Vport ad hoc
SOA D0.9 comment resolution and PSE Current Requirements

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Add names

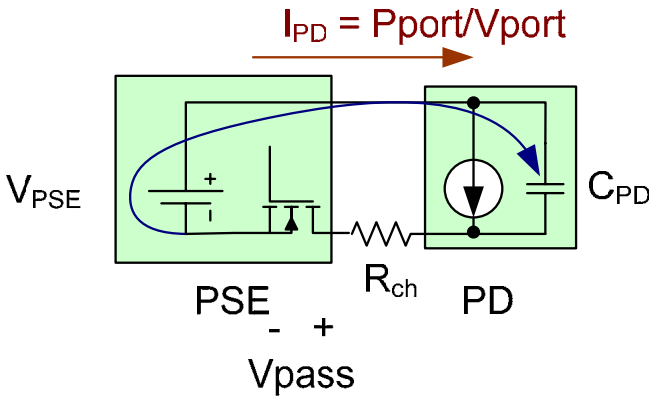
??? ad hocs with an average attendance of ??? people since the last IEEE meeting.
People that attended since the last IEEE meeting are shown in **bold.**

D0.9 Comments 178, 137

- **Page 25, line 50**
- **“A PSE in the power on state may remove power from the PI when the PI voltage no longer meets the Vport specification.”**
- **Add San Francisco due to a Vport ad hoc motion**

All present; Y: 30 N: 0 A: 4

802.3; Y: 19 N: 0 A: 0 => PASS



Worst-case
Rch = 0
Vpse goes from 50 to 57 V
Vpass goes from 0 to 7 V
I_{PD} = 400/350 x Pport/Vport

Comment 178

Cl **33** SC **2.8.1** P **25** L **50** # 178

Johnson, Peter — Sifos Technologies

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

The requirement that "A PSE in the power on state may remove power from the PI when the PI voltage no longer meets the Vport specification" essentially negates the broader purpose of specifying Iinrush, Tlim, and Ilim elsewhere in the specification. PSE's that enter a current limiting state, as defined by Iinrush, Ilim, and Tlim will in all likelihood drop below the Minimum Vport level since they are funtioning as current sources (400 to 450mA), not voltage sources in this mode. This behavior is time-bounded by Tlim, of course.

Since Iinrush, Ilim, and Tlim provide robustness within PoE to handle marginally compliant transient overload conditions, it seems unwise to undermine those requirements with this clause. Also, 33.2.8.8 now adds further criteria ("SOA" Type 2 PSE's) for removing power based upon transient overload current designed to protect PSE's and interconnect integrity. The relevance of that criteria would be undermined by this particular clause.

Finally, this clause is simply inconsistent and contradictory with 33.2.8.8 b).

SuggestedRemedy

Revise 33.2.8.1 as follows:

Replace:

"A PSE in the power on state may remove power from the PI when the PI voltage no longer meets the Vport specification"

With:

"The Minimum Vport specification in Table 33-5 shall not apply to PSE's operating in a current limiting condition over the period Tlim as defined in 33.2.8.5 and 33.2.8.8."

"may"

"power on"

The IEEE only defines compliant devices

Comment 137

Cl **33** *SC* **2.8.1** *P* **25** *L* **51** # 137

Stanford, Clay — Linear Technology

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

A new statement is added:

"A PSE in the power on state may remove power from the PI when the PI voltage no longer meets the VPort specification."

This is inconsistant with many other entries in the specification, for example Table 33-5, item 11, Short Circuit Time Limit, TLIM, 50ms minimum.

"may"

SuggestedRemedy

Remove the statement:

"A PSE in the power on state may remove power from the PI when the PI voltage no longer meets the VPort specification."

Proposed Response *Response Status* **W**

Recommend resolution to 178, 137

- **Leave text as is.**
- **All present; Y: ? N: ? A: ?**

D0.9 Comments 11 and 111

- **Page 28, Line 39**
- **“If a short circuit condition is detected, power removal from the PI shall begin within TLIM and be complete by TOFF, as specified in Table 33-5. See Figure 33C.4 [p90]and Figure 33C.6[p92].”**
- **This is legacy text.**
- **Figure 33C.4 [p90] should be replaced by Figure 33-9a [p28] for power-on operation.**

Comment 11

Cl **33** *SC* **2.8.9** *P* **28** *L* **39** # 11

LANDRY, MATTHEW SILICON LABORATO

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

When violating the SOA curve in Figure 33-9a, TLIM is too long to wait for power removal. The current normative text in this section should apply only to Type 1 PSEs and Type 2 PSEs w/ ILIM current limiting.

SuggestedRemedy

Change text to read:

If a short circuit condition is detected by a Type 1 PSE or a Type 2 PSE implementing ILIM current limitation, power removal from the PI shall begin within TLIM and be complete by TOff, as specified in Table 33-5. See Figure 33C.4 and Figure 33C.6.

Figure 33C.4 [p90] should be replaced by Figure 33-9a [p28] for power-on operation.

This comment is related to comment 186.

Comment 111

Darshan, Yair Microsemi Corporation

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

Draft0.9:
33.2.8.9 text is true for the case that system (PSE and PD) are within their normal voltage operating range however it is not clear from the text.
It is clear from figure 33C.4 and 33C.6 which are located in the informative section.

SuggestedRemedy

Replace 33.2.8.9 text from:

"If a short circuit condition is detected, power removal from the PI shall begin within TLIM and be complete by TOff, as specified in Table 33-5. See Figure 33C.4 and Figure 33C.6."

to:

For PI voltages within PI normal operating voltage range as defined by table 33-5 item 1, If a short circuit condition is detected, power removal from the PI shall begin within TLIM and be complete by TOff, as specified in Table 33-5.
See Figure 33C.4, Figure 33C.6. and Figure 33C.6.1"

For PI voltages below or above Vport normal operating range as defined by table 33-5 item 1, If a short circuit condition is detected, power removal from the PI may begin at any time of t<TLIM and be complete by TOff, as specified in Table 33-5.
See Figure 33C.4, Figure 33C.6. and Figure 33C.6.1"

Proposed Response *Response Status* **W**

Power is on

What is the concern?

Where?

"Written" means what?

Recommend Resolution to 11, 111

- **“If a short circuit condition is detected, power removal from the PI shall begin within TLIM and be complete by TOFF, as specified in Table 33-5. See Figure 33-9a and Figure 33C.6.”**
- **All present; Y: ? N: ? A: ?**

Comments 78, 96

- **Page 27, Line 43**
- **“Power shall be removed immediately from the PI of a type 2 PSE if the PI current exceeds the Safe Operating Area (SOA) upper bound template in Figure 33-9a.”**

Comment 78

Cl **33** *SC* **2.8.8** *P* **27** *L* **43** # 78

Dove, Daniel ProCurve Networking

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

I am not sure how to solve this issue, but the assertion to remove power immediately upon PI current exceeding the limit makes me concerned about the response to a large transient causing the output FET to turn off and then inductance taking over and blowing things up. The test for this is going to be a challenge.

SuggestedRemedy

Change the term "immediately" to something more specific.

Proposed Response *Response Status* **W**

Comment 96

Cl **33** *SC* **2.8.8** *P* **27** *L* **43** # 96

Darshan, Yair — Microsemi Corporation

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

Power can not tremoved "immidiatly" this term is not well defined.

SuggestedRemedy

Change to "Power shall be removed within 1msec from the PI of Type 2 PSE...."

Proposed Response *Response Status* **W**

see 78

Recommended Resolution 78, 96

- **“Power shall be removed ~~immediately~~ from the PI of a type 2 PSE before ~~if~~ the PI current exceeds the Safe Operating Area (SOA) upper bound template in Figure 33-9a.”**

- **All present; Y: ? N: ? A: ?**

Comment 122

Cl **33** *SC* **2.8.8** *P* **27** *L* **49** # 122

Darshan, Yair — Microsemi Corporation

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

Change the Fusing equation in a way that refect all its parameters.
See "Fusing equation: how it was derived in 802.3af" presentation for September 2007 for more details.

SuggestedRemedy

Change from I=(0.025/t)^0.5
To: Iport=(K/t)^0.5
Where
Iport is the current at the PI
t is the duration that the PI sources Iport
K is a 25mJoul energy limitation of the port current when it is not in steady state normal operation.

Recommended Resolution 122

- **No change or Change???**
- **All present; Y: ? N: ? A: ?**

Comment 185

Cl **33** *SC* **2.8.8** *P* **27** *L* **33** # 185

Schindler, Fred — Cisco Systems

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

This section needs to be modified in order to permit PSE to reach current levels just below the SOA described in figure 33-9a.

SuggestedRemedy

If a PSE provides current that meets system safe operating (SOA) requirements, IEC 60950, and PD minimum power needs, then safety and interoperability are met with fewer design requirements imposed. Within the region between PD current needs and SOA current limits, a PSE system selects the design (current limit, current cut-off, and duration) that meets its markets needs. See Vport ad hoc current limit presentations for the latest proposed system current vs time limits.

Suggested remedy:
Type-1 PSE can power as described in this section.

Add, Type-2 PSEs
Remove the requirement to remove power within TLIM, and require that the PSE meet the SOA limits.
Remove the sentence "Measurement to be taken after 1 ms to ignore initial transients."

Recommend Resolution 185

- **???**
- **All present; Y: ? N: ? A: ?**

Comment 186

Cl **33** *SC* **2.8.6** *P* **27** *L* **11** # 186

Schindler, Fred — Cisco Systems

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

The specification requires that a PSE remove power based on maximum ICUT and Tovld thresholds. This does not ensure interoperability or meet the safety specifications, and therefore, forces a design requirement.

SuggestedRemedy

Allow the existing requirement or figure 33-9a SOA requirements to specify what is required for compliance.

This comment is related to comment 11.

Recommend Resolution 185

- **???**
- **All present; Y: ? N: ? A: ?**