Cl **33** *SC* **33.2.7.5** *P* **67** *L* **19** # 1

Bennett, Ken — Sifos Technologies, In

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

There is a recommendation that POWER_UP mode persist for the complete duration of TInrush in section 33.2.7.5 of the existing standard. Commensurately, there is a recommendation against using LEGACY POWER_UP in section 32.2.4.4. This is because legacy power-up can end POWER_UP mode prior to the end of PD Inrush.

The result of an early exit of POWER_UP mode is that current is not limited to the levels in figure 33-13, and inrush current could exceed expected values for a PD, potentially damaging an existing Type 1 or Type 2 PD. Type 3 and Type 4 PSE's could deliver higher currents during PD Inrush in this scenario, increasing the probability of damage to a legacy PD.

The recommendations used in the existing standard have been applied to Type 3 and Type 4 PSE's in the draft. The suggested remedy makes it a requirement for Type 3 and Type 4 PSE's. For reference, the existing text is shown below:

However, for practical implementations, it is recommended that the POWER_UP mode on a pair set persist for the complete duration of TInrush-2P, as the PSE may not be able to correctly ascertain the conclusion of a PD’s inrush behavior.

SuggestedRemedy

Change the text to:

However, for practical implementations, it is recommended that POWER_UP mode in Type 1 and Type 2 PSE's persist for the complete duration of TInrush-2P, as the PSE may not be able to correctly ascertain the conclusion of a PD’s inrush behavior. Type 3 and Type 4 PSE's shall remain in POWER_UP mode until the Tinrush_2P period in table 33-11 is met.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **57** *L* **3** # 2

Beia, Christian — STMicroelectronics

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

Table 33-8
The meaning of YES/NO in the table is not clear enough. It would be better to replace it with allowed/disallowed, or to add some explanation in the table first lines.

SuggestedRemedy

Replace the first line of Table 33-8 with:
PSE Allowed Permutations (Yes/No), PD Allowed Permutations (Yes/No)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **51** # 3

Beia, Christian — STMicroelectronics

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

To cover all the possible cases, and allow maximum design flexibility, the signature variable should also have a definition for a PSE which detected a PD requesting power on a single alternative.

SuggestedRemedy

To add two more definition of the signature variable:
Valid_AltA: A Type 3 or Type 4 PSEs has detected a PD requesting power on Alternative A.
Valid_AltB: A Type 3 or Type 4 PSEs has detected a PD requesting power on Alternative B.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **35** # 4

Beia, Christian — STMicroelectronics

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

A Type1 PSE which uses 1-event Physical Layer Classification can only read classification results from Class 0 to 4. Classes 5 to 8 are defined for multiple-event PL classification and are not relevant for Type1 PSE.
Moreover Type1 PSE behavior definition must not change from the existing standard.

SuggestedRemedy

Restore the original sentence:
Subsequent to successful detection, a Type 1 PSE may optionally classify a PD using 1-Event Physical Layer classification. Valid classification results are Classes 0, 1, 2, 3, and 4, as listed in Table 33–7.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **20** # 5

Beia, Christian STMicroelectronics

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

Table 33-18
The maximum input guaranteed available power for Class 8 PDs cannot be 71.3W, since in a perfectly balanced system it would result into a 0.5*71.3W/41.1V=0.867A current per pair-set.
This value is larger than Icon-2P min defined at PSE output in Table 33-11. The calculated value for Pclass min and Vport_PSE_2P min is: Icon_2P min= 0.5*90W/52V=0.865A.
So I suggest modifying Pclass_PD to 71.0W for Class8 which results into 0.5*71W/41.1V=0.864A.

SuggestedRemedy

Modify Table 33-18
Item: 4, Parameter: Input guaranteed available average power, Class8
with the following value:
Max: 71.0

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.8** *P* **70** *L* **33** # 6

Beia, Christian STMicroelectronics

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

As done in the rest of the document, also for the Turn off time paragraph it is needed to refer to the pair set in place of the PI.

SuggestedRemedy

Replace "PI" with "pair set" in the whole paragraph, to read:

The specification for TOff in Table 33–11 shall apply to the discharge time from VPort_PSE to VOff of a pair set with a test resistor of 320 kOhm attached to that pair set. In addition, it is recommended that the pair set be discharged when turned off. TOff starts when VPSE drops 1 V below the steady-state value after the pi_powered variable is cleared(see Figure 33–9). TOff ends when VPSE<=VOffmax. The PSE remains in the IDLE state as long as the
average voltage across the pair set is VOff. The IDLE state is the state whenthe PSE is not in detection, classification, or normal powering states.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **7** # 7

Beia, Christian STMicroelectronics

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

Table 33-11
Item 17: the additional information: See 33.2.9.1.2 is still relevant and must be maintained.

SuggestedRemedy

Restore the Additional information: See 33.2.9.1.2 in Table 33-11 Item 17

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **9** # 8

Beia, Christian STMicroelectronics

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

The additional information is not clearly stated. The details about how to measure Ihold are better described in section 33.2.9.1.2, which should be indicated for reference.

SuggestedRemedy

Replace:
Pclass <=class 4 power.
The pair with highest current.

With:
Applies to PD Classes 0-4
Measured on the pair set with the highest current
See 33.2.9.1

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **50** *L* **47** # 9

Beia, Christian STMicroelectronics

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

The second paragraph text was not approved to be included into the draft, so probably was put in there accidentally.

SuggestedRemedy

Remove the sentence:
Specifically, Type 3 and Type 4 PSEs shall apply the detection probe to both pair sets prior to applying power to 4 pairs.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **94** *L* **40** # 10

Beia, Christian STMicroelectronics

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

In table 33-13a there is a column which describes the MPS options "high" and "low". The note below refers to section 33.3.8 for details but there is nothing there which gives extra information.
In Table 33-17 there is also reference to 33.3.8 but no explanation there.

SuggestedRemedy

Add the following sentence after first paragraph of 33.3.8:

Types 3 and 4 PDs which detect a long first class event in the range of TLCF_PD may reduce TMPS_PD in order to draw a lower standby MPS power. In absence of a long first class event the minimum TMPS_PD is higher, and the standby MPS power is also higher.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **76** *L* **7** # 11

Beia, Christian STMicroelectronics

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

Type 3 and Type 4 are described in the same sentence and it is not clear what clesses are relevant to each Type.

SuggestedRemedy

Replace the following sentence:
Type 3 and Type 4 PDs operating with a maximum power draw corresponding to Class 4 or greater implement both multiple-Event Physical Layer classification (see 33.3.5.2)and Data Link Layer classification (see 33.6)and advertise a class signature of 4, 5, 6, 7 or 8.

With:
Type 3 PDs operating with a maximum power draw corresponding to Class 4 or greater implement both multiple-Event Physical Layer classification (see 33.3.5.2)and Data Link Layer classification (see 33.6)and advertise a class signature of 4, 5, 6.
Type 4 PDs implement both multiple-Event Physical Layer classification (see 33.3.5.2)and Data Link Layer classification (see 33.6)and advertise a class signature of 7,8.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **87** *L* **28** # 12

Beia, Christian STMicroelectronics

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

Table 33-18
As defined in Table 33-16a the PD Type 4 is only defined for classes 7, 8.
So in Table 33-18 the input voltage definition for classes 0-3 is relevant to PD Types 1,3; for class 4 it is relevant to Type 2,3; for classes 5,6 it is relevant to Type 3 only.

SuggestedRemedy

Remove PD Type 4 into PD type column, rows 1-6 of Table 33-18 Item 1 as follows:

Parameter Input voltage per pair set, Class1 | PD Type 1,3
Parameter Input voltage per pair set, Class2 | PD Type 1,3
Parameter Input voltage per pair set, Class0,3 | PD Type 2,3
Parameter Input voltage per pair set, Class4 | PD Type 1,3
Parameter Input voltage per pair set, Class5 | PD Type 3
Parameter Input voltage per pair set, Class6 | PD Type 3

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **84** *L* **13** # 13

Beia, Christian STMicroelectronics

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

The behavior of Type 3 PDs which operate with a max power draw corresponding to Class 0-3 sholud be described here.

SuggestedRemedy

Add the following sentence :
Type 3 PDs operating with a maximum power draw corresponding to class 0-3 respond to 1-Event and Multiple-Event classification returning Class signature 0, 1, 2, or 3 in accordance with the maximum power draw, PClass_PD.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 14

Bustos Heredia, Jairo Würth Elektronik eiSo

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

For homogeneous writing, chose either "pair-to-pair" or "pair to pair" when using such termn

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 15

Bustos Heredia, Jairo — Würth Elektronik eiSo

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

For homogeneous writing, chose either "pair-set" or "pair set"

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 16

Bustos Heredia, Jairo — Würth Elektronik eiSo

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

For homogeneous writing chose either "Physical Layer classification" or "physical layer classification"

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **89** # 17

Bustos Heredia, Jairo — Würth Elektronik eiSo

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

Higher power levels may require heavier guage conductors than are found in Class C/ Category 3 cabling and (more uncommonly) in some lighter guage Class D or better cable.

SuggestedRemedy

Higher power levels may require heavier gauge conductors than are found in Class C/ Category 3 cabling and (more uncommonly) in some lighter gauge Class D or better cable.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **41** # 18

Bustos Heredia, Jairo — Würth Elektronik eiSo

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

do_detection does not yields "valid" on both pair sets

SuggestedRemedy

do_detection does not yield "valid" on both pair sets

Proposed Response *Response Status* **O**

Cl **33** *SC* **33** *P* **1** *L* **1** # 19

Yseboodt, Lennart — Philips

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

Bulkcomment to make uses of minus/dash consistent when referencing to Tables, Equations and Figures.

- page 24, line 51, Table 33-1a
- page 33, line 21, Table 33-2a
- page 55, line 26, Table 33-17
- page 66, line 16, Equation 33-4a
- page 66, line 45, Equation 33-4a
- page 67, line 4, Equation 33-4a
- page 67, line 6, Equation 33-4a
- page 75, line 25, Table 33-13a
- page 91, line 37, Equation 33-12a
- page 94, line 39, Table 33-19a
- page 105, line 52, Equation 33-18a
- page 106, line 34, Equation 33-19a
- page 106, line 37, Equation 33-19a
- page 107, line 44, Table 33-20a
- page 108, line 4, Table 33-20b
- page 145, line 33, Equation 33A-1
- page 145, line 41, Equation 33A-2

SuggestedRemedy

Replace minus with dash.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33** *P* **1** *L* **1** # 20

Yseboodt, Lennart Philips

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

Bulkcomment to consistently reference to ISO/IEC 11801 without year.

We have references on:
- page 19, line 53
- page 22, line 15
- page 22, line 19
- page 22, line 22
- page 23, line 10
- page 23, line 32
- page 102, line 27
- page 103, line 33
- page 104, line 45
- page 104, line 49
- page 105, line 9
- page 107, line 17
- page 137, line 45
- page 138, line 19

SuggestedRemedy

Replace reference (with year) to "ISO/IEC 11801".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **10** # 21

Yseboodt, Lennart Philips

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

Inconsistency in lineweight of table.

SuggestedRemedy

Make heavy line above Type 4 thin.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **25** # 22

Yseboodt, Lennart Philips

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

Reference to note 2 in Table 33-1 also applies to Type 4.

SuggestedRemedy

Add reference to note 2 to 0.960 in the Type 4 row.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **47** # 23

Yseboodt, Lennart Philips

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

... than class 4 power at PSE PI ...

SuggestedRemedy

... than class 4 power at the PSE PI ...

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.2** *P* **23** *L* **30** # 24

Yseboodt, Lennart Philips

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

Section header is "Channel requirement"

SuggestedRemedy

Change to "Channel requirements"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **8** # 25

Yseboodt, Lennart Philips

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

Misspelling 'guage', two occurrences.

SuggestedRemedy

Replace by gauge.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.2** P **26** L **37** # 26
Yseboodt, Lennart Philips

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

Figure 33-1 is incorrectly numbered and subsequent Figures are off-by-3

SuggestedRemedy

Rename Figure 33-1 to Figure 33-4 and all figures after this should be updated.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.2** P **26** L **1** # 27
Yseboodt, Lennart Philips

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

The Figures 33-1 through 33-4b should list in the figure caption if the PSE is a 2P PSE or a 4P PSE.
This makes it easier to find the applicable figure.

SuggestedRemedy

Add appropriate 2P/4P indicator to the figure caption.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.2** P **28** L **28** # 28
Yseboodt, Lennart Philips

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

Figure 33-2b, connection line to centertap of PSE side transformers is crooked.

SuggestedRemedy

Make straight.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.3** P **32** L **34** # 29
Yseboodt, Lennart Philips

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

Columns in Table 33-2a are not in same order as the Table 33-2 above.

SuggestedRemedy

Swap column Alternative A(MDI) with Alternative A(MDI-X) in Table 33-2a.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.4.4** P **39** L **5** # 30
Yseboodt, Lennart Philips

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

Table 33-3, line thickness is inconsistent.

SuggestedRemedy

Make bold lines above Type 2 and Type 3 multirow thick to the end of the table.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.4.6** P **42** L **42** # 31
Yseboodt, Lennart Philips

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

"... electrical requirements of PSE Type that corresponds to the connected PD Type."

SuggestedRemedy

"... electrical requirements of a PSE Type that corresponds to the connected PD Type."

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.4.7** P **43** L **54** # 32
Yseboodt, Lennart Philips

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

Figure 33-6 to 8 are not numbered. There is a jump from 33-5 to 33-9.

SuggestedRemedy

Rename Figure 33-9 to Figure 33-6 and update sequence thereafter.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **8** # 33

Yseboodt, Lennart Philips

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

The overview state diagram makes it hard to locate the sub/state diagrams.

SuggestedRemedy

Produce a unique figure number for each of the sub state diagrams.
Refer to these figure numbers inside the overview figure.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **8** # 34

Yseboodt, Lennart Philips

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

Most of the state names have an abbreviated name. This increases complexity.
Especially the abbreviation for POWER_DENIED, PD is highly confusing.

SuggestedRemedy

Pick 1 name for a state and do not abbreviate.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **8** # 35

Yseboodt, Lennart Philips

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

The overview diagram should not mix container boxes for sub state machines with actual states.

SuggestedRemedy

Only show container boxes (dashed) in the overview and the details go in the sub state machines.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **46** *L* **1** # 36

Yseboodt, Lennart Philips

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

Missing name "SEARCHING" for this Figure.

SuggestedRemedy

Label it SEARCHING as is done on page 48.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **47** *L* **1** # 37

Yseboodt, Lennart Philips

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

Missing name "DELIVERING POWER" for this Figure.

SuggestedRemedy

Label it DELIVERING POWER as is done on page 48.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **1** # 38

Yseboodt, Lennart Philips

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

Outer box for state diagram figures is redundant.
Applies to pages: 45, 46, 47, 48, 49.

SuggestedRemedy

Remove outer boxes.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.1** *P* **52** *L* **21** # 39

Yseboodt, Lennart Philips

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

"The PSE shall not be damaged by up to 5 mA backdriven current over the range of V oc as specified in Table 33â€“4."
Voc is not a range, only lists a maximum.

SuggestedRemedy

Change to:
"The PSE shall not be damaged by up to 5 mA backdriven current over the range of 0V to V_oc as specified in Table 33â€“4."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.2** *P* **53** *L* **2** # 40

Yseboodt, Lennart Philips

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

equation number 33-2 is wrong

SuggestedRemedy

equation number should be 33-1 and all equations after this should decrease with 1

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **55** *L* **26** # 41

Yseboodt, Lennart Philips

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

Incorrect reference to Table 33-17.

SuggestedRemedy

Replace Table 33-17 by Table 33-7.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **1** # 42

Yseboodt, Lennart Philips

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

Small inconsistencies in Table 33-8 formatting.

SuggestedRemedy

See yseboodt_Table_33_8_v100.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **35** # 43

Yseboodt, Lennart Philips

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

"Subsequent to successful detection, a Type 1 PSE may optionally classify a PD using 1-Event Physical
Layer classification. Valid classification results are Classes from 0 to 8, ..."

Type 1 PSE only support and identify class 0-3.

SuggestedRemedy

Replace by: "Subsequent to successful detection, a Type 1 PSE may optionally classify a PD using 1-Event Physical
Layer classification. Valid classification results are Classes from 0 to 3, ..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **58** *L* **46** # 44

Yseboodt, Lennart Philips

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

"... and the PSE measure Iclass in the range ..."

SuggestedRemedy

"... and the PSE measures Iclass in the range ..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **58** *L* **47** # 45

Yseboodt, Lennart Philips

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

"... after T ACS max this indicates the PD will peform Autoclass. (see 33.3.5.3)."
peform misspelling + Auto class

SuggestedRemedy

Change to "... after T ACS max this indicates the PD will perform Auto class. (see 33.3.5.3)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **59** *L* **52** # 46

Yseboodt, Lennart Philips

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

Forget a period at the end of the sentence.

SuggestedRemedy

Put a period.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.3** *P* **61** *L* **34** # 47

Yseboodt, Lennart Philips

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

Section title is "(TBD) Autoclass"

SuggestedRemedy

Remove TBD and add space: "Auto class"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.3** *P* **61** *L* **34** # 48

Yseboodt, Lennart Philips

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

Bulk comment to replace "Autoclass" with "Auto class" in this section.

SuggestedRemedy

Change 8 occurences.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.3** *P* **61** *L* **44** # 49

Yseboodt, Lennart Philips

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

No reference in text to Table 33-10a

SuggestedRemedy

Insert reference to Table 33-10a at line 41:
"PSEs implementing Autoclass shall measure the power consumption of the connected PD throughout the
period bounded by T AUTO_PSE1 and T AUTO_PSE2, defined in Table 33-10a, measured from the transition of the POWER_UP or
SET_PARAMETERS state to POWER_ON state."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **11** # 50

Yseboodt, Lennart Philips

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

Inconsistent plural PDs.

SuggestedRemedy

Change item 17:
"DC MPS current when measured over a pair set connected to single signature PD^3"
to
"DC MPS current when measured over a pair set connected to a single signature PD^3"

Change item 17a:
"DC MPS current when measured over a pair set connected to dual signature PD^3"
to
"DC MPS current when measured over a pair set connected to a dual signature PD^3"

Change item 17b:
"DC MPS current when total sum of both pairs with the same polarity is measured, connected to single signature PDs^4"
to
"DC MPS current when the total sum of both pairs with the same polarity is measure, when connected to a single singature PD^4"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4a** *P* **66** *L* **32** # 51

Yseboodt, Lennart Philips

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

"Pair to Pair" should be small letters

SuggestedRemedy

"pair to pair"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4** *P* **66** *L* **19** # 52

Yseboodt, Lennart Philips

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

Formatting error in the formula 33-4a

SuggestedRemedy

- Make "for Type 3" and "for Type 4" non-italic and match spacing with the next formula.
- Remove straight brackets [] from formula.
- A bit weird: there is an invisible 'A' as dimension for the K formula, but only the tip of the A is visible.
Remove this triangle/A.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4** *P* **66** *L* **49** # 53

Yseboodt, Lennart Philips

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

Equation number 33-4a is duplicate with the equation on line 19 of the same page.

SuggestedRemedy

Change number.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4a** *P* **66** *L* **49** # 54

Yseboodt, Lennart Philips

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

The formula says R Pair_max (ohm) <= ...
The ohm should not be there.
The dimension is missing after the closing accolade bracket.

SuggestedRemedy

- Remove ohm from R Pair_max
- Add ohm as dimension right of the formula

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4a** *P* **66** *L* **53** # 55

Yseboodt, Lennart Philips

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

"Pair_max" should not be italic

SuggestedRemedy

"Pair_max" with upright characters

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4a** *P* **67** *L* **1** # 56

Yseboodt, Lennart Philips

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

"Pair_min" should not be italic

SuggestedRemedy

"Pair_min" with upright characters

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.5** *P* **67** *L* **46** # 57

Yseboodt, Lennart Philips

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

No reference in text to equation 33-5

SuggestedRemedy

Replace:
"The PSE shall limit the maximum current sourced per pair set during POWER_UP. The maximum
inrush current sourced by the PSE per pair set shall not exceed the per pair set inrush template in Figure
33â€“13."
By:
"The PSE shall limit the maximum current sourced per pair set during POWER_UP. The maximum
inrush current sourced by the PSE per pair set shall not exceed the per pair set inrush template in Figure
33â€“13 and Equation 33-5."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.5** *P* **67** *L* **35** # 58

Yseboodt, Lennart Philips

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

"A Type 2 PSE that uses 1-Event physical layer classification, and requires the 1 ms settling time, shall power up a class 4 PD as if it used 2-Event physical layer classification."

SuggestedRemedy

Replace 2-Event by Multiple-Event.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **48** # 59

Yseboodt, Lennart Philips

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

"... remove power fromany pair set that exceeds the â€œPSE upperbound templateâ€." fromany missing space.

SuggestedRemedy

"... remove power from any pair set that exceeds the â€œPSE upperbound templateâ€."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **69** *L* **27** # 60

Yseboodt, Lennart Philips

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

In Figure 33-14 the parameters TLIMmin, TCUTmin and TCUTmax are missing the -2P suffix.

SuggestedRemedy

TLIMmin-2P, TCUTmin-2P and TCUTmax-2P.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.9.1** *P* **72** *L* **1** # 61

Yseboodt, Lennart Philips

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

There is an enlarged space between section number and title.
Line 1 and 7.

SuggestedRemedy

Consistent spacing.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **75** *L* **42** # 62

Yseboodt, Lennart Philips

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

In Table 33-13a, the two bottom rows refer to note 3 which does not exist.

SuggestedRemedy

Change ^3 to ^2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **76** *L* **2** # 63

Yseboodt, Lennart Philips

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

"Type 2 PDs implement both Multiple-Event Physical Layer classification (see 33.3.5.2) and Data Link
Layer classification (see 33.6) and advertise a 2-Event class signature of 4 during all class events."
2-Event not correct.

SuggestedRemedy

"Type 2 PDs implement both Multiple-Event Physical Layer classification (see 33.3.5.2) and Data Link
Layer classification (see 33.6) and advertise a Multiple-Event class signature of 4 during all class events."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **76** *L* **8** # 64

Yseboodt, Lennart Philips

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

"multiple-Event" captalization

SuggestedRemedy

"Multiple-Event"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.4** *P* **78** *L* **46** # 65

Yseboodt, Lennart Philips

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

"A timer used to prevent the Type 2 PD from drawing more than inrush current during the PSEâ€™s
inrush period; see T delay in Table 33â€“18."

SuggestedRemedy

Change to "T Delay" to "Tdelay-2P"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.4a** *P* **79** *L* **12** # 66

Yseboodt, Lennart Philips

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

No space between "Type 3, 4MPS"

SuggestedRemedy

"Type 3, 4 MPS"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **82** *L* **9** # 67

Yseboodt, Lennart Philips

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

No reference in text to equation 33-8.

SuggestedRemedy

Change
"The detection signature is a resistance calculated from two voltage/current measurements made during the
detection process."
To:
"The detection signature is a resistance calculated from two voltage/current measurements made during the
detection process, as defined in Equation 33-8."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5** *P* **83** *L* **43** # 68

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."
Bad section reference.

SuggestedRemedy

"A Type 1 PD may implement any of the class signatures in 33.3.5.1 and 33.6."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **84** *L* **47** # 69

Yseboodt, Lennart Philips

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

No reference in text to Table 33-16a

SuggestedRemedy

Change:
"PDs implementing Multiple-Event physical layer classification shall present class_sig_A during
DO_CLASS_EV1 and DO_CLASS_EV2 and class_sig_B during DO_CLASS_EV3, DO_CLASS_EV4,
DO_CLASS_EV5 and DO_CLASS_EV6, as defined in Table 33-16a."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **85** *L* **26** # 70

Yseboodt, Lennart Philips

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

"Type 3 and Type 4 PD shall conform to the electrical requirements..."
PD, multiple.

SuggestedRemedy

"Type 3 and Type 4 PDs shall conform to the electrical requirements..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **86** *L* **31** # 71

Yseboodt, Lennart Philips

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

No reference in text to Table 33-17a

SuggestedRemedy

Insert a new paragraph at the end of 33.3.5.3
"PDs implementing Auto class shall conform to the timing requirements as defined by Table 33-17a."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **86** *L* **33** # 72

Yseboodt, Lennart Philips

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

Table 33-17a lists only timing parameters, but is titled "Auto class Electrical Requirements".

SuggestedRemedy

Rename to Auto class PD timing requirements

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **1** # 73

Yseboodt, Lennart Philips

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

In Table 33-18, Items 4, 8, 9, 11 the Additional information field only covers part of the rows.

SuggestedRemedy

Make field fit with all rows of the corresponding item.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **47** # 74

Yseboodt, Lennart Philips

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

Table 33-18, Item 8 for Type 3/4 empty.

SuggestedRemedy

Insert TBD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **50** # 75

Yseboodt, Lennart Philips

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

Table 33-18, Item 9 for Type 3/4 empty.

SuggestedRemedy

Insert TBD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **91** *L* **25** # 76

Yseboodt, Lennart Philips

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

No reference in text to equation 33-11.
This is, for example, inconsistent with the paragraph above which does have a reference to Eq. 33-10.

SuggestedRemedy

Change
"The maximum I Port value for all operating V Port_PD range shall be defined by the following equation:"
To
"The maximum I Port value for all operating V Port_PD range shall be defined by Equation 33-11"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **94** *L* **44** # 77

Yseboodt, Lennart Philips

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

"PDs using auto class" missing capital.

SuggestedRemedy

"PDs using Auto class"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **94** *L* **49** # 78

Yseboodt, Lennart Philips

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

Annex for MPS is still TBD.

SuggestedRemedy

Add editors note that we still need to write this annex.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.1** *P* **95** *L* **24** # 79

Yseboodt, Lennart Philips

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

Line 24 says "Insert Table 33-19a as follows:", but the Table is moved beyond the section boundary.

SuggestedRemedy

Insert table in section 33.3.8.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.3** *P* **98** *L* **18** # 80

Yseboodt, Lennart Philips

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

"is the frequency in MHz from 1.00 MHz to 100. MHz for a 100 Mb/s or greater PHY"
Missing zero after 100. MHz

SuggestedRemedy

Change to
"is the frequency in MHz from 1.00 MHz to 100.0 MHz for a 100 Mb/s or greater PHY"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.6** *P* **101** *L* **46** # 81

Yseboodt, Lennart Philips

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

Confusing use of Ed_out (multiple definition) between 10G and lower speeds & no reference to Eq. 33-17a.

SuggestedRemedy

Change
"For 10GBASE-T, the coupled noise, E d_out in Figure 33â€“22, from a PSE or PD to the differential transmit
and receive pairs shall not exceed the following requirements under the conditions specified in 33.4.4, item
1) and item 2)."
To
"For 10GBASE-T, the coupled noise, E d_out in Figure 33â€“22, from a PSE or PD to the differential transmit
and receive pairs shall not exceed the requirements in Equation 33-17a under the conditions specified in 33.4.4, item
1) and item 2)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.6** *P* **101** *L* **46** # 82

Yseboodt, Lennart Philips

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

Equation 33-17a uses variable name Edout.

SuggestedRemedy

Change to "Ed_out" to match text and Figure 33-22.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.6** *P* **101** *L* **46** # 83

Yseboodt, Lennart Philips

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

Missing description of what 'f' is (inconsistent with other formulas, eg. 33-15).

SuggestedRemedy

Add description such as with Eq 33-15.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.1** *P* **106** *L* **4** # 84
Yseboodt, Lennart Philips

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

Dimension of frequency is in equation "1 <= f <= 250 MHz" (twice)

SuggestedRemedy

remove "MHz" in equation consistent with Eq 33-18.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.5.1.1.1a** *P* **110** *L* **43** # 85
Yseboodt, Lennart Philips

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

Poweer is spelled wrong

SuggestedRemedy

Change to "power"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.5.1.1.4** *P* **111** *L* **23** # 86
Yseboodt, Lennart Philips

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

"Bits 11.3:2 report the supported PSE Pinout Alternative specified in 33.2.1."
Pinout is not specified there.

SuggestedRemedy

change to "Bits 11.3:2 report the supported PSE Pinout Alternative specified in 33.2.3."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.5.1.2.12** *P* **114** *L* **31** # 87
Yseboodt, Lennart Philips

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

"When read as a one, bit 12.0 indicates that the PSE supports the option to control which PSE Pinout
Alternative (see 33.2.1)"
Pinout is not specified there.

SuggestedRemedy

change to
"When read as a one, bit 12.0 indicates that the PSE supports the option to control which PSE Pinout
Alternative (see 33.2.3)"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.6.3.4** *P* **119** *L* **41** # 88
Yseboodt, Lennart Philips

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

"Value^a" has wrong footnote reference, 3 times in this table 33-23

SuggestedRemedy

change to "Value^1"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A.3** *P* **145** *L* **37 a** # 89
Yseboodt, Lennart Philips

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

Small case letter a used in 33a-2 and 33a-3

SuggestedRemedy

33A-2 and 33A-3

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A.3** *P* **145** *L* **37** # 90
Yseboodt, Lennart Philips

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

Rch_max and Rch_min uses a backslash on line 37 and 45.

SuggestedRemedy

Change to Rch_max and Rch_min

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A.3** *P* **145** *L* **33** # 91
Yseboodt, Lennart Philips

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

"Channel pair to pair resistance unbalance is defined by Equation (33a-1):"
Equation (33a-1) reference is wrong

SuggestedRemedy

Change to Equation (33A-2)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A.3** *P* **145** *L* **41** # 92
Yseboodt, Lennart Philips

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

"Channel pair to pair resistance difference is defined by Equation (33a-2):"
Equation (33a-2) reference is wrong

SuggestedRemedy

equation (33A-3)

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2** *P* **151** *L* **28** # 93
Yseboodt, Lennart Philips

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

Reminder needed to add Auto class capability

SuggestedRemedy

Add editors note: Auto class capability in LLDP to be added.

Proposed Response *Response Status* **O**

Cl **33** *SC* **79.3.2.5** *P* **154** *L* **13** # 94
Yseboodt, Lennart Philips

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

No space after "Power" on line 13 and 37

SuggestedRemedy

add space after "Power" (twice)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A** *P* **145** *L* **1** # 95
Yseboodt, Lennart Philips

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

Change bars are missing for changes in the text.
They only are present for editors notes.

SuggestedRemedy

Add change bars to Annex 33A for all changes since 802.3-2012.

Proposed Response *Response Status* **O**

Cl **79** *SC* **79** *P* **148** *L* **1** # 96

Yseboodt, Lennart Philips

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

Change bars are missing for changes in the text.
They only are present for editors notes.

SuggestedRemedy

Add change bars to clause 79 for all changes since 802.3-2012.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **33** # 97

Yseboodt, Lennart Philips

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

Table 33-1a, incorrect implementation of comment D0.4/#38

SuggestedRemedy

See yseboodt_table_33_1a_v100.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **36** *L* **7** # 98

Yseboodt, Lennart Philips

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

IPort = Output current (see 33.2.7.6)
Other parts of the text refer to Iport_2P, including the referenced 33.2.7.6

SuggestedRemedy

Rename Iport to Iport_2P and put a note to also change the name in the state machine.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **39** *L* **5** # 99

Yseboodt, Lennart Philips

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

A Type 4 PSE is distinct from a Type 3 PSE in ways other than power (Vpse min, polarity, must implement 4P).
We do not want to prevent Type 4 PSEs from providing also power below class 7.
Currently Table 33-3 requires a Type 4 PSE to have class_num_events = 5, possibly restricting it to Class 7 and 8.

SuggestedRemedy

Add class_num_events 1, 2 and 4 also for Type 4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **56** *L* **4** # 100

Yseboodt, Lennart Philips

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

Table 33-7, 3rd column title is "Minimum power levels at the output of the PSE (Pclass)".
Note 2 says "This is the minimum power at the PSE PI."

The output level at the PSE PI can be anything between MPS and Pclass.
Pedantic reading would seem to imply that PSE must source Pclass at all times.

SuggestedRemedy

Replace by "Minimum supported power level at the output of the PSE (Pclass)"
and the note by "This is the minimum supported power at the PSE PI".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **56** *L* **4** # 101

Yseboodt, Lennart Philips

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

The construct "xx W or Ptype as defined in Table 33-11 whichever is less" is used.
Unless a PSE is providing more class events than its Type would allow, Ptype is always larger or equal than any class power valid for its Type.
The part "or Ptype as defined in Table 33-11 whichever is less" has no effect.

SuggestedRemedy

Remove "or Ptype as defined in Table 33-11 whichever is less" from each row that has it.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **27** # 102

Yseboodt, Lennart Philips

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

In Table 33-8. Type 3, 4 PDs, intersection of 'Multiple-event' and 'No DLL'.
Class 3 or below PDs are not required to support DLL.

SuggestedRemedy

Add a Table footnote '2' there that says:
"2 A Type 3 or 4 PD that is limited to Class 0-3 power levels may omit DLL support".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **31** # 103

Yseboodt, Lennart Philips

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

The note says "A Type 3 PSE that is limited to class 3 power levels can be limited to 1-event physical layer classification."
This is actually true for class 0-3.

SuggestedRemedy

Replace note by:
"A Type 3 PSE that is limited to Class 0-3 power levels can be limited to 1-event physical layer classification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **9** # 104

Yseboodt, Lennart Philips

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

There is a inadvertent content change in Table 33-8 compared to the old table format.
Two rows for Type 1 PDs have been swapped.

SuggestedRemedy

Change Type 1, PD, Multiple-event, No-DLL from NO to YES
Change Type 1, PD, Multiple-event, DLL from NO to YES
Change Type 1, PD, None, No-DLL from YES to NO
Change Type 1, PD, None, DLL from YES to NO

See yseboodt_Table_33_8_v100.pdf

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **59** *L* **52** # 105

Yseboodt, Lennart Philips

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

A Type 4 PSE shall skip MARK_EV_4 and CLASS_EV5 and transition directly to Mark_EV_LAST if the class signature detected during CLASS_EV4 is 1 or 2

This was not updated after the 75W class was added.

SuggestedRemedy

A Type 4 PSE shall skip MARK_EV_4 and CLASS_EV5 and transition directly to Mark_EV_LAST if the class signature detected during CLASS_EV4 is 0 or 1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **1** # 106

Yseboodt, Lennart Philips

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

We currently do not have a specification for the maximum delay between bringing the pair sets power up.
A PD cannot easily measure if it is getting 2P or 4P power.
If the pair sets are not brought up together, a PD could draw double the inrush, or exceed the 2P power limit
(even if it waited for Tdelay_2P).

SuggestedRemedy

Introduce a new parameter Tpud (T Pair set Power up delay) with a maximum value of 50ms.
A PSE that decides to 4P power a SS PD will need to transition both pair sets into inrush within Tpud.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **30** # 107

Yseboodt, Lennart Philips

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

Table 33-11, Item 12 defined Ptype.
It is double defined for Type 3, once for 2P mode and once for 4P mode.
This makes the value of Ptype ambiguous and is not needed.

SuggestedRemedy

Remove the 2P variant for Type 3 PType and also the corresponding note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.2** *P* **65** *L* **30** # 108

Yseboodt, Lennart Philips

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

"The minimum PD input capacitance allows the PD to operate for any input voltage transient lasting less than
30 us. Transients lasting more than 250 us shall meet the V Port_PSE-2P specification."

This statement is not true for the higher power classes.

SuggestedRemedy

Option 1 (preferred):
Lower the minimum time (30us) to:
Type 3: 15us
Type 4: 10us

Option 2:
Increase the minimum capacitance of PDs to:
Type 3: 10uF
Type 4: 15uF
(double that for DS PDs)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4** *P* **66** *L* **19** # 109

Yseboodt, Lennart Philips

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

The K factor calculation uses Rchan. Therefore the result of K is not dimensionless, but Ohm-ish.

SuggestedRemedy

The formula should be reworked to use a calculation based on Rchan/Rch to be properly dimensionless.
Add editors note to mark this as todo.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **43** # 110

Yseboodt, Lennart Philips

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

D0.4 and 802.3-2012 text said that power shall be removed before crossing the upperbound template.
D1.0 text says this:
"When connected to a single signature PD, a Type 3 or Type 4 PSE may remove power from both pair sets if
the current draw exceeds the â€œPSE lowerbound templateâ€ on either pair set, and shall remove power from
both pair sets if the current draw exceeds the â€œPSE upper bound templateâ€ on either pair set.

When connected to a dual signature PD, a Type 3 or Type 4 PSE may remove power from any pair set that exceeds
the â€œPSE lowerbound templateâ€ and shall remove power fromany pair set that exceeds
the â€œPSE upperbound templateâ€.
Power may be removed from both pair sets any time power is removed from one pair set."

SuggestedRemedy

Note: remedy does 3 things:
- insert space between "fromany"
- add references to Fig 33-14 and Eq 33-7
- change "exceeds" to "equals or exceeds"

"When connected to a single signature PD, a Type 3 or Type 4 PSE may remove power from both pair sets if
the current draw exceeds the â€œPSE lowerbound templateâ€, defined in Equation 33-7 and Figure 33-14, on either pair set, and shall remove power from both pair sets if the current draw equals or exceeds the â€œPSE upper bound templateâ€ on either pair set.

When connected to a dual signature PD, a Type 3 or Type 4 PSE may remove power from any pair set that exceeds
the â€œPSE lowerbound templateâ€ and shall remove power from any pair set that equals or exceeds the â€œPSE upperbound templateâ€.
Power may be removed from both pair sets any time power is removed from one pair set."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **74** *L* **41** # 111

Yseboodt, Lennart Philips

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

Comment D0.4/#105 partially implemented.
"Type 3 and Type 4 PDs shall be capable of accepting power on either or both of the pair sets."

SuggestedRemedy

"Type 3 and Type 4 PDs shall be capable of accepting power on either pair-set and shall be capable of accepting power on both pair-sets."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.3.4** *P* **78** *L* **46** # 112

Yseboodt, Lennart Philips

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

"A timer used to prevent the Type 2 PD from drawing more than inrush current during the PSEâ€™s
inrush period; see T delay in Table 33â€“18."

This also applies to Type 3 and 4.

SuggestedRemedy

"A timer used to prevent a Type 2, 3 or 4 PD from drawing more than inrush current during the PSEâ€™s
inrush period; see T delay-2P in Table 33â€“18."

This OBEs the editorial comment to change T delay to T delay-2P

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **86** *L* **35** # 113

Yseboodt, Lennart Philips

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

Units for Item 2 (T_Auto_PD1) and Item 3 (T_Auto_PD2) are in millisec and should be in seconds.

SuggestedRemedy

Change "ms" to "s" for Item 2 and 3 in Table 33-17a

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **48** # 114

Yseboodt, Lennart Philips

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

The Cport(min) for Type 1 and 2 was 5uF. This number should apply both in 2P mode as well as in 4P mode
for Type 1 and 2. By changing Cport to Cport_2P, a Type 2 PD with 5uF would no longer be compliant when
powered over 4P.

SuggestedRemedy

Since PDs cannot change their capacitance whether they are 4P or 2P powered and we cannot change Type 1, 2 I would suggest this:

Type 1,2 in 2P mode => 5uF(min) at the PI (total)
Type 1,2 in 4P mode => 5uF(min) at the PI (total)
Type 3,4 in 2P mode => 5uF(min) at the PI (total)
Type 3,4 in 4P mode, Single Sig => 5uF(min) at the PI (total)
Type 3,4 in 4P mode, Dial Sig => 5uF(min) on each pair set

Change the name Cport_2P back to Cport.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **89** *L* **15** # 115

Yseboodt, Lennart Philips

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

Von and Voff are TBD for Type 3 and 4.

SuggestedRemedy

There is no reason to pick new numbers for the new Types.
Use Von = 42V for Type 1-4.
Use Voff = 30V for Type 1-4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **91** *L* **5** # 116

Yseboodt, Lennart Philips

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

"At any static voltage at the PI, and any PD operating condition, the peak power shall not exceed
P Class_PD max for more than T CUT min, as defined in Table 33â€“11 and 5% duty cycle. Peak operating power
shall not exceed P Peak max."

"Ripple current content (I Port_ac) superimposed on the DC current level (I Port_dc) is allowed if the total input
power is less than or equal to P Class_PD max."

This disallows extended power. This is the text description of Figure 33-18.

SuggestedRemedy

"At any static voltage at the PI, and any PD operating condition, with the exception of class 6 or class 8 PDs, the peak power shall not exceed
P Class_PD max for more than T CUT min, as defined in Table 33â€“11 and 5% duty cycle. Peak operating power
shall not exceed P Peak max."

"At any static voltage at the PI, class 6 or class 8 PDs in operating condition, the peak power shall not exceed
PClass at the PSE PI for more than T CUT min, as defined in Table 33â€“11 and 5% duty cycle. Peak operating power
shall not exceed Ipeak * Vpse at the PSE PI."

"Ripple current content (I Port_ac) superimposed on the DC current level (I Port_dc) is allowed if the total input
power is less than or equal to P Class_PD max, or Pclass at the PSE PI for class 6 and class 8 PDs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **91** *L* **22** # 117

Yseboodt, Lennart Philips

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

"The maximum I Port value for all operating V Port_PD range shall be defined by the following equation:
Iportmax = Pclass_PD / Vport_PD (A) (33-11)"

This disallows extended power by limiting the current.

SuggestedRemedy

"The maximum I Port value for all PDs except those in Class 6 or Class 8, over the operating V Port_PD range,
shall be defined by the following equation:
Iportmax = Pclass_PD / Vport_PD-2P (A) (33-11)"

"The maximum I Port value for all PDs in Class 6 or Class 8, over the operating V Port_PD range,
shall be defined by the following equation:
Iportmax = Pclass_PD / Vport_PD-2P(min) (A) (33-11a)

where
Iportmax is the maximum DC and RMS input current
Vport_PD-2P(min) is the minimum static input voltage at PD PI
Pclass_PD is the maximum power, P Class_PD max, as defined in Table 33â€“18"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.1.1.2** *P* **95** *L* **45** # 118

Yseboodt, Lennart Philips

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

Bulk comment to change reference to IEC 60950-1:2001 which is outdated and superseded by IEC 62368-1.
In the following places:
- page 95, line 45
- page 95, line 49
- page 95, line 50
- page 95, line 53
- page 96, line 34
- page 97, line 22

SuggestedRemedy

Reference to IEC 60950-1 (without date) and to IEC 62368-1 which is the successor of IEC 60950-1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.3** *P* **107** *L* **10** # 119

Yseboodt, Lennart Philips

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

Last row frequency for 10GBASE-T is not including 500 MHz, seems inconsistent.

SuggestedRemedy

change to " f<= 500 MHz"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.4d** *P* **107** *L* **45** # 120

Yseboodt, Lennart Philips

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

"PSANEXT loss for 10GBASE-T capable Midspan PSE devices shall meet or exceed the values determined
using the equations shown in Table 33-20a for all specified frequencies. Calculations that result in
PSANEXT loss values greater than 67 dB shall revert to a requirement of 67 dB minimum."

This number of 67dB does not seem to match with Table 33-20a.

SuggestedRemedy

Make consistent whichever way is right.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.6.3.2** *P* **116** *L* **4** # 121

Yseboodt, Lennart Philips

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

For PD_DLLMAX_VALUE, class 8 is listed as 900.
Type 4 has a maximum power of 99.9W, but via physical layer only up to 90W can be negotiated.
LLDP is the best/only way to negotiate higher power than 90.

SuggestedRemedy

Change PD_DLLMAX_VALUE / Class 8 = 999

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.6a** *P* **155** *L* **4** # 122

Yseboodt, Lennart Philips

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

This section (PSE power status) only contains a table without text.

SuggestedRemedy

Insert editors note: Descriptive/normative text to be added to this section.

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.6b** *P* **156** *L* **3** # 123

Yseboodt, Lennart Philips

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

This section (System setup) only contains a table without text.

SuggestedRemedy

Insert editors note: Descriptive/normative text to be added to this section.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **32** *L* **31** # 124

Yseboodt, Lennart Philips

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

Table 33-2a introduces a new pinout configuration 'Alternative B(X)'.
The other polarity configuration is named 'Alternative B'.
Possible confusion can occur now when referring to 'Alternative B':
- does it mean the specific polarity configuration ?
- or to the pinout configuration ?

We need a distinct name for the "Alternative B" polarity configuration, so the term "Alternative B" refers to which pins are used independent from polarity.

SuggestedRemedy

Rename 'Alternative B' to 'Alternative B(S)' in the third column of Table 33-2a.
S for Straight
X for Cross

Other option:
Alternative B => Alternative B(N) N for Normal
Alternative B(X) => Alternative B(R) R for Reversed

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **25** *L* **16** # 125

Yseboodt, Lennart Philips

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

"PSEs may support either Alternative A, Alternative B, or both."
This information is already covered on page 33, line 25-28.
Also this statement is not correct for Type 4.

SuggestedRemedy

Remove this line.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.5.1.1.4** *P* **111** *L* **16** # 126

Yseboodt, Lennart Philips

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

The pair control variable is not yet 4P aware.
"When read as â€˜01â€™, bits 11.3:2 indicate that only PSE Pinout Alternative A is supported by the PSE. When
read as â€˜10â€™, bits 11.3:2 indicate that only PSE Pinout Alternative B is supported by the PSE.

Where the option of controlling the PSE Pinout Alternative through these bits is provided, setting bits 11.3:2
to â€˜01â€™ shall force the PSE to use only PSE Pinout Alternative A and setting bits 11.3:2 to â€˜10â€™ shall force the
PSE to use only PSE Pinout Alternative B.

If bit 12.0 is one, writing to these register bits shall set mr_pse_alternative to the corresponding value: â€˜01â€™ =
A and â€˜10â€™ = B. The combinations â€˜00â€™ and â€˜11â€™ for bits 11.3:2 are reserved and will never be assigned.
Reading bits 11.3:2 returns an unambiguous result of â€˜01â€™ or â€˜10â€™ that may be used to determine the presence
of the PSE Control register."

SuggestedRemedy

Replace by:
"When read as â€˜01â€™, bits 11.3:2 indicate that only PSE Pinout Alternative A is supported by the PSE. When
read as â€˜10â€™, bits 11.3:2 indicate that only PSE Pinout Alternative B is supported by the PSE.
When read as â€˜11â€™, bits 11.3:2 indicate that both Pinout Alternative A and Pinout Alternative B are supported by the PSE.

Where the option of controlling the PSE Pinout Alternative through these bits is provided, setting bits 11.3:2
to â€˜01â€™ shall force the PSE to use only PSE Pinout Alternative A and setting bits 11.3:2 to â€˜10â€™ shall force the
PSE to use only PSE Pinout Alternative B.
Setting bits 11.3:2 to '11' shall allow the PSE to use both PSE Pinout Alternative A and PSE Pinout Alternative B simultaneously.

If bit 12.0 is one, writing to these register bits shall set mr_pse_alternative to the corresponding value: â€˜01â€™ =
A, â€˜10â€™ = B and '11' = BOTH. The combination â€˜00â€™ for bits 11.3:2 is reserved and will never be assigned.
Reading bits 11.3:2 returns an unambiguous result of â€˜01â€™, â€˜10â€™ or '11' that may be used to determine the presence
of the PSE Control register."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **1** # 127

Johnson, Peter Sifos Technologies

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

While Table 33-8 is an improvement upon the prior version of that table, there is an opportunity to make it even clearer. All of the "Yes", "No" entries in this table are answering the implied question "Is this configuration valid?".

Suggestion is to rid the table of the "implied question" as per remedy below.

SuggestedRemedy

Replace "Permutations" with "Configurations".

Replace "Yes" with "Valid" and "No" with "Invalid".

Re-title Table 33-8: "PSE and PD classification configurations"

Proposed Response *Response Status* **O**

Cl **33** *SC* **3.2.6** *P* **55** *L* **11** # 128

Johnson, Peter Sifos Technologies

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

Table 33-8 uses the terms "No DLL" and "DLL". These have not been defined earlier in the document.

SuggestedRemedy

Add "(DLL)" after "Data Link Layer" on line 11.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **20** # 129

Johnson, Peter Sifos Technologies

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

The state machine variable "maintain_4pair_power" can be reset as a result of 3 possible events including LLDP message (e.g. "PD does not want 4-pair power"), enforcement of class power draw (power policing to class?), and "vendor discretion".

As this is an interoperability specification, how is a PD designer to know what constitutes "vendor discretion"? For example, if a PSE can remove power from some flavor of dual signature (or dual load) PD, how does the PD designer know to design a PD where this won't happen?

Furthermore, there is no possible recipe by which to verify the integrity of the PSE's decision nor is there one to distinguish the power removal from what might otherwise be a faulty processing of an MPS or overload type of shutdown.

SuggestedRemedy

Either remove "vendor discretion" as a criteria or expand the Editor's Note to indicate that a more detailed criteria is required explaining why a PSE might decide that 4-pair powering is not advisable.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **51** # 130

Johnson, Peter Sifos Technologies

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

Item 5, Inrush-2P, allows 4 pair PSE's to limit current to 400mA PER PAIR SET as currently phrased. This behavior, that is allowing up to 900mA during inrush, would damage existing PD's that were designed to expect PSE would limit inrush current to <450mA if/when those PD's receive 4-Pair power.

SuggestedRemedy

The remedy to this may get involved. For now, we could create an Editor's Note on the topic.

(Perhaps PSE's that limit inrush current on a per-pair set basis will need to power pair sets asynchronously by Tinrush so inrush is fully experienced on just a single pair set.)

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **18** *L* **14** # 131
Walker, Dylan Cisco

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

"Pair set: Either of the two valid 4-wire connection as listed in 33.2.3."

Seems "connection" should be plural.

SuggestedRemedy

"Pair set: Either of the two valid 4-wire connections as listed in 33.2.3."

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 132
Walker, Dylan Cisco

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

I believe the TF decided on "pairset" over "pair set" and "pair-set".

SuggestedRemedy

Replace all instances of "pair set" and "pair-set" with "pairset".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **21** *L* **53** # 133
Walker, Dylan Cisco

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

"A power system, consists of a single PSE, a single PD, and the link segment connecting them."

Comma after "A power system" is not needed.

SuggestedRemedy

"A power system consists of a single PSE, a single PD, and the link segment connecting them."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **25** # 134
Walker, Dylan Cisco

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

Table 33–1—System Power parameters Vs System Type

Note 2 is also applicable to Type 4, column 2.

SuggestedRemedy

Place Note 2 indicator next to 0.960 value for Type 4, column 2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **10** # 135
Walker, Dylan Cisco

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

"Type 2 and Type 3 operation requires Class D, or better, cabling as specified in ISO/IEC 11801:2002 with the additional requirement that channel DC loop resistance shall be 25ƒÇ or less."

Make "requires" singular.

SuggestedRemedy

"Type 2 and Type 3 operation require Class D, or better, cabling as specified in ISO/IEC 11801:2002 with the additional requirement that channel DC loop resistance shall be 25ƒÇ or less."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.2** *P* **23** *L* **30** # 136
Walker, Dylan Cisco

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

"33.1.4.2 Type 1 and Type 2 Channel requirement"

Make "requirement" plural.

SuggestedRemedy

"33.1.4.2 Type 1 and Type 2 Channel requirements"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.3** *P* **23** *L* **49** # 137
Walker, Dylan Cisco

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

"33.1.4.3 Four-pair operation channel requirement for pair-to-pair resistance unbalance"

Since this ultimately falls under channel requirements, it seems like the subclause should be changed accordingly.

SuggestedRemedy

"33.1.4.2.1 Four-pair operation channel requirement for pair-to-pair resistance unbalance"

or

"33.1.4.2a Four-pair operation channel requirement for pair-to-pair resistance unbalance"

Whichever the style guide would dictate.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **32** *L* **31** # 138
Walker, Dylan Cisco

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

Table 33–2a—Permitted Pinout alternatives per Type

Slightly confusing that "Alternative A (MDI)" and "Alternative A (MDI-X)" columns are swapped versus Table 33-2 above it.

SuggestedRemedy

Swap "Alternative A (MDI)" and "Alternative A (MDI-X)" columns to align with Table 33-2 above it.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 139
Walker, Dylan Cisco

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

Inconsistency with "4-pair", "4 pair", "four pair", etc.

SuggestedRemedy

Suggest replacing all other variants with 4-pair.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **17** # 140
Walker, Dylan Cisco

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

"maintain_4pair_power
This variable is provided for Type 3 and Type 4 PSEs to determine whether to continue providing a 4 pair power."

SuggestedRemedy

"maintain_4pair_power
This variable is provided for Type 3 and Type 4 PSEs to determine whether to continue providing 4 pair power."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **1** # 141
Walker, Dylan Cisco

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

Table 33–8—PSE and PD classification permutations

PD permutations are in the PSE clause, but they would stand on their own in the PD clause.

SuggestedRemedy

(1) Rename "Table 33–8—PSE classification permutations"
(2) Move "PD Permutations" half of the table to 33.3.5, page 83, line 43
(3) Have the text on line 41 above it reference the new table number with title "PD classification permutations"

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 142
Walker, Dylan Cisco

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

Inconsistency with the usage of "Autoclass", "Auto Class", and "Auto class".

SuggestedRemedy

Suggest replacing all other variants with "Autoclass".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4** *P* **65** *L* **46** # 143

Walker, Dylan Cisco

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

"When end to end pair to pair current unbalance is present, the ICon-2P may increase up to the value of ICon-2P-UNB as specified by Table 33-11 item 4b."

Currently refers to item 4b, which does not exist in Table 33-11.

SuggestedRemedy

"When end to end pair to pair current unbalance is present, the ICon-2P may increase up to the value of ICon-2P-UNB as specified by Table 33-11 item 4a."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **69** *L* **1** # 144

Walker, Dylan Cisco

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

Figure 33–14—POWER_ON state, per pair set operating current templates

TLIMmin, TCUTmin, and TCUTmax missing "-2p" suffix on X-axis.

SuggestedRemedy

Rename TLIMmin, TCUTmin, and TCUTmax to TLIMmin-2P, TCUTmin-2P, and TCUTmax-2P, respectively.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **70** *L* **17** # 145

Walker, Dylan Cisco

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

"Tlimmin-2P is TLIM min per pair set as defined in Table 33–11"

Tlimmin-2P does not have the T italicized.

SuggestedRemedy

Italicize the T in Tlimmin-2P.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **9** # 146

Walker, Dylan Cisco

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

"Invalid: Either the PSE has detected an open_circuit on one of the pair sets, or is otherwise unable to determine wwhether the PD is single-signature or dual-signature configuration."

Spelling mistake.

SuggestedRemedy

"Invalid: Either the PSE has detected an open_circuit on one of the pair sets, or is otherwise unable to determine whether the PD is single-signature or dual-signature configuration."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **42** *L* **42** # 147

Walker, Dylan Cisco

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

"The PSE may choose to apply the electrical requirements for ICon-2P, ILIM-2P, TLIM-2P, and PType (see Table 33-11) of any Type lower than or equal to the PSE Type and greater than equal to the PD Type."

Missing "or", assuming this paragraph isn't modified per the Editor's Note anyway.

SuggestedRemedy

"The PSE may choose to apply the electrical requirements for ICon-2P, ILIM-2P, TLIM-2P, and PType (see Table 33-11) of any Type lower than or equal to the PSE Type and greater than or equal to the PD Type."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **45** # 148

Walker, Dylan Cisco

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

"When connected to a dual signature PD, a Type 3 or Type 4 PSE may remove power from any pair set that exceeds the “PSE lowerbound template” and shall remove power fromany pair set that exceeds the “PSE upperbound template”."

Missing space.

SuggestedRemedy

"When connected to a dual signature PD, a Type 3 or Type 4 PSE may remove power from any pair set that exceeds the “PSE lowerbound template” and shall remove power from any pair set that exceeds the “PSE upperbound template”."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **26** # 149

Walker, Dylan Cisco

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

Table 33–11—PSE output PI electrical requirements for all PD classes, unless otherwise specified

Item 1a

2mV max requirement at no load was selected without considering the effect of loading on other ports within a system, which cannot be ignored without rendering this parameter pointless.

SuggestedRemedy

Frankly not sure yet, but would like to note that this parameter is under continued investigation with Yair to determine if the max value and/or measurement setup needs modification in order to serve its true purpose.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **39** # 150

Walker, Dylan Cisco

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

"both_alts_valid
This variable is provided for Type 3 and Type 4 PSEs.
Values:False:do_detection does not yields “valid” on both pair sets.
True: do_detection does not yield “valid” on both pair sets."

True and False have the same definition.

SuggestedRemedy

"both_alts_valid
This variable is provided for Type 3 and Type 4 PSEs.
Values:False: do_detection does not yield “valid” on both pairsets.
True: do_detection does yield “valid” on both pairsets."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **86** *L* **22** # 151

Walker, Dylan Cisco

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

"PDs implementing Auto class shall not have class_sig_A of ‘0’. In addition, PDs implementing Auto class shall remove its classification current at TACS, resulting in a classification signature of ‘0’ for the remainder of CLASS_EV1. PDs implementing Auto class carry out rest of the Physical Layer classification as defined in section 33.3.5.1 or 33.3.5.2.

After power up, PDs implementing Auto class shall consume their maximum power draw throughout the period bounded by TAUTO_PD1 and TAUTO_PD2, measured from when VPort_PD rises above VPort_PD min."

There is a missing "the" in line 24, and PD is referred to singularly and plurally in this text.

SuggestedRemedy

"A PD implementing Auto class shall not have class_sig_A of ‘0’. In addition, a PD implementing Auto class shall remove its classification current at TACS, resulting in a classification signature of ‘0’ for the remainder of CLASS_EV1. A PD implementing Auto class carries out the rest of the Physical Layer classification as defined in section 33.3.5.1 or 33.3.5.2.

After power up, a PD implementing Auto class shall consume its maximum power draw throughout the period bounded by TAUTO_PD1 and TAUTO_PD2, measured from when VPort_PD rises above VPort_PD min."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **1** # 152

Walker, Dylan Cisco

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

Table 33–18—PD power supply limits (continued)

For item 4, the boxes for additional information for classes 5-8 are empty.

SuggestedRemedy

Make the box with additional information for classes 0-4 span all of item 4, in particular to make it more clear that there is an explanation for "Input guaranteed available average power" for classes 6 and 8 in 33.3.7.2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4** *P* **95** *L* **37** # 153

Walker, Dylan Cisco

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

"The requirements of 33.4 are consistent with the requirements of the 10BASE-T MAU and the 100BASE-TX and 1000BASE-T and 10GBASE-T PHYs."

Extra "and" instead of comma.

SuggestedRemedy

"The requirements of 33.4 are consistent with the requirements of the 10BASE-T MAU and the 100BASE-TX, 1000BASE-T and 10GBASE-T PHYs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.5.1.1.1a** *P* **110** *L* **42** # 154

Walker, Dylan Cisco

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

"33.5.1.1.1a Deny Dual Signature PD 4 Pair poweer"

Spelling.

SuggestedRemedy

"33.5.1.1.1a Deny Dual Signature PD 4 Pair power"

Proposed Response *Response Status* **O**

Cl **33A** *SC* **33A.3** *P* **145** *L* **11** # 155

Walker, Dylan Cisco

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

"33A.3 Inter Pair Resistance Unbalance"

This section describes resistance unbalance within a twisted pair, not between twisted pairs.

SuggestedRemedy

"33A.3 Intra Pair Resistance Unbalance"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **75** *L* **29** # 156

Walker, Dylan Cisco

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

Table 33–13a—Permissible PD Types

Type 3 and Type 4 MPS entries indicate a note 3 that doesn't exist.

SuggestedRemedy

Change the 3 to a 2 for these 2 entries in Table 33–13a—Permissible PD Types.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.1** *P* **96** *L* **1** # 157

Walker, Dylan Cisco

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

Table 33–19a—PD DC Maintain Power Signature

Table was inadvertantly inserted in the wrong section.

SuggestedRemedy

Move Table 33–19a—PD DC Maintain Power Signature to 33.3.8, page 95, line 25 under the corresponding Editor's Note on line 23.

Proposed Response *Response Status* **O**

Cl **01** SC **1.3** P **18** L **5** # 158

Zimmerman, George CME Consulting

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

Clause 1.3 and 1.5 are placeholders, which will be deleted if no new references or abbreviations are inserted

SuggestedRemedy

Either - add new references (abbreviations for 1.5)
OR - add editor's notes (one for 1.3 and one for 1.5) as follows:
Editor's note (to be removed prior to publication) - This clause is a placeholder for new content. If no new references (abbreviations for cl 1.5) are added prior to entering sponsor ballot, this clause will be deleted from the ballot draft.

Proposed Response *Response Status* **O**

Cl **99** SC P **1** L **2** # 159

Zimmerman, George CME Consulting

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

802.3bt should be an amendment on the revised standard, not on IEEE Std. 201x. Several concurrent projects are tracking the revision project (bx) and it will be necessary at WG ballot. Better to get this done now while the TF is reviewing rather than introduce new errors in WG ballot

SuggestedRemedy

Globally change 'amendment to 802.3-2012' (in header and text) to 'amendment ot 802.3-201x', and update references and base text to track the latest draft of 802.3bx (3.1 should be appropriate for the next turn of bt)

Proposed Response *Response Status* **O**

Cl **99** SC P **3** L **13** # 160

Zimmerman, George CME Consulting

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

Fill in amendment name and title per PAR.

SuggestedRemedy

Fill in 802.3bt, title text from the PAR.

Proposed Response *Response Status* **O**

Cl **33** SC **33.1.4** P **22** L **24** # 161

Zimmerman, George CME Consulting

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

Table 33-1 thick line between rows for Type 3 and Type 4

SuggestedRemedy

Replace thick line between Type 3 and Type 4 with line 'As in Table' (thin line).

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.4.6** P **40** L **52** # 162

Zimmerman, George CME Consulting

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

do_connection_check needs to reference connection check requirement.

SuggestedRemedy

Insert prior to "This function returns...":
"This function initiates the connection check in 33.2.5.0a."

Proposed Response *Response Status* **O**

Cl **33** SC **33.3.5.3** P **86** L **16** # 163

Zimmerman, George CME Consulting

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

Auto Class nomenclature is confusing. is it "Auto Class" or "Auto class" or "Autoclass". All are used in the draft.

SuggestedRemedy

Change all references to "Auto Class" or "Auto class" to "Autoclass"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1** *P* **19** *L* **12** # 164
Zimmerman, George CME Consulting

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

This important guide to the reader appears out of place and easily lost.

SuggestedRemedy

Make sentence 'This clause uses terms defined in clause 1.4.' it's own paragraph, in the same place where it currently is.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **21** *L* **39** # 165
Zimmerman, George CME Consulting

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

Editor to track revision project and update references prior to WG ballot.

SuggestedRemedy

Implement references per 802.3bx D3.1 and track.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **21** *L* **47** # 166
Zimmerman, George CME Consulting

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

Editor's note is unclear what is being consulted on. It appears to be on an issue that was resolved by changes on lines 39 & 42.

SuggestedRemedy

Delete editor's note or make clear what action is pending.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **8** # 167
Zimmerman, George CME Consulting

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

gauge is misspelled as guage. (2 instances)

SuggestedRemedy

change guage to gauge (2 instances)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **51** # 168
Zimmerman, George CME Consulting

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

Table 33-1a Notes 1 through 4 have leading dashes

SuggestedRemedy

delete leading dashes on footnotes 1 through 4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.2** *P* **23** *L* **32** # 169
Zimmerman, George CME Consulting

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

Somewhere in the editing, we've made enough holes in this swiss cheese that the requirement is unclear. "Operation for all types shall meet the resistance unbalance requirements stated in ISO/IEC 11801:2002."
Operation of what, for what, what requirements? Is this a requirement on the port (PI) or on the link section. I'm assuming first its on the link section below, then on the PSE/PD.

SuggestedRemedy

Rephrase similar to how it is in PHY requirements: "Link sections for all Types shall comply with the resistance unbalance requirements specified in ISO/.IEC 11801:2002/"
If it is on the PSE/PD operation, then state, "PSE PI and PD PI electrical requirements in Clauses 33.2 and 33.3 shall be met over link sections with the full range of resistance unbalance specified in ISO/IEC 11801:2002."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **42** *L* **14** # 170
Zimmerman, George CME Consulting

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

definition of set_parameter_type has gotten convoluted

SuggestedRemedy

Recast definition as a table with permissible values for each PSE type, or reference such a table if it exists.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.4** *P* **82** *L* **1** # 171
Zimmerman, George CME Consulting

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

Editor's note has been resolved - no change to valid or non valid signatures is required by 4PID.

SuggestedRemedy

Remove editor's note.

Proposed Response *Response Status* **O**

Cl **33** *SC* *P* **88** *L* **17** # 172
Zimmerman, George CME Consulting

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

Table 33-18: 'guaranteed'? this is a requirement already. the word is redundant. Also on page 90, lines 1 and 4.

SuggestedRemedy

Remvoe the word guaranteed (4 occurances, 2 in the table and 2 on page 90)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **95** *L* **8** # 173
Zimmerman, George CME Consulting

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

Table 33-19 deletes the Input Current requirement to the MPS, doesn't mention the reference to 33.3.8 as strikeout in the row for input current, and, when I check 33.3.8, it is still written in terms of input current, without a requirement striken out. While the impedance may imply a current, the current remains the requirement and should be in the table, OR, should be removed from 33.3.8,which would be changing requirements on existing devices. ALSO, the text should show appropriate edits and strikeout from the base text - which it doesn't. (see earlier comment)

SuggestedRemedy

Reinstate strikeout text on Input current requirement, add reference to 33.3.8 back to the "additional information" column, as is in the 802.3bx D3.0 text, and renumber Input resistance and Input capacitance,

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.4** *P* **99** *L* **3** # 174
Zimmerman, George CME Consulting

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

10GBASE-T requirment is TBD, and this seems to have fallen off our action item list.

SuggestedRemedy

Add an editor's note flagging that this requirement needs contributions to fill in.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **18** *L* **14** # 175
Zimmerman, George CME Consulting

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

connection should be plural there are 2 sets.

SuggestedRemedy

change connection to connections

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.1** *P* **19** *L* **53** # 176

Zimmerman, George CME Consulting

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

Type 2 requires 11801:1995 Class D unless we explicitly meant to change the base standard for 802.3at to delete category 5 operation.

See also on page 23, line 11

SuggestedRemedy

Change 'Type 2 and Type 3 operation requires ISO/IEC 11801:2002 Class D or better... and a derating...' to 'Type 2 operation requires ISO/IEC 11801:1995 Class D or better cabling, and Type 3 operation requires ISO/IEC 11801:2002 Class D or better cabling. Both require a derating...'

Make a similar change on page 23, line 11.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **17** # 177

Zimmerman, George CME Consulting

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

Type 2 operation never has all cable pairs energized

SuggestedRemedy

Consider whether type 2 operation requires a 10 deg C reduction, since only half of the pairs are energized. (Delete type 2 from sentence, retain type 3)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **20** # 178

Zimmerman, George CME Consulting

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

Add reference to TSB-184-A for operation on all types in this standard.
The editor's note on line 25 is insufficient, because the sentence limits the TIA document to just Type 2 and needs to be changed.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.2** *P* **25** *L* **35** # 179

Zimmerman, George CME Consulting

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

10GBASE-T Midspan PSEs may not be compatible with 10BASE-T or 100BASE-TX due to magnetics OCL required. Requires further study.

SuggestedRemedy

Delete 10BASE-T and 100BASE-TX from line 35, insert editor's note after description of 10GBASE-T midspan (on line 37):
"Editor's note (to be removed prior to publication) - Compatibility of 10GBASE-T midspans with 10BASE-T and 100BASE-TX requires further study, specifically, technical feasiblity of the OCL requirements for 10BASE-T /100BASE-TX interoperability in conjunction with 10GBASE-T bandwidth needs to be shown."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **86** *L* **27** # 180

Zimmerman, George CME Consulting

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

can we really specify what PD 'consumes'? we can only specify what it draws.

SuggestedRemedy

change 'consume' to 'draw'

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **5** # 181

Zimmerman, George CME Consulting

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

Editor's note appears to have been overcome by events - Type 4 is in the table now.

SuggestedRemedy

Delete editor's note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **33** # 182

Zimmerman, George CME Consulting

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

Note that extended power will be addressed in separate work is misleading and suggests in a different standard.
Are the values for Type 3 & Type 4 extended power current agreed by the TF?

SuggestedRemedy

change 'will be address in separate work' to 'is presently under study in this draft'

change 'Currently for extended power,' to 'Currently, the proposed values for extended power are as follows:'

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **39** # 183

Zimmerman, George CME Consulting

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

The note is incomprehensible. What is being asked of TIA? Of course, there is a temperature rise with any current. I think the question is, what is the rise, and is it acceptable - however, the question needs more precision.

SuggestedRemedy

Form the question for TIA and ask as a liaison. Delete the note text:
"TIA will have to tell us regarding the temperature rise if 4P total current is 2*Icable per Table 33-1; What
if total 4P current is kept but one of the pairs has the above pair with maximum Icont-2P_unb and other
pair has the rest. Do they expect temperature rise? Based on the mathematical work we did we expect that
it will not affect temperature rise over the cable."
Optionally replace the note text with a simple question and a reference to the supporting liaison document.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **9** # 184

Zimmerman, George CME Consulting

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

Category 6a, which is required for 10GBASE-T and is often cited as recommended for new installations for PoE (see TIA TSB-184A draft) is not in ISO/IEC 11801-2002. It is in ISO/IEC 11801:2002/Amendment 1, and will be in ISO/IEC 11801-1 Edition 3, which should be complete by the time 802.3bt is complete.

SuggestedRemedy

Insert ", ISO/IEC 11801:2002/Amendment 1, and ISO/IEC 11801-1 Edition 3(draft)" after "with the additional requirement... 25 ohms or less" on line 12 (note the new references have that requirement).
Add editor's note to update ISO/IEC 11801-1 Edition 3 draft reference as it proceeds.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **42** # 185

Zimmerman, George CME Consulting

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

New 2-pair PSEs are out of scope of the PAR. The scope of the PAR has been maintained by the Chair in many cases as limiting to 4 pair operation and associated managmeent information. Introduction of new types of 2 pair PSE and PDs is an expansion of the scope which would require an amendment to the PAR.

SuggestedRemedy

Remove 2 pair Type 3 PSEs (both 15.4W and 30W) from table 33-1a.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **40** *L* **52** # 186

Zimmerman, George CME Consulting

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

do_connection_check needs a home in the state diagram. According to 33.2.5.0a it has to occur prior to classification. It also shouldn't happen significantly before detection. The Task Force has been clear that it doesn't want connection check pinned down, so the only place left is to put it inside the "DO_DETECT" state in parallel with do_detection (but not included in do_detection).

SuggestedRemedy

add "do_connection_check" to state START_DETECT in Figure 33-9a.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.4.6** P **42** L **41** # 187

Zimmerman, George CME Consulting

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

Text has become convoluted. There is the PSE Type, then there is the PD Type, then there are the PSE Type requirements that the PSE is applying, then there are missing words, and the fact that PSEs don't "choose", having the option 'may' is enough.
Note remedy uses _sub_ to indicate proposed subscripts.

In the process the text has gotten wrong as well, e.g., a PSE shouldn't be supplying Ptype greater than the PD type allows....

SuggestedRemedy

Rewrite. Replace paragraph with proposed text below:
"When a PSES powers a PD of lower Type (call this Type_sub_PD) than its own native type (Type_sub_PSE), the PSE shall meet the PI electrical requirements of the PD Type (Type_sub_PD), except for ICon-2P, ILIM-2P, TLIM-2P, and PType, for which the PSE shall meet the requirements of any PSE type Type_sub_PD <= PSE Type <= Type_sub_PSE.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.4.7** P **44** L **1** # 188

Zimmerman, George CME Consulting

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

Figure 33-9 (continued) The motion in May was to revert to a "Type 1 and Type 2" PSE state diagram as is currently in 802.3bx (802.3-2012). Figure 33-9 is part of this, but is not reverted and contains new classification matter from 802.3bt, which is out of scope.

SuggestedRemedy

Replace Figure 33-9 (continued) with the original Type 1 and Type 2 PSE state diagram per the motion in May.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.5.0a** P **51** L **20** # 189

Zimmerman, George CME Consulting

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

Connection check determines the signature type on the link segment. The architecture of the PD is a much more general thing.

SuggestedRemedy

change "determine the architecture of the PD" with "determine whether the a single signature or dual signature is attached to the two pair-sets in the link section."

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.5.6** P **55** L **24** # 190

Zimmerman, George CME Consulting

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

Annex-TBD is missing, even in outline form - what is in it? At least an editor's note of what is going to be in it, otherwise the reference is simply confusing and premature

SuggestedRemedy

Add at least a placeholder for the referenced annex in the draft, with an editor's note on the subject of the proposed content.

Proposed Response *Response Status* **O**

Cl **33** SC **33.2.7** P **62** L **3** # 191

Zimmerman, George CME Consulting

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

Type 1 and Type 2 PSEs conform to 33-9, 33-9 continued and 33-10. Type 3 and Type 4 PSEs conform to 33-9a and continuations.

SuggestedRemedy

Insert "Type 1 and Type 2" before PSE behavior
Insert sentence after "Figure 33-10", as follows:
"Type 3 and Type 4 PSEs conform to the state diagrams in Figure 33-9a and its continuations and Figure 33-10."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **74** *L* **38** # 192

Zimmerman, George — CME Consulting

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

The draft of this section does NOT show an edit from the existing version of clause 33. This calls into question the ENTIRE draft and process. Taking out the strikeouts and adds, Draft 1.0 shows the existing text would be "The PD shall be capable of accepting power on either of two sets of PI conductors and may accept power on both pair sets. The two conductor..." 802.3bx draft 3.0 has for this paragraph, "The PD shall be capable of accepting power on either of two sets of PI conductors. The two conductor..." NO MENTION of may accept power on both pair sets. that is an 802.3bt ADD.

SuggestedRemedy

Editor to show "and may accept power on both pair sets" as underlined text, AND, editor to review entire draft relative to 802.3bx for other adds.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **74** *L* **41** # 193

Zimmerman, George — CME Consulting

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

The name of the variable is maintain_4pair_power see zimmerman_3bt_02c_0515 slide 9, and page 35, line 15.

SuggestedRemedy

change "maintain_power_signature" to "maintain_4pair_power"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.6** *P* **87** *L* **1** # 194

Zimmerman, George — CME Consulting

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

Do we mean to restrict a Type 3 from identifying if it is connected to a Type 4 PSE? (or similarly, a Type 2 PD from identifying it is connected to a Type 3 PSE?) - that's what this text says. I think we want to specify that a PD recognizes and identifies a PSE type up to it's own type.

The text as written causes a Type 3 PSE to go unidentified or to be randomly identified as either Type 1 or Type 2 by a Type 2 PD.

SuggestedRemedy

Replace paragraph beginning with "A Type 2 PD" as follows:
"A PD shall identify any PSE type up to and including it's own type (e.g., a Type 2 PD shall recognize a Type 1 or Type 2 PSE (see figures 33-16), a Type 3 PD shall recognize a Type 1, Type 2 or Type 3 PSE, and a Type 4 PD shall recognize PSEs up to Type 4). A PD may identify a PSE of higher type than itself as its Type, e.g., a Type 2 PD may identify a Type 3 PSE as a Type 2."

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.6b(Table 79-6b)** *P* **156** *L* **2629** # 195

Zhuang, Yan — Huawei Techologies

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

Table 79-6b
Connection check is already used to indicate PD signatures.
Revise the meaning of PD PI bit to indicate PD loads for PSEs, so as to support the dual interface PD senario described in L2 ad hoc and avoid current overloaded described in "Consideration on Connection Check" presented in Jan 2015 meeting.

SuggestedRemedy

Replace the existing text
"1 = Dual signature. PClass_PD is the sum of the indicated PD mode power class values.
0 = Single signature. PClass_PD is indicated by either PD mode power class values."
to:
"0= The PD is a single load. The Mode class on each pair-set shall be the same.
1= The PD is a dual load. Each Mode class power is used to determine the power to provide to the Mode."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **32** *L* **30** # 196

Bullock, Chris — Cisco Systems

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

For clarity, the order of the columns in Table 33-2a should match the order of the columns in Tabls 33-2.

SuggestedRemedy

In Table 33-2a, swap the entire column "Alternative A (MDI)" with the entire column "Alternative A (MDI-X)"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **35** # 197

Bullock, Chris — Cisco Systems

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

"Valid classification results are Classes from 0 to 8, as listed in Table 33.7."

The paragraph containing the above statement is in reference to Type 1 PSEs. Since Type 1 PSEs do not support multiple event classification, the valid classes are from 0 to 4.

SuggestedRemedy

Change the text back to original"
"Valid classification results are Classes 0,1,2,3, and 4, as listed in Table 33.7"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **25** # 198

Bullock, Chris — Cisco Systems

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

Item 18 in Table 33-11: Tmpdo

Multiport PSE implementations that utilize separate controllers for pair-sets could require more time to handle MPS for both pair-sets.

SuggestedRemedy

Change Tmpdo (min) from 0.354s to 0.320s

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.1** *P* **96** *L* **30** # 199

Bullock, Chris — Cisco Systems

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

Item 3 in Table 33-19a: Tmpdo_pd

Related to comment requesting Tmpdo to be changed from 0.354s to 0.320s. We should also adjust Tmpdo_pd in order to ensure that there is sufficient margine in the spec.

SuggestedRemedy

Change Tmpdo_pd (max) from 318ms to 300ms for Type 3,4 If long first class event.

Proposed Response *Response Status* **O**

Cl **TOC** *SC* **NA** *P* **13** *L* **17** # 200

Dove, Daniel — Dove Networking Solut

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

Typo on word poweer.

SuggestedRemedy

Replace with word power.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **47** # 201

Dove, Daniel — Dove Networking Solut

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

Grammar error "at PSE PI".

SuggestedRemedy

Replace with "at PSE's PI".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **6** # 202
Dove, Daniel Dove Networking Solut

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

The word "approximately" is inappropriate

SuggestedRemedy

Replace with the word "essentially" as this is more appropriate in this context

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **8** # 203
Dove, Daniel Dove Networking Solut

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

Incorrect statement

SuggestedRemedy

Replace "found" with "typically found"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.2** *P* **25** *L* **24** # 204
Dove, Daniel Dove Networking Solut

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

How do we deal with some of the new technologies like 2.5G, 5G and 100T1? Should we name them based on type of technology or bandwidth rather than specific to PHY?

SuggestedRemedy

Spend some discussion with group deciding if we want this area to require constant update and change as new PHYs are introduced

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.2** *P* **31** *L* **50** # 205
Dove, Daniel Dove Networking Solut

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

Missing descriptive illustrations for Single/Dual signature PDs

SuggestedRemedy

Add figure(s) showing single signature PD and dual signature PD configuration.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **32** *L* **38** # 206
Dove, Daniel Dove Networking Solut

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

Missing explanation for why AltA (MDI) and AltB(X) are not allowed for Type 4 PSEs

SuggestedRemedy

Add explanation in the text

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.3** *P* **34** *L* **41** # 207
Dove, Daniel Dove Networking Solut

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

Wrong word

SuggestedRemedy

Replace "yields" with "yield".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.3** *P* **34** *L* **41** # 208
Dove, Daniel Dove Networking Solut

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

Wrong word

SuggestedRemedy

Remove word "not" or replace sentence with "do_detection yields "valid" on both pair sets.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **11** # 209
Dove, Daniel Dove Networking Solut

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

Inconsistent naming of "dual-signature" ie: hyphenated

SuggestedRemedy

Do a word search and replace "dual-signature" with "dual signature"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **44** *L* **54** # 210
Dove, Daniel Dove Networking Solut

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

This is the Type 3 and Type 4 PSE Classification State Diagram

SuggestedRemedy

Replace the diagram with the original diagram (802.3at-2012)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **30** # 211
Dove, Daniel Dove Networking Solut

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

The state diagrams were inserted as images for temporary placement.

SuggestedRemedy

These need to be constructed in FrameMaker and formatted for the proper page width/font/etc.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **30** # 212
Dove, Daniel Dove Networking Solut

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

The naming of the hierarchical blocks in the state diagram would be more clear if each section were properly identified.

SuggestedRemedy

For each section, use a different title. Ex: PSE Main State Diagram, PSE Searching State Diagram, PSE Delivering Power State Diagram, etc.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **46** *L* **30** # 213
Dove, Daniel Dove Networking Solut

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

Missing T14A

SuggestedRemedy

Add T14A

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **48** *L* **47** # 214
Dove, Daniel Dove Networking Solut

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

Missing Type 3 and Type 4 Classification State Diagram

SuggestedRemedy

Add The diagram, title, etc.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **50** *L* **29** # 215
Dove, Daniel Dove Networking Solut

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

Typo "Detec_Eval"

SuggestedRemedy

Replace with "Detect_Eval"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **50** *L* **35** # 216
Dove, Daniel Dove Networking Solut

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

Typo "poweer"

SuggestedRemedy

Search/Replace with "power"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **50** *L* **51** # 217
Dove, Daniel Dove Networking Solut

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

The last statement in this paragraph claims to preserve clarity, but I think it actually reduces clarity

SuggestedRemedy

Either clarify exactly why the link is not being called out, or correct this statement to make it more clear

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **48** # 218
Dove, Daniel Dove Networking Solut

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

Typo "fromany"

SuggestedRemedy

Replace with "from any"

Proposed Response *Response Status* **O**

Cl **33** *SC* **335.1.1a** *P* **110** *L* **42** # 219
Dove, Daniel Dove Networking Solut

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

Typo "poweer"

SuggestedRemedy

Search/Replace with "power"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **46** *L* **19** # 220
Dove, Daniel Dove Networking Solut

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

The do_connection_check function needs to be added. 4PID function may also need to be added

SuggestedRemedy

See dove_01_0615 for specific recommendations.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **5** # 221

Schindler, Fred Seen Simply

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

The added text appers to suggest that CAT-3 cables may be used for higher than class-4 power levels, which is not permitted by other specification requirements. The remainer of the sentence does not provide a requirement beyond what is already stated in the standard.

SuggestedRemedy

Strike the added sentence,
"The supply of power over the data connection is intended to operate with no additional requirements to the cabling that is normally installed for data usage. This is approximately true but may require some further attention. Power at Type 1 power levels may be transmitted over all specified premises cabling without further restrictions. Higher power levels may require heavier guage conductors than are found in Class C/Category 3 cabling and (more uncommonly) in some lighter guage Class D or better cable."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.2** *P* **25** *L* **38** # 222

Schindler, Fred Seen Simply

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

I do not see a reason for the added sentence. The data rate passed through a midspan does not determine whether it is 2P or 4P capable.

SuggestedRemedy

Strike the sentence,
"Additionally, 1000BASE-T and 10GBASE-T Midspan PSEs may be capable of 4-pair power."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **33** *L* **26** # 223

Schindler, Fred Seen Simply

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

Type 3 PSE that provide more than 30W require both Alternatives.

SuggestedRemedy

Replace
"Type 1, Type 2 or Type 3 PSEs shall implement Alternative A, Alternative B, or both. Type 4 PSEs shall
implement Alternative A and Alternative B."

with
"Type 1, Type 2 or Type 3 PSEs shall implement Alternative A, Alternative B, or both. Type 3 PSEs providing class 5 or 6 power levels and Type 4 PSEs shall implement Alternative A and Alternative B."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **7** # 224

Schindler, Fred Seen Simply

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

This text used may confuse readers as to what this variable accomplishes.

SuggestedRemedy

Strike text, "is used to do physical layer 4PID".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **5** # 225

Schindler, Fred — Seen Simply

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

Variables,
PD_4pair_candidate
maintain_4pair_power
deny_dual_sig_4pair_power

are provide without a related state diagram. Text related to these variables need to be left open for comment until the related state diagram is provided.

SuggestedRemedy

Keep this comment unresolved until the state diagram is provided and one subsequent comment cycle has occurred.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **27** # 226

Schindler, Fred — Seen Simply

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

The variable and the language for deny_dual_sig_4pair_power are not required for interoperability. They appear to be implementation specific. Some dual signature PDs may accept power on both pair sets. Whether the PSE powers a PD is implementation dependent.

SuggestedRemedy

Use the results of the connection check, which indicates whether a PD is a single or dual signature PD to make choices already permitted by the specification.

Strike variable deny_dual_sig_4pair_power and associated text.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **39** *L* **3** # 227

Schindler, Fred — Seen Simply

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

Table 33-3 column pse_dll_capable may be replaced by text for easier processing by the reader.

SuggestedRemedy

On page 38, line 8 replace text,
"See 33.6 for a description of Data Link Layer functionality and Table 33-3 for the allowed permutations of this variable with PSE Type and class_num_events." With
"See 33.6 for a description of Data Link Layer functionality. Variable pse_dll_capable shall be TRUE for Type 2 PSEs with class_num_events of 1."

Note all occurrences of Table 33-3 were considered when creating this solution. PIC text is not addressed by this comment.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **10** # 228

Schindler, Fred — Seen Simply

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

Fix Typo "wwhether".

SuggestedRemedy

Use "whether".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **48** # 229

Schindler, Fred — Seen Simply

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

Function do_detection appears to be incomplete. Some PSE implementations will power one pairset when a valid detection signature is present. The text should be written with respect to PSE behavior.

SuggestedRemedy

Replace "valid: The PSE has detected a PD requesting power." With
"valid_A: The PSE has detected a valid PD detection signature on ALT A.
valid_B: The PSE has detected a valid PD detection signature on power on ALT B.
valid_AB: The PSE has detected a valid PD detection signature on power on ALT A and ALT B."

Strike out text,
"both_alts_valid:A Type 3 or Type 4 PSE has detected a PD requesting power on both pair sets."

Text,
"This variable indicates the presence or absence of a PD." Should be replaced by
"This variable indicates the presence or absence of a valid PD detection signature."

…..
Flag this comment with FRS-2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **21** *L* **39** # 230

Schindler, Fred — Seen Simply

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

The definitions (line 39 and line 41) referenced both the IEEE 802.3-2012 and the in progress revision P802.3bx/D2.0. I do not have the private password to check the unpublished P802.3bx/D2.0 draft. I am not able to confirm if this reference is acceptable or whether it is the same as the public specification.

SuggestedRemedy

If the text is the same in both referenced documents then remove the P802.3bx/D2.0 reference so that there is no confusion as to what the definition is.

I am okay with the definitions in the IEEE 802.3-2012 specification. If the definition has changed we should review the definition potentially accept or change it.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **44** *L* **1** # 231

Schindler, Fred — Seen Simply

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

The modified legacy state diagram for classification provides a suitable starting point for classification for all PSE Types. The new Figure 33-9a Type 3 and Type 4 PSE state diagram does not provide the details already covered by the improved legacy state diagram.

SuggestedRemedy

Replace the figure on page 44 with the legacy IEEE 802.3-2012 figure 33-9.

Then move the .3BT Draft 1.0 figure and caption after the last figure labeled "Figure 33-9A - Type 3 and Type 4 PSE state diagram (continued)." Change the "Figure 33-9-Type 1 and Type 2 PSE state diagram (continued)" to "Figure 33-9A - Type 3 and Type 4 PSE state diagram (continued)."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **47** *L* **1** # 232

Schindler, Fred — Seen Simply

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

The state diagram provided in Figure 33-9a does not include Type 3 and Type 4 PSE requirements. It is not suppose to include Type 1 and Type 2 requirements. It appears to only show Type 1 and Type 2 requirements.

SuggestedRemedy

Remove the state diagram on pages 47 and replace with,
"Editor's Note: The state diagram for Type 3 and Type 4 PSEs needs further study and participants are encouraged to provide presentations to address this need."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **1** # 233

Schindler, Fred Seen Simply

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

The State Diagram provided in Figure 33-9a was created to be easier to follow than the existing approach. The existing approach takes two pages to cover Type 1 and Type 2 PSEs. The new approach takes 5 pages and does not yet cover classification and potentially other necessary requirements.

Other approaches should be considered and the suggested approach should be discussed to converge on a solution for Type 3 and Type 4 PSEs.

SuggestedRemedy

For all past PoE efforts, Task Force meeting time was devoted to discussing and refining state diagrams. I recommend that this approach is also taken during .3bt meetings and that we provide time for others to present alternative approaches to solving this problem.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **50** *L* **46** # 234

Schindler, Fred Seen Simply

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

The text,
"Specifically, Type 3 and Type 4 PSEs shall apply the detection probe to both pair sets prior to applying
power to 4 pairs."

Uses nonstandard language, adds text that may confuses the reader that is not required. The prior sentence requires PSEs to only power pair-sets with a valid detection signature. This also applies to Type 3 and Type 4 devices.

The added sentence requires a detection probe on both pair sets. This language is not clear. Is a probe without a valid detection all that is necessary? Is the probe done on both pair sets at the same time?

SuggestedRemedy

Strike the sentence,

"Specifically, Type 3 and Type 4 PSEs shall apply the detection probe to both pair sets prior to applying power to 4 pairs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.1** *P* **58** *L* **11** # 235

Schindler, Fred Seen Simply

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

The text,
"The PSE shall provide to the PI VClass with a current limitation of IClass_LIM, as defined in Table 33-10." Need to be updated to support Type 3 and Type 4 classification.

Application of the classification voltage to a pair set with an invalid detection signature may permanently damage a device. For example, Bob Smith termination resistors (0.125W typically). During detection, which is not likely to cause device damage, the PSE may provide 5mA short-circuit current and up to 30V open circuit. This permits up to 37.5 mW to device during detection. Classification permits (20.5V x 0.1A) up to 2.1W to be dissipated in a device. Legacy PSEs detect, classify and power on using the same Alternative (pair set).

New PSE may detect, classify, and power on, on all pair sets of the PI. Therefore, we need to prevent damage to network equipment.

SuggestedRemedy

Modify the sentence as follows,
"The PSE shall provide to a pair set VClass with a current limitation of IClass_LIM, as defined in Table 33-10 only for a pair set with a valid detection signature."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **57** *L* **45** # 236

Schindler, Fred Seen Simply

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

The text needs to be updated to support Type 3 and Type 4 classification.

SuggestedRemedy

Add to the end of the paragraph on line 45, the sentence,
"Both pair sets of the PI attached to a Dual Signature PDs shall be classified by Type 3 and Type 4 PSEs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **57** *L* **49** # 237

Schindler, Fred Seen Simply

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

Text needs to show that a TBD state diagram may identify single signature or dual signature PDs and how to process them.

Note: This comment is flagged with comment-FRS1 for easy searching.

SuggestedRemedy

After the paragraph ending on line 49, add the new paragraph,

"The connection check, described in 33.2.5.0, and the results of other system information, determine the value of variable pd_4pair_candidate, defined in 33.2.4.4. PSEs shall comply with the TBD state diagram, which determines the power requirements for pair sets predetermined to be connected to a PD capable of accepting power on both pair sets, see 33.2.5.6."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **43** # 238

Schindler, Fred Seen Simply

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

The changed text,
'The "PSE lowerbound template" and "PSE upperbound template" are shown in Figure 33-14.

When connected to a single signature PD, a Type 3 or Type 4 PSE may remove power from both pair sets if the current draw exceeds the "PSE lowerbound template" on either pair set, and shall remove power from both pair sets if the current draw exceeds the "PSE upper bound template" on either pair set. When connected to a dual signature PD, a Type 3 or Type 4 PSE may remove power from the any pair set PI if the PI pair-set current meets or that exceeds the "PSE lowerbound template" and in Figure 33-14. Power shall be removed from the PI of a PSE before the PI current remove power fromany pair set that exceeds the "PSE upperbound template". in Figure 33-14. Power may be removed from both pair sets any time power is removed from one pair set.'

Has broke legacy requirements, places unnecessary restrictions on PSEs, adds unnecessary text, and contains typos.

This new text no longer covers legacy PSEs. Permissible operations do not need to be repeated. The existing text addresses both legacy and new Types.

SuggestedRemedy

Restore the original text with the following minor edit,

'A PSE may remove power from the PI if the PI current meets or exceeds the "PSE lowerbound template" in Figure 33-14. Power shall be removed from a pair set of a PSE before the pair set current exceeds the "PSE upperbound template" in Figure 33-14.'

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **74** *L* **38** # 239

Schindler, Fred — Seen Simply

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

The new sentence,
"Type 1 and Type 2 PDs wishing to avoid 4 pair power for longer than a minimal amount of time may signal this by a message via LLDP to the PSE setting the maintain_power_signature variable to false."

This text changes legacy behavior. PDs not identified as being capable of accepting power on both pair sets should never be exposed to voltages that exceed Vvalid, the detection voltage. Legacy PDs are required to provide an invalid detection signature on an unpowered pair set when powered on by a legacy PSE. An invalid detection signature indicates a PD does not want to be powered (33.2.5.4, 33.3.4).

SuggestedRemedy

Replace the sentence with, text that indicates how legacy PDs may show that they accept power on both pair sets.

"Type 1 and Type 2 PD may indicate their ability to accept power on both pair sets by providing a valid detection signature on an unpowered pairset requesting power. These PDs may indicate the ability to accept power on both pair sets using LLDP variable 4P-ID in Table 79-6b."

On page 81, line 51 replace legacy sentence,
"When a PD becomes powered via the PI, it shall present a non-valid detection signature on the set of pairs from which it is not drawing power."

With,
"When a PD becomes powered via the PI, it shall present a non-valid detection signature on the set of pairs from which it is not drawing power. A PD may present a valid detection signature on a pair set from which it is not drawing power when the PD is cable of accepting power on both pair sets. "

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.3** *P* **86** *L* **27** # 240

Schindler, Fred — Seen Simply

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

The requirements for the power measurement are incomplete. The period for the measurement is only (3.28 - 1.35) 1.93 ms long, which is not long enough to cancel out AC-line noise.

SuggestedRemedy

Change variable item 3, TAUTO_PD2 minimum of Table 33-17a from 3.28 ms to 200 ms. Note that a sliding window 100 ms wide is an integer multiple of common 50 and 60 Hz AC line voltages.

Replace the existing sentence,
"After power up, PDs implementing Auto class shall consume their maximum power draw throughout the period bounded by TAUTO_PD1 and TAUTO_PD2, measured from when VPort_PD rises above VPort_PD min. The PD shall not draw more power than the power consumed during the time from TAUTO_PD1 to TAUTO_PD2 plus TBD% at any point until VPort_PD falls below VReset_th."

With,
"After power up, PDs implementing Auto class shall consume their maximum power draw throughout the period bounded by TAUTO_PD1 and TAUTO_PD2,
averaged using a 100 ms wide sliding window,
from when VPort_PD rises above VPort_PD min. The PD shall not draw more power than the power consumed during the time from TAUTO_PD1 to TAUTO_PD2 plus TBD% at any point until VPort_PD falls below VReset_th."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **16** # 241

Schindler, Fred — Seen Simply

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

For Table 33-18 item 4 for class 6 and class 8, add a note to guide the reader on permissible allowances. The reference note covers extended power.

SuggestedRemedy

"See 33.3.7.2" in the Additional information column of Table 33-18 for item 4, class 6 and 8.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **96** *L* **10** # 242

Schindler, Fred — Seen Simply

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

Table 33-19a does not cover Type 1 and Type 2 dual signature PDs but does cover Dual signature Type 3 and 4 PDs. MPS requirements for Dual signature PDs may be covered using text.

SuggestedRemedy

Strike Table 33-19a item 1, last row. Add the following text to 33.3.8, page 95, after line 2,

"The MPS requirements of Dual Signature PDs shall be half of the current value of Single Signature PDs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.4c** *P* **107** *L* **34** # 243

Schindler, Fred — Seen Simply

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

The text,
"Midspan PSEs intended for operation with 10GBASE-T (types 5 & 6 in Clause 33.4.9.1) are
Additionally required to meet the following parameters for coupling signals between ports relating to different link segments."

May be in error or is confusing. What are types 5 & 6?

SuggestedRemedy

Get an expert opinion and craft a sentence that does not confuse referenced types with PoE Types.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.3** *P* **107** *L* **3** # 244

Schindler, Fred — Seen Simply

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

Table 33-20 column "Midspan PSE Type" header does not reference PoE Types which may confuse the reader.

SuggestedRemedy

Replace the header with,
"Ethernet"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **47** # 245

Schindler, Fred — Seen Simply

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

The text "It shall be stored in the variable pd_4pair_candidate, defined in 33.2.4.4." Implies that variable pd_4pair_candidate indicates that the attached class 0 to 4 PD accepts power on both pair sets. This is incorrect.

The connection check (33.2.5.0) and detection alone are not able to determine if a legacy PD is able to accept power on both Modes. These methods reduce the likelihood of interoperability issues for PDs capable of accepting power on both Modes (single and dual signature PDs). The .3bt classification process provides a means to identify PD Types that accept power on both Modes. Classification results in the PD Type and LLDP data that indicates PD ability to accept power on both pair sets. Type 3 and Type 4 PDs are required to support power on both pair sets. Type 1 and Type 2 PDs may accept power on both pair sets.

SuggestedRemedy

Replace the entire text of 33.2.5.6 with,

"Type 3 and Type 4 PSEs shall determine whether an attached PD with classes 0 to 4 is a candidate to receive power on both pair sets prior to applying 4 pair power. This determination is referred to as 4PID. Classification in 33.2.6 may be used to obtain the PD Type and may be used to obtain LLDP variable PD 4P-ID in Table 79-6b. PSEs may power both PD modes of Type 3 and Type 4 PDs, and Type 1 and Type 2 PDs that have LLDP variable 4P-ID indicating that powering of both PD Modes is supported."

…..
Note that details related to the connection check and variable pd_4pair_candidate are covered in a separate comment. Flagged with comment-FRS-1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **40** # 246

Schindler, Fred Seen Simply

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

New variable both_alts_valid appears to be incomplete. Some PSE implementations will power one pairset when a valid detection signature is present. Note that the legacy standard did not have a variable to indicate a valid PD detection signature.

SuggestedRemedy

This variable should be replaced by do_detection adjustments provided in the comment flagged by FRS-2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **55** *L* **13** # 247

Schindler, Fred Seen Simply

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

Sentence,
"Physical Layer classification occurs before a PSE supplies power to a PD when the PSE asserts a voltage onto the PI and the PD responds with a current representing a limited number of power classifications."

Need to be corrected for Type 3 and Type 4 PSEs.

SuggestedRemedy

"Physical Layer classification occurs before a PSE supplies power to a PD when the PSE asserts a voltage onto a pair set and the PD responds with a current representing a limited number of power classifications."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **55** *L* **19** # 248

Schindler, Fred Seen Simply

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

The new text,
"The minimum power output by the PSE for a particular PD class is defined by Equation (33-3).
Alternatively, PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh max when powering using two-pairs, or RChan = RCh/2 when powering using four-pair systems and to arrive at over-margined values as shown in Table 33-7."

may be improved by terms already used in the spec. and by correct grammar.

SuggestedRemedy

Replace with,
"The minimum power output by the PSE for a particular PD class is defined by Equation (33-3).
Alternatively, PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh max when powering using two pairs sets, or RChan = RCh/2 when powering using four pair sets to arrive at over-margined values as shown in Table 33-7."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **55** *L* **26** # 249

Schindler, Fred Seen Simply

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

The new text,
"If the PD connected to the PSE performs Auto class (see 33.3.5.3 and Annex 33-TBD), the PSE may set its minimum power output based on the power drawn during Auto class, increased by at least (TBD 5%), with a maximum value defined in Table 33-17 of the corresponding PD class and a minimum of 4.0 Watts."

has a typo and a requirement that could be removed.

SuggestedRemedy

Replace Table 33-17 with Table 33-7. Discuss in the room whether removing the text, "and a minimum of 4.0 Watts." is necessary. A PD using Autoclass may draw up to a valid in the Table but the lower bound is determined by MPS.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **76** *L* **7** # 250

Schindler, Fred Seen Simply

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

New text,
"Type 3 and Type 4 PDs operating with a maximum power draw corresponding to Class 4 or greater implement both multiple-Event Physical Layer classification (see 33.3.5.2) and Data Link Layer classification (see 33.6) and advertise a class signature of 4, 5, 6, 7 or 8."

Conflicts with Table 33-13a. A Type 4 PD was created to support high power applications.

SuggestedRemedy

Replace text on page 76 with,

"Type 3 and Type 4 PDs operating with a maximum power draw corresponding to Class 4 or greater implement both multiple-Event Physical Layer classification (see 33.3.5.2) and Data Link Layer classification (see 33.6). Type 3 PDs advertise a class signature of 4, 5, or 6, while Type 4 PDs advertise class signature of 7 or 8."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **25** *L* **1** # 251

Schindler, Fred Seen Simply

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

New sentence,
"2-Pair operation allowed if PSE is supplying Class 4 power or less."

Is incomplete and should be improved. Legacy PDs may only be powered on all pair sets once they have been identified as being capable of accepting power on all pair sets.

SuggestedRemedy

Replace the sentence with,
"Powering of both pair sets is allowed for Type 1 or 2 PDs when the requirements of section 33.2.5.6 have been met. Type 1 or 2 PDs may be powered using one pair set."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **16** # 252

Schindler, Fred Seen Simply

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

Text,

"maintain_4pair_power
This variable is provided for Type 3 and Type 4 PSEs to determine whether to continue providing a 4 pair power. It is initially set to the value of pd_4pair_candidate. It may be reset by a LLDP message, as a result of enforcement of class power draw, or at vendor discretion.
Values:False:Remove power from at least one pair set.
True: Power may be maintained on both pair sets."

Indicates a PD has been incorrectly powered on both pair sets. To avoid interoperability or damage to a network device, power should only be applied on one pair set of this PD.

SuggestedRemedy

A solution has been provided in the comment flagged with FRS-1 and other comments submitted.

The state machine when it is created shall prevent powering of a PD that does not accept power on all pair sets.

Strike the reference text.

Proposed Response *Response Status* **O**

Cl **70** *SC* **79.3.2.6b** *P* **156** *L* **26** # 253

Schindler, Fred Seen Simply

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

Improve the text for Table 79-6b item 2 by removing unnecessary information and clarifying what information is being conveyed.

SuggestedRemedy

Replace the existing text,
"1 = Dual signature. PClass_PD is the sum of
the indicated PD mode power class values.
0 = Single signature. PClass_PD is indicated
by either PD mode power class values."

With
"1 = Physical layer PClass_PD is the sum of the indicated PD mode power class value.
0 = Physical layer PClass_PD is indicated by either PD mode power class values."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **74** *L* **39** # 254

Schindler, Fred — Seen Simply

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

The new sentence,
"Type 1 and Type 2 PDs wishing to avoid 4 pair power for longer than a minimal amount of time may signal this by a message via LLDP to the PSE setting the maintain_power_signature variable to false."

This text changes legacy behavior. PDs not identified as being capable of accepting power on both pair sets should never be exposed to voltages that exceed Vvalid, the detection voltage. Legacy PDs are required to provide an invalid detection signature on an unpowered pair set when powered on by a legacy PSE. An invalid detection signature indicates a PD does not want to be powered (33.2.5.4, 33.3.4).

SuggestedRemedy

Replace the sentence with, text that indicates how legacy PDs may show that they accept power on both pair sets.

"Type 1 and Type 2 PD may indicate their ability to accept power on both pair sets by providing a valid detection signature on an unpowered pairset requesting power. These PDs may indicate the ability to accept power on both pair sets using LLDP variable 4P-ID in Table 79-6b."

On page 81, line 51 replace legacy sentence,
"When a PD becomes powered via the PI, it shall present a non-valid detection signature on the set of pairs from which it is not drawing power."

With,
"When a PD becomes powered via the PI, it
may present a non-valid detection signature on the set of pairs from which it is not drawing power. A PD that presents a valid detection signature on the pair set from which it is not drawing power may get powered by Type 3 and Type 4 PSEs."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **9** # 255

Dwelley, David — Linear Technology

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

Table 33-8: Yes/No labels aren't as informative as they could be

SuggestedRemedy

Change "Yes" to "Valid" and "No" to "Invalid" thoughout Table 33-8

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **21** *L* **53** # 256

Dwelley, David — Linear Technology

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

Extra comma: "A power system, consists..."

SuggestedRemedy

Remove: "A power system consists..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **21** *L* **54** # 257

Dwelley, David — Linear Technology

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

Sentence needs rewriting: "A power system is characterized as either Type 1, or Type 2, Type 3 or Type 4, by the lowest type number of the PSE or PD in a system..."

SuggestedRemedy

Replace with: "The power system Type is defined by the lowest Type of the PSE or PD in a system..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **51** *L* **1** # 258

Dwelley, David — Linear Technology

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

The first two sentences in this section are of questionable value and are not normative: "The PSE is not required to continuously probe to detect a PD signature. The period of time when a PSE is not attempting to detect a PD signature is implementation dependent."

SuggestedRemedy

Remove the second sentence. Consider removing the first sentence. Remove "Also" from the third sentence.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.3** *P* **53** *L* **24** # 259

Dwelley, David Linear Technology

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

This sentence is awful

SuggestedRemedy

Replace with: "A PSE shall detect a pair set within a link section with the following characteristics as a valid PD detection signature:"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **31** # 260

Dwelley, David Linear Technology

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

Table 33-8, Note 1: "Limited" is probably not the right term here: "A Type 3 PSE that is limited to class 3 power levels can be limited to 1-event physical layer classification."

A PSE may be capable of higher power levels but for various reasons may only intend to provide Level 1 power to a PD - in this case it may (and probably should) only perform 1-event class.

SuggestedRemedy

Replace note 1 with: "A Type 3 PSE that will provide class 3 or lower power levels may opt to use 1-event physical layer classification."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **25** *L* **1** # 261

Dwelley, David Linear Technology

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

Note 4 doesn't add any information. Class 4 power or less is always 30W or less, which falls into row 4 which allows 2-pair power. If we're trying to ensure that falling back from 4-pair power to 2-pair power is compliant behavior, that's OK - but this note is not the right place for it.

SuggestedRemedy

Remove note 4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **50** *L* **43** # 262

Dwelley, David Linear Technology

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

The "pair set" edits have changed the meaning of the original sentence - we still want to require the original behavior. The next (new) sentence mandates the T3/4 detection requirements adequately well by itself.

SuggestedRemedy

Restore original sentence: "In any operational state, the PSE shall not apply operating power to the PI until the PSE has successfully detected a PD requesting power."

Remove the word "Specifically" from line 47. Might also want to require success (not just application) in this sentence.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **18** *L* **14** # 263

Dwelley, David Linear Technology

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

"pair set", "pair-set", and "pairset" have all been used in 802.3bt - pick one. "Pairset" is most unique and least likely to be misinterpreted.

SuggestedRemedy

Change "pair set" and "pair-set" to "pairset" throughout the document.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **21** # 264

Dwelley, David Linear Technology

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

"71.3" watt class has too much precision. Cutting max power to 71W is only an 0.5% reduction in PD power. Rounding up runs the risk of non-interoperability with an LPS-limited PSE and a maximum-resistance cable plant.

SuggestedRemedy

Change to 71.3W to 71W.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **23** *L* **32** # 265

Dwelley, David — Linear Technology

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

This defines cabling parameters: "Operation for all types shall meet the resistance unbalance requirements stated in ISO/ IEC 11801:2002."

SuggestedRemedy

Replace with: "Operation is assured when the channel meets the resistance unbalance requirements stated in ISO/ IEC 11801:2002."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.1** *P* **33** *L* **50** # 266

Dwelley, David — Linear Technology

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

This sentence is redundant and is not normative: "A Type 3 or Type 4 PSE that will deliver power over both Alternative A and Alternative B simultaneously...". Also, it seems like some "shalls" are missing - this is required behavior.

SuggestedRemedy

Remove sentence, and add the words "only" and "shall" to page 34, line 1: "A PSE performing detection using Alternative B *only* may fail to detect a valid PD detection signature. When this occurs, the PSE *shall* back off for at least Tdbo as specified..."

Consider also adding a "shall" to page 34 line 8.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **46** # 267

Dwelley, David — Linear Technology

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

"...and the results of other system information, as described in 33.2.5.0.". There is no "other information" defined in 33.2.5.0.

SuggestedRemedy

Remove "and the results of other system information"

While we're here, replace "&" with "and" in line 45.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **37** *L* **4** # 268

Dwelley, David — Linear Technology

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

Add "on at least one pairset" to the end of the "TRUE" value definition

SuggestedRemedy

Add "on at least one pairset" to the end of the "TRUE" value definition

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **22** # 269

Dwelley, David — Linear Technology

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

Table 33-11: Several symbols have -2p added to them. This breaks continuity with AF/AT - an AT device that claims to meet Vport_pse will not find a spec with that name anymore. New titles with "per pair set" can stay, as all valid AF/AT devices operated over a single pairset.

SuggestedRemedy

Remove -2p suffixes from Items 1 and 4-10.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **87** *L* **36** # 270

Dwelley, David — Linear Technology

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

Table 33-18: Several symbols have -2p added to them. This breaks continuity with AF/AT - an AT device that claims to meet Vport_pd will not find a spec with that name anymore. New titles with "per pair set" can stay, as all valid AF/AT devices operated over a single pairset.

SuggestedRemedy

Remove -2p suffixes from Table 33-18, Items 1-3, 5, 6, and 9.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **49** # 271

Dwelley, David — Linear Technology

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

Table 33-18, item 9: Change to "per pair set capacitance" allows 360uF. We changed this to 180uF per Straw Poll 2 in Pittsburgh.

SuggestedRemedy

Change back to "PD capacitance"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **84** *L* **28** # 272

Dwelley, David — Linear Technology

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

If a Type 3/4 PD draws 0mA as Class 0, the line voltage may never return to Vmark and a multi-event class signature may be read incorrectly by the PSE.

SuggestedRemedy

Add to Parameter at line 28: "(Type 1/2)"
Add a new row below this row: "Current for Class 0 (Type 3/4)" with 1mA as the minimum, all other specs the same.

Alternately, split the Conditions column to show Type 1/2 with 0 min and Type 3/4 with 1mA min.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **42** # 273

Dwelley, David — Linear Technology

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

Table 33-11: this seems to imply that 45W over a single pairset is OK. This means all 45W PDs must use 45W transformers on each pairset

SuggestedRemedy

Add to Additional Information: "Class 4 and lower only"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **43** # 274

Dwelley, David — Linear Technology

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

Extra "not" in true case

SuggestedRemedy

Change to: "do_detection yields "valid" on both pair sets"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **50** # 275

Dwelley, David — Linear Technology

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

Move the "Power may be removed..." sentence to section 33.2.9 so it covers all cases

SuggestedRemedy

Move the "Power may be removed..." sentence to page 71 at the end of line 51.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **70** *L* **26** # 276

Dwelley, David — Linear Technology

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

The PSE voltage on both pair sets may drop in this case: "If IPort-2P exceeds the PSE lowerbound template, the PSE output voltage on that pair set may drop below VPort_PSE-2P min."

SuggestedRemedy

Remove "on that pair set" or add "or both pair sets":

"If IPort-2P exceeds the PSE lowerbound template, the PSE output voltage may drop below VPort_PSE-2P min."

"If IPort-2P exceeds the PSE lowerbound template, the PSE output voltage on that pair set or both pair sets may drop below VPort_PSE-2P min."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **37** # 277

Picard, Jean Texas Instruments

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

The column "maximum class supported" of Table 33-1a should represent the class level, and not the max power.

SuggestedRemedy

Replace the power (Watts) with class level (0 to 8)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **47** # 278

Picard, Jean Texas Instruments

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

Table 33-1a should show the maximum class supported per category, the line item "75W" should not be there.

SuggestedRemedy

Remove the 75W line item.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **43** # 279

Picard, Jean Texas Instruments

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

For the "true" condition, "does not" should not be there.

SuggestedRemedy

Replace with "do_detection yields valid on both pair sets"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **50** # 280

Picard, Jean Texas Instruments

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

We also need to know if the result of do_detection is valid for pair-set A or pair set B or both when 4P systems are used.

SuggestedRemedy

Change from: valid: The PSE has detected a PD requesting power.
To:
valid: For type 1 and Type 2 PSEs: The PSE has detected a PD requesting power.
valid_4P_A: For type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Alternative A pairs.
valid_4P_B: For type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Alternative B pairs.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **5** # 281

Picard, Jean Texas Instruments

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

there has been no determination yet that the result of detection and connection check, while both pair sets are unpowered, can confirm that a dual signature PD is able to receive power over 4 pairs.

SuggestedRemedy

change the last sentence as following, "detection, connection check and an additional 4PID method to be defined"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **17** # 282

Picard, Jean — Texas Instruments

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

It is not appropriate to simply provide power and check through LLDP if 4-pair power is permitted, as it may take a very long time to go through that cycle (including boot-up time), which may cause damage to certain types of dual signature PDs. It is also NOT reliable to rely on LLDP boot up time to avoid damaging PDs. If power is applied without having determined that 4P power can be received, a "short term" (much shorter than LLDP cycle time) time limit to turn off the power has to be defined based on potential damage scenarios, either electrically or thermally related.

SuggestedRemedy

replace 3rd sentence with "if it has not been determined that 4P power can be received, this variable shall be reset within TBD ms after the 4-pair power has been applied."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **27** # 283

Picard, Jean — Texas Instruments

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

The variable and the language for deny_dual_sig_4pair_power are not required for interoperability. They appear to be implementation specific.

SuggestedRemedy

Use the results of the connection check, indicating whether a PD is a single or dual signature PD to make choices permitted by the specification.
Eliminate the variable deny_dual_sig_4pair_power and associated text.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **36** *L* **5** # 284

Picard, Jean — Texas Instruments

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

Iport should be Iport-2P

SuggestedRemedy

Replace with Iport-2P

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **69** *L* **48** # 285

Picard, Jean — Texas Instruments

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

Iport needs to be converted to Iport-2P

SuggestedRemedy

Use Iport-2P instead

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **70** *L* **16** # 286

Picard, Jean — Texas Instruments

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

Iport needs to be converted to Iport-2P

SuggestedRemedy

Use Iport-2P instead

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **39** *L* **36** # 287

Picard, Jean — Texas Instruments

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

The paragraph below is misleading, referring to "hardware limitation", in the case of type 4 PSE.

SuggestedRemedy

Replace the second sentence with:
"For example, this would apply to a PSE that is oversubscribed and in power management mode or a Type 3 PSE that has a hardware limitation."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **33** # 288

Picard, Jean Texas Instruments

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

The expression "class of the PD associated with the" should have been removed from the sentence, based on abramson_02_1114.

SuggestedRemedy

Remove "class of the PD associated with the" from the sentence.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **50** *L* **46** # 289

Picard, Jean Texas Instruments

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

This sentence could be misleading and adds unnecessary text.
This sentence could be interpreted as not allowing a PSE to turn temporarily OFF one pair set and turn it back on without further detection, when it was previously determined to be connected to a single signature PD.

SuggestedRemedy

recommend removing this whole sentence as it adds unnecessary text.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **43** # 290

Picard, Jean Texas Instruments

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

The statement below is vague, unclear and could be misleading, it appears that a PSE can simply apply 4-pair power and then check after if the load can accept it, which is incorrect. Also, what if there is no such system information and the PSE has to decide what to do with a dual signature PD ?

In the case of dual signature PD, the other system information needed to determine 4PID can be obtained through physical layer or LLDP, for example after a first pair set has been powered and prior to powering the second pair set.

SuggestedRemedy

Change the first sentence as:
Type 3 and Type 4 PSEs shall determine whether an attached PD with classes 0 to 4 is a candidate to receive power on both pair sets prior to applying power to the second pair set.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6** *P* **57** *L* **35** # 291

Picard, Jean Texas Instruments

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

Type 1 PSE is incorectly linked to classification result 0-8, while it cannot classify beyond class 4.

SuggestedRemedy

Replace "Classes from 0-8" with "Classes from 0-4"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **59** *L* **52** # 292

Picard, Jean Texas Instruments

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

This sentence has not been updated accordingly to the changes applied to class_sig_B of table 33-16a.

SuggestedRemedy

Replace "during CLASS_EV4 is 1 or 2"
with "during CLASS_EV4 is 0 or 1".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **26** # 293

Picard, Jean Texas Instruments

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

Table 33-11:
VPort_PSE_diff is too low, it needs to be increased.

Systems using 2 separate circuitries (may be on separate cards) to drive each pair set may have issues caused by difference in GND potential, due to the ground (or power) routing if multiple pair sets on one card are at high current and all (or very few of) the pair sets on the other card have no current.

SuggestedRemedy

System analysis needed to determine appropriate value. Suggest to evaluate the impact of using 10mV instead.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **10** # 294

Picard, Jean — Texas Instruments

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

Table 33-11:
The max limit should be ILIM-2P

SuggestedRemedy

Replace ILIM with ILIM-2P

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **11** # 295

Picard, Jean — Texas Instruments

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

Table 33-11:
ICUT-2P min needs to be specified.
Should refer to ICON-2P-unb

SuggestedRemedy

Replace TBD with same values used for ICON-2P-unb

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **17** # 296

Picard, Jean — Texas Instruments

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

Table 33-11:
Regarding type 3, the ILIM-2P min definition is NOT right, it does not take into account the imbalance.

SuggestedRemedy

Redefine Type 3 ILIM-2P min, using the unbalance factor.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **19** # 297

Picard, Jean — Texas Instruments

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

Table 33-11:
ILIM-2P min needs to be defined for type 4

SuggestedRemedy

Define Type 4 ILIM-2P min starting from (1+K) x IPeak-2P, which means around 1.2A.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **22** # 298

Picard, Jean — Texas Instruments

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

Table 33-11:
Should be "single signature PD" (without an "s")

SuggestedRemedy

Remove the "s" at end of PD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **25** # 299

Picard, Jean — Texas Instruments

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

PSE systems need more flexibility for disconnect timing

SuggestedRemedy

Table 33-11:
Reduce TMPDO minimum to 320 ms for type 3 or 4

There is a corresponding request for PD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **96** *L* **30** # 300

Picard, Jean Texas Instruments

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

PSE systems need more flexibility for disconnect timing.

SuggestedRemedy

Table 33-19a: Reduce TMPDO_PD maximum to 300 ms if Type 3 or 4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **95** *L* **24** # 301

Picard, Jean Texas Instruments

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

Table 33-19a is in the wrong section.

SuggestedRemedy

Move table 33-19a to page 95

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **43** # 302

Picard, Jean Texas Instruments

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

Each pair-set has its individual current limiting requirement (current and time), and if both of them are short-circuited, they will meet their individual spec, so that there is no need to link them together.

Also, the lowerbound template needs to related to the total PI current.
The PSE may check the sum of currents to apply ICUT, and that would be the minimum possible.

SuggestedRemedy

Remove the paragraph with:

A PSE may remove power from the PI if the PI current meets or exceeds the "PSE lowerbound template" in Figure 33-14. Power shall be removed from a pair set of a PSE before the pair set current exceeds the "PSE upperbound template" in Figure 33-14.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.8** *P* **71** *L* **27** # 303

Picard, Jean Texas Instruments

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

The sentence does not comply with the power demotion concept defined in mutual ID section.

SuggestedRemedy

Replace the sentence with:
"At the exception of the situation when it applies power demotion, a PSE does not initiate power provision to a link if the PSE is unable to provide the maximum power level requested by the PD based on the PD's class"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.1** *P* **74** *L* **39** # 304

Picard, Jean Texas Instruments

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

It may not be appropriate to simply provide power and check through LLDP if 4-pair power is permitted, as it may take a very long time to go through that cycle (including boot-up time), which may cause damage (ex: energy dissipated) to certain types of dual signature PDs. If there is a limit of time, it has to be short, most likely 0.5 to 1 second maximum, which is much shorter than reaction time through LLDP.
In some cases, there may be NO minimal acceptable on time at 57V when a PD does not want this power.
We cannot expect that ALL existing PDs can comply with such requirement.

SuggestedRemedy

Remove the second sentence from the paragraph.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **75** *L* **42** # 305

Picard, Jean Texas Instruments

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

There isn't any Note #3

SuggestedRemedy

Replace "3" with "2", both type 3 and type 4 line items.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **76** *L* **7** # 306

Picard, Jean Texas Instruments

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

The paragraph is incorrect and misleading relative to type 4 PD, which apply only to class 7 and 8.

SuggestedRemedy

Replace the paragraph with:
"Type 3 PDs operating with a maximum power draw corresponding to Class 4 or greater implement both multiple-Event Physical Layer classification (see 33.3.5.2) and Data Link Layer classification (see 33.6) and advertise a class signature of 4, 5 or 6."

Also, add this one:
"Type 4 PDs operating with a maximum power draw corresponding to Class 7 or greater implement both multiple-Event Physical Layer classification (see 33.3.5.2) and Data Link Layer classification (see 33.6) and advertise a class signature of 7 or 8."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.1** *P* **84** *L* **11** # 307

Picard, Jean Texas Instruments

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

The paragraph is incorrect and misleading relative to type 4 PD, which apply only to class 7 and 8.

SuggestedRemedy

Replace:
Since 1-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 1-Event classification with a Class 4 signature

With:
Since 1-Event classification is a subset of Multiple-Event classification, Type 2 and Type 3 PDs operating with a maximum power draw corresponding
to class 4 or higher, as well as Type 4 PDs, respond to 1-Event classification with a Class 4 signature

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **85** *L* **26** # 308

Picard, Jean Texas Instruments

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

These 2 lines should have immediately followed the last paragraph of previous page, otherwise it can become confusing.

SuggestedRemedy

Regroup this paragraph together on either page 84 or 85.

It should read as:

"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_leveltype state variable is set to '1.' A Type 2, Type 3 and Type 4 PD shall conform to the electrical requirements as defined by Table 33–18 for the level type defined in the pse_power_leveltype state variable."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **87** *L* **28** # 309

Picard, Jean Texas Instruments

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

Table 33-18:
table looks too complicated, too many unnecessary choices.

SuggestedRemedy

simplify the table and regroup around a more limited number of alternatives.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.8** *P* **96** *L* **6** # 310

Picard, Jean Texas Instruments

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

Table 33-19a:
At 2 locations, the bullet should be moved to the left

SuggestedRemedy

Position correctly the bullets

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **91** *L* **37** # 311

Picard, Jean Texas Instruments

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

Equation 33-12a should apply only to class 7-8

SuggestedRemedy

Replace:
Peak power, PPeak_PD, for Class 7 and 8 is based on
Equation (33-12a), which approximates the ratiometric peak powers of Class 0 through Class 8.

With:
Peak power, PPeak_PD, for Class 7 and 8 is based on
Equation (33-12a), which approximates the ratiometric peak powers of Class 7 through Class 8.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **1** # 312

Picard, Jean Texas Instruments

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

the state diagram does not cover Type 3 and Type 4 PSEs and that a replacement is required before I will review it.

SuggestedRemedy

New Type 3-4 state diagram to be provided.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **69** *L* **1** # 313

Picard, Jean Texas Instruments

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

A Type 4 version of figure 33-14 will be needed. There are fundamental differences between type 3 and type 4 Power on state behavior.

SuggestedRemedy

Figure 33-14a to be proposed.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **61** *L* **13** # 314

Darshan, Yair Microsemi

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

Table 33-10 item 8, additional information column.
Missing word "which" in the following text.
"The maximum value of TME2 is limited by the maximum allowed time from end of detection until power-on ----which---- is limited by 33.2.7.12.

SuggestedRemedy

Change the additional information text from:
"The maximum value of TME2 is limited by the maximum allowed time from end of detection until power-on is limited by 33.2.7.12.

To:
"The maximum value of TME2 is limited by the maximum allowed time from end of detection until power-on which is limited by 33.2.7.12.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **21** *L* **50** # 315

Darshan, Yair Microsemi

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

The Title of clause 33.1.4 was in the past "Type 1 and Type 2 system parameters" and was changed to System parameters".
This change and the modification in line 54 address types 3 and 4 too.

The problem is that in the current standard (IEEE802.3-2012) the text in line 50 that says: "A power system, consists of a single PSE..." that was correct for Type 1 and Type 2 PSEs, is not correct for Type 3 and 4 PSEs.
Single PSE was OK for Type 1 or 2 due to the fact that we could use ALT A PSE or ALT B PSE but not both so a "single PSE" term was correct to use.
In Type 3 or 4 PSEs, the term single PSE is confusing term due to the fact that Type 3 and 4 PSEs can use a PSE that uses ALT A and ALT B PSEs or use a PSE with two outputs connected to ALT A and ALT B pair-sets or using any other PSE implementations that do the work.
The point is that it is not just a single PSE with one output connected to two pair-sets. It is more like a single PSE system etc.

SuggestedRemedy

Replace "single PSE" by "single PSE system"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **22** # 316

Darshan, Yair Microsemi

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

Editor note: Lines 22-27
Type 4 requirements is defined. The rest will be defined in TIA TSB-184-A.
As a result we can delete the Editor note.

SuggestedRemedy

Delete the editor note in lines 22-27, page 23.

Proposed Response *Response Status* **O**

Cl **33** *SC* **Annex 33A** *P* **145** *L* **9** # 317

Darshan, Yair Microsemi

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

Text says:
"Insert 33A.3 and 33A.4 after 33A.2 as follows:"
Where is 33A.2 in Draft 1.0?
Where is the text of PSE-PD stability?

SuggestedRemedy

Where is 33A.2 in Draft 1.0?
To restore "33A.2 PSE-PD stability" text as 33A.2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A.4** *P* **145** *L* **34** # 318

Darshan, Yair Microsemi

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

Typo: Need to be Equation 33a-2 and not Equation 33a-1.

SuggestedRemedy

Change from Equation 33a-1 TO Equation 33a-2.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33A.4** *P* **145** *L* **37** # 319

Darshan, Yair Microsemi

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

There is a typo in equation 33a-2 and Equation 33a-3:
Equations use Rch_max and Rch_min instead Rch_max and Rch_min
remove the "\" from Rch_max and Rch_min (6 locations)

SuggestedRemedy

remove the "\" from Rch_max and Rch_min in equations 33a-2 and 33a-3 (6 locations) in lines 37 and 45.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **42** # 320

Darshan, Yair Microsemi

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

Variable both_alts_valid:
The text:
"Values:False:do_detection does not yields “valid” on both pair sets.
True: do_detection does not yield “valid” on both pair sets."

was not correctly inserted per approved baseline text.
(There are other comments related to same problem. Base line text probably copied wrongly or copied from not th elast version).

SuggestedRemedy

Replace with:
TRUE – do_detection yields “valid” on both pair-sets
FALSE – do_detection does not yield “valid” on both pair-sets

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **6** # 321

Darshan, Yair Microsemi

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

In the following variable:
PD_4pair_candidate
This variable is provided for Type 3 and Type 4 PSEs to determine whether a connection is a candidate to receive power on both pair sets.

the phrase "a connection" is not clear.
The variable PD_4pair_candidateIt is to determine if a class 0-4 PD can recived and work with 4P power.

The text "a connection" can be "a PD" or "a device" or "a PD class 0-4".

SuggestedRemedy

Replace "a connection" with "a PD class 0-4"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33** *P* **0** *L* **0** # 322

Darshan, Yair Microsemi

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

I couldnt find in the text that all requirements are relevant to a single port and it is implementation specifics to adress the operation of multi-port systems as regard to clause 33.

SuggestedRemedy

Add a text that syas:
Clause 33 defines the Type 1,2,3 and 4 systems requirements for a single port system.
Multi-port systems requirements are implementation specific.

(or equivalen wording)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **9** # 323

Darshan, Yair Microsemi

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

There is no reason why PD_4pair_candidate results will be ready only before classification.
It can be ready at any time prior power_up.

SuggestedRemedy

Change lines 9-10 from:
Values:
False: Do not proceed to 4 pair classification.
True: Proceed to 4 pair classification.

To:
Values:
False: This PD is not a candidate for powering up with power on both pair sets.
True: This PD is a candidate for for powering up with power on both pair sets.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **37** *L* **9** # 324

Darshan, Yair Microsemi

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

At the system level we need to know if we have over load condition over a pair set, for both pair-sets.
As a result, the variable ovld_detected text need to be updated.

SuggestedRemedy

Change from:
A variable indicating if the PSE output current has been in an overload condition (see 33.2.7.6) for..."

To:
A variable indicating if the PSE output current over a pair-set has been in an overload condition (see 33.2.7.6) for..."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **50** # 325

Darshan, Yair Microsemi

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

In the system level we need to know if the result of do_detection is valid for pair-set A or pair set or both when 4P systems are used. Last time we covered the case where both pair sets result with valid signature.
We need also to know if it is valid on ALT A only or valid on ALT B only.

SuggestedRemedy

Change from:
valid: The PSE has detected a PD requesting power.
To:
valid: For Type 1 and Type 2 PSEs: The PSE has detected a PD requesting power.
valid_4P_A: For Type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Mode A
valid_4P_B: For Type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Mode B.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0A** *P* **24** *L* **31** # 326

Darshan, Yair Microsemi

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

It is clear from different locations in our standard that PSE that implements DLLL is also allowed to implement the maximum class events that corresponds to the maximum PSE power supported per its type and class.
It will be helpful to add such note right after Table 33-1a that summarize the permissible PSE types.

SuggestedRemedy

Add note 5 after note 4 below table 33-1a that says:
5-PSE that is defined as DLLL capabale and implements the maximum class events corresponds to the PSE maximum power supported is allowed according to this standard.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **44** *L* **54** # 327

Darshan, Yair Microsemi

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

The title of figure 33-9 on page 44 is incorrect.
It says:
"Figure 33–9—Type 1 and Type 2 PSE state diagram (continued)"
The drawing shows the PSE classification state diagram of of Type 1, 2, 3 and 4.

SuggestedRemedy

Change the title figure 33-9 on page 44 from"
"Figure 33–9—Type 1 and Type 2 PSE state diagram (continued)"
To
"Figure 33–9 —Type 1, Type 2, Type 3 and Type 4 PSE classification state diagram (continued)"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **28** # 328

Darshan, Yair Microsemi

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

The comment addresses the following text in lines 28-40 but focused on lines 28-31):
33.3.7.3 Input inrush current
Inrush current per pair-set is drawn beginning with the application of input voltage at the pair set compliant with Vport_PD-2P requirements as defined in Table 33-18, and ending before TInrush-2P min per Table 33-11. After TInrush-2P min, the PD shall not exceed its per pair set current threshold corresponding to its class level.

From the current text, it is not clear that Iinrush is the response of applying voltage to a capacitor. After PD input capacitance is charged, the capacitor current is decaying to zero It is also not clear that it is possible that during POWER UP, the input current to the PD contain a resistive load component that is limited for all PD types to 350mA during POWER UP time frame
For Type2,3 and 4 PDs it is limited to 350mA for at least 80msec from STARTUP begin. As a result the PD input current is split to the PD resistive load and PD input capacitor, generating a charging current of: Icharging=Iinrush-2P_min -Type 1 maximum DC current=0.4A-0.35A=50mA which guarantees that maximum PD input capacitor=180uF is fully charged within 50.4msec for Type 1 systems and Type 1 maximum allowed DC load. Tinrush=Cpd_max*(Vpse_min-Voff)/(Iunrush_min-Iport_cont)=180uF*(44V-30V)/(0.4A-0.35A)=50.4msec. This is the reason why Tinrush max for the PD is 50msec.
In similar way for Type 2: Tinrush =180uF*(50V-30V)/(0.4A-15.4W/50V)= 180uF*20V/(0.4A-0.308A)=39.13msec <50msec which is OK.
As a result, Iinrush is observed almost immediately when PSE applies Voltage to PD (within few msec) and PD resistive load may follow it at any time during POWER UP time frame with maximum value of 350mA.
There are 2-3 main PD POWER UP profiles (1. short load, ramp, stable. 2. Flat, ramp, stable. 3. Vport, short load, ramp, stable). In all of them completion of Iinrush is possible to detect without waiting for the completion of Tinrush timer.

SuggestedRemedy

Add the following text after line 31:
Successful POWER UP is guaranteed by PSE supplying Inirush-2P minimum value and PD not drawing more than Type 1 maximum DC current which result with stable voltage ramping across PD input capacitor. See details in Annex A_PD_Inrush.

(Annex A_PD_Inrush is included in darshan_08_0615.pdf)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.5.2** *P* **85** *L* **27** # 329

Darshan, Yair Microsemi

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

The following is a simple proposal that doesn't add new requirements for PSE and PD and addresses classification requirements when dual signature PD is connected to Type 3 and 4 PSE.

1. No need to distinguish between Dual Signature Single Load and Dual Signature Dual load. Result with simple specification.
2. Efficient L1 power management
3. Dual signature PD (single load or dual load, doesn't matter) will use only classes 0 to 5 over each pair-set. The PD specifies the amount of power required over each pair set by using the relevant class code (from the exiting list) over each pair set. Valid class codes are 0 to 5. (5+5 = 90W, 4+4 = 60W, 4+3 = 45W and so on...).
4. A Dual Signature, single load PD is allowed to show different class codes.
If it does so, it will likely violate the current limit of one of its pair sets and get disconnected.
5. PSEs that don't want to deal with different class codes can take the larger class of the two pair sets and apply that power to both.
6. PSEs that don't want to deal with dual load PDs can opt not to power them.

See darshan_05_0615.pdf for detailed discussion and remedy.

SuggestedRemedy

1) Add the following text in the classification section in page 85 after line 27 before table 33-17:

Dual Signature Single Load PDs and Dual Signature Dual Load PDs shall use only class 0 to 5 power level over each pair set.
The class code advertised over each pair set is the total power requested by the PD over that pair set (The PSE will deliver to the total class power over each pair set to the PD) determine the total power that will deliver to the PD).
Dual Signature PDs may use different class signature per pair set.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **59** *L* **53** # 330

Darshan, Yair Microsemi

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

It is not clear how PSE issues the classification events in case of Single or Dual signature.

SS PD: Classification events may apply on one of the pair-sets or on both pair sets at the same time or some of the events on first pair set and then the remaining class events on the 2nd pair-set as long as the PD receives the correct total number of class events.

DS PD: Classification events need to be applied to each pair set. Application of the events can be applied at the same time to both pair sets or in non-overlapping way.

SuggestedRemedy

To add the following text after the end of clause 33.2.6.2:

To add the following text at the classification section at clause TBD after line TBD:

SS PD: Classification events may apply on one of the pair-sets or on both pair sets at the same time or some of the events on first pair set and then the remaining class events on the 2nd pair-set as long as the PD receives the correct total number of class events.

DS PD: Classification events need to be applied to each pair set. Application of the events can be applied at the same time to both pair sets or in non-overlapping way.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.7** *P* **51** *L* **7** # 331

Darshan, Yair Microsemi

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

we didnt approved this text.
We agreed that this text in the 4P-ID baseline text is redundant.
(The editor note regarding clarifying Type 3 and Type 4 requirements in the detection section is not required.
We agree on it during the discussion on 4P-ID base line text and also remove the text that tried to do this clarification and we agreed that it is redundant and not belong to 4P-ID.)

SuggestedRemedy

Remove the editor note text.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5** *P* **50** *L* **47** # 332

Darshan, Yair Microsemi

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

The text:

"Specifically, Type 3 and Type 4 PSEs shall apply the detection probe to both pair sets prior to applying power to 4 pairs".

Was not approved to be added to the draft.

SuggestedRemedy

1. Delete this text.
2. Please verify that approved last presentation versions are used to for its baseline text.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.47** *P* **50** *L* **30** # 333

Darshan, Yair Microsemi

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

Missing parenthesis in the logical equation.

SuggestedRemedy

Change "pd_4pair_candidate = (both_alts_valid)*[PD_signature = Single + (PD_signature= Dual) * (!deny_dual_sig_4p_power)].

To:
Change "pd_4pair_candidate = (both_alts_valid)*[(PD_signature = Single) + (PD_signature= Dual) * (!deny_dual_sig_4p_power)].

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **53** # 334

Darshan, Yair Microsemi

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

We don't want to wait 50- 75msec in Type 3 and 4 systems for Iinrush to be ended if not required due to measuring PD voltage/current/time profile by the PSE and knowing that it was ended earlier.
In some large mutiport systems time for all ports to be ON is affected by Tinrush*N. N number of ports and PSE power supply power capability and its response to dynamic load behavior.

SuggestedRemedy

To add Editor Note at the end of 33.3.7.3.
To address the following issues:
1. Shortening Tinrush if PSE has the knowledge that PD is done with its Inrush.
2. Fastening Tinrush by allowing higher Iinrush_max during Tinrush time frame to shorten Tinrush with big PD capacitors.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **46** # 335

Darshan, Yair Microsemi

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

Reference to 33.2.5.0 is placed in the rong place.
33.2.5.0. is the palce where connection check is metioned bit not for other system information

SuggestedRemedy

Replace:
"...the result of connection check and the results of other system information, as described in 33.2.5.0."

With:
"...the result of connection check as described in 33.2.5.0 and the results of other system information."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **38** # 336

Darshan, Yair Microsemi

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

I am still in the research of the effect of extended power on Icont-2P_unb for Type 4 and it looks that we will have to make a specification design so the maximum current including P2P_Effect will gurantee that Icont-2P_unb=Icut_min-2P will be <=1A.

SuggestedRemedy

Add to the Editor Note after the the text (line 38)"
Type 4: Icont-2p=865mA, Icont-2p_unb=1087mA")

The following text:
Type 4 Icont-2P_unb will have to be lower than 1087mA e.g. <=1A in order to reduce stress on transformers due to impact later on Ipeak, ILIM_MIN etc.
The plane is to do it by requaring more tight P2P_Iunb at high current from a PD that wants to use extended power. Technically it is feasible.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **11** # 337

Darshan, Yair Microsemi

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

Table 33-11 item 7, Icut-2P for type 3,4: To replace TBD with expression.
At worst case P2P_Iunb conditions:
Icut_min-2P=Icont-2P_unb=
(Icont-2P_unb_max/Icont-2P_max)*0.5*Pclass/Vport_PSE-2P=
(0.668/0.6)*0.5*Pclass/Vport_PSE-2P=0.556*Pclass/Vport_PSE-2P for Type 3 PSE.

In similar way for Type 4:
Icont-2P_unb=(0.931/0.865)*0.5*Pclass/Vport_PSE-2P=1.076*0.5*Pclass/Vport_PSE-2P.
Icont-2P_unb=0.538*Pclass/Vport_PSE-2P

SuggestedRemedy

1. Split Icut-2P for two lines for Type 3 and Type 4 (see attached darshan_06_0615.pdf for details).
2. Replace TBD with:
Icut-2P_min=0.556*Pclass/Vport_PSE-2P for Type 3 PSE
Icut-2P_min=0.538*Pclass/Vport_PSE-2P for Type 4 PSE

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **24** # 338

Darshan, Yair Microsemi

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

Table 33-11 item 10, TLIM-2P for type 4:
We can replace the TBD with a shorter number than 10sec in order to keep the same energy content used in Type 3 in order to keep the same stress over the current limiter.
Type 3 worst case energy on current limiter over a pair set: 30W*10msec=0.3Joule
Type 4 worst case energy on current limiter over a pair set: 50W*TLIM-2P=0.3Joule.
TLIM-2P=0.3/50=6msec max.
Design margin=2msec.
TLIM-2P=4msec.

SuggestedRemedy

TLIM-2P minimum=0.004 for Type 4

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **63** *L* **17** # 339

Darshan, Yair Microsemi

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

Table 33-11 item 9, ILIM-2P for type 3,4: To replace TBD with numbers per the the calculations shown in Darshan_06_0615.pdf.

Short summary:
ILIM-2P_MIN>=Ipeak-2P_max per figure 33-14.

Ipeak_max for Type 3 and 4 can be found by equation 33-4 at worst case conditions of K, Ppeak_PD-2P per equation 33-12 and 33-12a and Table 33-18 item

SuggestedRemedy

See darshan_06_0615.pdf for updated Table 33-11 item 9.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **11** # 340

Darshan, Yair Microsemi

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

Table 33-11 item 17 in the additional information column lin 11-12:
Two erros:
1. ">=" and not ">="
2. Pclass(5) and not Pclass(4)
Per the approved base line text, Pclass>= Pclass(5) power and not Pclass > Pclass(4)

SuggestedRemedy

Change to Pclass>= Pclass(5).

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **7** # 341

Darshan, Yair Microsemi

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

Table 33-11 item 17, 17a, 17b. In the additional information column:
Add: "see 33.2.9.1.2"
It is missing also for all PSE types in all the rows of item 17, 17a and 17b.
Total 6 places.

SuggestedRemedy

Add to the additional information column for each row of items items 17, 17a, 17 (6 places) : "See 33.2.9.1.2"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **38** # 342

Darshan, Yair Microsemi

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

Table 33-11 item 22, Cout.
Cout is correct over a pair-set for type 3 and 4 as well.

SuggestedRemedy

Change parameter name to:
"Output capacitance during detection state over a pair set"
Change PSE Type to 1,2,3,4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.7** *P* **68** *L* **48** # 343

Darshan, Yair Microsemi

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

Typo. fromany is from any

SuggestedRemedy

Change to "from any"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4** *P* **66** *L* **25** # 344

Darshan, Yair Microsemi

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

Remove Editor note regarding K. It is no longer required after the the updates for K are done.

SuggestedRemedy

Remove Editor not eregarding K.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.4a** *P* **66** *L* **50** # 345

Darshan, Yair Microsemi

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

Update the constant from 0.040 to 0.042 per latest review.
Remove editor note from page 67 line 6. (Work is done.)

SuggestedRemedy

1. Page 66 line 50 in equation 33-4a:
Update the constant from 0.040 to 0.042.
2. Page 67 line 6: Remove the editor note.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.5** *P* **67** *L* **36** # 346

Darshan, Yair Microsemi

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

It is usefull to allow higher Inrush current than 450mA after TBD time from POWER UP start for the following reasons:
a)Reducing dynamic stress on the MOSFET during POWER UP and
b)Reach faster startup with lower probability for startup oscilations
c) Handle different load behaviour during startup that is time dependent.

SuggestedRemedy

Add the following text after line 36.

The maximum inrush current sourced by the PSE per pair set may exceed the per pair set PSE inrush template in Figure 33–13 only TBD msec after POWER UP has started and shall not excedd ILIM-2P maximum as specified by Table 33-11 item 9.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **64** *L* **12** # 347

Darshan, Yair Microsemi

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

Table 33-11 item 17, additional information column, line 12
The text: "The pair set with highest current" is not clear since we are looking at two pairs of the same polarity and we care of the pair with the highest current and not the pair-set with the highest current.

SuggestedRemedy

Change to "The pair with highest current"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.2** *P* **76** *L* **11** # 348

Darshan, Yair Microsemi

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

The text:
"The maximum power a PD expects to draw from a PSE is PClass_PD max as defined in Table 33–18." was removed and should be restored. Without it we will have interoperability issues as discussed in 802.3at.

SuggestedRemedy

Restore the text "The maximum power a PD expects to draw from a PSE is PClass_PD max as defined in Table 33–18."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **89** *L* **16** # 349

Darshan, Yair Microsemi

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

Table 33-18 item 11 Von: It is 42V for Type 3 as well.
It may be 42V for Type 4 as well.

SuggestedRemedy

Change PD Type to 1,2,3 and 4.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **88** *L* **49** # 350

Darshan, Yair Microsemi

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

Table 33-18 item 9 Cport-2P minimum value.
Cport-2P need to be defined for Type 3 and 4.
In addition, it should be defined for Single signature PD and Dual signature PD.

SuggestedRemedy

(Update table 33-11 item 9 per the following (See table formate and details in darshan_08_0615.pdf)

1. Change PSE type from 1,2 to 1,2,3.
2. Add to the additional information of type 1,2,3 the following:
For Type 3 dual signatures PD.
For Type 3 single signature PD during 4P operation, the total minimum PD input capacitance is 10uF when Mode A and Mode B pairs are tied together.
3. Change PSE type from 3,4 to 4.
2. Add to the additional information of type 4 the following:
See 33.3.7.6, 33.3.7.3.
For Type 4 dual signatures PD.
For Type 4 single signature PD during 4P operation, the total minimum PD input capacitance is 10uF when Mode A and Mode B pairs are tied together.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **32** *L* **6** # 351

Darshan, Yair Microsemi

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

Mising coma in "....with a pair each carry.."

SuggestedRemedy

Change to "....with a pair, each carry.."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **60** *L* **22** # 352

Darshan, Yair Microsemi

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

Table 33-9, missing the case Iclass>51.0mA.

SuggestedRemedy

Add new row to table 33-9 and insert the following.
Measure Iclass column: >51.0mA
Classification column: Invalid class.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.6.2** *P* **61** *L* **16** # 353

Darshan, Yair Microsemi

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

Table 33-10 items 9, 10. Add reference "see 33.2.6.2" in the additional information column.
It eases the reading.

SuggestedRemedy

Add reference "see 33.2.6.2" in the additional information columns for items 9 and 10.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **19** # 354

Darshan, Yair Microsemi

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

The maintain_4pair_power signature current text blocks us to implement more reliable 4P-ID mechanisms.

The text says:
"It is initially set to the value of pd_4pair_candidate"

The "is" should be replaced with "may"

SuggestedRemedy

Replace:
"It is initially set to the value of pd_4pair_candidate"

To:
"It may initially set to the value of pd_4pair_candidate"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **25** # 355

Darshan, Yair Microsemi

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

Last row for Type 4:
Missing footnote to the pair current 0.96 (note 2). (Same note as for Type 3)
To change from 0.96 to 0.96 (note 2)

SuggestedRemedy

To change from 0.96 to 0.96(note 2)

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **53** # 356

Darshan, Yair Microsemi

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

Page 24 line 53, note 3 below table 33-1a.
It is not clear to the reader in note 3 where we he can find the exact differences between 1 event Type 3 classification and 1 event Type 1 classification.

SuggestedRemedy

Change "Table 10" in note 3
to
"Table 10 items 11 and 12"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.0a** *P* **24** *L* **53** # 357

Darshan, Yair Microsemi

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

In note 3 we have reference to section 33.6.2. It looks like error.
It should be 33.2.6 or 33.2.6.1 etc.

SuggestedRemedy

Update the reference to the correct one.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7** *P* **89** *L* **20** # 358

Darshan, Yair Microsemi

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

Table 33-18 item 11 Voff: It is 30V for Type 3 as well.
It may be 30V for Type 4 as well.

SuggestedRemedy

Change PD Type to 1,2,3 and 4 for Voff.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **91** *L* **35** # 359

Darshan, Yair Microsemi

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

1. The base line approved on May was not copied correctly to Draft D1.0.
See approved baseline page 3 at
http://www.ieee802.org/3/bt/public/may15/darshan_03_0515_REV008.pdf)
2. In addition the construction of it was a bit not clear.

SuggestedRemedy

Replace line 35-40 with:
"Peak power, PPeak_PD, for Class 4, 5 and 6 is based on Equation (33-12).
Peak power, PPeak_PD,for Class 7 and 8 is based on Equation 33-12a.
Equation (33-12) and equation 33-12a are used to approximate the ratiometric peak powers of Class 0 through Class 8. This equation may be used to calculate peak operating power for PPeak_PD values obtained via Data Link Layer classification or Auto class."

There is an other comment that make changes to the above text.
The comments were separated deliberately due to the fact that the 2nd comment on this text is a result of new work that needs to be approved at the meeting.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.9** *P* **94** *L* **32** # 360

Darshan, Yair Microsemi

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

We need to add new subclause 33.3.7.10 after 33.3.7.9 for PD PI Pair to Pair resistance and current unbalance.

In Table 33-11 item 4a, Icont-2P_unb we defined the maximum pair set current with the effect of E2EP2P_Iunb/Runb.
This current is also a limit for the PD due to the fact that it is the same current. As a result, a PD vendor will have to design his PD to not exceed under the test setup conditions specified in the proposed 33.3.7.10.

SuggestedRemedy

1. Add new clause with the following content:
33.3.7.10 PD PI Pair to Pair resistance and current unbalance.
Type 3 and Type 4 PDs shall not exceed Icont-2Punb as specified in Table 33-11 item 4a when tested with the test setup specified in 33.3.7.10.1.
2 Add new clause 33.3.7.10.1: Test setup and test conditions for PD PI pair to pair resistance and current unbalance.
Insert the content of PD PI baseline text proposal in darshan_01_0615.pdf to 33.3.7.10.1.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.6** *P* **93** *L* **28** # 361

Darshan, Yair Microsemi

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

Lines 22-25 say:
Type 1 PD input current shall not exceed the PD upperbound template (see Figure 33–18) after TLIM min (see Table 33–11 for a Type 1 PSE) when the following input voltage is applied. A current limited voltage source is applied to the PI through a RCh resistance (see Table 33–1). The current limit meets Equation (33–14) and the voltage ramps from VPort_PSE min to VPort_PSE max at
2250 V/s.

Sentence construction makes it unclear.
The "the following input voltage is applied." can be removed.

SuggestedRemedy

Change to:
Type 1 PD input current shall not exceed the PD upperbound template (see Figure 33–18) after TLIM min (see Table 33–11 for a Type 1 PSE) when a current limited voltage source is applied to the PI through a RCh resistance (see Table 33–1). The current limit meets Equation (33–14) and the voltage ramps from VPort_PSE min to VPort_PSE max at 2250 V/s.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.5** *P* **67** *L* **1922** # 362

Darshan, Yair Microsemi

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

The text:
"However, for practical implementations, it is recommended that the POWER_UP mode on a pair set persist for the complete duration of TInrush-2P, as the PSE may not be able to correctly ascertain the conclusion of a PD's inrush behavior."

The problems with this text are:
1. It is redundant. A better version of it can be found in legacy_powerup variable page 36 lines 11-15.
2. It is not accurate. The text "the PSE may not be able to correctly ascertain the conclusion of a PD's inrush behavior" is incorrect. If you do it in a wrong way than PSE may not know etc. but there is a correct way to do it so I believe that the whole text should be deleted.
3. The state machine variable legacy_powerup allows it and supply accurate instructions when it is not recommended. (It is not recommended if you look only on the voltage)
4. This text makes assumption that we can't know the inrush profile which is incorrect.
5. This text prevents good working solutions that monitor voltage and current which is important for effective low dissipation POWER-UP control for Type 3 and 4.

SuggestedRemedy

Remove the text "However, for practical implementations, it is recommended that the POWER_UP mode on a pair set persist for the complete duration of TInrush-2P, as the PSE may not be able to correctly ascertain the conclusion of a PD's inrush behavior."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.4.4** *P* **36** *L* **11** # 363

Darshan, Yair Microsemi

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

The text "... for PSEs that monitor the per pair set voltage output and use that information ...." is not accurate.
It should be (adding the word "only"):
"... for PSEs that monitor only the per pair set voltage output and use that information ...."
It is with sync to lines 13-14 that means the same and use the word "only" as well.

SuggestedRemedy

Repalce The text "... for PSEs that monitor the per pair set voltage output and use that information ...."
with:
"... for PSEs that monitor only the per pair set voltage output and use that information ...."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **51** # 364

Darshan, Yair Microsemi

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

Definition of Cport at the PD over a pair set is not accurate.
For a single load PD, 10uF will be seen as 10uF from any pair set by the PSE.
And the intention is that we will have twice the capacitor value if we increase the power by a factor of 2.

SuggestedRemedy

Add Editor Note to be added after line 52 page 51:
Editor Note: Cport need to be clarified when used in single signature PD and dual signature PD.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **90** # 365

Darshan, Yair Microsemi

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

Some of important PD factual behaviour was removed from lines 28-31 that was in IEEE802.3-2012.
The reason why they were removed is relevent to the PSE but not relevant for the PD as it is accurate phisycal behaviour of the PD i.e. Inrush current period ends when Cport is charged to 99% of its final value within a time duration of Tinrush-2P minimum per Table 33-11 etc.

SuggestedRemedy

Modify the text per the following instructions:
--- new text----.
Strike text XXX: (Strike XXX):

Inrush current per pair-set is drawn beginning with the application of input voltage at the pair set compliant with Vport_PD-2P requirements as defined in Table 33-18, and ending --- when Cport is charged to 99% of its final value within a time duration of ---- (strike "before") TInrush-2P minimum per Table 33-11. After TInrush-2P min, the PD shall not exceed its per pair set current threshold corresponding to its class level.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.6** *P* **68** *L* # 366

Darshan, Yair Microsemi

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

Per the current requirements PSE is allowed to remove power if PD consumes power above the advertised class or remove power as a result of overload or short circuit conditions.
Currently we have specified the ICUT, TCUT, ILIM, TLIM requirements in order to help us to decide when to remove power.
We need to make it clear that PSE may remove power based on the above current and timing thresholds and also based on the measured power consumed from the port as required by other parts of the standard regarding PSE and PD that operating in a conditions that Pclass is violated.

SuggestedRemedy

PSE may remove power from a pair set if the measured power delivered from that pair set or the measured power delivered from both pair sets exceeds the maximum power requested by the PD as advertised by its class.
When PSE is measuring its output power and use it to limit the power to the PD or remove power from the port, Icut and ILIM threshold may be ignored.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **44** # 367

Darshan, Yair Microsemi

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

Adressing the text:
"Type 3 and Type 4 PSEs shall determine whether an attached PD with classes 0 to 4 is a candidate to receive power on both pair sets prior to applying 4 pair power"
Does it means that applying 4P power (all pairs at the same time) is the only choice, can I apply 2P check LLDP and then connect the 2nd pair? this is the reliable way to do it but it reads that I cant do it

SuggestedRemedy

Add note after line 47:
Note: Applying 4P power doesn't imply if both pair-set are powered at the same time or one pair set is powered first and later the 2nd pair is powered within the time limit specified in Tble TBD tem TBD."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7** *P* **62** *L* **26** # 368

Darshan, Yair Microsemi

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

We may need to generate a test setup for Table 33-11 item 1a that will take in account possibility of higher PSE Vdiff than 2mV due cross regulation issues in multiport systems. In this kind of systems Vdiff may be >2mV but the effect of P2P_Iunb at high current is negligible due to the fact that the resistance difference that cause the Vdiff is in series to other components that their resistance is much larger the the PCB Rdiff so it will be compensated resulting with negligible effect on P2P_Iunb so it may be a test setup issue but not a real problem.

SuggestedRemedy

To add Editor Note below Table 33-11 page 62 that says:
Editor Note:
Cross regulation of multiport systems may affect PSE Vdiff and increase it.
We need to investigate how to address it in a test setup that will tell us if the increase Vdiff is real issue or to ignore it due to meeting Icont_2p_unb ,or we need to increase PSE Vdiff and decrease PD Vdiff to keep same system limitations

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **43** # 369

Darshan, Yair Microsemi

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

We need to research if 180uF total for a single signature PD is sufficient or we must have total of 360uF as per the current draft.

SuggestedRemedy

Add Editor Note after line 48 page 90:
Editor Note: To investigate the max Cport value that ensures stable operation for 60W and up to 99.9 W under all current specification of PSE Voltage, Voltage/Current transients, channel resistance range etc.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.4** *P* **91** *L* **44** # 370

Darshan, Yair Microsemi

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

I am working on ways to reduce pair maximum current due to Ppeak-PD and E2EP2P_Iunb which affects the values of Icut-2P_max and ILIM_2P_min which eventually affect the transformer design.

Working with current equation 33-12a with the 1.07 constant, is causing ILIM_2P_MIN to be too high for Type 4. In addition, since it is new standard we can ease Type 3 currents due to E2EP2P_Iunb and PD peak which doesnt have to be similar to Type 2 specifications.

SuggestedRemedy

1. Change equation 33-12a constant from 1.07 to 1.05.
2. Change lines 35 to 40 to:
"Peak power, PPeak_PD, for Class 0 through 4 is based on Equation (33-12).
Peak power, PPeak_PD,for Class 5 through 8 is based on Equation 33-12a.
Equation (33-12) and equation 33-12a are used to approximate the ratiometric peak powers of Class 0 through Class 8. This equation may be used to calculate peak operating power for PPeak_PD values obtained via Data Link Layer classification or Auto class."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1** *P* **19** *L* **11** # 371

Thompson, Geoff GraCaSI S.A.

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

THE TEXT: "These entities allow devices to draw/supply power using the same generic cabling as is used for data transmission." is too general. It should be restricted to twisted pair copper cabling.

SuggestedRemedy

CHANGE TEXT TO READ: "These entities allow devices to draw/supply power using the same generic balanced copper cabling as is used for data transmission."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **20** # 372

Thompson, Geoff GraCaSI S.A.

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

Reference number is incorrect for TSB-184 in 802.3bx.

SuggestedRemedy

REPLACE "[60]" WITH "[61]"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.2** *P* **23** *L* **33** # 373

Thompson, Geoff GraCaSI S.A.

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

The two references in this line (11801, Annex 33)
are not hot links.

SuggestedRemedy

Link the references.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.1** *P* **25** *L* **8** # 374

Thompson, Geoff GraCaSI S.A.

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

THE TEXT: "PSEs may be placed in two locations with respect to the link segment, either coincident with the DTE/ Repeater or midspan." COULD BE MORE CLEAR

SuggestedRemedy

REPLACE WITH: "A PSE may be placed in one of two locations with respect to the link segment, either coincident with the DTE/ Repeater or midspan."

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **45** # 375

Thompson, Geoff GraCaSI S.A.

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

I have no idea what "initially" means in this sentence.

SuggestedRemedy

Remove the word "initially".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.9.1** *P* **72** *L* **7** # 376

Thompson, Geoff GraCaSI S.A.

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

Improve structure/grammar of sub-clause titles and voltage terms

SuggestedRemedy

Change
"33.2.9.1.1 PSE AC MPS component requirements"
to:"33.2.9.1.1 PSE MPS AC component requirements"
and:"33.2.9.1.2 PSE DC MPS component requirements"
to:"33.2.9.1.2 PSE MPS DC component requirements"
and "AC MPS component" to "MPS AC component"
and "DC MPS component" to "MPS DC component" throughout the draft

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **21** *L* **39** # 377

Thompson, Geoff GraCaSI S.A.

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

THE TEXT: "(1.4.336 in P802.3bx/D2.0)." IS OUT OF DATE.
THE CURRENT DRAFT IS D3.0

SuggestedRemedy

Update to current location, which is 1.4.337 in D3.0

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.3** *P* **21** *L* **41** # 378

Thompson, Geoff GraCaSI S.A.

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

THE TEXT: "(1.4.268 in 41 P802.3bx/D2.0)." IS OUT OF DATE.
THE CURRENT DRAFT IS D3.0

SuggestedRemedy

Update to current location, which is 1.4.269 in D3.0

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **27** # 379

Thompson, Geoff GraCaSI S.A.

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

Note 1 points to 33.4.1.2 as well as Annex 33A. 33.4.1.2 is now effectively empty

SuggestedRemedy

IN LINE 27, REMOVE THE TEXT: "See Section 33.4.1.2"

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **22** *L* **30** # 380

Thompson, Geoff GraCaSI S.A.

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

Note 3 has an open reference and no link to a reference or bibliography entry for TSB-184-A in any form. The bibliography entry which is badly out of date. Further, [B61] (in 802.3bx D3.0) references a prepublication draft of TSB-184 and needs to be updated.

SuggestedRemedy

Add text to the draft to add the reference or bibliography item and add a hot link to the entry.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4.1** *P* **23** *L* **8** # 381

Thompson, Geoff GraCaSI S.A.

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

Lines 8 thru 9, gauge is misspelled in the new text in two places.

SuggestedRemedy

REPLACE "guage" (sic) WITH "gauge", 2 places

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.2** *P* **25** *L* **19** # 382

Thompson, Geoff GraCaSI S.A.

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

The title of this sub-clause is "Midspan PSE types" is confusing as the term "Type" is already used to denote current class. Another term than "type" should be used. This will be even more confusing as the number of "Types" proliferates.

SuggestedRemedy

Change the word "types" in the heading and associated text from "types" to "variants".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.5.0a** *P* **51** *L* **12** # 383

Thompson, Geoff GraCaSI S.A.

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

Sub-clause numbering (i.e., the "a" suffix) does not conform to SA Style Manual.

SuggestedRemedy

Conform to Style Manual 11.1

Proposed Response *Response Status* **O**

Cl **33** *SC* *P* *L* # 384

Thompson, Geoff GraCaSI S.A.

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

Draft has both "Auto class" and "Autoclass"

SuggestedRemedy

Pick one and use it consistently.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.3** *P* **33** *L* **19** # 385

Thompson, Geoff GraCaSI S.A.

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

It is not clear to me whether or not this change will end up disenfranchising some currently compliant PSEs. It is unacceptable to do so and I see no need to do so.

SuggestedRemedy

Restore deleted text or prove that no existing compliant DTE/PSEs are disenfranchised.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.4** *P* **21** *L* **53** # 386

Thompson, Geoff GraCaSI S.A.

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

It is not a "link segment" that connects a PSE and a PD when there is a mid-span PSE.

SuggestedRemedy

Change to "link section" in line 53

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.2.7.8** *P* **70** *L* **34** # 387

Thompson, Geoff GraCaSI S.A.

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

Spec does not call out how the test resister is to be hooked to the PI in the 2 pair-set case. Is it across just one, ifso which one? Is it across either? Is it required to be hooked to both.

SuggestedRemedy

Specify how test resister is to be hooked to the PI in the case of Type 3 and/or Type 4.

Proposed Response *Response Status* **O**