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

Beia, Christian STMicroelectronics

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 229.

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

Yseboodt, Lennart Philips

Comment Type **E** *Comment Status* **D** *PSE State Diagram*

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

SuggestedRemedy

Pick 1 name for a state and do not abbreviate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

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

Yseboodt, Lennart Philips

Comment Type **E** *Comment Status* **D** *PSE State Diagram*

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

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

Yseboodt, Lennart Philips

Comment Type **E** *Comment Status* **D** *PD State Diagram*

"A timer used to prevent the Type 2 PD from drawing more than inrush current during the PSE's
inrush period; see T delay in Table 33-18."

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 112.

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

Johnson, Peter Sifos Technologies

Comment Type **T** *Comment Status* **D** *4PID*

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

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

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add "Vendor discretion needs explanation." to endo of editor's note.

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

Walker, Dylan Cisco

Comment Type **ER** *Comment Status* **D** *PSE State Diagram*

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

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Possible OBE by comment # 187

Cl **33** *SC* **33.3.4** *P* **82** *L* **1** # 171

Zimmerman, George CME Consulting

Comment Type **ER** *Comment Status* **D** *4PID*

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

SuggestedRemedy

Remove editor's note.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Based on the number of comments related to 4PID and this text, I suggest we keep the editor's note there for now.

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

Zimmerman, George CME Consulting

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

We need to add it to the state diagram for Types 3 and 4, but adding it to Start_Detection would require you to finish detection and the connection check within tdet.

We need to create a Type 3 and 4 state diagram that considers these issues.

Accepting this comment results in no changes to the text.

See comment # 225.

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

Zimmerman, George CME Consulting

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

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

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **7** # 224

Schindler, Fred — Seen Simply

Comment Type **TR** *Comment Status* **D** *4PID*

This text used may confuse readers as to what this variable accomplishes.

SuggestedRemedy

Strike text, "is used to do physical layer 4PID".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.4.4** *P* **39** *L* **3** # 227

Schindler, Fred — Seen Simply

Comment Type **ER** *Comment Status* **D** *PSE State Diagram*

Table 33-3 column pse_dll_capable may be replaced by text for easier processing by the reader.

SuggestedRemedy

On page 38, line 8 replace text,
"See 33.6 for a description of Data Link Layer functionality and Table 33-3 for the allowed permutations of this variable with PSE Type and class_num_events." With
"See 33.6 for a description of Data Link Layer functionality. Variable pse_dll_capable shall be TRUE for Type 2 PSEs with class_num_events of 1."

Note all occurrences of Table 33-3 were considered when creating this solution. PIC text is not addressed by this comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **48** # 229

Schindler, Fred — Seen Simply

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

Function do_detection appears to be incomplete. Some PSE implementations will power one pairset when a valid detection signature is present. The text should be written with respect to PSE behavior.

SuggestedRemedy

Replace "valid: The PSE has detected a PD requesting power." With
"valid_A: The PSE has detected a valid PD detection signature on ALT A.
valid_B: The PSE has detected a valid PD detection signature on power on ALT B.
Valid_AB: The PSE has detected a valid PD detection signature on power on ALT A and ALT B."

Strike out text,
"both_alts_valid:A Type 3 or Type 4 PSE has detected a PD requesting power on both pair sets."

Text,
"This variable indicates the presence or absence of a PD." Should be replaced by
"This variable indicates the presence or absence of a valid PD detection signature."

…..
Flag this comment with FRS-2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "valid: The PSE has detected a PD requesting power." With:
"valid: The PSE has detected a PD requesting power. Used only by Type 1 and Type 2 PSEs.
valid_A: The PSE has detected a valid PD detection signature on ALT A. Used only by Type 3 and Type 4 PSEs.
valid_B: The PSE has detected a valid PD detection signature on ALT B. Used only by Type 3 and Type 4 PSEs.
valid_AB: The PSE has detected a valid PD detection signature on power on ALT A and ALT B. Used only by Type 3 and Type 4 PSEs."

Strike out text,
"both_alts_valid:A Type 3 or Type 4 PSE has detected a PD requesting power on both pair sets."

Text,
"This variable indicates the presence or absence of a PD." Should be replaced by
"This variable indicates the presence or absence of a valid PD detection signature."

…..
Flag this comment with FRS-2.

Cl **33** *SC* **33.2.4.7** *P* **47** *L* **1** # 232

Schindler, Fred Seen Simply

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

The state diagram provided in Figure 33-9a does not include Type 3 and Type 4 PSE requirements. It is not suppose to include Type 1 and Type 2 requirements. It appears to only show Type 1 and Type 2 requirements.

SuggestedRemedy

Remove the state diagram on pages 47-49 and replace with,
"Editor's Note: The state diagram for Type 3 and Type 4 PSEs needs further study and participants are encouraged to provide presentations to address this need."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add Editor's Note in suggested remedy below Type 3/4 PSE State Diagram.

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **1** # 233

Schindler, Fred Seen Simply

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

The State Diagram provided in Figure 33-9a was created to be easier to follow than the existing approach. The existing approach takes two pages to cover Type 1 and Type 2 PSEs. The new approach takes 5 pages and does not yet cover classification and potentially other necessary requirements.

Other approaches should be considered and the suggested approach should be discussed to converge on a solution for Type 3 and Type 4 PSEs.

SuggestedRemedy

For all past PoE efforts, Task Force meeting time was devoted to discussing and refining state diagrams. I recommend that this approach is also taken during .3bt meetings and that we provide time for others to present alternative approaches to solving this problem.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

No changes to the text result from accepting this comment.

Cl **33** *SC* **33.2.6.1** *P* **58** *L* **11** # 235

Schindler, Fred Seen Simply

Comment Type **TR** *Comment Status* **D** *4PID*

The text,
"The PSE shall provide to the PI VClass with a current limitation of IClass_LIM, as defined in Table 33-10." Need to be updated to support Type 3 and Type 4 classification.

Application of the classification voltage to a pair set with an invalid detection signature may permanently damage a device. For example, Bob Smith termination resistors (0.125W typically). During detection, which is not likely to cause device damage, the PSE may provide 5mA short-circuit current and up to 30V open circuit. This permits up to 37.5 mW to device during detection. Classification permits (20.5V x 0.1A) up to 2.1W to be dissipated in a device. Legacy PSEs detect, classify and power on using the same Alternative (pair set).

New PSE may detect, classify, and power on, on all pair sets of the PI. Therefore, we need to prevent damage to network equipment.

SuggestedRemedy

Modify the sentence as follows,
"The PSE shall provide to a pair set VClass with a current limitation of IClass_LIM, as defined in Table 33-10 only for a pair set with a valid detection signature."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.5.6** *P* **57** *L* **45** # 236

Schindler, Fred Seen Simply

Comment Type **TR** *Comment Status* **D** *PSE Classification*

The text needs to be updated to support Type 3 and Type 4 classification.

SuggestedRemedy

Add to the end of the paragraph on line 45, the sentence,
"Both pair sets of the PI attached to a Dual Signature PDs shall be classified by Type 3 and Type 4 PSEs."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Add to the end of the paragraph on line 45, the sentence,
"Both pair sets attached to a Dual Signature PD shall be classified by Type 3 and Type 4 PSEs."

Cl **33** *SC* **33.2.5.6** *P* **57** *L* **49** # 237

Schindler, Fred — Seen Simply

Comment Type **TR** *Comment Status* **D** *4PID*

Text needs to show that a TBD state diagram may identify single signature or dual signature PDs and how to process them.

Note: This comment is flagged with comment-FRS1 for easy searching.

SuggestedRemedy

After the paragraph ending on line 49, add the new paragraph,

"The connection check, described in 33.2.5.0, and the results of other system information, determine the value of variable pd_4pair_candidate, defined in 33.2.4.4. PSEs shall comply with the TBD state diagram, which determines the power requirements for pair sets predetermined to be connected to a PD capable of accepting power on both pair sets, see 33.2.5.6."

Proposed Response *Response Status* **W**

I don't understand the suggested remedy.

This addition seems reasonable, but the placement is wrong. The suggested remedy is to go in the classification section which is not correct.

In addition, I am unsure about the phrase "which determines the power requirements for pair sets predetermined to be connected to a PD capable of accepting power on both pair sets"

Cl **33** *SC* **33.2.4.4** *P* **34** *L* **40** # 246

Schindler, Fred — Seen Simply

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

New variable both_alts_valid appears to be incomplete. Some PSE implementations will power one pairset when a valid detection signature is present. Note that the legacy standard did not have a variable to indicate a valid PD detection signature.

SuggestedRemedy

This variable should be replaced by do_detection adjustments provided in the comment flagged by FRS-2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 229

Cl **33** *SC* **33.2.0a** *P* **25** *L* **1** # 251

Schindler, Fred — Seen Simply

Comment Type **TR** *Comment Status* **D** *4PID*

New sentence,
"2-Pair operation allowed if PSE is supplying Class 4 power or less."

Is incomplete and should be improved. Legacy PDs may only be powered on all pair sets once they have been identified as being capable of accepting power on all pair sets.

SuggestedRemedy

Replace the sentence with,
"Powering of both pair sets is allowed for Type 1 or 2 PDs when the requirements of section 33.2.5.6 have been met. Type 1 or 2 PDs may be powered using one pair set."

Proposed Response *Response Status* **W**

This goes along with some of the 4PID discussion we need to have.

Cl **33** *SC* **33.2.0a** *P* **25** *L* **1** # 261

Dwelley, David — Linear Technology

Comment Type **ER** *Comment Status* **D** *4PID*

Note 4 doesn't add any information. Class 4 power or less is always 30W or less, which falls into row 4 which allows 2-pair power. If we're trying to ensure that falling back from 4-pair power to 2-pair power is compliant behavior, that's OK - but this note is not the right place for it.

SuggestedRemedy

Remove note 4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This note does address that 2-pair power is compliant if the power is less than 30W. If you would like it removed, please suggest an alternate place to make that clarification.

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **46** # 267

Dwelley, David — Linear Technology

Comment Type **T** *Comment Status* **D** *4PID*

"...and the results of other system information, as described in 33.2.5.0.". There is no "other information" defined in 33.2.5.0.

SuggestedRemedy

Remove "and the results of other system information"

While we're here, replace "&" with "and" in line 45.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Partial OBE by comment # 335 (don't remove text)

Replace "&" with "and" in line 45.

Cl **33** *SC* **33.2.4.4** *P* **37** *L* **4** # 268

Dwelley, David — Linear Technology

Comment Type **T** *Comment Status* **D** *PSE State Diagram*

Add "on at least one pairset" to the end of the "TRUE" value definition

SuggestedRemedy

Add "on at least one pairset" to the end of the "TRUE" value definition

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Also replace all VPort_PSE references to Vport_PSE-2P.

Cl **33** *SC* **33.2.7** *P* **62** *L* **42** # 273

Dwelley, David — Linear Technology

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

Table 33-11: this seems to imply that 45W over a single pairset is OK. This means all 45W PDs must use 45W transformers on each pairset

SuggestedRemedy

Add to Additional Information: "Class 4 and lower only"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This applies to middle row of item # 4 in Table 33-11:

Add to Additional Information: "Class 4 and lower only"

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **50** # 280

Picard, Jean — Texas Instruments

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

We also need to know if the result of do_detection is valid for pair-set A or pair set B or both when 4P systems are used.

SuggestedRemedy

Change from: valid: The PSE has detected a PD requesting power.
To:
valid: For type 1 and Type 2 PSEs: The PSE has detected a PD requesting power.
valid_4P_A: For type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Alternative A pairs.
valid_4P_B: For type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Alternative B pairs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 229.

Cl **33** *SC* **33.2.7** *P* **63** *L* **11** # 295

Picard, Jean — Texas Instruments

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

Table 33-11:
ICUT-2P min needs to be specified.
Should refer to ICON-2P-unb

SuggestedRemedy

Replace TBD with same values used for ICON-2P-unb

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 337.

Cl **33** *SC* **33.2.7** *P* **63** *L* **17** # 296

Picard, Jean Texas Instruments

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

Table 33-11:
Regarding type 3, the ILIM-2P min definition is NOT right, it does not take into account the imbalance.

SuggestedRemedy

Redefine Type 3 ILIM-2P min, using the unbalance factor.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 339.

Cl **33** *SC* **33.2.7** *P* **63** *L* **19** # 297

Picard, Jean Texas Instruments

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

Table 33-11:
ILIM-2P min needs to be defined for type 4

SuggestedRemedy

Define Type 4 ILIM-2P min starting from (1+K) x IPeak-2P, which means around 1.2A.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 337.

Cl **33** *SC* **33.2.4.7** *P* **45** *L* **1** # 312

Picard, Jean Texas Instruments

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

the state diagram does not cover Type 3 and Type 4 PSEs and that a replacement is required before I will review it.

SuggestedRemedy

New Type 3-4 state diagram to be provided.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The PSE State diagram will be left open for comment in the next comment cycle.

See comment # 225.

Accepting this comment results in no changes to the text.

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **6** # 321

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *4PID*

In the following variable:
PD_4pair_candidate
This variable is provided for Type 3 and Type 4 PSEs to determine whether a connection is a candidate to receive power on both pair sets.

the phrase "a connection" is not clear.
The variable PD_4pair_candidateIt is to determine if a class 0-4 PD can recived and work with 4P power.

The text "a connection" can be "a PD" or "a device" or "a PD class 0-4".

SuggestedRemedy

Replace "a connection" with "a PD class 0-4"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Need to see associated state diagram and where/how this variable is used.

See comment # 225.

No changes to the text are required at this time.

Cl **33** *SC* **33.2.4.4** *P* **37** *L* **9** # 324

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

At the system level we need to know if we have over load condition over a pair set, for both pair-sets.
As a result, the variable ovld_detected text need to be updated.

SuggestedRemedy

Change from:
A variable indicating if the PSE output current has been in an overload condition (see 33.2.7.6) for..."

To:
A variable indicating if the PSE output current over a pair-set has been in an overload condition (see 33.2.7.6) for..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.4.6** *P* **41** *L* **50** # 325

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

In the system level we need to know if the result of do_detection is valid for pair-set A or pair set or both when 4P systems are used. Last time we covered the case where both pair sets result with valid signature.
We need also to know if it is valid on ALT A only or valid on ALT B only.

SuggestedRemedy

Change from:
valid: The PSE has detected a PD requesting power.
To:
valid: For Type 1 and Type 2 PSEs: The PSE has detected a PD requesting power.
valid_4P_A: For Type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Mode A
valid_4P_B: For Type 3 and Type 4 PSEs: The PSE has detected a PD requesting power on Mode B.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

OBE by comment # 229.

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **53** # 334

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *PD Inrush*

We don't want to wait 50- 75msec in Type 3 and 4 systems for Iinrush to be ended if not required due to measuring PD voltage/current/time profile by the PSE and knowing that it was ended earlier.
In some large mutiport systems time for all ports to be ON is affected by Tinrush*N. N number of ports and PSE power supply power capability and its response to dynamic load behavior.

SuggestedRemedy

To add Editor Note at the end of 33.3.7.3.
To address the following issues:
1. Shortening Tinrush if PSE has the knowledge that PD is done with its Inrush.
2. Fastening Tinrush by allowing higher Iinrush_max during Tinrush time frame to shorten Tinrush with big PD capacitors.

Proposed Response *Response Status* **W**

hold open for Yair presentation in July.

This is a brand new topic that has a large techinical impact on the standard. Please give a presentation on such material if you would like it to be included in the standard.

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **46** # 335

Darshan, Yair Microsemi

Comment Type **T** *Comment Status* **D** *4PID*

Reference to 33.2.5.0 is placed in the wrong place.
33.2.5.0. is the palce where connection check is metioned bit not for other system information

SuggestedRemedy

Replace:
"...the result of connection check and the results of other system information, as described in 33.2.5.0."

With:
"...the result of connection check as described in 33.2.5.0 and the results of other system information."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.7** *P* **63** *L* **11** # 337

Darshan, Yair Microsemi

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

Table 33-11 item 7, Icut-2P for type 3,4: To replace TBD with expression.
At worst case P2P_Iunb conditions:
Icut_min-2P=Icont-2P_unb=
(Icont-2P_unb_max/Icont-2P_max)*0.5*Pclass/Vport_PSE-2P=
(0.668/0.6)*0.5*Pclass/Vport_PSE-2P=0.556*Pclass/Vport_PSE-2P for Type 3 PSE.

In similar way for Type 4:
Icont-2P_unb=(0.931/0.865)*0.5*Pclass/Vport_PSE-2P=1.076*0.5*Pclass/Vport_PSE-2P.
Icont-2P_unb=0.538*Pclass/Vport_PSE-2P

SuggestedRemedy

1. Split Icut-2P for two lines for Type 3 and Type 4 (see attached darshan_06_0615.pdf for details).
2. Replace TBD with:
Icut-2P_min=0.556*Pclass/Vport_PSE-2P for Type 3 PSE
Icut-2P_min=0.538*Pclass/Vport_PSE-2P for Type 4 PSE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.7** *P* **63** *L* **17** # 339

Darshan, Yair Microsemi

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

Table 33-11 item 9, ILIM-2P for type 3,4: To replace TBD with numbers per the the calculations shown in Darshan_06_0615.pdf.

Short summary:
ILIM-2P_MIN>=Ipeak-2P_max per figure 33-14.

Ipeak_max for Type 3 and 4 can be found by equation 33-4 at worst case conditions of K, Ppeak_PD-2P per equation 33-12 and 33-12a and Table 33-18 item

SuggestedRemedy

See darshan_06_0615.pdf for updated Table 33-11 item 9.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Waiting for Presentation.

Cl **33** *SC* **33.2.7** *P* **64** *L* **38** # 342

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *PSE Detection*

Table 33-11 item 22, Cout.
Cout is correct over a pair-set for type 3 and 4 as well.

SuggestedRemedy

Change parameter name to:
"Output capacitance during detection state over a pair set"
Change PSE Type to 1,2,3,4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **33** *SC* **33.2.7.5** *P* **67** *L* **36** # 346

Darshan, Yair Microsemi

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

It is usefull to allow higher Inrush current than 450mA after TBD time from POWER UP start for the following reasons:
a)Reducing dynamic stress on the MOSFET during POWER UP and
b)Reach faster startup with lower probability for startup oscilations
c) Handle different load behaviour during startup that is time dependent.

SuggestedRemedy

Add the following text after line 36.

The maximum inrush current sourced by the PSE per pair set may exceed the per pair set PSE inrush template in Figure 33–13 only TBD msec after POWER UP has started and shall not excedd ILIM-2P maximum as specified by Table 33-11 item 9.

Proposed Response *Response Status* **W**

Hold open to July.

Yair to present.

Allowing higher current based on time is a brand new topic. Please create a presentation and build consensus for this idea.

Cl **33** *SC* **33.2.7** *P* **64** *L* **12** # 347

Darshan, Yair Microsemi

Comment Type **E** *Comment Status* **D** *PSE MPS*

Table 33-11 item 17, additional information column, line 12
The text: "The pair set with highest current" is not clear since we are looking at two pairs of the same polarity and we care of the pair with the highest current and not the pair-set with the highest current.

SuggestedRemedy

Change to "The pair with highest current"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

All of the specifications are per pair set. Here, we are requiring that the PSE look at the pair set with the highest current, even if the PSE is only looking at one of the pairs.

Cl **33** *SC* **33.2.4.4** *P* **35** *L* **19** # 354

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *4PID*

The maintain_4pair_power signature current text blocks us to implement more reliable 4P-ID mechanisms.

The text says:
"It is initially set to the value of pd_4pair_candidate"

The "is" should be replaced with "may"

SuggestedRemedy

Replace:
"It is initially set to the value of pd_4pair_candidate"

To:
"It may initially set to the value of pd_4pair_candidate"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace:
"It is initially set to the value of pd_4pair_candidate"

To:
"It may initially be set to the value of pd_4pair_candidate"

Cl **33** *SC* **33.3.7.9** *P* **94** *L* **32** # 360

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *Pres: PD Unbalance*

We need to add new subclause 33.3.7.10 after 33.3.7.9 for PD PI Pair to Pair resistance and current unbalance.

In Table 33-11 item 4a, Icont-2P_unb we defined the maximum pair set current with the effect of E2EP2P_Iunb/Runb.
This current is also a limit for the PD due to the fact that it is the same current. As a result, a PD vendor will have to design his PD to not exceed under the test setup conditions specified in the proposed 33.3.7.10.

SuggestedRemedy

1. Add new clause with the following content:
33.3.7.10 PD PI Pair to Pair resistance and current unbalance.
Type 3 and Type 4 PDs shall not exceed Icont-2Punb as specified in Table 33-11 item 4a when tested with the test setup specified in 33.3.7.10.1.
2 Add new clause 33.3.7.10.1: Test setup and test conditions for PD PI pair to pair resistance and current unbalance.
Insert the content of PD PI baseline text proposal in darshan_01_0615.pdf to 33.3.7.10.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Waiting for presentation.

Cl **33** *SC* **33.2.4.4** *P* **36** *L* **11** # 363

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *PSE State Diagram*

The text "... for PSEs that monitor the per pair set voltage output and use that information ...." is not accurate.
It should be (adding the word "only"):
"... for PSEs that monitor only the per pair set voltage output and use that information ...."
It is with sync to lines 13-14 that means the same and use the word "only" as well.

SuggestedRemedy

Repalce The text "... for PSEs that monitor the per pair set voltage output and use that information ...."
with:
"... for PSEs that monitor only the per pair set voltage output and use that information ...."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This is existing text and should not be changed unless we change it for 4P or HP operation.

This could be filed as a maintenance request.

Cl **33** *SC* **33.3.7.3** *P* **90** *L* **90** # 365

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *PD Inrush*

Some of important PD factual behaviour was removed from lines 28-31 that was in IEEE802.3-2012.
The reason why they were removed is relevent to the PSE but not relevant for the PD as it is accurate phisycal behaviour of the PD i.e. Inrush current period ends when Cport is charged to 99% of its final value within a time duration of Tinrush-2P minimum per Table 33-11 etc.

SuggestedRemedy

Modify the text per the following instructions:
--- new text----.
Strike text XXX: (Strike XXX):

Inrush current per pair-set is drawn beginning with the application of input voltage at the pair set compliant with Vport_PD-2P requirements as defined in Table 33-18, and ending --- when Cport is charged to 99% of its final value within a time duration of ---- (strike "before") TInrush-2P minimum per Table 33-11. After TInrush-2P min, the PD shall not exceed its per pair set current threshold corresponding to its class level.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This change was made because a PD may not necessarily be done charging its capactiance by Tinrush-2p min, but it is still required to meet the rest of the text such as "After TInrush-2P min, the PD shall not exceed its per pair set current threshold corresponding to its class level."

In the field, PDs will switch over to their "nominal" current draw once their cap was charged even if it only took 10ms. This note about the cap being charged to 99% was the source of a great deal of confusion.

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **44** # 367

Darshan, Yair Microsemi

Comment Type **TR** *Comment Status* **D** *4PID*

Adressing the text:
"Type 3 and Type 4 PSEs shall determine whether an attached PD with classes 0 to 4 is a candidate to receive power on both pair sets prior to applying 4 pair power"
Does it means that applying 4P power (all pairs at the same time) is the only choice, can I apply 2P check LLDP and then connect the 2nd pair? this is the reliable way to do it but it reads that I cant do it

SuggestedRemedy

Add note after line 47:
Note: Applying 4P power doesn't imply if both pair-set are powered at the same time or one pair set is powered first and later the 2nd pair is powered within the time limit specified in Tble TBD tem TBD."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add Editor's Note after line 47:

"Editor's Note to be removed before publication: Need to define startup timing for both single and dual-signature PDs."

Cl **33** *SC* **33.2.5.6** *P* **54** *L* **45** # 375

Thompson, Geoff GraCaSI S.A.

Comment Type **E** *Comment Status* **D** *4PID*

I have no idea what "initially" means in this sentence.

SuggestedRemedy

Remove the word "initially".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Better langauge is always welcome, but "initially" is a key part of the sentence as 4PID can be changed by other things than those listed as determining the initial value.