Cl **79** *SC* **79.3.8** *P* **98** *L* **16** # r04-1

Ran, Adee Intel Corporation

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

With the addition of clause 145, "Clause 33 and Clause 145 defines" should be "define".

SuggestedRemedy

Change "defines" to "define".

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.8.2** *P* **101** *L* **1** # r04-2

Ran, Adee Intel Corporation

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

The text here says "KPPI is the power price index expressed as a factor (...)"

This is confusing since "power price index" is a different value, defined in the next line. KPPI is computed from that index.

The introductory text in this subclause is:

"The 'PSE power price index' field shall contain an index of the current price of electricity compared to what the PSE considers the nominal electricity price".

My understanding is that KPPI is "the current price of electricity compared to what the PSE considers the nominal electricity price", so it is not an index - it is a relative price.

SuggestedRemedy

In the definition of KPPI, change "is the power price index" to "is the relative power price".

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.8.2** *P* **100** *L* **36** # r04-3

Ran, Adee Intel Corporation

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

"The field is encoded as defined in Equation (79-1)"

This equation defines KPPI as a function of this field. So it can be used to decode the field.

Encoding requires solving the equation (numerically, since there is no analytical solution), but this is not stated.

SuggestedRemedy

As a simple remedy, change "encoded" to "decoded".

Consider adding "this field encodes the approximate value of KPPI based on Equation (79-1). The approximation is implementation dependent".

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* *L* # r04-4

Anslow, Peter Ciena Corporation

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

Comment r03-1 against D3.3 was ACCEPT with Suggested Remedy:
"Change the base_year variable to 201x for all files in the draft."
However, the base_year variable seems to have been set to 2018 for all files in the draft (possibly due to an incorrect implementation of comment r03-2).

SuggestedRemedy

Change the base_year variable to 201x for all files in the draft.

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* *L* # r04-5

Anslow, Peter Ciena Corporation

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

Comment r03-2 against D3.3 was ACCEPT with Suggested Remedy:
"Change the copyright_year variable to 2018 for the table of contents file."
However, the copyright_year variable seems to have been set to 201x for all files in the draft (possibly due to an incorrect implementation of comment r03-1).

SuggestedRemedy

Change the copyright_year variable to 2018 for all files in the draft.

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **11** *L* **41** # r04-6

Anslow, Peter Ciena Corporation

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

The 802.3 chair has updated the frontmatter text in relation to 802.3.1.

SuggestedRemedy

Replace the paragraph with the text from the latest version of the 802.3 template:
"Two companion documents exist, IEEE Std 802.3.1 and IEEE Std 802.3.2. IEEE Std 802.3.1 describes Ethernet management information base (MIB) modules for use with the Simple Network Management Protocol (SNMP). IEEE Std 802.3.2 describes YANG data models for Ethernet. IEEE Std 802.3.1 and IEEE Std 802.3.2 are updated to add management capability for enhancements to IEEE Std 802.3 after approval of those enhancements."

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.453a** *P* **25** *L* **4** # r04-7

Anslow, Peter Ciena Corporation

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

The text of the draft in 1.4.488 through 1.4.491 has been modified to change:
"(see IEEE 802.3, Clause 33)." to:
"(See IEEE 802.3, Clause 33)." (capital S for See)
but 1.4.453a is inconsistent with this change..

SuggestedRemedy

Change:
"(see IEEE 802.3, Clause 145)." to:
"(See IEEE 802.3, Clause 145)." (capital S for See)

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.x** *P* **25** *L* **40** # r04-8

Anslow, Peter Ciena Corporation

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

In "Remove the definitions for ..." Remove is not a valid editing instruction.

SuggestedRemedy

Change "Remove the definitions for ..." to "Delete the definitions for ..."

Proposed Response *Response Status* **O**

Cl **14** *SC* **14.3.1.1** *P* **27** *L* **9** # r04-9

Anslow, Peter Ciena Corporation

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

Comment r03-6 against D3.3 was ACCEPT with Suggested Remedy:
"Move the editing instruction to be after the heading for 14.3.1.1 and change it to: "Change the first paragraph of 14.3.1.1 as follows:""
However, the editing instruction has not been moved.

SuggestedRemedy

Move the editing instruction to be after the heading for 14.3.1.1

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.9.1.1.2** *P* **38** *L* **22** # r04-10

Anslow, Peter Ciena Corporation

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

Comment r01-1 against the revision project D3.1 has changed the base text in 30.9.1.1.2. See:
http://www.ieee802.org/3/cj/comments/P8023-D3p1-Comments-Final-byID-r1.pdf

"enabled." has been changed to "enabled". {the "." has been moved to be after the closing quotes).
Similarly, in 30.9.1.1.4 (page 38, line 54) "true." has been changed to "true".

SuggestedRemedy

In 30.9.1.1.2 change: "enabled." to: "enabled".
In 30.9.1.1.4 change: "true." to "true". (in strikethrough font)

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.9.1.1.5** *P* **39** *L* **38** # r04-11

Anslow, Peter Ciena Corporation

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

In the note at the end of 30.9.1.1.5, "overcurrent" has been changed to "over-current". However, this text is part of the base standard, so this change should be done by showing "overcurrent" in strikethrough font and "over-current" in underline font.

SuggestedRemedy

Show "over-current" in underline font and add "overcurrent" in strikethrough font next to it.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.3** *P* **73** *L* **1** # r04-12

Anslow, Peter — Ciena Corporation

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

Comment r03-8 against D3.3 was ACCEPT IN PRINCIPLE with Response including:
"Change the insert editing instruction to:
Insert Table 33-19a between the first and second paragraphs of 33.4.3."
Consequently, "paragraph" should be "paragraphs".

SuggestedRemedy

Change "paragraph" to "paragraphs".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.8.3.4** *P* **81** *L* **25** # r04-13

Anslow, Peter — Ciena Corporation

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

The editing instruction says "Change EL13 through EL15 in 33.8.3.4 as follows:" but the changes include the insertion of EL17a and EL17b

SuggestedRemedy

Change the editing instruction to "Change EL13 through EL15 and insert EL17a and EL17b in 33.8.3.4 as follows:"
Remove the underlining from EL17a and EL17b as these are associated with an Insert editing instruction.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.8.3.4** *P* **82** *L* **7** # r04-14

Anslow, Peter — Ciena Corporation

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

The other subclause entries in the table in 33.8.3.4 do not have a "." at the end.

SuggestedRemedy

Remove the "." after "33.4.6" in the rows for EL17a and EL17b

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.6c.2** *P* **94** *L* **19** # r04-15

Anslow, Peter — Ciena Corporation

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

In "according to it's signature configuration", "it's" should be "its" (no apostrophe for possessive).

SuggestedRemedy

Change "it's" to "its".

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.8** *P* **98** *L* **16** # r04-16

Anslow, Peter — Ciena Corporation

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

"Clause 33 and Clause 145 defines two ..." should be "Clause 33 and Clause 145 define two ..."

SuggestedRemedy

Change "defines" to "define".

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.5.3** *P* **105** *L* **19** # r04-17

Anslow, Peter — Ciena Corporation

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

*PT34 is the same as *PT12

SuggestedRemedy

In the *PT34 row, change the "Feature" entry from "Device is a Type 1 or Type 2 PSE or PD" to "Device is a Type 3 or Type 4 PSE or PD"

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.5.3** *P* **105** *L* **30** # r04-18

Anslow, Peter — Ciena Corporation

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

The row for "*AE" in the base standard is missing.

SuggestedRemedy

Add the row for "*AE" to the table.

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.5.3** *P* **105** *L* **36** # r04-19

Anslow, Peter — Ciena Corporation

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

The items at the foot of page 105 (Heading for 79.5.3, editing instruction and section of table) are repeating the insertion of a row for "PM that is already being done as part of the "Change" above.

SuggestedRemedy

Remove the heading, editing instruction and table section from the foot of page 105.

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.5.8** *P* **107** *L* **38** # r04-20

Anslow, Peter — Ciena Corporation

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

Incorrect font size for some of the text in the Value/Comment column

SuggestedRemedy

Use the correct font size in the Value comment entry for:
PVT26 "145.2.4"
PVT29 "145.3.6) for Mode A"
PVT31 "145.2.8) for Mode A"
PVT33 "145.3.6) for Mode B"
PVT35 "145.2.8) for Mode B"
PVT36 "145.3.6)"
PVT38 "145.2.8)"

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.2** *P* **187** *L* **44** # r04-21

Anslow, Peter — Ciena Corporation

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

"145.3.8.9" on line 44 should be a cross-reference. (The instance of "145.3.8.9" on the next line is already a cross-reference)

SuggestedRemedy

Make "145.3.8.9" a cross-reference.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **165** *L* **19** # r04-22

Jones, Chad — Cisco Systems, Inc.

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

sentence missing a verb or has extra words that make it need a verb. "When the PSE assigned Class 5 through 8 prior to a fault and then transitions to PRIMARY_SEMI_PWRON or SECONDARY_SEMI_PWRON, it reverts the allocation of power to PClass per the assigned Class with a maximum value of Class 4 and asserts local_system_change to update PSEAllocatedPowerValue."

SuggestedRemedy

two options:
one:delete 'and then' - "When the PSE assigned Class 5 through 8 prior to a fault transitions to PRIMARY_SEMI_PWRON or SECONDARY_SEMI_PWRON, it reverts the allocation of power to PClass per the assigned Class with a maximum value of Class 4 and asserts local_system_change to update PSEAllocatedPowerValue."
two: add 'is' - "When the PSE is assigned Class 5 through 8 prior to a fault and then transitions to PRIMARY_SEMI_PWRON or SECONDARY_SEMI_PWRON, it reverts the allocation of power to PClass per the assigned Class with a maximum value of Class 4 and asserts local_system_change to update PSEAllocatedPowerValue."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10.5** *P* **176** *L* **28** # r04-23

Stewart, Heath — Analog Devices Inc.

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

It is unclear how to parse the sub-bullets. Are they being used as an AND or an OR? Propose to add clarity.

When powering a single-signature PD over 4 pairs, a PSE supports:
- A total current of ICon, defined in Equation (145-9), over both pairs with the same polarity;
- A minimum current of ICon-2P-unb on both the positive pair and the negative pair with the highest current to account for pair-to-pair unbalance.

SuggestedRemedy

Change:
When powering a single-signature PD over 4 pairs, a PSE supports:
- A total current of ICon, defined in Equation (145-9), over both pairs with the same polarity;
- A minimum current of ICon-2P-unb on both the positive pair and the negative pair with the highest current to account for pair-to-pair unbalance.
To:
When powering a PD over 4 pairs, a PSE provides at least:
- A total current of Icon, defined in Equation (145-9), over both pairs of the same polarity, and,
- A current of Icon-2p-unb on both the positive pair and the negative pair with the highest current to account for pair-to-pair unbalance.
A PSE may remove power when either of these conditions is not met, as shown in Figure 145-23 and Figure 145-24.

Proposed Response *Response Status* **O**

Cl **79** *SC* **79.3.2.6e** *P* **96** *L* **33** # r04-24

Yseboodt, Lennart — Philips Lighting

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

OOS

"The PSE shall set the value of this field taking available power budget and hardware capabilities into account."

Untestable and not needed for a field that offers 'advice'.

SuggestedRemedy

Change to:
"The PSE sets the value of this field taking available power budget and hardware capabilities into account."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.1** *P* **113** *L* **9** # r04-25

Yseboodt, Lennart — Philips Lighting

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

OOS

"This clause defines the functional and electrical characteristics of an enhanced Power over Ethernet (PoE) system. The original PoE system is defined in Clause 33. _This_ clause includes the capability to provide power over 4 pairs while maintaining compatibility with equipment designed in accordance with Clause 33."

The highlighted 'this' could be read to refer to Clause 33.

SuggestedRemedy

Change last sentence to:
"Clause 145 includes the capability to provide power over 4 pairs while maintaining compatibility with equipment designed in accordance with Clause 33."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.1.3** *P* **116** *L* **12** # r04-26

Yseboodt, Lennart — Philips Lighting

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

OOS

"This clause uses "pairset DC loop resistance," which refers to two pairs in series." "Therefore, RCh is related to, but not equivalent to, the "DC loop resistance" called out in the cable references."

In the first sentence we have to define RCh because it is not yet defined.
And move comma out of quotation mark.

SuggestedRemedy

Change first sentence to:
"This clause uses "pairset DC loop resistance" (RCh), which refers to two pairs in series."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.2** *P* **118** *L* **51** # r04-27

Yseboodt, Lennart Philips Lighting

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

OOS

802.3bt Draft 3.4 "The requirements of this document shall apply equally to Endpoint and Midspan PSEs unless the requirement contains an explicit statement that it applies to only one implementation."
802.3af-2003 "The requirements of this document shall apply equally to Endpoint and Midspan PSEs unless the requirement contains an explicit statement that it applies to only one implementation."

Untestable at the PI and untestable even with access to design specific information due to not being specific.
All of our PSE requirements refer to "Type 3 and Type 4 PSEs", which includes both Mid and End spans.

While this statement is certainly valid, it is redundant and untestable.

SuggestedRemedy

Strike sentence and remove corresponding PICS.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.5.7** *P* **158** *L* **18** # r04-28

Yseboodt, Lennart Philips Lighting

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

OOS

The tinrush_timer_sec is not started in POWER_UP_SEC.

SuggestedRemedy

Add "start tinrush_timer_sec" for POWER_UP_SEC in Figure 145-16

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **164** *L* **25** # r04-29

Yseboodt, Lennart Philips Lighting

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

Accepted comment r02-37 against D3.2 was not implemented.

SuggestedRemedy

Change:
"The minimum power output a PSE supports when powering a single-signature PD, or supplying power in 2- pair mode, is defined by Equation (145-2)."

Change to:
"The minimum output power a PSE supports when powering a single-signature PD, or supplying power in 2-pair mode, is defined by Equation (145-2)."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **164** *L* **27** # r04-30

Yseboodt, Lennart Philips Lighting

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

"PSE implementations may use VPSE=VPort_PSE-2Pmin and RChan=RCh when the assigned Class is 1 through 4, or RChan=RCh/2 when the assigned Class is 5 through 8 to arrive at over-margined values as shown in Table 145-11."

For assigned Class 1 through 4 the calculation uses RChan-2P instead of Rchan.

SuggestedRemedy

Change to:
"PSE implementations may use VPSE=VPort_PSE-2Pmin and RChan-2P=RCh when the assigned Class is 1 through 4, or RChan=RCh/2 when the assigned Class is 5 through 8 to arrive at over-margined values as shown in Table 145-11."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **164** *L* **28** # r04-31

Yseboodt, Lennart Philips Lighting

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

OOS

"P Class may subsequently be adjusted using Data Link Layer classification."

... or Autoclass

SuggestedRemedy

"P Class may subsequently be adjusted using Data Link Layer classification or Autoclass."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **164** *L* **50** # r04-32

Yseboodt, Lennart Philips Lighting

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

"PSE implementations may use VPSE = VPort_PSE-2P min and RChan = RCh to arrive at over-margined values as shown in Table 145-11."
In equation 145-3 (for dual-sig) Rchan-2P is used and not RChan.

SuggestedRemedy

Change to:
"PSE implementations may use VPSE = VPort_PSE-2P min and RChan-2P = RCh to arrive at over-margined values as shown in Table 145-11."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **167** *L* **6** # r04-33

Yseboodt, Lennart Philips Lighting

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

In Header of Table 145-12 is written "Assigned Class on Mode X".
The is about the PSE so should be Alt and not Mode.

SuggestedRemedy

Change Header of Table 145-12 to "Assigned Class on Alternative X".

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8** *P* **167** *L* **32** # r04-34

Yseboodt, Lennart Philips Lighting

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

"A PSE shall return to IDLE corresponding to the appropriate Alternative if it successfully completes detection on a pairset of a dual-signature PD but fails to complete classification on that pairset."

For dual signature the statediagram returns to IDLE_PRI or IDLE_SEC.

SuggestedRemedy

Change to:
"A PSE shall return to IDLE_PRI or IDLE_SEC corresponding to the appropriate Alternative if it successfully completes detection on a pairset of a dual-signature PD but fails to complete classification on that pairset."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8.1** *P* **167** *L* **42** # r04-35

Yseboodt, Lennart Philips Lighting

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

OOS

"Classification times, Tpdc, TLCE, TCEV, TME1, TME2, TClass, and TReset are specified in Table 145-14."

Tpdc no longer exists.

SuggestedRemedy

Remove timing Tpdc from list.
"Classification times, TLCE, TCEV, TME1, TME2, TClass, and TReset are specified in Table 145-14."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.8.1** *P* **169** *L* **4** # r04-36

Yseboodt, Lennart — Philips Lighting

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

"The timing specification for PSEs in DO_CLASS_PROBE may be reduced to TCEV for all class events."
Are dual signature states not allowed to reduce to TCEV?

SuggestedRemedy

Change to:
"The timing specification for PSEs in a DO_CLASS_PROBE state may be reduced to TCEV for all class events."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10** *P* **171** *L* **39** # r04-37

Yseboodt, Lennart — Philips Lighting

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

OOS

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

V Port_PSE_diff is maximum 10mV.

This requirement only holds at a no load condition and was introduced to control current unbalance. However, at no load, there is no unbalance issue. And we have a pretty tight test for current unbalance. I would assert that if a PSE can meet the PSE unbalance test, VPort_PSE_diff does not do anything.

It's a meaningless parameter that is tricky to measure.

SuggestedRemedy

- Remove item 2 (VPort_PSE_diff) from Table 145-16
- Remove subclause 145.2.10.2
- Strike sentence on page 178 line 4:
" Effective resistances of R PSE_min and R PSE_max include the effects of V Port_PSE_diff as defined in Table 145-16 and the PSE PI resistive elements."
- Change on page 218, line 28:
"R source_min and R source_max represent the V source source common mode effective resistance that consists of the PSE PI components (R PSE_min and R PSE_max as defined in 145.2.10.5.1, V Port_PSE_diff as defined in Table 145-16, the link section resistance, and influence of R PD_min and R PD_max as function of system end-to-end unbalance)."
to read (note the parens have moves also):
"R source_min and R source_max represent the V source source common mode effective resistance that consists of the PSE PI components (R PSE_min and R PSE_max as defined in 145.2.10.5.1), the link section resistance, and influence of R PD_min and R PD_max as function of system end-to-end unbalance)."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10** *P* **174** *L* **20** # r04-38

Yseboodt, Lennart — Philips Lighting

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

OOS

Item 23 in Table 145-16 (Cout) is defined as "Output capacitance during detection state over a pairset". This is untestable as there is no deterministic way to know when the PSE is IN the detection state. Furthermore any kind of measurement would be frustrated by the changing detection voltages.

Will someone think of the test engineers for once!?

Also, p161.5 says "Output capacitance shall be as defined in Table 145-16."
Which would force the output capacitance to be limited in ALL states.

Why is Cout even in Table 145-16 if it only applies during detection ?

SuggestedRemedy

- Delete Cout from Table 145-16
- Add new item to Table 145-7:

Item 6, 'Pairset output capacitance', Cout, nF, min ---, max 520

Change quoted sentence to read:
"Output capacitance shall be as defined in Table 145-16, when VPSE is in the range of 0V to Vvalid max."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10.1** *P* **175** *L* **3** # r04-39

Yseboodt, Lennart — Philips Lighting

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

OOS

"The specification for V Port_PSE-2P in Table 145-16 shall be met with a load step of (I Hold max x V Port_PSE-2P min) to the maximum power per the PSE's assigned Class at a rate of change of at least 15 mA/ms."

We seem to have a difficult relation with minimums and maximums.
Per this requirement, VPort_PSE-2P needs to be met at any change greater than 15mA/uS up to instanteneous current changes.
Anything changing slower... is excluded from this shall ? But is picked up by the VPort_PSE-2P item in Table 145-16... ?

Assumption: this 802.3at era text probably wanted to have the shall no longer apply at rate of change faster than 15mA/us...
Remedy written under this assumption.

SuggestedRemedy

"The specification for V Port_PSE-2P in Table 145-16 shall be met with a load step of (I Hold max x V Port_PSE-2P min) to the maximum power per the PSE's assigned Class at a rate of change of up to 15 mA/ms."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10.6** *P* **180** *L* **31** # r04-40

Yseboodt, Lennart — Philips Lighting

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

OOS

"A PSE that provides current on both pairsets during POWER_UP shall complete power up within T Inrush max, starting when the first pairset exceeds a voltage of 30 V."

I don't think this applies when connected to a dual-signature PD.

SuggestedRemedy

"A PSE, connected to a single-signature PD, that provides current on both pairsets during POWER_UP shall complete power up within T Inrush max, starting when the first pairset exceeds a voltage of 30 V."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10.6** *P* **180** *L* **35** # r04-41

Yseboodt, Lennart — Philips Lighting

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

OOS

"PSEs that have assigned Class 5 or Class 6 to a single-signature PD transition to 4-pair mode by T Inrush ."

The intent here is to say that they need to have completed inrush, and operate in 4-pair, in POWER_ON, within Tinrush of the first pairset switching to INRUSH.

We already have:
- "A PSE that has assigned Class 5 to 8 to a single-signature PD shall apply power to both pairsets while in POWER_ON." (p175.11)
- "A PSE that provides current on both pairsets during POWER_UP shall complete power up within T Inrush max, starting when the first pairset exceeds a voltage of 30 V." (p180.31)

Do we need the quoted requirement ? I think it is covered by the other two.

SuggestedRemedy

Strike:
"PSEs that have assigned Class 5 or Class 6 to a single-signature PD transition to 4-pair mode by T Inrush ."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.10.8** *P* **183** *L* **26** # r04-42

Yseboodt, Lennart Philips Lighting

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

p181.33 "A PSE may remove power from the PI if the current on any pair meets or exceeds the "PSE lowerbound template" in Figure 145-23 or Figure 145-24."

p183.26 "The PSE shall limit the pairset current to I LIM-2P for a duration of at least T LIM."

p184.1 "If a short circuit condition is detected on a pairset, power removal from that pairset shall begin within T LIM as defined in Table 145-16."

p184.5 "A PSE in a power on state may remove power from that pairset without regard to T LIM when the pairset voltage no longer meets the V Port_PSE-2P specification."

These statements are in conflict, both in intent and in precise wording.

SuggestedRemedy

Adopt yseboodt_02_0518_ilimtlim.pdf

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.3.4.2** *P* **196** *L* **51** # r04-43

Yseboodt, Lennart Philips Lighting

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

OOS

The dual-signature state diagram makes use of mdi_power_required_mode(X), which can be set separate for both Modes. This would, for instance, allow a dual-signature PD to not show a valid detection signature when powered over 2-pair.
This breaks a number of other requirements, but is permitted by the state diagram.

SuggestedRemedy

- Change the variable mdi_power_required_mode(X) to be the same as the single-signature variable mdi_power_required
- Replace mdi_power_required_mode(X) by mdi_power_required_mode in the state diagram

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.4** *P* **202** *L* **27** # r04-44

Yseboodt, Lennart Philips Lighting

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

OOS

Table 145-21 indicates that a PD must show a valid Rdetect between 2.7V and 10.1V.
The state diagram however, forces the PD into IDLE if the PI voltage is less than 2.81V. In IDLE present_det_sig=either.

This is in conflict for the range 2.7 to 2.81 volt.
Note that the same gap exists in Clause 33.

SuggestedRemedy

The solution is to slice off 100mV of the PSEs detection range, and change the PD descriptive text to match with the state diagram.

- page 202, Table 145-21, change Conditions "2.7V to 10.1V" to read "2.81V to 10.1V" (3x)
- page 203, Figure 145-28, change 2.7 into 2.81
- page 203, line 24, change "3.7V" into "3.81V"
- page 161, Table 145-7, change VValid range to be from 2.9 to 10V

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.6** *P* **203** *L* **47** # r04-45

Yseboodt, Lennart — Philips Lighting

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

OOS

"The PD shall draw no more power across all input voltages than defined for the requested Class in Table 145-26 and Table 145-27."

This is a needlessly hard to meet requirement.
PDs that operate close to PClass_PD, but are exposed to voltage lower than VPort_PD-2P MIN, and behave as a constant-power device, would need to guard power consumption between Voff_PD and VPort_PD-2P MIN.
This requirement should only apply when the PD is exposed to a valid powering voltage.

SuggestedRemedy

"The PD shall draw no more power across any voltage in the range of VPort_PD-2P than defined for the requested Class in Table 145-26 and Table 145-27."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.6.1** *P* **205** *L* **15** # r04-46

Yseboodt, Lennart — Philips Lighting

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

OOS

"A single-signature PD shall identify the PSEs assigned Class, as defined in Table 145-11."

This seems like an early attempt at stating that the PD must honor power demotion.
This "requirement" is redundant both to the state diagram, and this one:
"The PD shall conform to the assigned Class, regardless of its requested Class."

Finally, as stated, it completely untestable and meaningless.

SuggestedRemedy

Strike sentence.

Also strike "A dual-signature PD shall identify the PSEs assigned Class, as defined in Table 145-11."
On line 19.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.8.8** *P* **216** *L* **37** # r04-47

Yseboodt, Lennart — Philips Lighting

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

"When any voltage in the range of 0 V to V Port_PD-2P max is applied across the PI at either polarity specified on the conductors of either Mode A or Mode B according to Table 145-20, the voltage measured across the PI for the other Mode with a 100 kOhm load resistor connected across that other Mode shall not exceed V bfd as defined in Table 145-29."

We need to clarify the backfeed spec.

SuggestedRemedy

Adopt yseboodt_01_0518_backfeed.pdf

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.8.9** *P* **218** *L* **32** # r04-48

Yseboodt, Lennart — Philips Lighting

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

OOS

"IA and IB are the pair currents of pairs with the same polarity."
These parameters are used nowhere. This sentence is a remnant from earlier text.

SuggestedRemedy

Remove sentence.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.9** *P* **219** *L* **46** # r04-49

Yseboodt, Lennart — Philips Lighting

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

"A PD shall meet the TMPS_PD and TMPDO_PD requirements with any series resistance in the range of RChan max between the PD PI and the source."

Rchan max is not a range but a value.

SuggestedRemedy

Change to:
"A PD shall meet the TMPS_PD and TMPDO_PD requirements with any series resistance up to RChan max between the PD PI and the source."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.5.1** *P* **234** *L* **26** # r04-50

Yseboodt, Lennart — Philips Lighting

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

OOS

"Implementations that support Data Link Layer classification shall comply with all mandatory parts of IEEE Std 802.1AB-2016; shall support the Power via MDI Type, Length, Value (TLV) defined in 79.3.2 and may support the Power via MDI Measurements TLV defined in 79.3.8; and shall support the control state diagrams defined in 145.5.3."

The final shall is redundant and wrong. Depending on the kind of device (PSE, SSPD, or DSPS), different state diagrams must supported.
The correct shall statements are in 145.5.3.

SuggestedRemedy

Replace by:
"Implementations that support Data Link Layer classification shall comply with all mandatory parts of IEEE Std 802.1AB-2016; shall support the Power via MDI Type, Length, Value (TLV) defined in 79.3.2 and may support the Power via MDI Measurements TLV defined in 79.3.8."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.5.3.3.1** *P* **245** *L* **42** # r04-51

Yseboodt, Lennart Philips Lighting

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

There are mistakes in the "valid values" for the DLL variable lists.

SuggestedRemedy

Change as follows:
// (PSE section)
- p236.12 MirroredPDRequestedPowerValue: 0 through 999, and 0xACAC
- p236.23 MirroredPSEAlloctedPowerValueEcho: 0 through 999, and 0xACAC
- p236.33 PDRequestedPowerValueEcho: 0 through 999, and 0xACAC
- p236.45 PSEAllocatedPowerValue: 0 through 999, and 0xACAC
- p237.16 TempVar: 0 through 999, and 0xACAC

// (single-sig PD section)
- p245.5 MirroredPDRequestedPowerValueEcho: 1 though 999, and 0xACAC
- p245.42 PDRequestedPowerValue: 1 through pd_dllmax_value, and 0xACAC
- p245.49 PDRequestedPowerValue_mode(X): 0
- p246.39 PSEAllocatedPowerValueEcho: 1 through 999, and 0xACAC
- p246.44 PSEAllocatedPowerValueEcho_mode(X): 0

// (dual-sig PD section)
- p251.23 MirroredPSEAlloctedPowerValue: 0 through 999
- p251.30 DELETE PDMaxPowerValue
- p251.39 PDMaxPowerValue_mode(X): 1 through 499
- p251.45 PDRequestedPowerValue: 0 through pd_dllmax_value_mode(P)

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.5.3.4.5** *P* **256** *L* **21** # r04-52

Yseboodt, Lennart Philips Lighting

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

OOS
The last line of the arc from RUNNING to PD_POWER_REALLOCATION2 in Figure 145-45 is:
"... * (PDMaxPowerValue < PDRequestedPowerValue)"

PDMaxPowerValue does not exists in this state diagram

SuggestedRemedy

Change to: "... * (PDMaxPowerValue_mode(P) < PDRequestedPowerValue)"

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.5.6.1** *P* **259** *L* **52** # r04-53

Yseboodt, Lennart Philips Lighting

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

OOS

"Per Table 145-42 this is the requested power for the active Mode."
What is active mode? This is not defined.

SuggestedRemedy

Change to:
"Per Table 145-42 this is the requested power for the powered Mode."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.6.5** *P* **262** *L* **9** # r04-54

Yseboodt, Lennart — Philips Lighting

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

OOS

"The PD and PSE powered cabling link shall comply with applicable local and national codes for the limitation of electromagnetic interference."

This requirement applies to the CABLE connecting the PSE and the PD and links to 'applicable codes' that are not in our purview.

Out of scope for our document and provides no value.

SuggestedRemedy

Delete 145.6.5.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.8.9** *P* **219** *L* **46** # r04-55

Stover, David — Analog Devices Inc.

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

"A PD shall meet the TMPS_PD and TMPDO_PD requirements with any series resistance in the range of RChan max between the PD PI and the source." RChan max is not a range.

SuggestedRemedy

Change "in the range of RChan max" to "in the range of 0 ohm to RChan max"

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.6.2** *P* **161** *L* **40** # r04-56

Peker, Arkadiy — Microsemi Corporation

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

A requirements related to current need to be met at the negative pairs as we did in D3.3 for other parameters. Equation 145-1 is using currents to calculate the resistance during detection. I1 and I2 need to be the currents on the negative pairs.

SuggestedRemedy

In the where list change from:
"I1 and I2 are the first and second current measurements made of the pairset current, respectively"
To:
"I1 and I2 are the first and second current measurements made of the pairset current, respectively. I1 and I2 are measured on the negative pair."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.3.3.5** *P* **195** *L* **28** # r04-57

Lemahieu, Joris — ON Semiconductor

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

When the PSE has allocated the PD Class 7 or Class 8 power, it should not be an issue if the PD would already draw Class 4 power in the POWER_DELAY state.
The PD can actually use Class 3 power (13W) over each 2-pair, hence Class 4 power (25.5W) in total should be possible.

Nothing needs to be changed in the dual-signature state machine.

SuggestedRemedy

Replace
pd_max_power <= min(3, pd_req_class)
with
IF (pse_power_level = 8) THEN
pd_max_power <= min(4, pd_req_class)
ELSE
pd_max_power <= min(3, pd_req_class)
END

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.8.3** *P* **212** *L* **49** # r04-58

Lemahieu, Joris ON Semiconductor

Comment Type **G** *Comment Status* **X**

Single reference to Tdelay-2P.

SuggestedRemedy

Replace
Tdelay-2P
by
TInrush_PD
or by
TInrush_PD max

If TInrush_PD max is chosen, then it seems like there is no longer a configurable TInrush_PD. Only TInrush_PD max is used. Then the emdash for TInrush_PD Min in Table 145-29 on page 209 could be replaced by 50 for clarity.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.3.3.5** *P* **195** *L* **38** # r04-59

Lemahieu, Joris ON Semiconductor

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

A PD can trick a PSE that implements a minimum IInrush below 400mA (only 60 mA required) when VPSE is between 10 V and 30 V. If the PD requests Class 8 power and then makes the Vpse voltage collapse below the Vmark threshold (with the lower than 400mA current limit at Vmark), according to the state machine it is allowed to use Class 8 power.

SuggestedRemedy

Remove the NOPOWER_INRUSH state.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.3.4.1** *P* **161** *L* **42** # r04-60

Darshan, Yair

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

In the text "VOff_PD_min The minimum PD off voltage VOff_PD min (see Table 145-25)", Voff_Pdmin is not in Table 145-25. It is in Table 145-29.

SuggestedRemedy

Change link from Table 145-25 to Table 145-29

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.4.1** *P* **221** *L* **37** # r04-61

Darshan, Yair

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

As a result of darshan_01_0518.pdf which shows that higher backfeed voltage may increase cross pairs/port leakage current and increase PSE susceptibility to detection pollution, it is recommended to add link to the backfeed requirement in the text: "In a multiport system, the implementer should maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents."

SuggestedRemedy

Change from: "In a multiport system, the implementer should maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents."
To: "In a multiport system, the implementer should maintain DC isolation through the termination circuitry to eliminate cross-port leakage currents. See 145.3.8.8.

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.2.6.2** *P* **161** *L* **40** # r04-62

Darshan, Yair

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

We agree that whenever we need to meet requirements related to current , it should be done at the negative pairs as we did in D3.3 for Iclass, Iinrush and Iport. We missed to do it for the detection. Equation 145-1 is using currents to calculate the resistance during detection. I1 and I2 need to be the currents on the negative pairs as well.

SuggestedRemedy

In the where list change from:
"I1 and I2 are the first and second current measurements made of the pairset current, respectively"
To:
"I1 and I2 are the first and second current measurements made of the pairset current, respectively. I1 and I2 are measured on the negative pair."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.8.8** *P* **216** *L* **37** # r04-63

Darshan, Yair

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

This comment is marked BACKFEED-DUAL.
The current text requring to meet backfeed should cover both single-signature and dual-signature PDs (and it looks like that it does) however dual-signature PD must meet backfeed in any operation modes; 2-pair, 3-pair or 4-pair otherwise the PD will show invalid-signature on the unpowered mode and/or PSE will fail to detect valid signature due to higher offset voltage.

SuggestedRemedy

1. Add after line 40 dedicated backfeed requirement for dual-signature (the first paragraph will be reserved for single-signature PD 3-pair discussion if it is going to be changed):
"When any voltage in the range of 0 V to VPort_PD-2P max is applied across the PI at either polarity specified on the conductors of either Mode A or Mode B according to Table 145-20 for any valid 2-pair or 4-pair configuration, the voltage measured across the PI for the other Mode with a 100 kohm load resistor connected across that other Mode shall not exceed Vbfd as defined in Table 145-29."

Proposed Response *Response Status* **O**

Cl **145** *SC* **145.3.8.8** *P* **216** *L* **40** # r04-64

Darshan, Yair

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

The issue is:
Failing to meet Backfeed voltage in D3.4 when 4-pair PSE is connected to single-signature PD equipped with a specific implementation of ideal-diode bridge that doesn't work correctly in a 3-pair mode which result in maximum PD input voltage backfeed to the unpowered PSE alternative. This ideal diode bridge doesn't behave as expected from diode based bridges that do not have this problem.
The above behavior is a violation of two important principles we have so far:
a) Clause 145.3.2 Page 188 Line 3: "The PD shall not source power on its PI."
b) Clause 145.3.8.8 Page 216 Lines 35-40: The backfeed requirement currently required for 2-pair, 3-pair and 4-pair modes.

Now we need at a very late stage in the project to examine all possible use cases that may cause damage or interoperability issues to PSEs if we want to exclude 3-pair mode from meeting backfeed OR we can keep the current text that in my opinion cover all valid 2-pair (3-pair) and 4-pair modes per Table 145-20 in the PD to meet backfeed requirements.
The safe and worry free thing to do I believe, is to include 3-pair mode however, there is one main argument that need to be discussed that suggest excluding 3-pair mode from meeting backfeed.
See darshan_01_0518.pdf for details of what was tested and what needs more inputs frpm PSE/PD vendors.

SuggestedRemedy

Option 1:
Keep the current backfeed text. It covers 3-pairs and both single-signature and dual-signature PDs.

Option 2:
If and only if we are all convinced that there are no issues to exclude 3-pair mode, to modify the current text and use it for single signature and add the text for dual-signature to include all 2-pair and 4-pair modes per table 145-20. This text is proposed in my comment marked BACKFEED-DUAL.
See darshan_01_0518.pdf for updated comment and remedy as this topic is still in evaluations and discussions.

Proposed Response *Response Status* **O**