDIO register bits 11.1:0 = '10'."
with

"This value corresponds to MDIO register (11) bits PSE Enable with the bit patter for PSE Disable.
enable: Normal PSE operation. This value corresponds to MDIO register (11) bits PSE Enable with the bit patter for PSE Enable.
force_power: Test mode selected that causes the PSE to apply power to the PI when there are
no detected error conditions. This value corresponds to MDIO register (11) bits PSE Enable with the bit patter for Force Power Test Mode."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **69** *L* **10** # 263

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Fix typos, "V PSE"

SuggestedRemedy

Replace with "VPSE".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **71** *L* **43** # 264

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

The words "state machine" is used where the where the IEEE would use "state diagram."

SuggestedRemedy

Replace occurrences of "state machine" with "state diagram". This change will affect some Editor notes as well, but a global replace appears to work.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **73** *L* **26** # 265

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

Fix typo "time r".

SuggestedRemedy

Replace with "timer".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **74** *L* **45** # 266

Schindler, Fred Seen Simply

Comment Type **ER** *Comment Status* **X**

The function variables generically do_class_xxx use text, "pd_cls_4PID_xxx: This variable indicates that 4PID has been established.
Values:
FALSE: PD is not a candidate for 4-pair power.
TRUE: PD is a candidate for 4-pair power."

requires clarification and correction. Note that _xxx is either not present, _sec, or _pri. The value for these variables is established within the Type 3 and Type 4 PSE state diagrams (see p86 line 45). Therefore, this variable belongs in the variable section 33.2.5.8 and not in the 33.2.5.1 function section.

Note that although pd_cls_4PID is defined I do not see it used in the SD.

This comment is related to other comments marked COMMENT-4

SuggestedRemedy

Generically (_xxx) replace this text with,
"pd_cls_4PID: This variable indicates that 4PID has been established by confirming that both pairsets have a valid detection signature and that a device classified as a Type 3 or Type 4 PD.
Values:
FALSE: PD is not a candidate for 4-pair power.
TRUE: PD is a candidate for 4-pair power."

Move the correct text to the variable section 33.2.5.8.

TFTD: If pd_cls_4PID is will not be used this definition may be removed.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **74** *L* **45** # 267

Schindler, Fred — Seen Simply

Comment Type **ER** *Comment Status* **X**

This comment is related to other comments marked COMMENT-4.
The variable "pd_cls_4PID_xxx" is not initialized. Note that _xxx is either not present, _sec, or _pri. The value for these variables is established within the Type 3 and Type 4 PSE state diagrams (see p86 line 45). Therefore, this variable belongs in the variable section 33.2.5.8 and not in the 33.2.5.1 function section, which has been done in a separate comment.

SuggestedRemedy

TFTD where to initialize the three variables. Suggestions are made below,
"pd_cls_4PID_pri <= False" within state task list CLASS_EV1_LCE_PRI.
"pd_cls_4PID_sec <= False" within state task list CLASS_EV1_LCE_SEC.

TFTD: If pd_cls_4PID is will not be used this definition may be removed.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **74** *L* **45** # 268

Schindler, Fred — Seen Simply

Comment Type **ER** *Comment Status* **X**

The variables pd_req_pwr is used by multiple functions (standard, pri, sec). TFTF whether this practice is allowed and to take corrected action if necessary.

SuggestedRemedy

Requested that the .3bt Editor check this with the IEEE Editor and provide a recommendation back to the Task Force.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **17** # 269

Schindler, Fred — Seen Simply

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

The IDLE pseudo code,
"IF (mr_pse_alternative != both) THEN
alt_pri <= mr_pse_alternative
ELSE
alt_pri <= UserDefined
END"

The term "UserDefined" does not seem to exist in state diagram definitions and should be added or removed from use.

SuggestedRemedy

On page 65 after 33.2.5.9 header add,
"When a variable is assigned value UserDefined it is provided in an implementation way."

This comment is related to other comments marked COMMENT-2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **25** # 270

Schindler, Fred — Seen Simply

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

The exit condition from START_CXN_CHK, uses "do_cxn_chk_done", which is understandable but not defined. I could not find IEEE requirements for functions in state diagrams.

The exit condition also checks tcc_timer_done, which seems redundant.

Comments that change Figure 33-15 are provided on schindler_1_0316.

SuggestedRemedy

Replace the existing exit condition for START_CXN_CHK,
"do_cxn_chk_done * tcc_timer_done" with,
"tcc_timer_done"

Amend the existing function text, on page 74, "do_cxn_chk
This function initiates the Connection Check as specified in 33.2.6.1. This function returns the following
variable:"

with,
"do_cxn_chk
This function initiates the Connection Check as specified in 33.2.6.1. This function returns the following
variable after a delay of Tcc, which is in Table 33-7:"

This is related to other comments marked COMMENT-1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **44** # 271

Schindler, Fred — Seen Simply

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

The Tcc parameter is assigned a value but no context is provided.

SuggestedRemedy

In Table 33-7, additional information column for Tcc add,
"From start to completion, see 33.2.5.10."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.2** *P* **144** *L* **14** # 272

Schindler, Fred — Seen Simply

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

The Fault tolerance section covers cases where a PSE is subjected to uncommon faults like conductor shorts. This section should contain similar requirements for new PDs.

SuggestedRemedy

"A Type-3 and Type-4 PD PI shall withstand one or more conductor failures without damage."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **14** # 273

Schindler, Fred — Seen Simply

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

Based on how results are used, variable mr_pd_class_detected of function do_classification, appears to record the last class discovered which is not what is indicated in the variable definition.

SuggestedRemedy

Replace existing text,
"mr_pd_class_detected: The PD classification signature seen during a classification event; see
Table 33-11 and 33.2.7."

with,
"mr_pd_class_detected: The PD classification signature seen during the last classification event; see
Table 33-11 and 33.2.7."

Perform the same correction for the mr_pd_class_detected_pri and mr_pd_class_detected_sec.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **6** # 274

Schindler, Fred — Seen Simply

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

It is not clear what PSE Alternative is used to perform function do_classification.

Comments that change Figure 33-19 are provided on schindler_2_0316.

SuggestedRemedy

Add a the following pseudo code to CLASS_EV1_LCE state below the existing tasks,
IF (mr_pse_alternative != both) THEN
  alt_pri <= mr_pse_alternative
ELSE
  alt_pri <= UserDefined
END

Note this is related to a comment marked COMMENT-2, which defines UserDefined.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **6** # 275

Schindler, Fred — Seen Simply

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

The exit condition for CLASS_EV1_LCE checks TACS max, which is a PD parameter in what may be a nonstandard way.

The exit condition for CLASS_EV1_LCE checks TACS max, which is a PD parameter. The PD may transition to class-0 as soon as TACS min. The PSE is required to delaying the transition to CLASS_EV1_AUTO greater than TACSmax which could lead to an incorrect class reading in the prior state that would prevent a transition to CLASS_EV1_AUTO. The PSE should capture class in state CLASS_EV1_LCE before the PD transitions to class-0.

SuggestedRemedy

On page 100 , Table 33-16 add a new row above item 1, which provides TACS_PSE with TBD min and max values. In the additional information column add "Measured from state CLASS_EV1_LCE."

On page 73 add a new time,
"tacs_pse_timer
A timer used to determine when class currents should be record when checking parameter TACS_PSE in Table 33-16."

On page 85 replace exit condition,
"(tlce_timer > TACS max) * autoclass_enabled * mr_pd_class_detected != 0"

with,
"tacs_pse_timer_done * autoclass_enabled * mr_pd_class_detected != 0"

In block CLASS_EV1_LCE add a new task,
"start tacs_pse_timer"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **85** *L* **6** # 276

Schindler, Fred — Seen Simply

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

State MARK_EV1 is entered from state CLASS_EV1_AUTOEVAL. When this path is taken, mr_pd_class_detected is 0 rather than the first class event value, which is not what the system expects.

SuggestedRemedy

Have paths from states CLASS_EV1_LCE and CLASS_EV1_AUTO go to a new state, CLASS_EVAL, rather than to state MARK_EV1. Transfer from CLASS_EVAL to MARK_EV1 is UCT.

Within state CLASS_EVAL perform these tasks,
"temp_var <= mr_pd_class_detected"

From state MARK_EV1 remove task,
"temp_var <= mr_pd_class_detected"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **5** # 277

Schindler, Fred — Seen Simply

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

State CLASS_EV1_LCE should initialize variable pd_autoclass.

SuggestedRemedy

State CLASS_EV1_LCE should initialize variable pd_autoclass.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **77** *L* **31** # 278

Schindler, Fred — Seen Simply

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

On page 62 existing text covers parameter_type,
"When a Type 2 PSE powers a Type 1 PD, the PSE shall meet the PI electrical requirements of a Type 1 PSE, but may choose to meet the electrical requirements of a Type 2 PSE for ICon, ILIM, TLIM, and PType (see Table 33-17)."

This same concept is lacking from p77, which covers Type 2 and 3 PSEs. This comment is related to other comments marked COMMENT-3. See presentation schindler_3_0316.

SuggestedRemedy

Add the following text below the Value 4 sentence.
"When a Type 3 or Type 4 PSE powers a Type 1 PD, the PSE shall meet the PI electrical requirements of a Type 1 PSE, but may choose to meet the electrical requirements of a Type 3 or Type 4 PSE for ICon, ILIM, TLIM, and PType (see Table 33-17)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1** *P* **43** *L* **10** # 279

Walker, Dylan — Cisco

Comment Type **ER** *Comment Status* **X**

Needs a serial comma to align with our agreed upon convention.

SuggestedRemedy

Change "...PHYs defined in Clause 25, Clause 40 and Clause 55."

To "...PHYs defined in Clause 25, Clause 40, and Clause 55."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3.1** *P* **46** *L* **10** # 280

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Sentence reads a little awkwardly with a seemingly redundant use of the word "specified."

SuggestedRemedy

Change "Type 1 power levels may be transmitted over all specified premises cabling that meets the requirements specified in Table 33–1."

To "Type 1 power levels may be transmitted over all premises cabling that meets the requirements specified in Table 33–1."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **3** # 281

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

The table reference needs to be updated.

SuggestedRemedy

Change "Table 33–2a summarizes the permissible PSE Types along with supported parameters."

To "Table 33–2 summarizes the permissible PSE Types along with supported parameters."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.4** *P* **60** *L* **1** # 282

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Table reference needs to be updated.

SuggestedRemedy

Change "PSEs shall meet at least one of the allowable variable definition permutations described in Table 33–6."

To "PSEs shall meet at least one of the allowable variable definition permutations described in Table 33–5."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.8** *P* **65** *L* **30** # 283

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

In conjunction with a fix to the logic in the START_DETECT block in the Type 3/Type 4 PSE SD, would like to clarify that CC_DET_SEQ is only applicable to 4-pair operation.

SuggestedRemedy

Change "A constant indicating the sequence in which the PSE performs connection check and detection."

To "A constant indicating the sequence in which a PSE operating over both pairsets performs connection check and detection. Pathways in Figure 33-15 that require an assigned value for this constant cannot be taken by a PSE operating over a single pairset."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **66** *L* **43** # 284

Walker, Dylan Cisco

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

Variable class_num_events cannot be 0 for Type 3/Type 4 per Table 33-6.

SuggestedRemedy

Remove value of 0 from class_num_events.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **69** *L* **41** # 285

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Definition of FALSE for variable power_not_available is awkward. It was legacy text, but we can fix it now that it's in the Type 3/Type 4 PSE SD section.

SuggestedRemedy

Change "FALSE: PSE is capable to continue to source power to a PD."

To "FALSE: PSE is capable of continuing to source power to a PD."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **69** *L* **48** # 286

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Definition of FALSE value for variable power_not_available_pri is awkward.

SuggestedRemedy

Change "FALSE: PSE is capable to continue to source power to a PD."

To "FALSE: PSE is capable of continuing to source power to a PD."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **70** *L* **2** # 287

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Definition of FALSE value for variable power_not_available_sec is awkward.

SuggestedRemedy

Change "FALSE: PSE is capable to continue to source power to a PD."

To "FALSE: PSE is capable of continuing to source power to a PD."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.10** *P* **72** *L* **29** # 288

Walker, Dylan Cisco

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

Timer tcc2det_timer also applies to CC_DET_SEQ = 3.

SuggestedRemedy

Change "A timer used to limit the time between Connection Check and Detection when CC_DET_SEQ = 0."

To "A timer used to limit the time between Connection Check and Detection when CC_DET_SEQ = 0 or CC_DET_SEQ = 3."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **78** *L* **33** # 289

Walker, Dylan Cisco

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

In conjuction with clarification of the constant CC_DET_SEQ, need to update the logic in START_DETECT to make it clearer that a PSE operating over a single pairset does not fall into the first IF statement.

SuggestedRemedy

Change:

```
start tdet_timer
IF (CC_DET_SEQ != 2) THEN
  IF (det_temp = 0) THEN
    do_detect_pri
    det_temp <= 1
  ELSE
    do_detect_sec
    det_temp <= 0
  END
END
IF (mr_pse_alternative != both) THEN
  do_detect_pri
END
```

To:

```
start tdet_timer
IF (mr_pse_alternative = both) THEN
  IF (det_temp = 0) THEN
    do_detect_pri
    det_temp <= 1
  ELSE
    do_detect_sec
    det_temp <= 0
  END
ELSE
  do_detect_pri
END
```

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **14** # 290

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Need a space between the section number and title.

SuggestedRemedy

Change "33.2.6.1Connection check requirements"

To "33.2.6.1 Connection check requirements"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **29** # 291

Walker, Dylan Cisco

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

Need to clarify when Tdet2det applies, which is not limited to just single-signature PDs.

SuggestedRemedy

Change "The specification of Tdet2det, defined in Table 33–7, applies to the time between the end of detection on the first pairset to the beginning of detection on the other pairset when connected to a single-signature PD."

To "The specification of Tdet2det, defined in Table 33–7, applies to the time between the end of detection on the first pairset to the beginning of detection on the other pairset when the second detection occurs before power up on the first pairset."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **41** # 292

Walker, Dylan Cisco

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

Table 33-7, Item 2, Addtional Information states that Tdet2det applies only to single-signature PDs. This is not the case.

SuggestedRemedy

Delete the text in Additional Information, including the TBD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **89** *L* **48** # 293

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Use commas so that this sentence reads better.

SuggestedRemedy

Change "The connection check is rerun before applying power if power up fails to meet the timing requirements in both Table 33–7 and 33.2.8.13 or power is absent on both pairsets simultaneously or if the state machine reaches the IDLE state."

To "The connection check is rerun before applying power if power up fails to meet the timing requirements in both Table 33–7 and 33.2.8.13, power is absent on both pairsets simultaneously, or the state machine reaches the IDLE state."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **90** *L* **1** # 294

Walker, Dylan Cisco

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

Misplaced and missing commas.

SuggestedRemedy

Change "If the voltage on either pairset rises above Vvalid max, (defined in Table 33–8) during connection check, the PSE shall reset the PD by bringing the voltage at the PI below Voff max, defined in Table 33–17 before performing classification."

To "If the voltage on either pairset rises above Vvalid max (defined in Table 33–8) during connection check, the PSE shall reset the PD by bringing the voltage at the PI below Voff max (defined in Table 33–17) before performing classification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.5** *P* **92** *L* **19** # 295

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

The word "sections" should be singular. Looks like a remnant from a past draft given the strikethrough.

SuggestedRemedy

Change "The PSE shall reject a pairset within a link sections as having an invalid signature, when the pairset exhibits any of the following characteristics as specified in Table 33–10:"

To "The PSE shall reject a pairset within a link section as having an invalid signature, when the pairset exhibits any of the following characteristics as specified in Table 33–10:"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.7** *P* **93** *L* **3** # 296

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Section reference needs to be corrected.

SuggestedRemedy

Change "It shall be stored in the variable PD_4pair_cand, defined in 33.2.5.4."

To "It shall be stored in the variable PD_4pair_cand, defined in 33.2.5.9."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **96** *L* **29** # 297

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **X**

Sentence is missing pointers to other figures that make use of the class and mark events listed.

SuggestedRemedy

Change "...as defined in the state diagram in Figure 33–13 and Figure 33–19."

To "...as defined in the state diagram in Figure 33–13, Figure 33–19, Figure 33-20, and Figure 33-21."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1** *P* **43** *L* **12** # 298

Zimmerman, George CME Consulting / Co

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

Include Clause 126, 2.5GBASE-T and 5GBASE-T.

SuggestedRemedy

Associated with presentation with proposed text changes to include Clause 126 support. Change line to read, "PHYs defined in Clause 25, Clause 40, Clause 55, and Clause 126." Also, change P47 L38 to insert, ", 2.5GBASE-T, 5GBASE-T, " after "1000BASE-T" - Note, there are numerous text changes. See presentation for complete listing

Proposed Response *Response Status* **O**

Cl **25** *SC* **25.4.9.2** *P* **26** *L* **26** # 299

Zimmerman, George CME Consulting / Co

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

Somehow, "Insertion loss" has become "ion loss". (6 instances, through note at end of 25.4.9.2.1)

SuggestedRemedy

Replace "ion loss" with "Insertion loss" (6 instances)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.2** *P* **44** *L* **43** # 300

Zimmerman, George CME Consulting / Co

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

Text now clearly says it is an amendment to IEEE Std 802.3-2015 (on the first page). All external references should be to those in 802.3-2015 (which was bx). I have checked the final revision draft and the references in 802.3bx d3.1 were the same in the final rev. Also, editor's note may be deleted since there is no duplication of definitions to deal with.

SuggestedRemedy

Replace 1.4.324 with 1.4.337 (L43) and 1.4.256 with 1.4.269 (L45). Delete both parentheticals "(1.4.xxx in P802.3bx/D3.1), Delete editor's note on page P45 L19.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.2** *P* **44** *L* **19** # 301

Zimmerman, George CME Consulting / Co

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

Figures 33-1 and 33-2 titles: References in IEEE Std 802.3-2015 no longer refer to CSMA/CD LAN model, they now refer to Ethernet LAN model

SuggestedRemedy

Replace CSMA/CD to with Ethernet in titles to FIgures 33-1 and 33-2

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3.2** *P* **46** *L* **29** # 302

Zimmerman, George CME Consulting / Co

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

the definition of channel in 802.3-2015 has been amended by 802.3by to allow local definition of "channel" as "a defined path along which an electrical or optical signal passes". For this clause, we have a little different situation, because we have a power, not necessarily a signal.

SuggestedRemedy

Insert "Within Clause 33 and its annexes, "channel", as defined in 1.4.134, refers to the electrical path on which the power signal passes, i.e., the link section." at the begining of 33.1.3.2 as a new paragraph.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **47** *L* **3** # 303

Zimmerman, George CME Consulting / Co

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

"Table 33-2a summarizes..." With the complete replacement of clause 33, we no longer have "a" table inserts. It is now just Table 33-2

SuggestedRemedy

Replace "Table 33-2a summarizes..." with "Table 33-2 summarizes"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.8** *P* **66** *L* **32** # 304

Zimmerman, George CME Consulting / Co

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

"if the PSE uses the method consisting in generating 3 class events to determine if the dual signature PD is a candidate for 4-pair power." text is unclear and confusing

SuggestedRemedy

Replace with "whether the PSE determines if a dual signature PD is a candidate for 4-pair power using 3 class events."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.1** *P* **56** *L* **14** # 305

Zimmerman, George CME Consulting / Co

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

This section really isn't an overview, most of it could be renamed "timing". It would do well to separate the overview of Type 1 / 2 state diagrams from the Type 3/4 state diagrams. For type 3/4 state diagrams a short overview of the state diagram structure and nomenclature (e.g., what _pri and _sec indicate) would be helpful for clarity.

SuggestedRemedy

Retitle section into State diagram overview and timing, Insert section 33.2.5.1.1 Type 3/4 Specific Overview and Timing following 33.2.5.1 and Move paragraph on Connection check timing requirements and 6th paragraph (beginning "In the Type 3 and Type 4...") to it. Additionally, place editor's note in Section 33.2.5.1.1 that text is needed to describe the structure and nomenclature of the Type 3/4 state diagram (e.g., primary and secondary semi-independent machines) when that text is stable.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **67** *L* **36** # 306

Zimmerman, George CME Consulting / Co

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

dll_4PID does not appear to be mentioned anywhere else in the document. (has it been renamed?, or has it been overtaken by events and something else has taken its place?)

SuggestedRemedy

Either, correct name to what is used, provide an editor's note as to what needs to be done to use it, or delete definition of variable dll_4PID,

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.9** *P* **71** *L* **1** # 307

Zimmerman, George CME Consulting / Co

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

NOTE is important, and needs to stay on the same page as pse_ready. Set frame to keep the NOTE with the variable.

SuggestedRemedy

See comment

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.4** *P* **60** *L* **1** # 308

Zimmerman, George CME Consulting / Co

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

"PSEs shall meet at least one of the allowable variable definition permutations described in Table 33–6." this is in the type 1/type 2 section, and should refer to Table 33-5, not 33-6. Also, it should say Type 1 or Type 2 PSEs.

SuggestedRemedy

Insert "Type 1 and Type 2 " prior to "PSEs shall", Fix cross reference to point to Table 33-5. Similarly, in the Type3/4 PSE section 33.2.5.9, insert "Type 3 and Type 4 " prior to "PSEs shall meet at least one of the allowable variable definition permutations described in Table 33–6." (P72 L1)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **74** *L* **45** # 309

Zimmerman, George CME Consulting / Co

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

"pd_cls_4PID" - this variable is no longer used anywhere with "do_classification", because do_classification applies only to single-signature cases, where 4PID is automatic.

SuggestedRemedy

Delete pd_cls_4PID on lines 45-49

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **28** # 310

Zimmerman, George CME Consulting / Co

Comment Type **ER** *Comment Status* **X**

do_classification only applies for single signatures. "_pri" and "_sec" apply for dual signatures, no accounting for dual signature is needed here.

SuggestedRemedy

Delete second editor's note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **75** *L* **27** # 311

Zimmerman, George CME Consulting / Co

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

mr_pd_class_detected represents the class signature detected on a particular event, not the ultimate class. Delete Class 5 through 8, as they cannot occur.

SuggestedRemedy

Delete editor's note "Valid calssification..." on Line 27. Delete Lines 22-25 (Class 5 through 8)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.11** *P* **76** *L* **4** # 312

Zimmerman, George CME Consulting / Co

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

mr_pd_class_detected_pri is only for dual signature PDs, nothing else needs to be taken into account, mr_pd_class_detected_pri relates only to the signature on one event. - similarly, for mr_pd_class_detected_sec on line 25

SuggestedRemedy

Delete editor's notes P76 L4 and P76 L25

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **88** *L* **38** # 313

Zimmerman, George CME Consulting / Co

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

clasification has no need for PD_4pair_cand (although it has PD_4pair_cand_pri and _sec),

SuggestedRemedy

Delete editor's note on PD_4pair_cand P88 L38

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **88** *L* **45** # 314

Zimmerman, George CME Consulting / Co

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

Editor's note about 4PID requirements is obsolete.

SuggestedRemedy

Delete editor's note on figure 33-9(TBD), Lines 45-48

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.7** *P* **92** *L* **51** # 315

Zimmerman, George CME Consulting / Co

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

This description of 33.2.6.7 is obsolete and its functionality is now captured in the state diagram as an integrated function.

SuggestedRemedy

Delete Section 33.2.6.7. Alternatively, rewrite as informative text, describing the action in the single-signature and dual-signature state diagrams.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **37** # 316

Zimmerman, George CME Consulting / Co

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

"Alternatively, PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh when powering using a single pairset, or RChan = RCh/2 when powering using two pairsets to arrive at over-margined values as shown in Table 33–11." is unclear. It looks like it is alternative to the requirement for Equation 33-2. If that is the instance, then the alternatives should be shown at the variables that can be substituted.

SuggestedRemedy

I'm sorry, but I can't tell what the actual meaning is. If this was NOT to be an alternative to Equation 33-2, but rather is showing that Rchan has two values, then delete "Alternatively"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **93** *L* **23** # 317

Zimmerman, George CME Consulting / Co

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

"The assigned Class is the Class that results from the PDs requested Class and the number..." This is actually the detected class. The assigned class may be different than the detected class, as specified under pd_req_pwr (and _pri or _sec), based also on the maximum class the PSE can support. (see eg P74 L51 or P97 L49)

SuggestedRemedy

Change line 23 to read: "The assigned Class is the Class that results from the PDs requested Class, the highest class the PSE can support, and the number...".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **49** # 318

Zimmerman, George CME Consulting / Co

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

"When a PD requests a higher class than a PSE can support, the PSE assigns the PD Class 3, 4, or 6, whichever is the highest that it can support." While this can only happen with multiple-event classification, this applies to classification in general and belongs at the description of assigned classes.

SuggestedRemedy

Move the sentence on P97 L49 to the end of the paragraph discussing assigned class at P93 L24, "When a PD requests a higher class than a PSE can support, the PSE assigns the PD Class 3, 4, or 6, whichever is the highest that it can support."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **96** *L* **30** # 319

Zimmerman, George CME Consulting / Co

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

"When Multiple-Event Physical Layer classification is implemented, classification consists of the application of VClass and the measurement of IClass in a series of classification and mark events—CLASS_EV1 or CLASS_EV1_LCE, MARK_EV1, CLASS_EV2, MARK_EV2, CLASS_EV3, MARK_EV3, CLASS_EV4, MARK_EV4, CLASS_EV5, and MARK_EV_LAST—as defined in the state diagram in Figure 33–13 and Figure 33–19." This description only applies properly to Type 3 & 4 PSEs when a single-signature PD is detected. It doesn't refer to the dual-signature state diagrams, or the signal names for Type 3 & 4 dual-signature PDs. It also implies Type 1 & 2 PSEs go on to 3 or more class events. It is best to stop the descriptive language and refer to the state diagrams, rather than create a tangled mess of description.

SuggestedRemedy

Put a period after "mark events" Delete "-CLASS_EV1... " through the end of the paragraph, and replace with "The sequences of CLASS _EVn and MARK_EVn events are defined in the classification state diagrams for PSEs in Figure 33-13, Figure 33-19, Figure 33-20, and Figure 33-21." (where the "n" is italicized).

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **97** *L* **46** # 320

Zimmerman, George CME Consulting / Co

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

"Editor's Note (Remove prior to D2.0): We need to address behavior for matched and unmatched classes for mixed Type PDs" Now that the dual signature state machines are defined, we should be able to do this - there are no special cases.

SuggestedRemedy

Insert "A Type 3 or Type 4 PSEs connected to a dual-signature PD shall classify the two alternatives independently, with a maximum class per pairset of 5, according to Figures 33-20 and 33-21." This statement should go on page 98, line 3, immediately before "A Type 3 or Type 4 PSE connected to a dual-signature PD shall skip all subsequent class events and transition directly to MARK_EV_LAST if the class signature detected during CLASS_EV3 is 0, 1, 2, or 4."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **87** *L* **54** # 321

Zimmerman, George CME Consulting / Co

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

Typo in figure title, says "Primary Alternative" this is the "Secondary Alternative"

SuggestedRemedy

See comment

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.9** *P* **114** *L* **32** # 322

Zimmerman, George CME Consulting / Co

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

"A PSE shall not initiate power provision to a link or a pairset if the connected PD is not able to ascertain the available power based on the number of classification events produced by the PSE. For example, a PSE that has less than Class 3 power would not provision power to the link or pairset for a PD requesting a Class 3 or higher power level." Unclear - multiple problems. The PSE is making a judegment that the PD is not able to ascertain the available power? the example doesn't help. It just says don't provision if power is less than the power available. The state diagrams already say this. (also, "link" should at least be "link section", or more clearly, "one or both pairsets")

SuggestedRemedy

Not sure what is meant, so can' t recommend what to say with confidence, but it seems, Change to "A PSE shall not initiate power provision to a one or both pairsets if the PSE has less than class 3 power available and the connected PD requests class 3 or greater power."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.12** *P* **82** *L* **1** # 323

Zimmerman, George CME Consulting / Co

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

"From CLASS SD (TBD tie-in via Classification SD updates)" (Figs 33-17 P82 and 33-19 P84) Class state machine tie ins appear to be there, but aren't tied into next level up. This one appears to be C2, and P84 L1 appears to be C3. Note - for the other two instances of this, P81 & P83 it is not yet clear what the tie ins are.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8.2** *P* **105** *L* **7** # 324

Beia, Christian STMicroelectronics

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

See beia_1_0316.pdf for more details.

"The minimum PD input capacitance allows a Type 1 or Type 2 PD to operate for any input voltage transient lasting less than 30 µs."

This sentence needs some improvement to ensure a proper specification of the voltage transients. "Any input voltage" is definitely too vague and thus incorrect.

SuggestedRemedy

Replace :

The minimum PD input capacitance allows a Type 1 or Type 2 PD to operate for any input voltage transient lasting less than 30 µs.

With :

The minimum PD input capacitance Cport defined in Table 33-28, allows PDs of any Type to operate for input voltage transients which cause Vport to drop as low as 0V lasting less than 30 µs as specified in 33.3.7.6

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **132** *L* **24** # 325

Beia, Christian STMicroelectronics

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

Table 33-28
See beia_1_0316.pdf for more details.

In order to allow PD Types 3 and 4 to operate without interruption during a 30us input transient, a larger minimum Cport is necessary

SuggestedRemedy

Table 33-28 Item 12

Split in 3 rows, one for Types 1 and 2, and two for Types 3 and 4.

Assign:
5.00uF as min value for Types 1,2
10.0uF as min value for Type 3
20.0uF as min value for Type 4

Other cells don't need modification.

Proposed Response *Response Status* **O**