Cl **33** *SC* **3.4** *P* **66** *L* **51** # 43

Schindler, Fred — Seen Simply

Comment Type **TR** *Comment Status* **D** *4-Pair Power*

The existing sentence needs to be adapated to support 4-pair powering.

SuggestedRemedy

Replace, "When a PD becomes powered via the PI, it shall present a non-valid detection signature on the set of pairs from which it is not drawing power."
with
"When a PD becomes powered via the PI, it shall present a non-valid detection signature on the set of pairs not requiring power. See TBD for details on powering using 4 pairs."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

We will look for consensus by the end of the meeting.

Cl **33** *SC* **33.3.5.1** *P* **69** *L* **20** # 120

Dwelley, David — Linear Technology

Comment Type **TR** *Comment Status* **D** *PD Classification*

The new text removes the requirement for Type 3 and Type 4 PDs to present one and only one classification signature during classification. This change has not been agreed to in BT and may be a bad idea for interoperability.

SuggestedRemedy

Leave text as is was in AT until a baseline text motion is approved.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Defer to after presentations.

This text was approved as part of the Mutual ID baseline text. Please suggest alternative text and explain any interoperability concerns.

Cl **33** *SC* **33.1.4** *P* **20** *L* **26** # 80

Darshan, Yair — Microsemi

Comment Type **TR** *Comment Status* **D** *Pres. Type 4 2-Pair*

In the current text
"All four twisted pairs, connected from PSE PI to PD PI are required for Type 3 operation."
a) Type 4 is missing.
b) In addition, Type 3 and Type 4 system may use all 4P or will use only two pairs for delivering half of the possible maximum power.
This is required to optimize system design flexibility and cost.
So we need to allow systems that are 2P 0.5*Type 4 power and Type 4 power same way we do with Type 2 power and 2xType 2 power=Type 3 power
We have different markets and applications and optimized cost and space is important requirement.

SuggestedRemedy

Change from
"All four twisted pairs, connected from PSE PI to PD PI are required for Type 3 operation."
To:
"All four twisted pairs, connected from PSE PI to PD PI are required for Type 3 and Type 4 operation. For Type 3 or Type 4 operation that uses to deliver half of its maximum type power level, two twisted pairs may be used."

Proposed Response *Response Status* **W**

PROPOSED REJECT. DUP

Deffered until presentation.

May need to update PAR to include this behavior as a compliant mode.

See comment #132 for suggested remedy for similar concern. However, 2-pair behavior for "half power" has not been agreed upon yet.

Cl **33** *SC* **33.2.6** *P* **44** *L* **14** # 60

Darshan, Yair — Microsemi

Comment Type **TR** *Comment Status* **D** *Pres. Type 4 2-Pair*

Table 33-7 desribes the following power levels that will be supported by PSE.
We are looking for system design flexibility and cost effectivnes of the design. It meas that we need to be able to support PSEs with half of the maximum of type 4 power and not force to use only 4P to deliver 40-50w power.

Type 1, 15W, 2P
Type 2, 30W, 2P
Missing (see below)
Type 3, 30W, 4P
Type 3, 45W, 4P
Type 3, 60W, 4P
Type 4, 90-100W(TBD) 4P

There is missing 45W or Type 4/2 over 2P that is required for cost effecting system flexibility and design.

SuggestedRemedy

To add to table 33-7 the requirement of half of Type 4 power over 2P as well.

Proposed Response *Response Status* **W**

PROPOSED REJECT. DUP

There has been no discussion or consensus on this topic. Please present material.

Cl **33** *SC* **33.2.6.2** *P* **46** *L* **46** # 29

Rimboim, Pavlick — Microsemi

Comment Type **TR** *Comment Status* **D** *Pres. Type 4 2-Pair*

"Type 2 PSEs shall provide a maximum of 2 class and 2 mark events. Type 3 PSEs shall provide a maximum
of 4 class and 4 mark events. Type 4 PSEs shall provide a maximum of 5 class and 5 mark events."
we are missing class event for type 4 2P

SuggestedRemedy

we need to add 1 class event to cope with the missing type 4 2P.

Proposed Response *Response Status* **W**

PROPOSED REJECT. DUP

Please build consensus for Type 4 2-pair operation.

Cl **33** *SC* **33.3.7** *P* **72** *L* **37** # 25

Rimboim, Pavlick — Microsemi

Comment Type **TR** *Comment Status* **D** *Pres. Type 4 2-Pair*

table 33-18
input power class 5 TBD PD type 3, assuming the power is 40-45W
it can be as well PD type 4 using 2P
but we need to differentiate between PD type 3 4P and type 4 2P

SuggestedRemedy

need to add another class level for PD type 4 2P supporting TBD power (40-45W)

Proposed Response *Response Status* **W**

PROPOSED REJECT. DUP

Please present proposed Type 4 behavior. We have not investigated this yet, let alone come to a consensus.

Cl **33** *SC* **33.1.4** *P* **20** *L* **7** # 23

Rimboim, Pavlick — Microsemi

Comment Type **TR** *Comment Status* **D** *Pres. Type 4 2-Pair*

table 33-1
type 4 4P or type 4 2P is missing

SuggestedRemedy

need to add either information or TBD in the table as place holder for Type 4 4P and type 4 2P

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE. DUP

Waiting for contribution from George Z. Type 4 information should be added as TBD.

Cl **33** *SC* **33.2.6** *P* **45** *L* **28** # 108

Dwelley, David — Linear Technology

Comment Type **T** *Comment Status* **D** *PSE Classification*

Any Type PSE that opts to power-limit a port to 13W or less (due to power management or any other reason) should be allowed to use 1-event classification.

SuggestedRemedy

Change Note 1 to read: "Any Type PSE that is limited..." (or "is operating...")
Modify Table 33-8 col 4 row 4: change "No ^1" to "Note 1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Suggested text: Any PSE that is limited to 15.4W shall be limited to 1-Event Physical Layer classification and does not require DLL capability.

Cl **33** *SC* **33.2.6** *P* **44** *L* **13** # 107

Dwelley, David — Linear Technology

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

New text was added to force the PSE to limit power to Pclass_max or Ptype, *whichever is less*. Power draw is limited by the PD, not the PSE, and the PSE and cabling plant must be designed to handle the maximum power that the PSE is designed to deliver, so there is no benefit in mandating the PSE to limit to the lower of the two limits. Instead, the PSE should be required to provide at least the lowest limit.

SuggestedRemedy

remove the text "whichever is less" (in 4 places).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Dave will work on consensus.

This text covers "minimum guaranteed power" not power limiting. The "whichever is less" is there so a Type 4 PSE doesn't have to guarantee 90W for a 15W PD.

Cl **33** *SC* **33.2.5** *P* **39** *L* **29** # 90

Darshan, Yair — Microsemi

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

The following text is not complete when 4P systems are involved:
"In any operational state, the PSE shall not apply operating power to the PI until the PSE has successfully detected a PD requesting power."

The issue is that a PD may be connected to the PI but there is valid signature only on one of the pair-sets due to any possible wiring fault, bad connection etc.

SuggestedRemedy

Change to:
"In any operational state, the PSE shall not apply operating power to the PI until the PSE has successfully detected a PD requesting power over one pair-set for Type 1 and Type 2 PSE and over both pair-set for Type 3 PSE and Type 4 PSE."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This text needs to be updated, but Type 3 and 4 PSEs may apply power to only one pair set if a valid signature is on it, while a invalid signature is on the other pair set.

"In any operational state, the PSE shall not apply operating power to a pair-set until the PSE has successfully detected a PD requesting power over that pair-set."

"In any operational state, the PSE shall not apply operating power to a pair-set until the PSE has successfully detected a valid signature over that pair-set."

Cl **33** *SC* **33.2.5** *P* **39** *L* **41** # 10

Zimmerman, George — CME Consulting

Comment Type **ER** *Comment Status* **D** *PSE Detection*

Is there also a "four-pair" detection? does the insertion relate to this, or is it trying to relate to the now-defined term, "pair-set". Clarify.

Also, note that the language really should refer to pair-sets SUCCESSFULLY used for detection, since invalid detections should not have power turned on.

SuggestedRemedy

Either - restructure section so there is clearly "two-pair detection" and "four-pair detection" (which I don't think is the aim), or
change to read, "The PSE shall turn on power only on the same pair-sets successfully used for detection."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See comment #106. In addition, the term "successfully used for detection" is not clear. It could mean that detection was completed or it could mean that the detection algorithm showed a valid PD.

Cl **33** *SC* **33.2.4.6** *P* **36** *L* **15** # 103

Dwelley, David — Linear Technology

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

This sentence (and the following sentences) may be interpreted as requiring a Type 3 PSE to provide 2-pair power to a Type 1/2 PD. This will break Green Mode and 1-channel Type 3 PSEs.

SuggestedRemedy

"may choose to meet the electrical requirements of a Type 3 PSE, including providing 4-pair power, for Icon..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE. DUP

To be addressed…

The list of requirements is spelled out specifically as Icon-2P, ILIM-2P, TLIM-2P, and Ptype (see Table 33–11).

Icon is the only one that may result in 2-pair operation. We should figure out how to handle this concern with a note about Icon-2p.

Cl **33** *SC* **33.2.7** *P* **51** *L* **16** # 75

Darshan, Yair — Microsemi

Comment Type **TR** *Comment Status* **D** *Table 33-11*

Table 33-11, item 17, DC MPS current for Type 3.
Due to pair to pair unbalance at low current (mA current range), we need to reduce the minimum value of the MPS current from 5mA to 2mA.
(Note: System unbalance is decresed at high current and increase at low current. It is due to the PD diode phisics.
(The current unbalance is further increased for much lower current than few houndered uA range. Moreover it is more sensitive to temperature unbalance, thermal instability etc.due to the fact that we are at the diode dark current region=reverse current so staying above 1mA for MPS is a good choice and it is not recomended to go below 1mA.)
Using 2mA as minimum, will keep backwards competability for all PSE types due to the fact that PSE vendor can now set his threshols for disconnect at any number between 2mA to 10mA instead of 5mA to 10mA. This allows more design flexibility when we work with 4P systems.

This is not the only topic required to be adressed for DC MPS current at unbalance conditions,and other nessasry means will be adressed in different comments to adress different system architectures.

SuggestedRemedy

1. Table 33-11, item 17, DC MPS current for Type 1 and 2:
Change DC MPS minimum threshold value from 5mA to 2mA.
2. Table 33-11, item 17, DC MPS current for Type 3 and 4:
Set DC MPS minimum threshold value to 2mA.
3. Table 33-11, item 17, DC MPS current for Type 3 and 4:
Set DC MPS max threshold value to 20mA (TBD).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Please build consensus for DC disconnect behavior.

Cl **33** *SC* **33.3** *P* **59** *L* **48** # 131

Beia, Christian — STMicroelectronics

Comment Type **TR** *Comment Status* **D** *Text Improvements*

As specified in clause 33.1.4 a PoE system is defined from a single PSE o a single PD. In Clause 33.2 the PSE is explicitly defined as an equipment that provides the power to a single PD.
Allowing 4-pair power it is now also needed to specify the PD as a device requesting power from a single PSE.

SuggestedRemedy

Add the words: "from a single PSE" to the first sencence in clause 33.3, to read:
A PD is the portion of a device that is either drawing power or requesting power from a single PSE by participating in the PD detection algorithm.

Proposed Response *Response Status* **W**

Vote Taken:

Accept: 8
Reject: 12
Abstain: 7

Cl **33** *SC* **33.2.4.6** *P* **36** *L* **15** # 102

Dwelley, David — Linear Technology

Comment Type **E** *Comment Status* **D** *Text Improvements*

Instead of repeating the same sentence 6 times, the original sentence at line 11 should be reworked

SuggestedRemedy

"When a PSE powers a PD of a lower Type than its maximum capability, the PSE shall meet the electrical requirements of the PSE Type that matches the PD Type, but it may choose to meet the electrical requirements of a greater Type (up to its maximum capability) for..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

We need to be careful relating power to Type as that relationship is no longer clear.

Commenter to refine text.