Cl **01** *SC* **1.4** *P* **2** *L* **29** # **68**

Thaler, Pat — Agilent

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

Definitions are needed for Power Sourcing Equipment and Powered Device. I submitted an editorial comment on this in the original ballot which was rejected because PSE and PD are in the abbreviations section (1.5). This is not adequate. The definition of these terms is not apparent from just there names. Also, in the other cases where we have a term, we have a definition and as well as having the abbreviation for the term in 1.5. See MAU and Medium Attachment Unit for example.

SuggestedRemedy

Add definitions for these terms.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Power Sourcing Equipment (PSE) - A DTE or midspan device that provides the power to a single link section. DTE powering is intended to provide a single 10BASE-T, 100BASE-TX or 1000BASE-T device with a unified interface for both the data it requires and the power t process these data.

Powered Device (PD) - A device that is either drawing power or requesting power from a PSE.

Cl **00** *SC* **14.3.1.1** *P* **4** *L* **8** # **75**

Law, David — 3Com

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

It is unclear what the statement 'A MAU which has a PD attached to its MDI' means. Would for example a MAU in a PSE which is powering a PD not have 'a PD attached to its MDI' though admittedly in this case the PD is attached to the MDI through a Link Section.

Suggest that the terminology of the PI being encompassed within the MDI as used in subclause 33.1.2 paragraph 9 (page 37, line 7) is used instead. Also suggest that a cross reference to 33.1.3 'Relationship of Power via MDI to the IEEE 802.3 Architecture' should also be included.

SuggestedRemedy

Change the text 'A MAU which has a PD attached to its MDI shall ...' to read 'A MAU that encompasses the PI of a PD within its MDI (see 33.1.3) shall ...'

Change the text 'A MAU that does not have a PD attached to its MDI ...' to read 'A MAU that does not encompasses the PI of a PD within its MDI shall ...'.

In subclause 14.10.4.5.11 Item 1a change the text 'Function provided by MAUs without PDs attached, as defined in Clause 33.' to read 'Function provided by MAUs that do not encompasses the PI of a PD within their MDI.'

In subclause 14.10.4.5.11 Item 1b change the text 'Function provided by MAUs with PDs attached, as defined in Clause 33.' to read 'Function provided by MAUs that encompasses the PI of a PD within their MDI.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the text 'A MAU which has a PD attached to its MDI shall ...' to read 'A MAU that encompasses the PI of a PD within its MDI (see 33.1.3) shall ...'

Change the text 'A MAU that does not have a PD attached to its MDI ...' to read 'A MAU that does not encompass the PI of a PD within its MDI shall ...'.

In subclause 14.10.4.5.11 Item 1a change the text 'Function provided by MAUs without PDs attached, as defined in Clause 33.' to read 'Function provided by MAUs that do not encompass the PI of a PD within their MDI.'

In subclause 14.10.4.5.11 Item 1b change the text 'Function provided by MAUs with PDs attached, as defined in Clause 33.' to read 'Function provided by MAUs that encompass the PI of a PD within their MDI.

Cl **22** *SC* **2.4.3.10** *P* **7** *L* **19** # **5**

Karam, Roger — Cisco systems

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

status bits supplied by PSE and PD, i thought the PD management was out per our agreement from Vancouver?

SuggestedRemedy

need to remove the PD from this line, since we have decided not to force management on the PD.

Proposed Response *Response Status* **Z**

Withdrawn

PROPOSED ACCEPT.

Defered to Law #53

SM - Accept

Cl **00** *SC* **40.6.1.1** *P* **12** *L* **8** # **76**

Law, David — 3Com

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

It is unclear what the statement 'A PHY which has a PD attached to its MDI' means. Would for example a PHY in a PSE which is powering a PD not have 'a PD attached to its MDI', though admittedly in this case the PD is attached to the MDI through a Link Section.

Suggest that the terminology of the PI being encompassed within the MDI as used in subclause 33.1.2 paragraph 9 (page 37, line 7) is used instead. Also suggest that a cross reference to 33.1.3 'Relationship of Power via MDI to the IEEE 802.3 Architecture' should also be included.

SuggestedRemedy

Change the text 'A PHY which has a PD attached to its MDI shall ...' to read 'A PHY that encompasses the PI of a PD within its MDI (see 33.1.3) shall ...'

Change the text 'A PHY that does not have a PD attached to its MDI ...' to read 'A PHY that does not encompasses the PI of a PD within its MDI shall ...'.

In subclause 40.12.2, Item PD change the text 'PHY incorporates a PD, as defined in Clause 33' to read 'PHY encompasses the PI of a PD within its MDI'.

Proposed Response *Response Status* **C**

ACCEPT.

Editor's note: check grammar.

Cl **30** *SC* **30.9.1.1.6** *P* **14** *L* **40** # **275**

Grow, Robert — Intel

Comment Type **TR** *Comment Status* **A** *D4.0*

List of enumerations is incomplete with changes to the state diagram. The behaviour text also needs work to agree with the state diagram that results from comments on the draft.

SuggestedRemedy

Add to list after "searching":
detected PD detected
Add to list after "fault":
invalid Invalid PD detection signature
Add corresponding enumerations to declaration in 30B, page 32, line 29
Modify behavior to agree with the modified state diagram.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This text has been modified by the State Machine AdHoc. We are changing the management to match the state machine.

Cl **30** *SC* **30.9.2.1** *P* **16** *L* **26** # **277**

Grow, Robert — Intel

Comment Type **TR** *Comment Status* **A** *D4.0*

There is a serious mismatch between clause 30 and 33 on control and status of the PD. There are also internal inconsistencies within 33 between the PD state diagram and the MDIO registers. There are currently no PD control bits defined, so there is no need for this object (or the corresponding definitions in 30A). I don't recall if the PD control bit was lost in splitting the control and status of earlier MDIO register definitions, or was a concious but incompletely implemented choice. (The old "Power Enable" bit is now specified as "PSE Enable".

SuggestedRemedy

I recommend defining a "PD Enable" bit and mapping the aPDAdminState attribute to it (fix name and reference on page 187 line 2 accordingly).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is being changed by the management AdHoc. The current plan is to remove any mandatory elements of PD management.

Cl **30** *SC* **2.5** *P* **18** *L* **38** # **7**

Karam, Roger — Cisco systems

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

table 30-4 we made 'aPSEPowerPairs' mandatory?
i see no reason to do so, we always said pair control was optional.

SuggestedRemedy

change to optional from mandatory, move the x to the recomended column

Proposed Response *Response Status* **Z**

Withdrawn

PROPOSED REJECT.

The attribute is mandatory, the capability is not. Pair control is still optional because of the pair control ability bit/attribute.

Cl **30** *SC* **30.9.5.1.5** *P* **20** *L* **5** # **34**

Darshan, Yair — PowerDsine

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

Getting information regarding PSE pin out alternative is important info however the ability to change that alternative by the SET operation is not important and should be implementation specific or optional.

SuggestedRemedy

Either change aPSEPowerPairs in table 33-4 page 18 line 38 to be optional or make the 'SET' action in page 5 line 20 optional.

Proposed Response *Response Status* **Z**

Withdrawn

PROPOSED REJECT.

Discussed with David Law.

Also see Karam #7

(ed note: I think he means page 18 line 38, not page 5 line 20.)

Cl **30** *SC* **30.9.5.1.7** *P* **21** *L* **6** # **82**

Law, David — 3Com

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

Delete the attribute aPSEPowerMaintenanceStatus since it provides no addition information. If the attribute aPSEPowerDetectionStatus is reporting the enumeration 'deliveringPower' then aPSEPowerMaintenanceStatus will be reporting the enumeration 'ok'. If the attribute aPSEPowerDetectionStatus is not reporting the enumeration 'deliveringPower' then aPSEPowerMaintenanceStatus will be reporting the enumeration 'MPSAbsent'. I don't believe that a PD can present a valid MPS unless it is having power supplied to it.

In addition there is now a counter, aPSEMPSAbsentCounter which increments when the MPS is lost which seems to be a better indication of what is happening. Consider a PD that continually request power then removes MPS are a short period. Reading aPSEPowerMaintenanceStatus will give a sample of the state of the MPS however the counter will be continually incrementing giving a clear indication of the issue.

SuggestedRemedy

Remove the attribute aPSEPowerMaintenanceStatus and all associated text.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make text match what the SM adhoc changed on first day.

Cl **33** *SC* **33.1** *P* **35** *L* **1** # **91**

Law, David — 3Com

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

Throughout Clause 33 the terms 'link section' and 'PI' seem to be used interchangeably. Take for example subclause 33.2.10 - 'The PSE will monitor the link section and shall remove the power from a PI ...'. Surly the only point that a PSE can monitor is the PI. There may or may not be a link section present, there may or may not be a PD present. As far as I am aware all the requirements on a PSE stand whether the PI has a link section and/or a PD attached or not.

SuggestedRemedy

Globally use the approach that the PSE and PD monitor/probe and sink/source power at the PI.

Proposed Response *Response Status* **C**

REJECT.

The present text, while not completely, utterly specific, it conveys the message and is tolerable.

To make a change of this type at this late date would ripple.

Cl **33** *SC* **33.2.2** *P* **39** *L* **49** # **69**

Thaler, Pat — Agilent

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

The statement about cabling systems that align the power aligning the data makes no sense:
In auto-MDI-X, the cabling system doesn't change, it is the Phy that alters its use of the signal pins. Secondly, auto-MDI-X can not sense which way it should attach until the devices at each end are powered.
Thirdly, the definition of Auto-MDI-X does not specify that these devices have any default, the just keep trying choosing between MDI and MDI-X on a random basis until they connect so you can't define their pin out based on a default. (ed note: this applies toTable 33-1 column headings)

SuggestedRemedy

An Auto-MDI-X PSE should use the Alternative A pin out because Auto MDI-X devices are usually in Repeaters or switches and therefore usually are connected to MDI devices. MDI-X PDs should be polarity insensitive so that they can receive power from Auto-MDI-X PSEs and MDI-X PSEs.

Proposed Response *Response Status* **C**

ACCEPT.

Found at least three spots that need modified in D4.1 to implement change. Editor to carefully incorporate changes.

Cl **33** *SC* **33.2.3** *P* **40** *L* **10** # **48**

Darshan, Yair — PowerDsine

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

Some of the internal signals and variables are required to describe and maintain the 'logic' flow of the events in the state flow.
Some of the variables required to be output to the management as info and some are internal signals to allow logic description.

In order to prevent and interpretation that all signals and variable are required to be observed externally it is suggested to add such guidance at the beginning of paragraph 33.2.3.

SuggestedRemedy

Compliance to the operation of the state diagram shall be done by measuring voltage, current and timing at the PI.

Proposed Response *Response Status* **Z**

Withdrawn

Refer to Darshan 36 (TR) - near identical comment.

Cl **33** *SC* **33.2.3** *P* **40** *L* **18** # **206**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Also 33.3.2 page 58 line 9. The state diagrams need to be normative.

SuggestedRemedy

The PSE shall provide the behavior of the state diagrams shown in Figures 33-5 and 33-6.
The PD shall provide the behavior of the state diagram shown in Figure 33-13.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.2** *P* **40** *L* **37** # **286**

Grow, Robert Intel

Comment Type **TR** *Comment Status* **A** *D4.0*

The definitions of MDIO control bits and the variable definitions for the PSE state diagram are ambiguous and unless changed will allow inconsistent behavior to management. Further ambiguity is added because the variable descriptions do not use consistent terms: controls (e.g., mr_detection_test), signals (e.g., mr_overcurrent), variables (e.g., mr_pse_alternative), condition (e.g., power_on), not identified with any of these terms (e.g. mr_mps_valid) and even not defined as variables (e.g., mr_pd_class_detected). Clarity would be helped significantly if Table 33-19 were eliminated and mapping was described precisely in the definitions here. (Clause 37 does a much better job at this than does clause 46, which I believe was the starting point for this diagram.)

SuggestedRemedy

"error_condition
A signal indicating the status of the mandatory . . . "
"mr_detection _test
. . . been detected. This control is equal to Detection Test Control (bit 11.4) and not PSE Enable (bit 11.0) and not PSE Force Power Test Control (bit 11.1)."
"mr_mps_valid
The PSE must monitor either the DC or AC Maintain Power Signature (MPS, see 33.2.11). This signal indicates the presence or absence of a valid MPS. This signal is the negation of MPS Absent (bit 12.7). . . ."
"mr_overcurrent
. . . condition. This signal maps to the Overcurrent status (bit 12.8)."
"mr_pse_alternative
. . . (see Table 33-1). This variable is a derived from Power Control (bits 11.3:2)."
"mr_pse_enable
A control that enables PSE operation per PSE Enable (bit 11.0)."
"mr_pse_force_power
. . . This control is equal to Force Power Test Control (bit 11.1) and not PSE Enable (bit 11.0)."

To make detection test and force power test mutually exclusive, change the definition of bit 11.4 (p. 75, l. 41) to read "When bit 11.0 is '1' or bit 11.1 is '1', bit 11.4 is ignored. When bit 11.0 is '0' and bit 11.1 is '0', then . . ."

With the above definitions, the following state diagrams simplifications can be made: Universal entry into TEST_MODE becomes a transition from IDLE with the condition "mr_pse_force_power * !error_condition". This allows power_on, pse_reset and error_condition force transition to IDLE without from all states, and the negated terms enabling transition out of IDLE.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"error condition
A signal - - - Accept
"mr_detection_test - - N/A
"mr_mps_valid - - Accept
"mr_overcurrent - AIP remove defintinion in the variable section, make the corresponding MII register bit 12.8 a latching high, clear on read bit that is set when either the DETECT_OVLD state or DETECT_SHORT state is entered. Need to correct the corresponding MIB entry to be a counter. Table 33-19 needs to be corrected accordingly.
"mr_pse_alternative - Accept
"mr_pse_enable .... mr_pse_force_power . . . AIP

Modify Table 33-17 to merge 11.0 & 11.1 to provide the same functionality as described in the text of the current but as a enumerated pair and not two separate bits. Edit 33.6.1.1.5 and 33.6.1.1.4 into a single subclause describing the enumeration. Remove variable definitions for mr_pse_enable and mr_pse_force_power, and replace with a new enumerated variable that reflects the values in the merged bits 11.0:1 As a result of this change "TEST_MODE" will be entered from the "IDLE" state and not globally entered.

Cl **33** *SC* **33.2.3.2** *P* **40** *L* **40** # **177**

Thaler, Pat Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

error_condition needs to specify values. The text makes it sound like it has implementation depenednt enumerated values, but it is used in the state diagrams as a boolean.

SuggestedRemedy

Indication of whether the PSE has detected any mandatory or implementation-specific fault conditions that require the PSE not to source power for safety or protection of the PSE equipment. These conditions may vary depending upon the regulatory environment.
Values: FALSE: No fault detected
TRUE: Fault detected

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The SM AdHoc is modifying the description from what is provided.

Cl **33** *SC* **33.2.3.3** *P* **40** *L* **48** # **46**

Darshan, Yair — PowerDsine

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

The constant ILIM may represents Iinrush as well.

SuggestedRemedy

Change line 48 from:
'Output current at short circuit condition (see Table 33-5)'

to:
'Output current at short circuit condition or Iinrush, at startup condition see Table 33-5)'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Figure 33-7 so exit from IDLE_OVLD and IDLE_MPS states is power_applied instead of pi_powered.

We can't use two constants for two things so add to constants IINRUSH (INRUSH subscripted), defined as "Current during inrush period of startup" (33.2.4.3).

Add a transition from POWER_UP to ERROR_DELAY_SHORT with condition tlim _timer_done.

In monitor state diagram, change exit from MONITOR_SHORT to read I>ILIM * power_applied + I>IINRUSH

Cl **33** *SC* **33.2.3.2** *P* **40** *L* **48** # **289**

Grow, Robert — Intel

Comment Type **TR** *Comment Status* **A** *D4.0*

There is a mismatch between the usage of mr_detection_test, the specification of the Detection Test bit, and the function it is supposed to control. The state diagram does not implement the detection test (it can't exit IDLE unless mr_pse_enable is true, which disables Detection Test). The variable mr_detection _test does not map directly to bit 11.4, it provides equivalent function to that described by bit 11.4.

SuggestedRemedy

This will be partially fixed if a more general comment is accepted to eliminate the variable mapping table. The variable mr_detection_test should be a function of bits 11.4 and 11.0. It is false when bit 11.4 = '0' + bit 11.0 = '1', and true when bit 11.0 = '0' * bit 11.4 = '1'.

The IDLE to START_DETECTION transition should be "(mr_pse_enable + mr_detection_test) * !power_applied * !error_condition" to allow detection to progress in the test mode when there are no errors.

The DETECT_EVAL to DETECTION_TEST transition should be (signature = valid) * (!performs_classification + mr_detection_test).

The DETECT_EVAL to START_CLASSIFICATION transition should be (signature = valid) * performs_classification * !mr_detection_test.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove the Detection_Test variable and functionality.
Add a sticky register, latching high, to register 12 to indicate "do_detection" function returns "valid".
Add a MIB counter that increments with occurrences of the sticky bit, counter increments a two times per second.

Cl **33** *SC* **2.3.4** *P* **41** *L* **4** # **9**

Karam, Roger — Cisco systems

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

error_condition
a function of regulatory env? what is this all about,
confusing at best, a fault is a fault for the logic ? what am i missing?

SuggestedRemedy

Please omitt or clarify intent and designate a special-fault
bit to address this issue. call it Ena Test Mode bit.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

We already have an enumerated value for the requested bit (Detection Status with value of 101).

On page 41 line 3, delete "for safety or protection of the PSE equipment"
line 4 delete "these conditions may vary between regulatory environments"

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **8** # **56**

Law, David — 3Com

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

The variable mr_mps_valid uses the terms 'DC Maintain Power Signature' and 'AC Maintain Power Signature' however neither 'DC Maintain Power Signature' nor 'AC Maintain Power Signature' is defined, only 'Maintain Power Signature'. However the MPS is defined as having a DC MPS component in subclause 33.2.8.7.

Also suggest that MPS is used rather than spelling out Maintain Power Signature every time.

SuggestedRemedy

Suggest that 'DC Maintain Power Signature' is replaced with 'DC MPS component' and 'AC Maintain Power Signature' is replaced with 'AC MPS component throughout the variable mr_mps_valid definition.

Note: I have submitted a comment to better define the AC and DC components of MPS and therefore provide better cross references for this variable.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #57

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **8** # **57**

Law, David — 3Com

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

In general the definition of the MPS from the point of view of the PSE seems to me to be unclear and in some case contradictory.

Subclause 33.2.3.4

Point 1:

The variable mr_mps_valid references 33.2.10 in reference DC MPS and AC MPS being present however 33.2.10 makes no reference to DC and AC MPS nor does it make any reference to when any MPS is present - it actually states when the PSE shall remove power - which by the way is overridden by the state machine variable pi_powered anywa the state machine always overrides the text.

So in summary the text that the state machine variable references in relation to DC MPS and AC MPS presence and absence doesn't make any specific reference to DC MPS or AC MPS, only to 'both components'. It only makes a implied reference to MPS absence through defining when power should be removed and makes no reference to what MPS presence is (and it isn't the inverse of MPS absences).

Point 2:

It is not clear from the text if it is intended to apply the TMPDO timer to the AC MPS component. It is however clear from the State Diagram that the timer should indeed be applied.

The variable mr_mps_valid is set if either the DC MPS or AC MPS goes missing. At that point the state machine on the right of Figure 33-7 will move from the MONITOR_MPS state to the DETECT_MPS state. Once in the DETECT_MPS state the tmpdo_timer is started. Only once this timer finishes and tmpdo_timer_done becomes true will the main state machine in Figure 33-6 transition from the POWER_ON state to the IDLE state where power will be removed. Returning to the right hand state machine of Figure 33-7, if it in the DETECT_MPS state and the timer has not expired and the MPS returns the state machine will transition back to the MONITOR_MPS state and the tmpodo_timer will be stopped. This means that the state machine does indeed enforce the

Note: Since the state machine always overrides the text (1.2) this means that the tmpdo timer does indeed get applied to the AC MPS and the AC MPS must be absent for in excess of 300ms before power is removed. Any other behavior would be non-compliant a it would not conform to the state machine. This is regardless of what any text states.

Point 3:

As the state machine is written it applies delay of Tmpdo after mr_mps_valid goes false. Now it seems to me that there is a delay - 300ms to 400ms I think from the text - before the DC MPS component is considered to be absent. At that point mr_mps_valid will go false

however a further delay of Tmpdo is applied by Figure 33-7 before tmpdo_timer_done will become true and then the power will be turned off. This seems to be a total delay of 600ms to 800ms which contradicts statements in the text and the test specification but - as ever - the state machine overrides the text so any other behavior is non compliant. I don't think this is intended and needs corrected.

Subclause 33.2.8.6.

In general this text refers to removing and not removing power but this is defined in the state machine which overrides the text in the case of any conflict. This text, if it remains, should reference when the DC MPS signature is or is not present.

Further comments on items:

Item a) What if MPS is absent for 250 then on for 50 and this repeats. In this case the power should be removed as it doesn't meet subclause 33.2.8.7.

Item b) Should be moved to normative text about DC MPS component.

Item c) Should be moved to normative text about DC MPS component.

Item d) Not sure what this is saying. It only mentions time, no reference to current. Seems to say that once the threshold is crossed the power is turned off but isn't that the same as item c which says the threshold can be set between 300 and 400ms. As uses the word 'wi rather than 'shall' so appears to be informative text anyway.

Item e) Figure 33C-9 (not 33C.0 as the text states) is part of a Informative Annex on testing so it is not clear how this can impose any requirements on a normative value.

Item f) This mentions a OFF state which doesn't exist in any of the state machines. In addition the requirements seem to relate to Power removal rather than MPS dropout time.

Subclause 33.2.8.7

This subclause states that 'The specification for TMPS in Table 33-5 applies only to the DC component of the MPS signal as defined in 33.3.6.' Since the term 'DC component of the MPS' or similar text is not used in subclause 33.3.6 it could be argued that the reference is broken however it can be inferred that the reference is to Item a) of the first lettered list in 33.3.6.

Based on this, I infer that the PD Maintain Power Signature time for validity only applies to the minimum Current draw requirement. Hence it is required that the DC current be present for in excess of 60ms for it to be considered valid DC MPS.

If subclause 33.2.3.4 is examined the mr_mps_valid variable definition will be found. It states that the variable takes the value true if 'DC MPS (see 33.2.10, part a))' is present. Now while subclause 33.2.10 relates to when to remove power, if that it is ignored, this subclause further references Table 33-5, item 6. Table 33-5, item 6 includes addition information in subclause 33.2.8.6 but does not include a reference to Item 7a or 7b of Table 33-5 - it does however mention the value 300 to 400ms in relation to MPS which I think is actually item 7a. Regardless I am concerned there isn't a clear route from the state machine variable to Item 7b which may be therefore missed.

Table 33-5 - Item 6a & 6b

It is unclear if the shall statement in 33.2.10 makes this 'Additional Information' text for 6 a) and 6b) mandatory since it states 'DC current is less than specified at Table 33-5, item 6' since there is no mention of time.

Table 33-5 - Item 7a & subclause 33.2.8.6.

This subclause contains a number of shall statements about when power 'shall be removed' yet it is the state machine that controls this so any contradiction will be overridden by the state machine. At a minimum these statements should be changed to read that 'the PSE shall consider the DC MPS to be present/absent' which would then feed through to the state machine variable.

Table 33-6

I cannot find any mandatory statement (shall statement) that requires a PSE to meet the AC disconnect detect function values defined in Table 33-5.

Subclause 33.2.10

With the title 'PSE Power Removal' the other reasons for power removal, short and overload, should also be mention.

Summary

Overall a re-write of 33.2.10 should take place. It should be re-written that the mandatory requirements for both the AC MPS and DC MPS components are clearly defined. The variable definition should then be changed to reference this. Note that I have referenced this proposed text in a number of comments.

SuggestedRemedy

Re-write 33.2.10 and change references to this clause as follows:

Action 1: Change 33.2.10 to read as follows (including the new subclauses).

33.2.10 PSE Power Removal

Figure 33-7 shows the PSE monitor state diagrams. These state diagrams monitor for overload current, short circuit current and the absence of the Maintain Power Signature (MPS). If any of these conditions exist for excess of their related time limits, the power will be removed from the PI.

33.2.10.1 PSE Maintain Power Signature (MPS) requirements

The MPS consists of two components, a AC MPS component and a DC MPS component. The PSE may optionally monitor the AC MPS component only, the DC MPS component only or both the AC and the DC MPS components.

33.2.10.1.1 PSE AC MPS component requirements

A PSE that monitors the AC MPS component shall meet the 'AC Signal parameters' and 'PSE PI voltage during AC disconnect detection' parameters in Table 33-6.

A PSE shall consider the AC MPS component to be present when it detects a AC impedance at the PI equal to or lower than |Zac1| as defined in Table 33-6.

A PSE shall consider the AC MPS component to be absent when it detects a AC impedance at the PI equal to or greater than |Zac2| as defined in Table 33-6.

A PSE can consider the AC MPS component to be either present or absent when it detects a AC impedance between the values |Zac1| and |Zac2| as defined in Table 33-6.

33.2.10.1.2 PSE DC MPS component requirements

A PSE shall consider the DC MPS component to remain present if the DC current is greater than or equal to IMin2 for at minimum of TMPS in every period of TMPS plus TMPDO.

A PSE shall consider the DC MPS component to be absent when it detects a DC current in the range Imin1 for a duration greater than TMPDO max.

A PSE can consider the DC MPS component to be either present or absent if the the DC current is in the range IMin2 for a duration in the range TMPDO.

Action 2: Delete subclause 33.2.8.6 items a to e as these are covered in the new text above. Move item f to a more appropriate position.

Action 3: Delete subclause 33.2.8.7 as this is now covered in the new text above.

Action 4: Change the tmpdo_timer in Figure 33-7 right hand state diagram to be something more appropriate. This needs to take into account that as proposed above there is no time limit on AC disconnect being indicated and that an delay will be added to the DC disconnect delay defined above.

An alternative would be to remove any mention of the Tmpdo delay from the DC MPS component definition above and allow the state machine to continually transition between MONITOR_MPS and DETECT_MPS when there is a modulated DC MPS supplied by the PD.

Action 5: Change the references in 33.2.3.4 to point directly to 33.2.10.1.1 where it mentions the AC MPS component and 33.2.10.1.2 when it mentions DC MPS component.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make changes as instructed in Resolution to David Law comment #57.doc.

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **12** # **55**

Law, David 3Com

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

The variable mr_mps_valid states that it takes the value 'FALSE' if the DC MPS is missing or the AC MPS is missing. This means that it is mandatory to implement both AC and DC disconnect in all PSEs since it is required to set mr_mps_valid to 'FALSE' if DC MPS is missing or AC MPS is missing according to this variable definition - there is no provision for only monitoring only AC or DC MPS. I didn't think this is correct.

SuggestedRemedy

If it is not monditory to implement both AC and DC MPS change the text to read:

FALSE: If monitoring both components of the MPS, the DC component of MPS is missing or the AC component of MPS is missing. If monitoring only one component of MPS, that component of MPS is missing.

Note: I have submitted a comment to better define the AC and DC components of MPS and therefore provide better cross references for this variable.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #57

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **27** # **35**

Darshan, Yair PowerDsine

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

Force power is a dangerous ability.
It allows bypass of detection and classification.
It allows remote control of this ability and potential damage to legacy devices.

I am aware of the importance of this function as the importance of many other test functions for test purposes however it can be done through proprietary implementation and should not be formal requirement in the state flow.
The state flow should describe normal operation and not test functions which can be many and may vary between vendors.

SuggestedRemedy

Remove this function/ability from the draft and update state diagrams accordingly or suggest a safe way to prevent the following:
1. Enabling this function by remote management
2. Allowing non-compliant PDs to receive power.
3. To be in Force power mode for unlimited time.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Insert a Cautionary Note at the end of 33.6.1.1.3 that reads

Cautionary Note:
Test mode may damage connected non-PD, legacy, twisted pair Ethernet devices or other non-Ethernet devices, especially in split application wiring schemes.

Straw poll to accept suggested remedy (remove test mode from SM)
Y: 5 N: 6 A: 4

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **40** # **71**

Thaler, Pat Agilent

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

The description of power applied doesn't cover describing that it goes from false when no power is removed.

SuggestedRemedy

False: The PSE is either not applying power or has begun applying power but is still in start up.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

False: The PSE is either not applying power or has begun applying power but is still in startup.

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **55** # **36**

Darshan, Yair PowerDsine

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

Regarding variables in the state flow:
We need to specify that the variables and signals in the state flow are not to be tested unless they are specified in the management paragraph.
In addition only the 'externally observable behavior of the PSE' as indicated in page 40 line 6 should be tested.
All these externally observable behaviour of the PSE are indicated in the text of draft 4.1

SuggestedRemedy

Add in page 41 line 55 the following:
'The variables used in the state diagram are not required to be tested unless they represent externally observable behavior of the PSE as defined in clause 33 or required to be reported according to paragraph 33.6.'

Proposed Response *Response Status* **Z**

Withdrawn

waiting for SM adhoc

Cl **33** *SC* **33.2.3.3** *P* **42** *L* **3** # **179**

Thaler, Pat Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Delete this. How the timers operate is already defined in 33.2.3.1 Conventions two pages earlier by reference to the description in 14. The text in 33.2.3.3 is an imcomplete description.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **2.3.5** *P* **42** *L* **12** # **23**

Karam, Roger — Cisco systems

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

ted_timer
it seems to me that we created a new spec on how fast a new detection cycle can be initiated once failure has happened.
if anything i would like this to be optional at this point.

SuggestedRemedy

put a note that this paramerter is optional.

Proposed Response *Response Status* **Z**

Withdrawn

PROPOSED REJECT.

The delay is necessary eliminate a safety hazard. If power is applied when there is an error condition, the high duty cycle of applied power to a short can create thermal safety hazards.

This is being handled by Dwelley #28

Cl **33** *SC* **33.2.3.5** *P* **42** *L* **26** # **65**

Law, David — 3Com

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

Incorrect state referenced in the tpdc_timer definition, the state CLASSIFICATION does not exist.

SuggestedRemedy

Change the text 'CLASSIFICATION' to read 'START_CLASSIFICATION'. Alternatively consider deleting this text as the other timers don't reference where they are started and tested.

Proposed Response *Response Status* **C**

ACCEPT.

Delete the text 'Started in CLASSIFICATION, tested in CLASSIFICATION.' as the other timers don't reference where they are started and tested.

Cl **33** *SC* **33.2.3.6** *P* **42** *L* **33** # **60**

Law, David — 3Com

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

The definition of the do_detection function references subclause 33.2.8.1 in reference to returning the value open_circuit for the variable signature however subclause 33.2.8.1 relates to Output voltage and therefore seems to be a incorrect cross-reference.

Now, I have searched the draft and may be missing something but the only reference I can find to the 'open circuit' signature is in 33.2.3.1 Overview which states 'If the PSE that is performing detection using Alternative B detects an open circuit (defined as a resistance greater than 500 KOhm) ...'. I looked for 500 KOhm in the various tables and couldn't find such a value.

In addition, the text as it stands in 33.2.6 defines valid and invalid and makes no provision for a third state open circuit.

SuggestedRemedy

Modify an appropriate table to add a definition of what is considered the open circuit resistance, with suitable tolerance. Either modify 33.2.6.2 so that it provides two values, invalid and open circuit or add a new subclause 33.2.6.3 Open circuit criteria' and modify 33.2.6.2 so that it excludes the open circuit conditions.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

1. change page 40 line 29 from:
(defined as a resistance
greater than 500 Kohms) to
(defined in Table 33-2, item 8.5)

2. Add row 8.5 to table 33-2
Open Circuit Resistance Ropen Kohm 500 (min entry) (no max) see 33.2.6.3

3. add section 33.2.6.3 Open Circuit Criteria
If a Midspan PSE determines that the impedance at the link is greater than Ropen as defined in Table 33-2 item 8.5, then it may optionally consider the link to be open circuit and omit the Tdbo_timer interval.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **3** # **182**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

it is inconsistant to put some booleans in to conditions as x=true or x=false and to put others in as x and !x. error condition is usually being handled usuing the second notation and the other booleans with the first notation.

SuggestedRemedy

Use a consistant notation. Given the length of your conditions, I suggest using the x and !x notation as it is shorter (though some find the ! a bit too easy to overlook).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

use the x and !x notation

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **5** # **181**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

On entry to test mode: pse_reset_power_on is not a variable.

SuggestedRemedy

Replace
(pse_reset_power_on)=false
with
(pse_reset=false)*(power_on=false)
or depending on how you deal with my comment on consistency
!pse_reset*!power_on

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Transition is now from the IDLE state due to the changes in comment 286, and the referenced terms are thus elimated.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **14** # **183**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

apply_probes is a function, not a boolean variable so assignments of apply_probes<=true and apply_probes<=false are not valid.
Also, apply_probes_done is not a defined variable or function.
The same comments apply to do_classification

SuggestedRemedy

In START_DETECTION, just use "apply_probes" to run the function.
Define apply_probes_done as a boolean indicating that the apply_probes function has completed.
Delete the apply_probes assignment from DETECT_EVAL as you don't need to do anything to disable a function once it is completed.
Do similar changes for do_classification.
To be kind to the reader, please also add signature, pd_requested_power and mr_pd_class_detected to the list of variables. They can have simple definitions such as "Contains the result of the apply_probes function."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Specific instructions in comment 286, 287

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **19** # **186**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

On the right hand exit from DETECT_EVAL, you are testing pd_requested_power, but you haven't assigned a value to it.

SuggestedRemedy

Assign a value to pd_requested_power in START_DETECTION.

By the way, I don't understand why you need two variables - one for all the possible powe levels and one with a condensed set. It would be simpler to just have one variable.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **26** # **187**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

When mr_pse_alternative is B and the signature was open_circuit, both exit conditions from SIGNATURE_INVALID will be true.

Also, the exit conditions from DETECT_EVAL and CLASSIFICATION_EVAL that are not qualified by the timers can be true at the same time as the exit to IDLE if a timer has expired.

SuggestedRemedy

Replace the left-hand exit of SIGNATURE_INVALID with
(mr_pse_alternative=B)*(signature != open_ciruit)

The problem for the other states could be resolved by moving the exit on timeout to START_DETECTION AND START_CLASSIFICATION as suggested in other comments. If this is not done, then "*!xxx_timer_done" should be added to each transition that isn't to be taken when the xxx timer has expired.

"!=" above is meant to represent the not equals symbol which is what should be used in the draft.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept the first suggested remedy. For Signature_Invalid as is.
Add an exit condition from "Start_detection" which transitions on tdet_timer_done
Remove tdet_timer_done from the equiation starting on line 17
Add an exit condition from Start_Classification which transitions on tpdc_timer_done
Remove tpdc_timer_done from equation starting on line 32

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **31** # **185**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

On the left hand exit from CLASSIFICATION_EVAL, use a less than or equal symbol rather than <= because the latter looks too much like our assignment symbol.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

On the left hand exit from CLASSIFICATION_EVAL, use a less than or equal symbol rather than <= because the latter looks too much like our assignment symbol.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **41** # **191**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Be more specific about the definition of power_applied. Does it go true when the power supply has reached the proper output voltage or current? If it is based on the output voltage, there is a possible problem:
If power is applied and the PD draws excessive current (more then Ilim or Icut), the overload current can be drawn until ttot_timer expires because the tlim and tovld timers are not enabled during POWER_UP.

SuggestedRemedy

Add a clear definition of the criteria for assertion of power_applied
If over load during POWER UP is a concern, there are several alternatives:
One way would be to use pi_powered rather than power_applied in the short detecting state machine and add an exit from POWER_UP to BACKOFF if the tlim timer expires.
This assumes that one is willing to have current over Icut but under Ilim during power up.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace power_applied with pi_powered as the exit condition for the pse monitor state machines idle state.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **46** # **190**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

There could be a failure in a PD that doesn't effect the voltage it presents during probing but does draw excessive current when powered. If there is such a failure, this state machine will continuously cycle turning power on, timing out the overload and turning power off. If the PSE has a short detection and turnon time, this may result in too much power into the short. When a short or overcurrent is detected, there should be an enforced time in the power off to limit the duty cycle at which power is applied.

SuggestedRemedy

When tlim_timer_done or tovld_timer_done occurs, go to the BACKOFF state rather than power on.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

We will create a new state called "ERROR_DELAY" which will be entered when tlim_timer_done or tolvd_timer_done become true from the POWER_ON state. The exit condition will be the expiration of a timer Ted_timer_done is true. A value for Ted must be added to table 33-6 which will be 2 seconds long.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **49** # **188**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

The POWER_OFF state is unnecessary and inconsistantly used.

It is unnecessary since the action taken is the same as in the IDLE state and the IDLE state requires power_applied to be false before it is exited.
It is inconsistantly used since the actions causing the global transition to IDLE can go directly from POWER_ON to IDLE. (Actually, error_condition should go true due to the faults that cause transition to POWER_OFF and the global transition will override the transition to POWER_OFF.) Also, mr_detection_test could go true as power_applied is going true and one might transition to POWER_OFF or to IDLE

SuggestedRemedy

Remove the POWER_OFF state.

If there is some reason it is needed, then the right-hand exit from POWER_UP and the global transition to IDLE should go to POWER_OFF state rather than IDLE so that the state is always used. In that case, power_applied=false doesn't need to be tested to leave IDLE.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.5** *P* **44** *L* **8** # **189**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

mr_overload has values assigned by the state machines, but it is not defined in the variables list and it is never used.
mr_overcurrent is defined in the variables and used by management (33.6.1.3) values are never assigned to it.
Perhaps they are suppose to be the same variable, but in that case the behavior is not consistant with 30.9.1.1.8's description of overCurrent.
30.9.1.1.8 indicates that overcurrent is detected when the current exceeds the current limit for the Overload time limit and says the overcurrent condition maps to the overcurrent bit. However, mr_overload goes true when current limits are exceed regardless of time duratio

Also note that when Ilim > I > Icut, DETECT_OVERLOAD will be assigning TRUE to mr_overload at the same time MONITOR_SHORT is assigning FALSE to it. What is its value?

SuggestedRemedy

Delete all occurances of mr_overload. Add a state to the overload and short detection state machines. On tovld_timer_done or tlim_timer_done, respectively, transition to the new state and set mr_overcurrent<=TRUE.
There does not need to be an exit from the new state as the normal exit would be via the global transition to IDLE_OVLD or IDLE_SHORT when power_applied=FALSE. In one of the idle states or in MONITOR_OVLD state set mr_overcurrent to FALSE. It doesn't need to be done in both idle states because both machines will be in idle at the same time. Putting the assignment in MONITOR_OVLD rather than an idle state would preserve the overload indication during idle.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove "Overcurrent" from 30.9.1.1.8
Add new sticky status bit 12.9 for short circuit.
Make 12.8 a sticky status bit.
Fix 30.9.1.1.10 to count 12.9 + 12.8
Figure 33-6 middle monitor change to use mr_short
Define mr_overload and mr_short in variables.

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **11** # **47**

Darshan, Yair — PowerDsine

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

pse_ready is not defined.

SuggestedRemedy

Define pse_ready in the state flow page 44 line 11.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add definition for pse_ready

pse_ready Variable that is asserted in an implementation dependent manner to probe the link segment.
TRUE = PSE is ready to probe the link segment
FALSE = PSE is not ready to probe the link segment

Cl **33** *SC* **Figure 33-6** *P* **44** *L* **17** # **58**

Law, David — 3Com

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

The transitions taken due to tdet_timer_done, tpdc_timer_done and tpon_timer_done cannot be externally observed as they would only result from a malfunctioning PSE. These timing requirements are design requirements rather than state machine behavior.

SuggestedRemedy

Consider if there is a better way of defining this design requirements.

Proposed Response *Response Status* **Z**

Withdrawn

we will explain why to the group since some agreed to the comment.

Cl **33** *SC* **33.2.3.5** *P* **44** *L* **20** # **192**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **R** *D4.0*

There doesn't seem to be any purpose having both the short and overload detection state machines.
Tlim and Tovld both have the same range so when I > Ilim, both tovld_timer_done will be asserted within the timer range for tlim_timer_done assertion.

There would be a point to having two timers if the time limit for a short was significantly less than the time limit for a more mild overcurrent condition.

SuggestedRemedy

Either remove the tlim and its associated state machine or make Tlim significantly shorter than Tovld.

Proposed Response *Response Status* **C**

REJECT.

The two timers share the same range, but the expectation of the committee is that in practice the values will be one of two conditions in actual implementations:
1) The implementer will use a significantly shortened time for the short circuit than the overload, or
2) The implementer will actually only run a single timer and will in fact run only a single statemachine.
By choosing overlapping times, either of these implementation can be achieved. The overload variable is being replace with a separate variable for over_current and short_circuit which are then ORed \together to provide a single sticky register bit to flag over current events.

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **20** # **38**

Darshan, Yair PowerDsine

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

The state flow does not reflect the requirement that if the system is not using the classification function and yet detected a valid PD, it should supply power only if there is enough power.
pse_available_power can be defined by the system or user.
PD_requested_power can be defined by other means (user specific means) as described by paragraph 33.2.9.

SuggestedRemedy

1. page 44 line 20:
change from: 'signature=valid*!performs_classification'
to: 'signature=valid*!performs_classification*(pse_available_power>PD_requested_power)'

2. page 41 lines 45-50:
Change from:
'pse_available_power
This variable indicates the highest power PD Class that could be supported.
Values:0:Class 1
1:Class 2
2:Class 0,Class 3 and Class 4'
to:
'pse_available_power
This variable indicates the highest power PD Class that could be supported.
Values:0:Class 1
1:Class 2
2:Class 0,Class 3 and Class 4
3:User specific value for available power.
3. page 42 at line 54: Add the following text:
The user can assign the values to the variables pd_requested_power and mr_pd_class_detected without running do_classification function by using user specific power allocation algorithms as defined by paragraph 33.2.9'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept suggested remedy #1 except > should be >= (use single character symbol per IEEE style).

In response to suggested remedy #2, add to description of PSE available power that the value is determined in an implementation specific manner.

Suggested remedy #3 is rejected, no change.

Cl **33** *SC* **33.2.4.7** *P* **44** *L* **21** # **70**

Thaler, Pat Agilent

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

Multiple transition conditions can be true at the same time.

SuggestedRemedy

Add conditions so that only one transition is true at any time.
For example on the left exit from Start_Detection the condition should be do_detection_done * !tdet_timer_done. On Detect_eval remove the transition for tdet_timer_done.

Proposed Response *Response Status* **C**

ACCEPT.

IDLE to START_DETECT, add "* mr_pse_enable != force_power" (use correct symbol for !=)
TEST_MODE to TEST_ERROR, place ( ) around exiting terms and add "* mr_pse_enable = force_power"
START_DETECTION to DETECT_EVAL, add "* tdet_timer_not_done"
DETECT_EVAL, delete exit transition of tdet_timer_done
POWER_UP to POWER_ON, add "* tpon_timer_not_done"
POWER_ON to IDLE, change to read "(tmpdo_timer_done + (pse_enable = force_power)) * tlim_limer_not_done * tolvd_timer_not_done"

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **33** # **49**

Darshan, Yair PowerDsine

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

In the state CLASSIFICATION_EVAL, we start tpdc_timer again, why?

SuggestedRemedy

Clarify or delete 'start tpdc_timer' from the state.

Proposed Response *Response Status* **C**

ACCEPT.

Delete start_tpdc_timer".

Cl **33** *SC* **33.2.4** *P* **44** *L* **33** # **193**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

The content of this paragraph conflicts with the operation shown in the state machine because the state machine exits the idle state whenever power is not applied and the pse is enabled. In 802.3, the state machines have precedence.

SuggestedRemedy

Add a variable to the transition from IDLE to START_DETECTION such as ready_to_detect which the PSE may assert in an implementation dependent fashion when it is ready to probe the link segment.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **34** # **37**

Darshan, Yair — PowerDsine

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

The branch starting at 'DETECT-EVAL' block and ends at 'POWER_DENIED' block should be conditioned with 'signature=valid' as the other 3 branches coming

SuggestedRemedy

Change lines 34-35 from:
'(pd_requested_power>pse_available_power)*!performs_classification'

to:
'(pd_requested_power>pse_available_power)*!performs_classification*signature=valid'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.4.7** *P* **44** *L* **41** # **73**

Thaler, Pat — Agilent

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

The way the state machines work, the Tlim and Tovld timers will be started as soon as Power_Up state is entered, but the timers won't cause power to be removed until Power_On state which can take 400 ms.

SuggestedRemedy

Add exits to the fault states to the Power_Up state.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

SM Adhoc: See #46.

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **41** # **39**

Darshan, Yair — PowerDsine

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

What is 'UCT', the output of POWER_DENIED' block?

SuggestedRemedy

Please define 'UCT'.

Proposed Response *Response Status* **Z**

Withdrawn

REJECT.

UCT is defined in the base standard and defined for this clause by reference to 21.5

UnConditional Transfer
waiting for SM adhoc

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **45** # **51**

Darshan, Yair — PowerDsine

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

During normal power ON mode, there is a situation that the available power is reduced (battery operation or something else that may cause to a condition of pse_available_power<pd_requested_power. In this case we should turn off the power.

SuggestedRemedy

Add additional branch to the state POWER_ON conditioned with:
pse_available_power<pd_requested _ower and connected to the IDLE state.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add term to POWER_ON to IDLE transition "+ power_not_available"

Add variable definition:
power_not_available Variable that is asserted in an implementation dependent manner when the PSE is no longer capable of sourcing power to a PD.

Cl **33** *SC* **33.2.3.7** *P* **44** *L* **46** # **50**

Darshan, Yair — PowerDsine

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

The logic behind the right branch from the POWER_ON state is not clear.
Why 'tpmdo_timer_done+(pse_enable=force_power)'.
It should be 'tpmdo_timer_done' (regardless of the issue if force power is required or not. I have a comment dedicated for this issue as well)

SuggestedRemedy

Clarify or change to 'tpmdo_timer_done'
S

Proposed Response *Response Status* **Z**

Withdrawn

waiting for SM adhoc

Cl **33** *SC* **33.2.4.7** *P* **44** *L* **50** # **72**

Thaler, Pat — Agilent

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

There is no need for two Error_Delay states as they both assert the same variables and have the same exit condition.

SuggestedRemedy

Combine them to one state.

Proposed Response *Response Status* **Z**

withdrawn

The different states tie to the setting of separate status bits, see 33.6.1.2.5 and 33.6.1.2.6.

Cl **33** *SC* **33.2.3.5** *P* **46** *L* **33** # **326**

Thompson, Geoff — Nortel Networks

Comment Type **TR** *Comment Status* **A** *D4.0*

Verify correct value, edit main text and remove editor's note

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved by resolution of comment #25

Cl **33** *SC* **2.5** *P* **47** *L* **10** # **10**

Karam, Roger — Cisco systems

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

table 33-2
item #5 time between any two test points?
this was not the intent of this parameter please fix to reflect the
real intent- that was to make sure that the frequency of detection stays
very low.

SuggestedRemedy

change this to say:
detection repetition rate (keep it in seconds), or frequency and let's spec it in HZ... it does not matter to me. either is fine

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add in additional information column: 'This timing implies a 500Hz maximum probing frequency.'

Cl **33** *SC* **2.5** *P* **47** *L* **19** # **21**

Karam, Roger — Cisco systems

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

table 33-2
a PSE has to detect a Max of 120nf when PD has it in its signature
yet the PD max is 130nf?
we got this backward?
add the fact that 10BT can run up to 200m of cat5, + patch panels affairs...
aging connectors...

SuggestedRemedy

please change the PSE to detect 200nf.
this requires changing item 9 of table 33-2 from 120nf to 200nf.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Table 33-2 item 9 to be 150nF max.

Cl **33** *SC* **2.5.1** *P* **47** *L* **38** # **11**

Karam, Roger — Cisco systems

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

this spec can not be measured!
current measurement should be taken after vdetect has settled to 1%.

we do not want to dictate that the IC doing detection sets a signal per port to tell us when it does detection to measure this- do we?

SuggestedRemedy

put a note and state that this is informative. since it can not be measured as to when an IC is going to sample or take the measurement...

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make this sentence a note: 'Settling time before voltage or current measurement: the voltageor current measurement should be taken after V detect has settled to within 1% of its steady state condition.'

Cl **33** *SC* **33.2.7.2** *P* **48** *L* **40** # **62**

Law, David — 3Com

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

The text reads '... as Class 4 should be treated ...'. Is this not a mandatory requirement - if so the 'should' needs to be a 'shall'.

SuggestedRemedy

If the requirement is mandatory change the text '... as Class 4 should be treated ...' to read '... as Class 4 shall be treated ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.7.3** *P* **49** *L* **45** # **196**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

The meaning of the last sentence is unclear.

SuggestedRemedy

I think the meaning was suppose to be something like:
"When Vclass <= 20V for the current range between 43 mA and 47 mA, the PSE shall not power the PD or shall power the PD as Class 0."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

When Vclass <= 20V for Iclass between 45 mA and 51 mA, the PSE shall not power the PD or shall power the PD as Class 0.

Other comments change 43mA to 45mA and 47mA to 51mA.

Cl **33** *SC* **Table 33-5** *P* **51** *L* **24** # **28**

Dwelley, David — Linear Technology

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

2 seconds is overly long and limits some applications, especially those with on-board FETs and thermal sensors that can measure SOA directly, or large FETs with large SOAs.

Similarly, I see no reason why the PSE cannot immediately restart detection - it just should not apply power during the defined interval. The goal is to protect the MOSFET, not to keep the line quiet. There may be conditions where it is valuable for the PSE to know that the PD still has a valid signature, even if it is not allowed to apply power.

SuggestedRemedy

Change to 750ms (which is in line with our 5% peak current spec) or change to a cautionary note and remove from the table.

Change current note to read: ‘Delay before PSE may reapply power after power removal due to an error condition.’

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Ted to 750 ms (min)

Cannot start detection in conjuction with the Ted_timer, it breaks the SM.

Cl **33** *SC* **2.8** *P* **51** *L* **25** # **12**

Karam, Roger — Cisco systems

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

table 33-5
item 21, error delay timing,
this as i recall was never discussed, so i do not see data that support it. why 2 seconds?

SuggestedRemedy

i would eliminate this unless data is presented to support it.

Proposed Response *Response Status* **Z**

Withdrawn

Defered to Dwelley 28

Cl **33** *SC* **33.2.8.4** *P* **51** *L* **47** # **63**

Law, David — 3Com

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

Is it correct that the text referenced by the 'Additional information' column is really informative and not normative. Take this subclause as an example. The text reads that 'The specification of IPort_max in Table 33-5 includes the following additional information:'. Is it really correct that the following text is only informative as to me it seems to be normative requirements.

SuggestedRemedy

In all cases where the 'Additional information' text needs to be normative the text such as '... the following additional information:' should be changed to read something similar to one of the following examples:

'... shall be met under the following conditions' or
'... shall meet the following requirements'.

Alternatively shall statements could be included in appropriate places.

Proposed Response *Response Status* **C**

ACCEPT.

Changes made to document in TF. Need to proofread.

Cl **33** *SC* **33.2.8.4** *P* **52** *L* **1** # **64**

Law, David — 3Com

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

Use of a 'should'.

SuggestedRemedy

If requirement is normative change the text 'The PSE should support ...' to read 'The PSE shall meet ...'

Proposed Response *Response Status* **C**

ACCEPT.

Changes made to document in TF. Need to proofread.

Cl **33** *SC* **33.2.9** *P* **52** *L* **6** # **169**

McCormack, Michael — 3Com

Comment Type **TR** *Comment Status* **R** *D4.0*

This comment refers to Item 4 of Table 33-6.

The 350 mW minimum power output requirement is overly burdensome on the vast majority of applications. By placing such a high power requirement, the application of this standard to wall transformer replacements will be seriously impeded. The IEEE will be encouraging implementer to ignore portions of the standard in order to not be wasteful and design PSEs with over capacity. The result will be that either implementers will not be successful in the market or will willfully vary from the spec which will in turn cause 802.3a to be either unsuccessful or irrelevant in many markets.

SuggestedRemedy

Suggest that the limit be changed to "350 mA or the rated output of the PSE supply; which ever is less."

Proposed Response *Response Status* **C**

REJECT.

.3 Voters only: (1-29-03)

Vote to Accept in Principle
Y - 3 N - 6 A - 3

There was not consensus to suport this change. Those supporting the status quo felt that the increased interoperability provided by this requirement was more important.

.3 Voters only Vote to Reject the comment: (3-12-03):
Y - 12 N - 1 A - 1

Cl **33** *SC* **33.2.8.8** *P* **52** *L* **40** # **27**

Dwelley, David — Linear Technology

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

Current equation is broken. Also, it should refer to table 33-3, not 33-10. This is also related to my comment #2 (ed note: comment #26), and it still doesn't completely allow a PSE to limit peak current with a large number of Class 1 PDs attached (we'd need to respec Ilim to do that).

SuggestedRemedy

Remove '*1000' term, change '33-10' to '33-3'

Rethink Icut/Ilim logic with regards to controlling PSE peak current.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change text on Page 52 line 41 from:
'P_class is specified by Table 33-10 and . . .'
to:
'P_class is the minimum power level at the ouput of the PSE as specified by Table 33-3 and . . .'

reject the 'rethink' portion of suggested remedy.

Cl **33** *SC* **33.2.3.5** *P* **53** *L* **10** # **198**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

This requires that the PSE not supply power if it can't do so within Tpon. This is inconsistent with the state machine which checks that Ttot is not exceeded but does not check Tpon. If detection and classification take less then the maximum allowed to them (or if classification is not done), then the state machine will allow application of power after Tpon has expired.

SuggestedRemedy

Either change this text to match the state machine (that is, require that power not be applied if it cannot be applied within Ttot time after detection has started) or change the state machine to match the text (add a timer for Tpon which is started when POWER_UP state is entered and tested while in that state).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Ttot has been remove and Tpon has been added to time from the Detect_Eval state. Ttot will be expunged from the document.

Cl **33** *SC* **33.2.9** *P* **53** *L* **39** # **92**

Law, David — 3Com

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

The text '.. requested by the PD based on the PD's classification.' provides not text in relation as to what to do if the PSE doesn't support classification and therefore appears to make classification mandatory.

SuggestedRemedy

Change the text '.. requested by the PD based on the PD's classification.' to read '.. requested by the PD based on the PD's class.' If considered necessary add the additional text 'Where a PSE does not provide the option classification function specified in 33.2.7 all PD are treated as Class 0.'

Proposed Response *Response Status* **C**

ACCEPT.

Ed notes: do both changes.

Cl **33** *SC* **33.3.1** *P* **57** *L* **50** # **205**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

I had made a comment on the working group draft regarding polarity insensitivity and compatability when the PSE or PD is Auto-MDI-X sensing. The resolution agreed to seems to be only partly implemented.
An MDI PD does not need to be polarity insensitive because it can only interoperate with an MDI-X or Auto-MDI-X PSE and either will provide it with the polarity it expects.
An MDI-X PD might interoperate (with regards to Ethernet signal compatability) with an Auto-MDI-X PSE, but the polarity provided will be the opposite of what it expects unless it is polarity insensitive. This is the same as the situation for an Auto-MDI-X PD. Therefore, it also needs to be required to support polarity insensitivity.

SuggestedRemedy

Either change the last sentence to
A PD with an MDI-X or Auto-MDI-X interface shall be polarity insensitive.

or delete that sentence and change page 57 lines 49-51 to
"A may be implemented to be insensitive to the polarity of the power supply. A PD with an MDI shall be able to operate in at least the PD Mode-A MDI column and in the PD Mode-B column in Table 33-8. A PD with an MDI-X or Auto-MDI-X interface shall be able to operate in all the columns of Table 33-8."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

With the resolution of comment #77, there is no wiring configuration where a PD will be powered but will not align data. Therefore, the requested change is unnecessary and overly burdensome on some applications.

The commentor is now happy with the resolution to comment

Cl **33** *SC* **3.1** *P* **57** *L* **53** # **15**

Karam, Roger — Cisco systems

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

a PD that implements Auto-MDIX shall be ....
i beleive we need to make sure that MDI-X and Auto-MDIX both are polarity insensitive.

SuggestedRemedy

add this text:
a PD that implements either
auto MDI X or MDI X shall be polarity insensitive (ie uses a diode bridge, on that pair to accept reverse polarity)

Proposed Response *Response Status* **Z**

Withdrawn

PROPOSED REJECT.

Defered to Thaler #69

Cl **33** *SC* **33.3.4** *P* **61** *L* **6** # **207**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

The draft states: 5
"For a PD to be a valid Class 0 load, the only requirement is that the PD implement a signature V-I slope."
This allows a PD that doesn't provide classification to be totally unconstrained in the classification signature it provides, but the PSE has no way to know that it is attached to such a PD. Therefore, if the PSE performs classification, it may get a result indicating that the PD is in a class using less power than it actually uses or it may get a result that is an invalid value. If the latter occurs, it is possible that the PD may not get powered.

SuggestedRemedy

Require that a PD input provide a conditions that fall within the Class 0 signature if it does not support classification.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

page 47 line 44: change "The PSE may optionally classify a PD, and the PD may provide information, to allow features..." to "The PSE may optionally classify a PD to allow features..."

page 47 line 49: change "A successful classification of a Class 1-4 PD requires..." to "A successful classification of a PD requires..."

page 47 line 51: change "Successful Class 1-4 classification" to "Successful Class 0-4 classification"

page 48 line 1: change "A PSE may classify a Class 1-4 PD by either..." to "A PSE may classify a PD by either..."

page 49 line 3: change "PDs may provide information that would allow..." to "PDs provide information that allow..."

page 61 line 12: change "A PD designed to present a classification signature shall return Class 1 to 3 in accordance..." to "A PD shall return Class 0 to 3 in accordance..."

page 61 line 34: change "PDs that implement classification shall provide..." to "PDs shall provide..."

page 62 line 1: change "A PD that implements classification shall present..." to "A PD shall present..."

page 62 line 30: change "A Class 1 to 4 PD shall not oscillate..." to "A PD shall not oscillate..."

page 85 line 7: change "Return Class 1 to 3 classification" to "Return Class 0 to 3 classification"

page 85 line 8: remove n/a field (also pd12, 13, 14)

page 85 line 21: change "Class 1 to 4 PD not oscillate..." to "PD not oscillate..."

Cl **33** *SC* **table 33-11** *P* **61** *L* **38** # **42**

Darshan, Yair PowerDsine

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

The gray area between the class current has margin of less than 7% in some ranges. It is needed to be confirmed by PD and PSE chip vendors that the current margins are good enugh.

SuggestedRemedy

Update tables 33-4, 33-11 to guarantee 7% margin mimimum at the gray area or confirm that the current margin is OK. The class current range is not required to be change and re-evaluate.
If changes has to be made, the following places in the draft has to be updated too:
update page 52 line 12 from 60ma to TBDmA.
update page 82 line 12 from 60ma to TBDmA.
update page 101 line 50 from 60ma to TBDmA.
We will discuss the details in the meeting.

Proposed Response *Response Status* **Z**

Withdrawn

Scope? - This table is identical to what is in D4.0.

Need Yair in room.

Cl **33** *SC* **Table 33-11** *P* **61** *L* **40** # **29**

Dwelley, David Linear Technology

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

We don't allow for the drop across the 20 ohm cable in the PD classification ranges. 50mA * 20 ohms = 1V, so we need the PD to be valid at 14V to operate reliably with 15V forced a the PSE.

If the PD is designed for 15V and only sees 14V, it is likely to be classed one class too low, causing interoperability problems.

SuggestedRemedy

Change the Conditions column of Table 33-11 to '14V to 20V' for all entries. We could also choose to have 14V for Class 4, 14.4 for Class 3, etc. since the problem is less severe at the lower classes.

Proposed Response *Response Status* **C**

ACCEPT.

Change second column of table 33-11
Class 0 14.5V to 20.5V
Class 1 14.5V to 20.5V
Class 2 14.5V to 20.5V
Class 3 14.5V to 20.5V
Class 4 14.5V to 20.5V

change page 48 line 45 from:
'The PSE shall provide V Class between 15 and 20 volts,'
to:
'The PSE shall provide V Class between 15.5 and 20.5 volts,'

Cl **33** *SC* **Table 33-12** *P* **62** *L* **9** # **32**

Goldis, Mordechai Avaya

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

This may be editorial
The min input voltage for the PD is 44 -0.35*20 = 37 and not 36

SuggestedRemedy

37

Proposed Response *Response Status* **Z**

Withdrawn

Scope? - This value is identical to what is in D4.0.

Cl **33** *SC* **33.3.4** *P* **62** *L* **31** # **208**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Why is the PD allowed to oscillate when tested with the higher of the two test currents for its class. If it is oscillating, the measured voltage could be below 21 volts and the classification would fail. Also, there is no requirement that the PSE begin testing with lower currents and move on to testing higher currents so oscillation at higher current levels could cause a false classification.

SuggestedRemedy

Require that the PD not oscillate when tested at the higher current level for its class or at least require that any oscillations remain above 21 volts.

Also, either require that a PSE performing measured voltage classification moves from lower currents to higher currents or require that any oscillations at currents for higher classes remain above 21 volts.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved with the resolution of comment #8 and comment #44

Cl **33** *SC* **33.3.5.5** *P* **63** *L* **31** # **26**

Dwelley, David — Linear Technology

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

The 0.4A peak current value here does not match with the new limits we put into Table 33-12, item 4.

SuggestedRemedy

Replace '0.4A' with 'Iport as called out in Table 33-12, Item 4'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

'Iport as specified in Table 33-12, Item 4'

Cl **33** *SC* **33.3.6** *P* **64** *L* **21** # **94**

Law, David — 3Com

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

The text states 'AC input impedance equal to or below the max impedance defined in Table 33-13' however table 33-13 does not list any impedance values. While no doubt an impedance can be calculated from the values provided it would be far better just to clearly specify the value in the table or change the text to reference the table more clearly.

SuggestedRemedy

Please clarify.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change:
AC input impedance equal to or below the max impedance. . .
to
Input impedance with resistive and capacitive components as defined . . .

Also correct line 26 in a similar fashion.

Cl **33** *SC* **Table 33-13** *P* **64** *L* **43** # **25**

Dwelley, David — Linear Technology

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

Commonly available ceramic capacitors lose most of their value with DC bias. A cap that says '0.1u' on the side would appear to meet this spec, yet would be well under 0.05u with 57VDC applied. This may break AC disconnect in some cases.

SuggestedRemedy

Add note in 'additional information' column:

'With 0V to 57V DC bias applied'

Change PICS accordingly.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add 'With 0V to 57V DC bias applied' to Table 33-13, item 3, additional information

No PICS change required.

Cl **33** *SC* **4.1** *P* **65** *L* **29** # **24**

Karam, Roger Cisco systems

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

conductive link segments that have different isolation and grounding requirements shall have those requirements provided by the port-port isolation of network interface devices.

SuggestedRemedy

change this to read that conductive link segments that have different isolation .... must meet env B.

Proposed Response *Response Status* **Z**

Withdrawn

Cl **33** *SC* **33.4.1.1.2** *P* **66** *L* **1** # **211**

Thaler, Pat Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

This clause and the clause before it appear to have been copied from elsewhere in 802.3 (the repeater specifications) but are not entirely appropritate here.

PSEs may attach to multiple network segments, but they don't have MAUs so their isolation is not covered by the MAU specifications. The isloation specification in 33.4.1 would be more appropriate to reference with regard to PSEs and the power supplies of PD

SuggestedRemedy

Correct the paragraphs beginning "For NIDs, ..." modify to require that the isolation of 33.4.1 be provided.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

We have looked at this area with significant depth. We have made changes to the text with other comments and feel that this comment has been covered.

Cl **33** *SC* **4.1.1.1** *P* **66** *L* **1** # **16**

Karam, Roger Cisco systems

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

okay, so we allow both conductors to be switched?
1- this is not clear how if both conductors are switched, a port would see a PD-Plug in? how would it do discovery ie how would it knows that it is time to switch one of its fets? Unless of course we have a circuit listening and possibly providing current limiting....
do we want to get into specing this now?
also if the goal of this is to limit current out of the shared return, it would be great to see data saying that this is a problem.
Also it seems to me that switching only one rail does leave us open to other problems as cross over and straight cables are connected.

SuggestedRemedy

please disallow this option, it would be an economic feasibility a problem

Proposed Response *Response Status* **Z**

Withdrawn

Cl **33** *SC* **4.5** *P* **69** *L* **39** # **17**

Karam, Roger Cisco systems

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

shall not exceed 10mv peak to peak...
well, i understand the 10mv spec (802.3) is for a pair (between two-wires in a pair) but the pair - pair spec being 10mv is not significant. for the transmit and the receive are separate entities.
due to crosstalk, and the technology noise alone, ie on 100BT without power up to 8-10mv can be seen. add integrated magnetic and high volume this would be very impossible to meet. according to my san diego data up to 50mhz we have about 0.5v (no margin added)

SuggestedRemedy

change this spec to 40mv max.

Proposed Response *Response Status* **Z**

Withdrawn

Out of scope. This has not changed from D4.0 and there are no open TRs on this topic.

Cl **33** *SC* **33.4.8** *P* **71** *L* **52** # **213**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

The meaning of this sentence, especially "reflect" is unclear. Also, a Midspan PSE must provide continuity for the signal pairs. If it doesn't, the link will not work.

Also, it is possible that one PHY connected has a PD and and one does not. The device that does not have a PD might be adversely affected by the power applied to those pairs for the PD as there are no requirements for non-PD PHYs to tolerate such voltage. The detection or classification signature of the PD might be altered by the presence of the non-PD so that detection or classification would fail.

Therefore, to ensure operation for PDs and to protect non-PD devices, a midspan PSE should be required to not provide continuity for the spare pairs.

SuggestedRemedy

A Midspan PSE inserted into a channel shall provide continuity for the signal pairs. A Midspan PSE shall not provide continuity between the two sides of the segment for the pairs on which injects power.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

A Midspan PSE inserted into a channel shall provide continuity for the signal pairs. A Midspan PSE shall not provide DC continuity between the two sides of the segment for the pairs which inject power.

Cl **33** *SC* **33.4.8.1.4** *P* **72** *L* **52** # **99**

Carlson, Steve

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

In consultation with the 802.3 Maintanance TF, it was determined that the PSE does not implement capability bits to indicate the presence of control registers. To preserve compatibility with pre-standard implementations, the bits in:

Table 33-15-PSE Control register bit definitions
11.3:2
Pair Control
(11.3)(11.2)
11= Reserved
10= PSE pinout Alternative B
01= PSE pinout Alternative A
00= Reserved

will be used. The reserved 11 and 00 states will never be used, so a read of 11.3:2 for the 01 and 10 status will indicate the presence of the PSE control bits.

SuggestedRemedy

On page 72, line 52 currently reads:

The combinations '00' and '11' for bits 11.3:2 have been reserved for future use and are specifically non-conformant per 33.2.1.

change to:

The combinations '00' and '11' for bits 11.3:2 are reserved and will never be assigned and a read will return an undefined value. Reading bits 11.3:2 Pair control will return an unambiguos result of '01' and '10' which may be used to determine the presence of the PSE control resisters.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The combinations '00' and '11' for bits 11.3:2 are reserved and will never be assigned. Reading bits 11.3:2 will return an unambiguos result of '01' and '10' which may be used to determine the presence of the PSE Control resister.

Cl **33** *SC* **33.6.1.2** *P* **76** *L* **27** # **214**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Some of the bits defined only apply to the PSE and there is no statement of what the PD will do with those bits.

Also, some bits that apply to both are described from the point of view of a PSE.

SuggestedRemedy

For each item that does not apply to a PD, state that the PD shall return 0.

For PD Class "a PSE shall report PD Class of the detected PD and a PD shall report its PD Class as specified.... For a PSE, the value in this register is valid ...."

A PD should have bits to report that it is in the MDI powered state (for those PDs that have an alternate power source).

An alternative solution would be to not specify this register as applying to the PD because the information available is fairly limited and in the common case where the PD does not have alternate power the value of this register is very limited - the PD has power and you can read its class or the PD has no power and you can't read any registers.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This has been handled by changes to the State Machine.

There are no bits for the PD.

Cl **33** *SC* **33.6.1.2.5** *P* **76** *L* **41** # **84**

Law, David — 3Com

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

This subclause includes the text 'A short circuit condition shall be detected when the current drawn from the PSE at the PI is greater than the short circuit limit (ILIM) for a duration greater than the short circuit time limit (TLIM) (see Table 33-5 and Figure 33-7).'. This text doesn't seem appropriate for the register bit description as other register bits are only based on State Machine states and don't include text that describes what causes the State Machine to go into that state. In addition I don't think it is appropriate to bury a 'shall' statement in relation to the PSE behavior in relation to a short 'A short circuit condition shall be detected ...' within a register bit description.

SuggestedRemedy

Delete the text 'A short circuit condition shall be detected when the current drawn from the PSE at the PI is greater than the short circuit limit (ILIM) for a duration greater than the short circuit time limit (TLIM) (see Table 33-5 and Figure 33-7).' from this register description.

If this text is to be preserved, suggest it is moved to somewhere more appropriate such as a re-written subclause 33.2.10 that includes all reasons why power may be removed.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the text.

Cl **33** *SC* **33.6.1.2.6** *P* **76** *L* **50** # **85**

Law, David 3Com

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

This subclause includes the text 'An overload condition shall be detected when the current drawn from the PSE at the PI is greater than the overload current limit (ICUT) for a duration greater than the overload time limit (Tovld) (see Table 33-5 and Figure 33-7).'. This text doesn't seem appropriate for the register bit description as other register bits are only based on State Machine states and don't include text that describes what causes the State Machine to go into that state. In addition I don't think it is appropriate to bury a 'shall' statement in relation to the PSE behavior in relation to a overload 'An overload condition shall be detected when ...' within a register bit description.

SuggestedRemedy

Delete the text 'An overload condition shall be detected when the current drawn from the PSE at the PI is greater than the overload current limit (ICUT) for a duration greater than the overload time limit (Tovld) (see Table 33-5 and Figure 33-7).' from this register description.

If this text is to be preserved, suggest it is moved to somewhere more appropriate such as a re-written subclause 33.2.10 that includes all reasons why power may be removed.

Proposed Response *Response Status* **C**

ACCEPT.

Delete the text.

Cl **33** *SC* **6.1.2.6** *P* **77** *L* **10** # **18**

Karam, Roger Cisco systems

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

table 33-16
12.11
12.10 so the digital world has gone to a 4-state space?
how can valid signature be 1:0 and Not valid be 1:0

SuggestedRemedy

eliminate one of these...

Proposed Response *Response Status* **Z**

Withdrawn

Both bits are sticky bits, and therefore have to be independent bits. Both bits contain valuable information.

Cl **33** *SC* **33.6.1.2.7** *P* **77** *L* **50** # **87**

Law, David 3Com

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

This register bit definition includes the text 'An MPS Absent condition shall be detected when either or both elements of the Maintain Power Signature are absent for a duration greater than T MPDO as defined in 33.2.10.'. This text seems to be incorrect as subclause 33.2.10 doesn't currently include any mention of MPS components and states not when the MPS is absent and present but instead only states when Power should be removed. In addition from Table 33-5, Items 7a & 7b seem to include a more complex definition of when MPS is present or absent.

There is also the issue that this bit seems to be an inverse of the Delivering Power value in the Detection Status bits. If Detection Status = Delivering Power then MPS Absent = 0, if Detection Status != Delivering Power then MPS Absent = 1.

SuggestedRemedy

Suggets that this bit and its associated Clause 30 attribute are redundant and should be deleted. If not a much tighter specification of this bits behaviour seems to be required.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is not the inverse of Delivering Power because there are other reasons why power w not be delivered than the MPS.

Replace the second sentence of the MPS absent description with:
"The MPS absent bit shall be set to '1' when tpmdo_timer_done is asserted as specified in 33.2.3.5."

Cl **33** *SC* **33.6.1.2.9** *P* **78** *L* **9** # **86**

Law, David 3Com

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

The text description of these bits is not as clear as the other bits as rather than mapping values to state in the state machine looser text such as 'the PD function is enabled and is searching for a PD issued'. Looser text such as that can be open to interpretation as to exactly which states map to this condition.

SuggestedRemedy

Use text similar to that used in the behavior description found for aPSEPowerDetectionStatus attribute (30.9.5.1.5, page 20, line 29).

Proposed Response *Response Status* **C**

ACCEPT.

Editor to model text after 30.9.5.1.5

Cl **33** *SC* **6.1.2.9** *P* **78** *L* **13** # **19**

Karam, Roger — Cisco systems

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

so how can 'a test mode' be under the bits of detection status?
we claim that 100 is a test mode that forces delivery of power,
how much of detection - status is this 100 state of these status bits?

SuggestedRemedy

if we need to have a test mode, we may want separate bits for it.
for this does not tell us anything about status..
please create a separate bit called 'test mode'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change title of 33.6.1.2.9 to PSE Status and change Table 33-16. Global search and replace.

Cl **33** *SC* **33.7.2.3** *P* **79** *L* **38** # **74**

Thaler, Pat — Agilent

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

Many of these items only apply. The major capabilities and options table should be provided separately for the PSE and PD subclauses. Also, the option notation for a set of options of which 1 must be implemented is used incorrectly.

SuggestedRemedy

Make separate tables for PSE and PD or make PSE and PD options and make the options only appropriate for PSE dependent on PSE.

The notation for an option of which one of the set must be implimented is to put O.n in each option of the set with the _same_ value for n in each. END and MID should each have 'O.1' in the status column.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.7** *P* **79** *L* **38** # **215**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Clause 33 defines two different devices and there should be a separate PICS for each device: PSE and PD. Currently, the two PICS are intertwined in such a way that it is difficult to identify the relevant options and correct entries. Another alternative would be to have one PICS but include in "Major capabilites/options" entries for PSE and PD. Then for each item that applies to only one device, qualify its status with PSE: or PD:. I prefer the former as it is less cumbersome.

SuggestedRemedy

Make separate PICS for PSE and PD.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved in coordination with the resolution of comment #338

Cl **33** *SC* **33.7.2.3** *P* **79** *L* **43** # **216**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

MC and MV status is not accurate

SuggestedRemedy

Status should be CL:O.1

CL: indicates that support for these options is dependent on supporting classification. O.n indicates that the item is optional but at least one of the options with "n" must be supported. When supporting classification a PSE shall support either the current or voltage method.

If you don't separate PSE and PD specs, then the status would be PSE*CL:O.1 because this option choice applies only to the PSE.

Proposed Response *Response Status* **C**

ACCEPT.

Ask PICS editor to implement.

Cl **33** *SC* **33.7.3.1** *P* **80** *L* **1** # **217**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Delete this subclause. 33.1 is an introduction and the requirements associated with it are covered elsewhere (it doesn't have shall statements). These items are redundant and one could not specify conformance based on the general statements of 33.1.

Therefore it doesn't need PICS entries.

SuggestedRemedy

Remove 33.7.3.1

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change page 36, line 10 from "All implementations of the twisted-pair link shall be compatible at the MDI."
to
'All implementations of the twisted-pair link are compatible at the MDI.'

this will remove the requirement for a PICS statement.

The final two sentences of the paragraph constitute the actual requirement.

There are 6 PICS pointed towards section 33.1. There are no other shall statements in 33.1. Ask the PICS editor Gerry Nadeau to fix the PICS statements.

Cl **33** *SC* **33.7.3.2** *P* **81** *L* **1** # **220**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

The state machines are to define the normative behavior of the implementations. We use state machines because the cover many details of operation beyond what can be covered in text.

SuggestedRemedy

Add a requirement that the PSE behave as defined by the state machine.
Also add a requirement to 33.7.3.3 that the PD behave as defined by the state machine.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

add the following text:
in clause 33.2.3 add page 40 at line 24
The PSE behavior shall be governed by the state machine in Figure 33-5 and Figure 33-6.

In clause 33.3.2 add page 58 at line 10
The PD behavior shall be governed by the state machine in Figure 33-13.

Cl **33** *SC* **33.7.3.2** *P* **81** *L* **11** # **219**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

This is a statement about how the document is to be read and not a statement that can be applied to an implementation.
Delete PSE3.
What the statement does indicate is that there are two kinds of PSE to which some requirements apply differently so you need to make an options to indicate whether a PSE is midspan or endpoint and use those options as predicates where appropriate.

SuggestedRemedy

Add to Major Options/Capabilities
Items MID and END for Midspan and Endpoint PSEs respectively. The status should be O/3 indicating that a port shall implement one and only one of the two options.

Use MID and END as predicates where necessary.

Proposed Response *Response Status* **C**

ACCEPT.

Forward comment to PICS editor Gerry Nadeau.

Cl **33** *SC* **33.7.3.6** *P* **89** *L* **8** # **222**

Thaler, Pat — Agilent Technologies

Comment Type **TR** *Comment Status* **A** *D4.0*

Management is optional so there should be an entry in major capabilities/options for whether the option is supported. All items in this table should be conditional on that option.

There should be two options for access - one for access via MII/GMII
and another for equivalent access. These options should have status <management>:O.4 where <management> is the item identifier for the management option.

Also if one doesn't separate PSE and PD PICSs, most items will need a predicate of PSE as most don't apply to PDs.

SuggestedRemedy

Fix the management PICS entries so they have the correct predicates.

Proposed Response *Response Status* **C**

ACCEPT.

Forward to Gerry Nadeau.

Cl **33C** *SC* **1.4** *P* **101** *L* **50** # **22**

Karam, Roger — Cisco systems

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

item 6 why are we guaranteeing that Iport can deliver more than 60ma?
we need a note in the spec about this.
does this cover foldback? and would we not look like an ovecurrent condition to the classification if we source more than 60ma?
if we are trying to spec foldback should we not spec a range of slopes?

SuggestedRemedy

No data is present at this time, but it seems like 60ma is too excessive.
need to revisit this spec with Yair and Dave

Proposed Response *Response Status* **Z**

Withdrawn

Cl **33C** *SC* **1.9** *P* **106** *L* **32** # **20**

Karam, Roger — Cisco systems

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

bleed resistor is 400k.
we speced it at 320k as i recall it. see line 13 page 53 for the real value

SuggestedRemedy

Please change the resistor value to 320k

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33E** *P* **127** *L* **49** # **1**

Vaden, Sterling — Superior Modular Prod

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

The contact resistance value cited here is incorrect for this usage. The value of .02 Ohms is incorrect for this usage. The cited reference is for initial contact resistance, which is different than connector bulk resistance, or resistance unbalance.

SuggestedRemedy

Change resistance unbalance specification to .05 Ohms. Change the reference to:IEC 60603-7 clause 6.4.7.

Recalculate the following equations based upon the change

Proposed Response *Response Status* **C**

REJECT.

Out of scope. This has not changed since D4.0. This is an annex, so there are no TRs or Ts against this.

Cl **33** *SC* **33E** *P* **128** *L* **12** # **2**

Vaden, Sterling — Superior Modular Prod

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

The cable unbalance in Equation 33E-2 should be 1.02. This is the maximum cable resistance unbalance as specified in IEC 61156 clause 3.2.2. 3% unbalance is for the whole channel, which includes connectors, which is not how the value is used in this equation.

Note: the North American (TIA) 568 standard specifies 2.5% when measured according to the IEC method.

SuggestedRemedy

change to 2%, include correct reference. Recalculate the following equations based upon the changes.

Proposed Response *Response Status* **C**

REJECT.

Out of scope. This has not changed since D4.0. This is an annex, so there are no TRs or Ts against this.

Cl **33** *SC* **33E** *P* **128** *L* **18** # **3**

Vaden, Sterling — Superior Modular Prod

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

It is not clear why 5 connectors are used here. The maximum number of connectors in the channel is specified as 4.

SuggestedRemedy

Clarify, or change the number of connectors to 4.

Proposed Response *Response Status* **C**

REJECT.

Out of scope. This has not changed since D4.0. This is an annex, so there are no TRs or Ts against this.

Cl **33** *SC* **33E** *P* **128** *L* **20** # **4**

Vaden, Sterling
Superior Modular Prod

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

The statement 'the worst case unbalance is 6.2 mA...' and the resultant calulations do not make sense to me, because in the previous equation, the current unbalance was assumed to be a maximum of 8 mA.

SuggestedRemedy

Change or clarify.

Recalculate based on changes

Proposed Response *Response Status* **C**

REJECT.

Out of scope. This has not changed since D4.0. This is an annex, so there are no TRs or Ts against this.