Cl **00**   *SC* **00**   *P*   *L*   # 254

Jody Williamson   Leading Edge Diagnos

Comment Type **T**   *Comment Status* **X**   4P

There is a large market for PDs that requires more power than allowed for 2P only.

There is a large market for PDs that requires more allowed over 2P only.

In addition PD users may enhance system efficiency even if they are using the maximum power allowed for 2P and delivering it simultaneously over all 4P. In this case the cable power loss is reduced by 50% and implementing it in the PD is relatively easy.

There are currently 4P PSEs and PDs that working well. From system point of view, each 2P PSE is driving 2P PD interface hence the 2P base specification is kept for each 2P.

The rest is implementation.

The current text precludes easy and well proven implementations that required to simultaneously operate ALT A and B over the same cable and from the same segment which doesn't make sense.

SuggestedRemedy

Explicitly specify what configurations the specification wants to prevent and allow those that use ALT A and B from the same segment or power supply OR delete this text.

In addition, delete the note in page 57 the preclude PD to get power from ALT A and B simultaneously.

This is implementation issue as long as each 2P meets the specification in this standard.

Proposed Response   *Response Status* **W**

reviewed

Cl **30**   *SC* **30.12.1.1.4**   *P* **17**   *L* **40**   # 66

Darshan, Yair   Microsemi Corporation

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

"priority unknown or PSE" are tied to a single value.
It will be usefull to split it to two seperate values.

SuggestedRemedy

Seperate to:
- unknown1 priority
- Unknown2 PSE

Proposed Response   *Response Status* **W**

This is Clause 30, not 33.

Defer to Wael.

Cl **33**   *SC* **33.2.3**   *P* **32**   *L* **50**   # 72

Darshan, Yair   Microsemi Corporation

Comment Type **TR**   *Comment Status* **X**   4P

Draft 3.0
The standard should not preclude implementations that are using both alternative A and B due to the following reasons:
a) It is out of scope of the standard to limit implementations that meets standard requirements.
b) There are no interoperability issues if PD gets power from 2x 2 pairs power source especially if all pairs are comming from the same port/segment/PSE type 2. It is the load responsibility (PD) to meet the 2P specification for each 2P. Implementation methods are out of scope of the standard.
c) It is economically and technically feasible as shown in numerous presentations and current products at the market, however these criteria's is not required for allowing 2x2P operation due to the fact that there are other alternatives allowed by the standard and the vendor has choices...
e) There are products in the market that already are using the 2 x 2P implementation.
f) There is huge market for higher power then 30W over 2P.
g) There is no additional cost issue. The $/watt cost is even lower then in 2P system as shown in previous meeting presentations.
h) For outdoor applications, temperature rise issues of the cables when using 60degC cabling system grade can be solved if the same power is delivered over 2 x 2P which is an easy solution for thermal issues.
i) Users will do it any way to utilize the full capability of the existing infrastructure.
J) In previous meeting switch and PHY vendors wanted the ability to use the same cable which consists of 4 pairs to support two PDs that each one of them is connected to a 2P system. The current text precludes using this feature.

SuggestedRemedy

Change from:
"A PSE shall implement Alternative A or Alternative B, or both, provided the PSE meets the constraints of 33.2.3. Implementers are free to implement either alternative or both. While a PSE may be capable of both Alternative A and Alternative B, PSEs shall not operate both Alternative A and Alternative B on the same link segment simultaneously."

To:
"A PSE shall implement Alternative A or Alternative B, or both, provided the PSE meets the constraints of 33.2.3. Implementers are free to implement either alternative or both.
Note: Configurations in which simultaneous operation of ALT A and ALT B are achived when ALT A and ALT B are coming from different PI segments are specifically not allowed by this standard".

In addition, in 33.3.1 page 33 line 42 modify the text to be:
"NOTE-PDs that implement only Mode A or Mode B are specifically not allowed by this standard. PDs that may simultaneously receive power from both Mode A and Mode B are out of scope of this standard."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.2.3**

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Proposed Response   *Response Status*   **W**

   #frs: This needs to be discussed in the task force.

Cl **33**	*SC* **33.2.3**	*P* **32**	*L* **51**	#	**145**

Prof. Dr. Christian Kargel   Bundeswehr University

Comment Type   **T**   *Comment Status*   **X**   *4P*

One large market of PoE is the smart home technology which we are currently investigating in our own smart home. we have found that PoE is highly suitable for powering sensors, actuators and other smart home components in addition to communicating with them.

In order to reduce the amount of cabling and cost of installation for these components we have found that using all 4 pairs provides an optimized way in terms of the power required to operate a group of sensors and the number of cables needed to connect these sensors.

The current text in 802.3 precludes the simultaneous use of Alternative A and B. We are not aware of any technical, economical or reasons especially if the PSEs are coming from the same box/power system. As far as we know there are already systems available that deliver power over all 4 pairs while at the end of each 2P is a "2P PD interface" connected or even a single PD gets two 2P systems for applications that request higher power.

Those systems seem to be working well due to the fact that each 2P is independent in its functionality and orthogonal to the other 2P output.

SuggestedRemedy

Change the text in line 51 to allow the PSE to operate both Alternative A and Alternative B on the same link segment simultaneously.

Add a text in the PD specification (33.3.1) that requires the PD to meet the specifications of 2P system for any number of 2P system connected to it or delete the Note in page 57 line 42.

Proposed Response   *Response Status*   **W**

#frs: also see 72.
This needs to be discussed.

The change suggested to the PD may break legacy PDs because not all of then will accept power on all pairs.

Cl **33**	*SC* **33.2.3**	*P* **32**	*L* **51**	#	**230**

Sanita', Gianluca   Nokia Siemens Networ

Comment Type   **TR**   *Comment Status*   **X**   *4P*

This comment tries to address all the PoE system that are not covered by the Power budget delivered over two pairs especially after that this budget has been reduced down to 30W at the PSE side.

SuggestedRemedy

Replace:
PSEs shall not operate both Alternative A and Alternative B on the same link segment simultaneosly
With:
Simulaneous operation of Alternative A and Alternative B is out of scope of the standard

Proposed Response   *Response Status*   **W**

#frs: also see 72

This needs to be discussed.

Cl **33**	*SC* **33.2.3**	*P* **32**	*L* **52**	#	**409**

Zimmerman, George   Solarflare Communicat

Comment Type   **ER**   *Comment Status*   **D**   *4P*

Here "link segment" is used rather than link section, for apparently the same meaning that a PoE-specific term "link section" was needed elsewhere in this clause.

SuggestedRemedy

Consistently use link segment whereever possible, or add text to the definitions section or first-usage in clause 33 explaining why it is appropriate to use link segment here for the connection between a PSE and PD, but you need to use link section in the other places.

Proposed Response   *Response Status*   **W**

#PROPOSED ACCEPT IN PRINCIPLE.

Deferred to be considered during 4P discussion

frs: Task the editor to locate "link segment" and "link section." Then determine which phrase is appropriate.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.2.3**

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Cl **33**   *SC* **33.2.6.1**   *P* **43**   *L* **29**   # 38
Patoka, Martin   Texas Instruments

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

Table 33-4. 1) Neither of the signature offsets (Vos, Ios) are defined.
2) The PSE current offset is inconsistent with the PD offset Table 33-12, p62, l 12.

This is a problem with the .af standard.

SuggestedRemedy

1) reference figure 33C.20 in Table 33-4 "additional information" column
2) edit figure 33C.20 (section 33C.4.1, P143 top) to show Ioffset. If this would be the I axis intercept of the projected line, it is clearly negative (this is correct by calculation and measurement), if it is the I axis intercept of the actual current, then it approaches 0.
3) remove Ios min from table 33-4 to be compatible with Table 33-12.

The choice of the Ioffset definition will make a diffence on how this is handled.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Assigned to Martin and Yair

frs: Table 33-4 items 12, and 13 provide the PSE Vos and Ios requirements, repectively.
They differ from the PD in order to provide system margin.

Normative text should not reference informative information.

A normative figure could provide a graphical view of the system PSE and PD detection requirments. The axis could reference variables from Table 33-4 and Table -12.

1) reference figure 33C.20 in Table 33-4 "additional information" column
2) edit figure 33C.20 (section 33C.4.1, P143 top) to show Ioffset. If this would be the I axis intercept of the projected line, it is clearly negative (this is correct by calculation and measurement), if it is the I axis intercept of the actual current, then it approaches 0.
3) remove Ios min from table 33-4 to be compatible with Table 33-12.

The choice of the Ioffset definition will make a diffence on how this is handled.

Cl **33**   *SC* **33.2.9**   *P* **48**   *L* **15**   # 482
Geoff, Thompson   Nortel

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

Table 33-9, also line 20 and other resulting places in the draft.
The proposed 50 volt minimum value, while admittedly allowing for more delivered power to the PD, is a significant hit in system cost relative to the carefully chosen equivalent value of Vport for 802.3af.
The new voltage means that PSEs can no longer be operated directly from battery systems (48 volt nominal) commonly found in telephone installations and DC communications UPS systems. Also, line operated power supplies with 48 volt nominal are a commonly available commodity product whose cost is driven by markets larger than that of PoE+. The new voltage level would require new power supplies for both boost conversion from 48 Vnom and from line voltage to the input side requirements of the porposed PoE+ PSEs. This will be a significant cost handicap, additional energy inefficiency and specialty supply handicap to implementation as well as negative hit to the five criteria.

SuggestedRemedy

Change Vport Min for PSE Type 2 operation to 44 volts.
Make the requisite changes to the rest of the draft including delivered power to the PD that would result from this change.

Proposed Response   *Response Status* **W**

straw poll: Would you support this significant change request if commentor brought fully developed text to include in the standard?

Y: 3, N: 13, A: 6

The TF feels that the suggested remedy does not fully develop the effects of lowering the minimum PSE port voltage to 44V.

Straw Poll: Would you support this new feature request if commentor brought fully developed text to include in the standard?

Y: 2, N: 9, A: 6

Defer for resolution proposal from Darshan and Thompson

During the May 2006 Interim, the IEEE 802.3at task force voted to adopt 50 V as the minimum Vport.
Y: 37 N:0 A: 1
This was done after extensive evaluation of the system tradeoffs.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.2.9**

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Cl **33**   *SC* **33.2.9.5**   *P* **50**   *L* **19**   # 522

Schindler, Fred   Cisco Systems

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

Many PSEs are policing power using a sampled data system. Accurate results depend on PD power demand bandwidth permitted. The power bandwidth (BW) is not defined but measured data shows most PDs stay at an approximately constant power value. Because power conservation is becoming more important, PoE plus PDs are more likely to change power values compared to their predecessors. This will may lead to increased data corruption and sampled data errors.

SuggestedRemedy

Place a power frequency restriction on PDs. This information needs to be tied to any PD surge allowance. Significant PD power ripple should be discouraged because this leads to problems with interoperability.

The PD may draw 15 mA/us at a 350 mA average current, this allowance permits ripple currents that could exceed the "power feeding ripple and noise" limits of the PSE. PSE common mode ripple results due to the impedance in series with the PSE supply.

For example, the OCL required for 100 Mb/s data rates is 350 uH. Half this inductances is in series with one-end the PSE supply. This impedance component alone exceeds the ripple allowance.

The PSE output impedance should be analyzed and then the PD power BW should be specified to ensure system interoperability.

Proposed Response   *Response Status*   **W**

defered to Denver
reviewed and no consensus

Cl **33**   *SC* **33.2.9.9**   *P* **51**   *L* **43**   # 198

LANDRY, MATTHEW   SILICON LABS

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

The units for the constant, K, are noted as mJ. This is not dimensionally valid (I^2*t != J).

Furthermore, the selection of 0.025 as the I2t constant is based on the 802.3af power level, which is obviously exceeded by 802.3at. That makes 0.025 inappropriate for defining the PSE upperbound template in Figure 33-14.

But wait, it gets worse. There is a long segment at 1.75A, which corresponds to an I2t constant of 0.205, much greater than 0.025.

SuggestedRemedy

Use an I2t of 0.205, as this is more inclusive and further improves design margin. Update the PSE upperbound template accordingly.

If interested, ask commenter for excel graphs overlaying old template and new template.

Proposed Response   *Response Status*   **W**

reviewed, agree the units are wrong. Working offline to come to concensus on scaling factor. Matt, Yair, Fred,Jeff.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.2.9.9**

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Cl **33**   *SC* **33.3.1**   *P* **57**   *L* **41**   # 74
Darshan, Yair   Microsemi Corporation

Comment Type **TR**   *Comment Status* **D**   *4P*

Draft D3.0:

The note in line 41 precludes the ability to reduce power loss over the cable and increase overall system efficiency.
Rational:
Using a Type 2 PD that requires a total of 24W (example) on a 2P can also take a toatal of 24W over all 4 pairs with simple PD implementation.
In this case this PD can work on 2P PSE or on 2x2P PSEs with the same PD behaviour which is transparent to the user.

In addition let's assume that in this case both pairs are comming from the same box and the same power supply. This is a classical case in which by using all pairs we effectively reduce the channel power loss and allows interoperable and relaible operation.

SuggestedRemedy

Change from:

"NOTE-PDs that implement only Mode A or Mode B are specifically not allowed by this standard. PDs that simultaneously require power from both Mode A and Mode B are specifically not allowed by this standard."

to:
"NOTE-PDs that implement only Mode A or Mode B are specifically not allowed by this standard. PDs that simultaneously may recieve power from both Mode A and Mode B is out of scope of the standard"

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Identical comment conceptually to comment #78.
The comment demonstrates a concern over the case where there is a PD that can work as either24W 2 pair or 24W 4 pair (2x 2 pair, total of 24W). The exisitng text does not specifically preclude either solution because the the PD does not REQUIRE power from both pairs, it can work on either pair set (Mode A or B). There is no problem to be fixed. A PD built as suggested would represent a superset of the required functionality.

Cl **33**   *SC* **33.3.1**   *P* **57**   *L* **41**   # 78
Darshan, Yair   Microsemi Corporation

Comment Type **TR**   *Comment Status* **D**   *4P*

Draft D3.0
The standard allow using for each pair up to Icable.
This Note prevents using all 4 pairs in a way that the total current will be Icable.
The end result if using a total of Icable for all 4 pairs would be less power on the cables, less power consumption on PSE resulting with higher then 80% system efficiency.
If Icable meet the specification of 2P then I<Icable certaily meets the same specification so preventing feeding the current all over the 4 pairs doesnt make sense.

This is implementation that is inline with the global effort for reducing power loss and in my opinion we are not authrized to preclude implementations that meet the numbers and state machines of this standard.

SuggestedRemedy

Option 1:
Delete:
"PDs that simultaneously require power from both Mode A and Mode B are specifically not allowed by this standard."
Option 2:
Change to: "PDs that simultaneously recive power from both Mode A and Mode B are out of scope of the standard."
Option 3:
Change to:"PDs that simultaneously recive power from both Mode A and Mode B are specifically required to meet the requirements of this standard for each Mode A and Mode B independently."
Option 4:
"PDs that simultaneously receive power from both Mode A and Mode B and the sources of Mode A and Mode B are comming from different system segments are specifically not allowed by this standard."

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
This note does not prevent using all 4 pairs in the manner proposed. It merely states that the PD must not REQUIRE on both mode A and mode B. The PD architecture will accept power on all 4P if the PSE decides to become non-compliant and power on all 4P.
Commentary only: Other sections of the standard may preclude these implementations, and interoperability is dubious at best.

Midspan adhoc has been charter with the task of assuring interoperability across 2P/4P mixed systems. The TF awaits this result.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.3.1**

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Cl **33**   *SC* **33.3.1**   *P* **57**   *L* **42**   # 229

Sanita', Gianluca   Nokia Siemens Networ

Comment Type **E**   *Comment Status* **D**   *4P*

This comment tries to address all the PoE system that are not covered by the Power budget delivered over two pairs especially after that this budget has been reduced down to 30W at the PSE side.

SuggestedRemedy

Replace:
PDs that simultaneously require power from both Mode A and Mode B are specifically not allowed by this standard
With:
PDs that simultaneously require power from both Mode A and Mode B are out of scope of this standard

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Note: comment type field empty, set to E as a default.
The Note starts with "PDs that implement only Mode A or Mode B are specifically not allowed by this standard." That means the PD must obtain full functionality on either and only one pair set because PSEs are specified that operate on only one Mode at a time, and either Mode is allowed. Thus a 2 x 25W device that REQUIRES MODE A and Mode B is not compatible with the standard based on interoperability. There are solutions like this today that are recognized to be non-compliant. Labelling a noncompliant solution as out of the scope is dangerous.

Making it out of scope in the text does not make it compliant if implemented. It is still non-compliant.

Also, there is no technical argument in the comment; this is a pure feature request.

Cl **33**   *SC* **33.7.5**   *P* **91**   *L* **1**   # 426

Stanford, Clay   Linear Technology

Comment Type **T**   *Comment Status* **D**   *ower & L2* *Power Convention*

The PD power encoding has 3 problems.

Presently, the power is scaled for 29.5W maximum. With the recent cable derating, the power is now 25.5W.

There was also talk early on to scale this power up to 100W to enable future higher power PoE. This should be implemented.

Line 9 says that for the PD the referenced power levels are at the PD connector. Line 10 then says that for the PSE, the power levels are at the PSE connector. This will cause confusion. We should just use PD power levels.

SuggestedRemedy

Scale the power to 100W.

Use power referenced to the PD connector only.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Regarding the balloter's 3 issues:
- Adjust the 29.5W to 25.5W.

- Using the field to communicate more than 25.5W is outside the scope of the standard

- Power used is that of the PD. Refer to comment 134.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.7.5**

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Cl **33**   *SC* **33.7.5**   *P* **92**   *L* **41**   *#* 439

Barrass, Hugh   Cisco

Comment Type **TR**   *Comment Status* **D**   *L2 Timing*

This whole section seems to be at odds with 33.7.1 - devices shall send and receive every 30 seconds.

Furhermore a much more rapid response is required if this feature is to be used for any form of dynamic power management (e.g. allocating power for a video call during ring).

SuggestedRemedy

Replace the 3 paragraphs with:

An LLDPDU containing a DTE Power via MDI classification TLV shall be sent within 35 seconds of Data Link Layer classification being enabled in a PD as indicated by the variable pd_dll_enabled, or in a PSE as indicated by the variable pse_dll_enabled. See 33.2.4.4, 33.3.3.3, 33.7.6.2.

An LLDPDU containing a DTE Power via MDI classification TLV with the Acknowledge field set to either "acknowledge" or "non-acknowledge" shall be sent within 30 seconds of receipt of a valid LLDPDU containing a DTE
Power via MDI classification TLV with the Requested power value field not equal to the Actual power value field. It is recomended that a PSE that can support dynamic power allocation should respond within 300 milliseconds to such a PDU in normal operation.

An LLDPDU containing a DTE Power via MDI classification TLV with the Acknowledge field set to "not part of acknowledge cycle" shall be sent within 35 seconds of receipt of a valid LLDPDU containing a DTE Power via MDI
classification TLV with the Acknowledge field set to either "acknowledge" or "non-acknowledge."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The balloter is asking to speed up the response time. There was a brief discussion on this at the interim and plenary meetings. Suggest to poll the Task Force on feasibility of rapid response.

Cl **33**   *SC* **33.7.5**   *P* **92**   *L* **41**   *#* 344

sastry, ramesh   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *L2 Timing*

An LLDPDU containing a DTE Power via MDI classification TLV shall be sent within 5 minutes of Data Link Layer classification being enabled in a PD as indicated by the variable pd_dll_enabled, or in a PSE as
indicated by the variable pse_dll_enabled. See 33.2.4.4, 33.3.3.3, 33.7.6.2.

SuggestedRemedy

An LLDPDU containing a DTE Power via MDI classification TLV shall be sent after Data Link Layer classification being enabled in a PD as indicated by the variable pd_dll_enabled, or in a PSE as indicated by the variable pse_dll_enabled. See 33.2.4.4, 33.3.3.3, 33.7.6.2.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Refer comment 439

Cl **33**   *SC* **33.7.5**   *P* **92**   *L* **54**   *#* 440

Barrass, Hugh   Cisco

Comment Type **TR**   *Comment Status* **D**   *L2 Timing*

It is necessary that a PD can identify whether it has been connected to a type 2 PSE as rapidly as possible when it is first connected. For example, in some applications, a PD installer may plug the PD into a socket that is far distant from the PSE and will not know whether the port is able to support a high power device until a type 2 PSE is identified. Clearly this is not a problem for L1 classification but it requires a PSE supporting L2 classification to start sending management frames as soon as possible after it has powered the PD.

Clearly this may not be possible in all circumstances - such as during a PSE reboot or if hundreds of PDs are connected simultaneously. The requirement needs to be expressed for "normal operation."

SuggestedRemedy

Add a paragraph at the end of 33.7.5

To allow some PD devices to indicate that they have been connected to a type 2 PSE as rapidly as possible, the PSE shall start sending LLDP management frames including the appropriate power type within 5 seconds of applying power to the PD in normal operation.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.7.5**

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Cl **33**   *SC* **33.7.5**   *P* **95**   *L* **51**   # 338

sastry, ramesh   Cisco Systems

Comment Type **T**   *Comment Status* **D**   *L2 Timing*

Add the following line after line 52

SuggestedRemedy

The 5 minutes has been choosen to insert a limit in the 2 X TTL timer range which can be very large, and is used to assert a loss of communication event, after the initial Layer 2 commnication is established with the link partner, as explained in Sec 33.8

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The purpose of the standard is to specify interoperability requirements. The additional text is already contained in another section. Adding here creates duplicates of the same content.

Cl **33**   *SC* **33.7.6.2**   *P* **93**   *L* **43**   # 166

Jetzt, John   Avaya

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

Fix typo.

SuggestedRemedy

". . . system does not want to change the . . ."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **33**   *SC* **33.7.6.2**   *P* **94**   *L* **13**   # 295

Barrass, Hugh   Cisco

Comment Type **TR**   *Comment Status* **D**   *MGMT: GET-SET*

Comments reference **HB-01** and **HB-02** added new variables for local and remote; actual and requested "PowerFields"

Definitions for these must be added into the variabl edefinitions section.

SuggestedRemedy

Comment reference **HB-03**

Add the following definitions before "removePower"

locActualPowerFields

A concatenation of the fields that indicate the actual PD power type, source, priority and value of the local system. This variable consists of a 24 bit field: bits 23:16 correspond to the Actual power type/source/priority value defined in 33.7.2.3 bit 7 mapping to bit 23, etc.; bits 15:0 correspond to the Actual power value defined in 33.7.2.4. These are mapped to the attributes aLLDPPoEPLocActualPowerType; aLLDPPoEPLocActualPowerSource; aLLDPPoEPLocActualPowerPriority; and aLLDPPoEPLocActualPDPowerValue (30.12.1.1.6,30.12.1.1.7,30.12.1.1.8,30.12.1.1.9).

locRequestedPowerFields

A concatenation of the fields that indicate the requested PD power type, source, priority and value of the local system. This variable consists of a 24 bit field: bits 23:16 correspond to the Requested power type/source/priority value defined in 33.7.2.1 bit 7 mapping to bit 23, etc.; bits 15:0 correspond to the Requested power value defined in 33.7.2.2. These are mapped to the attributes aLLDPPoEPLocRequestedPowerType; aLLDPPoEPLocRequestedPowerSource; aLLDPPoEPLocRequestedPowerPriority; and aLLDPPoEPLocRequestedPDPowerValue (30.12.1.1.2, 30.12.1.1.3, 30.12.1.1.4, 30.12.1.1.5).

remActualPowerFields

A concatenation of the fields that indicate the actual PD power type, source, priority and value of the remote system. This variable consists of a 24 bit field: bits 23:16 correspond to the Actual power type/source/priority value defined in 33.7.2.3 bit 7 mapping to bit 23, etc.; bits 15:0 correspond to the Actual power value defined in 33.7.2.4. These are mapped to the attributes aLLDPPoEPRemActualPowerType; aLLDPPoEPRemActualPowerSource; aLLDPPoEPRemActualPowerPriority; and aLLDPPoEPRemActualPDPowerValue (30.12.2.1.6, 30.12.2.1.7, 30.12.2.1.8, 30.12.2.1.9).

remRequestedPowerFields

A concatenation of the fields that indicate the requested PD power type, source, priority and value of the remote system. This variable consists of a 24 bit field: bits 23:16

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
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correspond to the Requested power type/source/priority value defined in 33.7.2.1 bit 7 mapping to bit 23, etc.; bits 15:0 correspond to the Requested power value defined in 33.7.2.2. These are mapped to the attributes aLLDPPoEPRemRequestedPowerType; aLLDPPoEPRemRequestedPowerSource; aLLDPPoEPRemRequestedPowerPriority; and aLLDPPoEPRemRequestedPDPowerValue (30.12.2.1.2, 30.12.2.1.3, 30.12.2.1.4, 30.12.2.1.5).

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

See comment 276 (HB-01) which was rejected

Cl **33**   *SC* **33.7.6.2**   *P* **94**   *L* **24**   # 187

Dove, Daniel   ProCurve Networking

Comment Type **ER**   *Comment Status* **D**
Wrong Figure cited

SuggestedRemedy
Figure 33-28 - Update Reference

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

Pd_dll_enable is an output of Figure 33-17

Cl **33**   *SC* **33.7.6.2**   *P* **94**   *L* **28**   # 188

Dove, Daniel   ProCurve Networking

Comment Type **ER**   *Comment Status* **D**
Incorrect figure cited

SuggestedRemedy
Figure 33-27 - Update Reference

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

Pse_dll_enable is an output of Figure 33-9

Cl **33**   *SC* **33.7.6.2**   *P* **94**   *L* **39**   # 169

Jetzt, John   Avaya

Comment Type **E**   *Comment Status* **D**
Use apostrophe.

SuggestedRemedy
". . . to the local system's last change in requested . . ."

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

Cl **33**   *SC* **33.7.6.2**   *P* **95**   *L* **19**   # 170

Jetzt, John   Avaya

Comment Type **E**   *Comment Status* **D**
Fix typo.

SuggestedRemedy
"A summary of cross-references between . . . "

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

Cl **33**   *SC* **33.7.6.5**   *P* **96**   *L* **20**   # 535

Schindler, Fred   Cisco Systems

Comment Type **TR**   *Comment Status* **D**
The L1 classification systems leaves power on under the same conditions. Power is removed when the MPS does not exist. Therefore, a powered unconnected PI will not exist.

SuggestedRemedy
Power removal should be made optional. This can be done by deleting the entry condition that tests loss of communication.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.7.6.5**

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Cl **33**   *SC* **33.7.7**   *P* **97**   *L* **50**   # 419

Stanford, Clay   Linear Technology

Comment Type **E**   *Comment Status* **D**   *STATE MACHINE*

Introductory paragraph on DLL operation isn't clear. Rewrite.

Additions in [ ]

SuggestedRemedy

33.7.7 State change procedure across a link

IS:
If the local device is in the running state and the remote device changes to the request state, the local device observes the remote device's requested power through the aLLDPPoEPRemRequestedPDPowerValue (30.12.2.1.5) attribute in the DTE Power via MDI classification remote object class. The local device
changes to an acknowledge state or a non-acknowledge state depending on acceptance of the remote device's requested change.

SHOULD BE:
[Normally both the local and remote devices are in the RUNNING state. When the remote device wants to request a new power level,]the remote device changes to the LOCAL REQUEST state. The local device observes the remote device's REMOTE REQUEST through the aLLDPPoEPRemRequestedPDPowerValue (30.12.2.1.5) attribute in the DTE Power via MDI classification remote object class. The local device
changes to an REMOTE ACK state or a REMOTE NACK state depending on acceptance or rejection of the remote device's requested change.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **33**   *SC* **33.7.8**   *P* **98**   *L* **29**   # 498

Diab, Wael   Broadcom

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

This section is informative

SuggestedRemedy

Please label as so in the section heading

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add informative in the figure label

Cl **33**   *SC* **33.8**   *P* **100**   *L* **1**   # 347

sastry, ramesh   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *Loss of Communication*

Replace the entire text in 33.8 (lines 1-25) Loss of management frame communication with the following text

SuggestedRemedy

33.8 Loss of management frame communication

The following scenarios may cause loss of communication and the expected system behavior under these circumstances are prsented

1)After the PSE has identified the PD as a Type 2 PD via Physical Layer classification, PSE shall not change the applied power to the PD till it receives the 1st TLV requesting for different power value via Data Link Layer communication.

After Data Link Layer communication has been established there are three scenarios that may cause a loss of management frame communication.

2) Upon loss of management frame communication, after a successful Layer 2 classification operation , both PSE and PD shall remain operational using the last acknowledged Data Link Layer classification.
If a loss of management frame communication, after successful Layer 2 classification operation, persists for more than the smaller value of the remote TTL value (see IEEE Std 802.1AB-200X, subclause 9.5.4) for the PSE/PD or 5 minutes, shall assert the aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute in the DTE Power via MDI classification local object class to the
enumeration "loss of communications." This will allow systems for any potential fault recovery.

3) If a loss of management frame communication, after successful Layer 2 classification operation, persists for more than the smaller of (2 × remote TTL) or 5 minutes, a PSE may optionally power cycle the PD. If the loss of communication persists even after one power cycle, the PSE may optionally remove the the power to the PD. The PSE may remove power at any time per Figure 33-9.

4)PD may send a request to the PSE with the intention to enter the power conservation mode, in which, the LLDP state machine in the PD may be non operational. It does this by sending the TLV with power priority field changed to "conserve" value as mentioned in the Table 33-22 .   The PSE will respond with ACK with the minimum power value to be drawn by the PD in the requested value filed in the TLV. The PD will respond with requested power and the actual power values equal and enter the conserve mode. From then on PSE shall not treat this as loss of communication event . The PD can subsequently send an another TLV with power priority reverted back to its original value and the PSE can implement the time out behavior as described in this section.

PSE will always remove power to the PD when the PD draws current below the IPort_MPS

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
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min value as specified in Table-33-18.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

Discuss with othe Loss of Communication comments

Cl **33**   *SC* **33.8**   *P* **100**   *L* **12**   # 299

Barrass, Hugh   Cisco

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

"If Data Link Layer classification fails to come up within 5 minutes after the PSE has turned on power to the PD and the PSE identified the PD as a Type 2 PD via Physical Layer classification, the PSE may remove power."

In practical terms, 5 minutes might as well be infinity. This will significantly complicate the PSE validation process.

I'm trying to see the philosophy behind this behavior. It seems that the PSE is enforcing the PD requirement to support data link layer classification if it wants higher power. Bear in mind that the standard already states that the PSE will provide (and allocate) power according to the L1 classification until the DLL classification amends that. Therefore there's no issue with protecting the PSE (as there is in the general policing function). I think it is foolhardy to try and design the PSE behavior to get deterministic response to non-compliant PDs - if any system is non-compliant then you can expect indeterminate behavior. The set of non-compliant and faulty behavior is infinite.

SuggestedRemedy

Delete the entire sentence:

"If Data Link Layer classification fails to come up within 5 minutes after the PSE has turned on power to the PD and the PSE identified the PD as a Type 2 PD via Physical Layer classification, the PSE may remove power."

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

The objectives require mutual identification. To address the balloter's concern, change to the following in line with his other comments:

"If Data Link Layer classification fails to come up within 1.25 seconds after the PSE has turned on power to the PD and the PSE identified the PD as a Type 2 PD via Physical Layer classification, the PSE may remove power."

Cl **33**   *SC* **33.8**   *P* **100**   *L* **17**   # 436

Barrass, Hugh   Cisco

Comment Type   **TR**   *Comment Status* **D**   *Loss of Communication*

The loss of communication object should be asserted when loss of communication occurs. This has been defined in comment reference **HB-04**

The optional power removal is then defined by a further time following this.

Also, the latter half of the paragraph doesn't make sense:

"If ... for the remote system, a PSE may remove power, a PD shall aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute in the DTE Power via MDI classification local object class to the enumeration "loss of communications.""

SuggestedRemedy

Change:

Upon loss of management frame communication, PSEs and PDs shall remain operational using the last acknowledged classification state.

If a loss of management frame communication persists past the LLDP time to live (TTL) timeout value for the remote system (see IEEE Std 802.1AB-200X, subclause 9.5.4) plus an additional delay of 2 × TTL timeout value for the remote system, a PSE may remove power, a PD shall aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute in the DTE Power via MDI classification local object class to the enumeration "loss of communications."

To

Upon loss of management frame communication, PSEs and PDs shall remain operational using the last acknowledged classification state and the PSE shall set the aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute in the DTE Power via MDI classification local object class to the enumeration "loss of communications"

If a loss of management frame communication persists for an additional delay of 2 × TTL timeout value for the remote system after the LOSS OF COMMUNICATIONS state has been entered then the PSE may remove power from the PD.

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.

See HB-04

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.8**

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Cl **33**   *SC* **33.8**   *P* **100**   *L* **19**   # 129
Frazier, Howard   Broadcom

Comment Type **TR**   *Comment Status* **D**   *Loss of Communication*

A delay of "LLDP time to live (TTL) timeout value for
the remote system (see IEEE Std 802.1AB-200X, subclause 9.5.4) plus an additional delay
of 2 × TTL timeout value for the remote system" would appear
to be equal to 3 x TTL timeout value for the remote system, so why not say so?

SuggestedRemedy

Change the sentence to read:
"If a loss of management frame communication persists past three times the LLDP time to
live (TTL) timeout value for the remote system (see IEEE Std 802.1AB-200X, subclause
9.5.4) a PSE may remove power,..."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **33**   *SC* **33.8**   *P* **100**   *L* **21**   # 153
Jetzt, John   Avaya

Comment Type **E**   *Comment Status* **D**   *Loss of Communication*

Fix typo

SuggestedRemedy

". . . remove power, a PD shall set the aLLDPPoEPLocAcknowledge . . . "

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Refer to other Loss of Communication Bucket

Cl **33**   *SC* **33.8**   *P* **100**   *L* **21**   # 130
Frazier, Howard   Broadcom

Comment Type **TR**   *Comment Status* **D**   *Loss of Communication*

The statement "a PSE may remove power" contradicts the requirement stated in the
preceeding paragraph, which says "Upon loss of management frame communication,
PSEs and PDs shall remain operational using the last
acknowledged classification state."

Removing power because a low-level management protocol isn't operating as quickly as
expected is a drastic step.

SuggestedRemedy

Remove the statement "a PSE may remove power".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

A clarification can be added. The intent of both statements were that upon loss of
communication the device stays in the last classified state. A window is provided
underwhich the communication can be restored prior to switching power off.

Cl **33**   *SC* **33.8**   *P* **100**   *L* **21**   # 123
Frazier, Howard   Broadcom

Comment Type **ER**   *Comment Status* **D**   *Loss of Communication*

missing words

SuggestedRemedy

The end of the sentence should read:

"...a PD shall [set the] aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute
in the DTE Power via MDI classification local object class to the
enumeration "loss of communications.""

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Refer to comment 435

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33**
SC **33.8**

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Cl **33**   *SC* **33.8**   *P* **100**   *L* **21**   # 435

Barrass, Hugh   Cisco

Comment Type **TR**   *Comment Status* **D**   *Loss of Communication*

The latter half of this paragraph doesn't make sense:

"If ... for the remote system, a PSE may remove power, a PD shall
aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute in the DTE Power via MDI
classification local object class to the enumeration "loss of communications.""

SuggestedRemedy

Change

a PSE may remove power, a PD shall aLLDPPoEPLocAcknowledge (30.12.1.1.10)
attribute in the DTE Power via MDI classification local object class to the enumeration "loss
of communications."

To

then the PSE shall set the aLLDPPoEPLocAcknowledge (30.12.1.1.10) attribute in the DTE
Power via MDI classification local object class to the enumeration "loss of communications"
and may remove power from the PD.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **33**   *SC* **33.8**   *P* **100**   *L* **25**   # 429

Barrass, Hugh   Cisco

Comment Type **T**   *Comment Status* **D**   *Loss of Communication*

Figure 33-9 (the PSE state machine) doesn't seem to show that...

"The PSE may remove power at any time..."

Shouldn't this be 33.2.9.9 - that allows the PSE to remove power for overload conditions.

SuggestedRemedy

Change from:

The PSE may remove power at any time per Figure 33-9.

To

The PSE may remove power at any time per 33.2.9.9

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The pse_reset variable causes the state machine in Figure 33-9 to go into the IDLE state
which removes power

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

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Cl **33**   *SC* **33.8**   *P* **100**   *L* **3**   # 430

Barrass, Hugh   Cisco

Comment Type   **T**   *Comment Status* **D**   *Loss of Communication*

I don't see how the first scenario can be called "loss of communication" since it is a failure to start communication - you can't lose what you don't have.

Furthermore the other two scenarios are the same (in terms of what cause the loss of communication - it's the response to the loss that differs).

Additionally, the systems cannot "revert" to the last acknowledged state unless there has been some change from that state - which would only happen after an acknowledged change request. A better word would be "maintain."

Finally, the preamble and the three bullets appear to be redundant when considered with the rest of the clause. It does not define loss of communications (as required for the state machine).

SuggestedRemedy

Commenet reference **HB-04**

Change

There are three scenarios which may cause a loss in management frame communication:

1) Management frame communication not established after power-on, resulting in systems using the power values established with Physical Layer classification
2) Loss in management frame communication, resulting in systems reverting to last acknowledged Data Link Layer classification power value
3) Loss in management frame communication or communication not established after power-on, resulting in PSE optionally power cycling the PD after 2 × TTL timeout value time period

To

Loss of management frame communication (signaled by loss_of_comms) occurs when no management frame is received within any 2 minute period. This is equivalent to 4 missing management frames transmitted at the 30 second interval defined in 33.7.1.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The issue is what constitutes a loss of communication. The current scheme, conceived by an active member of .3, was designed to allow for prolonged periods where a loss of communication would not be declared so that some other process that may take a while could run. For example, a FW upgrade.

Can discuss further with Loss of Communication comments: There are several comments

on the behaviour for loss of communication. Need to decide what to do here:
- Keep as is
- Remove restriction that the power is removed
- Enhance the current scheme

Cl **33C**   *SC* **33C.1.4**   *P* **125**   *L* **20**   # 270

Darshan, Yair   Microsemi Corporation

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

Draft D3.0
The PSE is not required to support Ctest=1000uF during startup.
PD that use Cpd>180uF is reasonsible to limit Inrush current to 400mA.
PD that use Cpd<=180uF is current limited by the PSE during startup. In this case the worst case time to fully charge the capaciotor is much less then 50msec however the PSE is required to be in Inrush current limit state for 50msec minimum.
Therfore Ctest is a maximum number for compliance!
Ctest need to be Ctest=Iinrush*TLIM/Vport for mesuring Tinrush (used to be TLIM).
Compliance test equipment should use Ctest that fits the PSE parameters above.

SuggestedRemedy

1. Delete the 1000uF value from Ctest in figure 33C.3
2. Change line 33 item 3 from:
"The capacitive load value Ctest is chosen to emulate inrush current during a startup mode condition.
Ctest is chosen larger than that allowable for Cpd to ensure the PSE stays in inrush current limit for more than 75 ms or until TLIM is reached. Smaller Ctest capacitor values can be used as long as Ctest > (IInrush × TLIM / VPort).

To:
"The capacitive load value Ctest is chosen to emulate inrush current during a startup mode condition.

Ctest is chosen larger than that allowable for Cpd (180uF) to ensure that the PSE under test stays in inrush current limit for at least 50msec.
Ctest is derived from Table 33-9 items 1,6 and 7 of the PSE under test by the following equation: Ctest = (IInrush × TLIM / VPort).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

243 (OBE?)

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **33C**
SC **33C.1.4**

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