Cl **01** *SC* **1.2.1** *P* **2** *L* **10** # **148**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *MDI*

A mid-span has a MDI!

SuggestedRemedy

Change ""MDIs"" to ""equipment""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change definition to:
"1.2.1 Midspan: A location within a link segment that is distinctly separate from and between the endpoints."

Also see E comment #104.

Also:
PI: generic Power Interface for PSE or PD
PI for an endpoint PSE or a PD is also the MDI.
Global search for "MDI" and replace with PI.
Use PI whenever possible to refer to either an endpoint or midspan PSE.
If differentiation is needed:
use "Endpoint PI" when referring only to endpoint PSE, and
use "Midspan PI" when referring only to midspan PSE.

Geoff Thompson supplied new Figures 33-1, 33-2, and 33-3,
and title and words for 33.1.3. See ArchDwgsDTE-Pwr.pdf

Under Definitions add:

Power Interface (PI): The mechanical and electrical interface between the Power Source Equipment (PSE) or Powered Device (PD) and the transmission medium. In an Endpoint PSE and PD the power interface is the MDI.

UNDER 33.1.1 Terminology add:

The Power Interface (PI) is the mechanical and electrical interface between the Power Source Equipment (PSE) or Powered Device (PD) and the transmission medium. In an Endpoint PSE and PD the power interface is the MDI. Specifications that are defined at the MDI that is a power interface shall also apply to an Endpoint PSE or PD. Specifications at a MDI that is a power interface include a functional PHY.

Replace all references to MDI with PI, except:

Those that refer to other clauses.
Those that refer to the title DTE power via MDI
Those that refer to the MDI connector, i.e.: MDI-X, etc.

Correct Cobb comments 147, 150, 151 to refer to resolution comment.

9/4/02:
Further discussion on this comment took place after the meeting at Chelmsford. The comment resolution recognized that the MDI only occurs at an endpoint, and that an acronym other than MDI was needed to name the interface between a midpoint PSE and the media. The following is a change to the response relative to 33.1.1. The differences are believed to be purely editorial. They were proposed/reviewed and approved by those working on the resolution to comment #148 at Chelmsford, and implementation of the slightly different response was approved by the IEEE 802.3 WG Chair.

Under 33.1.1 add:
The Power Inrterface (PI) is the generic term that refers to the mechanical and electrical interface between the Power Source Equipment (PSE) or Powered Device (PD) and the transmission medium.
In an Endpoint PSE and in a PD the PI is encompassed within the MDI.
Specifications that are defined at the MDI that is a PI apply to an Endpoint PSE.
In a midspan the PI is defined as the Midspan Power Interafce (MPI).
Specifications that are defined at the MPI apply to a Midspan PSE.

Replace all references to MDI with MPI where the term MDI references a connector on a mid-span. Replace all
references to MDI which are generic power interfaces with PI.

Cl **01** *SC* **1.2.2** *P* **2** *L* **12** # **149**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *MDI*

medium connection is not clear

SuggestedRemedy

Change definition to: ""That portion of the link segment from the mid-span PSE to the PD.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Propose change to suggested remedy as follows:

""1.2.2 Link Section: The portion of the link segment from the PSE to the PD.""

Also see E #104.

Cl **01** *SC* **1.2.2** *P* **2** *L* **13** # **150**

Cobb, Terry — Avaya Inc.

Comment Type **T** *Comment Status* **A** *MDI*

The definition of the MDI, 1.4.170, does not include a ""PD"" or ""PSE"".

SuggestedRemedy

Include a ""PD"" and ""PSE"" in the definition.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Propose to add editorially definitions of PSE and PD to clause 1.4.170.

Refer to resolution of comment 148.

Cl **30** *SC* **1.2** *P* **8** *L* **31** # **109**

Grow, Bob — Intel

Comment Type **T** *Comment Status* **A** *Management*

Looks like a cut and paste error. Shouldn't the object name be ""oResourceTypeID""? Additional minor typos.

SuggestedRemedy

Change paragraph title to ""oResourceTypeID"".
In line 34, NAMEBINDINGs should be NAME BINDINGs (syntax of 30A).
In line 34, strike through and underscore aren't shown, 802.3-2002 reads ""30A.8.1"" (not changed by 802.3ae) which has been corrected to ""30A.10.1"". (If this is an errata accepted by maintenance, then never mind.)

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **9.1.1.1** *P* **13** *L* **18** # **423**

Darshan, Yair — PowerDsine

Comment Type **T** *Comment Status* **A**

It is not clear what is the difference between aPSEID (page 13 line 18) and aMidSpanID as indicated in page 17 line 26.

SuggestedRemedy

Clarify the difference between aPSEID and aMidSpanID.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. 8/19

Action:

do a search for midspan and make sure all references are consistent

New definition for "midspan" (1.4.x)
An entity located within a link segment that is distinctly separate from and between the endpoints

Cl **30** *SC* **9.1.1.10** *P* **16** *L* **12** # **417**

Darshan, Yair — PowerDsine

Comment Type **TR** *Comment Status* **A** *Management*

After Over_Current conditions the power is removed and next operation would be after 1 cycle of Ttot. So the number of events of Over_Current conditions is 1 per sec or so.

SuggestedRemedy

In line 12: Change from ""max increment rate of 20"" to ""max increment rate of 2""

Proposed Response *Response Status* **C**

ACCEPT.

Consistent with 30.9.1.1.9 which is 2 counts per second.

Cl **30** *SC* **9.1.1.6** *P* **14** *L* **38** # **77**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

[lines 38-46]undefined statements

SuggestedRemedy

What's the difference between invalidPD, fault, and unknownPD
Also the description needs of the states, needs the description of unknownPD

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Action item.

The enumeration and the behavior definition
must be updated to match the state mechine,
the new figure.

Cl **30** *SC* **9.1.1.6** *P* **14** *L* **51** # **421**

Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A**

Clarify the meanig of ""searching"" as indicated in page 14 line 40.

SuggestedRemedy

Add the following text to page 14 line 52 at the end of the previous sentence:
""In addition, If valid PD or non-valid PD or fault condition was not identified it will be considered as searching mode""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. 8/19
Promoted to T.

See comment 77.

Cl **30** *SC* **9.1.1.9** *P* **16** *L* **4** # **420**

Darshan, Yair PowerDsine

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

The remarks refer to both Over Current Counter & Under Current Counters, as defined in 16 line 4 & 15.
As currently defined - both counters accumulates the OVL / UDL events, without relating to TIME scale. One can read those counters without being able to easly create an ERRORS vs. TIME line. It looks like the requirements relate to those parameters as the legacy CRC errors or other Data Errors Bursts, which helps the administrator locate a marginal Data Connection or a BAD link.
The OVL / UDL events are typically NOT like that. It is NOT a ""burst"" type of error, therefore we see NO point of implementing an OVL / UDL accumulating counters. Instead - We recommend going back to the original definition, in which both events are LATCHED in the system while creating an SNMP TRAP. This way - the manager SNMP HOST does not have to POLL the physical PSE system in a 'crazy' rate ... boosting the communication line.
As currently defined - Those counters can be implemented in the PSE hardware control (SILICON = $) and the SNMP host should read the counter from the H/W by polling it every xxx sec / hours etc. In this way it is either costlly in SILICON area or creates a load over the communication lines for NO REAL REASON.

SuggestedRemedy

We recommend going back to the original definition, in which both events are LATCHED in the system while creating an SNMP TRAP.

Proposed Response *Response Status* **Z**

Cl **30B** *SC* **2** *P* **31** *L* **19** # **79**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

missing the AC disconnect Bit from all the mangements module.
please go through the whole draft and fix it.

SuggestedRemedy

add AC disconnect along with Undercurrent bits

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. In 30.9.1.1.8:

Change section title to "aPSEPowerMaintenanceStatus"
Change title of 30.9.1.1.9 to "aPSEMPSAbsentCounter"

Replace the following
ok current normal
underCurrent undercurrent condition has been detected
overCurrent overcurrent condition has been detected

with
ok MPS present and overcurrent condition not detected
MPSabsent MPS absent
overCurrent overcurrent condition has been detected

reword behaviour as necessary.

Also in 30.9.1.1.9:
" . . . that the aPSEPowerMaintenanceStatus attribute changes . . . the enumeration "MPSabsent"

also global replace PMS with MPS
and the words Power Maintenance Signature with
Maintain Power Signature.

Cl **30B** *SC* **2** *P* **31** *L* **35** # **80**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

invalid PD does not apply

SuggestedRemedy

change invalid PD to unkown since we can be higher than 33k or open

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Change enumeration: invalidPD to invalidSignature

Change associated comment to read "invalid signature detected"

Cl **33** *SC* **1.1** *P* **33** *L* **36** # **113**
Grow, Bob Intel

Comment Type **T** *Comment Status* **A** *MDI*

The shall isn't appropriate. This a definition.

SuggestedRemedy

Change ""shall be"" to ""is"". Delete PICs item G6 on page 93

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **1.3** *P* **35** *L* **18** # **147**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *MDI*

In Figure 33-2 the PSE does have a MDI on both ends on the box which denotes the PSE.

SuggestedRemedy

Add MDI with arrow to both ends of the box.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

8/21:

Superseded by resolution to comment 148.

Cl **33** *SC* **2.1** *P* **36** *L* **44** # **280**
Hinrichs, Henry Pulse Inc.

Comment Type **T** *Comment Status* **R** *MDI*

The last paragraph of this subclause is missing. In the March plenary it was agreed to remove the portion of text discussing active current balancing. However it was not agreed to remove the entire paragraph.

SuggestedRemedy

Starting at blank line 44, add the following: ""The difference in current measured between two conductors of the same pair shall not differ by more than 8 mA at the PSE connector.""

Proposed Response *Response Status* **C**

REJECT.

Already specified in Table 33-5, Item 15.

Cl **33** *SC* **2.10** *P* **60** *L* **45** # **63**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **D** *PSE Output*

A PSE shall not initiate power to a PD unless it can deliver it all.
but what if a PD want my last xxma to tell the user that the PSE ain't got the power left.

SuggestedRemedy

we may need to keep this option open to allow a PD to wake up and say something.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

Propose that there are means by which the requested functionality can be provided within the existing bounds of the clause.

Cl **33** *SC* **2.10** *P* **61** *L* **13** # **65**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

max frequency is 500hz

SuggestedRemedy

change to 100hz lab work shows that 100hz is better spec.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change maximum frequency to 450Hz.

Cl **33** *SC* **2.10** *P* **61** *L* **16** # **66**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **X** *Power Removal*

slew rate max is 0.1v/us, this applies for a sinewave only!

SuggestedRemedy

we have not mandated that it would be a sine wave.
so how does this number affect a non sine why not spec a tr/tf?

Proposed Response *Response Status* **Z**

This AC power removal slew rate comment is related to comment #93, which is concerned with the DC detection slew rate.

Cl **33** *SC* **2.10** *P* **61** *L* **37** # **337**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

The magnitude of the impedance should be shown for Zac1 and Zac2.

SuggestedRemedy

Indicate that the values presented are impedance maganitudes.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add magnitude bars around Zac1 and Zac2 in Item 5, Table 33-6.

Additionally, insert text in note column of table:
Impedance shall have non-negative resistive component and a net capacitive reactive component.

Cl **33** *SC* **2.10** *P* **61** *L* **37** # **358**

Huynh, Thong A. — Maxim Integrated Prod

Comment Type **TR** *Comment Status* **A** *Power Removal*

The Zac1 and Zac2 must be specified at a frequency or over a frequency range

SuggestedRemedy

Specify a frequency or frequency ranges for these parameters

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In note column for Table 33-6, Item 5, add note "Over the frequency range Fp."

Cl **33** *SC* **2.10** *P* **61** *L* **39** # **338**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

The impendance Zac2 is made up of two components -- real and imaginary. Circuits will operate more reliabily if the real component is increased in value. The maximum value for this is determined by the PD leakage and voltage specification. This has a minimum value of 3.6M-ohms when the PD voltage is 36V and it has 10uA of leakage current.

SuggestedRemedy

Add a note that permits that maximum real portion of the impedance to be 2 M-ohms.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Subject to resolution of comment #398.

Cl **33** *SC* **2.10** *P* **61** *L* **40** # **67**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

the min number is too agressive on Zac2, lab results and testing shows that about 2meg is to be used here

SuggestedRemedy

change Zac2 to 2meg

Proposed Response *Response Status* **C**

ACCEPT.

Subject to resolution of comment #398.

Cl **33** *SC* **2.10** *P* **61** *L* **42** # **73**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **X** *Power Removal*

missing from the ac spec that the PSE may shut the AC off when the PD is removed.

SuggestedRemedy

we need a box that allows a PSE to shut the AC off during the Signature discovery.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **2.10** *P* **61** *L* **7** # **317**

Dwelley, David Linear Technology

Comment Type **TR** *Comment Status* **A** *Power Removal*

Min should be >1.8V to detect through two cold diodes

SuggestedRemedy

Change min to 1.8V

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment will be addressed by the resolution of comment #398, which changes value to 1.9v.

Cl **33** *SC* **2.10** *P* **61** *L* **7** # **74**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

need a note to state that the 0.1vdc number include AC ripple and noise it is the absolute Max allowed when the PD is connected.

SuggestedRemedy

again this has to do with SELV just want to be clear that the total AC is 0.1*vdc ...

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In item 1 of Table 33-6 change "0.1*vdc" to "0.1*Vport". This also needs to be harmonized with safety (60950) requirements for SELV.

Cl **33** *SC* **2.11** *P* **61** *L* **37** # **398**

Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A** *Power Removal*

At May 2002 meeting we decide to finalize the values of Zac1 and Zac2.
Currently Zac1 is 33K max and Zac2 is 500Kmin.
So here it is:
Zac1 is uniqly defined by its load load model as defined in table 33-14 item 2 with the addition of possible offset voltage of up to 2V generated by optional series diodes.
Zac1 cant be defined only by a specific number due to the fact that it is depend on the ac voltage level, shape and frequency used to measure it.
Therefor we should replace the number Zac1=(33k) with the specific load definition for zac1 which is max of 26.25K resistor in parallel to 0.05uf capacitor as the highest ac impedance for Zac1 with the addition of series diodes generating 2V offset.

In similar way we have to define Zac2 as the same load model but with 1MEG resistor (I have changed from 500k to 5MEG for having better optimization).

There is no need to define additional margin for the PSE due to the fact that the 33K is already within the 26.25k to 5MEG range which is the gray area (may or may not remove power).

SuggestedRemedy

Line 37: replace ""(33k)"" with ""see figure TBD1""
Line 40: replace ""(500k)"" with ""See figure TBD2""

(Figure TBD1 consist of series diodes with 1.9V voltage drop connected to 26.25K +/-1% resistor in parallel to 56nF +/-10% capacitor.)

(Figure TBD2 consist of series diodes with 1.9V voltage drop connected to 5MEG +/-1% resistor in parallel to 56nF +/-10% capacitor.)
Attached figures TBD1 and TBD2.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Table 33-6:
Line 37: replace ""(33k)"" with ""25.9k, with up to 1.9V of series diode drop, see figure TBD1""
Line 40: replace ""(500k)"" with ""2Meg, see figure TBD2""

(Figure TBD1 consist of series diodes with 1.9V voltage drop. The input impedance of Figure TBD1 is 27K max.)

(Figure TBD2 consists of a 2MEG resistor.)

See Table 33-6 and figures TBD1 and TBD2 as presented by Yair in July.

See also comment 337.

Cl **33** *SC* **2.11** *P* **61** *L* **47** # **68**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **X** *Power Removal*

if the PD uses an Auxiliary power source,
then a Min AC impedance should be present to keep the PSE from removing standby power.

SuggestedRemedy

we may want to spec a min Zac when the auxiliary power is to be on standby.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **2.11** *P* **61** *L* **48** # **127**

Grow, Bob Intel

Comment Type **T** *Comment Status* **A** *Power Removal*

What A and B? This needs a crossreference. The best I could find was 33.3.6 but couldn't find A and B in the subclause.

SuggestedRemedy

Clarify what A and B with appropriate cross reference and/or text.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Addressed by proposed response to comment #348 Editorial.

Cl **33** *SC* **2.11** *P* **61** *L* **51** # **75**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Power Removal*

just to be clear with PD designers, we need to add that the Power Removal signature applies to Valid IEEE devices only.

SuggestedRemedy

add a statement the the AC impedance of the PD is valid only if it is representative of a valid PD with passive resistors and not some off the wall current source or strange AC load.

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **2.11** *P* **62** *L* **30** # **429**

McCormack, Mike

Comment Type **T** *Comment Status* **A** *Power Removal*

Convert test figures where appropriate to remove specific electronic components and replace with behavioral block diagrams.

SuggestedRemedy

Convert/change the following figures:

33-9, 33-10, 33-11, 33-13, 33-15, 33-17, 33-20, 33-22, 33-24, 33-29

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **2.11.1** *P* **62** *L* **19** # **71**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

we are doing AC load testing, please remove

SuggestedRemedy

the Iport box is not needed. please remove.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **2.11.1** *P* **62** *L* **30** # **339**

Schindler, Fred Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

The typical characteristic of the diodes used in test circuits should be provided.

SuggestedRemedy

The diodes in the test circuit conduct and have a nominal voltage drop of 0.65V when the forward current exceeds 100uA.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Diodes will be labelled with their voltage drops as appropriate to the figures in which they appear.

Cl **33** *SC* **2.11.1** *P* **62** *L* **34** # **69**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

change Rsig2 to ZAC2 and make it 2MEG

SuggestedRemedy

the 510k holder is off again.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment is addressed by the resolution of comment #398.

Cl **33** *SC* **2.11.1** *P* **62** *L* **34** # **72**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Power Removal*

We do not have a value for Rsig1

SuggestedRemedy

add a value for Rsig1 to be 33k

Proposed Response *Response Status* **C**

REJECT.

Rsig1 is defined on P62, L49.

Cl **33** *SC* **2.11.1** *P* **62** *L* **38** # **70**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

we do not match the signature characteristics here.

SuggestedRemedy

change CPD1 to be on the other side of the diode.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. 8/20/02:
Motion to:
Add to 33.3.6:
The Maintain Power Signature shall remain valid when tested with both positive and negative voltages at the PD terminals.

Moved by McCormack
Seconded by Cullin

Technical 75%: Y 16 N 0 A 0.

(Motion tabled until 3PM ET
Vote to table:
10 Y 0 N 1A)
Passed

Cl **33** *SC* **2.11.1** *P* **62** *L* **44** # **85**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

missing the phasing in of the AC disconnect i did my best to keep track of bits and details here and there, but for sure missed a thing here and there sorry.

SuggestedRemedy

we may need to revisit the AC - disconnect missing pieces across the draft to adjust it and balance it to make it as solid as the 5maa spec.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Need to ensure that AC disconnect is properly included in all sub-clauses where required.

Cl **33** *SC* **2.11.1** *P* **63** *L* **21** # **76**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Power Removal*

again not clear what tx is?

again why 1v as a reference, why not 44v say my pse is running 50v?

SuggestedRemedy

please clarify tx.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Addressed by resolution to comment #398.

Cl **33** *SC* **2.2** *P* **36** *L* **47** # **151**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *MDI*

The PSE has a MDI.

SuggestedRemedy

Change the ""MDI"" to ""equipment"" in the first and second line of that paragraph.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Agreed to replace "MDI" with "DTE" throughout the paragraph [33.2.2 lines 47 to 51].

8/21:
Superseded by resolution to comment 148.

Cl **33** *SC* **2.3** *P* **38** *L* # **89**
karam, Roger Cisco Systems

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

we don't want to claim that the PSE state diagram is fully functional and covers all the possible checks and specs of the standards now do we?

SuggestedRemedy

need a note to specify that the PSE state diagram is a basic one and does not cover the whole standard.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **2.3** *P* **38** *L* **19** # **87**

karam, Roger Cisco Systems

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

The flowchart does not show anywhere a check to go back to the idle state.

SuggestedRemedy

add a check box to allow the return to idle anytime.

Proposed Response *Response Status* **C**

ACCEPT.

The revised state diagram addresses this.

Cl **33** *SC* **2.3** *P* **38** *L* **40** # **88**

karam, Roger Cisco Systems

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

Ac disconnect check box missing in flow chart.

SuggestedRemedy

change the ICUT check to allow for ac disconnect.

Proposed Response *Response Status* **C**

REJECT.

Icut does not relate to disconnect. PMS is included and does relate to ac disconnect.

Cl **33** *SC* **2.3** *P* **38** *L* **5** # **120**

Grow, Bob Intel

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

The state diagram is a major improvement, but it has a ways to go yet. Both editorial (style) changes and technical changes are required.

1. 802.3 state diagrams generally use lower case for functions, counters, etc. (most of what is in Figure 33-5 and Figure 33.25 except for state titles.
2. Use underscores rather than spaces in state names.
3. Functions and variables need to be defined (e.g., PMS with two values VALID and INVALID). (The transition into PMS_INVALID then becomes PMS = INVALID, and out of the state PMS = VALID.)
4. Outputs need to be set on state entry for mapping to MIB attributes (e.g., class; current_status = normal, under or over)
5. Wait periods should be done as timers/counters.
6. Use of UCT for unconditional transitions (though I'm not convinced there are any legitimate UCT transitions.

SuggestedRemedy

Recommend a small team (including some 802.3 state machine ""experts"") produce edited diagrams for consideration by TF before the meeting.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Ad hoc committee completed a state machine
which will be incorporated in D3.2,
with appropriate editing as required.

8/28 :
During the state diagram
review an additional PD attribute aPDAdminState, and associated action, was requested to allow PD to effectively be halted from requesting power.

Cl **33** *SC* **2.4** *P* **39** *L* **11** # **90**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

PD Detection shall operate without regard to data link status.
why shall, this also contradicts the language in line 6, where we say the PD is not required to probe the link? hello?

SuggestedRemedy

replace the word shall with ""May"" afterall if the far end is a legacy device i may want to respect the infrastructure and turn the 30v ac dectetion off.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change 33.2.4 line 11 to:

"PD detection is independent of data link status. . . ."

Cl **33** *SC* **2.5** *P* **39** *L* **23** # **371**

Darshan, Yair — PowerDsine

Comment Type **TR** *Comment Status* **A** *Detection*

Figure 33-6, line 23:
In order to get 10V across the port at minimum valid signature of 19K while the max open port voltage is 30V requires that Zsource min will be less than 70K. In this case Zsource should be: Zsource max= (30-10)*19k/10v=38k.

The question is if there is a reason why we choose 70K min i the past?
The anser is that we thought at the early days of the standard to prevent a case of when two PSEs are connected in paralle so the total resistance can fall into the detection range. According to this Zsource should be greater than 66K.

The last decision that we had according to that issue was that we dont care if two PSEs are generate together valid signature as long as no damage is occure.

Lately in May 2002 we decide that we dont care if PSE detects a load with valid signature value without being valid PD(so it will get a power if the ac disconnect detection is being used.

The question of ISDN drops also checked and it is not a problem too due to the fact that according to IEEE 802.9 TABLE 14-1 PAGE 7, the pin arragment is preventing a DC path from or to the PSE (pis 3,6 is used for TX and 4,5 for RX)

So according to the above reasoning ther is no reason to prevent reducing Zsource in figure 33-6 to 37K min. (Having some margin from 38K)

Since this number is minimum, the 70K value is inside this range.

Other option if we still wants to prevent that two PSEs will generate a valid signature value is to define that Zsource for figure 33-6 is:
Zsource >66K or Zsource <15K so we are not inside the valid signature zone (15K<Rsig<33K).

We dont have to worry about high current flowing through the port when two PSEs are connected together due to the fact that Iport is limited to 5mA during detection.

SuggestedRemedy

Change the definition of Zsource in figure 33-6 to:

Option A: Zsource >37K
Option B: 15K> Zsource >66K
Option C: To allow both options A and B.

to be discussed by the group.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Redefine Zsource of a valid PSE to be the following:

Zsource > 45kohms

Insert in a suitable place TBD:
The PSE shall not be damaged by up to 5mA backdriven current over the range of Vport as defined in Table 33-5.

Cl **33** *SC* **2.5** *P* **39** *L* **50** # **325**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

The purpose of D1 is stated to be ""protects he PSE against reverse voltages.""
This does not provide the complete picture of the diode's intent. A PSE can be designed so that it is not damaged by a connection
to another PSE without D1. Additionally, D1 looks redundant with D2, of figure 33-7.

SuggestedRemedy

..., diode D1 prevents a valid PD detection signature for a reversed voltage PSE to PSE connection.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Rather than:

diode D1 prevents a valid PD detection signature for a reversed voltage PSE to PSE connection

Propose the following:

diode D1 ensures a non-valid PD detection signature for a reversed voltage PSE to PSE connection.

Cl **33** *SC* **2.5** *P* **39** *L* **52** # **91**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

when the PSE decides to no longer detect and supply power.
we say nothing about its impedance, do we care?

SuggestedRemedy

The PSE MAY go to a high impedance state if it elects not to discover a PD (temporarily ceases to be a pse)

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a new item to table 33-5 after item 13 to be called "Off State Voltage", with symbol Voff, maximum 2.8VDC. Include an explanatory note to the effect:

"Port voltage shall be below Voff when PSE is in Idle state."

Cl **33** *SC* **2.5** *P* **40** *L* **3** # **92**

karam, Roger — Cisco Systems

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

figure 33-7 in all detection states.
we may want to exclude the ac-disconnect as power is turned off state.

SuggestedRemedy

in all detection states except while ac-disconnect is in progress.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

Cl **33** *SC* **2.5.1** *P* **40** *L* **10** # **102**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **R** *Detection*

we do not spec the min rise time during ""dc detection"" which looks more ac by the day to me.

SuggestedRemedy

spec the min rise/fall time of the switch between the detection voltages needed to measure the slope. do we want to spec a frequency and a duty cycle?

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **2.5.1** *P* **40** *L* **12** # **93**

karam, Roger — Cisco Systems

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

to be lower than 0.1v/us
i thought slew rate is a sinusoidal parameter.
we may want to state that we do not require the signature discovery to be sinusoidal though it may.

SuggestedRemedy

to be lower than 0.1v/us if the switching between the voltages is sinusoidal.

Proposed Response *Response Status* **Z**

This DC detection slew rate comment is related to comment #66, which is concerned with the AC power removal slew rate.

Cl **33** *SC* **2.5.1** *P* **40** *L* **13** # **103**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **R** *Detection*

today we say do the slope method, go up and down and thus forced ourselves into an low freq detection that is ""ac"" in reality.
this has a chance to cause interference one day, so we should allow a PSE to sit idle while it is open!
and once it sees a PSE-like device to use the slope method for discovery....

SuggestedRemedy

in order to make a ""quite"" PSE compliant, such a statement may be needed.

Proposed Response *Response Status* **C**

REJECT.

The spec already allows this.

Cl **33** *SC* **2.5.1** *P* **40** *L* **8** # **356**

Huynh, Thong A. — Maxim Integrated Prod

Comment Type **T** *Comment Status* **R** *Detection*

""...will create at least 1V difference..."" is a typo.

should read "".....will create at least 2V difference..."""

SuggestedRemedy

Change ""1V"" to ""2V""

Proposed Response *Response Status* **C**

REJECT.

Resolution of D3.0 comment #172 changed this value to 1V.

Cl **33** *SC* **2.6** *P* **40** *L* **16** # **94**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **R** *Detection*

Vdetect polarity should match the polarity of vport as defined in 33.2.1
just asking -- do we care? and why?

SuggestedRemedy

we may want to leave this out or recommend it if is worth anything.

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **2.7** *P* **41** *L* **41** # **311**

Dwelley, David — Linear Technology

Comment Type **TR** *Comment Status* **A** *Classification*

""Applied Voltage Method"" should read ""Applied Current Method""

SuggestedRemedy

Change to ""Applied Current Method""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution of E comment #124.

Cl **33** *SC* **2.7** *P* **41** *L* **5** # **310**

Dwelley, David — Linear Technology

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

Should add voltage and current scales to diagram

SuggestedRemedy

Add voltage and current scales to diagram

Proposed Response *Response Status* **Z**

PROPOSED ACCEPT.

Cl **33** *SC* **2.7** *P* **41** *L* **50** # **97**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Classification*

need a note on oscillation and possibly a test/verification ckt.
there seem a few folks who believe current based classification will cause oscillations ? do we care about a robust standard if yes what should we do here?

SuggestedRemedy

This is an issue that we have still to resolve.
worst case, provide a way to insure such behavior is found....

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Addressed by resolution to comment #318 (monotonicity). In addition, add the following statement on pg 41 line 2:

The PSE classification circuit should have adequate stability to prevent oscillation when connected to a PD.

Cl **33** *SC* **2.7.1** *P* **42** *L* # **373**

Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A**

Table 33-2, at class 4, column ""Max power levels at output of PSE""
Should be the same definition as in Table 33-3 line 50: ""PSE may default to Class 0 or not power the PD""

SuggestedRemedy

Table 33-2, at class 4, column ""Max power levels at output of PSE"":

Replace "" Treat as class 0"" with ""PSE may default to Class 0 or not power the PD""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. 8/19
Promoted to T

In tables 33-3 and 33-4 insert guardband rows between classes 0 through 4.
E.g., > 13 and < 16 mA may be class 0, 1, or 2.
E.g., > 21 and < 25 mA may be class 0, 2, or 3.

Also, delete last rows in tables 33-3 and 33-4.
Add a sentence after the tables, e.g.,
If classification is performed and the measured Iclass is
greater than 47 mA, the PSE shall not power the PD.

Passed by acclamation.

Cl **33** *SC* **2.7.1** *P* **42** *L* **20** # **154**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Classification*

In table 33-2 under column 2 Usage, Class 4 is not really optional. In the column 4 for power levels at the PD, if you treat it as class 0 then it should have the same power level as class 0.

SuggestedRemedy

Drop the word ""Optional"" for Class 4 and add the Class 0 power levels to the last column.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove "optional" from Class 4 row in the Usage column and leave column 4 unchanged.

Cl **33** *SC* **2.7.1** *P* **42** *L* **49** # **326**

Schindler, Fred Cisco Systems

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

The statement ""or may not power the PD"" contradicts the information provided on line 20-21 on the same page.

SuggestedRemedy

Remove ""or may not power the PD"" or allow this condition in table 33-2.

Proposed Response *Response Status* **Z**

Comment #327 is same for measured voltage method.

Cl **33** *SC* **2.7.2** *P* **42** *L* **48** # **313**

Dwelley, David Linear Technology

Comment Type **TR** *Comment Status* **A** *Classification*

Class 4 limits may be too tight (also p43 line 30)

SuggestedRemedy

New limits TBD (will bring to Vancouver)

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comments 313 and 321 relate to Class 4 currents from perspective of PSE and PD respectively.

Increase class 4 band to be 35 to 45 mA in Table 33-3.
Modify Table 33-4 to match.

Cl **33** *SC* **2.7.2** *P* **42** *L* **50** # **99**

karam, Roger Cisco Systems

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

47-100ma
isn't the 100ma too big and could cause potential damage?

SuggestedRemedy

Lower the 100ma max current during specification

Proposed Response *Response Status* **Z**

Cl **33** *SC* **2.7.2** *P* **42** *L* **54** # **98**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Classification*
missing the classification time-

SuggestedRemedy
please add the classification time is a maximum of 75ms

Proposed Response *Response Status* **C**
REJECT.

Classification time is provided in Table 33-5, Item 20.

Cl **33** *SC* **2.7.3** *P* **43** *L* **33** # **327**
Schindler, Fred Cisco Systems

Comment Type **TR** *Comment Status* **X** *Classification*
The statement ""or may not power the PD"" contradicts the information provided on line 20-21 on page 42.

SuggestedRemedy
Remove ""or may not power the PD"" or allow this condition in table 33-2.

Proposed Response *Response Status* **Z**

Comment #326 is same for measured current method.

Cl **33** *SC* **2.7.3** *P* **43** *L* **37** # **100**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **X** *Classification*
missing classfication time
and we have a potential problem here with oscillation

SuggestedRemedy
remove this section if there is consensus,
or spec a way to verify that the pse or the pd would not oscillate check...
add classification time if we keep it.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **2.8** *P* **43** *L* **41** # **331**
Schindler, Fred Cisco Systems

Comment Type **TR** *Comment Status* **A** *Classification*
Statement ""... of a detection"" should state that this is a valid detection.

SuggestedRemedy
Add valid to the referenced statement: ""... of a valid detection"".

Proposed Response *Response Status* **C**
ACCEPT.

Cl **33** *SC* **2.8** *P* **43** *L* **42** # **375**
Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A** *Classification*
1. Ttot is measured from the time that the PD was connected to the port and not from the time that the detection starts.
2. ""..detection/classification cycle"" is not clear.
3. In addition in line 43: Ttot is a cycle time not turn on time.

SuggestedRemedy
Change line 42 to:

""If PSE is going to apply power, it shall be within Ttot after the connection of the PD to the port.
Ttotal is a max cycle number which include the max values of Detection, Classification and power turn on time.""

Line 43: delete the words ""turn on"" after ""Ttot""

Proposed Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change the first statement of 33.2.8 as follows:

""When a PSE applies power, it shall do so within Ttot after the start of the most recent valid detection cycle."

Delete lines 43-46.

Change 400ms to Tpon and add statement as follows on line 50:

". . . in less than Tpon, if power is to be applied. If the PSE cannot supply power within Tpon it must initiate a new detection cycle."

Cl **33** *SC* **2.8** *P* **43** *L* **49** # **328**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Classification*

Statement ""... valid detection in less"" should also include the optional detection. See page 46, line 30 for the conflict of information.

SuggestedRemedy

Changed the referenced statement to ""... valid detection and optional detection.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change referenced statement to ". .valid detection and optional classification."

Cl **33** *SC* **2.8.1** *P* **44** *L* **1** # **125**

Grow, Bob — Intel

Comment Type **TR** *Comment Status* **A** *Detection*

This is not included in the state diagram.

SuggestedRemedy

The backoff needs to be added to PSE state diagram.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **2.8.1** *P* **44** *L* **16** # **101**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

PSE need not perform the detection backoff.
well what if it is cheaper on the implementation to do so.
why are we preventing it from backing off

SuggestedRemedy

PSE may or may not perform the detection or just leave the text out.
delete it.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Text indicates that performance of the detection backoff algorithm is optional if the PSE detects an open circuit.

"If the PSE that is performing . . . On the link segment, then that PSE may optionally skip the detection backoff."

Cl **33** *SC* **2.8.1** *P* **44** *L* **8** # **84**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

[lines 8-12] may have an oops in here

section 33.2.8.1 ""During this detection backoff, the PSE is exempted from the overall detection timing specified in 33.2.8.""
Remove statement, Midspan PSe shouldn't be doing anything during backoff time, but while detection should still abide by 33.2.8 if detected a valid phone.

SuggestedRemedy

Remove statement, Midspan PSe shouldn't be doing anything during backoff time, but while detection should still abide by 33.2.8 if detected a valid phone.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment is addressed by comment #378 which changes "one cycle" to "one backoff cycle" on line 12 in 2.8.1.

Cl **33** *SC* **2.9** *P* **44** *L* **21** # **29**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

Missing the section that allows the use of cat-5 cables and lowers PD cost.

SuggestedRemedy

Under any load or short circuit condition, the maximum current from the PSE port shall comply with the requirements for a Limited Power Source (LPS) as stated in UL60950/CSA-C22.2 No. 60950/IEC60950.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The international versions of these standards are already referenced in 33.5.1 on page 84 line 50.

On page 84, line 50, add the following text:

"In particular, the PSE shall be classified as a Limited Power Source in accordance with IEC publication 60950."

Resolution of this comment will also address comments 31 and 42.

Cl **33** *SC* **2.9** *P* **44** *L* **51** # **314**

Dwelley, David — Linear Technology

Comment Type **T** *Comment Status* **A** *PSE Output*

Max should be 10mA, not 11

SuggestedRemedy

Change 11mA to 10mA

Proposed Response *Response Status* **C**

ACCEPT.

This value was changed to 11mA in January (?) so that it could be reviewed and perhaps changed later.

Cl **33** *SC* **2.9** *P* **45** *L* **10** # **2**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

why are we imposing a min on the overload?
it seems to me that we copied the short circuit spec to keep the circuitry the same if that is the case we may need a note to that effect, it may be confusing...

SuggestedRemedy

drop a note about the min overload spec.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This issue will addressed by the resolution to comment #333.

Cl **33** *SC* **2.9** *P* **45** *L* **14** # **82**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

Page 45-46, in Note for Item 8-9. Both Icut and Ilim have same time durations of 50ms-75ms.
what's the difference. If put our chip current limits at Icut,
then won't meet Ilim. but if put it at Ilim, then won't shut off when have Icut.
Didn't one these have a duty cycle restriction also?

SuggestedRemedy

we may have done the wrong change here, please clarify.
also missing the duty cycle restriction

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This issue will addressed by the resolution to comment #333.

Cl **33** *SC* **2.9** *P* **45** *L* **18** # **334**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

The requirement for Toff adversely effects the PSE port's leakage requirements. There is a possible voltage change of 54V, and a maximum
port capacitance of 0.52uF. This voltage change requires a port leakage of 54uA.

SuggestedRemedy

Add the requirement that the stated Toff be met with a test bleed resistor of 400 k ohms. This configuration provides five time constants of discharge time.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE. The stated Toff should be met using Test Procedure PSE-9 (33.2.9.9) with a test bleed resistor of 400 kohms. Add this 400k requirement as a note to the turn off time specification (item 13) in Table 33-5.

Cl **33** *SC* **2.9** *P* **45** *L* **34** # **332**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

The total of the Tdet + Tpdc + Tpon does not equal the value stated as the maximum value.

SuggestedRemedy

Adjust one or more of the components or the total so the math is correct.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Correct the sum (Ttot) by giving it a value of 975ms.

Cl **33** *SC* **2.9** *P* **45** *L* **7** # **333**

Schindler, Fred — Cisco Systems

Comment Type **T** *Comment Status* **A** *PSE Output*

Clarification of what items: 8; 9; 10; and 11, is required.
The intent is not clear. Two current ranges are presented with the same time requirement to disconnect. A reader will wonder why a single range from 350mA to 450mA is not made. The notes provided do not provided the necessary intent. Is an intent to provide 400mA minimum for a minumum of 50mS. This provides three ranges of current: operating; peaks above normal operating; and short circuit.

SuggestedRemedy

The intent should be stated and worked-out in the committee.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolution of this issue will also address comments 2 and 82. Request Yair to clarify difference between Icut and Ilim as well as minimum time on Tovld and Tlim.

See contribution from Yair, Fred, and Roger,
"Suggested remedy to comments 333 and 2," on website, 8/10/02.

Cl **33** *SC* **2.9** *P* **45** *L* **8** # **384**

Darshan, Yair — PowerDsine

Comment Type **T** *Comment Status* **A** *PSE Output*

It is reccomended that Icut min will be changed to 15.4W/Vport instead of hard number 350mA.
The reasons for it are:
1. PSE is required to supply 15.4W min which is 350mA min at Vport=44V. If Vport > 44V than the PSE must supply min current of 15.4W/Vport which is lower value than 350mA so Icut_min can hit Iport min at max load.
2. The range of Icut is increased if Vport>44V which make life easire in some implementations..

SuggestedRemedy

Change in item 8 Icut min from 350mA to 1540/Vport

Proposed Response *Response Status* **C**

ACCEPT.

Suggested remedy is consistent with intent to provide the given minimum power rather than a given minimum current.

Change item 8 to 15.4W/Vport minimum.

Cl **33** *SC* **2.9** *P* **46** *L* **2** # **1**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **R** *PSE Output*

we did not define the time over which the rms current is valid.
example if the Idc has an ac component on top, how long do we allow such an ac component to remain. well if it is infinite this would make the IDC > 350ma rms?

SuggestedRemedy

define the time in msec to make rms valid over an interval.

Proposed Response *Response Status* **C**

REJECT.

The intent is that if Iac is present then Idc would need to be reduced accordingly.

Replace Note for Item 4 c) with the following:

PSE output miust support a current of 350mA RMS. It must also support a peak current of 0.4A for at least 50ms and must support a minimum duty cycle of 5%.
For Vport>44V Ipeak is equal to 17.6W/Vport.

Irms2 = Idc2 + Iac2.

Cl **33** *SC* **2.9** *P* **46** *L* **27** # **160**

Cobb, Terry — Avaya Inc.

Comment Type **T** *Comment Status* **A** *PSE Output*

It says current imbalance is inclusive of the current imbalance of the implemented MDI? It is not clear to me what you mean by the implemented MDI.

SuggestedRemedy

Clarify test? It should only specify the current imbalance of the PSE.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the note for the "Note for Item 15" and add the following:

The 8mA value is based on a simulated output current imbalance of 3.5%.

Cl **33** *SC* **2.9** *P* **46** *L* **34** # **385**

Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A** *PSE Output*

PSE-PD stability- PSE part
Lines 34-35: Port output impedance consist of two parts: a) PSE power supply output impedance (Zo_ps) followed with series elements (Z_ser) which connect the PSE power supply output to the port so the total Port output impedance during normal powering mode is Zo_port=Zo_ps+Z_ser.
Zo_ps is function of the load (Pport).
In order to maintain PSE-PD stability the following principles should maintain:
a- Zo_ps max =300miliOhm at frequencies up to 100KHz at Pport=15.4W.
b- Zo_ps can be extracted from Zo_port by measuring Vport/Iport as function of frequency and subtracting from Zo_port the value of Z_ser (f=DC) which is limited by the value of Z_ser at DC (low frequency).
c- If Zo_ps<Z_ser and Vport is kept to be 44V min , 57Vmax during dynamic load changes from DC to 100Khz than the value of Zo_ps is not limited.

SuggestedRemedy

Replace lines 34-35 with the following text:
""33.2.9.xxx PSE-PD stability - PSE requirements
In order to prevent the potential for oscillations between PSE and PD the PSE port output impedance (Zo_port) + the cable impedance (Zc) + the PD input port circuitry impedance (Zpd_cir) + the PD EMI output filter impedance (Z_emi) should be lower that the PD power supply input impedance (Zin_ps_pd). This paragraph will be focused on the PSE part.
Port output impedance consist of two parts: a) PSE power supply output impedance (Zo_ps) followed with series elements (Z_ser) which connect the PSE power supply output to the port so the total Port output impedance during normal powering mode is Zo_port=Zo_ps+Z_ser.
Zo_ps is function of the load (Pport).
In order to maintain PSE-PD stability the following principles should maintain:
a)- Zo_ps max =300miliOhm at frequencies up to 100Khz at Pport=15.4W.
b)- Zo_ps can be extracted from Zport by measuring Vport/Iport (with external power dynamic analyzer system) as function of frequency and subtracting from Zport the value of Zser (f=DC) which is limited by the value of Zser at DC (low frequency).
c)- If Zo_ps<Zo_ser and Vport is kept to be 44V min, 57Vmax during dynamic load changes from DC to 100Khz than the value of Zo_ps is not limited.
Compliance to the above requirements should be made by measuring Port output impedance from DC to 100KHz at 15.4W load at short cable lengh or by presenting simulation results.
See Figure TBD1 for PSE-PD system impedance allocation and figure TBD2 for test setup""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace lines 34-35 with the following text (Yair to supply test diagrams)
""33.2.9.xxx PSE-PD stability - PSE requirements
In order to prevent the potential for oscillations between PSE and PD the PSE port output impedance (Zo_port) + the cable impedance (Zc) + the PD input port circuitry impedance (Zpd_cir) + the PD EMI output filter impedance (Z_emi) should be lower that the PD power supply input impedance (Zin_ps_pd). This paragraph will be focused on the PSE part.
Port output impedance consist of two parts: a) PSE power supply output impedance (Zo_ps) followed with series elements (Z_ser) which connect the PSE power supply output to the port so the total Port output impedance during normal powering mode is Zo_port=Zo_ps+Z_ser.
Zo_ps is function of the load (Pport).
In order to maintain PSE-PD stability the following principles should maintain:
a)- Zo_ps max =300miliOhm at frequencies up to 100Khz at Pport=15.4W.
b)- Zo_ps can be extracted from Zport by measuring Vport/Iport (with external power dynamic analyzer system) as function of frequency and subtracting from Zport the value of Zser (f=DC) which is limited by the value of Zser at DC (low frequency).
c)- If Zo_ps<Zo_ser and Vport is kept to be 44V min, 57Vmax during dynamic load changes from DC to 100Khz than the value of Zo_ps is not limited.
Compliance to the above requirements should be made by measuring Port output impedance from DC to 100KHz at 15.4W load at short cable lengh.

See Figure TBD1 for PSE-PD system impedance allocation and figure TBD2 for test setup"" TBD1 to be included in main body of standard (lines 34. . .) while TBD2 will be placed in an informative annex.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **2.9** *P* **46** *L* **34** # **4**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

we spec the output impedance of the PSE but we can't test this from the RJ45 we need it - but we may want to see if we can define this better in anyway.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #385.

The test setup is PSE-14 on pg 63 line 37.

Cl **33** *SC* **2.9.1** *P* **47** *L* **20** # **315**

Dwelley, David Linear Technology

Comment Type **T** *Comment Status* **A** *PSE Output*

Should 510R in figure be 510 ohms?

SuggestedRemedy

Change to 510 ohms

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Should be consistent with Figure 33-6. Figure 33-20 should be changed as well.

Cl **33** *SC* **2.9.10** *P* **58** *L* **10** # **61**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **R** *PSE Output*

not clear where the detection for disconnect must start, it looks like we are asking for it too soon.

SuggestedRemedy

detection disconnect must start after the power has been turned on, and within the reasonnable constraint of the implementation

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **2.9.11** *P* **59** *L* **49** # **336**

Schindler, Fred — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

The value of Vport is limited to 2.8V when this test is performed.

SuggestedRemedy

It should be stated that the the 2-second measurement begins at a point where the PSE has ended its atempt to detect the PD's signature.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change page 59 line 49 as follows:

" . . .for 2s minimum after the detection sequence has been completed."

Cl **33** *SC* **2.9.11** *P* **59** *L* **53** # **64**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

change the value of 510k to 2 MEG

SuggestedRemedy

Hi Lab results prove that the 510k resistor (we picked as a place holder) must be moved to about 2MEG.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Subject to resolution of comment #398.

Cl **33** *SC* **2.9.12** *P* **60** *L* **39** # **62**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

again, the LCR may be fooled if diodes are present to rectify its sinewave. also if any Rresistance is present at the port, i=c dv/dt may not apply.

SuggestedRemedy

well i admit not having looked at the details at length here that this may be ok, but has anyone of us done all this and verified the lowZ pse the high Z pse, after all we created a monster have we not?

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution to comment #340.

Cl **33** *SC* **2.9.2** *P* **48** *L* **3** # **6**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

we are defining load regulation as a transient voltage? should this not be dv/di?

SuggestedRemedy

we may want to define a di/dv (when the load is pulled out what the drop in the Vpse is.
and then define a dv/dt (ie related to the output cap on the PSE.
it seems to me we may have mixed the two.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **2.9.3** *P* **49** *L* **14** # **387**

Darshan, Yair — PowerDsine

Comment Type **T** *Comment Status* **A** *PSE Output*

Add to the list of tested parameters at the end of line 14:
(Table 33-5, item 3, paragraphs 33.4.5 and 33.4.6)

SuggestedRemedy

(Table 33-5, item 3, paragraphs 33.4.5 and 33.4.6)

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change L14 as per comment.

Cl **33** *SC* **2.9.3** *P* **49** *L* **15** # **54**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

we do not specify if the noise we measure is diffrential and that is the intent

SuggestedRemedy

specify that the noise measured is differential

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Addressed in Table 33-5 Item 3 which indicates "common mode and/or differential noise pair to pair values."

Figure 33-9 has been updated to address both common mode and differential mode pair to pair noise measurements.

Cl **33** *SC* **2.9.4** *P* **50** *L* **31** # **55**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

specify that this is a test circuit only and is not a real PD.
the idea here is that if a PD chip can not power 1000UF we need to bring back the max 570uf and eliminate confusion.

SuggestedRemedy

specify that alternate means can be used to test this, ie an Exisiting PD chip so the discretes do not have to be assembled.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Mike McCormack's comment #429 will address this.

Cl **33** *SC* **2.9.4** *P* **51** *L* **2** # **335**
Schindler, Fred Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

The duration and limit of the allowed current overshoot should be specified in Table 33-5.

SuggestedRemedy

Limit the current peak area (current x time) to 150 A x uS and start the Iinrush measurement 1mS after the power has been switched on.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Overshoot specification as per resolution of comment #415.

Cl **33** *SC* **2.9.4** *P* **51** *L* **9** # **415**
Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A** *PSE Output*

Figure 33-12
The overshoot peak current is generated due too the following reasons:
1. The bandwidth of the current limiter at the PSE or PD.
2. When the port is shorted the discharge current is limited by the series impedance and its time duration is function of Cpse (0.52uF max) and the series impedance.

practical number to limit the overshoot current is 5A after 1ms delay.
It is not practical to limit the current at shorter time duration(less than 20us or so range as described by reason number 2 above)
In addition, the same comment apply to figure 33-16.

SuggestedRemedy

Add note to figure 33-12:
""1ms after closing S1, the Overshoot Peak current is limited to 5A max.""

The same note is apply to figure 33-16.

See attached updated drawings.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add note to figure 33-12:
""1ms after closing S1, the Overshoot Peak current is limited to 5A max.""

The same note is apply to figure 33-16

Add note (items 5 [figure 33-12] and 10 [figure 33-16]) to table 33-5 to harmonize with figure.

Cl **33** *SC* **2.9.5** *P* **51** *L* **12** # **56**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PSE Output*

are we sure that this current spike though 1ms wide that exceeds 0.5amps will not fuse stuff patch panels?
why do we not limit the rise time to insure that the 450ma is the max?

SuggestedRemedy

concern about exceeding the 450ma

Proposed Response *Response Status* **C**

REJECT.

Committee has reviewed and does not see a problem.

Cl **33** *SC* **2.9.5** *P* **51** *L* **45** # **57**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

we may possibly want to test the AC discon max zAC for we seem so far to have worried only about Imin

SuggestedRemedy

i will look into this.

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **2.9.6** *P* **53** *L* **17** # **58**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PSE Output*

we did not mention the absence of Zac along with the 5ma

SuggestedRemedy

add the absence of ZAC along with Imin

Proposed Response *Response Status* **C**

REJECT.

Zac is not applicable as this is an overload test.

Cl **33** *SC* **2.9.7** *P* **55** *L* **8** # **167**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *PSE Output*

In figure 33-16 there is no spec for overshoot. Need a spec for the maximum short circuit current at any time.

SuggestedRemedy

Add spec for overshoot.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Overshoot specification as per resolution of comment #415.

Cl **33** *SC* **2.9.9** *P* **57** *L* **10** # **59**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PSE Output*

why are we using 1v below Vport as a reference?

SuggestedRemedy

it is not clear to me that 1v below the reference is the place to start the measurement, should it not be 42v?

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove the 1V line and remove all but one of the family of curves.

Cl **33** *SC* **2.9.9** *P* **57** *L* **21** # **60**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PSE Output*

T1<tx<T2ambiguous not clear what the message is here.

SuggestedRemedy

clarify this to lessen confusion.

Proposed Response *Response Status* **C**

REJECT.

Intent seems clear. Request proposed clarification.

Cl **33** *SC* **3.1** *P* **65** *L* **26** # **128**
Grow, Bob Intel

Comment Type **T** *Comment Status* **A** *MDI*

Difficult to parse sentence. Not sure what it is trying to say.

SuggestedRemedy

Best I could come up with is to concatenate to preceding paragraph and change to read: ""However power draw at the MDI aggregate is specified in 33.3.5, the PSE requirement not to supply power over both modes is not modified.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is a PSE requirement in a PD section that is adequately addressed in page 36 line 43, 33.2.1.

Given the redundancy will delete sentence.

Cl **33** *SC* **3.3** *P* **67** *L* **11** # **354**

Huynh, Thong A. Maxim Integrated Prod

Comment Type **TR** *Comment Status* **R** *Detection*

The current offset specified at 10uA maximum is very stringent for PD implementation.

SuggestedRemedy

Increase I offset limit from 10uA to 20uA or more

Proposed Response *Response Status* **U**

REJECT.

Committee is satisfied with the existing requirement.

No technical justification has been provided to change leakage.

Cl **33** *SC* **3.3** *P* **67** *L* **24** # **81**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

Page 67: Section 33.3.3, ""The PD current shall monotonically increase with voltage at all voltages below 28V"".
What is doing classification? Should be up to 10V.

SuggestedRemedy

should this be changed to 10v, need atest to verify

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment will be addressed by the resolution to comment #318.

Cl **33** *SC* **3.3** *P* **67** *L* **24** # **318**

Dwelley, David Linear Technology

Comment Type **TR** *Comment Status* **A** *Detection*

""Monotonicity"" spec is overly limiting at very low (25k sig range) voltages - it need only cover the range from 10V to 28V, above 1mA current

SuggestedRemedy

Change sentence to read:
""The PD voltage shall monotonically increase with current for all currents above 1mA, in the range from 10V to 28V.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept suggested remedy but move statement to the Classification section 33.3.4 following ". . . both modes of PSE classification." [line 55]

""The PD voltage shall monotonically increase with current for all currents above 1mA, in the range from 10V to 28V.""

Cl **33** *SC* **3.3** *P* **67** *L* **25** # **7**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

need a test for verifying the monotonic PD
this ties into the oscillation problem and could cause us all grief.

SuggestedRemedy

add a test for this

Proposed Response *Response Status* **C**

Related to comments 318 and 81.

To be worked by ad hoc.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **3.3** *P* **67** *L* **35** # **8**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

VI slope speced for < 500ua only
and why are the limits 12k and 45k??
this may tell the non IEEE attendees that a pd with 40k may be fine??

SuggestedRemedy

explain the purpose of this thing.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Explanation of gap between valid and non-valid V-I slope resistance values may be beneficial as follows:

On page 66, line 48, add the following:
The valid and invalid signature regions are separated by a guardband. A PD that presents a signature in the guardband region is non-compliant.

Also, delete I<500uA in Table 33-9.

Change 33.3.3 section heading to

"PD Valid and Non-valid Detection Signatures"

Cl **33** *SC* **3.3.1** *P* **68** *L* **28** # **319**
Dwelley, David Linear Technology

Comment Type **T** *Comment Status* **A** *Detection*

Where does 0.37V come from?

SuggestedRemedy

Choose a more straightforward number, or justify 0.37V

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The step should match the minimum probe measurement voltage difference [33.2.5.1].

Cl **33** *SC* **3.3.1** *P* **68** *L* **43** # **12**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

LCR meter used to test the PD?
the diode in the PD will rectify the sine wave ofthe LCR meter
and could cause false readings.

SuggestedRemedy

so it is ok to use the LCR meter as long as we calibrate it once and
make sure we put a note to that effect.
also the 0.5v spec on the LCR meter may be off.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **3.3.1** *P* **68** *L* **43** # **340**
Schindler, Fred Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

The statement ""less than 0.5Vpp"" is incorrect. A voltage this low will
not forward conduct the PD diodes. This test will neglect any capacitance across Rpd.
The value of Cpd was specified to ensure a rapid time constant so
that a valid detection can be performed in the specified time. This test,
as written does not prevent the problem of having a large time constant.

SuggestedRemedy

Change the statement to indicate ""at least 2.5Vpp.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution of comment #12.

Cl **33** *SC* **3.3.1** *P* **68** *L* **50** # **14**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

need a procedure to test for Ileackage. big deal

SuggestedRemedy

TBD

Proposed Response *Response Status* **C**

ACCEPT.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **3.3.1** *P* **69** *L* **1** # **341**
Schindler, Fred Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

The graph's axis should be numbered to show the origin.
The formula for Cpd ignores the effect of Rpd. See previous comments for page 69.

SuggestedRemedy

Modify the formula to take the time constant into account.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Show origin of both axes on Figure 33-27.

Modification to formula required, see resolution to comment #13.

Cl **33** *SC* **3.3.1** *P* **69** *L* **19** # **320**
Dwelley, David Linear Technology

Comment Type **TR** *Comment Status* **A** *Detection*

Voffset seems to be spec'd incorrectly - should be at X-intercept

SuggestedRemedy

Move Voffset point to X axis in figure

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **3.3.1** *P* **69** *L* **37** # **13**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

the formula used for CPD in 33-28 does not take into account the Rparallel are we assuming that the PD is a cap only?

SuggestedRemedy

revisit the PD equation for impedance calculations.

Proposed Response *Response Status* **C**

ACCEPT.

This comment will be addressed by the resolution of comment #341.

Addressed by presentation by Yair

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **3.4** *P* **70** *L* **41** # **9**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Classification*

min for classification signature = 0?

SuggestedRemedy

the min should be 0.5ma

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **3.4** *P* **70** *L* **49** # **321**
Dwelley, David Linear Technology

Comment Type **TR** *Comment Status* **A** *Classification*

Class currents are too tight for Class 4 (see comment 4) (also p71 line 18)

SuggestedRemedy

Adjust class limits for Class 4

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comments 313 and 321 relate to Class 4 currents from perspective of PSE and PD respectively.

Harmonize with comment 313 for tables 33-11 and 33-12.

Cl **33** *SC* **3.4** *P* **71** *L* **23** # **357**
Huynh, Thong A. Maxim Integrated Prod

Comment Type **T** *Comment Status* **A** *Classification*

""...by the source to 28V."" is a typo

It should read ""...by the source to 30V.""

SuggestedRemedy

change ""28V"" to ""30V""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Believe this was changed in January to provide some margin to Voff (Table 33-13, Item 6b)

Will instead change page 43 line 4 from 30V to 28V for consistency.

Cl **33** *SC* **3.5** *P* **72** *L* **13** # **48**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **D** *PD Input*

missing the 570uf max capacitance we agreed to for the PD

SuggestedRemedy

please add the 180uf and the 570uf in the table and highlight that the 180uf is a max without inrush. this if missed could cause people grief.

Proposed Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE.

Note for Item 3 (page 73) addresses this comment.

Cl **33** *SC* **3.5** *P* **72** *L* **22** # **10**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PD Input*

500k-1mhz noise is at 50mv?

SuggestedRemedy

we need to make this a bit looser whatever happened to my san diego numbers? propose 100mv limited by emi of course as usual.

Proposed Response *Response Status* **C**

ACCEPT.

In addition change PSE spec in Table 33-5 to 100mV.

Cl **33** *SC* **3.5** *P* **72** *L* **39** # **49**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **X** *PD Input*

missing a note about PD preformance with and without power

SuggestedRemedy

the PD designer must insure that with and without power over the MDI the BER of the PD and the PSE residing on that Link Does not suffer due to the addition of power and its components (ie noise...)

Proposed Response *Response Status* **Z**

Cl **33** *SC* **3.5** *P* **73** *L* **26** # **50**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *PD Input*

PD turn on Time speced with 20ohm,
at 42v, how does this affect the drop across the cable vs the PSE Voltage
example if a PSE is running at 44v and no Inrush in the PD would the UVLO suffice to keep us from motor boating?

SuggestedRemedy

we may want to explain this a little more. (that the UVLO would make sure that that at 42v and a 20ohm series we should power up?)

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Modify sentence on pg 73 line 30 as follows:

"The PD shall turn on or off . . .within the first trial with 20 ohm series impedance and the worst case PD load."

Cl **33** *SC* **3.5** *P* **73** *L* **33** # **404**

Darshan, Yair — PowerDsine

Comment Type **T** *Comment Status* **A** *PD Input*

PSE-PD stability - PD side
Lines 33-36:
Port input impedance consists of two parts: a) PD input circuits including EMI filter (Zin_ser) and b) PD power supply input impedance (Zin_ps_pd)

In order to maintain stability with the PSE, The PD power supply input impedance (Zin_ps_pd) should be higher than the output impedance of the total network including the PD EMI output filter impedance fed by the cable (MDI) output impedance which is fed by the PSE port output impedance.
The worst case is when the cable (MDI) length is zero.

Due to the fact that accesses to the PD input power supply is not possible through the PD port for evaluating the various impedances, the PD vendor should follow the following guidelines:

a) PD power supply input impedance (Zin_ps_pd) at max load of Pport=12.95W should be higher than 30 Ohm at any frequency up to PD Power supply feedback crossover frequency.
If PD power supply is consuming less than Pport=12.95W than Zin_ps_pd min=30*12.95/Pport

b) PD power supply EMI filter output impedance should be Zo_emi=2.7 ohm max.
If PD power supply is consuming less than Port=12.95W than Zo_emi=2.7*12.95/Pport

c) If the PD power supply is implemented by Linear Voltage regulator than the above requirements: a) and b) can be ignored.

SuggestedRemedy

Replace lines 33-36 with the following text:
""33.3.5.xxx PSE-PD stability - PD design guidlines
PD Port input impedance consist of two parts: a) PD input circuits including EMI filter (Zin_ser) and b) PD power supply input impedance (Zin_ps_pd)

In order to maintain stability with the PSE, The PD power supply input impedance (Zin_ps_pd) should be higher than the output impedance of the total network including the PD EMI output filter impedance fed by the cable (MDI) output impedance which is fed by the PSE port output impedance.

The worst case is when the cable (MDI) length is zero.

Due to the fact that accesses to the PD input power supply is not possible through the PD port for evaluating the various impedances and derivation of the above parameters from measuring the PD input impedance is complicated, the following guide lines should be followed by the PD vendor:

a) PD power supply input impedance (Zin_ps_pd) at max load of Pport=12.95W should be higher than 30 Ohm at any frequency up to PD Power supply feedback crossover frequency.

If PD power supply is consuming less than Pport=12.95W than Zin_ps_pd min=30*12.95/Pport
b) PD power supply EMI filter output impedance should be Zo_emi=2.7 ohm max.
If PD power supply is consuming less than Port=12.95W than Zo_emi=2.7*12.95/Pport
c) If the PD power supply is implemented by Linear Voltage regulator than the above requirements: a) and b) can be ignored.

See Figure TBD1 for PSE-PD system impedance allocation

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **3.5** *P* **73** *L* **33** # **322**

Dwelley, David Linear Technology

Comment Type **T** *Comment Status* **D** *PD Input*

Still need a practical way to test this. Won't PD input impedance typically be negative?

SuggestedRemedy

Must specify an effective test

Proposed Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE.

This comment will be addressed by resolution of comment #404.

Cl **33** *SC* **3.5.1** *P* **73** *L* **42** # **53**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **X** *PD Input*

missing a procedure to test the PD balance and to test the Noise out of the PD .

SuggestedRemedy

intelligently copy the PSE proc to apply it to the PD

Proposed Response *Response Status* **Z**

Refer to testing ad hoc.

Cl **33** *SC* **3.5.1** *P* **73** *L* **42** # **51**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PD Input*

add a test procedure for PD removal using the ac load being out of spec.

SuggestedRemedy

i will try and may possibly put this together by next meeting.

Proposed Response *Response Status* **Z**

REJECT.

The PSE performs AC disconnect, the PD does not. The test procedure is on page 62 line 3.

Cl **33** *SC* **3.5.1** *P* **74** *L* **25** # **323**

Dwelley, David Linear Technology

Comment Type **T** *Comment Status* **A** *PD Input*

V1 indicator is missing

SuggestedRemedy

Label V1 (just below V2)

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **3.5.1** *P* **74** *L* **45** # **83**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PD Input*

Page 74, Test procedure for PD-1, where's V1, CL1, CL2, S3?
In 2), put range of Iport to verify 25k. As stated I<1.14mA, can have a 33k and still pass test.

SuggestedRemedy

we need to revisit the speced current or resistor value.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comment #323 addresses need for V1.
Updated dwg will add S3 in series with V2.

Change current to 1.26mA but exact signature resistor is not being tested here, only the function of the isolating switch.

Included in: Test Setup Ad Hoc Meeting August 2002.doc

Cl **33** *SC* **3.6** *P* **76** *L* **51** # **359**

Huynh, Thong A. Maxim Integrated Prod

Comment Type **TR** *Comment Status* **A** *Power Removal*

The PD ac input impedance is not clearly defined here. It must be called ad impedance and must be specified at a frequency or over a frequency range.

SuggestedRemedy

Change ""Input resistance"" to ""Input ac Impedance""
Specify a frequency or frequency range for this input ac impedance

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Propose frequency range be that of Table 33-6, Item 1.

See "Annex to comments against D3.1" July 2002.

Cl **33** *SC* **4** *P* **77** *L* **14** # **163**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Need to clarify globally that these tests apply to when a PSE or PD is operating.

SuggestedRemedy

In the second sentence of the paragraph after ""apply"" add: ""for all PSE and PD operating conditions and""

also modify as follows:

"at the cabling (MDI) side . . .."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make changes as per remedy.

Resolution of this comment will address comments 165, 176,170 and part of 175.

Cl **33** *SC* **4** *P* **77** *L* **15** # **164**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

The last sentence is not true, the requirements sometime require the data transmission to be on or off.

SuggestedRemedy

In the last sentence change: ""without regard to the state of"" to: ""during""

Proposed Response *Response Status* **C**

ACCEPT.

Restructure sentence to reflect intent.

Cl **33** *SC* **4.1.1** *P* **78** *L* **2** # **11**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Electrical*

Multiple instances of PSE and/or PD shall meet or exceed the isolation requirement

SuggestedRemedy

This is not possible? how can we test this anyway?

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Clarify sentence as follows:

"Equipment with multiple instances of PSE and/or PD shall meet . . ."

Make same change in 33.4.1.1.2.

Cl **33** *SC* **4.2** *P* **78** *L* **26** # **165**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

In the first sentence the ""under all operating conditions"" need not be repeated.

SuggestedRemedy

Remove

Proposed Response *Response Status* **C**

ACCEPT.

As per resolution of comment #163.

Cl **33** *SC* **4.2** *P* **78** *L* **28** # **166**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

The maximum current requirement is not correct.

SuggestedRemedy

Change to Iinrush + any overshoot.

Also change pic, page 99 line 30.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This will be addressed by resolution of comment #415.

Cl **33** *SC* **4.3** *P* **78** *L* **49** # **190**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

The requirement for impedance balance is only specified in 10BaseT and 1000BaseT, there is no requirement specified in 100BaseT.

SuggestedRemedy

Do not change.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **4.3** *P* **79** *L* **2** # **168**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Frequency range for equation 33-2 is incorrect.

SuggestedRemedy

Should be ""1.0 - 20 MHz""

Also change Pic, page 99 line 42

Proposed Response *Response Status* **C**

ACCEPT.

Note that this value was 2.0MHz in D3.0.

Cl **33** *SC* **4.3** *P* **79** *L* **5** # **184**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Equation 33-3 incorrect.

SuggestedRemedy

Should be f/50.

Correct Pic, page 99 line 43.

Proposed Response *Response Status* **C**

ACCEPT.

Note that this term was f/10 in D3.0.

Cl **33** *SC* **4.4** *P* **79** *L* **31** # **306**
Pincu, David PowerDsine

Comment Type **T** *Comment Status* **A** *Electrical*

It looks like this clause is informative only . It doesn't introduce any requirements or testing to be performed on the PSE or PD .I suggest to convert it into a ""general"" type of information . please see below

SuggestedRemedy

Change the wording of this para to say : "" The designer should be aware to the fact that the cabling plant interconnecting the PSE and PD may introduce an in-pair resistance imbalance .This resistance imbalance is defined as the precent value of the difference in resistance of the wire connected to pins 1 of PSE and PD to the wire connected to pins 2 , and similarly the wires connecting pins 3 &6 . The cabling plant resitance imbalance may be up to 3.5%""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This subsection has been moved to the Environmental subsection.

The resistance unbalance is specified in ASTM or IEC.
See IEC 11801 Edition 2 Clause 6.4.8, "Direct Current Resistance Unbalance"
The number is 3 percent.

Cl **33** *SC* **4.4** *P* **79** *L* **33** # **194**

Cobb, Terry Avaya Inc.

Comment Type **TR** *Comment Status* **R** *Electrical*

There needs to be an equation included to define exactly how the balance is calculated.

It is not clear how it will be calculated in ISO.

This will be difficult to test in the field and could result in many problems.

SuggestedRemedy

Add equation and eliminate note. Add Note: ""Field testing of resistance balance requires very precise measurements and is not reccomended. Installations of ISO and TIA compliant components should meet the resistance balance requirements.""

Proposed Response *Response Status* **U**

REJECT.

Added equation per comment 306.

Rejecting the note regarding field measurements, because the committee believes it is out of scope.

Cl **33** *SC* **4.5** *P* **79** *L* **45** # **170**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **D** *Electrical*

Redundant text, see next comment by tcobb.

SuggestedRemedy

Remove text: ""while transmitting data and with power applied"" end sentence after port.

Proposed Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE.

This comment will be addressed by the resolution of comment #163.

Cl **33** *SC* **4.5** *P* **79** *L* **46** # **189**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Note, this requirement is only specified in 10BaseT and 1000BaseT, there is no specification in 100BaseT.

SuggestedRemedy

Do not change

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **4.5** *P* **80** *L* **15** # **171**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Need to ac couple load for Ecm_out.

SuggestedRemedy

Add capacitor in series with the 49.9 ohm resistor as illustrated in contribution from tcobb. The capacitor should be denoted with a C and the following note added under the figure:

C shall provide a low impedance, less than 1 ohm, for frequencies from 1 to 100MHz.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add capacitor in series with the 49.9 ohm resistor as illustrated in contribution from tcobb. The capacitor should be denoted with a C and the following note added under the figure:

C shall provide a low impedance, less than 1 ohm, for frequencies from 1MHz to 100MHz.

Cl **33** *SC* **4.5** *P* **80** *L* **18** # **169**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Need to add the load requirements of a PSE and source requirements of a PD.

SuggestedRemedy

Add this text under the figure 33-34:

""The MDI ports shall be tested with the PHY transmitting data, an operating PSE or PD, and with the following PSE load or PD source requirements:

1) When testing a PSE, the ports that supply power shall be terminated as illustrated in Figure 33-35. The PSE load, R in Figure 33-35, shall be adjusted so the PSE output current, Iout, is 10ma and then 350ma, while measuring Ecm_out on all ports.

2) Or, when testing a PD, the ports that require power shall be terminated as illustrated in Figure 33-35. A voltage source shall supply power to the PD, Vsource in Figure 33-35, and adjusted to 36Vdc and 57Vdc, while measuring Ecm_out on all ports.""

Figure 33-35 should be moved to under 33-34, and edited as described in a contribution from tcobb. In addition in the text, page 79 line 44, add: ""and Figure 33-35""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Modify text as indicated in remedy but include new schematic provided to Editor from Roger K./Terr C.

Cl **33** *SC* **4.6** *P* **80** *L* **25** # **15**

karam, Roger — Cisco Systems

Comment Type **TR** *Comment Status* **A** *Electrical*

confusing still and unclear
common mode is voltage to ground
pair to pair is differential across the pair,
we need to spec this as such

SuggestedRemedy

change the lanaguage to read,
the voltage to gnd at point A is the common mode voltage and that we speced already though so this may be redundant see figure 33-34 on that same page
so this really should spec point A to point A and show how the pair to
pair is measured then again, we may want 75 ohms not 50 ohms in there...

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change title of 33.4.6 to: "Pair tp Pair Output Noise Voltage"

Proposed change to text 33.4.6 line 24: "The pair to pair output noise voltage will be will be limited.."

Change note 3 of Table 33-5 to
"Common mode and/or pair to pair noise values."

Modify Figure 33-35 as required.

Cl **33** *SC* **4.7** *P* **81** *L* **33** # **175**

Cobb, Terry — Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Should include the PD for the test. Also remove redundent requirements of operating and transmiting data. The opening section states that the PSE and PD are operating and the requirement for data transmission must explicitly stated.

Also the 10 mv is too low, change to 20mv.

SuggestedRemedy

The sentance should read: ""The noise coupled from a PSE or PD to the differential transmit and receive pairs shall not exceed 20 mv peak-to-peak from 1 MHz to 100 MHz.""

Also change pic, page 101 line 3.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

""The noise coupled from a PSE or PD to the differential transmit and receive pairs shall not exceed 10 mv peak-to-peak measured from 1 MHz to 100 MHz.""

Cl **33** *SC* **4.7** *P* **81** *L* **35** # **174**

Cobb, Terry — Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Need to define test circuit for PSE and PD.

SuggestedRemedy

Add to the paragraph: ""The PSE and PD shall be terminated as illustrated in Figure 33-35 and tested with the PSE and PD conditions as specified in 33.4.5., 1 and 2.""

Also after coupled in the first sentence add: "", Ed_out in figure 33-35,""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Modify text as indicated. Note that conditions "1 and 2" refer to those in comment #169.

Cl **33** *SC* **4.8** *P* **81** *L* **37** # **191**

Cobb, Terry — Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

The return loss in 40.8.3.1 (for 1000BaseT) is slightly different from that specified in TP-PMD for 100BaseT.

SuggestedRemedy

Do not change.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change 33.4.8 line 41 as follows:
". . .for a 10Mbit/s PHY, in ANSI X3.263;1995 for 100Mbit/s PHY, and sub-clause 40.8.3.1. for a 1000Mbit/s PHY."

Cl **33** *SC* **4.8** *P* **81** *L* **37** # **308**

Pincu, David — PowerDsine

Comment Type **T** *Comment Status* **A** *Electrical*

I belive it would be quite complicated to measure this parameters and test set up for measuring return loss should be defined . Why is this different from 33.4.2 to 33.4.5

SuggestedRemedy

I do not have a complete solution in mind and suggest to discuss this in an Ad hock team.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution to comment #342.

Cl **33** *SC* **4.8** *P* **81** *L* **39** # **176**

Cobb, Terry — Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Remove redundent requirements, The opening section states that the PSE and PD are operating.

SuggestedRemedy

Remove: ""While power is being applied"" from the first and last sentence.

Proposed Response *Response Status* **C**

ACCEPT.

As per resolution of comment #163

Cl **33** *SC* **4.8** *P* **81** *L* **41** # **342**

Schindler, Fred — Cisco Systems

Comment Type **T** *Comment Status* **A** *Electrical*

A common mode impedance of 75 ohms is specified. Should more details be provided? Additionally, should the pair to pair common mode impendance be specified?

SuggestedRemedy

Indicate this impedance should be met at 10MHz and measured with respect to ground. The committee should discuss the need for a pair to pair common mode impedance.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following advisory note to the end of 33.4.8:

The common mode termination is affected by the presence of the power supply and this should be considered to ensure proper termination.

Cl **33** *SC* **4.8** *P* **81** *L* **42** # **309**

Pincu, David — PowerDsine

Comment Type **T** *Comment Status* **A** *Electrical*

I belive that some more information is needed to support the requirement for 75 ohm common mode impedance when power is applied . Also ,if we decide we need it ,proper test set up should be defined .

SuggestedRemedy

To add the needed information

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Addressed by response to comment #342.

Cl **33** *SC* **4.9** *P* **83** *L* **37** # **367**

Flatman, Alan — LAN Technologies

Comment Type **TR** *Comment Status* **A** *Electrical*

"channel" interconnect model does not make sense? This should be "cross-connect" model.

SuggestedRemedy

Replace "channel interconnect" with "cross-connect".

Proposed Response *Response Status* **U**

ACCEPT.

Also add a third topology to Figure 33-37.
This topology was inadvertently omitted
from this draft.

Cl **33** *SC* **4.9** *P* **83** *L* **42** # **179**

Cobb, Terry — Avaya Inc.

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

The paragraph about the requirements of a permanent link not being altered omits the capability of adding a PSE at the connector either at the Floor Distributor or wall outlet and the CP. WHY??

There is no reason that the alternate pairs cannot maintain ac continuity, especially for testing. In the note: Adding a termination in the middle of the channel may cause unknown problems?

SuggestedRemedy

Replace text: ""Connector or Telcom outlet"" title, page 83 line 50, and in text of paragraph, page 83 line 52, in 33.4.9.1: with ""Connection""

Replace the text from line 41 to 48, at the end of the sub-section with:

""For the channel a mid-span PSE should maintain AC continuity on the conductors (two pairs) that supply the power for frequencies above 1 MHz thru the PSE. The channel requirements for the other two pairs, the transmit and receive pairs, specified in 25.4.6, shall be maintianed thru the PSE.""

Also change pic, page 101 line 18 - ""Connection"" only

Proposed Response *Response Status* **Z**

Comment re: permanent link is out of scope.

Cl **33** *SC* **4.9** *P* **83** *L* **42** # **301**

Pincu, David PowerDsine

Comment Type **T** *Comment Status* **R** *Electrical*

The sentence ""Configurations with the PSE in the cabling channel shall not alter the transmission requirements of the ""permanent link"" ."" is not convaying any new information , for the following reasons :
1) The PSE when installed in the FD (floor distributor) , will never replace any items forming part of the ""permanent Link"" 2) It can not change the transmission requirements (as they are defined in ISO 11801 Class D transmission requirements but rather the transmission PERFORMANCE !

SuggestedRemedy

Change the sentence to say : ""Mid Span PSE's complying with the requirements of this paragraph , can replace any part of the ""Permanent link"" (like for instance the TO) .""

Proposed Response *Response Status* **C**

REJECT.

Remedy does not match the comment.

Including the TO would make the Permanent Link application specific.

The text as stated conveys the desired information.

Cl **33** *SC* **4.9** *P* **83** *L* **48** # **303**

Pincu, David PowerDsine

Comment Type **T** *Comment Status* **A** *Electrical*

The sentence : ""Note : Apropriate ....of the mid span device "" imposes a requireemnt that is implementataion specific . Each implementer should take care and apply proper measures to meet signal inegrity , EMI or other regulatory requirements . It is not up to the standard to instruct on that issue.

SuggestedRemedy

Replace ""should "" with ""may"" or delet the sentance

Proposed Response *Response Status* **C**

ACCEPT.

Change "should" to "may".

Cl **33** *SC* **4.9.1** *P* **83** *L* **52** # **21**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Electrical*

all right, could someone show me the light, where does this come from and who presented what data to us to prove it is feasible
This applies to all the sections following this 33.4 and its subsections???

SuggestedRemedy

Proposed Response *Response Status* **C**

REJECT.

No suggested remedy.

Cl **33** *SC* **4.9.1** *P* **83** *L* **53** # **304**

Pincu, David PowerDsine

Comment Type **T** *Comment Status* **A** *Electrical*

The definition of test set up's for measuring the transmission parameters is missing . The following sentence should be added : ""Testing should be conducted according to the test specifications of ISO 11801 :2000 for connecting hardware ""

SuggestedRemedy

Add the sentance: ""Testing should be conducted according to the test specifications of ISO 11801 :2000 for connecting hardware ""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Only ISO/IEC 11801-2002 provides the required tests, ISO11801: 2000 does not.

Therefore add the following statement at beginning of 33.4.9.1:

""These parameters should be measured using the test procedures of ISO 11801 :2002 for connecting hardware ""

Cl **33** *SC* **4.9.1** *P* **83** *L* **53** # **180**

Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Need to add test requirements.

SuggestedRemedy

At the end of the sentence add:
""when tested in accordance with ISO/IEC 11810-2002.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

As per resolution of comment #304.

Cl **33** *SC* **4.9.1.1** *P* **84** *L* **10** # **182**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Equation 33-5, Inequality incorrect. Also equation 33-6.

SuggestedRemedy

Change to greater than or equal.

Note: The same change on equation 33-6 but less than or equal.

Also change pic, page 101 line 24 and 28.

Proposed Response *Response Status* **C**

ACCEPT.

Change to greater than or equal.

Cl **33** *SC* **4.9.1.3** *P* **84** *L* **22** # **369**
Flatman, Alan LAN Technologies

Comment Type **TR** *Comment Status* **A** *Electrical*

[lines 22-36]Subclause 33.4.9.1 is for connector or TO PSE transmissionrequirements.Specified limits for return loss do not relate to known connectors - and table 33-15 is titled "cross-connect return loss". This is wrong.

SuggestedRemedy

Specify connector return loss appropriate for a Category 5 connector - and use formula to be consistent with insertion loss and NEXT parameters in this same subclause.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

The return loss for the connectors is appropriate for CAT5 connectors per TIA-568A, subclause 10.4.4.3.

Change title of Table 33-15 to "Connector Return Loss".

Cl **33** *SC* **4.9.1.3** *P* **84** *L* **33** # **195**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Need equals on equations

SuggestedRemedy

Add or equal to on 1MHz first range, then add equal to 20 and 100 for the second range.

Also change Pic page 101 line 31

Proposed Response *Response Status* **C**

ACCEPT.

Add or equal to on 1MHz first range, then add equal to 20 and 100 for the second range.

Cl **33** *SC* **4.9.1.3** *P* **84** *L* **35** # **16**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Electrical*

Return loss for 100BT is a Min of 16db at 30mhz, are we inserting a patch PSE cord with Return loss of 14db at 20mhz?
what am i missing
this may break 100BT -
again this whole section 33.4 we do not have relevant data on?

SuggestedRemedy

Proposed Response *Response Status* **C**

REJECT.

No remedy offered but resolution of comment #369 may address this comment.

Issue is covered in WG ballot comment 265.

Cl **33** *SC* **4.9.1.4** *P* **84** *L* **43** # **183**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Electrical*

Change the requirements to only Cat 5 for 10/100 BaseT, consistent with the above requirements.

SuggestedRemedy

Eliminate FEXT and delay, leave only insertion loss, NEXT, and return loss. Also change Pic, page 101 line 37

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **5.1** *P* **84** *L* **53** # **31**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Environmental*

must have and missing to allow use of cat5 cables.

SuggestedRemedy

Under any load or short circuit condition, the maximum current from the PSE port shall comply with the requirements for a Limited Power Source (LPS) as stated in UL60950/CSA-C22.2 No. 60950/IEC60950"".

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Addressed by resolution to comment #29.

Cl **33** *SC* **5.6** *P* **85** *L* **39** # **17**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Environmental*

all right, this is fine and dandy, but can we meet this spec?
it seems to have been beefed up recently?
why is this requirements left without data, have anyone verified that we can meet this spec?

SuggestedRemedy

due to lack of data, we should remove this until we can prove that this is doable

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **5.6** *P* **85** *L* **46** # **187**
Cobb, Terry Avaya Inc.

Comment Type **T** *Comment Status* **A** *Environmental*

Source resistance is incorrect.

SuggestedRemedy

Change to: ""with 300-600 ohm source resistance.""

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **5.9** *P* **86** *L* **12** # **18**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Environmental*

the power level label is not clear it calls for max i at nominal voltage.
and do we want to label the class also?

SuggestedRemedy

i though classification ties into this and it is the maximum power under all conditions?

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

33.5.9 a) should also include the power classification of the device

Cl **33** *SC* **6** *P* **86** *L* **18** # **428**
Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **D** *Management*

Where it is indicated that management and supporting management is an option for the PSE (and/or Mispan PSE)

SuggestedRemedy

Clarify the issue and add relavent text.

Proposed Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE.

Duplicate of #424.

Subject to resolution of comment #19.

Cl **33** *SC* **6** *P* **86** *L* **18** # **424**
Darshan, Yair PowerDsine

Comment Type **T** *Comment Status* **A** *Management*

Where it is indicated that management and supporting management is an option for the PSE (and/or Mispan PSE)

SuggestedRemedy

Clarify the issue and add relavent text.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #19

Cl **33** *SC* **6** *P* **86** *L* **20** # **135**

Grow, Bob Intel

Comment Type **T** *Comment Status* **A** *Management*

Manageability is a ""shall"" function.

SuggestedRemedy

Change to read: ""If a Clause 22 MII or a Clause 35 GMII is physically implemented, then management access shall be via the MII Management interface. Where no physical embodiment of the MII or GMII exists, equivalent management capability shall be provided.""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace paragraph:
Management of the PSE or PD is optional. If a Clause 22 MII or a Clause 35 GMII is physically implemented, then management access shall be via the MII Management interface. Where no physical embodiment of the MII or GMII exists and management is supported, equivalent management capability shall be provided.

Fix PICS accordingly.

Cl **33** *SC* **6** *P* **86** *L* **22** # **19**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Management*

we keep hearing that there is no phy involved, ho, well we did never wanted to be - right? so why is every phy interface on the planet called for in here?
so what is the equivalent mangement capability, not clear to me that we are dictating something that we should not!
what if i want an ""unmanaged"" power box!

SuggestedRemedy

I think the language here should clearly state that management is optional and that is all. that is what we agree to at every meeting?

Proposed Response *Response Status* **C**

REJECT.

Existing text is appropriate.

Note that resolution of this comment will also address comment 424.

Cl **33** *SC* **6.1** *P* **86** *L* **26** # **20**

karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *Management*

we may need a better effort to add a few more registers to the phy
we keep saying does not exist?
we may want an effort to make this list complete and add to it
i for one keep getting the impression that this is something we have to do, yet it keeps getting more serious in content every meeting.
we may be able to improve this going forward if we feel it is necessary.

SuggestedRemedy

register set is incomplete, we can propose a few more registers and bits to improve its usefulness.

Proposed Response *Response Status* **C**

REJECT.

No specific changes recommended.
Commentor has committed to a specific set of registers.

Cl **33** *SC* **6.1.1.2** *P* **86** *L* **49** # **137**

Grow, Bob Intel

Comment Type **TR** *Comment Status* **A** *Management*

It isn't clear what the interaction of this bit is with 11.0, allowing ambiguous implemention.

SuggestedRemedy

Change to be effective only if bit 11.0 = 1. When 11.0 = 0, value of this bit is ignored.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to the beginning of the paragraph:

When bit 11.0 is one, this bit is ignored. When bit 11.0 is zero, then bit . . .

Cl **33** *SC* **6.1.1.2** *P* **86** *L* **53** # **22**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

power removed from a detected pd, based on what?

SuggestedRemedy

we may create a confusing issue for the customer?
power is removed becaused of detection?

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

States that PD Detection function is in test mode.

Change name of title of section to "Detection Test Control"

also change item in table 33-16.

Cl **33** *SC* **6.1.1.3** *P* **87** *L* **24** # **138**
Grow, Bob Intel

Comment Type **TR** *Comment Status* **A** *Management*

These bits mix status and control, and description is not clear what happens on write if PSE is not capable of multiple modes.

SuggestedRemedy

Make Power Pair Status (currently 12.0) two bits with 00 reserved, 01 and 10 being the two modes and 11 indicating support of both modes. Control could then be one bit, but if it is desired to allow the possiblity of providing power over all four pairs in the future (something specifically non-conformant in this draft), leave as two bits. Modify text to match.

Proposed Response *Response Status* **C**

ACCEPT.

Accept and define the two-bit control.

Cl **33** *SC* **6.1.1.4** *P* **87** *L* **40** # **139**
Grow, Bob Intel

Comment Type **TR** *Comment Status* **A** *Management*

Relationship to bit 11.0 must be specified.

SuggestedRemedy

Make dependent on bit 11.0 = 1, ignored when 11.0 = 0.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Harmonize the description to the state machine.

Cl **33** *SC* **6.1.2** *P* **88** *L* **11** # **24**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

missing the ac-disconnect bit to indicate the PD is gone.

SuggestedRemedy

add a bit to show that ac-discon has been set due to the load being out of spec.

Proposed Response *Response Status* **C**

ACCEPT.

Undercurrent changed to: MPSabsent

bit description changed as necessary.

Cl **33** *SC* **6.1.2.2** *P* **87** *L* **7** # **23**
karam, Roger Cisco Systems

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

we are missing classification control

SuggestedRemedy

add a bit for classification control
also add a couple of reserved bits for control (future use)

Proposed Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE.

Requires bit definitions.

Cl **33** *SC* **6.1.2.4** *P* **89** *L* **7** # **26**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

why are we making sure that these bits are invalid unless detection is valid one of us one day, may be using classification a head of detection to solve a customer problem of some kind, ie leackage! we are tying our own hands

SuggestedRemedy

change the language to neutral on this matter.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to

" . . . The value in this register is valid when the . . . "

Cl **33** *SC* **6.1.2.5** *P* **89** *L* **16** # **142**
Grow, Bob Intel

Comment Type **TR** *Comment Status* **A** *Management*

It isn't clear what Detection Status should be when in PD Detection test mode (bit 11:4 is one).

SuggestedRemedy

Clarify that the value of '010' should only be achieved when not in PD Detection test mode, and '110' only when in PD Detection test mode.

Insert ""PD Detection test mode is zero, "" before """"the PD Detection function.
Add ""and detected a PD."" to the end of the paragraph.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

These bits will be matched to the state machine states.

Cl **33** *SC* **6.1.2.7** *P* **89** *L* **37** # **27**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

we are missing the proper language of the ac-disconnect.

SuggestedRemedy

we need to add the proper language referencing the absence of the proper ac-load in this paragraph

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Needs to track MPS.

Cl **33** *SC* **6.1.3** *P* **89** *L* **2** # **25**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

missing a section 1.4 to explain the AC-Disconnect as we do the under-current.

SuggestedRemedy

add a section on AC-Disconnect

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Needs to track MPS.

Cl **33** *SC* **7** *P* **91** *L* **1** # **28**
karam, Roger Cisco Systems

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

All right, by now we are bored, can't beleive what we have to do to get this done, and here it is a ""joke"" of course.
all i can think of while i read this page is what PICS stands for?
at this point, i don't know.
say Policing Implementation can-section
the af police kinda thing.

SuggestedRemedy

go to the bar and get some beer !

Proposed Response *Response Status* **Z**

Cl **33** *SC* **7.2.3** *P* **92** *L* **13** # **34**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

wow, i thought we were NOT in the Business of specing the Multi port PSE's
what is the scoop

SuggestedRemedy

test/spec beyond the scope- please remove.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **7.2.3** *P* **92** *L* **19** # **32**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

Pair Control was never mandatory? why is this here

SuggestedRemedy

remove pair control spec.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Create option groups and appropriately tag
PICS items for optional capabilities,
e.g., pair control, classification, etc

Cl **33** *SC* **7.2.3** *P* **92** *L* **3** # **30**
karam, Roger Cisco Systems

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

not sure if this covers the pd or the PSE
i thought classification was mandatory in the switch
this makes it sound optional else why are we asking?

SuggestedRemedy

if classification is not present then that PSE is simply not compliant?
what am i missing?

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

PSE support of Classification is optional (33.2.7).

Cl **33** *SC* **7.3.1** *P* **93** *L* **21** # **35**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

are we re-defining what a PD is?

SuggestedRemedy

redundant, remove.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove this PIC because of text change in 33.1.1

Cl **33** *SC* **7.3.1** *P* **93** *L* **33** # **33**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

Simplicity, that is me, how come simplicity does not apply to this PIC?
reminds me so what i need a shrink to determine this?

SuggestedRemedy

I think this is beyond the scope. please remove.

Proposed Response *Response Status* **C**

ACCEPT.

"no more burdensome" is undefined and subjective and cannot be properly measured.

Cl **33** *SC* **7.3.2** *P* **94** *L* **20** # **37**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PIC*

PD detection operates without regard to data link status?
again this should be optional and it is we keep contradicting oursleves
and the PSE may do what it wants as per our language....

SuggestedRemedy

redundant, remove.

Proposed Response *Response Status* **C**

REJECT.

A PD may request power whether it's operational or not (33.2.4).

Cl **33** *SC* **7.3.2** *P* **94** *L* **6** # **36**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

No Preference on the alternative A or B.
this is not right, we never agreed to support both in the switch
this is an expensive deal already, so if someone wants to they can
but why would we want that flagged?

SuggestedRemedy

implementation affairs - please remove

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

It is mandatory that the PSE implement one of A, or B, or both, the PICS must be reworded

Cl **33** *SC* **7.3.2** *P* **96** *L* **10** # **39**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

missing the section on the AC load removal to supplement the ICUT test
for open

SuggestedRemedy

add a box in this section to check for the ac load presence/removal.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The PIC needs to be updated to match the text in the spec.

Cl **33** *SC* **7.3.2** *P* **96** *L* **21** # **38**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

zac was a first cut number lab measurements prove that this must be higher

SuggestedRemedy

change the AC impedance to Zac=2MEG

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The PIC needs to be updated to match the text in the spec.

Cl **33** *SC* **7.3.2** *P* **96** *L* **24** # **40**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

why do we care if we can supply a PD with some power but not all it needs?
when in reality classification is optional! and what if i can power that
PD up and when power temporarily to allow it to talk to the PSE and inform
the user that the PSE does not have power!!!!!!!!!!! hello what am i missing

SuggestedRemedy

remove this may hurt the american express holder.

Proposed Response *Response Status* **C**

REJECT.

The PICS matches normative text.

Cl **33** *SC* **7.3.2** *P* **98** *L* **25** # **41**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

Implement identical classification for each PSE mode?
No Comprende now, what is this all about

SuggestedRemedy

please clarify

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

PD must present the same Class in both the voltage and current classification modes.

Propose changing "each PSE mode" to "both voltage and current classification modes".

Cl **33** *SC* **7.3.4** *P* **101** *L* **11** # **44**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PIC*

[lines 11-38] again this fine piece of spec is great- but i am not up to speed on the details
nothing was presented. but for sure return loss would potentially
affect the link since the 100BT spec calls for 16db at 30mhz and we brought it
down to 14db at 20mzh. i think we need some clarifications on all this.

SuggestedRemedy

will add when things are explained.

Proposed Response *Response Status* **C**

REJECT.
The PIC matches the spec.

Cl **33** *SC* **7.3.4** *P* **101** *L* **3** # **43**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **R** *PIC*

again when the PSE is On 10BT alone can put more than 10mv on the differntial
pair worth of noise, Terry fixed this already by saying this would be due
to power noise not TX/data so we need to clarify this

SuggestedRemedy

broken

please adjust the test to reflect power to differential pair injection

Proposed Response *Response Status* **C**

REJECT.

The PIC matches the spec.

Cl **33** *SC* **7.3.5** *P* **102** *L* **19** # **42**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *PIC*

need a box to check for the text below to allow use of cat5 cable and reduce
PD cost.

SuggestedRemedy

add acheck for :

Under any load or short circuit condition, the maximum current from the PSE port shall comply with the requirements for a Limited Power Source (LPS) as stated in UL60950/CSA-C22.2 No. 60950/IEC60950"".

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The PIC needs to be updated to match the text in the spec.

Cl **33** *SC* **7.3.6** *P* **103** *L* **35** # **47**
karam, Roger Cisco Systems

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

again this pair control thing why are we burdening the standard with it?

SuggestedRemedy

not agreed to in the spec. implementation issue please remove

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

Pair control is optional (33.6.1.1.3).

Cl **33** *SC* **7.3.6** *P* **103** *L* **42** # **45**
karam, Roger Cisco Systems

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

again i am not sure we ever signed up for a PSE to control both pairs? what am I missing this is extra added hardware, if you elect to supply power on either pair do it, but we never agreed tothis do we want this cheap or what

SuggestedRemedy

requirements never agreed to.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

Pair control is optional (33.6.1.1.3).

Cl **33** *SC* **7.3.6** *P* **103** *L* **45** # **46**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Management*

force the PSE to Use Alternative B

SuggestedRemedy

Implementation affair please remove.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The support tags in all PICS entries shall be reviewed.

Cl **33** *SC* **7.3.6** *P* **103** *L* **9** # **353**
Goldis, Mordechai (Moty) Avaya

Comment Type **T** *Comment Status* **A** *Management*

Way is the Management function requirements pics mandatory?
All the management was optional.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved in comment #135.

Cl **33** *SC* **A** *P* **107** *L* **1** # **3**
karam, Roger Cisco Systems

Comment Type **TR** *Comment Status* **A** *Detection*

both caps in the schematics must be 120nf to match the table

SuggestedRemedy

change the caps to 120nf

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept value change to 120nF but change to less than or equal to this value.

Cl **33** *SC* **B** *P* **110** *L* **26** # **364**
Wagner, Martin Corning Cable System

Comment Type **T** *Comment Status* **A** *Cabling*

[lines 26-27]ISO/IEC recomends 2 outlets not specifying the number of pairs

SuggestedRemedy

delete '4-pair'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **B** *P* **110** *L* **27** # **365**

Wagner, Martin Corning Cable System

Comment Type **T** *Comment Status* **A** *Cabling*

refer only to international standard ISO/IEC, ISO/IEC and TIE/EIA are differend on some toppics wich may cause problems and missunderstanding

SuggestedRemedy

delete 'and TIA/EIA'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **B** *P* **110** *L* **8** # **363**

Wagner, Martin Corning Cable System

Comment Type **T** *Comment Status* **A** *Cabling*

wrong wording, use ISO/IEC Wording 'balanced cabling' wich incudes all types of cable

SuggestedRemedy

delete '4-pair unshielded twisted-pair (UTP)'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Modify text as follows:

" . . operate over a 100 ohm balanced cabling . . "