Cl **00** *SC* **40** *P* **13** *L* **1** # **49**

Grow, Robert Intel

Comment Type **E** *Comment Status* **A**

Clause 40 is out of order in the assembled document.

SuggestedRemedy

Move to appear after changes to Annex 30B.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.2.2.1** *P* **17** *L* **5** # **14**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

Grammar.

SuggestedRemedy

Suggest the text '... the containment tree shown in ...' should read '... the containment trees shown in ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **Figure 30-3** *P* **18** *L* **43** # **48**

Grow, Robert Intel

Comment Type **E** *Comment Status* **A**

The title of the figure has been modified from 802.3ae yet it isn't marked. To assure the IEEE editor includes all changes either change instructions to explicitly include title as well as figure or per IEEE publication style, mark new title changes per Suggested Remedy.

SuggestedRemedy

Underline “Repeater and DTE System”, add a stike through “E” and underline the “e” of entity.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.5.1.7** *P* **23** *L* **5** # **43**

Law, David 3Com

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

I believe there is no bit to support the aPSEPowerMaintenanceStatus attribute. I don't think MPS Absent can be used since it is a sticky bit whereas the aPSEPowerMaintenanceStatus attribute is intended to provide the current state of the Maintenance Power Signature. Secondly the MPS Absent bit will only be set if the POWER_ON state is exited directly to IDLE due to tmpdo_timer_done being true - there are other reasons why the POWER_ON state is exited such as a short which will not result in the MPS Absent bit being set but may also be coincident with the Maintenance Power Signature being removed. Therefore you sometimes can tell from the MPS Absent when to set the attribute aPSEPowerMaintenanceStatus to enumeration “MPSAbsent” but you can never tell when to set it to the enumeration “ok”.

In respect to how to support the attribute aPSEPowerMaintenanceStatus it may be possible using the mapping “ok” to the state POWER_ON and “MPSAbsent” to any state other than POWER_ON due to the PD State diagram in Figure 33-13. According to my reading of the PD State diagram state diagram only once power_received is true and the PD state diagram moves to the state MDI_POWERED is the MPS presented by the PD (present_mps = TRUE). Once power_received is false the state diagram moves into the state NOT_REQUESTING_POWER and the MPS is required to be removed (present_mps = FALSE). Since power_received at the PD will only be true, and the MPS therefore only present, when the PSE is in the state POWER_ON I proposed the above mapping.

The only problem would be a non-compliant PD presenting a MPS while it was not powered - while this is not permitted by the PD state diagram it could occur. In this case the aPSEPowerMaintenanceStatus attribute would not be correct.

On reflection however all this achieves is duplication of an existing attribute and I therefore suggest that aPSEPowerMaintenanceStatus, and it associated entry in Annex 30B, be deleted.

SuggestedRemedy

We have more attributes than we need - remove the aPSEMaintenanceStatus attribute.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

remove all references to PSEMaintenanceStatus on pages 20, 23, 28, 31

Cl **30** *SC* **30.9.5.1.10** *P* **23** *L* **53** # **40**

Law, David 3Com

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

The text currently reads that this counter is incremented if the POWER_ON state is exited due to tolvd_timer_done being true. The condition on the transition to the state ERROR_DELAY_OVER has now been change with tlim_timer_not_done been added as a condition. This means that if tovld_timer_done is true but tlim_timer_done is also true the transition will be into ERROR_DELAY_SHORT and the Short rather than the overload bit will be set. This means the bits and the state diagram behavior no longer matches the attribute. I guess this was an issue before but the new transition conditions that are unique certainly make this issue obvious.

SuggestedRemedy

Suggest that 'This counter is incremented when the PSE state diagram (Figure 33-6) exits the state POWER_ON due to tolvd_timer_done.' be changed to read 'This counter is incremented when the PSE state diagram (Figure 33-6) enters the state ERROR_DELAY_OVER'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.5.1.11** *P* **24** *L* **11** # **41**

Law, David 3Com

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

Due to the new transition between POWER_UP to ERROR_DELAY_SHORT the behavior for the aPSEShortCounter needs to be updated. Currently it reads 'This counter is incremented when the PSE state diagram (Figure 33-6) exits the state POWER_ON due to tlim_timer_done.'which is no longer correct as ERROR_DELAY_SHORT can now also be entered from POWER_UP.

SuggestedRemedy

Suggest that it be updated to match the text for the associated Short Circuit bit so that it reads 'This counter is incremented when the PSE state diagram (Figure 33-6) enters the state ERROR_DELAY_SHORT.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.5.1.12** *P* **24** *L* **24** # **42**

Law, David 3Com

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

Again due to the adding additional conditions to the transition based on tmpdo_timer_done so that it is now (tmpdo_timer_done * (pse_enable = force_power)) * tlim_timer_not_done * tovld_timer_not_done hence there cases where tmpdo_timer_done can be true but the transition will not be to IDLE. Also note that the transition to IDLE can now also occur due to the new variable power_not_avalible being true.

SuggestedRemedy

Suggest therefore that 'This counter is incremented when the PSE state diagram (Figure 33-6) exits the state POWER_ON due to tmpdo_timer_done.' be changed to read 'This counter is incremented when the PSE state diagram (Figure 33-6) transitions directly from the state POWER_ON to the state IDLE due to tmpdo_timer_done being asserted.'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.2** *P* **41** *L* **1** # **22**

Law, David 3Com

Comment Type **E** *Comment Status* **R**

I believe we have used the term 'contact' rather than 'pin' or 'conductor' (see 14.5.1) when referring to the connectors in the past - note that this subclause uses 'pin' only in the title and then uses 'conductor' elsewhere. In addition the word 'conductor' seems to have been used for both the conductor within a cable '... the two conductors associated with a pair ...' and what I believe is the 'contact', see heading to left hand column in Table 33-1.

In addition this subclause does not provide the PI contact assignments, but only the PSE PI Contact assignments, subclause 33.2.1 provides the PD PI contact assignments.

SuggestedRemedy

Suggest that the subclause title be changed to read 'PSE PI contact assignments' and that the heading to left hand column in Table 33-1 be changed from 'Conductor' to 'Contact'.

Proposed Response *Response Status* **C**

REJECT.

Contacts are a subset of conductors. Contact and pin are used interchangeably throughout 802.3-2002. The existence of a connector on a midspan is not mandatory.

Cl **33** *SC* **33.2.2** *P* **41** *L* **10** # **1**

Goldis, Mordechai Avaya

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

I submitted a TR on draft 4.0 regarding table 33-1 (PSE pinout alternatives). I think that tying PHY S/W feature as auto MDI with power feeding polarity is wrong.Draft 4.2 reopen mt TR

My reasons are :

1. Let's assume I have implemented PSE and used alternative A1 for MDI pinout . One day in the future (in the field) I will activate the auto MDI feature of my PHY on my PSE (using management) that is in the field . Immediately my PSE device is not compliant with the standard as we have to do the A2 pinout for auto MDI PSE and my PSE started as MDI pinout.

2. Let's assume a customer has PD that isn't implement autoMDI (without the diode bridge), This PD was plugged in and worked OK with crossed cable connected to PSE with MDI pinout , now if the customer will change his old PSE to new PSE with auto MDI feature (which supposed to be more flexible) and he is using the same installed cross cable (again , thinking that the PSE is now more sophisticated with auto MDI feature) his PD will not be powered as the voltage feeding was crossed and we confuse the market.

SuggestedRemedy

My proposed change:

Table 33-1 will include only specification of Alternative MDI-X and MDI.

Two options for wording :

a. Delete any reference to Auto MDI feature as it is PHY s/w feature for data transfer and not power feeding option .Meaning delete lines 47-48.

or

b. Line 47 " PSE's that use automatically... may assign any polarity choice .

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Strike auto-mdix from all normative sections of the document.

Add a note after Table 33-1:

NOTE- PSEs that implement Auto-MDI-X can select either alternative A polarity. (this is so that it is not mandated that an automdix PSE has to flip polarity with MDI/MDIX).

Did not add the note because existing text was sufficient.

The editor searched Clause 33 for auto mdi-x and found only the one instance in relation to the PSE and pin assignments.

Cl **33** *SC* **Table 33-1** *P* **41** *L* **10** # **2**

Goldis, Mordechai Avaya

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

I submitted a TR on draft 4.0 regarding table 33-1 (PSE pinout alternatives). I think that tying PHY S/W feature as auto MDI with power feeding polarity is wrong.

My reasons are :

1. Let's assume I have implemented PSE and used alternative A1 for MDI pinout . One day in the future (in the field) I will activate the auto MDI feature of my PHY on my PSE (using management) that is in the field . Immediately my PSE device is not compliant with the standard as we have to do the A2 pinout for auto MDI PSE and my PSE started as MDI pinout.

2. Let's assume a customer has PD that isn't implement autoMDI (without the diode bridge), This PD was plugged in and worked OK with crossed cable connected to PSE with MDI pinout , now if the customer will change his old PSE to new PSE with auto MDI feature (which supposed to be more flexible) and he is using the same installed cross cable (again , thinking that the PSE is now more sophisticated with auto MDI feature) his PD will not be powered as the voltage feeding was crossed and we confuse the market.

SuggestedRemedy

My proposed change:

Table 33-1 will include only specification of Alternative MDI-X and MDI.

Two options for wording :
a. Delete any reference to Auto MDI feature as it is PHY s/w feature for data transfer and not power feeding option .Meaning delete lines 47-48.

or

b. Line 47 " PSE's that use automatically... may assign any polarity choice .

Proposed Response *Response Status* **Z**

withdrawn

Cl **33** *SC* **33.2.3.1** *P* **42** *L* **21** # **18**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

The text reads '... the PSEs may prevent each other ...' however as stated in subclause 13.1, paragraph 3, of the IEEE Standards Style Manual 'The word 'may' is used to indicate a course of action permissible within the limits of the standard' in other words an option. I do not think that is what is being descried here and suggest that the word 'could' should be used rather than 'may'.

SuggestedRemedy

Suggest '... the PSEs may prevent each other ...' be changed to read '... the PSEs could prevent each other ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.1** *P* **42** *L* **29** # **19**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

The text reads 'If the PSE that is performing detection ...' implies some particular PSE in some particular configuration however is this sentence true for all PSEs that perform detection using Alternative B. I therefore suggest that 'the' should be replaced with 'a'.

SuggestedRemedy

Suggest that 'If the PSE that is ...' is changed to read 'If a PSE that is ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.1** *P* **42** *L* **29** # **20**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

The text reads '... open circuit (defined in Table 33-2, item 9) ...' however this is only overview text so I don't think a cross reference to this detail is required here. If the cross reference is to remain suggest it be to subclause 33.2.6.3 'Open Circuit Criteria' which is where Table 33-2, item 9 leads you on to.

SuggestedRemedy

Suggest that either the text '(defined in Table 33-2, item 9)' be deleted or changed to read '(see 33.2.6.3)'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change to read '(see 33.2.6.3)'.

Cl **33** *SC* **33.2.3.1** *P* **42** *L* **32** # **39**

Law, David 3Com

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

In subclause 33.2.3.1 the text states 'The maximum detection cycle time for a PSE that is performing Alternative A detection is 1 sec.' I understand this statement is related to ensuring that a resolution occurs if a End-point PSE and a Mid-Span PSE are on the same segment and that continuous detection due to one PSE confusing the other doesn't occur.

In believe the issue is that if both an Alternative A and B PSE are on the same segment and happen to perform detection at the same instant they will both detect an invalid signature even if a PD is present. If no precautions are taken, and both PSEs happen to have the same detection cycle time, detection could be repeated with the same failure and this could, worse case, continue repeating indefinitely and even though the was a compliant PD requesting power
it would never receive power.

To avoid this situation the BACKOFF state was added to the state machine for a Alternative B PSE when it detected a invalid signature. This ensure a 2 second delay before a Alternative B PSE repeated detection after seeing an Invalid
signature. By placing a maximum cycle time constraint of 1 second on the Alternative A PSE, contention would only ever occur once. After contention the Alternative A PSE would repeat detection within 1 second while the Alternative B PSE would not be able to even start detection until after 2 seconds. This ensured that the Alternative A PSE would always power the PD in this situation after, at worse case, a single cycle of contention.

Now the first problem is that the present text is just a statement and is not a requirement. Of course it would be possible to change the 'is' to a 'shall' but I don't believe that would have any effect because the State Machine, which overrides the text, has a delay between the IDLE and START_DETECTION state controlled by pse_ready which is defined as being asserted 'in an implementation manner'. Hence the addition of pse_ready a couple of drafts back is the second, and I think more serious problem here. The pse_ready variable, as currently defined, permits a user defined delay of any value desired to be inserted with the detection cycle which would defeat changing the 'is' to a 'shall' as pse_ready is in the State Diagram overriding the text.

Since the detection cycle time, for both Alternative A and B PSEs, is now controlled by the variable pse_ready which we allow to be implementation dependent, I think we are back to where we started.

SuggestedRemedy

1. Replace the text in the last paragraph of 33.2.3.1.

Replace the text:

'The maximum detection cycle time for a PSE that is performing Alternative A detection is 1 sec. A PSE that is performing Alternative A detection is not subject to the detection backoff'

with the new text:

'If a PSE performing detection using Alternative A detects an invalid signature it should initiate a second detection attempt within 1 second of the first detection attempt. This

ensures that a PSE performing detection using Alternative A will completes a second detection cycle prior to a PSE using Alternative B that might also be present on the same Link Section, and therefore causing the invalid signature, completing its second detection cycle due to the Alternative B detection backoff described above'

2. Add the following text as a note to the pse_read variable.

'Note - Care should be taken when negating this variable in a PSE performing detection using Alternative A after a invalid signature is detected due to the delay it will introduce between detection attempts (see 33.2.3.1).'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The requirement "within 1 s of the first detection attempt" should be "1 s after the beginning of the first detection attempt" because if its detection time is short and it starts too soon, the Alternative B PSE may still be on its first detection attempt or the Alternative B PSE may have successfully detected before its detection attempt started so that the second detection attempt collides with Alternative B's power on.

Item 1 of suggested remedy. Use the following new text instead:

'If a PSE performing detection using Alternative A detects an invalid signature it should initiate a second detection attempt within 1 second after the beginning of the first detection attempt. This ensures that a PSE performing detection using Alternative A will complete a second detection cycle prior to a PSE using Alternative B that might also be present on the same Link Section, and therefore causing the invalid signature, completing its second detection cycle due to the Alternative B detection backoff described above'

Item 2 of the suggested remedy. Accepted unchanged.

'Note - Care should be taken when negating this variable in a PSE performing detection using Alternative A after a invalid signature is detected due to the delay it will introduce between detection attempts (see 33.2.3.1).'

Cl **33** *SC* **33.2.3.2** *P* **42** *L* **39** # **21**

Law, David 3Com

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

The text states 'Variables using the mr_x notation do not have state diagram defaults.' however I don't understand why we have this text as lots of the variables don't have defaults such as error_condition and performs_classification, not just variables that use the mr_x notation.

SuggestedRemedy

Suggest that the text 'Variables using the mr_x notation do not have state diagram defaults.' be deleted.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **12** # **28**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

Suggest that subclause 33.2.10.1 titled 'PSE Maintain Power Signature (MPS) requirements' is a better cross reference to the MPS definition than just 33.2.10 titled 'PSE power removal'.

SuggestedRemedy

Suggest '... see 33.2.10) ...' should be changed to read '... see 33.2.10.1) ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **12** # **3**

Goldis, Mordechai Avaya

Comment Type **E** *Comment Status* **R**

do we wnat to stay with the AC and DC wording may be we can change it to something else?
This coomment is general question.

SuggestedRemedy

Proposed Response *Response Status* **C**

REJECT.

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **12** # **27**

Law, David 3Com

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Suggest 'This signal is the ...' should read 'This variable is the ...' since subclause 33.2.3.4 defines variables, not signals.

Note I have suggested the removal of this text by another comment. If the text remains I would like this fix implemented. I would of course prefer this text removed.

Proposed Response *Response Status* **Z**

withdrawn

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **13** # **36**

Law, David 3Com

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

The text for the variable 'mr_mps_valid' reads 'This signal is the negation of MPS Absent (bit 12.7).' There seem to be a number of problems with this. Firstly the statement that it is a negation of a register bit implies it is driven by the register bit which it is not. Secondly the register bit definition as it stands is not an inversion of this bit. Thirdly for the reasons below in my comment 33.6.1.2.7 I do not think MPS Absent can be derived from this bit.

SuggestedRemedy

Suggest that this text is removed.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **23** # **29**

Law, David 3Com

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

Typos. On line 23 the text currently reads '... variable is a derived from ...'. On line 27 the text currently reads 'A control that selects ...'.

I however also think care has to be taken not to imply that the MII registers are mandatory which the current text seems to do. In a similar case in Auto-Negotiation, we make the global statement to all similar variables that 'These variables comprise a management interface that may be connected to the MII management function or other equivalent function.' see subclause 28.2.4.1.8 'State diagram variable to MII register mapping' for this text. This applies to both the mr_pse_alternative and mr_pse_enable variables.

SuggestedRemedy

1. On line 23 suggest that the text 'This variable is a derived from Pair Control (bits 11.3:2).' be changed to read 'This variables comprise a management interface that may be mapped to the PSE Control register Pair Control bits (11.3:2) or other equivalent function.'.

2. On line 27 suggest that the text 'A control that selects PSE operation and test functions.' is changed to read 'A control variable that selects PSE operation and test functions. This variables comprise a management interface that may be mapped to the PSE Control register PSE Enable bits (11.1:0), as described below, or other equivalent function.'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The use of the word 'comprise' in the text 'This variables comprise a management interface ...' isn't correct, use the text 'These variables are provided by a management interface ...' instead.

1. On line 23 change the text 'This variable is derived from Pair Control (bits 11.3:2).' to read 'These variables are provided by a management interface that may be mapped to the PSE Control register Pair Control bits (11.3:2) or other equivalent function.'.

2. On line 27 change the text 'A control that selects PSE operation and test functions.' to read 'A control variable that selects PSE operation and test functions. These variables are provided by a management interface that may be mapped to the PSE Control register PSE Enable bits (11.1:0), as described below, or other equivalent function.'

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **45** # **26**

Law, David 3Com

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Suggest 'A status signal indicating ...' should read 'A variable indicating ...' since subclause 33.2.3.4 defines variables, not signals.

Proposed Response *Response Status* **Z**

withdrawn

Cl **33** *SC* **2.3.4** *P* **43** *L* **68** # **8**

Karam, Roger Cisco

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

It is not clear that the error_condition bit that does not involve the state machine is not covering the Un-intentionally high voltages that occur in some cases.

SuggestedRemedy

clarify the possible need for such text.

Proposed Response *Response Status* **Z**

withdrawn

Cl **33** *SC* **33.2.3.4** *P* **43** *L* **8** # **24**

Law, David 3Com

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Suggest '... by the state machines in ...' should read '... by the state diagrams in ...' since Figure 33-7 are state diagrams rather than machines.

Proposed Response *Response Status* **Z**

withdrawn

Cl **33** *SC* **33.2.3.4** *P* **44** *L* **13** # **25**

Law, David 3Com

Comment Type **E** *Comment Status* **X**

Typos.

SuggestedRemedy

Suggest '... the PSE state machine.' should read '... the PSE state diagram.' on both lines 13 and 16 since Figure 33-6 is the PSE state diagram rather than machine.

Proposed Response *Response Status* **Z**

withdrawn

Cl **33** *SC* **33.2.3.4** *P* **44** *L* **3** # **31**

Law, David 3Com

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

Not sure if the new variable 'power_not_available' is defined absolutely correctly. Currently it is described as a 'Variable that is asserted in an implementation- dependent manner when the PSE is no longer capable of sourcing power to a PD.'. I am however concerned that this could mean that if a PD was classified as being a Class 0 at a time when pse_avalible_power was 2 (Class 0, Class2 and Class 4), later, if the PSE decides it can only power a Class 1 PD, it will not assert power_not_available as it is still 'capable of sourcing power to a PD', just not capable of providing the full power requirement of the PD.

I assume for example if a PD is classified as a Class 0 and the PSE originally can supply it, but later due to say power management, it can only support a Class 2, the Class 0 should be denied power and therefore power_not_avalible asserted.

SuggestedRemedy

Suggest that variable definition be changed to read 'Variable that is asserted in an implementation-dependent manner when the PSE is no longer capable of sourcing sufficient power to support the PD Class of the attached PD.'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **Figure 33-6** *P* **46** *L* **42** # **37**

Law, David 3Com

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

POWER_UP to ERROR_DELAY_SHORT transition. I don't think the new transition from POWER_UP to ERROR_DELAY_SHORT can ever occur. For this to occur tlim_timer_done needs to become true while Figure 33-6 is in the POWER_UP state however the tlim_timer will only be started when Figure 33-7 middle is in the DETECT_SHORT state. Figure 33-7 middle will however be in the state IDLE_SHORT as power_applied = false until Figure 33-6 transitions from POWER_UP to POWER_ON. In summary the open arrow condition !power_applied on Figure 33-7 ensures that the tlim_timer can never start until the transition out of the POWER_UP state in Figure 33-6 has occurred.

SuggestedRemedy

Change the open arrow !power_applied to be !pi_powered.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **Figure 33-6** *P* **46** *L* **46** # **38**

Law, David 3Com

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

POWER_ON to IDLE transition. A new variable has been added that can cause a PSE to halt powering a PD and exit the POWER_ON state to the IDLE state. This new variable, power_not_available, is included as an OR condition in the transition equation for the transition POWER_ON to IDLE. It however should not cause the MPS Absent bit to be set as it is not a MPS absent that has caused the transition in the case of power_not_available = true. The question is then what register bit should instead be set by this transition occurring and based on not adding any new bits I would suggest this should be considered another case of Power Denied.

SuggestedRemedy

1. Change the POWER_ON to IDLE transition to read (tmpdo_timer_done + (pse_enable = force_power)) * tlim_timer_not_done * tovld_timer_not_done * !power_not_available

2. Add a new transition from POWER_ON to POWER_DENIED that reads power_not_available * tlim_timer_not_done * tovld_timer_not_done * tmpdo_timer_not_done.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.4** *P* **47** *L* **33** # **35**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

Typo.

SuggestedRemedy

Suggest that '... detected a PD requesting power as described in this subclause.' should read '... detected a PD requesting power as described in the following subclauses.'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.7** *P* **47** *L* **5** # **51**

Grow, Bob

Comment Type **E** *Comment Status* **A**

state diagrams need titles

SuggestedRemedy

Change title to 'Figure 33-7 - PSE monitor overload, monitor short and monitor MPS state diagrams'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.7** *P* **47** *L* **7** # **50**

Pat Thaler

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

There is a problem of race conditions with regard to the timers controlled by the PSE monitor state diagrams. Currently, the timers are reset by the stop_xxx_timer action when the MONITOR states are entered. However, the same term that causes transition into a MONITOR state also causes the PSE state diagram to transition to a state with the xxx_timer_done signal in its exit transitions.

SuggestedRemedy

Add the action "stop tovld_timer" to the IDLE_OVLD state box.
Add the action "stop tlim_timer" to the IDLE_SHORT state box.
Add the action "stop tmpdo_timer" to the IDLE_MPS state box.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **Figure 33-7** *P* **47** *L* **9** # **4**

Goldis, Mordechai Avaya

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

The IDLE_SHORT sm

We have to test for short also in stady state and not only at start up.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment 37

Cl **33** *SC* **Table 33-2** *P* **49** *L* **9** # **30**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

In Table 33-2, items 9 and 13, there is a statement 'see 33.2.6.1' in the 'Additional Information' column however 33.2.6.1 is really where these parameters are used rather than providing any additional information.

SuggestedRemedy

Remove the text 'see 33.2.6.1' from the additional information for items 9 and 12.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.6** *P* **50** *L* **2** # **33**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

Suggest the text 'The PSE probes the link section in order to detect a valid PD detection signature.' be deleted from the first paragraph of 33.2.6.1 and be placed as the contents of 33.2.6 since this text is applicable to all subclauses of 33.2.6.

SuggestedRemedy

Change the text:

33.2.6 PSE detection of PDs
33.2.6.1 Detection criteria
The PSE probes the link section in order to detect a valid PD detection signature. A PSE shall accept ...

to read:

33.2.6 PSE detection of PDs
The PSE probes the link section in order to detect a valid PD detection signature.
33.2.6.1 Detection criteria
A PSE shall accept ...

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.6.2** *P* **50** *L* **22** # **15**

Law, David 3Com

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

Captured from Charles Palmer on the reflector just in case nobody else did.

Clause 33.2.6.2 includes as a rejection criterion “c) capacitance Cbad”.
Should this be “capacitance greater than Cbad”?

SuggestedRemedy

Change the text 'capacitance Cbad' to read 'capacitance greater than Cbad'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Capacitance greater than or equal to Cbad min

also add the 'or equal to' condition to Rbad min and Rbad max

Cl **33** *SC* **33.2.6.2** *P* **50** *L* **24** # **34**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

Typo.

SuggestedRemedy

Suggest the text 'The PSE may ...' should read 'A PSE may ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.6.3** *P* **50** *L* **32** # **5**

Goldis, Mordechai Avaya

Comment Type **E** *Comment Status* **A**

In the sentence “If the .. link... “ the word section is missing in two places .

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

If a Midspan PSE determines that the impedance at the PI is greater than R open as defined in Table 33-2 item 9, then it may optionally consider the link to be open circuit and omit the tdbo_timer interval.

Cl **33** *SC* **33.2.6.3** *P* **50** *L* **32** # **32**

Law, David 3Com

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

The new subclause 'Open Circuit Criteria' that reads 'If a Midspan PSE determines that the impedance at the link is greater than Ropen as defined in Table 33-3 item 9, then it may optionally consider the link to be open circuit and omit the tdbo_timer interval.' doesn't match the use of this value in the state diagram and the description of backoff in 33.2.3.1.

In the definition of the variable signature returned by the do_detection function the definition of the value 'invalid' states that 'neither open_circuit, nor valid PD detection signature has been found' so it appears that the value open_circuit has to be returned in all cases based on this definition, not just optionally.

Even if the value open_circuit is optional, I don't think that it can be based on a PSE being a Midspan on examination of the State Diagram but instead has to be based on PSE performing detection using Alternative B - the transition through the state BACKOFF is based on (mr_pse_alternative = B) which could be either a Midspan PSE or a Endpoint PSE operating in Alternative B.

Note: I do understand that the BACKOFF state is only required in a Midspan PSE since the only contention that can occur is between a Endpoint PSE operating in Alternative A and a Midspan which has to be in Alternative B - the reverse combination cannot occur since Midspans cannot operate in Alternative A. This however is not how 33.2.3.1 and the State Diagram describe the requirement - they both simply state backoff is required for PSEs operating in Alternative B .

SuggestedRemedy

Suggest the text 'If a Midspan PSE determines that the impedance at the link is greater than Ropen as defined in Table 33–2 item 9, then it may optionally consider the link to be open circuit and omit the tdbo_timer' be changed to read 'A PSE shall detect as open circuit an impedance at the PI greater than Ropen as defined in Table 33–2 item 9.'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The way the open circuit feature is optional is that a PSE is not required to check for an open circuit condition. Therefore the variable text 'neither open_circuit, nor valid PD detection signature has been found' is okay. An open circuit condition may have been present but not found because it wasn't looked for.

The proposed change to subclause 33.2.6.3 would make the detection of open_circuit mandatory for both a Alternative A and B PSE whereas open_circuit only requires to be detected for an Alternative B PSEs. Instead make it clear that open_circuit is optional for an Alternative B PSE and add some text to the variable to acknowledge that the ability to find open circuit conditions is optional.

1. Subclause 33.2.6.3, page 50, line 32

Change subclause 33.2.6.3 to read as follows:

If a PSE that is performing detection using Alternative B (see 33.2.2) determines that the impedance at the PI is greater than R open as defined in Table 33-2 item 9, then it may optionally consider the link to be open circuit and omit the tdbo_timer interval.

2. Subclause 33.2.3.6, page 44, line 50

Change the description of the Value open_circuit returned by the function do_detection as follows:

Values: open_circuit the PSE has detected an open circuit. This value is optionally returned by a PSE performing detection using Alternative B.

Cl **33** *SC* **33.2.8.6** *P* **55** *L* **23** # **6**

Goldis, Mordechai Avaya

Comment Type **E** *Comment Status* **A**

Vportmin should be Vport-min

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Removed hyphen from Vport-min and fixed capitalization on Vport min.

Cl **33** *SC* **33.3.1** *P* **60** *L* **13** # **23**

Law, David 3Com

Comment Type **E** *Comment Status* **R**

I believe we have used the term 'contact' rather than 'pin' or 'conductor' (see 14.5.1) when referring to the connectors in the past - note that this subclause uses 'pin' only in the title and then uses 'conductor' elsewhere. In addition the word 'conductor' seems to have been used for both the conductor within a cable '... the two conductors associated with a pair ...' and what I believe is the 'contact', see heading to left hand column in Table 33-1.

Suggest that the title of the subclause be changed to read 'PD PI contact assignments' to match my proposed title change to subclause 33.2.2.

SuggestedRemedy

Change subclause title to read 'PD PI contact assignments'.

Proposed Response *Response Status* **C**

REJECT.

See comment 22.

Cl **33** *SC* **33.3.1** *P* **60** *L* **19** # **12**

Jones, Chad — Cisco Systems

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

There exists a scenario whereby two or more PDs with different power mixing schemes, when PSE-Midspan powered, may cause damage to a legacy 802.3 data switch to which the PDs are attached which may be sharing unused pair termination.

Chad to provide a drawing if necessary.

SuggestedRemedy

There are several ways to prevent this damage to legacy 802.3 equipment (listed in order of least desireable):

1. Disallow the Midspan PSE
2. Force environment B for Midspans
3. Define an environment B- that can address this mixed scenario
4. Mandate a full diode bridge on each power pair in the PD
5. Mandate a half diode bridge on each power pair in the PD

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Vote:
Is the susceptibility to damaging legacy equipment sufficient to constitute a technical deficiency in Draft 4.2?

Y: 15 N: 0 A: 0

Move that the task force accept resolution number 4 in comment number 12.

M: Jones 2nd: Darshan

Y: 16 N: 0 A: 0

The task force agrees that a full bridge is an implementation and that the intent is for polarity insensitivity and to limit back-feeding leakage.

Y: 13 N: 0 A: 0

TF to provide editor with marked up document.

Search draft and replace 'Cautionary Note:' with 'NOTE-'

Cl **33** *SC* **33.3.1** *P* **60** *L* **51** # **10**

Darshan, Yair — PowerDsine

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

I would like to discuss the benefits in mandating diode bridge at the input of both data pairs and spare pairs.

Background

The PD is required to be ready to accept power from the spare pairs or from the data pairs.
Typical implementation of Oring the power from data pairs or spare pairs could be one of the following options:
1. Data pairs has diode bridge and spare pairs using single diode.
2. Data pairs has diode bridge and spare pairs has diode bridge.
3. Data pairs and spare pairs has has single series diode each, data pair should have diode bridge if the PD is auto-mdi-x.

Now lets consider the following case:
A multiport system activate port number x and send power to the PD.
The PD is configured per option 1 or 3.
Now, there is voltage present at the output of the oring diode, but, due to the fact that one of the leads of the spare pair is directly connected to one pair data pairs
There is a leakage current path from the data pairs to the spare pairs back to the PSE.

This leakage current will find its way to other ports in the PSE and may affect the detection function.
In some bob-smith termination configurations that was good for a switch without pse and are not suitable for switch with pse some ports may see voltages above 30V even if they are at OFF state.

In order to prevent such scenarios, option 2 is suggested that keep DC isolation from the spare pare to the data pairs and vice versa.

In addition, using diode bridge at the data pairs will fix the issue raised by Moti Goldish regarding the MDI-X/AUTO MDI-X issue.

Mandating diode bridge on both pairs will ensure powering of the PD in any PSE configuration and in any cable type straight or crossed cable
so we can eliminate the potential of interoperability problems regarding the ability to successfully powering the PD.
The data issue is solved by the definitions for the PSE and PD, by the pin assignment and polarity for the MDI/MDI-X/AUTO MDI-X configurations as described in tables 33-1and table 33-7.
Actually referring to Auto MDI-X in tables 33-1 and table 33-7 will not be required.

SuggestedRemedy

Suggested the following options:
option 1:
Draft 4.2 page 60 lines 51-52:
1. Delete the text at lines 50-51:
“If the interface is implemented as an MDI-X or Auto-MDI-X per Clause 14,the PD shall be polarity insensitive “

Replace it with the following text: “The interface in Mode A and in Mode B shall be polarity insensitive.”

2. Consider to delete the reference for Auto-MDI-X from tables 33-1 and 33-7 as it is not required due to (1).
In addition, scan the draft for Auto MDI-X references and delete them.

Option 2:
If it is too late for the changes required for option 1, I suggest the following:
1. Add cautionary note reccomending implementing the PD interface to support polarity insensitive in Mode A and B.

I believe option 1 is the best technical approach for generations to come.
------END OF MY COMMENTS FOR IEEE802.3af----------Good Luck too all-------

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment 12

Cl **33** *SC* **33.3.2.2** *P* **61** *L* **18** # **45**

Law, David 3Com

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

It is not clear from the state diagram, nor this variable definition, that both the classification and detection signatures should be presented by the PD at the same time as seems to be stated in subclause 33.3.4.

In addition please add a cross reference to the subclause defining the PD detection and classification signatures.

SuggestedRemedy

Add the text 'Controls presenting the Detection (see 33.3.3) and Classification (see 33.3.4) signatures by the PD.' on a new line after present_pd_signature.
Change the text 'The PD detection signature is ...' to read 'The PD detection and classification signatures are ...'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.3.2.2** *P* **61** *L* **21** # **46**

Law, David 3Com

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

Add a text providing a cross-refernce to the PD MPS definition so that present_mps cannot be cinfused with text related to MPS elsewhere.

SuggestedRemedy

Add the text 'Controls applying MPS (see 33.3.6) to the link by the PD.' on a new line after present_mps.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.4.1** *P* **68** *L* **19** # **16**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

The term 'electrical isolation' and 'electrical separation' seem to be used interchangeable. Line 19 states 'The PSE shall provide electrical isolation ...' yet line 25 states 'This electrical separation shall ...'.

Please use one of these terms consistently

SuggestedRemedy

See comment.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed seperation to isolation in 3 instances.

3 places in the PICS.

Cl **33** *SC* **4.1** *P* **68** *L* **30** # **11**

Carlson, Steve HSD

Comment Type **E** *Comment Status* **A**

The the phrase “applied as” and the sub-clause references in IEC60950-1:2001 were inadvertantly omitted from this section.

This electrical separation shall withstand at least one of the following electrical strength tests:
a)1500 Vrms steady-state at 50-60 Hz for 60 sec, as specified in IEC 60950-1:2001.
b)An impulse test consisting of a 1500 V, 10/700us waveform, applied 10 times, with a 60 second interval between pulses, as specified in IEC 60950-1:2001.

In addition, a specific pointer to the compliance criterial from IEC60950-1:2001 should be added to match up with practice in 802.3-2002.

SuggestedRemedy

Change to:

This electrical separation shall withstand at least one of the following electrical strength tests:

a)1500 Vrms steady-state at 50-60 Hz for 60 sec, applied as specified in IEC sub-clause 6.2 of 60950-1:2001.

b)An impulse test consisting of a 1500 V, 10/700us waveform, applied 10 times, with a 60 second interval between pulses, applied as specified in in sub-clause 6.2 of IEC 60950-1:2001.”

Add new paragraph:

There shall be no insulation breakdown, as defined in sub-clause 6.2.2.3 of IEC60950-1:2001.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This electrical isolation shall withstand at least one of the following electrical strength tests:

a)1500 Vrms steady-state at 50-60 Hz for 60 sec, applied as specified in subclause 6.2 of IEC60950-1:2001.

b)An impulse test consisting of a 1500 V, 10/700us waveform, applied 10 times, with a 60 second interval between pulses, applied as specified in in subclause 6.2 of IEC 60950-1:2001.”

Add new paragraph:

There shall be no insulation breakdown, as defined in subclause 6.2.2.3 of IEC60950-1:2001.

Cl **33** *SC* **33.4.1.1.1** *P* **69** *L* **2** # **17**

Law, David 3Com

Comment Type **E** *Comment Status* **R**

A cross reference is made simply to TP-PMD on this line '... (See 14.3.1.1, TP-PMD, and 40.6.1.1.).'. I am aware that Clause 25 uses that abbreviation but that is covered by text is subclause 25.2 which states 'For improved legibility in this clause, ANSI X3.263:1995 (TP-PMD), will henceforth be referred to as TP-PMD.' and therefore does not apply here.

Please provide a more explicit cross-reference.

SuggestedRemedy

Suggest the text 'TP-PMD' be changed to read 'ANSI X3.263:1995' or 'ANSI X3.263:1995 (TP-PMD)'.

Also perform this change to subclause 33.4.1.2.

Proposed Response *Response Status* **C**

REJECT.

Out of scope.

Cl **33** *SC* **Table 33-16** *P* **81** *L* **35** # **9**

Darshan, Yair PowerDsine

Comment Type **E** *Comment Status* **A**

There is editing error regarding PSE status bits 100 and 011 and they dont match paragraph 33.6.1.2.9 text.

SuggestedRemedy

Table 33-16.
Bits 12.3:1:
100 should be “Test Error”
011 should be “Test Mode”

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.6.1.2.7** *P* **81** *L* **46** # **44**

Law, David 3Com

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

The MPS Absent bit should only be set when a transition occurs due to the MPS becoming Absent. With the new changes to the state machine to ensure that all transitions are unique, if a short (tlim_timer_done) and MPS Absent (tmpdo_timer_done) occur at the same time the transition to ERROR_DELAY_SHORT will occur and therefore the MPS Absent bit should not be set. This will then match the MPS Absent bit to the aPSEMPSAbsetCounter attribute.

Note: If this change is not done the behavior of the aPSEMPSAbsetCounter attribute will need reviewed.

SuggestedRemedy

Suggest that the new second sentence for the MPS Absent bit read:

'The MPS Absent bit shall be set to '1' when the PSE state diagram (Figure 33-6) transitions directly from the state POWER_ON to IDLE due to tmpdo_timer_done being asserted.'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.6.1.2.8** *P* **82** *L* **4** # **13**

Law, David 3Com

Comment Type **E** *Comment Status* **A**

The 'Detection Status' bits are now called the 'PSE Status' bits.

SuggestedRemedy

Change the text '... the Detection Status (12.3:1) bits ...' top read '... the PSE Status (12.3:1) bits ...'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.7.3.2** *P* **88** *L* **11** # **7**

Goldis, Mordechai Avaya

Comment Type **E** *Comment Status* **A**

The AC and DC MPS are mandatory but only one of them .The way it looks is both are mandatory. Do we need to specify that only one is mandatry and theother is optional as we did for the PSE pinout?

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Fix the PICS options.

Cl **22** *SC* **22.2.4.3** *P* **9** *L* **8** # **47**

Grow, Robert Intel

Comment Type **E** *Comment Status* **A**

Though out of scope, this text should have been modified and the change is unlikely to become comment bait. The purpose of the two newly defined registers are not described by the previous text.

SuggestedRemedy

Change last line of paragraph to read:
"...to layer management, to provide control and monitoring for the Auto-Negotiation process, and to provide control and monitoring of power sourcing equipment."

Proposed Response *Response Status* **C**

ACCEPT.