Cl **FM** *SC* **FM** *P* **1** *L* **29** # 4

Anslow, Pete — Ciena

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

The copyright_year variable in the frontmatter file should be 2016

SuggestedRemedy

Set the copyright_year variable in the frontmatter file to the appropriate year (probably 2017).
(Remember to change the copyright_year variable in the other files to 2017 also.)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CJ
explicitly state to make it 2017. D2.3 will be published in 2017.

Cl **FM** *SC* **FM** *P* **21** *L* **42** # 433

Zimmerman, George — CME Consulting, Aqua

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

If this format of including all PoE matter in the amendment is to continue to sponsor ballot, the standard editor's note should be amended to note this unusual practice. (note - I support the practice, just want to make sponsor ballot pool members aware of it)

SuggestedRemedy

Insert additional editor's note box under existing one - "This amendment makes extensive changes to existing IEEE Std 802.3-2015 text related to DTE Power via MDI to add new functionality. Because of the extensive relationship of the changes in 802.3bt to the existing clauses of IEEE Std 802.3-2015 relating to DTE Power via MDI, existing, unmodified text of IEEE Std 802.3-2015 related to DTE Power via MDI is included in (the draft of) this amendment."

Proposed Response *Response Status* **W**

TFTD

I believe that we will be removing all unmodified text before sponsor ballot. All of Clause 33 will be in the draft as we are doing a full replace of the clause.

Cl **1** *SC* **1.3** *P* **22** *L* **10** # 7

Anslow, Pete — Ciena

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

There are two places where the draft refers to "TIA TSB-184-A".
The note to Table 33-1, which says: "For additional information on Type 4 current unbalance, see TIA TSB-184-A and ISO/IEC TS 29125 Edition 2."
In text two paragraphs below which says "See TIA TSB-184-A and ISO/IEC TS 29125 Edition 2 for additional information on pair-to-pair resistance unbalance."
The table note is informative (see IEEE style manual) and the later text seems informative also.
Consequently, it is inappropriate to add TIA TSB-184-A to the list of normative references in addition to adding it to the Annex A bibliography.

SuggestedRemedy

Remove TIA TSB-184-A from 1.3.
In the two places in Clause 33 where TIA TSB-184-A is referred to add a cross-reference to the bibliography entry.

Proposed Response *Response Status* **W**

TFTD

Would conflict with 454, 434

Update DNA: George has withdrawn comment 434, 454 is a different reference.

Cl **1** *SC* **1.4** *P* **22** *L* **22** # 239

Schindler, Fred — Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **D** *Definitions*

The existing text,
"IEEE 802.3 Power over Ethernet (IEEE 802.3 PoE): A system consisting of one PSE and one
PD that provides power across balanced twisted-pair cabling. (See IEEE Std 802.3, Clause 33)." should be improvide to avoid uncertainty as to which device is providing the power.

SuggestedRemedy

Replace the referenced sentence with,
"IEEE 802.3 Power over Ethernet (IEEE 802.3 PoE): A system consisting of one PSE, which may source power, and one
PD, which may consume power, across balanced twisted-pair cabling. (See IEEE Std 802.3, Clause 33)."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Not all information has to be contained in the definition. The definition clearly states to go see Clause 33.

TFTD FS
I do not accept this rejection. I want the group to discuss and approve the improved text.

Cl **1** *SC* **1.4** *P* **22** *L* **33** # 26

Beia, Christian — STMicroelectronics

Comment Type **TR** *Comment Status* **X** *Pres: Beia1*

TODO 2p1 #173 - Review use of word channel in clause 33.

The definition of channel in 1.4.134 is far away from the meaning in clause 33. Here is the definition from IEEE Std 802.3-2015:
1.4.134 channel: In 10BROAD36, a band of frequencies dedicated to a certain service transmitted on the broadband medium. (See IEEE Std 802.3, Clause 11.)

A new definition is needed to make it unambiguous.
"Power channel" may be used to replace "channel" in clause 33, keeping some continuity with the legacy text.

SuggestedRemedy

See beia_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **1** *SC* **1.4.415** *P* **22** *L* **41** # 436

Zimmerman, George — CME Consulting, Aqua

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

Type 1 and Type 2 PDs are not adequately differentiated in their definitions, under these definitions, a PD may be both Type 1 and Type 3, or Type 2 and Type 3. I believe the intent was that there could be Type 3 PDs which are 2 pair and Class 4 or less.

SuggestedRemedy

Either: change Type 1 and Type 2 PD definitions by inserting at the end of the sentence, "and is not a Type 3 PD", after "classification" (or "Data Link Layer Classification" in the Type 2 PD definition)

Proposed Response *Response Status* **W**

TFTD

There is in fact overlap of Type 1 or 2 and Type 3 PDs. Almost every Type 1 or 2 PD in the world will become a compliant Type 3 PD the day .3bt publishes…

Cl **1** *SC* **1.4.416** *P* **22** *L* **44** # 437

Zimmerman, George — CME Consulting, Aqua

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

Type 1 and Type 2 PSE types are not adequately differentiated from 3 and 4. A PSE which supports 2-pair power only up to Class 3 or 4, but also supports short MPS will be both type 3 and type 1 (or 2 if it supports class 4). A PSE which supports 2-pair power as well as 4-pair, and the other type 4 features and only supports up to class 3 or 4 could be both type 4 and type 1 or 2.

SuggestedRemedy

Either: (option a) change Type 3 and Type 4 definitions from "supports up to Class..." to "supports up to at least Class...", or (option b) change type 1 and type 2 definitions by inserting at the end of the sentence, "and is not a type 3 or type 4 PSE."

Proposed Response *Response Status* **W**

TFTD

Cl **1** *SC* **1.4.418ac** *P* **23** *L* **8** # 439

Zimmerman, George CME Consulting, Aqua

Comment Type **TR** *Comment Status* **D** *Definitions*

Related to comment on 1.4.416: Intent was that a Type 3 PSE could ONLY support a maximum of Class 6 power level - definition doesn't say this, because of the change in language from the way Type 1 and Type 2 were written, a PSE might support up to Class 6, but more than class 6 would be allowed.

SuggestedRemedy

Change Type 3 PSE definition as similarly to say "up to at most Class 6 power levels".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Please indulge a non-native speaker: how does “up to 6” permit more than 6?

Response DNA: would you say that a PSE that supports up to class 8 aslo supports up to class 6? (it also took me a second to realize that George is correct.)

Cl **1** *SC* **1.4.418ad** *P* **23** *L* **15** # 438

Zimmerman, George CME Consulting, Aqua

Comment Type **TR** *Comment Status* **D** *Definitions*

Related to comment on 1.4.416: A PSE under these definitions which supports only to Class 6, short MPS and 4-pair power would be be both type 3 and type 4.

SuggestedRemedy

Change "up to Class 8 power levels" to "up to at least Class 7 and at most Class 8 power levels".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Simpler: “A PSE that supports Class 7 or Class 8 power levels...”

Cl **30** *SC* **30** *P* **26** *L* **1** # 78

Darshan, Yair Mirosemi

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

All new TLVs need to be added to this section. This include Autoclass, Measurements and new dual-signature material.

SuggestedRemedy

If not resolved yet for D2.2, add it to the TODO for the next draft.

Proposed Response *Response Status* **W**

TFTD

Did anyone do this?

Cl **30** *SC* **30.9.1.1.4a** *P* **30** *L* **15** # 146

Law, David HPE

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

Subclause 8.6 'Organizationally Specific TLVs' of IEEE Std 802.1AB 'Station and Media Access Control Connectivity Discovery' states that 'Each set of Organizationally Specific TLVs shall include associated LLDP MIB extensions and the associated TLV selection management variables and MIB/TLV cross reference tables.'.

This statement seems to require MIB attributes in the subclause 30.12.2 'LLDP Local System Group managed object class' oLldpXdot3LocSystemsGroup object and in the subclause 30.12.3 'LLDP Remote System Group managed object class' oLldpXdot3RemSystemsGroup object for each of the TLV fields since these managed object classes are to support LLDP. The subclause 30.9.1 'PSE managed object class' however is to support management of the PSE regardless of the presence of LLDP, hence while some of the content many be the same as the LLDP Local System Group managed object class, is orthogonal to LLDP management, and therefore the statement does not seem to apply to it.

Based on this, while an attribute needs to be added to both the oLldpXdot3LocSystemsGroup and oLldpXdot3RemSystemsGroup objects to support the new Power Pairsx field defined in subclause 79.3.2.6a.1, there isn't a need to add the new aPSEPowerPairsx attribute to the oPSE object. In addition the aPSEPowerPairsx attribute is duplicative of subclause 30.9.1.1.4 aPSEPowerPairs which has had the enumeration 'both' added to its enumerations.

SuggestedRemedy

Suggest that subclause 30.9.1.1.4a is deleted.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This solution is not complete and needs to be discussed. We need to ensure that removal is done in all sections (79.3.2.61.1) and that changing existing fields is correctly captured throughout the document. I suspect David and I will need to review related text.

Cl **30.12** *SC* **30.12.2.1.17** *P* **38** *L* **3** # 275

Skinner, John Sifos Technologies, In

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

No managed objects defined for the Power Via MDI TLV fields "PD requested power value Mode A", "PD requested power value Mode B", "PSE allocated power value Alternative A", and "PSE allocated power value Alternative B".

SuggestedRemedy

Add aLldpXdot3LocPDRequestedPowerValueModeA,
aLldpXdot3LocPDRequestedPowerValueModeB,
aLldpXdot3LocPSEAllocatedPowerValueModeA, and ,
aLldpXdot3LocPSEAllocatedPowerValueModeB.

Add cross references to these objects in Table 79–9 starting at line 26 on page 248.

Proposed Response *Response Status* **W**

TFTD

Cl **30** *SC* **30.12.3.1.18i** *P* **48** *L* **22** # 17

Anslow, Pete Ciena

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

"remote???PSE"

SuggestedRemedy

Change "remote???PSE" to "remote PSE"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This solution is not complete and needs to be discussed. We need to ensure that removal is done in all sections (79.3.2.61.1) and that changing existing fields is correctly captured throughout the document. I suspect David and I will need to review related text.

Cl **30** *SC* **30.12.3.1.18j** *P* **48** *L* **32** # 18

Anslow, Pete Ciena

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

"remote???PD"

SuggestedRemedy

Change "remote???PD" to "remote PD"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This solution is not complete and needs to be discussed. We need to ensure that removal is done in all sections (79.3.2.61.1) and that changing existing fields is correctly captured throughout the document. I suspect David and I will need to review related text.

Cl **33** *SC* **33** *P* **51** *L* **4** # 129

Jones, Chad Cisco

Comment Type **T** *Comment Status* **X** *Pres: Jones1*

this is the solution to the TO DO 63 from D2.1 (which is also TO DO 171 from D2.0)
See jones_01_0117.pdf for the solution to significant digits comments

SuggestedRemedy

adopt jones_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33** *P* **55** *L* **33** # 19

Anslow, Pete Ciena

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

The rebuttal to unsatisfied required comment #9 against D2.1 says: "The trailing zeroes are included because the style guide requires that decimal places are aligned in a table format." This does not stand up to scrutiny. For example in the second column of Table 33-1, the decimal points would be aligned if the trailing zeros were not there. In the Max column of Table 33-10 the decimal points do not align anyway.
If the numbers are to be aligned at the decimal points, then this has to be done using a decimal tab and that works irrespective of whether there are trailing zeros or not. (But it has not been done in any recently published 802.3 amendment).

SuggestedRemedy

Since the trailing zeros have no significance, bring the draft into line with all other recent amendments and remove the trailing zeros.

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.3.1** *P* **55** *L* **34** # 80

Darshan, Yair Mirosemi

Comment Type **TR** *Comment Status* **X** *Pres: Darshan6*

(TODO #63 D2.1)
This comment is about addressing the significant digits for the numbers/equations/constant in the standard and try to be satisfied with 3 significant digits unless it violates the accuracy required for equations result and not cause system over design.

SuggestedRemedy

Adopt darshan_06_0117.pdf if available. If not available keep it in the TODO.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.1.4** *P* **56** *L* **17** # 440

Zimmerman, George — CME Consulting, Aqua

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

I_Port and I_Port-2P are introduced here without any corresponding reference to them. It leaves the reader searching around. The first time they show up is several pages later in connection with the state diagrams.

SuggestedRemedy

Either, delete lines 11 through 17, or, insert the following sentence at line 10: "In addition to I_Cable, the requirements of this standard reference current on a per port and per pairset basis, which are described here for reference."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

insert the following sentence at line 10: "In addition to I_Cable, the requirements of this standard reference current on a per port and per pairset basis, which are described here for reference."

TFTD LY
Strike “for reference” in the Proposed Response.

Cl **33** *SC* **33.1.3.1** *P* **56** *L* **36** # 242

Schindler, Fred — Seen Simply, Cisco, T

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

Modified legacy text is incorrect for Type 4 system heating effects. Legacy text assumed either half or all the conductors provide 600 mA per pairset. This is still valid for Type 2 and Type 3 systems because the conductor currents are the same.

SuggestedRemedy

Replace legacy text,
“Under worst-case conditions, Type 2, Type 3, and Type 4 operation requires a 10 °C reduction in the maximum ambient temperature when all cable pairs are energized at ICable (see Table 33–1), or a 5 °C reduction in the maximum ambient temperature when half of the cable pairs are energized at ICable.”

with,

“Under worst-case conditions, Type 2, and Type 3, operation requires a 10 °C reduction in the maximum ambient temperature when all cable pairs are energized at ICable (see Table 33–1), or a 5 °C reduction in the maximum ambient temperature when half of the cable pairs are energized at ICable.”

A scaled version for Type-4 PSEs produces impractical operational guidelines. The Task Force should provide Type 4 PSE requirements, or reference appropriate cable standards, or create a TODO a for a cable-subject-matter expert (not the commenter).

Proposed Response *Response Status* **W**

TFTD

It is my understanding that the original numbers had enough margin in them (a factor of 1.414), that Type 4 as defined is still ok with the 10 degree number.

Cl **33** *SC* **33.1.3.1** *P* **56** *L* **54** # 309

Yseboodt, Lennart Philips

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

Footnote 1 says: "The numbers in brackets correspond to those of the bibliography in Annex A."

SuggestedRemedy

This illumination is only used in one other place in 802.3 and is unnecessary.
Remove footnote.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
The solution may be incomplete. Reference [B48] does not exist, so we may need to add it to Annex A, and [Bx1] only exists in the Annex A. Why provide Annex A if it is used for only one item? Place that item within the text on page 56 and remove the Annex A.
Remove both [B48] and [Bx1].
The group should discuss this text to sort out what the intent is.

TFTD CB
I like the footnote: it costs nothing, it adds useful information

Cl **33** *SC* **33.2** *P* **57** *L* **15** # 243

Schindler, Fred Seen Simply, Cisco, T

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

Legacy text uses bullet points that should be improved to reduce repetition and improve readability.
"— To search the link section for a PD
— To supply power to the detected PD through the link section
— To monitor the power on the link section
— To remove power when no longer requested or required, returning to the searching state"

SuggestedRemedy

Remove "To " from each bullet. Add a period to the last bullet.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add a period to the last bullet.

The text you are commenting on in this comment (243) and in comment 244 is unchanged from 2012 (with one exception of spitting the final paragraph in two).

I would recommend only fixing what is necessary.

TFTD LY
Unclear what I am supposed to do. Also why do we need a period after the last sentence ? Does not make sense.

Response DNA: You are only supposed to add a period to the last bullet. The rest of the original response was intended to explain why I did not suggest implementing the rest of what Fred asked for. As for the period, sentences tend to need them at the end, even when a bulleted list is used.

TFTD FS
The original proposal is better than the proposed one. The proposed one removes legacy text.

TFTD CB
I don't see the reason for adding just a period at the end. Suggest to leave as is, or make punctuation complete:
- colon before the bullets,
- comma (or semicolon) at the end on each bullet,
- lowercase at the beginning of each bullet,
- period at the end.

Cl **33** *SC* **33.2** *P* **57** *L* **20** # 244

Schindler, Fred — Seen Simply, Cisco, T

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

Legacy text appears to have been converted from sentences to bullet points. This has left the last bullet and connected sentence disconnected.
"— To remove power when no longer requested or required, returning to the searching state"

"An unplugged link section is one instance when power is no longer required."

SuggestedRemedy

Move the called-out sentence after the last bullet (a period was added after this bullet in another comment).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove "An unplugged link section is one instance when power is no longer required."

See 243

TFTD LY
802.3-2015 has the text as a dashes list also. What did happen is that a new paragraph was inserted after the “An unplugged” sentence. If anything we should remove that paragraph break.

TFTD CJ
Do not delete this text. Move it to the end of the bullet as recommended to place it back in context. Perhaps enclose in parenthesis to emphasize it as an example.

TFTD FS
The original proposal is better than the proposed one. The proposed one removes legacy text.

Cl **33** *SC* **33.2.1** *P* **57** *L* **31** # 130

Jones, Chad — Cisco

Comment Type **E** *Comment Status* **D** *PSE Types*

802.3-2015 has this statement: "A PSE shall meet one of the allowable classification permutations listed in Table 33–8." Table 33-8 has been divided into two tables, 33-2 and 33-21. I cannot find the commensurate shalls for these new tables.

SuggestedRemedy

add the sentence "A PSE shall meet one of the allowable classification permutations listed in Table 33–2." to the end of the paragraph at line 31.
also, page 136, line 23. add the sentence "A PD shall meet at least one of the allowable classification permutations listed in Table 33–21."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

We removed these sentences because they were duplicate shalls (all of the inidividual requirements have shall statements).

TFTD

Cl **33** *SC* **33.2.1** *P* **57** *L* **35** # 325

Wendt, Matthias — Philips

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

Words cannot describe how much I dislike these table/footnote puzzles to refer to subclauses.

SuggestedRemedy

In Table 33-2, replace the 3 footnotes by a Note at the bottom as follows:
"NOTE --- See 33.2.7 and Table 33-13 for classification and maximum available power. See 33.5 for Data Link Layer classification. See 33.2.10 for MPS. See 33.2.7.3 and 33.3.6.3 for Autoclass."

(set left/right margin to zero for the note cell).

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.2.1** *P* **57** *L* **36** # 326

Yseboodt, Lennart Philips

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

"Range of maximum Classes supported", not range of Classes.
Only one Class is the maximum.

SuggestedRemedy

change to:
"Range of maximum Class supported"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CB
Even better: Maximum class supported (get rid of word range)

Cl **33** *SC* **33.2.1** *P* **57** *L* **47** # 327

Yseboodt, Lennart Philips

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

In column "Range of maximum Classes supported":
5th row "Class 3 to 6", overlaps with previous line.

SuggestedRemedy

change to:
"Class 5 to 6"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CB
Why do we need to list Class5? Isn't Class6 enough? For Type 4 only Class 8 is listed.

Cl **33** *SC* **33.2.5.1** *P* **66** *L* **17** # 329

Yseboodt, Lennart Philips

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

"The polarity of PSE voltages during its operating states (detection, connection check, classification, power up, and power on) is the same as was used in the detection state and defined per Table 33-3 in 33.2.4."

This is not actually a requirement per the text as it is.
The only 'shall' requires Class and Mark polarity to match with POWER_UP/POWER_ON polarity.

In addition, the reference should be to Table 33-4.

SuggestedRemedy

Since there seems to be no justification for adding a requirement, propose to fix the descriptive text:

"The polarity of PSE voltages during its operating states (power up and power on) is the same as was used during classification and defined per Table 33-4 in 33.2.4."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD as Yair added this text originally. However, I agree with Lennart that detection and connection check polarities don't matter as they occur in the detection voltage/current range and the PD should be polarity insensitive anyways.

TFTD FS
It is not clear whether this is a TFTD—so it is now. What can the PD use polarity to do? Will this break something if polarity is not a requirement?

TFTD YD
"I disagree with changing the text. The text meant to Keep polarity of all voltages from detection to power up and not allow to change polarity during operation unless going to IDLE first. This objective is not met with the suggested remedy."
"Accept #441 and add "" change reference to Table 33-4"".Make ##329 OBE to #441."

Cl **33** *SC* **33.2.5.1** *P* **66** *L* **18** # 441

Zimmerman, George — CME Consulting, Aqua

Comment Type **TR** *Comment Status* **X** *PSE SD*

"The polarity of PSE voltages during its operating states (detection, connection check, classification, power up, and power on) is the same as was used in the detection state and defined..." - first, "same as was used in the detection state" is circular with the parenthetical, which includes "detection", second, the states listed here don't match the names of states in the state diagram (there is no state named "detection" state or "classification"), and, since this section is related to type 1 and type 2 PSEs, includes the connection check which doesn't exist in Type 1 and Type 2 PSEs.

SuggestedRemedy

Change parenthetical from being a list of states to '', i.e., in states where a detection, classification, or powering voltage is applied to the PI,"

Proposed Response *Response Status* **W**

TFTD

See 329

Cl **33** *SC* **33.2.5.12** *P* **74** *L* **24** # 245

Schindler, Fred — Seen Simply, Cisco, T

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

The legacy state diagram (page 74) and text do not match the behavior for the processing time of the tdbo_timer cover in text on page 109 line 21. Legacy text indicates,
"If a PSE that is performing detection using Alternative B (see 33.2.4) determines that the impedance at the PI is greater than Ropen as defined in Table 33–12, it may optionally consider the link to be open circuit and omit the tdbo_timer interval."
The state diagrams require that Type 1 and 2 PSEs skip the BACKOFF state when the signature is open_circuit while the text makes this behavior optional.

SuggestedRemedy

State diagrams override text. I believe Chad enthusiastically decline the opportunity to submit a maintenance request for this concern, I am not sure that I will be attending long enough to shepherd this through maintenance but I have provided details to make this possible. Midspans use this ability so a midspan vendor should facilitate this effort.

The solution provided may be incorporated now or by maintenance. Either way this comment should remain unsatisfied until the proposed corrective action is made.

Repeat the fix made to the Type 3 and 4 PSE state diagram for the Type 1 and 2 PSE state diagram.
Add variable,

"option_tdbo_omit
A variable indicating if the PSE omits the Tdbo back off timer if it detects an open circuit on when performing detection only on alternative B.
Values:
FALSE: The PSE does not omit the Tbdo back off timer.
TRUE: The PSE omits the Tdbo back off timer."

For Type 1 and 2 state SIGNATURE_INVALID replace the existing exit condition,

"(mr_pse_alternative = B) * (signature <> open_circuit)", with

"(mr_pse_alternative = B) * ((signature = open_circuit) * !option_tdbo_omit + (signature = invalid))"

For the same state diagram, state SIGNATURE_INVALID, replace the existing exit condition,

"(mr_pse_alternative = A) + ((mr_pse_alternative=B) * (signature = open_circuit))", with
"(mr_pse_alternative = A) + ((mr_pse_alternative=B) * (signature = open_circuit) * option_tdbo_omit)"

Proposed Response *Response Status* **W**

TFTD

Anyone volunteer to submit a maintenance request (all you have to do is copy Fred's solution)?

Cl **33** *SC* **33.2.5.7** *P* **74** *L* **48** # 155

Law, David HPE

Comment Type **TR** *Comment Status* **X** *PSE SD*

There is an assignment to the pd_dll_power_type variable in the INITIALIZE state of Figure 33–46 'PSE power control state diagram' as well as a mapping to it in Table 33–41 'Attribute to state diagram variable cross-reference' so effectively there are two sources to this variable. There is a case where a Type 2 PSE that supports 1-event physical layer classification, Data Link Layer Classification, and chooses the option of setting the parameter_type variable to 1 in the set_parameter_type function if mutual identification is not complete, is connected to a Type 2 PD, which will result in two different values for pd_dll_power_type from these two sources.

After a successful detection Figure 33-13 'Type 1 and Type 2 PSE state diagram' will transition in to the DETECT_EVAL state and then to the ONE_EVENT_CLASS state (arrow B) since the PSE supports 1-event physical layer classification (class_num_events = 1). The state diagram will then call the do_classification function which will result in the pd_requested_power variable being set to 3 and the mr_pd_class_detected variable being set to 4. The state diagram will then proceed to the CLASSIFICATION_EVAL and, assuming sufficient power, to the POWER_UP state.

Once power up has been completed successfully, since this is a TYPE 2 PSE (PSE_TYPE = 2) the state diagram will transition from the POWER_UP state to the SET_PARAMETERS state calling the set_parameter_type function. Since only 1-event physical layer classification has taken place mutual identification is not complete however a Type 2 PD has been detected since the mr_pd_class_detected variable is set to 4. The PSE therefore has the option of setting the parameter_type variable to 1 (see page 72, line 54, 'When a Type 2 PSE powers a Type 2 PD, the PSE may choose to assign a value of ‘1’ to parameter_type if mutual identification is not complete ...'). I will assume this option is taken.

The state diagram will therefore transition to the POWER_ON state. At some point later, since Data Link Layer Classification is supported, the pse_dll_ready variable becomes TRUE and the aLldpXdot3RemPowerType attribute will return a bit string indicating a Type 2 PD. This, according to Table 33–41 'Attribute to state diagram variable cross-reference', also results in pd_dll_power_type being set to 2. The problem is that, according to the Figure 33-46 'PSE power control state diagram', when pse_dll_ready becomes TRUE the value of parameter_type is latched on to pd_dll_power_type, and at that point in time it is 1.

Now it seems that the intent was that when pd_dll_power_type became 2 due to Data Link Layer Classification, the equation on the transition from the POWER_ON state to the SET_PARAMETERS state became true ((PSE_TYPE = 2) * (pd_dll_power_type = 2) * (parameter_type = 1)) resulting in the set_parameter_type function being called for a second time. The parameter_type variable would then be set 2 enabling the PSE to increase the power it supplies from Type 1 to Type 2 limits.

The problem is there are two values of pd_dll_power_type once Data Link Layer Classification is in operation, the one based on the Table 33–41 mapping which in this case would be set to a value of 2, and the one output by the Figure 33-46 state diagram,

which in this case would be set to a value of 1. As well as the statement that 'State diagrams take precedence over text.' incorporated by the reference to subclause 21.5 in subclause 33.2.5.2 the definition of the pd_dll_power_type variable in subclause 33.2.5.4 'Type 1 and Type 2 variables' for Figure 33-13 state that it is 'control variable output by the PSE power control state diagram (Figure 33–46) ...'. Based on this it would seem that the latter value of 1 should be used, however the problem with that is the second call to SET_PARAMETERS state will then never happen, and the PSE will have to continue using Type 1 limits.

It would seem a better approach would be to remove the assignment of parameter_type to pd_dll_power_type in the INITIALIZE state of Figure 33–46 'PSE power control state diagram' and just use the Table 33–41 'Attribute to state diagram variable cross-reference' mapping for Figure 33-13. This is the only use of the parameter_type and pd_dll_power_type variables in Figure 33–46 so they can also be removed from the associated variable definition lists.

The variable pd_dll_power_type however has to gated while pse_dll_ready is FALSE, since at that time aLldpXdot3RemPowerType is undefined and therefore the mapping of Table 33–41 'Attribute to state diagram variable cross-reference' is undefined. There also needs to be some qualification based on DLL being implemented for the case of a Type 2 PSE with 2-event physical layer classification but no Data Link Layer Classification.

Based on this the use of pd_dll_power_type on the POWER_ON to SET_PARAMETERS transition should be qualified with pse_dll_capable = TRUE and pse_dll_ready = TRUE, so the equation would become (PSE_TYPE = 2) * (pd_dll_power_type = 2) * (parameter_type = 1) * pse_dll_capable * pse_dll_ready.

NOTE: This comment relates to TODO D2.1 #118, #122, #140 and #25.

SuggestedRemedy

Suggest that:

[1] The equation on the transition from the POWER_ON state to the SET_PARAMETERS state in Figure 33-13 'Type 1 and Type 2 PSE state diagram' be changed to read '(PSE_TYPE = 2) * (pd_dll_power_type = 2) * (parameter_type = 1) * pse_dll_capable * pse_dll_ready'.
[2] The assignment 'pd_dll_power_type <= parameter_type' in the INITIALIZE state in Figure 33–46 'PSE power control state diagram' be removed.
[3] The definition of parameter_type be removed from 33.5.3.3 'Single-signature system Variables'.
[4] The definition of pd_dll_power_type be removed from 33.5.3.3 'Single-signature system Variables'.
[5] In definition of pd_dll_power_type in subclause 33.2.5.4 'Type 1 and Type 2 variables' change the text 'A control variable output by the PSE power control state diagram (Figure 33–46) that indicates ...' to read 'A variable mapped from the aLldpXdot3RemPowerType as defined in Table 33-41 that indicates ...'.

Proposed Response *Response Status* **W**

TFTD

I need an LLDP expert to comment on this. However, the change to Figure 33-13 would certainly be a maintenance request…

Cl **33** *SC* **33.2.5.9** *P* **77** *L* **5** # 289

Stover, David Linear Technology

Comment Type **TR** *Comment Status* **X** *Pres: Stover2*

Text and PSE SD are in conflict. 33.2.5.1.1: "In any implementation, the behaviors of the Alternatives may be reversed as long as the roles are established in IDLE and shall be maintained in every other state." Whereas, in the PSE SD, the definition of alt_pri is assigned in IDLE and in TEST_MODE.
Also, the assignment of alt_pri is forced to "a" in TEST_MODE, though it should probably be user defined.
Finally, when pingpong_en==TRUE, assignment of alt_pri in IDLE depends on previous value, but alt_pri initial value is unspecified.
Otherwise, everything is fine.

SuggestedRemedy

See stover_02_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.2.5.9** *P* **79** *L* **25** # 156

Law, David HPE

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

Subclause 33.2.5.9 'Type 3 and Type 4 variables' defines the iclass_lim_det as a '... variable indicating if any IClass measured by the PSE during do_classification is invalid or equal to or greater than IClass_LIM min ...'. Based on this isn't this a variable output by the do_classification and as such should be listed as part of the definition of the do_classification found in subclause 33.2.5.11 'Type 3 and Type 4 functions' along with the other variables listed after the text 'This function returns the following variables:'. Similar issues exist with the iclass_lim_det_pri and iclass_lim_det_sec variables.

SuggestedRemedy

Suggest that:

[1] The iclass_lim_det variable definition should be moved in to the do_classification variable list.

[2] The iclass_lim_det_pri variable definition should be moved in to the do_classification_pri variable list.

[3] The iclass_lim_det_sec variable definition should be moved in to the do_classification_sec variable list.

Proposed Response *Response Status* **W**

TFTD

I believe the reason we did not do this is that we wanted to give PSEs the flexibility to abort the classification procedure immediately upon over current or to finish the classification procedure and then return to idle. It was our belief that he outputs from the function would only be valid at the very end, not allowing for this flexibility.

Cl **33** *SC* **33.2.5.9** *P* **81** *L* **3** # 234

Picard, Jean Texas Instruments

Comment Type **TR** *Comment Status* **X** *PSE SD*

1) pd_cls_4PID_xx (used in state diagram) are missing.
2) The "pd_cls_4Ptype_xx" name does not clearly represent what this variable is about, which is 4PID.
3) If the PSE decides to use the staggered detection, the pd_cls_4PID_xx will never be set, since the main SD does not care about the state of this variable (if sec is already powered, it becomes obvious that it is 4P capable). So, we can NOT state that the state of this variable unilaterally means if it is 4P capable or not (or that it is Type 3-4 or not), it is just the result of a very specific test method (3-finger class and parallel detection).

SuggestedRemedy

Remove pd_cls_4Ptype_pri and pd_cls_4Ptype_sec from list of variables.

Insert the following definitions:
pd_cls_4PID_pri:
This variable indicates 4PID and Type 3 or Type 4 dual-signature PD has been established by using the method to generate 3 class events on the Primary Alternative.
TRUE: PD is a candidate for 4-pair power.
FALSE: PD not a candidate for 4-pair power OR the PSE has not used the method to determine 4P capability by generating 3 class events.

pd_cls_4PID_sec:
This variable indicates 4PID and Type 3 or Type 4 dual-signature PD has been established by using the method to generate 3 class events on the Secondary Alternative.
TRUE: PD is a candidate for 4-pair power.
FALSE: PD not a candidate for 4-pair power OR the PSE has not used the method to determine 4P capability by generating 3 class events.

Proposed Response *Response Status* **W**

TFTD

I feel like we have gone back and forth on this a few times now. I would like everyone to agree on a final outcome.

Cl **33** *SC* **33.2.5.9** *P* **81** *L* **38** # 335

Yseboodt, Lennart Philips

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

"pd_cls_4Ptype_pri" and "pd_cls_4Ptype_sec" have lowercase type

SuggestedRemedy

Change to:
"pd_cls_4PType_pri" and "pd_cls_4PType_sec" in variable list and state diagram.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

May be OBE by 234.

TFTD

Cl **33** *SC* **33.2.5.9** *P* **84** *L* **12** # 445

Zimmerman, George CME Consulting, Aqua

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

pse_ss_mode_update needs a way to be reset, otherwise it creates a loop/race-condition in POWER_ON

SuggestedRemedy

Insert "pse_ss_mode_update is set to FALSE after pse_ss_mode is evaluated in POWER_ON." after "A control variable that is used to cause the PSE to re-evaluate to value of pse_ss_mode if it is in the POWER_ON state.". Modify state diagram (Fig 33-15, pg 95) POWER_ON state to insert "pse_ss_mode_update <= FALSE" after if-then-else constructions. (note - presentation may be provided - this might not be the right fix, need time to think).

Proposed Response *Response Status* **W**

TFTD

WFP

Lennart has a presentation that addresses these issues.

Cl **33** *SC* **33.2.5.12** *P* **92** *L* **1** # 284

Stover, David Linear Technology

Comment Type **TR** *Comment Status* **X** *Pres: Stover1*

TODO 2.1: Add Autoclass power measurement to SDs.

SuggestedRemedy

See stover_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.2.5.12** *P* **92** *L* **1** # 338

Yseboodt, Lennart Philips

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

Classification state diagrams to be updated to get rid of class_num_events and implement class probing.

SuggestedRemedy

Adopt yseboodt_01_0117_classification.pdf

Proposed Response *Response Status* **W**

WFP

TFTD

Cl **33** *SC* **33.2.5.12** *P* **92** *L* **3** # 246

Schindler, Fred — Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **X** *PSE SD*

Four unlabeled state entry values are shown on lines state IDLE (bock label was IDLE) , START_CXN_CHK (was B), START_DETECT (was C) and SISM_START (was G). Also see page 146 State INRUSH is entered by an unlabeled input.

This seems to be a new approach used to reduce space consumed in the state diagrams. The empty box is a problem for anyone trying to evaluate connections to a specific state.

SuggestedRemedy

For all state diagrams,

Option-1
Place the source state name in the state-entry box.

Option-2
Create a table, in the state diagram section, that lists all states with an unlabeled entry condition. In the table list all states that enter the called-out state.

ex/

State Entered	Exit state
START_CXN_CHK	DETECT_EVAL

The Task Force should also determine whether Clause 33 needs to add text clarifying the new approaches taken when documenting behavior. Any required text should be provided as part of this comment resolution.

Proposed Response *Response Status* **W**

TFTD

This was done intentionally and I believe Lennart sent an email to the reflector explaining his reasoning. Let's make a final decision.

Cl **33** *SC* **33.2.5.12** *P* **92** *L* **43** # 161

Law, David — HPE

Comment Type **TR** *Comment Status* **X** *PSE SD*

The variables do_detect_pri_done and do_detect_sec_done, used for example to qualify some of the transitions out of the START_DETECT state of Figure 33–15 'Type 3 and Type 4 top level PSE state diagram' are not defined. Suggest that these variables should be added to the variables returned by the do_detect_pri and do_detect_sec functions respectively. A similar issue exits with the do_detection_done variable used in Figure 33–13 'Type 1 and Type 2 PSE state diagram'.

SuggestedRemedy

Suggest that

[1] In subclause 33.2.5.11 'Type 3 and Type 4 functions' add to the end of the list of variables returned by the do_detect_pri function (page 90, line 47) the following:

do_detect_pri_done: This variable indicates if the detection function is complete and if the other variables returned by this function are valid.
TRUE: Detection complete and the other variables returned by this function are valid.
FALSE: Detection incomplete and the other variables returned by this function are not yet valid.

[2] In subclause 33.2.5.11 'Type 3 and Type 4 functions' add to the end of the list of variables returned by the do_detect_sec function (page 91, line 47) the following:

do_detect_sec_done: This variable indicates if the detection function is complete and if the other variables returned by this function are valid.
TRUE: Detection complete and the other variables returned by this function are valid.
FALSE: Detection incomplete and the other variables returned by this function are not yet valid.

[3] In subclause 33.2.5.6 'Type 1 and Type 2 functions' add to the end of the list of variables returned by the do_detection function (page 72, line 36) the following:

do_detection_done: This variable indicates if the detection function is complete and if the other variables returned by this function are valid.
TRUE: Detection complete and the other variables returned by this function are valid.
FALSE: Detection incomplete and the other variables returned by this function are not yet valid.

Proposed Response *Response Status* **W**

TFTD

We should definitely do [1] and [2]. [3] is an editorial change to the existing Type 1/2 state diagram. Chair, we ok to implment it?

TFTD CJ
already a TFTD but question to me: As you state this is an editorial change. Our rule is no

changes that modify existing implementations. Yes we don't like to touch legacy text at all but we have done a lot of editorial clarification for legacy. In this case, David has pointed out valid missing information that has no effect on legacy devices.

Cl **33** *SC* **33.2.5.12** *P* **94** *L* **38** # 247

Schindler, Fred — Seen Simply, Cisco, T

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

The Type 3 and 4 state diagram (page 94) and text do not match the behavior for the processing time of the tdbo_timer cover in text on page 109 line 21, because an incomplete fix was made to create this draft. This comment is related to D2.1 TODO 112.

SuggestedRemedy

For the DETECT_EVAL exit path that is shared by the BACKOFF state exit path add the following term which enables the optional behavior.

"+ (pse_alternative = b) * ((sig_pri=open_circuit)*optional_tdbo_omit)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
1. It should be option_tdbo_omit
2. Is that logic right ?
3. If it is, the pse_alternative=b is common to both and can be moved outside
4. Where is the path from DETECT_EVAL to IDLE that uses option_tdbo_omit ?

Possible alternate remedy, but please verify:
- Leave DETECT_EVAL to BACKOFF as is
- Add the following to the DETECT_EVAL to IDLE transition:
"+ (pse_alternative=b) * (sig_pri=open_circuit) * option_tdbo_omit

---

Cl **33** *SC* **33.2.5.12** *P* **95** *L* **7** # 295

Stover, David — Linear Technology

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

CLASS_EVAL checks for ted_timer_done. However, ted_timer from dual-signature state arcs is not checked. Implication is that PSE may error_delay/remove power from dual-signature PD and power single-signature PD before T_ED.

SuggestedRemedy

Change xition from CLASS_EVAL to POWER_UP
From: "ted_timer_done * …"
To: "ted_timer_done * ted_timer_pri_done * ted_timer_sec_done * …"

Change xition from CLASS_EVAL to POWER_DENIED
From: "ted_timer_done + …"
To: "!ted_timer_done + !ted_timer_pri_done + !ted_timer_sec_done + ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"It is not clear how PSE may error_delay/remove power from dual-signature PD and power

single-signature PD before T_ED?"

Cl **33** *SC* **33.2.5.12** *P* **95** *L* **31** # 311

Yseboodt, Lennart — Philips

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

There is a host of "multiple true" errors in the POWER_ON state.

SuggestedRemedy

Adopt yseboodt_03_0117_power_on_state_fix.txt

Proposed Response *Response Status* **W**

WFP

TFTD

Cl **33** *SC* **33.2.5.12** *P* **96** *L* **27** # 291

Stover, David Linear Technology

Comment Type **T** *Comment Status* **X** *Pres: Stover2*

SEMI_PWRON_PRI and SEMI_PWRON_SEC bypass POWER_DENIED, which is inconsistent with behavior of "!power_available" out of POWER_ON state.

SuggestedRemedy

See stover_02_0117.pdf

Proposed Response *Response Status* **W**

WFP

TFTD

Cl **33** *SC* **33.2.5.12** *P* **96** *L* **28** # 299

Stover, David Linear Technology

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

In "yseboodt_03_0117_power_on_state_fix", it is proposed to collapse 3 "error" variables in single-signature PSE SD that are often used together into "error_pri", "error_sec". This is a fine idea. Let's do this for dual-signature SDs in Type 3/4 PSE SD, as well.

SuggestedRemedy

Replace "!short_det_pri * !ovld_det_pri * !option_vport_lim" with "!error_pri", "short_det_pri + ovld_det_pri + option_vport_lim" with "error_pri" in the following locations:
P96,L28; P98,L30

Perform the appropriate changes for "error_sec" in the following locations:
P96,L37; P100,L29

Proposed Response *Response Status* **W**

WFP

TFTD

Cl **33** *SC* **33.2.5.12** *P* **97** *L* **4** # 292

Stover, David Linear Technology

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

Asynchronous entry arcs into IDLE_PRI, IDLE_SEC states may be true when transition is not applicable, requiring SISM SMs to be in two states (ENTRY_* and IDLE_*) simultaneously.

SuggestedRemedy

Change entry arc into IDLE_PRI from "iclass_lim_det_pri" to "sism * i_class_lim_det_pri". Repeat change for IDLE_SEC.

Proposed Response *Response Status* **W**

TFTD

See 156

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **6** # 293

Stover, David — Linear Technology

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

Conditional logic for "pd_4pair_cand<=TRUE" in CLASS_EVAL_PRI does not match 33.2.6.7. For example, do we expect "pwr_app_pri" to be true in CLASS_EVAL_PRI? Let's instead make this logic symmetric to CLASS_EVAL_SEC, which seems correct.

SuggestedRemedy

Change condional logic for "pd_4pair_cand<=TRUE" in CLASS_EVAL_PRI:
From "pd_cls_4PID_sec * (sig_sec = valid) * (sig_pri = valid) + pwr_app_pri)"
To "pd_cls_4PID_pri * (sig_pri = valid) * ((sig_sec = valid) + pwr_app_sec)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 313

TFTD YD
#293 is OBE by #313 however #213 is not resolved completely (need to change "pd_cls_4PID_sec" to pd_cls_4PType_pri". The remedy for both #293 and #313 should be #83.
OBE #293 and #313 to #83

TFTD DS
Since we're touching this again…
The proposed winner for setting pd_4pair_cand=TRUE in CLASS_EVAL_PRI is "pd_cls_4PID_pri * (sig_pri = valid) * (sig_sec = valid) + pwr_app_sec".
1) (sig_pri=valid) is superfluous, remove it. Pd_cls_4PID_pri can't be true--in fact, we can't be in CLASS_EVAL_PRI--if sig_pri != valid.
2) (sig_sec=valid) likely does not serve its intended purpose. I believe this term is meant to emulate 33.2.6.7©: "The PSE has identified the PD as Type 3 or Type 4". Since neither pairset is powered in this case ("+ pwr_app_sec" covers that instance), the PSE would identify the PSE as Type 3 or Type 4 by observing "pd_cls_4PID_pri * pd_cls_4PID_sec", which coincidentally guarantees "sig_sec = valid".
Therefore I am proposing: "IF (pd_cls_4PID_pri * pd_cls_4PID_sec + pwr_app_sec) THEN". I believe similar changes should be made to CLASS_EVAL_SEC.

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **7** # 313

Yseboodt, Lennart — Philips

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

The IF statement in CLASS_EVAL_PRI seems to befuddle us nearly every cycle.
The make matters worse, this Figure went from Visio to Frame during this cycle and I suspect a copy/paste mistake was made.
Note: watch out for correct parenthesis !!

SuggestedRemedy

Replace
"IF (pd_cls_4PID_sec * (sig_sec = valid) * (sig_pri = valid) + pwr_app_pri) THEN"
by
"IF (pd_cls_4PID_pri * (sig_pri = valid) * (sig_sec = valid) + pwr_app_sec) THEN"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"#313 is incorrect. ""pd_cls_4PID_sec"" need to be pd_cls_4PType_pri"" (i.e. need to be ""pri"" and not ""sec"" and also the new variable name ""pd_cls_4PType_pri"" "
#313 should OBE to #83

TFTD DS
See 293

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **7** # 83

Darshan, Yair — Mirosemi

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

Figure 33-16 CLASS_EVAL_PRI state:
1. pd_cls_4PID_sec doesn't exists.
2. It is primary alternative and not secondary and It has to be pd_cls_4Ptype_pri.
3. Scan for all primary drawings in the state machine and replace pd_cls_4PID_sec with pd_cls_4Ptype_pri.

SuggestedRemedy

See above.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 312

TFTD YD
#83 is complete and correct. #83 shouldn't be OBE to #212 since #212 address only "pd_cls_4PID_pri/sec" need to be pd_cls_4PType_pri/sec" and #83 show two problems.
ACCEPT #83

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **7** # 235

Picard, Jean — Texas Instruments

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

"pri" and "sec" have been interchanged at 2 locations in the following statement.
pd_cls_4PID_sec * (sig_sec = valid) * (sig_pri = valid) + pwr_app_pri

SuggestedRemedy

Replace with this:
(pd_cls_4PID_pri * (sig_sec = valid) * (sig_pri = valid)) + pwr_app_sec

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

TFTD YD
"#235 is incorrect. ""pd_cls_4PID_sec"" need to be pd_cls_4PType_pri"" (i.e. need to be ""pri"" and not ""sec"" and also the new variable name ""pd_cls_4PType_pri"" "
#235 should OBE to #83

TFTD DS
See 293

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **10** # 294

Stover, David — Linear Technology

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

CLASS_EVAL_PRI and CLASS_EVAL_SEC check for "_done" on their respective T_ED timers. However, ted_timer from single-signature state arcs is not checked. Implication is that PSE may error_delay/remove power from single-signature PD and power dual-signature PD before T_ED.

SuggestedRemedy

Change xition CLASS_EVAL_PRI to POWER_UP_PRI
From: "ted_timer_pri_done * …"
To "ted_timer_pri_done * ted_timer_done * …"

Change xition CLASS_EVAL_PRI to POWER_DENIED_PRI
From: "!ted_timer_pri_done + …"
To: "!ted_timer_pri_done + !ted_timer_done + …"

Make appropriate changes to CLASS_EVAL_SEC.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"It is not clear how PSE may error_delay/remove power from dual-signature PD and power

single-signature PD before T_ED?"

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **22** # 296

Stover, David — Linear Technology

Comment Type **T** *Comment Status* **D** *Pres: Stover2*

The definition of pwr_app_* includes the statement "A variable indicating that the PSE has begun steady state operation…and is not in a current limiting mode…"
Then, it is redundant and noisy to include the term "(I_Port-2P-pri >= I_Inrush-2P)" in xition logic from POWER_UP_* to ERROR_DELAY_* when we already check for "!pwr_app_*"

SuggestedRemedy

Change xition logic from POWER_UP_* to ERROR_DELAY_* (3 locations)
From: "tinrush_timer_*_done * (!pwr_app_* + (I_Port-2P-* >= I_Inrush-2P))
To: "tinrush_timer_*_done * !pwr_app_*"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD LY
The definition for pwr_app_pri/sec leaves leeway for interpretation and weakens the requirement on PSEs to check if a PD has actually concluded inrush. The term Iport-2P > Iinrush-2P on the other hand is extremely clear and indisputable as to what it means. If this statement must be simplified, why not take out the pwr_app_pri/sec variable ? We cannot depend on the text definition of a variable here as this transition is at the boundary on inrush and power on state.

TFTD DS
WFP stover_02

Cl **33** *SC* **33.2.5.12** *P* **98** *L* **27** # 297

Stover, David — Linear Technology

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

POWER_ON_* states are missing xition arc into ERROR_DELAY_* states.

SuggestedRemedy

Add xition arc from POWER_ON_PRI to ERROR_DELAY_PRI:
"short_det_pri + ovld_det_pri + option_vport_lim"

Make appropriate change to POWER_ON_SEC state.

Replace aforementioned logic with "error_pri", "error_sec" as appropriate, if "yseboodt_03_0117_power_on_state_fix" accepted.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 314

TFTD DS
297 includes some goodness that is absent in 314, 315. (error_*)

Cl **33** *SC* **33.2.5.12** *P* **100** *L* **6** # 84

Darshan, Yair — Mirosemi

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

Figure 33-16 CLASS_EVAL_PRI state:
The logic of "(pd_cls_4PID_sec * (sig_sec = valid) * ((sig_pri = valid) + pwr_app_pri))" is incorrect. There is redundant parenthesis at the end. It should be the same construct as in the primary.

SuggestedRemedy

Change to: "(pd_cls_4PID_sec * (sig_sec = valid) * ((sig_pri = valid) + pwr_app_pri)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 233

TFTD DS
See 293

Cl **33** *SC* **33.2.5.12** *P* **100** *L* **6** # 233

Picard, Jean — Texas Instruments

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

Parenthesis is at wrong location in the CLASS_EVAL_SEC block for following equation.
IF (pd_cls_4PID_sec * (sig_sec = valid) * ((sig_pri = valid) + pwr_app_pri))
The first condition is applicable if the PSE does parallel detection and uses the 3-finger method to determine if 4P capable; in this case, both signatures must show valid.
The second condition is applicable if the PSE does staggered detection; if sec is already powered, it becomes obvious that it is 4P capable since we cannot reach the CLASS_EVAL_PRI unless the pri signature is valid too.

SuggestedRemedy

Replace with this:
IF ((pd_cls_4PID_sec * (sig_sec = valid) * (sig_pri = valid)) + pwr_app_pri)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Removing redundant parenthesis…

Replace with this:
IF (pd_cls_4PID_sec * (sig_sec = valid) * (sig_pri = valid) + pwr_app_pri)

TFTD DS
See 293

Cl **33** *SC* **33.2.5.12** *P* **100** *L* **8** # 85

Darshan, Yair — Mirosemi

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

Figure 33-16 CLASS_EVAL_PRI state:
1. pd_cls_4PID_sec doesn't exists. It has to be pd_cls_4Ptype_sec.
3. Scan for all secondary drawings in the state machine and replace pd_cls_4PID_sec with pd_cls_4Ptype_sec.

SuggestedRemedy

See above.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 312

TFTD DS
See 293

Cl **33** *SC* **33.2.5.12** *P* **101** *L* **22** # 82

Darshan, Yair Mirosemi

Comment Type **TR** *Comment Status* **X** *PSE SD*

(TODO for comment #178 and #55 , D2.1)
The PSE state machine part for single signature (Figure 33-18) when it needs to know class code by issuing 3 finger and then doing class reset due to lake of sufficient power in which it need to generate only one finger etc. is missing.
This is covered by the text but not in the state machine.

SuggestedRemedy

Add to figure 33-18 the missing state machine part if available for the meeting. If not available, keep it in the TODO.

Proposed Response *Response Status* **W**

TFTD

Yair, did you do this?

Note, one comment removed a timer or variable (class_reset_timer??) you might need.

TFTD YD
David: please mark it as Lennart A.I. which he will present in this meeting.

Cl **33** *SC* **33.2.6.4** *P* **108** *L* **39** # 86

Darshan, Yair Mirosemi

Comment Type **TR** *Comment Status* **X** *PSE Detection*

The text: "In a multiport system, the implementer should maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents." is not sufficiently clear to prevent detection signature pollution due to cross-port leakage currents.

SuggestedRemedy

Option 1 (preferred):
"In a Type 1 and Type 2 PSES, in a multiport system, the implementer should maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents that will affect the equivalent signature resistor value of the PD as seen by the PSE."

Type 3 and Type 4 PSEs , in a multiport system, the implementer shall maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents that will affect the equivalent signature resistor value of the PD as seen by the PSE."

Option 2:
"In a multiport system, the implementer should maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents that will affect the equivalent signature resistor value of the PD as seen by the PSE."

Proposed Response *Response Status* **W**

TFTD

What is the reason that this should needs to become a shall? Also, this is written as a note (I think) so we can't put normative requirements into it without reformatting it as normal text (not a note).

Cl **33** *SC* **33.2.7** *P* **110** *L* **6** # 119

Johnson, Peter — Sifos Technologies

Comment Type **T** *Comment Status* **D** *PSE Class*

The phrase

"...when the PSE asserts a voltage in
the range of VClass as defined in Table 33–16 onto one or both pairset."

reads like any PSE can classify on both pairsets. Obviously, that is not true.

SuggestedRemedy

Change to:

"...when the PSE asserts a voltage in
the range of VClass as defined in Table 33–16 onto a pairset."

4-pair PSE's classifying single signature PD's must assert Vclass on "a pairset" and could redundantly do this on both pairsets. 4-Pair PSE's classifying dual siganture PD's must evaluate class per pairset.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This is an informative sentence explaining what Physical Layer Classification is, it does not give the PSE permission to do anything.

I believe the text on page 115, as well as the State Diagram have the requirements you are concerned about.

TFTD

TFTD PJ
I am ok with this rejection.

Cl **33** *SC* **33.2.7** *P* **110** *L* **14** # 120

Johnson, Peter — Sifos Technologies

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

Following text intermixes general PSE behavior with Type-3/4 specific behavior:

"The assigned Class is the result of the PD's requested Class and the number of class events produced by the PSE as shown in Table 33–13. See 33.3.6 for PD classification behavior. When a single-signature PD requests a higher Class than a Type 3 or Type 4 PSE can support..."

Suggest breaking this into two paragraphs.

SuggestedRemedy

Suggest breaking this into two paragraphs:

"The assigned Class is the result of the PD's requested Class and the number of class events produced by the PSE as shown in Table 33–13. See 33.3.6 for PD classification behavior.

When a single-signature PD requests a higher Class than a Type 3 or Type 4 PSE can support..."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This text is directly related. The introduction of assigned and requested class was done for exactly the reasons described in the rest of the paragraph.

TFTD

TFTD PJ
My issue with this paragraph is that the first couple of sentences are generally applicable to ALL PSE's. The remainder of the paragraph starts out with terms "single signature" and "dual signature" that are absolutely meaningless to Type-1 and Type-2 PSE's. Either should be separate paragraph or perhaps just reworded to make sure that the remainder of the paragraph is ONLY applicable to Type 3 and Type 4. For example: "With respect to Type 3 and Type 4 PSE's, when a single-signature PD requests…."

Cl **44** *SC* **33.2.7** *P* **112** *L* **3** # 121

Johnson, Peter — Sifos Technologies

Comment Type **T** *Comment Status* **D** *PSE Class*

Table 33-13 is titled inappropriately.

"Table 33–13—Physical Layer power classifications for single-signature PDs (PClass)"

The table now applies to all PD's / PSE's including Type 1, Type 2 PSE's that know nothing of "single signature".

SuggestedRemedy

Re-title as:

"Table 33–13—Physical Layer power classifications"

Also, suggest adding the footnote designations to Table 33-13 headings:

Number of PSE class events (3)
PClass (1)
PClass-2P (2)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Re-title as:

"Table 33–13—Physical Layer power classifications"

Editor to implement footnote changes in suggested remedy with editorial license.

TFTD LY
New title is good. Why make footnotes when generic notes are just as clear ?
Propose to keep the notes as-is.

Cl **33** *SC* **33.2.7** *P* **112** *L* **14** # 320

Yseboodt, Lennart — Philips

Comment Type **ER** *Comment Status* **D** *PSE Class*

Table 33-13, several rows can be merged now. Goal is to have only a single occurance for each Assigned Class.

For Type 1/2:
Row 3 | 1 | 3 and 4 | 1 | 3 can be merged

For Type 3/4 connected to single-signature.
The rows with requested Class 0 and "3 to 8" can be merged into the "3 to 8".

SuggestedRemedy

Type 1/2
- Merge row 3 | 1 | 3 and 4 | 1 | 3 into "3, 4" | 1 | 3

Type 3/4 Single sig
- Merge row 0 | 1 | 3 and "3 to 8" | 1 | 3 into "0, 3 to 8" | 1 | 3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The Type 3/4 merge would create the only entry in the table that is not in proper ascending order. Do not implement it.

Implement:
Type 1/2
- Merge row 3 | 1 | 3 and 4 | 1 | 3 into "3, 4" | 1 | 3

TFTD LY
It would cause the Assigned Class column to be in ascending order, which was my goal… Propose to reconsider implementing the full remedy.

Response DNA: I guess it depends on what people are looking for when they come to this table. As this is the PSE table and the PD section has its own, you might be right that the Assigned Class column is the most important (and thus should be in order).

Cl **33** *SC* **33.2.7** *P* **113** *L* **5** # 131

Jones, Chad — Cisco

Comment Type **ER** *Comment Status* **D** *PSE Class*

this topic again, I know…
"Data Link Layer classification takes precedence over Physical Layer classification."
The problem is this sentence leaves the max allowed power open to interpretation. There cannot be an interpretation - the text has to state the behavior. Read that sentence and tell me how it says what we intend the standard to say.

SuggestedRemedy

change to:
Data Link Layer classification takes precedence over Physical Layer classification but is less than or equal to the power the PSE is capable of assigning on the Physical Layer under normal operation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

How about...
change to:
Data Link Layer classification takes precedence over Physical Layer classification when it is less than or equal to the power the PSE is capable of assigning on the Physical Layer under normal operation.

TFTD

Cl **33** *SC* **33.2.7** *P* **113** *L* **10** # 122

Johnson, Peter — Sifos Technologies

Comment Type **T** *Comment Status* **D** *PSE Class*

Table 33-14 seems a bit redundant. It has two columns for PSEAllocatePowerValue and two additionally columns for PSEAllocatedPowerValue_mode(M). All of the relationships are the same for the dual signature case.

SuggestedRemedy

Column 1 could be "PSEAllocatedPowerValue or PSEAllocatedPowerValue_mode(m)" and a footnote added "PSEAllocatedPowerValue_mode(m) can only take on values for Assigned Class 1 through 5."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 323

TFTD YD
"Cant be OBE to 323. #122 and #323 are two different comments. #323 is about titles and #122 is about reducing one column."

Cl **33** *SC* **33.2.7** *P* **113** *L* **19** # 339

Yseboodt, Lennart — Philips

Comment Type **T** *Comment Status* **X** *PSE Class*

PSEAllocatedPowerValue_mode(M) has field "256 to 400" has to limited range.
This should be 999 divided by 2, thus 499

SuggestedRemedy

Change to "256 to 499"

Proposed Response *Response Status* **W**

TFTD

Just want to make sure we are all aware/ok with this.

Cl **33** *SC* **33.2.7.1** *P* **114** *L* **8** # 133

Jones, Chad — Cisco

Comment Type **ER** *Comment Status* **D** *PSE Class*

Page 110, line 10 states: "Polarity shall be the same as defined for VPort_PSE-2P in 33.2.4 and timing specifications shall be as defined in Table 33–16."
Page 114, line 8 states: "Polarity shall be the same as defined for VPort_PSE-2P in 33.2.4 and timing specifications shall be as defined by Tpdc in Table 33–16."
Two identical shalls (actually four). Also leads to two pairs identical PICS in 33.2.7 (PSE40, 41) and 33.2.7.1 (PSE50, 51)

SuggestedRemedy

delete the shall on page 114 line 8, delete PSE50, delete PSE51.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
It is OK to delete the shall in page 114 line 8 as proposed however to replace it with what?
"Replace ""Polarity shall be the same as defined for …"" with ""Polarity is the same as defined for …"""

Cl **33** *SC* **33.2.7** *P* **115** *L* **20** # 341

Yseboodt, Lennart Philips

Comment Type **TR** *Comment Status* **D** *PSE Class*

"Type 1 and Type 2 PSEs shall issue no more class events than the Class they are capable of supporting."

This is a new requirement (+ new PICS) for Type 1 and Type 2.
Since this behavior is already guaranteed by the legacy state diagram, there is no need for this shall.

SuggestedRemedy

Remove quoted text.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

It is not a new requirement as you point out yourself (it is guarenteed by the legacy SD). Also, your own comment (342) leaves the equivalent shall for Type 3/4 even though it is also in the SD.

See 29, 134

TFTD LY
The rejection argumentation is fine until some existing implementation manages to meet the SD but fails to meet this text. It is exceedingly difficult to make shall statements that 100% match with the state diagram (as we have seem by the complete failure of 802.3at to get it right for the PD state diagram and text). There is no need to make this a shall, let's at least try to limit the amount of normative changes we make to the legacy Types. I am also OK to remove the word "shall", turning it into an informative sentence.

Cl **33** *SC* **33.2.7.2** *P* **115** *L* **22** # 342

Yseboodt, Lennart Philips

Comment Type **T** *Comment Status* **D** *PSE Class*

"Type 3 and Type 4 PSEs shall issue no more class events than the Class they are capable of supporting between the most recent time VPSE was at VReset for at least TReset and a transition to any of the power up states."

"at VReset" is not the usual way to refer to this.

SuggestedRemedy

Change to:
"Type 3 and Type 4 PSEs shall issue no more class events than the Class they are capable of supporting between the most recent time VPSE was in the range of VReset for at least TReset and a transition to any of the power up states."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
Why does adding "in the range of VReset" change anything? Vmark does not say "in the range of Vmark", see page 116 line 3, but it does on line 7. We should sort out the correct way to reference variables that cover a range of values. I believe using the name of the variable is more concise and correct.

Cl **33** *SC* **33.2.7.3** *P* **117** *L* **17** # 446

Zimmerman, George CME Consulting, Aqua

Comment Type **TR** *Comment Status* **D** *Autoclass*

Is autoclass mandatory or optional for the Type 3 and Type 4 PSE? Line 23 gives permission to implement autoclass ("may implement"), whereas the (text deleted from draft 2.1 to 2.2) in line 27 make measuring Pautoclass mandatory for a PSE when connected to a PD which requests it. "shall measure... when pd_autoclass is TRUE"

SuggestedRemedy

Reinstate "If the PSE implements Autoclass" (line 27) or change the "may implement an extension" (line 23) to "shall implement..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

It is optional.

Reinstate "If the PSE implements Autoclass" (line 27)

TFTD LY
Autoclass is optional. That line ends with "if pd_autoclass is TRUE" taking care of this.

Cl **33** *SC* **33.2.8** *P* **118** *L* **36** # 344

Yseboodt, Lennart Philips

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

Table 33-18, item 4, Ripple and Noise has no Symbol name.
So sad.

SuggestedRemedy

Name it V_Noise

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

ALSO, Editor to include V_Noise is section 33.2.8.4 somewhere (otherwise, why name it?).

TFTD YD
Suggest "Vac_pse" for Table 33-18 for ripple and noise and Vac_pd for Table 33-30 for ripple and noise.

Cl **33** *SC* **33.2.8** *P* **118** *L* **44** # 2

Abramson, David Texas Instruments

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

Table 33-18, Item 5. Values for Class 5-8 should depend on VPSE, just as Icon depends on VPSE.
I have calculated the power constants for my suggested remedy using the worst case VPSE for a given class and the Icon-2p-unb values currently in the table.

SuggestedRemedy

Replace the values for Item 5 as follows:
Class 0 to 4: Leave as is
Class 5: Replace 0.550 with 27.5/VPSE
Class 6: Replace 0.682 with 34.1/VPSE
Class 7: Replace 0.777 with 40.4/VPSE
Class 8: Replace 0.925 with 48.1/VPSE

Proposed Response *Response Status* **W**

TFTD (my own comment)

TFTD YD
The proposed remedy is about correct but I am not sure it is accurate. To add it to Yair's TDL for D2.3.

Cl **33** *SC* **33.2.8** *P* **120** *L* **7** # 87

Darshan, Yair Mirosemi

Comment Type **TR** *Comment Status* **X** *PSE Power*

This comment is marked TLIM-2P.
It doesn't make sense that TLIM-2P will be changed per the assigned class.
Examples:
If PSE is type 4 which need only to meet TLIM-2P=6msec, when connected to Type 3 assigned class 1 in case of faulty PD, will have now to endure 50msec of TLIM-2P. This is high stress on PSE for no reason.

SuggestedRemedy

Change from: "Short circuit time limit per pairset, per the Class assigned to the PD"
To:
Option 1: "Short circuit time limit per pairset, per the Class required by the PD"
Option 2: "Short circuit time limit per pairset" and merge the parameter column to "Single-signature all classes" and Dual-signature all classes" [In order that PSE will set TLIM-2P only per its Type].

Proposed Response *Response Status* **W**

TFTD

See 346

Cl **33** *SC* **33.2.8** *P* **120** *L* **7** # 346

Yseboodt, Lennart Philips

Comment Type **TR** *Comment Status* **X** *PSE Power*

Table 33-18, item 12, TLIM-2P.
Change to legacy requirement.

We have changed TLIM-2P into a Class-dependent parameter.
Whereas in the 2015 spec, a Type 2 PSE has a minimum of 10ms regardless of Class, now it must support 50ms minimum if it assigns Class 0-3.

SuggestedRemedy

Do we break anything if we turn this into a Type based parameter ? TFTD.

Change to:
Parameter "Short circuit time limit per pairset"
Symbol <unchanged>
Unit <unchanged>
Min:
50.0 for PSE Type 1
10.0 for PSE Type 2, 3
6.0 for PSE Type 4
Max: <unchanged>
Add info: <unchanged>

Proposed Response *Response Status* **W**

TFTD as requested

See 87

TFTD YD
"Lennart comment regarding TLIM-2P as function as the assigned class is correct. I have similar comment that shows also a technical issue as a result of it."
"ACCEPT Lennart remedy for #346.OBE #346 for comment 87."

Cl **33** *SC* **33.2.8** *P* **120** *L* **9** # 347

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X** *Pres: Darshan9*

Table 33-18, Item 12 has "See Info" in the maximum, but no description in the Additional information column. Looking at Figures 33-27 through 33-29 it is allowed for the PSE to maintain the short circuit current Ilim-2P indefinitely. That would suggest there is no meaningful maximum for Tlim-2P.

SuggestedRemedy

- Remove "See Info"

Proposed Response *Response Status* **W**

TFTD with 346, 87

WFP

I will point out that 2012 is the same way.

TFTD YD
The required information for TLIM_MAX is in the additional information in Figures 33-27,28 and Figure 33-29. The reason why we not see the maximum in the drawings is due to error in marking the "short circuit" region. The maximum for TLIM is always Tcut_max.
See darshan_09_0117.pdf for suggested remedy for comments 347, 346 and 87

Cl **33** *SC* **33.2.8.2** *P* **121** *L* **54** # 447

Zimmerman, George CME Consulting, Aqua

Comment Type **E** *Comment Status* **D** *PSE Power*

"VPort_PSE_diff, as defined in Table 33-23, is the maximum voltage...between pairs" doesn't say where it is measured.

SuggestedRemedy

insert "at the PSE PI" after "between pairs"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
The entire spec applies solely at the PI unless specifically stated otherwise.
Why would we add it here ?

Cl **33** *SC* **33.2.8.5** *P* **122** *L* **25** # 1

Abramson, David Texas Instruments

Comment Type **TR** *Comment Status* **X** *Pres: Abramson1*

Section 33.2.8.5 can be reordered to be much more clear.

SuggestedRemedy

See abramson_01_0117.pdf for changes.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.2.8.5** *P* **122** *L* **26** # 248

Schindler, Fred Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **X** *Pres: Abramson1*

The text in this section can be improved. The existing sentence,

"For Type 1 and Type 2 PSEs, IPort-2P is defined in 33.2.5.4. For Type 3 and Type 4 PSEs, IPort-2P and
IPort-2P-other are the currents on the pairs with the same polarity of the two pairsets and are defined in Equation (33–5) and in Equation (33–6)."

The reference for the Iport-2P definition references 33.2.5.4 where the reader must scroll to locate Iport-2P on the next page, p68. This point then references 33.2.8.7, which is on page 127. There seems to be a stealth definition for Iport-2p in the first sentence,

"If IPort-2P, the current supplied on a pairset by the PSE to the PI, exceeds ICUT-2P for longer than TCUT-2P, the PSE may remove power from that pairset."

This definition covers all Types but the text originally referenced indicates that Type 3 and 4 are defined by equations 33-5 and 33-6.

SuggestedRemedy

Replace the original referenced text with,

"IPort-2P is the current supplied on a pairset by the PSE to the PI. For Type 3 and Type 4 PSEs, IPort-2P and IPort-2P-other are the currents on the pairs with the same polarity with values defined in Equation (33–5) and in Equation (33–6), respectively."

On page 68 line 13, replace the existing definition,

"IPort-2P
Output current (see 33.2.8.7)."

With
"IPort-2P
is the current supplied on a pairset by the PSE to the PI."

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Partially implemented: reference changed to 33.1.3 (we added definitions for Iport and Iport-2p).

Cl **33** *SC* **33.2.8.5** *P* **122** *L* **29** # 250

Schindler, Fred — Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **X** *Pres: Abramson1*

The word “total” is used to mean A + B but could also mean what is on A or B. A better word for A + B is “combined.” This existing text is confusing because currents on both conductors of a pairset are also combined. The solution provided uses combined and pairset to improve clarity. This method of use appears in sentences,

p122 l28
“IPort is the total current on both pairs with the same polarity and is defined in Equation (33–7).”

p123 l23
“ICon is the total current of both pairs with the same polarity ..”

p123 l25
“IPeak is the total current of both pairs with the same polarity …”

SuggestedRemedy

Replace “total” in the called out sentences with “combined”, and replace “pairs” with “pairset”.

Proposed Response *Response Status* **W**

TFTD

WFP

Not impmented in Abramson_01_0117.pdf

I think part of the issue is that the PSE is only looking at one pair of each pairset, thus the use of the phrase "total current over both pairs". The other issue is that a pairset current is positive on one pair and negative on the other pair (resulting in a total near zero due to unbalance effects differing on the pairs with sense elements vs. the pairs without sense elements), so saying something like "total 4-pair current" may not be right (note that I used this phrase in other responses and we may need to revisit it).

Cl **33** *SC* **33.2.8.5** *P* **122** *L* **43** # 249

Schindler, Fred — Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **X** *Pres: Abramson1*

The text in this section can be improved. The existing sentence,
“IPort-2P-pri is the output current sourced by the Primary Alternative, defined in 33.2.5.9
IPort-2P-sec is the output current sourced by the Secondary Alternative, defined in 33.2.5.9”

The reference to 33.2.5.9 takes the reader to a point where they need to scroll to page 80 for a definition that references the section that started this quest (a circular reference).

“IPort-2P-pri
Total output current sourced by Primary Alternative (see 33.2.8.5).
IPort-2P-sec
Total output current sourced by Secondary Alternative (see 33.2.8.5).”

This text does not expand on what is already present in the text referring to this section. The definition also does not provide guidance on what Primary Alternative is.

A helpful definition for Primary and Secondary appears on p66 lines 46 -50 of section 33.2.5.1.1:

“In the Type 3 and Type 4 state diagram, Alternative A and Alternative B are depicted as serving distinct
roles during 4-pair operation. In any implementation, the behaviors of the Alternatives may be reversed as long as the roles are established in IDLE and shall be maintained in every other state. In the state diagram, the alternatives are named the Primary Alternative and the Secondary Alternative.”

SuggestedRemedy

Add the following after the sentence on page 122 line 30,
“The definition for Primary and Secondary Alternative is defined in 33.2.5.1.1."

Replace the called out original sentence with.
“IPort-2P-pri is the output current sourced by the Primary Alternative
IPort-2P-sec is the output current sourced by the Secondary Alternative”

Replace the definitions on page 80 line 1 with,
“IPort-2P-pri
The output current sourced by the Primary Alternative (see 33.2.8.5).
IPort-2P-sec
The output current sourced by the Secondary Alternative (see 33.2.8.5).”

Proposed Response *Response Status* **W**

TFTD

WFP

Not implmented in Abramson_01_0117.pdf

Suggest that we:
Remove word "Total" from definition of Iport-2p-pri and Iport-2p-sec on page 80.

Cl **33** *SC* **33.2.8.5** *P* **123** *L* **3** # 124

Johnson, Peter Sifos Technologies

Comment Type **T** *Comment Status* **X** *Pres: Abramson1*

Present text says:

"where
PClass is PClass as defined in Table 33–13
PClass-2P is PClass-2P as defined in Table 33–13"

But Pclass is defined more broadly by EQ 33-2 and PClass-2P by EQ 33-3.

SuggestedRemedy

Revise to:

"where
PClass is PClass as defined in Equation (33-2)
PClass-2P is PClass-2P as defined in Equation (33-3)"

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Completely implemented.

Cl **33** *SC* **33.2.8.5** *P* **123** *L* **21** # 125

Johnson, Peter Sifos Technologies

Comment Type **T** *Comment Status* **X** *Pres: Abramson1*

Present text is a bit vague about definitions of Ipeak-2P and Ipeak.

"The PSE shall support the AC current waveform parameter IPeak-2P, defined in Equation (33–14), while within the operating voltage range of VPort_PSE-2P, for a minimum of TCUT-2P and a duty cycle of at least 5%".

First, it should be explained that Ipeak-2P is a pairset current and applies to all powered pairsets.

Next, it

SuggestedRemedy

Add the qualifier for powered pairset:

"The PSE shall support the AC current waveform parameter IPeak-2P, defined in Equation (33–14), on each powered pairset, while within the operating voltage range of VPort_PSE-2P, for a minimum of TCUT-2P and a duty cycle of at least 5%."

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Completely implemented.

Cl **33** *SC* **33.2.8.5** *P* **123** *L* **25** # 126

Johnson, Peter — Sifos Technologies

Comment Type **T** *Comment Status* **X** *Pres: Abramson1*

Present text is a bit vague about definitions of Ipeak-2P and Ipeak. Ipeak defined as if it applies only to 4-pair PSE's.

"IPeak is the total current of both pairs with the same polarity that a PSE supports, as defined in Equation (33–10), when powering either in 2-pair or 4-pair powering a single-signature PD. IPeak-2P-unb is the minimum current due to unbalance effects that a PSE supports on a pairset, as defined by Equation (33–11), when powering a single-signature PD over 4-pair."

SuggestedRemedy

Revise this paragraph to the following two paragraphs:

"IPeak, as defined in Equation (33–10), is the combined current of all powered pairsets needed to deliver Ppeak_PD to a PD given loop resistance Rchan. It is applicable to a PSE powering 2 pair and to a PSE powering 4 pair to a single signature PD.

IPeak-2P-unb, as defined by Equation (33–11), is the minimum pairset current needed to deliver Ppeak_PD over 4 pair, to a single signature PD, in order to overcome pair-to-pair unbalance effects."

Move the second of these paragraphs to just before Equation 33-11.

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Partially implemented: The paragraphs were split, but the new explanations were not added.

Cl **33** *SC* **33.2.8.5** *P* **123** *L* **25** # 448

Zimmerman, George — CME Consulting, Aqua

Comment Type **E** *Comment Status* **X** *Pres: Abramson1*

"IPeak is the total current of both pairs with the same polarity that a PSE supports, as defined in Equation (33–10), when powering either in 2-pair or 4-pair powering a single-signature PD." the notion of "both pairs with the same polarity" doesn't make much sense when powering in 2-pair...

SuggestedRemedy

change "of both" to "of the powered" (pairs with the same polarity).

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Completely Implemented.

Cl **33** *SC* **33.2.8.5** *P* **123** *L* **37** # 251

Schindler, Fred — Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **X** *Pres: Abramson1*

Existing text usage may confuse the new reader because incomplete information is provided.

Line 37 and line 47 both cover a quantity.
“PPeak_PD is the total peak power a PD may draw for its Class; see Table 33–30”

“IPeak is the total peak current a PSE supports per Equation (33–10)”

Since there is only one PD the word “total” may be removed from the first sentence. The second sentence assumes the reader is aware that each pairset provides current that is combined to give a total quantity being defined.

SuggestedRemedy

Delete “total” in the first sentence called out. Replace the second sentence with,

“IPeak is the combined peak current for each pairset a PSE supports per Equation (33–10)”

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Cl **33** *SC* **33.2.8.5** *P* **124** *L* **1** # 136

Jones, Chad Cisco

Comment Type **TR** *Comment Status* **X** *Pres: Abramson1*

Kipeak is defined for Classes 5-8, and it is my understanding this is for 4P powering. But we have defined new Type 3 Class 1-4 4P modes. Why don't we have curvefit values for classes 1-4 in EQ 33-12?

SuggestedRemedy

provide the curvefit values for Class 1-4 in EQ 33-12

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Completely implemeneted:
I have added a new row for Classes 0-4 with a Kipeak value of "1". This means the PSE must support full unbalance since it could be a Type 1 or 2 PD.

TFTD YD
This is TFTD however it should be rejected due to class 0-4 no need to meet unbalance requirements

Cl **33** *SC* **33.2.8.5** *P* **124** *L* **13** # 127

Johnson, Peter Sifos Technologies

Comment Type **T** *Comment Status* **X** *Pres: Abramson1*

The following phrase includes the value judgement "worst case" and might better explain why it is provided in the first place.

"The worst case value of IPeak-2P-unb is IPeak-2P-unb_max which is defined by Equation (33–13)."

SuggestedRemedy

Alter this sentence to:

"For all values of Ipeak and Rchan-2P, the maximum possible value for Ipeak-2P_unb is bounded by Equation (33–13)."

Proposed Response *Response Status* **W**

TFTD

WFP

I have incorporated any possible changes into Abramson_01_0117.pdf

Partially implemented: The term "worst case" was removed.

Cl **33** *SC* **33.2.8.5** *P* **124** *L* **32** # 252

Schindler, Fred — Seen Simply, Cisco, T

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

The word "total" is used when it does not have to be. This occurs on,

p124 l32
"IPeak is the total peak current a PSE supports per Equation (33–13)"

p124 l40
"PPeak_PD-2P is the total peak power a dual-signature PD may …"

p125 l1
"and will be higher than ICon/2. ICon-2P-unb applies for total channel common mode pair resistance"

p163 l8
"The total PD inrush time duration is …"

p163 l34
"CPort in Table 33–30 is the total PD input capacitance …"

p169 l26
"…effect of the total system pair to pair voltage …"

p245 l16 and on p246 l35
"Total energy consumed at the port or pairset …"

p257 l24
"Therefore, the total Port output impedance …"

p263 l24
"ICon-2P-unb and Equation (33–15) are specified for total channel common mode pair resistance …"

p115 l30
"The total timing specification for Type 3 and Type 4 PSEs in the states …"

SuggestedRemedy

Remove the word "total" from the referenced sentences and have the Editor ensure correct capitalization as appropriate when making these changes.

Proposed Response *Response Status* **W**

TFTD

Not implemented in Abramson_01_0117.pdf (originally noted that it was)

Cl **33** *SC* **33.2.8.5.1** *P* **124** *L* **43** # 280

Stewart, Heath — Linear Technology

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

During discussions in San Antonio it was generally agreed that PSE unbalance requirements can best be addressed by:
1) Moved RPSE style requirements from the main body of clause 33 to annex 33B
2) Promoting 33B.4 to the main body of clause 33
3) Removing shalls from remainder of Annex 33B

SuggestedRemedy

See paul_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
This is TFTD however we didn't agree for item 1 to move Rpse style requirements to Annex B. See complete remedy for what we agree in darshan_01_0117.pdf

Cl **33** *SC* **33.2.8.5.1** *P* **124** *L* **43** # 288

Stover, David — Linear Technology

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

TODO 2.1: System Unbalance Requirements

SuggestedRemedy

See paul_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.2.8.5.1** *P* **124** *L* **44** # 88

Darshan, Yair Mirosemi

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

(TODO #162 from D2.1)
Move normative requirements from Annex 33B into main body of standard. Make Annex 33B informative.

SuggestedRemedy

See Darshan_01_0117.pdf for proposed remedy.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.2.8.5.1** *P* **124** *L* **45** # 349

Yseboodt, Lennart Philips

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

"This section describes unbalance requirements for Type 3 and Type 4 PSEs that operate over 4-pair."

We don`t use the word section. We also need a bit of an intro to this section.

SuggestedRemedy

"Type 3 and Type 4 PSEs that operate over 4-pair are subject to unbalance requirements."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

WFP

"Type 3 and Type 4 PSEs that operate over 4 pairs are subject to unbalance requirements."

TFTD YD
The proposed remedy is OK. It is addressed in darshan_01_0117.pdf with other changes.

Cl **33** *SC* **33.2.8.5.1** *P* **125** *L* **2** # 89

Darshan, Yair Mirosemi

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

In the text "ICon-2P-unb applies for total channel common mode pair resistance from 0.2 ohm to RCh." It has to be "Rchan-2P" and not "Rch".

SuggestedRemedy

Change text to: "ICon-2P-unb applies for total channel common mode pair resistance from 0.2 ohm to Rchan-2P."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Comment is incorrect, Rch is the total channel resistance. RChan-2P is the actual channel resistance.

Cl **33** *SC* **33.2.8.5.1** *P* **125** *L* **11** # 90

Darshan, Yair Mirosemi

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

Currently, PSE unbalanced requirements for class 6 and 8 extended power are not define and therefore interoperability between PD that wants it to a PSE that want to support it is not guaranteed.

SuggestedRemedy

Addopt darshan_03_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.2.8.8** *P* **128** *L* **12,3** # 238

Picard, Jean — Texas Instruments

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

ILIM has disappeared from figures 33-28 and 33-29. Comment 221 of last comment cycle was about writing it correctly, not to delete it.

SuggestedRemedy

Put back ILIMmin

Proposed Response *Response Status* **W**

PROPOSED REJECT.

ILIMmin was removed as a result of comments 76 and 220 from D2.1. These comments were debated in the room.

TFTD

TFTD YD
This is TFTD. The reject response is correct. ILIM Is not required in this axis since it cant be used for protection and it may confuse the reader that it does.

Cl **33** *SC* **33.2.8.13** *P* **131** *L* **14** # 123

Johnson, Peter — Sifos Technologies

Comment Type **T** *Comment Status* **X** *PSE Power*

As described in the referenced 33.2.8.13:

"PType min is the minimum power a PSE is capable of sourcing."

So according to Table 33-18, item 13, that is 15.4W for Type 1 and 3, 30W for Type-2, and 90W for Type-4. But this is not techically correct. Pclass in 33.2.7 is described as

"The minimum power output a PSE supports for a particular PD Class.."

and there is a similar definition for Pclass-2P.

SuggestedRemedy

This can be remedied in 33.2.8.13 as follows:

"PType min is the minimum power that a PSE supplying Vport_PSE_2P(min) is capable of sourcing."

Proposed Response *Response Status* **W**

TFTD

I don't understand the problem you are trying to solve.

TFTD PJ
To clarify, Table 33-18, item 13, working together with 33.2.8.13, is effectively re-specifying MINIMUM PSE power output capacity. And it is in conflict with 33.2.7. Ptype for Type 1, 3 has MINIMUM value of 15.4W. 33.2.8.13 then says “Ptype is the minimum power a PSE is capable of sourcing.” I grant that there is no SHALL in 33.2.8.13 here, but there is a “shall” associated with 33-18. The easiest way to remedy all of this is to recognize that the “re-specification” of minimum PSE power is NOT in conflict with 33.2.7 if 33.2.8.13 specifies Ptype min applies when Vport_pse_2P is at minimum level.

Cl **33** *SC* **33.2.8.13** *P* **131** *L* **15** # 137

Jones, Chad Cisco

Comment Type **TR** *Comment Status* **X** *PSE Power*

"calculated with any sliding window with a width up to 4 seconds". This statement doesn't have a minimum. Implies my window width could be 1ps…

SuggestedRemedy

give a minimum. Change to: "calculated with any sliding window with a width up to 4 seconds but at least 1 second wide."

Proposed Response *Response Status* **W**

TFTD

Why do we need a minimum? The only type that has a Ptype max is Type 4.

Cl **33** *SC* **33.2.9** *P* **132** *L* **3** # 138

Jones, Chad Cisco

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

the sentence: "A PSE shall not initiate power provision to one or both pairsets if the PSE has less than Class 3 power available and the connected PD requests more than the available power." establishes a new PICS against Type 1 and Type 2 PSEs. This shall was added because we formalized power demotion this time around, it should only apply to Type 3 and 4 PSEs.

SuggestedRemedy

change to: "A Type 3 or Type 4 PSE shall not initiate power provision to one or both pairsets if the PSE has less than Class 3 power available and the connected PD requests more than the available power."
Change the 'status' field of PSE107 from 'M' to:
PSET3:M
PSET4:M

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The requirement for Type 1 and 2 is already in the legacy SD, we are only pointing it out.

TFTD

Cl **33** *SC* **33.2.10.1.2** *P* **134** *L* **27** # 139

Jones, Chad Cisco

Comment Type **TR** *Comment Status* **D** *PSE MPS*

the sentence: "A PSE, depending on the connected Type of PD and whether it is connected to a single-signature PD or a dual-signature PD, shall use the applicable IHold, IHold-2P, TMPS and TMPDO values as defined in Table 33– 18." adds a new requirement to Type 1 and Type 2 PSEs. They don't have the ability to discern between SS and DS PDs. This sentence should only apply to Type 3 and Type 4 PSEs.
It seems the PICS editor understood this as it is assigned to Type 3 and Type 4 but there is an entry of DC:M. also need to remove this.

SuggestedRemedy

change to "A Type 3 PSE operating over 4-pairs or Type 4 PSE, depending on the connected Type of PD…"
Also delete DC:M from the status field of PSE115.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

If you read Table 33-18 you will see that Type 1 and 2 PSEs only use one value Ihold-2p, one value of TMPS, and one value of TMPDO. Thus they don't have to discern anything. Now, we should put their own Type as a determining factor.

Change sentence to read:
"A PSE, depending on a combination of its Type, the connected Type of PD, and whether it is connected to a single-signature PD or a dual-signature PD, shall use the applicable IHold, IHold-2P, TMPS and TMPDO values as defined in Table 33– 18."

TFTD LY
Alternate remedy:
A PSE, depending on the PSEs and PDs Type, and whether the connected PD is a single-signature PD or a dual-signature PD, shall use the applicable …

TFTD CJ
I have no issue with your proposed remedy. It solves my problem. You missed the PICS.
Add: Also delete DC:M from the status field of PSE115.
But it does make me ask if the PICS is now wrong because it only calls out Type 3 and 4.

Cl **33** *SC* **33.2.10.1.2** *P* **135** *L* **2** # 254

Schindler, Fred — Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **D** *PSE MPS*

Existing text usage may confuse the new reader because incomplete information is provided.

"NOTE—The DC MPS requirements for Type 3 and Type 4 PSEs when connected to a single-signature PD are such that the PSE may measure either the total current (IHold) or the current on the pairset with the highest current (IHold-2P)."

The sentence assumes the reader is aware that each pairset provides current that is combined to give a total quantity being defined.

SuggestedRemedy

Replace the called out sentence with,

"NOTE—The DC MPS requirements for Type 3 and Type 4 PSEs when connected to a single-signature PD are such that the PSE may measure either the combined pairset current (IHold) or the current on the pairset with the highest current (IHold-2P)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to:
"NOTE—The DC MPS requirements for Type 3 and Type 4 PSEs when connected to a single-signature PD are such that the PSE may measure either the total current over both pairsets (Ihold) or the current on the pairset with the highest current (Ihold-2P)."

TFTD LY
It is also permitted to measure both.
Suggest:
"NOTE—The DC MPS requirements for Type 3 and Type 4 PSEs when connected to a single-signature PD are such that the PSE may measure either the total current over both pairsets (Ihold), or the current on the pairset with the highest current (Ihold-2P), or both."

TFTD FS
The case of "Ihold" should be "IHold", fix both terms. Why is "total current over both pairsets" preferred to "combined pairset current"? Both work. One is concise.

Response DNA: because "combined pairset currrent" could be the current on each conductor in a pairset, combined. Or it could be the current on both pairsets combined. On the other hand, "total current over both pairsets" is unambiguous. So both don't work…

Cl **33** *SC* **33.3.3.3** *P* **137** *L* **41** # 165

Law, David — HPE

Comment Type **T** *Comment Status* **D** *PD SD*

The constant VReset used in Figure 33–31 'PD state diagram', for example in the transition from the IDLE to DO_DETECTION state, is not defined in subclause 33.3.3.3 'Constants'.

SuggestedRemedy

Suggest that the following additional definition be added to subclause 33.3.3.3 'Constants':

VReset
Reset voltage (see Table 33–28)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The voltage referred to in the SD (Figure 33-31) should actually be Vreset_th with is in section 33.3.3.3.

Chair, how should we fix this?

TFTD

TFTD CJ
Already a TFTD but question to me: Vreset and Vreset_th are not the same thing. There are places in the SD where we need Vreset and places where we need Vreset_th. Add the definition as David requests.

Response DNA: Looking at it again, All instances of Vreset should be Vreset_th except for the transition from Idle to Do_Detection which should be Vreset. Thus, we should add the Vreset to 33.3.3.3, but the SD is still wrong…Chair?

Cl **33** *SC* **33.3.3.4** *P* **138** *L* **36** # 166

Law, David HPE

Comment Type **TR** *Comment Status* **X** *PD SD*

The variable 'power_received' is defined as FALSE when 'The input voltage does not meet the requirements of VPort_PD-2P in Table 33–30.' and TRUE when 'The input voltage meets the requirements of VPort_PD-2P.'. Table 33–30 'PD power supply limits' item 1 'Input DC voltage per pairset' defines VPort_PD-2P for a Type 1 PD as 42.1V minimum, 57.0V maximum. This means for a for a Type 1 PD if the input voltage is 41.(9 repeated)V, since that does not meet the minimum of 42.1V, the variable has to be FALSE, yet if the input voltage is 42.1V the variable has to be TRUE. Subclause 33.3.8.1 'Input voltage' however states that 'The PD shall turn on at a voltage in the range of VOn_PD.' and item 16 of Table 33–30 defines VOn_PD of 30.0V minimum, 42.0V maximum.
Based on this (a) there is no margin provided for the voltage at which 'power_received' is set TRUE which causes the PD state diagram to transition from detection or classification in to the MDI_POWER1 state and (b) the text and state diagram do not match in respect to at what voltage the PD turns on at, although due to the reference to subclause 21.5 in subclause 33.2.5.2 ' State diagrams take precedence over text.'.

SuggestedRemedy

Suggest that the definition of the values of the 'power_received' variable be changed to read as follows:

FALSE: The input voltage does not meet the requirements of VOn_PD in Table 33–30.
TRUE: The input voltage meets the requirements of VOn_PD.

Proposed Response *Response Status* **W**

TFTD (this whole Von thing needs to be discussed as I have heard a lot of different opinions about it).

Cl **33** *SC* **33.3.3.6** *P* **140** *L* **31** # 167

Law, David HPE

Comment Type **TR** *Comment Status* **X** *PD SD*

There is an assignment to the pse_dll_power_type variable in the INITIALIZE state of Figure 33–49 'PD power control state diagram' as well as a mapping to it in Table 33–41 'Attribute to state diagram variable cross-reference' so effectively there are two sources to this variable. There is a case where a Type 2 PD is connected to a Type 2 PSE that supports 1-event physical layer classification, Data Link Layer Classification which will result in two different values for pd_dll_power_type from these two sources.

On entry to the DO_DETECTION state of Figure 33–31 'Type 1 and Type 2 PD state diagram' the pse_power_type variable is set to 1. As a result of the 1-event physical layer classification that this PSE will perform, the state diagram will then progress to the DO_CLASS_EVENT1 state and then, assuming that the PSE starts supplying power, will progress to the MDI_POWER1 state once the power_received variable becomes TRUE.

The pd_max_power variable will be set to 0 (4 modulo 4), allowing the PD to draw up to Class 0 power (13.0W). Since pse_power_type has been set to 1 the state diagram will then progress to the DLL_ENABLE state setting the pd_dll_enabled variable to TRUE enabling Data Link Layer Classification for the PD. At this point however pse_power_type is still set to 1 so the state diagram will transition back to the MDI_POWER1 state where it will remain as pd_dll_enabled is now TRUE.

Since the PSE supports Data Link Layer Classification the aLldpXdot3RemPowerType attribute within the oLldpXdot3RemSystemsGroup managed object class will return a bit string indicating a Type 2 PSE at some point afterwards when the pd_dll_ready variable becomes TRUE. This, according to Table 33–41 'Attribute to state diagram variable cross-reference', also results in pd_dll_power_type being set to 2. The problem is that, according to the Figure 33-49 'PD power control state diagram', when pd_dll_ready becomes TRUE the value of pse_power_type is latched on to pse_dll_power_type, and at that point in time it is 1.

Now it seems that the intent was that when pse_dll_power_type became 2 due to Data Link Layer Classification, the equation on the transition from MDI_POWER1 to MDI_POWER_DLY state became true (pse_power_type = 2) + (pse_dll_power_type = 2) causing, after a delay, entry to the MDI_POWER2 state. At that point the pd_max_power variable will be increased from 0 (class_sig modulo 4) to 4 due to the assignment pd_max_power <= class_sig enabling the power drawn to increase from Type 1 to Type 2 limits.

The problem is there are two values of pse_dll_power_type once Data Link Layer Classification is in operation, the one based on the Table 33–41 mapping which in this case would be set to a value of 2, and the one output by the Figure 33-49 state diagram, which in this case would be set to a value of 1. As well as the statement that 'State diagrams take precedence over text.' the definition of the pse_dll_power_type variable in subclause 33.3.3.4 'Type 1 and Type 2 Variables' for Figure 33-31 states 'A control variable output by the PD power control state diagram (Figure 33–49) that ...'. . Based on this it would seem that the latter value of 1 should be used, however the problem with this is that

the MDI_POWER2 state will then never be reached, and the PD will have to continue draw power within the Type 1 limits.

It would seem a better approach would be to remove the assignment of pse_power_type to pse_dll_power_type in the INITIALIZE state of Figure 33–49 'PD power control state diagram' and just use the Table 33–41 'Attribute to state diagram variable cross-reference' mapping for Figure 33-31. This is the only use of the pse_power_type and pse_dll_power_type variables in Figure 33–49 so they can also be removed from the associated variable definition lists.

The variable pse_dll_power_type however has to gated while pd_dll_ready is FALSE, since at that time aLldpXdot3RemPowerType is undefined and therefore the mapping of Table 33–41 'Attribute to state diagram variable cross-reference' is undefined. Based on this the use of pse_dll_power_type on the MDI_POWER1 to MDI_POWER_DLY transition should be qualified with pse_dll_ready = TRUE, so the equation would become (pse_power_type = 2) + (pse_dll_power_type = 2 * pd_dll_ready).

Note: This comment relates to TODO D2.1 #118, #122, #140 and #25.

SuggestedRemedy

Suggest that:

[1] The equation on the transition from the MDI_POWER1 state to the MDI_POWER_DLY state in Figure 33-31 'Type 1 and Type 2 PD state diagram' be changed to read '(pse_power_type = 2) + (pse_dll_power_type = 2 * pd_dll_ready)'.
[2] The assignment 'pse_dll_power_type <= pse_power_type' in the INITIALIZE state in Figure 33–49 'PD power control state diagram' be removed.
[3] The definition of pse_power_type be removed from 33.5.3.3 'Single-signature system Variables'.
[4] The definition of pse_dll_power_type be removed from 33.5.3.3 'Single-signature system Variables'.
[5] In definition of pse_dll_power_type in subclause 33.3.3.4 'Type 1 and Type 2 Variables' change the text 'A control variable output by the PD power control state diagram (Figure 33–49) that ...' to read 'A variable mapped from the aLldpXdot3RemPowerType as defined in Table 33-41 that indicates ...'.

Proposed Response *Response Status* **W**

TFTD

I need an LLDP expert….

TFTD FS
FYI: I worked with David Law and Lennart on most SS system LLDP comments created. I assumed the comment is more powerful with David Law's name attached to it. We should discuss LLDP comments in the room.

Cl **33** *SC* **33.3.3.8** *P* **142** *L* **11** # 255

Schindler, Fred Seen Simply, Cisco, T

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

The existing text is incomplete and leads to confusion on what is permitted using DLL operations. The DLL may provide the PD requested class but the PD may not draw more than pd_max_power, which is the assigned class before DLL may increase the allocated PD power. Flag-DS.

"pd_max_power
A control variable indicating the max power that the PD may draw from the PSE."

SuggestedRemedy

Replace the called out sentence with,

"pd_max_power
A control variable indicating the assigned maximum power that the PD may draw from the PSE."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

I don't see the confusion and the suggested remedy only seems to confuse the issue more. Pd_max_power is used in multiple places, some that have to do with asisgned class, others that don't.

TFTD

Cl **33** *SC* **33.3.3.8** *P* **142** *L* **29** # 169

Law, David HPE

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

The pd_undefined variable has the value 'FALSE' annotated as '(default)' in its definition. There is however no definition of what the '(default)' annotation means in subclause 33.2.5.2 'Conventions', which describes the state diagram conventions, nor in subclause 21.5 referenced by 33.2.5.2, nor in subclause 1.5 referenced by 21.5.

Default values have been used in state diagrams in the past, subclause 28.3 'State diagrams and variable definitions' is one example. It states '... variables follow the conventions of 21.5.2 except when the variable has a default value. Variables in a state diagram with default values evaluate to the variable default in each state where the variable value is not explicitly set.'.

Based on this definition, since pd_undefined is only ever assign a value of TRUE in the MDI_NOPOWER state of the Figure 33–32 'Type 3 and Type 4 single-signature PD state diagram', it will be assigned FALSE (The PD is in a defined condition) in all others states in Figure 33-32, which seems correct.

This definition however doesn't seem to work for pd_reset (page 142, line 23) which is an input and therefore is never assigned a value. Nor would it seem to work for the pi_powered variable (page 69, line 26) used in Figure 33–13 'Type 1 and Type 2 PSE state diagram'.

The pi_powered variable is defined as having a 'default' of FALSE (The PSE is not to apply power to the PI) however it is only assigned the value TRUE in the TEST MODE and POWER_UP states in Figure 33–13. As such, using the above definition, pi_powered would be set to FALSE in the POWER_ON state, which isn't correct.

Instead, since the pi_powered variable isn't assigned a value in the DISABLED or IDLE states in Figure 33–13, it would seem that what is meant be 'default' here is that the variable is set to the default value whenever the state diagram transitions to the 'open arrow' states DISABLED or IDLE. This would mean that if the PSE is applying power to the PI, and was reset for example (pse_reset = TRUE) power would be removed from the PI.

SuggestedRemedy

Suggest that:

[1] A definition of the '(default)' annotations be provided. Suggest the addition of text to subclause 33.2.5.2 that reads 'State diagram variables follow the conventions of 21.5.2 except when the variable has a default value. Variables in a state diagram with default values evaluate to the variable default in any state with a global transition to it (an open arrow (an arrow with no source block) regardless if the state entered through the global transition or any other transition.'.

[2] The '(default)' annotations be removed from inputs to state diagrams.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
This remedy would change behavior in every state diagram that uses the (default) notation in Clause 33. I do not dispute what is in 28.3, but this is the first time I encounter this. These local state diagram rules with multiple layers of exceptions and additions spread over many Clauses are a disaster. The way I have always interpreted the default notation (and how it has been simulated) is that the default value gets assigned to the variable at the beginning before the first state is entered. The remedy says that this value gets re-instated in every state that does not specifically assign a value to a variable with (default).
Q1: what does this do to legacy SD? How was it interpreted there ?
Q2: what behavior do we want ?
Personally, the notion that 'default' variables get reset in every state that doesn't set them, does not match with the operating model that the Clause 33 state diagrams follow. It does match with the original model for state diagram defined in Clause 1.

Response DNA: It doesn't say in every state, it says in every state with a global entry…

Cl **33** *SC* **33.3.3.11** *P* **145** *L* **1** # 358

Yseboodt, Lennart Philips

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

PD state diagram updates to allow LLDP to update pd_max_power.

SuggestedRemedy

Adopt yseboodt_02_0117_lldpupdate.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.3.3.11** *P* **145** *L* **4** # 170

Law, David HPE

Comment Type **T** *Comment Status* **D** *PD SD*

Figure 33–32 'Type 3 and Type 4 single-signature PD state diagram' has a global (open arrow) transition in to the 'OFFLINE' state that is labelled 'BEGIN'. I cannot find a definition of the variable 'BEGIN' and this transition doesn't seem to be required for correct operation of this state diagram.

SuggestedRemedy

Remove the global transition in to the 'OFFLINE' state labelled 'BEGIN' in both Figure 33–32 and Figure 33–33 (page 150, line 5).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Removing BEGIN will cause undefined behavior for the PD if it gets hotplugged into a voltage source (non PSE). BEGIN is used in 4.3.2.1.4, 4A.3.2.1.4, 31B.3.3, 24.2.4.1, …
Indeed I have not found a proper definition of BEGIN… potentially the other Clauses found the meaning obvious ?

TFTD DS
This convention ("BEGIN") appears to be established in many SDs throughout 802.3. Example: 24.2.4.1. Do we need to reference a dependency somewhere...?

Cl **33** *SC* **33.3.3.11** *P* **146** *L* **25** # 256

Schindler, Fred Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **D** *Pres: Schindler1*

The new INRUSH state changes behavior for Type 3 and 4 PDs being power by legacy devices. The legacy Type 1 and 2 PD state diagram, on page 140, state MDI_POWER1 has statement,

“pd_max_power <= (class_sig modulo 4)” , which limits the power and current for Type-2 PDs to 13.0W/37V = 0.35A.

The Type 3 and 4 PD, new state INRUSH, has statement,

“pd_current_limit <= FALSE”, is defined on page 141 line 49, “The PD is not required to control the input current.” A PD could be damaged if a PSE did not have a current limit requirement. A Type 2 PSE is not aware of new Type 3 and 4 PDs and sees this PD as a Type 2 device.

Many people have been working on in-rush for over a year but it appears that not everyone I checked with is aware of this change in behavior.

SuggestedRemedy

The Task Force should determine if this was the intended behavior and whether legacy PSEs will be impacted by this change. Working Group members are encouraged to review these and other changes made to PD in-rush behavior and comment on them.

A TODO should be assigned to provide correct required action if the change in behavior is not acceptable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

WFP

This seems identical to part of comment 257. I am marking it OBE to 257 as such.

OBE by 257

TFTD FS
See schindler_01_0117 for a better review and proposed solution.

Cl **33** *SC* **33.3.3.11** *P* **146** *L* **25** # 257

Schindler, Fred Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **X** *Pres: Schindler1*

The new INRUSH state changes behavior for Type 3 and 4 PDs being power by legacy devices (a Type 2 PSE is assumed for my example). The legacy Type 1 and 2 PD state diagram, on page 140, state MDI_POWER1 has statement,

"pd_max_power <= (class_sig modulo 4)" , which limits the power and current for class-4 PDs to 13.0W/37V = 0.35A.

The next state MDI_POWER_DLY, has the statement,

"start tpowerdly_timer", and MDI_POWER2 is not entered until "tpowerdly_timer_done", before power is increased,

"POWER2pd_max_power <= class_sig",where a class-4 PD would move to 25.5W (with a Type-2 PSE).

The Type 3 and 4 PD, new state INRUSH, has statement,

"pd_current_limit <= FALSE", is defined on page 141 line 49, "The PD is not required to control the input current." A PD could be damaged if a PSE did not have a current limit requirement. A Type 2 PSE is not aware of new Type 3 and 4 PDs and sees this PD as a Type 2 device.

When"inrushpd_timer_done" state MDI_POWER1 is entered where statement,

"pd_max_power <= min(3, pd_req_class)
pd_current_limit <= TRUE", would move a Type-2 PD to 13W and remove the unlimited current in-rush.

However, the exit condition,
"((pse_power_level > 3) +
(pse_dll_power_type > 1)) *
tpowerdly_timer_done", causes an immediate exit (in 0-time) for a Type-2 PD where the PD moves to 25.5W in state MDI_POWER2 with statements,

"pd_max_power <= min(pse_power_level, pd_req_class)
pd_current_limit <= FALSE".

In essence the Type 3, or 4 PD moves directly to 25.5W, while a legacy PD would move from 13W then wait tinrushpd before moving to 25.5W.

But wait—there is more—Type 1 and 2 PDs use tpowerdly_timer (with a delay of Tdelay-2P, which is 80 ms minimum), while Type 3 and 4 PDs use tinrushpd (with delay Tinrush_PD, which is 50 ms maximum!). This is another difference in behavior.

Many people have been working on in-rush for over a year but it appears that not everyone I checked with is aware of this change in behavior.

SuggestedRemedy

The Task Force should determine if this was the intended behavior and whether legacy PSEs will be impacted by this change. Working Group members are encouraged to review these and other changes made to PD in-rush behavior and comment on them.

A TODO should be assigned to provide correct required action if the change in behavior is not acceptable.

Proposed Response *Response Status* **W**

TFTD.

WFP

I have copied Fred's comment and inserted my own comments into it (marked by "DNA:"

The new INRUSH state changes behavior for Type 3 and 4 PDs being power by legacy devices (a Type 2 PSE is assumed for my example). The legacy Type 1 and 2 PD state diagram, on page 140, state MDI_POWER1 has statement,

"pd_max_power <= (class_sig modulo 4)" , which limits the power and current for class-4 PDs to 13.0W/37V = 0.35A.

The next state MDI_POWER_DLY, has the statement,

"start tpowerdly_timer", and MDI_POWER2 is not entered until "tpowerdly_timer_done", before power is increased,

"pd_max_power <= class_sig",where a class-4 PD would move to 25.5W (with a Type-2 PSE).

The Type 3 and 4 PD, new state INRUSH, has statement,

"pd_current_limit <= FALSE", is defined on page 141 line 49, "The PD is not required to control the input current." A PD could be damaged if a PSE did not have a current limit requirement. A Type 2 PSE is not aware of new Type 3 and 4 PDs and sees this PD as a Type 2 device.

DNA: I don't understand your point here. PDs have never been required to control inrush current (or even have a current limit). PSEs are required to limit inrush current (and have a current limit). There is no issuse if a Type 2 PSE sees a type 3/4 PD as a Type 2. Inrush will work exactly as it does today.

When"inrushpd_timer_done" state MDI_POWER1 is entered where statement,

"pd_max_power <= min(3, pd_req_class)
pd_current_limit <= TRUE", would move a Type-2 PD to 13W and remove the unlimited current in-rush.

However, the exit condition,
“((pse_power_level > 3) +
(pse_dll_power_type > 1)) *
tpowerdly_timer_done”, causes an immediate exit (in 0-time) for a Type-2 PD where the PD moves to 25.5W in state MDI_POWER2 with statements,

“pd_max_power <= min(pse_power_level, pd_req_class)
pd_current_limit <= FALSE”.

In essence the Type 3, or 4 PD moves directly to 25.5W, while a legacy PD would move from 13W then wait tinrushpd before moving to 25.5W.

DNA: This is all wrong. Tpowerdly_timer has a minimum of 80ms. Thus a PD has no requirements for the first 50ms, then moves to the 13W state for the next 30ms, and at 80ms (total) gets moved to the 25.5W state. Again, there is no difference between legacy inrush and this, all we have done is call out that there are no requirements on the PD for the first 50ms which has always been true.

But wait—there is more—Type 1 and 2 PDs use tpowerdly_timer (with a delay of Tdelay-2P, which is 80 ms minimum), while Type 3 and 4 PDs use tinrushpd (with delay Tinrush_PD, which is 50 ms maximum!). This is another difference in behavior.

DNA: See my comment above, but Tpowerdly_timer and Tinrush_PD are not the same thing. Tinrush_PD (currently used only by Type 3 and 4) is used to mark the first 50ms, Tpowerdly_timer (used by all Types) is used to mark the transition to full power after 80ms.l

Many people have been working on in-rush for over a year but it appears that not everyone I checked with is aware of this change in behavior.

TFTD FS
See schindler_01_0117 for a better review and proposed solution.

Cl **33** *SC* **33.3.3.11** *P* **146** *L* **45** # 175

Law, David HPE

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

Typo, actions should use a '<=', not a '='.

SuggestedRemedy

In the MDI_NOPOWER state change the three instances of '=' to read '<='.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"It is not clear where the typo is. Commenter to supply complete text before and after the change. The hints we have are page 146 line 45 and MDI_NOPOWER state which is not clear to me how it can be ""<="" instead of ""="" per the proposed remedy."

Response DNA: Yair, the "<=" is the assignment operator in the state diagrams, it is not less than or equal to.

Cl **33** *SC* **33.3.3.13** *P* **147** *L* **39** # 258

Schindler, Fred Seen Simply, Cisco, T

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

Dual-signature system operations parallel Single-signature system operations. Errors in Single-signature systems also need to be corrected in Dual-signature systems. This doubles the work load and results in fewer corrections for signal-signature systems.

SuggestedRemedy

Have commenters flag comments “flag-DS” to enable the Editor, or probably more realistically, assign a TODO to Yair to correct dual-signature system errors fixed for signal-signature systems. Of course energetic commenters may also provide complete solutions –time permitting.

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.3.3.16** *P* **150** *L* **16** # 182

Law, David HPE

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

Table 33–16 'Classification signature, measured at PD input connector' lists the condition for the classification signature as 14.5V to 20.5V. This corresponds to Table 33–28 'Multiple-Event Physical Layer classification electrical requirements' which lists in item 1 'Class event voltage (VClass) as 14.5 V min to 20.5 V max.

Figure 33–33 'Type 3 and Type 4 dual-signature PD state diagram' however transitions in to DO_CLASS_EVENT states where either present_class_sig_A_mode(M) or present_class_sig_B_mode(M) is set TRUE occurs when VPD_mode(M) > Vmark_th. Table 33–28 'Multiple-Event Physical Layer classification electrical requirements' defines item 4 'Mark event threshold (VMark_th)' as 10.1 V min to 14.5 V max.

Based on this according to the state diagrams, which take precedence over text, the classification signature has to be presented at a voltage as low as 10.1 V if the minimum value of VMark_th is chosen, not 14.5 V as stated in Table 33–16.

SuggestedRemedy

Clarify if text or state diagram is correct and correct as required.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

TFTD DL

Revised response after discussion with David Law (commenter):

Replace the penultimate paragraph of subclause 33.3.6 'PD classifications' with the following:

When the PD is in a DO_CLASS_EVENT state as shown in the state diagram of Figure 33-31, Figure 33-32, and Figure 33-33 and the voltage at the PI enters the Vclass specification as defined in Table 33–28, the PD shall provide the characteristics of a classification signature as specified in Table 33-25.

TFTD LY:

Also need to update present_class_sig variables as shown:

present_class_sig_A
Controls presenting the classification signature that is used during first two class events (see 33.3.6) by the PD.
FALSE: The PD classification signature is not to be applied to the PI.
TRUE: The PD classification signature is to be applied to the PI if VPD is in the range of Vclass_PD. The PD classification signature may or may not be applied to the PI if VPD is not in the range of Vclass_PD

Make similar change to present_class_sig_B

Original Response (do not implement):

No correction is needed. The Vmark_th threshold is a constant that is a property of the PD (thus as long as the threshold is between 10.1 and 14.5 the PD is ok). The class signature electrical requirements only apply from 14.5V to 20.5V as those are the voltages (with margin) the PSE will supply during class.

Cl **33** *SC* **33.3.3.16** *P* **151** *L* **6** # 91

Darshan, Yair Mirosemi

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

Missing INRUSH state in Figure 33-33 dual-signature PD state machine

SuggestedRemedy

Adopt darshan_02_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.3.1** *P* **151** *L* **11** # 27

Bustos, Jairo Würth Elektronik eiSo

Comment Type **E** *Comment Status* **X** *57V*

With the solely objective of proposing a remedy to Chads' comment #98 to D2.1, I would like to provide my suggestion. "The PD shall withstand any voltage from 0 V to 57 V at the PI indefinitely without permanent damage." We tried to fix this sentence during our last plenary in San Antonio, TX, but postponed the remedy.

SuggestedRemedy

My suggestion would be to change the above sentence as follows: "The PD shall withstand any voltage from 0 V to 57 V, according to any of the permitted pinouts within a Mode of table 33-25, at the PI indefinitely without permanent damage."

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.3.3.16** *P* **151** *L* **26** # 185

Law, David HPE

Comment Type **T** *Comment Status* **X** *PD SD*

The pd_dll_enabled variable conditions the transition from the MDI_POWER2 state to the DLL_ENABLE state, and is set TRUE in the DLL_ENABLE. The pd_dll_enable_mode(M) variable however is used to conditions the transition from the MDI_POWER1 state to the DLL_ENABLE state. Further, the pd_dll_enable_mode(M) variable is set FALSE in the OFFLINE state. As well as the use of the _mode(M) suffix in the latter, also note 'enabled' in pd_dll_enabled as opposed to 'enable' in pd_dll_enable_mode(M).

As an output of the two instances of Figure 33–33 'Type 3 and Type 4 dual-signature PD state diagram' the variable designation _mode(M) needs to be used and based on the definition of pd_dll_enabled in subclause 33.3.3.13 'Type 3 and Type 4 dual-signature variables' suggest that pd_dll_enabled_mode(M) be used.

SuggestedRemedy

Suggest that:

[1] pd_dll_enabled be changed to read pd_dll_enabled_mode(M) in subclause 33.3.3.13 (page 147, line 34)
[2] pd_dll_enable_mode(M) be changed to pd_dll_enabled_mode(M) in the OFFLINE state in Figure 33-3 (page 150, line 7)
[3] pd_dll_enable_mode(M) be changed to pd_dll_enabled_mode(M) in the IDLE state in Figure 33-3 (page 150, line 7)
[4] !pd_dll_enable_mode(M) be changed to !pd_dll_enabled_mode(M) on the MDI_POWER1 to DLL_ENABLE transition in Figure 33-3 (page 151, line 20)
[5] !pd_dll_enabled be changed to !pd_dll_enabled_mode(M) on the MDI_POWER2 to DLL_ENABLE transition in Figure 33-3 (page 151, line 27)
[6] pd_dll_enabled be changed to pd_dll_enabled_mode(M) in the DLL_ENABLE state in Figure 33-3 (page 151, line 30)

Proposed Response *Response Status* **W**

TFTD

I believe that the entire PD will only have one DLL "instance" so I am not sure if _mode(M) should be there…

TFTD DL:
Even if a PD were to have one DLL instance there are two instances of the Figure 33-33 'Type 3 and Type 4 dual-signature PD state diagram'. As such each instance will require a pd_dll_enabled_mode output hence the suggestion to rename them pd_dll_enabled_mode(M).

I note however that Figure 33-51 'Dual-signature PD power control state diagram' uses the (M) format on a number of variables which implies two instances, but still uses pd_dll_enabled. I would therefore suggest that pd_dll_enabled be derived from a logical AND of pd_dll_enabled_mode(A) and pd_dll_enabled_mode(B). This can be added to the variable definition for pd_dll_enabled in respect to the dual-signature PD power control state diagram.

This is because there is only one TLV defined for both A and B, hence both A and B have to have got to the point of enabling DLL before any TLVs are sent. If not, and only one has, the other will not be ready to take part in the subsequent negotiation.

Cl **33** *SC* **33.3.3.16** *P* **151** *L* **33** # 186

Law, David HPE

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

Typo, actions should use a '<=', not a '='.

SuggestedRemedy

In the MDI_NOPOWER state change the three instances of '=' to read '<='.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"It is not clear where the typo is. Commenter to supply complete text before and after the change. The hints we have are page 151 line 33 and MDI_NOPOWER state which is not clear to me how it can be ""<="" instead of ""="" per the proposed remedy."

Response DNA: Yair, the "<=" is the assignment operator in the state diagrams, it is not less than or equal to.

Cl **33** *SC* **33.3.5** *P* **153** *L* **29** # 31

Chabot, Craig UNH-IOL

Comment Type **E** *Comment Status* **D** *PICS*

New PIC entry needed related to this Shall

SuggestedRemedy

Add New PIC Entry:
Item: PD13a
Feature: Detection signature for single-signature PDs
Subclause: 33.3.5
Value/Comment: Present a valid detection signature on a given Mode when no voltage or current is applied to the other Mode, and present a non-valid detection signature on that Mode when any voltage between 101. V and 57.0 V is applide to either mode
Status: PDSS:M

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD DS
1) "...between 101. V and..." 10.1V; 2) "... is applide to either mode" applied.

Cl **33** *SC* **33.3.6** *P* **153** *L* **42** # 278

Stewart, Heath — Linear Technology

Comment Type **E** *Comment Status* **X** *Pres: Stewart1*

TODO from comment #148 draft 2.1

SuggestedRemedy

See stewart_01_0117.pdf

Proposed Response *Response Status* **W**

WFP

TFTD

Cl **33** *SC* **33.3.6** *P* **153** *L* **52** # 276

Stewart, Heath — Linear Technology

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

The phrase "required by the PD" is not suitable

SuggestedRemedy

Change
The intent of PD classification is to provide information about the maximum power required by the PD during operation.
To
The intent of PD classification is to provide information about the maximum power drawn by the PD during operation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
The purpose of classification is that the PD communicates how much power it wants (requires) and the PSE to communicate how much the PD gets. As such, the existing definition is correct. The suggested text implies that the PD just communicates what it is going to draw. Propose not to change the text.

TFTD FS
A PD my draw up to class but normally draws less. I am not sure why the text change is required. This is legacy text. I would like Heath to clarify his comment and the TFTD.

Cl **33** *SC* **33.3.6** *P* **154** *L* **42** # 366

Yseboodt, Lennart — Philips

Comment Type **T** *Comment Status* **X** *PD Class*

In column "PDMaxPowerValue_mode(M)" the range "256 to 400" is too small.
This should be the same as the PSE variable: 256 to 499.

SuggestedRemedy

Change field to "256 to 499".

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.3.6.1** *P* **154** *L* **51** # 277

Stewart, Heath — Linear Technology

Comment Type **E** *Comment Status* **X** *Pres: Stewart1*

TODO from comment #26 draft 2.1.

SuggestedRemedy

See stewart_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.3.6.2** *P* **155** *L* **33** # 368

Yseboodt, Lennart Philips

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

"PDs implementing Multiple-Event Physical Layer classification shall present class_sig_A during DO_CLASS_EVENT1 and DO_CLASS_EVENT2 and class_sig_B during DO_CLASS_EVENT3, DO_CLASS_EVENT4, DO_CLASS_EVENT5 and DO_CLASS_EVENT6, as defined in Table 33-26 and Table 33-27."

This description applies to Type 2 as well, but isn`t correct for that Type.
Since ME-classification is mandatory for Type 2, 3 and 4 we can keep it compact.

SuggestedRemedy

"Type 2 PDs shall present class_sig_A during DO_CLASS_EVENT1, DO_CLASS_EVENT2, and DO_CLASS_EVENT3, as defined in Table 33-26.
Type 3 and Type 4 PDs shall present class_sig_A during DO_CLASS_EVENT1 and DO_CLASS_EVENT2 and class_sig_B during DO_CLASS_EVENT3, DO_CLASS_EVENT4, DO_CLASS_EVENT5 and DO_CLASS_EVENT6, as defined in Table 33-26 and Table 33-27."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

I don't understand why the original sentence is wrong. All Type 1 and 2 PDs have class_sig_A = class_sig_B so the original sentence is correct. Furthermore, Table 33-27 only references PD Types 3 and 4, so there is no confusion there.

If your problem is that there is no DO_CLASS_EVENT4(-6) for Type 2 then maybe…but no. You can change it as part of your TDL to rewrite this whole section.

TFTD

Cl **33** *SC* **33.3.6.2** *P* **156** *L* **7** # 187

Law, David HPE

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

While a note has been added to Table 33–26 and Table 33–27 referencing Table 33–25 it isn't entirely clear that it is in reference to the values in the class_sig_A and class_sig_B columns.

SuggestedRemedy

Add a header that straddles the class_sig_A and class_sig_B header that reads 'Class signature' to Table 33-26 and 33-27.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
Request editorial license to see whether to follow the remedy, or add “class signature” in both the class_sig_A and _B header cells.

TFTD YD
Does the remedy mean to replace with "Class signature class_sig_A" and "Class signature class_sig_B" ?

Cl **33** *SC* **33.3.6.2** *P* **156** *L* **50** # 226

Lukacs, Miklos Silicon Labs

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

This text is confusing:
"The Class requested on each pairset is the power requested by the PD on that pairset."

SuggestedRemedy

Change the text to:
"The Class requested on each pairset defines the power requested by the PD on that pairset."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the text to:
"The Class requested on a pairset defines the power requested by the PD on that pairset."

TFTD LY
Rather than fix a sentence that says very little:
Suggest to:
- Remove the quoted sentence
- Change the following sentence to read: “Dual-signature PDs may advertise a different class signature on each pairset and may receive a different power allocation on each pairset.”

Cl **33** *SC* **33.3.6.2** *P* **157** *L* **1** # 33

Chabot, Craig UNH-IOL

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

New PIC entry needed related to this Shall

SuggestedRemedy

Add New PIC Entry:
Item: PD32a
Feature: PSE assigned Class identification for Type 3 and Type 4 single-signature PDs
Subclause: 33.3.6.2
Value/Comment: As defined in Table 33-13
Status: PDT3*PDSS:M PDT4*PDSS:M

Proposed Response *Response Status* **W**

How is this testable? Give a PD only one event and make sure the power draw is appropriate? Give a PD only two events…and so on?

TFTD

Cl **33** *SC* **33.3.6.2** *P* **157** *L* **7** # 34

Chabot, Craig UNH-IOL

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

New PIC entry needed related to this Shall

SuggestedRemedy

Add New PIC Entry:
Item: PD32b
Feature: PSE assigned Class identification for Type 3 and Type 4 dual-signature PDs
Subclause: 33.3.6.2
Value/Comment: As defined in Table 33-13
Status: PDT3*PDDS:M PDT4*PDDS:M

Proposed Response *Response Status* **W**

How is this testable? Give a PD only one event and make sure the power draw is appropriate? Give a PD only two events…and so on?

TFTD

Cl **33** *SC* **33.3.6.2.1** *P* **157** *L* **42** # 279

Stewart, Heath Linear Technology

Comment Type **E** *Comment Status* **X** *PD Class*

All PD SM figures should be referenced

SuggestedRemedy

See stewart_01_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.3.6.2.1** *P* **157** *L* **44** # 192

Law, David HPE

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

The first paragraph of this subclause states 'When the PD is presenting a mark event signature as shown in the state diagram ...'. As noted in another comment this seems to map to when the state diagram is in a DO_MARK_EVENT state, hence the first paragraph already states that when in a DO_MARK_EVENT state the PD shall draw IMark, and adds the other requirement, not listed in this paragraph, that the PD has to also present a non-valid detection signature. Based on this the paragraph seems to contain a duplicate, but potentially incomplete, requirement.

SuggestedRemedy

Delete 4th paragraph of subclause 33.3.6.2.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

TFTD DL, LY

Discussion (DL):
There appear to be three overlapping statements in subclause 33.3.6.2.1 'Mark Event behavior' as follows:

[1] When the PD is presenting a mark event signature as shown in the state diagram of Figure 33-31, Figure 33-32, and Figure 33-33 the PD shall draw IMark as defined in Table 33-28 and present a non-valid detection signature as defined in Table 33-23.

[2] The PD shall not exceed the IMark current limits when voltage at the PI enters the VMark specification as defined in Table 33-28.

[3] The PD shall draw IMark when in a DO_MARK_EVENT state.

I believe that [3] use to read 'The PD shall draw IMark until the PD transitions from a DO_MARK_EVENT state to the IDLE state.' in IEEE Std 802.3-2015, however as [3] now reads I believe it is duplicative of [1] and I have submitted a comment in respect to this.

Regardless, I believe that [1] (and [3]) extend the text requirement beyond 10.1 V up to the chosen VMark_th.

Proposed Response (LY):
These 3 can be merged into a single shall:

"The PD shall draw Imark as defined in Table 33-28 and present a non-valid detection signature as defined in Table 33-23 when it is presenting a mark event signature as defined in the state diagram of Figure 33-31, Figure 33-32, and Figure 33-33."

Cl **33** *SC* **33.3.7** *P* **158** *L* **36** # 35

Chabot, Craig UNH-IOL

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

New PIC entry needed related to this Shall

SuggestedRemedy

Add New PIC Entry:
Item: PD40a
Feature: long_class_event value
Subclause: 33.3.7
Value/Comment: Set to TRUE if the first class event is longer than TLCE_PD max
Status: PDT3:O PDT4:O

Proposed Response *Response Status* **W**

I have no idea how to test this as PDs are not required to produce MPS pulses, let alone short MPS pulses.

TFTD

Cl **33** *SC* **33.3.8** *P* **159** *L* **35** # 374

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **D** *PD Power*

Table 33-30, Item 6, the Iinrush PD description reads:
"Input inrush current per the assigned Class, when the PD is limiting the current during the inrush period per 33.3.8.3."

This is OBE by our improved inrush text in 33.3.8.3.

SuggestedRemedy

Replace by: "Input inrush current per the assigned Class."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
It doesn't make sense to change the description as proposed. If PSE limits the current, the PSE inrush values are greater than the PD max input inrush current. The PD input inrush current are originally specified to say that these values are correct only if PD limits the current e.g. due to larger capacitor in PD that is beyond the PSE inrush limiting responsibility as it was in 2012 version. If PSE is limiting the current, PD doesn't have to do anything in regard to limit the inrush current. See example to my argument in Type 1 PSE-PD: PSE Inrush=0.45A. PD maximum input inrush is 0.4A. So how it can be different currents in PSE and PD on the same pairs? the Answer is that the 0.45A is the PSE inrush maximum capacity when PSE is limiting the current and 0.4A is when the PD is limiting the current when C>Cpd what ever it is.
Do not change the current text

Cl **33** *SC* **33.3.8** *P* **160** *L* **6** # 375

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **D** *PD Power*

Table 33-30, Item 7, the Iinrush PD-2P description reads:
"Input inrush current per pairset per the assigned Class, when the PD is limiting the current during the inrush period per 33.3.8.3."

This is OBE by our improved inrush text in 33.3.8.3.

SuggestedRemedy

Replace by: "Input inrush current per pairset per the assigned Class."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
Same problem as in comment #374

Cl **33** *SC* **33.3.8** *P* **160** *L* **22** # 376

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **X** *PD Power*

Table 33-30, PPeak_PD.
To be more in line with earlier decision to write things out as numbers, propose to replace the equation by values.
This avoids that one needs to flip back to the PClass_PD table to look up the required value.

SuggestedRemedy

Change Item 10 Values to:

Class 1	5.00
Class 2	8.36
Class 0, 3	14.4
Class 4	28.3
Class 5	42.0
Class 6	53.5
Class 7	65.1
Class 8	74.8

Proposed Response *Response Status* **W**

Yuck. The Ppeak_PD-2p made sense since there was no ability to collapse rows by using the equation. Here, however, you are adding 3 more rows. I agree it makes sense for class 4 since there is only one value.

TFTD

TFTD FS
This solution is invalid. System may use the formula for Pclass_PDx (page 110), which will result in different Peak values.

TFTD YD
"There is a problem to use fix numbers for extended power class 6 and 8 since Pclass_PD

can have higher values than you have proposed with the fixed numbers. I understand that currently with the equations the table is less nicer but it is accurate..so if nicer table is the goal we can do what you want and add text that uses the equations for the extended power class 6 and 8 in 33.3.8.4."

Cl **33** *SC* **33.3.8** *P* **160** *L* **22** # 377

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **D** *PD Power*

Table 33-30, PPeak_PD-2P.
To be more in line with earlier decision to write things out as numbers, propose to replace the equation by values.
This avoids that one needs to flip back to the PClass_PD table to look up the required value.

SuggestedRemedy

Change Item 10 Values to:
Class 1 5.00
Class 2 8.36
Class 0, 3 14.4
Class 4 28.3
Class 5 37.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Your comment references Ppeak_PD-2P which is item 11 (not 10). Also, this is only a parameter for Type 3 and 4, and thus Class 0 does not apply.

Change Item 11 Values to:
Class 1 5.00
Class 2 8.36
Class 3 14.4
Class 4 28.3
Class 5 37.2

TFTD FS
This solution is invalid. System may use the formula for Pclass_PDx (page 110), which will result in different Peak values.

TFTD YD
"There is a problem to use fix numbers for extended power class 5 since Pclass_PD-2P can have higher values than you have proposed with the fixed numbers. I understand that currently with the equations the table is less nicer but it is accurate..so if nicer table is the goal we can do what you want and add text that uses the equations for the extended power class 6 and 8 in 33.3.8.4."

Cl **33** *SC* **33.3.8** *P* **160** *L* **23** # 378

Yseboodt, Lennart Philips

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

Table 33-18, Item 10, "Peak operating power".

This parameter depends on the assigned Class and applies only to single-signature.

SuggestedRemedy

Change Item 10 Parameter name to "Peak operating power per the assigned Class for single-signature PDs"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
The remedy is OK. It is Table 33-30 and not Table 33-18. Fix the comment or mention it in the remedy.

TFTD DS
Wrong table reference. Should be 33-30, not 33-18.

Cl **33** *SC* **33.3.8.4** *P* **160** *L* **23** # 379

Yseboodt, Lennart Philips

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

There is no specification for unbalance for PDs drawing Peak power.
On the PSE side we have a full page of equations explaining peak unbalance.

SuggestedRemedy

Add to TODO: specify peak power unbalance limits for the PD.
At this point I would strongly suggest we simplify the peak unbalance requirements to fixed numbers, otherwise we will get another page of equations for the PD peak unbalance.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add TDL (Lennart, Yair): specify peak power unbalance limits for the PD.

TFTD YD
"No need for unbalanced requirements for Peak_power. The current PD unbalance spec at Pclass-PD guarantees that Ppeak-PD will meet the PSE spec and also the PD to not impose current greater than Ipeak_2P_unb. The reason is that at higher power unbalance is improved or remain unchanged depends on the class. At the PSE side the considerations are different. The Peak power unbalance requirements are specified as variable and not as a constant to allow PSE the flexibility to optimize power supply size in big multiport systems. Please note that equation 33-10 is based on Ppeak_PD, Rch and Vpse and Equation 33-11 convert it to Ipeak-2P_unb. The current flexibility in the PSE was meant to be use by DLL or other means for the PSE."
Copy the explanation as the response to this comment.

Cl **33** *SC* **33.3.8** *P* **160** *L* **33** # 380

Yseboodt, Lennart Philips

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

Table 33-18, Item 11, "Peak operating power over a pairset".

This parameter depends on the assigned Class and applies only to dual-signature.

SuggestedRemedy

Change Item 11 Parameter name to "Peak operating power on a pairset per the assigned Class for dual-signature PDs"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD DS
Wrong table reference. Should be 33-30, not 33-18.

Cl **33** *SC* **33.3.8** *P* **160** *L* **44** # 128

Johnson, Peter Sifos Technologies

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

Table 33-30, item 12, defines "Input current transient", Itransient, with units of mA/usec. This may be confusing to some.

From a EE perspective, "I" is a current with units mA. dI/dT would be a current slew rate with units "mA/usec".

SuggestedRemedy

Consider renaming "Input current transient" to "Input current slew rate" with variable "dI/dT" or something like this.

Then modify 33.3.8.5 to:

"When the input voltage at the PI is static and in the range of VPort_PD-2P defined by Table 33–30, the total input current drawn by a single-signature PD shall not change faster than dI/dT(max) defined in Table 33-30, in either polarity. Each pairset current drawn by a dual-signature PD while powered 4-pair shall not change faster than dI/dT(max) defined in Table 33-30, in either polarity. This limitation applies after inrush has completed (33.3.8.3) and before the PD has disconnected."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

ALSO, Editor given license to change symbol name and clean up text in suggested remedy.

TFTD LY
“dI/dT” as a parameter name is very confusing. The reasoning behind I_transient was that is was mostly a current. I agree ‘transient’ doesn’t totally cover it. “Slew rate” is about volts/second, not current. I don’t know a better word for it. How about “I_slewrate” ?

Cl **33** *SC* **33.3.8** *P* **161** *L* **11** # 381

Yseboodt, Lennart Philips

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

Table 33-30, Item 15, Ripple and noise also has no name.

SuggestedRemedy

Name it V_Noise_PD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

ALSO, Editor to find a place in 33.3.8.7 to use the new parameter name.

TFTD YD
Suggest "Vac_pd" for Table 33-30 for ripple and noise and Vac_pse for Table 33-18 for ripple and noise.

Cl **33** *SC* **33.3.8** *P* **161** *L* **18** # 140

Jones, Chad Cisco

Comment Type **TR** *Comment Status* **X** *PD Power*

Table 33-30, item 16. Von_PD min was changed to 30V. This used to be 37V. Changing it to 30V aligns it with Voff_PD. A designer that sets Von_PD to 30V will get a motorboating PD as the PD will turn on, start to draw load, and pull down Vport below Voff_PD...
37V was specifically picked to add hysteresis to prevent this.

SuggestedRemedy

we need to find a better value for Von_PD min.

Proposed Response *Response Status* **W**

TFTD

First you don't have a remedy so I should just reject you...

I do not agree with this interpretation at all. There was no minimum stated for Von_PD before (only a maximum at 42V). The hysteresis was allowed by the PD designer setting there Von_PD towards the higher end of 30-42V and the Voff towards the lower end of 30-42V. While the PD voltage range for Type 1 is 37V min, before the the PD turns on and draws significant current, there will be no loss in the cable and thus the voltage will go to the PSE minimum which is 44V. Thus the 37V only provides a hysteresis in which the PD must continue to operate.

Summary:
The PD must turn on by 42V.
The PD must stay on as low as 37V.
The PD must turn off by 30V.

The use of Vport_PD in the SD (through the use of the power_received varaible) is obviously wrong because it would cause the PD to have infinite accuracy to distinguish 36.999999V from 37V and turn on exactly then.

TFTD CJ
I get your point about 36.99999. And I was mistaken to say that it used to be 37V. I know the PD spec well enough to know that you SHOULDN'T turn on before 37 based on other specs. We added the minimum Von_PD to resolve MR1277. You are also correct that I don't have a remedy. That's cause I don't have a remedy.... I just know it's a problem.
But a suggestion would be to add Note 2 to Table 33-30 for Von_PD min that says PD can't turn on until Vport passes 30V but that the PD designer should carefully pick the threshold so as to prevent motor boating caused by the drop in Vport due to added load.
Note 2: Von_PD min is set at 30V to align with Voff_PD min. A PD designer must take care to have sufficient margin (delay) for PD turn on such that the added load does not pull Vport_PD below Voff_PD min.

TFTD YD
"This comment marked TFTD. David: Your summary is correct but your last comment is not clear:Vport_PD-2P is defined in Table 33-30 and is an operating voltage range at PDs

steady state.Vpd is PD PI voltage and is used in the state machine.Vport_PD in your response is not used anywhere.So when Vpd is greater or lower than Von_PD or Voff_PD which is a range, then the state is changed so I don't understand the infinite accuracy issue that you are raising here."

Cl **33** *SC* **33.3.8.2** *P* **162** *L* **31** # 92

Darshan, Yair Mirosemi

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

In the following text: "PDs that have successfully completed DLL classification, shall not exceed a power consumption of PDMaxPowerValue as defined in 33.5.3.3." It is not clear from the text that:
PDs cannot require through DLL more power than the required class.
This information is not contained in PDMaxPowerValue (this is only maximum power under the current power allocation)

SuggestedRemedy

Make the following changes: "PDs that have successfully completed DLL classification, shall not exceed a power consumption of PDMaxPowerValue as defined in 33.5.3.3. The required class is the maximum power that the PD will ever draw"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

1. I assume you mean "requested class" and not "required class".
2. The sentence you are adding adds no value here and it come out of nowhere and has not context.
3. The requirement you are looking for is already in the text (page 153, line 47): "The Class requested by the PD during Physical Layer classification is the maximum power that a Type 3 or Type 4 PD shall draw."

TFTD

TFTD YD
This comment marked TFTD. David: I agree with your response. I would like to withdraw this comment.

Cl **33** *SC* **33.3.8.2.1** *P* **162** *L* **40** # 93

Darshan, Yair Mirosemi

Comment Type **TR** *Comment Status* **D** *Pres: Darshan7*

In the text: "For Class 6 and Class 8 single-signature PDs, when additional information is available to the PD regarding actual channel DC resistance between the PSE PI and the PD PI, the PD may consume greater than PClass_PD but shall not consume greater than PClass at the PSE PI and shall not draw current in excess of ICable as defined in Table 33–1." it is not clear that the current can be >Icable on one pair and lower than Icable on the 2nd pair.

SuggestedRemedy

Change text to: "For Class 6 and Class 8 single-signature PDs, when additional information is available to the PD regarding actual channel DC resistance between the PSE PI and the PD PI, the PD may consume greater than PClass_PD but shall not consume greater than PClass at the PSE PI and shall not draw current in excess of 2xICable. Icable is defined in Table 33–1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

WFP

OBE by 382

TFTD YD
This comment was marked as OBE to #382 which is correct however I would like to keep it independed (and open) due to aditional issue that I have found in this text and is covered by darashan_07_0117.pdf.

Cl **33** *SC* **33.3.8.2.1** *P* **162** *L* **40** # 382

Yseboodt, Lennart Philips

Comment Type **TR** *Comment Status* **D** *Pres: Darshan7*

"For Class 6 and Class 8 single-signature PDs, when additional information is available to the PD regarding actual channel DC resistance between the PSE PI and the PD PI, the PD may consume greater than P Class_PD but shall not consume greater than P Class at the PSE PI and shall not draw current in excess of I Cable as defined in Table 33-1."

ICable is the two-pair current and this text is about 4-pair. It should be 2 x ICable.

SuggestedRemedy

"For Class 6 and Class 8 single-signature PDs, when additional information is available to the PD regarding actual channel DC resistance between the PSE PI and the PD PI, the PD may consume greater than P Class_PD but shall not consume greater than P Class at the PSE PI and shall not draw a total 4-pair current in excess of 2 x I Cable as defined in Table 33-1."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD LY
Merge with #382

TFTD YD
The remdy is OK and solves one issue in the text. There are two issues there. See darshan_07_0117.pdf

Cl **33** *SC* **33.3.8.2.1** *P* **162** *L* **45** # 449

Zimmerman, George CME Consulting, Aqua

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

"and shall not draw current in excess of ICable as defined in Table 33-1" - ICable is the nominal current per pairset. Since this is a key requirement on current draw, this text should reflect that so as not to be confused with total current or current per pair including unbalance effects.

SuggestedRemedy

Change "and shall not draw current in excess of ICable" to "and shall not draw nominal current per pairset in excess of ICable"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CB
I prefer “and shall not draw current per paiset in excess of Icable”. Adding “nominal” seems to me to weaken the requirement.

TFTD YD
The remedy for #449 is incorrect and is different than #382 but address the same issue and yet both accepted. Change response to ACCEPT IN PRINCIPLE and OBE #449 to #382.

Cl **33** *SC* **33.3.8.2.2** *P* **163** *L* **1** # 450

Zimmerman, George — CME Consulting, Aqua

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

"Verification of stability is achieved when the PD ripple and noise content as defined in Table 33–30 is met while the PD is operating at or below PPort_PD or PPort_PD-2P while being powered by a voltage source set in the range of VPort_PSE-2P, as defined in Table 33–18, through a series resistance with value RCh, as defined in Table 33–1." - very wordy, hard to follow multiple conditions, 2 while clauses and a load condition.

SuggestedRemedy

Change to "Verification of stability is achieved by the PD meeting the ripple and noise content in Table 33–30 when the PD is powered by a voltage source set in the range of VPort_PSE-2P (see Table 33–18), through a series resistance of RCh (see Table 33–1), and the PD is operating at or below PPort_PD or PPort_PD-2P."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
“Stable operation can be verified if the PD meets the ripple and noise...”

TFTD DS
This is a great place to save a future comment and insert our new V_Noise_PD. "meeting the ripple and noise content in Table 33-30" with "meeting V_Noise_PD when the PD..."

Cl **33** *SC* **33.3.8.4** *P* **163** *L* **52** # 383

Yseboodt, Lennart — Philips

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

"At any static voltage at the PI, and any PD operating condition, with the exception described in 33.3.8.4.1, the peak power for a single-signature PDs shall not exceed P Class_PD for more than T CUT-2P min, as defined in Table 33-18 and 5% duty cycle. Peak operating power shall not exceed P Peak_PD."

The word 'single-signature' was added to D2.2. This removes the peak power requirement for legacy Types. Also fix typo.

SuggestedRemedy

"At any static voltage at the PI, and any PD operating condition, with the exception described in 33.3.8.4.1, the peak power for a Type 1, Type 2, or single-signature PDs shall not exceed P Class_PD for more than T CUT-2P min, as defined in Table 33-18 and 5% duty cycle. Peak operating power shall not exceed P Peak_PD."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CB
: I understand we decided that Type1 and Type2 are neither single (why not??) nor dual signature , but listing “Type1, Type2 or single-signature PDs” sounds quite odd. I suggest using the same wording used in 33.3.4 (pag 152 line1): Type1, Type 2, or single-signature Type 3 or Type 4 PD.

Cl **33** *SC* **33.3.8.4** *P* **164** *L* **30** # 38

Chabot, Craig — UNH-IOL

Comment Type **E** *Comment Status* **D** *PICS*

New PIC entry needed related to this Shall

SuggestedRemedy

Add New PIC Entry:
Item: PD55a
Feature: Peak power for any PD operating condidtion, with exception described in 33.3.8.4.1 for dual-signature PDs
Subclause: 33.3.8.4
Value/Comment: Not to exceed Pclass_PD-2P for more than TCUT-2P min and 5% duty cycle
Status: PDDS:M

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD DS
Typo. "condidtion"; condition.

Cl **33** *SC* **33.3.8.4** *P* **164** *L* **31** # 39

Chabot, Craig UNH-IOL

Comment Type **E** *Comment Status* **D** *PICS*

New PIC entry needed related to this Shall

SuggestedRemedy

Add New PIC Entry:
Item: PD55b
Feature: Peak operating power for for dual-signaure PDs
Subclause: 33.3.8.4
Value/Comment: Not to exceed Ppeak_PD-2P
Status: PDDS:M

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD DS
Typo. "for for"; for.

Cl **33** *SC* **33.3.8.4** *P* **164** *L* **39** # 385

Yseboodt, Lennart Philips

Comment Type **TR** *Comment Status* **X** *PD Power*

In the peak power section we have text from P164 line 29 through P165 line 23 which defines IPort_RMS and IPort_RMS_max.

Without this text, a PD would be allowed to consume PClass_PD and on top of that PPeak_PD with 5% duty cycle.
With this text, the maximum PD power consumption is bound to PClass_PD with any peaks included.

Given a PD that makes maximum use of peak power, this translates to a difference of 0.5% for 2-pair and 0.25% for the 4-pair classes.

On top of that I don`t see any text that allows a PSE to make use of this, a PSE is required to support Pclass_PD PLUS the 5% of PPeak.

This seems a requirement and full page of text which does very little.

SuggestedRemedy

Remove P164 line 29 through P165 line 23.
Remove P165 line 39 through P166 line 15. (= the same for the Peak power exception Class 6/8)

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.3.8.4.1** *P* **165** *L* **34** # 387

Yseboodt, Lennart Philips

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

In 33.3.8.4.1 there are two references to PPort_PD max (line 34 and 36). PPort_PD *is* a maximum, not a range.

SuggestedRemedy

Remove 'max' twice.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CB
This comment may be OBE by #451 if accepted (this is my first choice). If not, I don't like removing "max" from Pport_PD, because even if it is not a range it is described under the "max" column in Table 33-30.

Cl **33** *SC* **33.8.4.1** *P* **165** *L* **36** # 451

Zimmerman, George CME Consulting, Aqua

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

"PPort_PD max" isn't actually a variable. Since the value isn't dependent on anything else, just put it in the equation (it is PClass_PD in Table 33-30) In fact, it looks like all instances of PPort_PD can just be replaced by PClass_PD, and the parameter PPort_PD eliminated, because they seem to reference "at or below".

SuggestedRemedy

Delete PPort_PD from Table 33-30, and replace PPort_PD max in the text with PClass_PD on line 34 and 36, page 259 line 43, and page 163 line 2

Proposed Response *Response Status* **W**

TFTD

Is there a difference between Pport_PD and Pclass_PD?

Cl **33** *SC* **33.8.4.1** *P* **165** *L* **37** # 452

Zimmerman, George CME Consulting, Aqua

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

"PPort_PD-2P max" isn't actually a variable. Since the value isn't dependent on anything else, just put it in the equation (it is PClass_PD-2P in Table 33-30). In fact, it looks like all instances of PPort_PD-2P can just be replaced by PClass_PD-2P, , and the parameter PPort_PD-2P eliminated, because they seem to reference "at or below".

SuggestedRemedy

Delete PPort_PD-2P from Table 33-30, and replace PPort_PD-2P max in the text with PClass_PD-2P on line 37, and page 163 line 2, also, change PPort-2P on line 35 to PClass_PD-2P, as PPort-2P seems to be a typo missing the "_PD"

Proposed Response *Response Status* **W**

TFTD

Cl **33** *SC* **33.3.8.6** *P* **166** *L* **43** # 388

Yseboodt, Lennart Philips

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

"A PD which is not described in the above list shall comply with the requirements set forth in the remainder of this section."

PDs described in the list meet the shalls that follow without further consideration. However, the shalls still apply.

SuggestedRemedy

This sentence is incorrect and not needed. Remove quoted sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD YD
"If we remove the quoted text, it will not be clear that we don't need to meet the transient tests of Table 33-31 if we meet the requirements of the list above the quoted text."

Cl **33** *SC* **33.3.8.6** *P* **166** *L* **46** # 389

Yseboodt, Lennart Philips

Comment Type **ER** *Comment Status* **D** *PD Power*

"Table 33-31 defines three PSE transient test conditions and PD Types to which the conditions apply."

We should not be defining tests, rather define PI behaviour under certain conditions.

SuggestedRemedy

Reworded:
"Table 33-31 defines three PSE transient conditions and PD Types to which these apply."

Merge this paragraph with the next paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This is a test to confirm behavior but can be written as a behavior requirement. The title of Table 33-32 is "Transient test conditions", Figure 33-36 "Transient test Conditions operating bounds".
We may only need to fix the table titles.

Cl **33** *SC* **33.3.8.6** *P* **166** *L* **48** # 390

Yseboodt, Lennart Philips

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

"Figure 33-36 shows operating bounds for the transients in Table 33-31. The shaded regions begin with the application of the transient test and end at the times indicated in the figure."

Let`s avoid the word "test".

SuggestedRemedy

"Figure 33-36 shows operating bounds for the transients defined in Table 33-31. The shaded regions begin with the application of the transient and end at the time indicated in the figure."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This is a test to confirm behavior but can be written as a behavior requirement. The title of Table 33-32 is "Transient test conditions", Figure 33-36 "Transient test Conditions operating bounds".
We may only need to fix the table titles.

Cl **33** *SC* **33.3.8.6** *P* **167** *L* **14** # 142

Jones, Chad Cisco

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

orphaned text has a Table 33-31 splitting a sentence across pages.

SuggestedRemedy

format the text so that it stays with the previous text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
I agree this is suboptimal, however it is a bad idea to put in manual overrides at this stage. Frame continually optimizes the document and will reformat. The less restrictions/overrides we put in the better. Fixing stuff like this is great for the end of sponsor ballot or for the final edit round IEEE staff does.
Recommend to leave it be.

Cl **33** *SC* **33.3.8.6** *P* **167** *L* **33** # 392

Yseboodt, Lennart Philips

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

"Figure 33-36 shows transient test condition operating bounds where"

Avoid the word test.

SuggestedRemedy

"Figure 33-36 shows transient condition operating bounds where"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This is a test to confirm behavior but can be written as a behavior requirement. The title of Table 33-32 is “Transient test conditions”, Figure 33-36 “Transient test Conditions operating bounds”.
We may only need to fix the table titles.

Cl **33** *SC* **33.3.8.6** *P* **167** *L* **42** # 393

Yseboodt, Lennart Philips

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

"shows the operating bounds of the transient test condition, where n is the number of the test condition."

Avoid the word test.

SuggestedRemedy

"shows the operating bounds of the transient test condition, where n is the number of the transient condition."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This is a test to confirm behavior but can be written as a behavior requirement. The title of Table 33-32 is “Transient test conditions”, Figure 33-36 “Transient test Conditions operating bounds”.
We may only need to fix the table titles.

Cl **33** *SC* **33.3.8.6** *P* **167** *L* **45** # 96

Darshan, Yair Mirosemi

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

This comment is related to TLIM-2P.
If comment TLIM-2P will be accepted then we need to change the following text as well:
"TLIM-2P min is the minimum TLIM-2P min value for the PD Class, as defined in Table 33–18" so it will not be depend on the assigned class.

SuggestedRemedy

Change text to: "TLIM-2P min is the minimum TLIM-2P min value as defined in Table 33–18"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Note: No matter the outcome of theTLIM-2P comment, this change works.

TFTD FS
The solution still seems broken,
"TLIM-2P min is the minimum TLIM-2P min value as defined in Table
33–18"
I assume the text should be (removed min),
"TLIM-2P min is the minimum TLIM-2P value as defined in Table
33–18"
But some comments do not like using “TLIM-2P min” because the variable is TLIM-2P---see comment D2.2 451, 452. We need to sort out how to correctly reference min and max values for a variable in a table.

TFTD CJ
"already pulled but I have further comment: ""TLIM-2P min is the minimum TLIM-2P min value for the PD Class, as defined in Table 33–18"" yair wants to remove the dependance on assigned class - but it does depend on the assigned class. The numbers are all different depending on the Type.I do agree the sentence needs work, change to: TLIM-2P min is the minimum TLIM-2P value for the PD Class, as defined in Table 33–18 (removed the second 'min' as it became a circular reference)."

Cl **33** *SC* **33.3.8.6** *P* **168** *L* **14** # 97

Darshan, Yair Mirosemi

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

The title of the column "PD signature" should be "PD construction".

SuggestedRemedy

Change from "PD signature" to "PD construction".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
The word ‘construction’ is used nowhere else in the draft. Calling it signature very clearly links it to the terms “single-signature” and “dual-signature”. Introducing a new term should be done for a good reason.

Cl **33** *SC* **33.3.9** *P* **171** *L* **9** # 259

Schindler, Fred Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **D** *PD MPS*

Existing text usage may confuse the new reader because incomplete information is provided.

“Total input current per the assigned Class to a single-signature PD”

The sentence assumes the reader is aware that each pairset provides current that is combined to give a total quantity being defined.

SuggestedRemedy

Replace the called out sentence with,
“The combined pairset input current per the assigned Class to a single-signature PD”

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to: “Total 4-pair input current per the assigned Class to a single-signature PD”

TFTD CB
Since Type 1 and Type2 are not SS: Total 4-pair input current per the assigned class to a Type1, Type 2, or single-signature Type 3 or Type 4 PD.

Cl **33** *SC* **33.5.3.2.2** *P* **187** *L* **27** # 397

Yseboodt, Lennart Philips

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

Variable "pd_allocated_power" is misspelled. Should be "pd_allocated_pwr".

SuggestedRemedy

Change to "pd_allocated_pwr".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
Make the same correction on page 196 L13.

Cl **33** *SC* **33.5.3.3** *P* **189** *L* **4** # 143

Jones, Chad Cisco

Comment Type **ER** *Comment Status* **D** *DLL*

This is the solution to the TO DO 93 from D2.1.
Background: Page 140, line 41. This is the Type 1 and 2 State Diagram. The MDI_POWER2 state contains pd_max_power <= class_sig. "class_sig" is the requested Class of the PD. With DLL any PD can claim itself to be a Type 2 and that will cause it to move to MDI_POWER2. However the statement pd_max_power <= class_sig prevents such a PD to draw more power than its physical layer class. So... a PD can ask for more power (compliant), a PSE can grant it (compliant), but the PD cannot draw more power than physical layer. SD covers the behavior but in my opinion it is subtle. I have seen this done wrong, the answer is not to be subtle.

Page 153, line 46 states: "The Physical Layer classification of the PD is the maximum power that a Type 1 or Type 2 PD draws across all input voltages and operational modes. The Class requested by the PD during Physical Layer classification is the maximum power that a Type 3 or Type 4 PD shall draw." Makes the statement that L1 is the max a PD can draw.

page 162, line 31 states: "PDs that have successfully completed DLL classification, shall not exceed a power consumption of PDMaxPowerValue as defined in 33.5.3.3." OK, what does PDMaxPowerValue say?

PDMaxPowerValue is defined on page 189, line 1. "Integer that indicates the actual PD power value of the local system in units of 0.1 W (see Equation (79–1)), where PDMaxPowerValue is X). The actual PD power value for a PD is the maximum input average power (see 33.3.8.2) the PD ever draws under the current power allocation."

Add verbiage here reminding reader that 36 pages ago we told you that a the physical layer class is the max power a PD may draw.

SuggestedRemedy

on page 189, line 3 change sentence to: "The actual PD power value for a PD is the maximum input average power (see 33.3.8.2) the PD ever draws under the current power allocation and does not exceed the amount requested via the Physical Layer."

an alternate remedy is to add at page 154, line 22 in section 33.3.6:
"The maximum power a PD draws after a DLL negotiation does not exceed the requested Class of the PD".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD LY
We are reminding folks of other requirements (related) in a variable lists. I fully support the requirement (L1 being the max), however putting reminders every few pages seems excessive. Especially in a SD variable list. If we must put something here, it feels more appropriate to add a “NOTE – A PD may not

draw more power than the Class it requested during Physical Layer classification, see 33.3.6 and 33.3.8.2" below this variable.

TFTD CJ
This has to be a TFTD. I gave two options for a remedy. This is not clear editing instructions.
I assume your accept is to use the first remedy.

Response DNA to CJ: Yes, the second option didn't show up on the screen and I didn't even realize it was there.

TFTD FS
Two solutions are provided. The Editor will not know which is the accepted solution.

TFTD YD
I am OK with the remedy but which solution option we take? (both are OK..)

Cl **33** *SC* **33.5.3.3** *P* **190** *L* **39** # 260

Schindler, Fred — Seen Simply, Cisco, T

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

New variable,
"pd_dll_single_or_dual
A control variable output by PD power control state diagram, defined in Figure 33–49, that indicates if the PD is a single-signature PD or a dual-signature PD. Type 3 and Type 4 PD state diagrams do not use this variable.
Values:
single: A single-signature PD configuration is connected to the PI.
dual: A dual-signature PD configuration is connected to the PI."

makes no sense as detailed. The variable is not provided by Figure 33-49 but is used by it. This description also probably incorrectly states Type 3 and Type 4 PD state diagrams do not use this variable. Only Type 3 and 4 PDs may be dual-signature PDs. I suspect that the default value should be single unless this value is overwritten.

This problem reoccurs on page 198 line 44.

SuggestedRemedy

Assign a TODO to Yair to move this fix this.

Proposed Response *Response Status* **W**

TFTD

WFP

I'm not sure I understand what this variable is supposed to be doing.

Cl **33** *SC* **33.5.3.3** *P* **190** *L* **40** # 401

Yseboodt, Lennart — Philips

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

Under pd_dll_single_or_dual:
"A control variable output by PD power control state diagram, defined in Figure 33-49, that indicates if the PD is a single-signature PD or a dual-signature PD. Type 3 and Type 4 PD state diagrams do not use this variable."

This is not an output variable of the PD power control, but an input condition on this variable.

SuggestedRemedy

"A variable in the PD power control state diagram, defined in Figure 33-49, that indicates if the PD is a single-signature PD or a dual-signature PD. Type 3 and Type 4 PD state diagrams do not use this variable."

Possible OBE by yseboodt_02_0117_lldpupdate.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.5.3.3** *P* **190** *L* **47** # 402

Yseboodt, Lennart — Philips

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

Under pse_dll_single_or_dual:
"A control variable output by PSE power control state diagram defined in Figure 33-46 (generated from the do_cxn_check function of the Type 3 and Type 4 PSE state diagram in Figure 33-15) which indicates if the PSE is connected to a single-signature PD or dual-signature PD."
This is not an output variable of the PSE power control, but an input condition on this variable.

SuggestedRemedy

"A variable in the PSE power control state diagram defined in Figure 33-46 (generated from the do_cxn_check function of the Type 3 and Type 4 PSE state diagram in Figure 33-15)
which indicates if the PSE is connected to a single-signature PD or dual-signature PD."

Possible OBE by yseboodt_02_0117_lldpupdate.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.3.5.3** *P* **191** *L* **20** # 99

Darshan, Yair Mirosemi

Comment Type **T** *Comment Status* **D** *DLL*

In the text "This function evaluates the power allocation or budget of the PSE based on local system changes.", it is "the total power allocation or budget" for single-signature PD. See approved remedy in darshan_11_1116Option2Rev006.pdf.

SuggestedRemedy

Change to: "This function evaluates the total power allocation or budget of the PSE based on local system changes."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to: "This function evaluates the total 4-pair power allocation or budget of the PSE based on local system changes."

TFTD LY
This state diagram also applies to legacy which has no concept of 4-pair. It is also unclear what the change in text tries to accomplice. These state diagrams only deal with power allocation for a PD, wether it is 2-pair or 4-pair powered makes no difference. Propose not to change as to not break legacy LLDP requirement.

Cl **33** *SC* **33.3.5.3** *P* **191** *L* **23** # 100

Darshan, Yair Mirosemi

Comment Type **T** *Comment Status* **D** *DLL*

In the text "The new maximum power value that the PSE expects the PD to draw.", it is "The new maximum total power.." for single-signature PD. See approved remedy in darshan_11_1116Option2Rev006.pdf.

SuggestedRemedy

Change to: "The new maximum total power value that the PSE expects the PD to draw."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to: "The new maximum total 4-pair power value that the PSE expects the PD to draw."

TFTD LY
See #99 – adding the word total does not offer clarity and impacts legacy LLDP. Propose not to change.

Cl **33** *SC* **33.5.3.6** *P* **194** *L* **21** # 102

Darshan, Yair Mirosemi

Comment Type **T** *Comment Status* **X** *Pres: Stover1*

AUTOCLASS state appears twice. Group to consider the proposed remedy.

SuggestedRemedy

1. Delete the last AUTOCLASS state.
2. Change the exit from the 1st AUTOCLASS state from "do_autoclass_measurement_done" to "do_autoclass_measurement_done*!MirroredPDAutoclassRequest" and connect it to IDLE state.

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD LY
See #284 – very likely OBE by #284.

Cl **33** *SC* **33.5.3.6** *P* **194** *L* **30** # 262

Schindler, Fred Seen Simply, Cisco, T

Comment Type **TR** *Comment Status* **D** *Pres: Stover2*

State diagrams on this page appear to originate from BEGIN, which is not standard. The title is not correct for the second diagram.

SuggestedRemedy

Replace “BEGIN” on Figure 33-48 with, “pd_dll_ready” and change the title from,
“Figure 33–48—PSE Autoclass control state diagram” to,
“Figure 33–48—PD Autoclass control state diagram”

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD DS
WFP stover_02

Cl **33** *SC* **33.5.3.8** *P* **199** *L* **1** # 265

Schindler, Fred — Seen Simply, Cisco, T

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

New variable,
“pse_dll_single_or_dual
A control variable output by PSE power control state diagram defined in Figure 33–46 (generated from the do_cxn_check function of the Type 3 and Type 4 PSE state diagram in Figure 33–15) which indicates if the PSE is connected to a single-signature PD or dual-signature PD.
Values:
invalid: Neither a single-signature PD nor a dual-signature PD connection check signature has been found. This includes an open circuit condition.
single: A single-signature PD configuration is connected to the PI.
dual: A dual-signature PD configuration is connected to the PI.”

The variable is not defined in Figure 33-46, it is used there. It is also not generated in Figure 33-15 or in do_cxn_check. This problem also exists on page 190 line 47 but a different definition is provided for the same variable. One definition should be used if possible.

SuggestedRemedy

Assign a TODO to Yair to move this fix this. The definition should be rewritten and the required assignment should be done in do_cxn_check.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.5.3.10** *P* **201** *L* **5** # 408

Yseboodt, Lennart — Philips

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

"pse_dll_singe_or_dual = single" condition is wrong, should be dual

SuggestedRemedy

Change to "pse_dll_singe_or_dual = dual"

Possible OBE by yseboodt_02_0117_lldpupdate.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.5.3.10** *P* **201** *L* **5** # 268

Schindler, Fred — Seen Simply, Cisco, T

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

The INITIALIZE state no longer requires
“pd_dll_power_type parameter_type”.

SuggestedRemedy

See the solution for Note: This comment relates to TODO D2.1 #118, #122, #140 and #25. Assign a TODO to Yair to move this fix this.

Proposed Response *Response Status* **W**

TFTD

Fred, I don't understand the remedy. Are you just asking for a TDL?

Cl **33** *SC* **33.5.3.10** *P* **202** *L* **4** # 409

Yseboodt, Lennart — Philips

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

"pse_dll_singe_or_dual = single" condition is wrong, should be dual

SuggestedRemedy

Change to "pse_dll_singe_or_dual = dual"

Possible OBE by yseboodt_02_0117_lldpupdate.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33** *SC* **33.5.3.10** *P* **202** *L* **5** # 269

Schindler, Fred — Seen Simply, Cisco, T

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

The INITIALIZE state no longer requires
“pse_dll_power_type parameter_type”.

SuggestedRemedy

See the solution for Note: This comment relates to TODO D2.1 #118, #122, #140 and #25. Assign a TODO to Yair to move this fix this.

Proposed Response *Response Status* **W**

TFTD

Fred, I don't understand the remedy. Are you just asking for a TDL?

Cl **33** *SC* **33.5.5** *P* **204** *L* **4** # 410

Yseboodt, Lennart Philips

Comment Type **E** *Comment Status* **D** *DLL*

"When the PD sends this request, it needs to be in a state where it consumes the amount of power that will from that moment onward be its maximum consumption."

Better phrasing.

SuggestedRemedy

"When the PD sends this request, it needs to be in a state where it consumes the amount of power that from that moment onward will be the maximum power drawn."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD FS
This is really on page 205. A better solution,

"When the PD sends this request, it needs to be in a state where it consumes its maximum power."
which is concise and powerful.

Cl **33** *SC* **33.6.3** *P* **205** *L* **49** # 414

Yseboodt, Lennart Philips

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

"In particular, users are cautioned to be aware of the ampacity of cabling, as installed, and local codes and regulations, e.g., ANSI/NFPA 70 - National Electric Code(r) (NEC(r)), relevant to the maximum class supported."

SuggestedRemedy

The word "ampacity" is specific to the NEC. It isn`t actually a word found in most dictionaries.

Replace "ampacity" by "current rating".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TFTD CJ
ampacity is here because that is the word that one would look for in the NEC. Current rating is the wrong wording as cables don't have a 'current rating'. Add this to definitions: Ampacity: The maximum current, in amperes, that a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

Cl **33** *SC* **33.6.8** *P* **206** *L* **46** # 416

Yseboodt, Lennart Philips

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

We should add indication if the PD is single or dual signature to the labelling.

SuggestedRemedy

Add new item under 33.6.8 as follows before "e":
"If the device is a PD, indicate "single-signature PD" or "dual-signature PD" as appropriate"

Proposed Response *Response Status* **W**

TFTD

Maybe if the device is a Type 3 or Type 4 PD, indicate…

Cl **79** *SC* **79.3.2** *P* **236** *L* **38** # 274

Skinner, John Sifos Technologies, In

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

Figure 79–3—Power Via MDI TLV format page 236 contains new fields "PD requested power value Mode A", "PD requested power value Mode B", "PSE allocated power value Alternative A", and "PSE allocated power value Alternative B".

There are no corresponding sections describing these fields.

SuggestedRemedy

Add the following on page 239:

In section 79.3.2.5 PD requested power value, additional statement:

For Type 3 and 4 devices, the value should be (PD requested power value Mode A + PD requested power value Mode B).

New section 79.3.2.5.1 PD requested power value Mode A

The PD requested power value is encoded according to Equation (79–1).

The value should be (PD requested power value - PD requested power value Mode B).

New section 79.3.2.5.2 PD requested power value Mode B

The PD requested power value is encoded according to Equation (79–1).

The value should be (PD requested power value - PD requested power value Mode A).

In section 79.3.2.6 PSE allocated power value, additional statement:

For Type 3 and 4 devices, the value should be (PSE allocated power value Alternative A + PSE allocated power value Alternative B).

New section 79.3.2.6.1 PSE allocated power value Alternative A

The PSE allocated power value is encoded according to Equation (79–2).

The value should be (PSE allocated power value - PSE allocated power value Alternative B).

New section 79.3.2.6.2 PSE allocated power value Alternative B

The PSE allocated power value is encoded according to Equation (79–2).

The value should be (PSE allocated power value - PSE allocated power value Alternative A).

Add PICS items immediately after PVT12 and PVT13 in the MDI TLV PICS table, page 253 for the new Alternative power fields and related new sections.

Proposed Response *Response Status* **W**

TFTD

Cl **79** *SC* **79.3.2.6a** *P* **240** *L* **22** # 425

Yseboodt, Lennart Philips

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

The Power status value field has 4 bits allocated to report a "Power Class".
Dual-signature was not taken into account here.
The cleanest fix is to extend this field to 16 bit. I prefer this over giving a quadruple meaning to the existing bits.

SuggestedRemedy

- In Figure 79-3 rename "PSE power status" to "Power status".
- In the same Figure, extend this field by 1 octet.
- In Table 79-6a insert between bit 4 and 3 two new fields, each of 3 bits:
  * Power Class Mode A and Power Class Mode B
  * Fill out the table in similar fashion as "Power Class" for Class 1 through 5
  * Reserved values are "0 0 0", "1 1 0" and " 1 1 1" to make Class number match with numeric value
- Append to 79.3.2.6a.2 the following sentence:
  "PSEs connected to a dual-signature PD and dual-signature PDs set this field to value 15".
- Change Value/meaning of "1 1 1 1" of Power Class to "dual-signature".
- Add new subsection after 79.3.2.6a.2 for Mode A and Mode B with similar description as single-signature.
- Add appropriate managed objects in Clause 30

Proposed Response *Response Status* **W**

TFTD

Cl **79** *SC* **79.3.2.6d** *P* **242** *L* **12** # 107

Darshan, Yair — Mirosemi

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

(TODO #41 and #129 D2.1 Lennart Y, Fred.)
The text says:
"Using the Autoclass field to trigger a new Autoclass measurement allows a PD to change maximum power consumption."
In addition Table 79-5d tries to specify some "handshake" parameters.

I believe the definitions are incomplete and may cause issues.
A) It is not clear who is initiating the request for new Autoclass measurement?
B) What is the timing sequence?
C) When to raise power?
D) When to measure?
E) Where is the final Acknowledge?
F) The flow is missing.

SuggestedRemedy

If not completed for this meeting, keep it in the TODO.

Proposed Response *Response Status* **W**

TFTD

Anyone do this?

Cl **79** *SC* **79.3.8** *P* **243** *L* **1** # 426

Yseboodt, Lennart — Philips

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

We should have a power measurement field in the Measurement TLV.
Currently it`s Current, Voltage and Energy.

SuggestedRemedy

Do the following:
- Extend the PD and PSE measurements by 3 bytes (new total 15 bytes)
- Add an Power request bit
- Add a Power measurement field
- Add a power accuracy field
- Add power support field
- Adjust text in 79.3.8.1 and 79.3.8.2
- Add Clause 30 managed objects

Proposed Response *Response Status* **W**

TFTD

Do we really need Power if we have Current and Voltage?

Cl **79** *SC* **79.3.8** *P* **243** *L* **10** # 212

Law, David — HPE

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

The new Power Via MDI Measurements TLV defines 12 octets for the PD measurements field and 12 octets for the PSE measurements.

According to Table 79-7b, when transmitted by a PSE, the PD measurements bits 0 to 87 and 91 to 95 will not be in use as they all relate to PD measurements, with just bits 88 to 90 in use indicating what measurements are being requested by the PSE. Then, according to Table 79-7c, the following PSE measurements field will have bits 0 to 87 and 91 to 95 in use as they relate to PSE measurements, with bits 88 to 90 in use as they indicate which measurements are valid and which are disabled.

Similarly when transmitted by a PD, the PD measurements bits will have bits 0 to 87 and 91 to 95 in use as they relate to PD measurements, with bits 88 to 90 in use as they indicate which measurements are valid and which are disabled. Then in the following PSE measurements field bits 0 to 87 and 91 to 95 will not be in use as they all relate to PSE measurements, with just bits 88 to 90 in use indicating what measurements are being requested by the PD.

Based on the above, as can be seen in the summary below, in each case only 99 bits are used out of the 192 bits of the PD and PSE measurement fields which doesn't seem very efficient. In addition this results in a set of PD and PSE attributes in the local and remote LLDP MIBs, half of which are not used in each device.

TLT transmitted by PSE:

PD measurements field
00 to 87: Not in use
88 to 90: In use
91 to 95: Not in use
PSE measurements field
00 to 87: In use
88 to 90: in use
91 to 95: In use

TLT transmitted by PD:

PD measurements field
00 to 87: In use
88 to 90: In use
91 to 95: In use
PSE measurements field
00 to 87: Not in use
88 to 90: In use
91 to 95: Not in use

In addition subclause 8.6 'Organizationally Specific TLVs' item b) of IEEE Std 802.1AB-

2016 states that 'Information transmitted in an Organizationally Specific TLV shall be independent from information in a TLV received from a remote port.' so it isn't if request bits 88 to 90 can be supported.

SuggestedRemedy

Suggest that, assuming request bits can be supported:

[1] Figure 79-9 the 'PD measurements' field be renamed the 'Measurements' field and be increased to 13 octets.

[2] Figure 79-9 the 'PSE measurements' field be deleted.

[3] Subclause 79.3.8.1 text be changed to read ' The measured voltage value field carries a measured voltage value at the PI defined in Table 79–7b, the measured current value field carries a measured current value at the PI defined in Table 79–7b and the measured energy value field carries the measured energy consumption value at the PI defined in Table 79–7b.'.

[4] Table 79–7b 'PD measurements' be renamed 'Measurements' and be expanded to define 104 bits as follows:

104 Voltage support
103 Current support
102 Energy support
101:100 Measurement source
94:99 Reserved
93 Voltage measurement valid
92 Voltage request
91 Current measurement valid
90 Current request
89 Energy measurement valid
88 Energy request
87:0 Unchanged.

For bits 104:102 (were bits 95:93) remove 'PD' from description so for example '1 = PD supports voltage measurement' would become 1 = Supports voltage measurement'.

For bit 93 description reads:
1 = Request for voltage measurement
0 = No request for voltage measurement

For bit 92 description reads:
1 = Voltage measurement contains valid data
0 = Voltage measurement disabled

For bit 91 description reads:
1 = Request for current measurement
0 = No request for current measurement

For bit 90 description reads:
1 = Current measurement contains valid data
0 = Current measurement disabled

For bit 89 description reads:
1 = Request for energy measurement
0 = No request for energy measurement

For bit 88 description reads:
1 = Energy measurement contains valid data
0 = Energy measurement disabled

For bits 87:0 no change to the description.

[5] Delete subclause 79.3.8.2 'PSE measurements' including Table 79–7c 'PSE measurements'.

[6] Remove 'PD' from the TLV variable name and attribute names for PD Voltage support, PD Current support, PD Energy support, PD Measurement source, PD Voltage measurement, PD Voltage measurement, PD Current measurement and PD Energy measurement Rows in Table 79–9 and Table 79–10.

[7] Delete the rows for PSE Voltage support, PSE Current support, PSE Energy support, PSE Measurement source, PSE Voltage measurement, PSE Voltage measurement, PSE Current measurement and PSE Energy measurement from Table 79–9 and Table 79–10.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

WFP

TFTD LY
This is much better than what we have now. While we are making significant changes to measurements, propose to add a POWER measurement field in the same style. See yseboodt_04_0117_lldp_power.pdf
Also see #219.

Cl **79** *SC* **79.3.8.1** *P* **244** *L* **25** # 213

Law, David HPE

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

Bits 91 and 92 are defined as the 'Measurement source' bits which 'Determine where the measurement is to be taken.'. It however doesn't seem clear what the setting 'Port total' means in respect to the 'Voltage measurement' supplied in bits 48 to 63. If this is the voltage on each Alternative summed, which seems a bit odd to report, the result will likely be out of the range for these bits as the maximum they support is 65 V.

SuggestedRemedy

Clarify the meaning of 'Port total' for the voltage measurement in 48 to 63 of both Table 79–7b and Table 79–7c.

Proposed Response *Response Status* **W**

TFTD

Cl **79** *SC* **79.4.2** *P* **249** *L* **11** # 219

Law, David HPE

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

Table 79–9 and Table 79–10 as well as the associated MIBs are missing attributes for 'PD measurements' and 'PSE measurements' bits 88:90 which indicate if the power, current and voltage fields contain valid data.

SuggestedRemedy

Suggest that:

[1] In Table 79-9 add the following three rows after the 'PD Energy support' row:

PD Voltage measurement valid aLldpXdot3LocPDVoltageMeasValid
PD Current measurement valid aLldpXdot3LocPDCurrentMeasValid
PD Power measurement valid aLldpXdot3LocPDEnergyMeasValid

[2] In Table 79-9 add the following three rows after the 'PSE Energy support' row:

PSE Voltage measurement valid aLldpXdot3LocPSEVoltageMeasValid
PEE Current measurement valid aLldpXdot3LocPSECurrentMeasValid
PSE Power measurement valid aLldpXdot3LocPSEEnergyMeasValid

[3] In Table 79-10 add the following three rows after the 'PD Energy support' row:

PD Voltage measurement valid aLldpXdot3RemPDVoltageMeasValid
PD Current measurement valid aLldpXdot3RemPDCurrentMeasValid
PD Power measurement valid aLldpXdot3RemPDEnergyMeasValid

[4] In Table 79-10 add the following three rows after the 'PSE Energy support' row:

PSE Voltage measurement valid aLldpXdot3RemPSEVoltageMeasValid
PSE Current measurement valid aLldpXdot3RemPSECurrentMeasValid
PSE Power measurement valid aLldpXdot3RemPSEEnergyMeasValid

[5] In Table 30-7 in LLDP Power via MDI Measurement Local Package (conditional) and subclause 30.12.2.1 'LLDP Local System Group attributes' add the following new attributes after 30.12.2.1.18n aLldpXdot3LocPDMeasEnergySupport:

aLldpXdot3LocPDVoltageMeasValid
aLldpXdot3LocPDCurrentMeasValid
aLldpXdot3LocPDEnergyMeasValid

[6] In Table 30-7 in LLDP Power via MDI Measurement Local Package (conditional) and subclause 30.12.2.1 'LLDP Local System Group attributes' add the following new attributes after 30.12.2.1.18u aLldpXdot3LocPSEMeasEnergySupport:

aLldpXdot3LocPSEVoltageMeasValid
aLldpXdot3LocPSECurrentMeasValid

aLldpXdot3LocPSEEnergyMeasValid

[7] In Table 30-7 in LLDP Power via MDI Measurement Local Package (conditional) and subclause 30.12.3.1 'LLDP Remote System Group attributes' add the following new attributes after 30.12.3.1.18n aLldpXdot3RemPDMeasEnergySupport:

aLldpXdot3RemPDVoltageMeasValid
aLldpXdot3RemPDCurrentMeasValid
aLldpXdot3RemPDEnergyMeasValid

[8] In Table 30-7 in LLDP Power via MDI Measurement Local Package (conditional) and subclause 30.12.3.1 'LLDP Remote System Group attributes' add the following new attributes after 30.12.3.1.18u aLldpXdot3RemPSEMeasEnergySupport:

aLldpXdot3RemPSEVoltageMeasValid
aLldpXdot3RemPSECurrentMeasValid
aLldpXdot3RemPSEEnergyMeasValid

NOTE 1: If the comment to optimise the measurement TLV is accepted the above should be implemented with 'PD' removed from the odd numbered items and the even numbered items not implemented.

NOTE 2: This comment relates to TODO D2.1 #124

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

WFP

ALSO, suggested remedy should be implemented with 'PD' removed from the odd numbered items and the even numbered items not implemented.

TFTD LY
See yseboodt_04_0117_lldp_power.pdf with regard to power measurements.

Cl **33A** *SC* **33A.1** *P* **257** *L* **12** # 108

Darshan, Yair Mirosemi

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

TODO #275 and #276 D2.1
Clarify 33A.1 and 33A.2 per the comments in D2.1.

SuggestedRemedy

See Darshan_04_0117.pdf for proposed remedy.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33A** *SC* **33A.1** *P* **257** *L* **31** # 420

Yseboodt, Lennart Philips

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

Text in 33A.1 uses no less than 3 variants of the SAME variable name.

SuggestedRemedy

Replace "Zser", "Zo_ser" by "Z_ser" in the text on page 257 and Figure 33A-1

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
This comment is marked TFTD and should be OBE to #108 which addresses comment #420 as well

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Cl **33A** *SC* **33A.1** *P* **259** *L* **24** # 421

Yseboodt, Lennart Philips

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

"See Figure 33A-2 for the test setup and Figure 33A-3 for the test requirements."

This is a resubmit of the D2.1 comment, here in case it doesn`t get addressed in January.

Where do I begin ?

These figures have a number of issues.
The biggest one is that they are not used, nor described.
There is no text at all that tells what to do with it.

33A-3, describes "test requirements". But is just a figure.
With an X axis in KHz... but no values anywhere.

SuggestedRemedy

- Remove quoted text and Figures 33A-2 and 33A-3.

Proposed Response *Response Status* **W**

TFTD

WFP

TFTD YD
This comment is marked TFTD and should be OBE to #108 which addresses comment #421 as well

Cl **33A** *SC* **33A.5** *P* **260** *L* **14** # 109

Darshan, Yair Mirosemi

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

The text: "Common mode resistance is the resistance of the two wires in a pair (including connectors), connected in parallel." Doesn't belong here. Delete it.

SuggestedRemedy

Delete: "Common mode resistance is the resistance of the two wires in a pair (including connectors), connected in parallel."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by 110

WFP

TFTD YD
Comment #109 is related to 33A.3 and not 33A.5 as shown in the comment database (typo). As a result it can't be OBE by 110. Comment #109 should be excepted. Comment #110 is a different issue see darshan_01_0117.pdf for details.

Cl **33A** *SC* **33A.5** *P* **260** *L* **38** # 110

Darshan, Yair Mirosemi

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

The text: "Common mode resistance is the resistance of the two wires in a pair (including connectors), connected in parallel." need to be on separate line without ident as it applies for both Rch_max and Rch_min.

SuggestedRemedy

Move the text "Common mode resistance is the resistance of the two wires in a pair (including connectors), connected in parallel." to a separate line below the text "Tch_min is the sum.." without ident.
See darshan_01_0117.pdf for editing markups in 33A.5 part.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33A** *SC* **33A.5** *P* **260** *L* **50** # 111

Darshan, Yair Mirosemi

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

In order that any PSE connected to any PD will meet end to end pair to pair resistance unbalance both PSE and PD needs to meet the following equation:
(1) (U*Rpse_min - Rpse_max) +(U*Rch_min - Rch_max) +(U*Rpair_pd_min - Rpair_pd_max)=0
Where U=(1+E2EP2PRunb)/(1-E2EP2PRunb)
We can see that PSE PI output common mode effective resistance, need to meet the following:
(2) Rpse_max = U*Rpse_min + (U*Rch_min - Rch_max) + (U*Rpair_pd_min - Rpair_pd_max)
Which is actually identical to Equation 33-15 in the spec.
It is clear that PSE must meet this equations in addition to meet Icon-2P_unb due to the following reasons:
a) This is the only solution for the system equation above.
b) PSE has to be designed for the worst case which is defined by equation 33-15 (It need to support all PDs).
c) And when connected to Rload_min and Rload_max (also derived from Equation 1) that represent channel + worst case PD, it needs to meet Icon-2P_unb.
So far, all is good; the above is covered by D2.2.
The question is if the same concept should apply to the PD.
Discussion:
We said already that both PSE and PD must comply with Equation 1 above:
(1) (U*Rpse_min - Rpse_max) +(U*Rch_min - Rch_max) +(U*Rpair_pd_min - Rpair_pd_max)=0
As a result, PD PI input common mode effective resistance need to meet the following:
(3) Rpair_pd_max = U*Rpair_pd_min +(U*Rpse_min - Rpse_max) +(U*Rch_min - Rch_max)
Which is actually identical to Equation 33A-4 in the spec in Annex 33A.5.
Now; we know for sure that if PD meets Equation 33A-4 than system equation is solved and PD meets unbalance requirements including Icon-2P_unb.
Currently it is not clear that measuring only Icon-2P_unb in the PD is sufficient as currently in the spec while meeting Equation 33A-4 is just guidelines and not a must.
In other words, we need to be sure (by mathematical proof) that PD that meets Icon-2P_unb by definition meets Equation 33A-4 (Rpair_PD_min and Rpair_PD_max) when connected to Rsource_min and Rsource_max which is also derived from Equation 1 above. Otherwise, we need to move Equation 33A-4 to 33.3.8.10 that addresses PD pair to pair current unbalance.

SuggestedRemedy

Adopt darshan_05_0117.pdf if ready for the meeting. If not add it to TODO.

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33A** *SC* **33A.5** *P* **261** *L* **1** # 112

Darshan, Yair — Mirosemi

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

TODO #44 D2.2
"Smaller constants α and β in the equation Rpair_PD_max = α × Rpair_PD_min + β ensure that Icon-2P-unb is not exceeded for PD power consumption above the values in Table 33–26."

It will help to the designer to have the equations and constants for class 6 and 8 for extended power as well.

To add to the spec the equations for extended power for class 6 and 8 and modify the above text accordingly.

SuggestedRemedy

Adopt darshan_03_0117.pdf

Proposed Response *Response Status* **W**

TFTD

WFP

Cl **33B** *SC* **33B.1** *P* **264** *L* **8** # 237

Picard, Jean — Texas Instruments

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

Same RPSE_min and RPSE_max terminology is used for both the positive and negative rails, which is misleading since they will in fact be very different from each other.

SuggestedRemedy

Clarify this:
either by a statement saying "note that RPSE_min and RPSE_max for positive rail are not necessarily the same as for negative rail"
Or by using a different identifier for each (positive or negative) rail. For example, RPSEP_min and RPSEM_min.

Proposed Response *Response Status* **W**

TFTD

WFP

Yair, how would you like to address this?

TFTD YD
David, referring to your question I prefer to add the text that Jean has suggested with some modifications (it is simpler):Add after figure 33B-1: "Note that RPSE_min and RPSE_max for positive rail are not necessarily the same values as for negative rail however both need to meet Equation 33-15.". See implementation in darshan_01_0117.pdf.

Cl **33C** *SC* **33C.1.2** *P* **272** *L* **38** # 236

Picard, Jean — Texas Instruments

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

The diagram is incorrect, it should show that both channels do not necessarily turn ON at same time. In fact, if class 0-4, the second channel does not have to turn ON until the end of inrush period.

SuggestedRemedy

Use the diagram of Picard_01_0316.pdf, slide 4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

I think we should just add text to indicate that this is one possible implementation and that depending on the result of class the timing of Power Up can change.

TFTD