Cl **33** *SC* **33.3.2.5** *P* **46** *L* **5** # **1**

Karam, Roger CISCO

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

Table 33-2

The PSE spec here has a Min of 2.8 and a Max of 10v and we do not
State in the table that this is the PD - loaded PSE voltage compliance.

SuggestedRemedy

Add this note in the note filed to the right
when loaded with a Valid PD

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

with a Valid PD detection signature connected

Cl **33** *SC* **33.2.7** *P* **48** *L* **#** **2**

Karam, Roger CISCO

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

We are missing the reason that would enforce the class-violation
So why would I make sure my PD does not exceed the max power allocated
For a class since there is no penalty people may not give this the respect it deserves ...

This becomes a problem when we make use of class 4 to expand the resolution
Of power management or make 'other uses' of class 4 leveraging the PHY paging
capabilities.

SuggestedRemedy

Add a note:
A PSE may remove power to a PD that violates the maximum power required
for its advertised class.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This affects the state machine and will require changes there too.

Cl **33** *SC* **33.2.3.4** *P* **41** *L* **39** # **3**

Karam, Roger CISCO

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

Power_applied and Power_On are not well defined for the
average software engineer with all respect to the S-Teamed editors...
so we propose a new language for the masses to understand as they
code and pray...

SuggestedRemedy

Well with Thank's to Yair I borrowed his proposed text:

here is the test to replace line 34
POWER_APPLIED: Status (?) signal indicating that the PSE has Applied Power
but has no indication if the power is good or if it has
reach steady state.

here is the text to replace line 40:

POWER ON: Status(?) Signal Indicating that the PSE has turned the power on
and that the PSE has determined that steady state has been reached and things are in
Normal operation in the power state.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is resolved with details in document PSE_SM_4_01.PDF provided by Mike McCormack.

Cl **33** *SC* **33.3.5.1** *P* **64** *L* **40** # **4**

Karam, Roger CISCO

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

Don't know what to do with this,
it is a good cause, but we felt
Roger is worried the most about this, but overall we agreed:
a- not much was done in terms of analysis
b- Theoretically - Today we do not think it is impossible to do
c- none of us has taken this through the suite of test ie EFTB
immunity...
d- none of us has tested it in a real system under noise conditions..

SuggestedRemedy

remove from the draft.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **33.4.2** *P* **66** *L* **12** # **5**

Karam, Roger CISCO

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

I cannot locate the applicable volume of IEC 60060 that defines the .3/50uS waveform required in section 33.4.2 (page 66). I've queried several manufacturer's of impulse test equipment and they can't find any reference to this waveform either.
Is this a valid requirement?
and why are we copying sections out of 802.3 into this draft in the first place?

SuggestedRemedy

Correct or Remove from the draft.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

IEC 60060 does not define the .3/50uS waveform. They are defined in 802.3.

Add PG (Protective Ground) to Figure 33-14. Recraft the text so that a signal pair test refers to the PHY clauses rather than duplicates them. Craft the text such that it refers to the testing of the spare pairs.

Added to database on 1/31/2003 at 3:15PM:

Add a protective ground "symbol" to Figure 33-13 to match what is in figure 14-15 and the equivalent figure in clause 40.

Change the existing text:
33.4.2 Fault tolerance
Each wire pair of the PSE or PD shall withstand without damage the application of short circuits of any wire to any other wire within the cable for an indefinite period of time. The magnitude of the current through such a short circuit shall not exceed ILIM max as defined in Table 33-5, item 10.

Each wire pair shall withstand, without damage, a 1000V common-mode impulse applied at Ecm of either polarity (as indicated in Figure 33-13). The shape of the impulse shall be (0.3/50)µs (300ns virtual front time, 50µs virtual time or half value), as defined in IEC 60060, where Ecm is an externally applied AC volt-age as shown in Figure 33-13.

To the following new text:
33.4.2 Fault tolerance

Each wire pair of the PSE or PD when it is encompassed within the MDI shall meet the fault tolerance requirements of the appropriate specifying clause, (See: 14.3.1.2.7, clause 25 and 40.8.3.4). When a PSE is not encompassed within an MDI, the PSE PI shall meet the fault tolerance requirements of this sub-clause.

The PSE PI shall withstand without damage the application of short circuits of any wire to any other wire within the cable for an indefinite period of time. The magnitude of the current through such a short circuit shall not exceed ILIM max as defined in Table 33-5, item 10.

Each wire pair shall withstand, without damage, a 1000V common-mode impulse applied at Ecm of either polarity (as indicated in Figure 33-13). The shape of the impulse shall be (0.3/50)µs (300ns virtual front time, 50µs virtual time or half value), as defined in IEC 60060, where Ecm is an externally applied AC volt-age as shown in Figure 33-13.

Cl **33** *SC* **33.7.3.3** *P* **85** *L* **21** # **8**

Karam, Roger CISCO

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

Why are we specing a test that the PD must not oscillate around its classification-current leve only,
But when using the forced current method, we would have
A search algorithm step through all class ranges to find the right one,
and it could do so in any sequence that it wishes...

This applies also to page 62- line 31 of the spec.
also applies to page 117- lines 43-44

SuggestedRemedy

Please remove the reference to the 'local' current testing for potential oscillation around the PD's class and replace with:

The PD Should not oscillate at any current in the classification-current range. 5ma-50ma

also please fix this in the same manner in the PD classification section of the spec on page 62- line 31...

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved with the resolution to comment #44

Cl **33D** *SC* *P* **126** *L* **8** # **10**

Karam, Roger CISCO

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

"Something can be informative, but a very good idea to implement.
example: Yair's PD stability (Annex D), it is something we all have to meet.

However in Annex E which deals with the balance issue.
we need to revisit the content some more.

SuggestedRemedy

Please append a note to this effect:

The information presented below is for clarification purposes and acts as reference materials.

Proposed Response *Response Status* **C**

REJECT.

This comment is contrary to the style manual of the IEEE regarding informative annexes.

Cl **33** *SC* **33.2.5** *P* **46** *L* **12** # **11**
Karam, Roger CISCO

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

Table 33-2

We never defined the Max frequency of the detection waveform.
We had this discussion and we said that we don't need to define frequency if the slew rate is defined (0.1V/us) and we also said that slew rate can be defined for square wave too not only sine wave.

So no pse vendor sends out a train of pulses at the allowed 5ma current
At 50khz..... for Data's sake. Some upper bound might be useful

SuggestedRemedy

Add a Line to Table 33-2
max detection frequency is 500hz.
and append a note saying:
applies as the PSE does the 2-points signature-resistor measurements

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Item	parameter		Unit	min	max	note
5.5	time between any two test points	Tdiff	ms	2		

this is already done in D4.01

Cl **33** *SC* **33.2.6.2** *P* **47** *L* **37** # **12**
Karam, Roger CISCO

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

Missing a comment about The behavior of the PSE detection circuitry in that Zone where must reject and must accept is .

SuggestedRemedy

Add a note under other criteria page 47 line 41
A PSE is not obliged to power a PD that has signature characteristics Between the 'must accept' and 'must reject' zone as defined in table 33-2

Proposed Response *Response Status* **Z**

Cl **33C** *SC* **33.1.2** *P* **98** *L* **47** # **18**
Karam, Roger CISCO

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

Duty cycle ton/T=0.5+/- 20%
Do we mean a 50% duty cycle +/- 20% this was not too clear

SuggestedRemedy

please change to say
for a duty cycle of 30%-70%

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace with 'for a 30% to 70% duty cycle'

Cl **33C** *SC* **33C.5.1** *P* **121** *L* **9** # **20**
Karam, Roger CISCO

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

1- This is a spec, and it is placed in the test procedure.

2- why 5 seconds? it seems to me that it take 400msec to unplug a PD
500msec for the detection to take a break say, then say another
1-2 seconds to plug the cable back in, wait 1 sec for the new discovery
and you got about 3 seconds or so...
the concern is that the secretary who plugs a PD the first time in
it gets power within a second as we ask the PSE to do. if she needs to wait much longer after an unplug would we not make a mess?

it gets better that on line 11, we allow each PD vendor to define this?
why are doing a standard then?

SuggestedRemedy

Put the spec in the spec section where it belongs.
5 seconds MAY be too excessive, we may want to revisit this number.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete item 19 on page 121.

Cl **33** *SC* **Table 33-2** *P* **46** *L* **10** **#** **25**

Darshan, Yair PowerDsine

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

Table 33-2

Tsettele cannot be measured therefore it can't be on the table.
Tsettele is important information hence it should be informative.
In addition hard number (61ms) is not the right thing to do, instead we should supply the equation that derived this number instead and/or require that the voltage or current should be sampled when they reached to their 1% of their steady state.

SuggestedRemedy

1. Remove item 5 from the table.
2. Add the requirement for Tsettele to "Note 3" for table 33-2.
3. The comment should read:
"Settling time before voltage or current measurement: Tsettele should be calculated according to the following equation:
Tsettle_min =5(Zsource||33K)*(Cpse+0.12uf) or current and voltage measurements should be taken after voltage or current has reached their 1% steady state condition. Z source (Kohm) is the detection source impedance as specified in Figure 33-7 and Figure 33-8, and where Cpse (µF) is the PSE output port capacitance during detection mode as specified in Table 33-6, item 18."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

1. Remove item 5 from the table.
2. Add the requirement for Tsettle to "Note 3" for table 33-2.
3. The comment should read:
"Settling time before voltage or current measurement: the voltage and current measurements should be taken after Vdetect has settled to within 1% of its steady state condition."

Cl **33** *SC* **Table 33-7** *P* **63** *L* **16** **#** **26**

Darshan, Yair PowerDsine

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

Table 33-7

The requirement for Vp=42.4Vp when Vport<=42.4V was derived from the UL1950 however this requirement is limited by the detection peak voltage which is 30Vp max.
In addition, explanations and definitions for Vopen are needed for the definition of Vopen.

SuggestedRemedy

See attached word document with the revised item 1a in table 33-7 summary of changes in item 1a is given below:
1. "Symbol" column: Split to two rows:
row 1: V_open. Row 2: Vopen_1
2. "Units" column: Row 1: Vpp. Row 2: Vp
3. "Max" column: Change the condition in row 1 to "44<Vport<57V".
In row 2, change the number from 41.2 to 30.
4. "Notes" column: Change row 1 too:
"Include noise ripple etc.V_open is the ac voltage across the port when the PD is not connected to the port and before the detection of this condition by the PSE."
Change row 2 too:
V_open1 is the ac voltage across the port when the PD is not connected to the port and after the detection of this condition by the PSE and removing power from the port.

Proposed Response *Response Status* **C**

ACCEPT.

Promoted to a T.

Cl **33** *SC* **Table 33-14** *P* **62** *L* **50** # **29**

Darshan, Yair PowerDsine

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

Table 33-14

The classification max power at the PD should be synchronized with the max PD peak curren which was set for the max PD power (class 0).
The intention was not to allow peak current of 0.4Ap if the max class is 3.8W max as define by class 1.
In this case we would allow 17.6W peak power when the average is only 3.8W.
The idea is to keep the Peak_power/Average_power ratio of class 0 for the other power class as well.
The PSE must supply the power required by the PD (both the average and peak value) plus the power loss on the cable plus some margin.
There is no need to add additional info to the PSE spec due to the fact that the min average power values are defined by table 33-11 and the peak current is defined by the suggested PD spec below in the "Suggested remedy".

SuggestedRemedy

Add note (c) to the end of note 3 for table 33-14 stating the following:
"The following max peak current value shall be met when the PD is connect to a voltage source 44V<= E<=57V followed by series resistor of 20 ohm .

Eq-1: Iport_peak_max=1.111*Pport_avg/(0.5*E + 0.5*(E- 88.88*Pport_avg)^0.5)

For Pport_avg=12.95W, Eq-1 returns 0.4A for E=44V as specified in items 3. Pport_avg is the max average power allowed by the PD class as described in table 33-11.
(The equation above was derived from the quadratic equation presented at May 2000 meeting. And instead of Port_avg I have used Pport_peak=Pport_avg*14.4/12.95.)

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

page 62 line 50 change 'input current' to 'input inrush current'
and change 'Iport' to 'Iinrush'
create a item 3.5 peak operating current iport [has three rows]
first row: Class 0,3 400mA (max) see note 3.5
2nd row: Class 1 120mA (max) see note 3.5
3rd row: Class 2 210mA (max) see note 3.5

page 63, line 30 change 'note 3a' to 'note 3.5'
change note '3b' to 'note3'

renumber table so 3.5 is a real number.

Cl **33** *SC* **33.2.9** *P* **53** *L* **30** # **37**

Darshan, Yair PowerDsine

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

Due to the fact that only the PD determines the RMS current by its load type, there is no nee to define RMS numbers in table 33-6.
The presence of these rms values may lead to the wrong interpretation that the PSE is responsible to force current limit based on RMS measurements.

The PD spec defines all the data required to limit the RMS current consumed by the PD load.

SuggestedRemedy

Suggested remedy:

1. Page 53 lines 30-32, part b) of note 4: erase this part.

2. Page 53 line 35, part 2) of part c) of note 4. Erase this line.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.3.4** *P* **62** *L* **33** # **41**

Darshan, Yair PowerDsine

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

In order to prevent potential damage to the PD from the possibility that during power on the voltage across the PD port will stay for more than 75ms at 15-20V, we should require that PD should stand any voltage from 15V to 20V for infinite time.
Actually to cover all operating mode we should specify that PD should stand any voltage from 0 to 57V for infinite time.

SuggestedRemedy

Add to page 62 at line 33 the following text:
"PD shall stand any voltage from 0 to 57V for infinite time"

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to the end of section 33.3.1:
The PD shall withstand any voltage from 0V to 57V at the PI indefinitely without permanent damage.

Cl **33** *SC* **Table 33-6** *P* **53** *L* **39** # **42**

Darshan, Yair PowerDsine

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

Table 33-6

We need to guarantee that PSE that uses Foldback current limit concepts will not cause interoperability problems that may prevent successful startup of the PD.
It means that above 30V we need to guarantee that the PSE can deliver the required Inrush current range.
We can add to the spec the following:
Add to page 53 line 39:
"c) During startup, the PSE must meet the minimum Iinrush requirement at all port voltages above 30V.
For port voltage below 30V, the PSE must guarantee 70mA minimum
(to support Iport > max{Iclas})"

SuggestedRemedy

Add to page 53 line 39:
"c) During startup, the PSE must meet the minimum Iinrush requirement at all port voltages above 30V.
For port voltage below 30V, the PSE must guarantee 70mA minimum"

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to page 53 line 39:
"c) During startup, the PSE shall meet the minimum Iinrush requirement at all port voltages above 30V.
For port voltage between 10V and 30V, the PSE shall guarantee 60mA minimum"

Cl **33** *SC* **33.4.1** *P* **65** *L* **16** # **43**

Darshan, Yair PowerDsine

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

We need to scan the draft and replace all EN60950 with the "latest update of EN60950-X"
In addition, we need to update lines 10-23 to reflect isolation requirement and not isolation an surge requirements.
Part c) in line 18 page 65 is not belong here due too the following reasons:
- It is surge test and not isolation test. PSE with environment A are note required to meet surge tests.
- Surge tests should not be defined in IEEE802.3af it is out of the scope of the standard to specify it. It is manufacturer issue and it depends on installation and environment type. Environment A does not require meeting surge tests.
If we want this anyway, we need to reduce the pulse parameters to 10us/700u type, which is defined in updated versions of IEC60950.

SuggestedRemedy

1. scan the draft and replace all EN60950 with the "latest update of EN60950-X"
2. Delete Part c) in line 18 page 65.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **33.2.7** *P* **48** *L* **1** # **44**

Darshan, Yair PowerDsine

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

I am suggesting to delete the applied current method for the classification function from the draft.
I know that it was suggested a while ago by Thong however now it is our last chance to consider it again.
I came to the conclusion that it is better from PD and PSE side point of view.
I am suggesting it now due to some thinking I have made about what can be the possible implications if the PSE is equipped with foldabck current limit.
Probably with good design from the PSE and PD side we can overcome all problems and may be no problem at all however due to the fact that most of known PSE vendors support or will support the Voltage method, I don't see a reason to keep the current method.
Lets discuss it in the meeting.

SuggestedRemedy

Scan the draft for the applied current method and remove it.

Proposed Response *Response Status* **C**

ACCEPT.

Technically, forced current presents a stability problem for the PD. The forced voltage method is technically more robust. Eliminiting this removes an unecessary option.

Cl **33** *SC* **33.1** *P* **36** *L* **5** # **45**

Schindler, Fred Cisco

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

The 802.3af committee refers to this draft as a "single port specification." I am unable to find text in the specification that clearly states this.

SuggestedRemedy

In the overview section state:
This clause deals with a single PSE or PD. The provision of multiple MDIs within a system is beyond the scope of this specification.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
Power sourcing equipment (PSE), as the name implies, is the equipment that provides the power to the link
segment.

To:
Power sourcing equipment (PSE), as the name implies, is the equipment that provides the power to a single link
segment.

Cl **33** *SC* **Table 33-2** *P* **46** *L* **9** # **46**

Schindler, Fred Cisco

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

Indicate how Tsettle can be measured.

SuggestedRemedy

Require that Tsettle (min.) ensures that the detection voltage has reached 99% of its steady state value before a data point is sampled. It may be preferable to indicate this as Vvalid_settle.

Provide a test circuit, in the Annex 33A, that consists of a PD with the maximum PD time contstant: 0.05uF x 26.25k. Require that the PSE being tested hold its detection voltage for a period that ensures that Vvalid will reach 99% of its final value before this data point is sampled. Note this is 4.6-system time constants. With this requirement the formula for Tsettle_min can be omitted.

Proposed Response *Response Status* **Z**

see #25

Cl **33** *SC* **33.2.7.2** *P* **49** *L* **31** # **47**

Schindler, Fred Cisco

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

Classification is optional. The text requires that the PSE shall not power an invalid class.

SuggestedRemedy

Decide whether the text in section 33.2.7, p47, line-44, "...may optionally classify a PD..." over rides the text that follows that indicates "... shall not power ..."

Ensure that the text provided does not require an unclassified PD to be unpowered.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved with resolution of comment #55

Cl **33** *SC* **Table 33-6** *P* **52** *L* **6** # **48**

Schindler, Fred Cisco

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

Item-4 creates the impression that Irms needs to be monitored. Only Peak currents and time need to be monitored.

SuggestedRemedy

Remove all references to Irms: Note-4 b); and Note-4 c) 2.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved by resolution to #37

Cl **33** *SC* **33.3.4** *P* **62** *L* **30** # **49**

Schindler, Fred Cisco

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

The text 'A class 1 to 4 PD shall ..." is incomplete. i.e. class 0 is missing.

SuggestedRemedy

Replace the text with "A PD shall ..."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved with resolution to comment #207

Cl **33** *SC* **Table 33-14** *P* **62** *L* **50** **#** **50**

Schindler, Fred — Cisco

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

The note-3 for Iport provides a formula for Irms but no limit for it.

SuggestedRemedy

In note-3 indicate that Irms can be up to Class-Power/Vport as long as Iport max. (peak) is no exceeded.

The Committee needs to also evaluate if Iport max. should be proportional to the max. class-power.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved with resolution to comment #28 and #29

Cl **33** *SC* **Table 33-6** *P* **53** *L* **50** **#** **52**

Dwelley, Dave — Linear Technology

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

Spec as written prohibits designing a PSE with an oversized power supply and a single currer limit threshold - this is unnecessarily limiting.

SuggestedRemedy

Change "shall" to "may" on lines 50 and 52 (notes 8 and 9).

Proposed Response *Response Status* **Z**

vote to accept or reject the comment:

.3 voters

A 4 R 7 AB 1

Cl **33** *SC* **33.2.7.2** *P* **49** *L* **34** **#** **53**

Dwelley, Dave — Linear Technology

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

Top of class 4 band is too close to overcurrent band.

SuggestedRemedy

Change "47ma" to "51ma" to keep the same guardband as between classes 3 and 4. Change in four places:
p49 line 34
p49 line 44
p50 line 22
p50 line 47

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **Table 33-6** *P* **53** *L* **8** **#** **54**

Dwelley, Dave — Linear Technology

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

The spec has a max for Tpdc to avoid overheating the PD, but there is no spec to prevent the PSE from sitting between 15V and 20V during power-up for as long as Trise, which may overheat the PD.

SuggestedRemedy

Add a maximum to Trise (p52 line 35) of 75ms. Note that this allows 350mA to charge up 180uF with a 2.5x margin.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution to #41.

Cl **33** *SC* **33.2.7.2** *P* **49** *L* **35** **#** **55**

Dwelley, Dave — Linear Technology

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

Limiting conditions are different for FCMV and FVMC tests.

SuggestedRemedy

Add text to end of line 35: "or shall power the PD as Class 0."

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.5.1** *P* **47** *L* **10** # **56**

Dwelley, Dave — Linear Technology

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

Delta Vtest may not be met if port is open

SuggestedRemedy

Add text after the word "measurements": "with a valid PD signature connected"

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add text: "with a valid PD detection signature connected."

Cl **33** *SC* **Table 33-9** *P* **60** *L* **14** # **59**

Dwelley, Dave — Linear Technology

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

0.11uF is not enough to use a low-cost 0.1uF capacitor with PD parasitics included

SuggestedRemedy

change value to 0.13uF or higher

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **Table 33-14 notes** *P* **63** *L* **40** # **61**

Dwelley, Dave — Linear Technology

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

current language does not cover the startup case, which I believe it is meant to do

SuggestedRemedy

change 44V to 0V. I think we need a "shall" here as well.

Proposed Response *Response Status* **Z**

Cl **33C** *SC* **33C.2.2** *P* **113** *L* **17** # **64**

Karam, Roger — CISCO

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

- Test Procedure PSE 14 is not clear, why do we have 30v as test load?
and # 5) is not clear in #2 why do we divide by 5??

SuggestedRemedy

please remove section related to the example circuit.
folks may decide to use ready made lab instruments.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

resolved by resolution to comment #70

Cl **33** *SC* **33.3.2.3** *P* **59** *L* **3** # **65**

Karam, Roger — CISCO

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

PD state diagram,
If the PD was powered from the switch, i plug a brick with higher voltage than the Inline power of the switch, so now, I am powered from the Brick but the PD chip has the signature removed but the PSE doing AC disconnect in this case still sees a connected PD,
this would be a case where present_pd_signature=false
BUT present_mps=true (not false as shown)

SuggestedRemedy

add a note to the state diagram specifying that this does not account for auxiliary power devices (ie brick) unless of course we care to include such devices to be discussed.

Proposed Response *Response Status* **Z**

Cl **33** *SC* **33.2.9** *P* **53** *L* **50** # **67**

Darshan, Yair — PowerDsine

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

table 33-6

When classification function is used, the PSE should disconnect the PD if PD violates its clas definition and requires power greater than its class permits.

SuggestedRemedy

Add to note 8 page 53:
"In case of overload condition caused by a PD that requires power more than specified by its class, the PSE shall disconnect the PD. In this case P_class/Vport may specify the minimum value of Icut instead of 154000/Vport as specified by item 8. Pclass is the max power required by the PD as specified by its class definitions"

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to note 8:
In a PSE that supports the optional classification function (33.2.7), the minimum value of Icut may be
(P_class * 1000)/Vportmin,
where P_class is specified by Table 33-11 and Vportmin is the Vport minimum entry.

Cl **33** *SC* **33.4.1** *P* **65** *L* **12** # **72**

Jones, Chad — Cisco Systems, Inc

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

As it is worded, this excludes a PD where all of the enclosed circuitry sits on the 'wire side' an the isolation is provided solely by the plastic enclosure.

SuggestedRemedy

The majority of PDs are not going to have a frame ground and can achieve isolation through the plastic enclosure. Add a sentence about PD isolation to reflect this (I need help with the wordsmithing).

Proposed Response *Response Status* **Z**

Cl **33** *SC* **33.4.2** *P* **66** *L* **19** # **73**

Jones, Chad — Cisco Systems, Inc

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

My safety guy has a problem with the (0.3/50)us waveform. He is concerned about his ability to generate this waveform and wonders about the origin of this number.

SuggestedRemedy

He suggests to change it to the (1.2/50)us waveform like in the isolation section. This would also affect the PICS and another comment will be filed against them.

Proposed Response *Response Status* **Z**

defer to comment #5

Cl **33** *SC* **33.7.3.4** *P* **86** *L* **36** # **74**

Jones, Chad — Cisco Systems, Inc

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

My safety guy has a problem with the (0.3/50)us wavefront. A similar comment to this has already been filed.

SuggestedRemedy

Change it to a (1.2/50)us wavefront like in the isolation section.

Proposed Response *Response Status* **Z**

defer to comment #5

Cl **30** *SC* **Table 30-4** *P* **12** *L* **36** # **75**

Goldis, Mordechai — Avaya

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

Definition of mandatory PSE basic Package is too restrictive. No useful management information is included, excepting the fact that the device has an active PSE.

SuggestedRemedy

Remedy - move aPSEPowerPairsControlAbility, aPSEPowerPairs, aPSEPowerDetectionControl and aPSEPowerDetectionStatus from the PSE Recommended to the PSE Basic Package

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.2.1.2** *P* **17** *L* **1** **#** **76**
Goldis, Mordechai Avaya

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

- The operational state of a PD function can not be changed using the acPSEAdminControl -

SuggestedRemedy

Remedy - replace acPSEAdminControl with acPDAdminControl

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved by resolution of comment #308.

Cl **33** *SC* **33.2.1** *P* **39** *L* **45** **#** **77**
Goldis, Mordechai Avaya

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

Why we are combining auto MDI function ,which is the phy feature/ function (s/w controlled) with the power feeding ?
I think that we have to specify two pinout alternatives A1- MDI and A2 -MDI-X without relation to auto MDI feature . I have two reasons for that.

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

2.Let's assume there is PD that isn't implement autoMDI (without the diode bridge), This PD was plugged in and worked OK with crossed cable conncted to PSE with MDI , now if we change to new PSE with auto MDI feature using the same cable plug to this PD , it will not be powered as the voltage feeding was crossed and we confuse the market.

SuggestedRemedy

we have to specify two pinout alternatives A1- MDI and A2 -MDI-X without relation to auto MDI feature

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change Table 33-1 from "(MDI-X or Auto-MDI-X)" to "(MDI-X or Auto-MDI-X which default to MDI-X)" and from "(MDI)" to "(MDI or Auto-MDI-X which default to MDI)"

change sentence on page 39, line 45 to "PSEs that use automatically configuring MDI/MDI-X ("Auto-MDI-X") ports may implement either Alternative A polarities, as any cabling system which will align power will automatically align the data."

Cl **33** *SC* **33.7.3.6** *P* **89** *L* **1** **#** **85**
Goldis, Mordechai Avaya

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

I'm mising in the PICs , a row that specify that management is optional.
In this table all feature are mandatory.

SuggestedRemedy

Add row here or in clause 33.7.2.3 Major capabilities that it is optional.

Proposed Response *Response Status* **C**

ACCEPT.

See resolution to comment #338

Cl **33** *SC* **33.4.1** *P* **65** *L* **10** # **88**

Burke, Thomas
Underwriters Laboratori

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

Note - This comment may supersede and make irrelevant my previous comment on 33.4.1. It appears that the requirement in this sub-clause is intended to both require and test separation/isolation between "port device circuits" and the "PI" or power interface (which apparently may be subjected to transients). However, I note that generally this type of separation is only required by safety standards between different low-voltage secondary circuits when the interface may be routed outside the building, i.e., topologies with so-called outside plant connections. I assume the IEEE P802.3af working group has adopted such a requirement because some Ethernet topologies may be routed outside plant, e.g., campus environment. If this is so, I note that IEC 60950-1 already has a similar requirement between Safety Extra Low Voltage (SELV) circuits and other circuits routed outside plant (e.g., TNV-1 telecommunication circuits such as ISDN). However, the test parameters in IEEE P802.3af and IEC 60950-1 are different.

In sub-clause 6.2 of IEC 60950-1, two options exist instead of three:
- A steady state test of 1000 V a.c. (1500 V if Australia considered too); or
- An impulse test consisting of a 1500 V, 10/700us waveform, applied 10 times, with a 60 second interval between pulses.

Also, 6.2 of IEC 60950-1 anticipates surge suppression may be used in such circuits, so the 2 Mohm/500 Vd.c. pass/fail criteria in lines 22-23 of IEEE P802.3af are too simplified when compared to the similar wording in 6.2.2.3 of IEC 60950-1 for similar circuits containing surge suppression.

It is important to point out the above because (a) IEC 60950 would only require such separation/isolation for Ethernet topologies with potential outside plant routing (a companion document to IEC 60950-1, IEC TR62102, Classification of Interfaces for Equipment to Be Connected to Information and Communications Technology Networks, only assumes 10Base5 to be subjected to such transients, not 10Base2 and 10BaseT (it hasn't addressed 100BaseT yet)); and (b) it appears that the exact same Ethernet circuits in the exact same products may end up being subjected to two sets of requirements/tests with different parameters, even though the tests are addressing the same hazards. This does not appear to be an ideal situation for manufacturers.

SuggestedRemedy

The P802.3af working group should revisit the requirement in 33.4.1 and reconfirm the intent of the isolation requirements in 33.4.1 of IEEE P802.3af/D4.0. If the working group agrees such separation/isolation remains sound, the working group should consider whether the requirements in sub-clause 6.2 of IEC 60950-1 are more appropriate than those in the presen IEEE P802.3af/D4.0. If this conclusion is reached, 33.4.1 should be completely revised to state: "The PSE and PD shall each provide electrical separation between the port device circuits, including the frame earth (if any) and all PI leads. This electrical separation shall be i accordance with the separation requirements between SELV circuits and telecommunication network connections in sub-clause 6.2 of IEC 60950-1 (i.e., same as between SELV and TNV 1)," or similar. I note that SELV circuits are already mentioned in 33.1.2 of the document, so there should not be a problem referencing them here too.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Added to the database 1/31/2003 at 3:20PM:

33.4.1 Isolation

The PSE shall provide electrical isolation between the PI device circuits, including frame ground (if any) and all PI leads.

The PD shall provide electrical isolation between all external conductors, including frame ground (if any) and all PI leads.

This electrical separation shall be in accordance with the separation requirements between SELV circuits and telecommunication network connections in sub-clause 6.2 of IEC 60950-1:2001.□□□

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.

NOTE: (not part of the text of P802.3af 4.1)

P802.3af has added additional requirements for safety with the addition of power and requires IEC 60950-1:2001. Currently, 802.3-2002 references IEC 60950:1991. A maintainence request to compare IEC 60950:1991 and IEC 60950:2001 to determine if the 2001 edition can be used as the reference in 802.3

Cl **33** *SC* **33.4.8** *P* **71** *L* **51** # **90**

Miller, Alan — Hubbell Premise Wiring

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

The statement forms a restriction on an issue that falls outside the scope of IEEE in general, and 802.3af document in particular, stated as □to allow devices to draw power from the same generic cabling of 10BASE-T and 100BASE-T (and 1000BASE-T).□ The specification of □channel□ and □permanent link□ is the scope of TIA-TR42 and corresponding IEC committees. Work is currently being done, particularly in the TIA to specify the generic cabling for low power applications. The IEEE standards should only refer to those standards for guidance, rather than including specific details that may alter the course of generic cabling development. The possibility should be left open for the cabling standards to evolve in suppor of new applications.

For example, there have been several requests to allow a Midspan PSE in a Consolidation point or workstation outlet. Although this is not allowed in generic cabling at this point, it is possible and should not be prohibited in IEEE 802.3af standard. The development of equipment that is IEEE 802.3af compliant while not specifically in compliance with generic cabling standard should be allowed. As these and other future applications evolve, the cablin standards would come into harmony with the IEEE standard based on user acceptance.

Likewise, the IEEE 802.3af standards should not restrict changes to the non-signal pairs. Although preference has been given to end-point devices in the PD detection sequence, there may be other applications that may require temporarily or permanently altering the continuity of the □signal pairs□. For example, the detection of non-compliant, legacy devices may require performing detection on the □traditional□ signal pairs for 100BASE-T in addition to performing the detection on the □spare pairs□. The intent of the 802.3af should be to promote the use of low voltage power on the LAN and not restrict legacy or future devices, applications and functionality.

Finally, the IEEE802.3af document actually suggests certain implementations by allowing changes to the □channel□, such as end point (power from the switch), Midspan box and Midspan patch cords. On the other hand, it prohibits certain other possible implementations such as a Power Patch Panel, Power Consolidation point or Power Workstation outlet by the use of □shall not alter transmission requirements of the permanent link□. Thus, the restrictior on changes to the cabling can be viewed as an attempt to protect the status quo of cabling, rather than looking towards the best possible future implementations.

SuggestedRemedy

(in order of preference):

Suggestion 1:

□Configurations with the Midspan PSE in the cabling channel shall adhere to the transmissio requirements of the □permanent link□ or □channel□ in the specified frequency range from 1MHz to the maximum frequency of the system. The inclusion of the Midspan PSE in the channel may reflect in the channel signal continuity for two pairs only, as spare pairs on which power is injected may be discontinued at the midspan PSE.□

Alternate 1:

□Configurations with the Midspan PSE in the cabling channel should not alter the transmission requirements of the □permanent link□. The inclusion of the Midspan PSE in the channel may result in channel continuity for the signal pairs only, as spare pairs on which power is injected may be discontinued at the Midspan PSE.□

Proposed Response *Response Status* **C**

REJECT.

Considered and rejected.
This has been considered at past meetings. For a more thorough background, please see the meeting archives on the reflector. Specifically, meetings at York and La Jolla.

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **1** # **93**

Brown, Benjamin — AMCC

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

We were told when developing Clause 36 that transitions from multiple states back to a common state could share a single destination arrow only if the conditions for the transitions were identical. The path back to IDLE is a common destination arrow for numerous conditions.

SuggestedRemedy

Change the state diagram to use separate arrows for each independent condition.

Proposed Response *Response Status* **C**

REJECT.

Notwithstanding the structure that may have been forced on the Clause 36 editors, we believe there is sufficient precedence in 802.3, beginning with at least with Figure 14-4, to justify the use of the single branch upwards. No change is planned.

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **3** # **94**

Brown, Benjamin — AMCC

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

The first conditions on the global transitions into states IDLE and TEST_MODE use a form that is atypical of other state diagrams in the 802.3 document

SuggestedRemedy

For transition into IDLE, replace "((pse_reset + power_on)=TRUE)" with "pse_reset=TRUE + power_on=TRUE"

For transition into TEST_MODE, replace "((pse_reset _ power_on)=FALSE)" with "pse_reset=FALSE * power_on=FALSE"

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Combine pse_reset & power_on to a single variable and do not use the equals true test. Merge variable declarations.

Cl **30** *SC* **30.1** *P* **8** *L* **13** # **97**

Law, David 3Com

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

n the forth paragraph of this subclause, please add Midspan to the list of device Clause 30 provides Layer Management for.

SuggestedRemedy

Add an additional change to the forth paragraph of subclause 30.1 to change the text 'This clause provides the Layer Management specification for DTEs, repeaters, and MAUs' to read 'This clause provides the Layer Management specification for DTEs, repeaters, MAUs, and Midspans'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.2.3** *P* **9** *L* **27** # **99**

Law, David 3Com

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

Should consider adding a modification to the existing last paragraph of this subclause to state when PD and PSE management is valid. This is similar to the existing text in relation to MAUs

SuggestedRemedy

Add an additional change to subclause 30.2.3 to add the following text to the end of the last paragraph: 'PD and PSE management is only valid in a system that provides management at the next higher containment level, that is, either a DTE, repeater or Midspan with management.'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

PD has been removed from management. Insert sentence without PD reference.

PSE management is only valid in a system that provides management at the next higher containment level, that is, either a DTE, repeater or Midspan with management

Cl **30** *SC* **30.2.5** *P* **11** *L* **43** # **101**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *C30*

Need to update the text that is to be inserted in to '30.2.5 Capabilities' as it doesn't seem to have been updated when we changed from a Midspan PSE to a generic Midspan model.

SuggestedRemedy

Remove the current text that is to be inserted at the end of subclause 30.2.5 and instead insert the following text:

'For managed PSEs, the PSE Basic Package is mandatory and the PSE Recommended packages is optional. For a managed PSE to be conformant to this standard, it shall fully implement the PSE Basic Package. For a managed PSE to be conformant to the optional Recommended package it shall implement that entire package. PSE management is optional with respect to all other CSMA/CD management.

For managed PDs the PD managed object class shall be implemented in its entirety. All attributes and actions are mandatory. PD management is optional with respect to all other CSMA/CD management.

For managed Midspans, the Midspan managed object class shall be implemented in its entirety. All attributes and notifications are mandatory. Midspan management is optional with respect to all other CSMA/CD management.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the middle paragraph because PDs are no longer managed.

Cl **30** *SC* **30.9.1.1.4** *P* **14** *L* **11** # **109**

Law, David 3Com

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

The behavior text references the wrong register bit - the referenced bits should be 33.6.1.1.3 Pair Control rather than the subclause 33.6.1.2.5 Detection Status bits.

SuggestedRemedy

Change the text '... Detection Status bits specified in 33.6.1.2.5.;' to read '... Pair Control bits specified in 33.6.1.1.3.;'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.1.1.5** *P* **14** *L* **28** # **111**

Law, David 3Com

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

The second paragraph of the behavior should be updated to include reference to the fact that PD Detection will not take place when the PSE is disabled through the PSEAdmin attribute. Note this assumes that PD Detection is indeed disabled by the PSEAdmin attribute. This relates to the fact that it is not clear from Clause 33 if the PD Detection function is gated by the state of the mr_pse_enable variable of the State Machine. Figure 33-5, the description for the PSE Enable bit (11.0) and the PSEAdmin behavior all imply that PD Detection is disabled To quote the text for bit 11.0 'The PSE function shall be disabled by setting bit 11.0 to logic zero. When the PSE function is disabled by this bit, the MDI shall function as it would if it had no PSE function.'. When the text for the PD Detection (33.2.4) is examined however there doesn't seem to be any link to the register bits.

SuggestedRemedy

Change the second paragraph to read 'The enumeration 'test' indicates that if a valid PD is detected the PSE will then proceed to attempt to supply power. The enumeration 'test' indicates that if a valid PD is detected power will not be supplied. If a Clause 22 MII or Clause 35 GMII is present, then this will map to the Detection Test Control bits specified in 33.6.1.1.2

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

the SM overhaul has eliminated detection test mode in favor of detection counter in the MIB, which is being handled by the MIB AdHoc.

Cl **30** *SC* **30.9.1.1.6** *P* **14** *L* **45** # **112**

Law, David 3Com

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

This attribute reflects the state of the PSE rather that the state of the PD Detection function as it includes such information as to if the PSE is supplying power or not. The first paragraph of the behavior needs to be updated to reflect this.

SuggestedRemedy

Change the text 'A read-only value that indicates the current status of the PD Detection function specified in 33.2.6.' to read 'A read-only value that indicates the current status of the PSE'.

30.9.1.1.6 aPSEPowerDetectionStatus
==========

Not too sure if the attribute name is still appropriate since it now reports more than just the Power Detection Status - suggest aPSEState is a possibility.

Enumeration 'disabled'

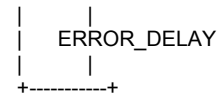
I think this enumeration needs updated to match the variables changed name and the its enumeration as it is not a Boolean.

Suggested new text: 'The enumeration "disabled" indicates that the PSE State diagram (Figure 33-5) is in the state IDLE due to the variable mr_pse_enable = disabled.

Note - I would still prefer to see separate 'IDLE', 'ERROR' and 'FAULT' states rather than having to predicate the enumerations based on the variable that is leading the PSE state diagram to be in the 'IDLE' state. See state machine comments below.

Enumeration 'deliveringPower'

The problem that I see with the current definition of this enumeration is that in the situation when there is an overload or a short the state machine will continually cycle through:



The problem is that the as currently defined the attribute will return the enumeration 'deliveringPower' while the state machine is in the state POWER_UP or POWER_ON hence in this error condition the attribute will be indicating 'deliveringPower' for tlim or tolvd depending on the error. Another enumeration will occur during the other states however it seems to me to be misleading to indicate 'deliveringPower' in this situation.

I therefore suggest that an additional condition be added to the 'deliveringPower' enumeration that states this value is only reported once the state machine has been in the POWER_ON state for in excess of tlim max (since tlim max and tovld max are the same value).

Suggested new text: 'The enumeration "deliveringPower" indicates that the PSE State diagram is in the state POWER_ON for a duration grater than tlim max (see Table 33-5).'

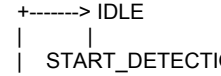
Note - While I believe this delay should be imposed upon this enumeration being indicated by this attribute I do not believe it is necessary to have this delay on the register. The agent software can provide this delay based on a live register bit - read the register, if the value is deliveringPower power wait for the delay, read again, if the value is still deliveringPower then set the attribute to the enumeration deliveringPower.

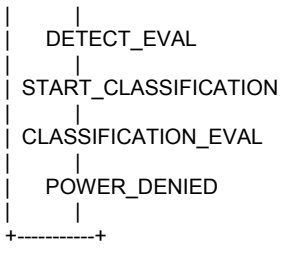
Enumeration 'fault'

The current definition of this enumeration seems to be okay but an overload or short condition will not cause the enumeartion 'fault' to be indicated (assuming the correction to the state machine described below). I assuume this okay, it seems to be to me - the counter aPSEOverCurrentCounter will be continually incrementing in this condition and it is this that should be used as an indication of the particular fault condition.

Indication of Power being denied to a PD

I believe this condition should be indicated by a register bit and a new MIB attribute. Imagine the situation where a PD is requesting power yet the PSE hasn't sufficient power. If this situation continues I believe that the state machine will continually rotate through the following states:





At the moment there is no indication to the user this is happeneing, all they know is they have correctly connected a PD to a PSE yet the PSE is failing to power the PD. Since the POWER_DENIED state is a transitory state and the PSE will very quickly - instantaneously from what I can see - return to the 'searching' enumeration, I don't think we can cover this situation by adding a new enumeration to the aPSEPowerDetectionStatus attribute. Instead I think that a new counter attribute should be added.

Suggested new text:

30.9.1.1.X aPSEPowerDenied
ATTRIBUTE
APPROPRIATE SYNTAX:
Generalized nonresettable counter. This counter has a maximum increment rate of ????
BEHAVIOUR DEFINED AS:
A count of the number of times that the PSE denies power to a PD. This counter is incremented when the PSE State diagram (Figure 33-5) enters the state POWER_DENIED.

Note - As far as the register bits are concerned I guess we need a sticky bit to be set when this state is passed through to support our new counter attribute.

IETF MIB issue

In addition, while I know its a bit out of scope, I think we should consider the enumerations the IETF has for its equivalent of the aPSEPowerDetectionStatus attribute - if not we may end up without the supporting hardware for their enumeration. Of course alternatively we could suggest that they delete this particular enumeration. Anyway, the IETF have an additional enumeration 'denyLowPriority' which as best as I can see sort of maps to the POWER_DENIED state in the new state machine although they also seem to allow a port to be powered down if a higher prority port requests power - something we certainly do not support.

I however belive they have the same issue that we have with the state POWER_DENIED. The 'denyLowPriority' enumeration will be a transitory state and the PSE will very quickly return to the 'searching' enumeration. In the case of

the IETF behaviour where this transition through the 'denyLowPriority' enumeration to the 'searching' enumeration occurs due to a higher priroty port bring powered the state machine will then start to rotate continually through the states I described above.

In summary therfore I don't see any value in the IETF 'denyLowPriority' enumeration - it will be present for extremently short time when the high proirity port kicks the low proirty port off and then will never appear again. The PSE will then go into a continuious cycle of the enumerations 'diabled'/'seraching' as it steps throught the states I have described above. I therfore do think this additional enuerationn is of any help. I however do think the IETF should add the counter I have suggested above. I will comment on this myself.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Let the editors resolve in conjunction with David Law.

Cl **30** *SC* **30.9.1.1.6** *P* **14** *L* **48** # **113**

Law, David 3Com

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

Unfortunatly we still seem to have a disconnect between the state machine and this MIB attribute no doubt due to the last set of editing to both items at the last revision.

In addition I propose the following:

1. State to enumeration mapping.
Rather than try and list all the states that map to a particular enumeration it looks like a number of enemerations can be simply based on the entry to certain states. I have prosed the changes below but don't belei they break the previous intent of the state to enuermation mapping. Note that I use the term intent as again I belive this mapping is broken by the additon of DETECTION_TEST state in the last draft which isnt list in the enumeration mapping.

SuggestedRemedy

Charter an AdHoc to produce a set of chages to the State Machine (if necessary) and to this attribute and to make sure they match. Have this presented at the closing meeting for approval or, if necesaary, charter the group to agree on this after the meeting.

Specific changes are:

1. State to enumeration mapping.
Change the text 'The enumeration "searching" indicates that the PSE State diagram is in the state DETECTION, CLASSIFICATION, SIGNATURE_INVALID or BACKOFF.' to read 'The enumeration "searching" indicates that the PSE State diagram has transitions into the state START_DETECTION and has not entered another state that maps to an enumeration.'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Mike McCormack to communicate with David Law

Cl **33** *SC* **33.6.1.2.5** *P* **77** *L* **36** # **114**

Law, David 3Com

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

The register bits no longer match the Clause 30 MIB since the register includes the addition status 'Detected' and 'Invalid PD detection signature'. Further the register bits do not match the SNMP MIB since the register includes the additional status 'Invalid PD detection signature And of course the Clause 30 MIB doesn't match the SNMP MIB as the SNMP MIB includes 'Detected'.

Note that it is not an issue that the SNMP MIB includes the additional enumeration 'denyLowPriority' since this requires no hardware (register) support.

It should be noted however that the SNMP 'denyLowPriority' enumeration, along with 'Detected' and 'Invalid PD Detected' register values, will be very transient - practically zero time - since they will be instantly overwritten when the state machine transits back through the IDLE state to the START_DETECTION state which will set the enumeration 'searching'.

SuggestedRemedy

Need to align at least the register bits with the Clause 30 MIB and if possible get alignment with the SNMP MIB as well.

Suggest that the 'Detected' and 'Invalid PD Detected' values are removed due to their transitory nature.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Mike McCormack to communicate with David Law

Cl **30** *SC* **30.9.1.1.7** *P* **15** *L* **18** # **115**

Law, David 3Com

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

The 'detect' enumeration of the aPSEPowerDetectStatus attribute that was removed in a previous draft is sill referenced here and should be removed.

SuggestedRemedy

Change the text 'This value is only valid while a PD is connected, that is the attribute aPSEPowerDetectionStatus reporting the enumeration "detected" or "deliveringPower to read 'This value is only valid while a PD is being powered, that is the attribute aPSEPowerDetectionStatus reporting the enumeration "deliveringPower".'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.1.1.8** *P* **15** *L* **44** # **117**

Law, David 3Com

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

There are two register bits that are required to support this attribute, the Overcurrent bit as already referenced and the MPS Absent bit which is not. A reference should be added to the MPS Absent bit.

SuggestedRemedy

Change the text 'If a Clause 22 MII or Clause 35 GMII is present, then this will map to the Overcurrent bit specified in 33.6.1.2.2.;' to read 'If a Clause 22 MII or Clause 35 GMII is present, then this will map to the Overcurrent bit specified in 33.6.1.2.2 and the MPSabsent bi specified in 33.6.1.2.3.;'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.1.1.8** *P* **15** *L* **40** # **120**

Law, David 3Com

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

Remove the references to Off-mode current 2 and Under load time limit as they are no longer required and add the symbols for overload current limit and overload time limit.

SuggestedRemedy

Change the text 'The values Overload current limit, Overload time limit, Off-mode current 2 and Under load time limit are specified in Table 33-6.' to read 'The values Overload current limit (ICUT) and Overload time limit (Tovld) are specified in Table 33-6.'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.9.2** *P* **16** *L* **25** # **123**

Law, David 3Com

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

The final PD register bit was deleted from the last draft so there is now no support from the aPDAdmin attribute and the acPDAdminControl action. The removal of this bit also impacts the related SNMP pethPdPortAdminEnable object.
If the Clause 30 attribute & action and the SNMP MIB object remain these will mandate the same logic the register bit mandated whether the register bit is still present or not.
If this bit was removed because of concerns over the implementation overhead for this bit the Clause 30 attribute and action should also be removed. Since this then makes the oPD Objec empty this object should be deleted and all the related template and Annex 30A text removed
To leave this object in if there was a concern over the implementation impact is to still enforce the same implementation overhead without the advantage of interoperability that the register bit would provide.

SuggestedRemedy

Either remove the oPD object and all related text - this seems a major change - or reinstate the register bit and add it to the PD state machine.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

remove PD management section.

Cl **30** *SC* **Table 30-4** *P* **12** *L* **45** # **124**

Law, David 3Com

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

Since the attribute aPSEAdminControl attribute is in the PSE Basic Package the action to control it, acPSEAdminControl, should also be in the PSE Basic Package and not the PSE Recommended package.

SuggestedRemedy

Change the 'x' for the acPSEAdminControl action from the PSE Recommended column to the PSE Basic column.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.3.4** *P* **61** *L* **9** # **128**
Law, David 3Com

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

Please clarify when the classification signature should be presented - does it have to be at all times or is it permitted to only present it at certain times.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This was addressed in Pat Thaler's comment about stability of the PD over the classification probe range.

Cl **33** *SC* **33.3.4** *P* **61** *L* **32** # **129**
Law, David 3Com

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

If it a requirement that a PD shall not present a Class 4 signature the current text which is in a note should be promoted to be a subclause or part of an existing subclause and in addition th cannot should be replaced with a shall not. A PICS update may also be required.

SuggestedRemedy

Change the text 'Note: Class 4 is defined but is reserved for future use. A Class 4 signature cannot be provided by a compliant PD.' to be part of a subclause that reads 'Class 4 is defined but is reserved for future use. A Class 4 signature shall not be provided by a PD.'.

Proposed Response *Response Status* **C**

ACCEPT.

Ask the PICS editor Gerry Nadeau to update the PICS.

Cl **30A** *SC* **30A.16.2** *P* **25** *L* **24** # **130**
Law, David 3Com

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

Implement corrections as noted in editors note.

SuggestedRemedy

line 24: bPSEPowerCurrentStatus to read bPSEPowerMaintenanceStatus
line 26: {iso(1) member-body(2) us(840) ieee802dot3(10006) csmacdmgt(30) attribute(7) psePowerCurrentStatus(216)} to read {iso(1) member-body(2) us(840) ieee802dot3(10006) csmacdmgt(30)attribute(7) psePowerMaintenanceStatus(216)}
line 30: bPSEPowerCurrentStatus to read bPSEPowerMaintenanceStatus.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.16.2** *P* **25** *L* **49** # **131**
Law, David 3Com

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

Implement corrections as noted in editors note.

SuggestedRemedy

line 49: bPSEUnderCurrentCounter to read bPSEMPSAbsentCounter
line 51: {iso(1) member-body(2) us(840) ieee802dot3(10006) csmacdmgt(30) attribute(7) pseUnderCurrentCounter(217)} to read {iso(1) member-body(2) us(840) ieee802dot3(10006) csmacdmgt(30)attribute(7) pseMPSAbsentCounter(217)}
line 54: bPSEUnderCurrentCounter to read bPSEMPSAbsentCounter.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.16.2** *P* **26** *L* **12** # **132**
Law, David 3Com

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

Implement corrections as noted in editors note.

SuggestedRemedy

line 12: aPSEMPSAbsentCounter to read aPSEOverCurrentCounter
line 15: bPSEUnderCurrentCounter to read bPSEOverCurrentCounter
line 22: See "BEHAVIOUR DEFINED AS" in 30.9.1.1.9 to read 30.9.1.1.10.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.16.2** *P* **26** *L* **39** # **133**
Law, David 3Com

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

The 'WITH INFORMATION SYNTAX' text for this action is missing.

SuggestedRemedy

After the line containing the MODE text add the line:
'WITH INFORMATION SYNTAX IEEE802Dot3-MgmtAttributeModule.PortAdminState'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

WITH INFORMATION SYNTAX IEEE802Dot3-MgmtAttributeModule.PortAdminState;

Cl **30A** *SC* **30A.17.3** *P* **28** *L* **7** **#** **134**
Law, David 3Com

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

Incorrect module reference in 'WITH INFORMATION SYNTAX' for acPDAdminControl.

SuggestedRemedy

Change the text 'WITH INFORMATION SYNTAX IEEE802CommonDefinitions.PortAdminState;' to read 'WITH INFORMATION SYNTAX IEEE802Dot3-MgmtAttributeModule.PortAdminState'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

WITH INFORMATION SYNTAX IEEE802Dot3-MgmtAttributeModule.PortAdminState;

Cl **33** *SC* **33.2.2** *P* **40** *L* **3** **#** **136**
Law, David 3Com

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

The use of the term 'DTE' several times in this subclause implies the exclusion of implementing a PSE in a Repeater. In addition this subclause relates to the placement of PSE on Link Segments yet a Link Segment is between two MDIs (see 1.4.159) and does not refer to DTEs. Due to this suggest the three instances of DTE are replaced by MDI.

SuggestedRemedy

Replace the three instances of 'DTE' with 'MDI' in the first paragraph of this subclause.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace 'DTE' with 'DTE/Repeater' and 'connected DTEs' with 'DTEs/Repeaters'

Cl **33** *SC* **33.2.2** *P* **41** *L* **34** **#** **139**
Law, David 3Com

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

Please clarify the text '... and has increased the power level.' in relation to the variable power_applied.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **Z**

withdrawn, defers to other comments.

Cl **33** *SC* **33.2.3.4** *P* **42** *L* **27** **#** **140**
Law, David 3Com

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

This subclause states that the Function apply_probes return one of three values, valid, invalid & open_circut and references the PSE detection of PDs subclause 33.2.6. This subclause however only defines two values, valid (33.2.6.1) and invalid (33.2.6.2).
Hence either the PD detection subclause needs to be updated to provide the three possible value or the open_circut value has to be removed from the state machine.

SuggestedRemedy

Either update PD detection to provide open_circut value or remove this value from State Diagram.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The sentence should read: "A function that returns the variable signature as defined in 33.2.6 [valid,invalid] and 33.2.8.1 [open_circuit]"

Cl **33** *SC* *P* *L* **#** **141**
Law, David 3Com

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

In the definition of the do_classification function a class is always returned yet on examination of the classification function referenced 33.2.7 it can be seen the are cases where the text states in shall statements that the classification should lead to disconnecting the port - Table 33-5 Note 8 - or not powering the PD - subclause 33.2.7.3 1st paragraph, last sentence. There is however no option to provide anything other than a class in return to the do_classification function. The function will therefore need to be updated to return another value that will result in power being denied. The state machine will also have to be changed to take account of this new value.

SuggestedRemedy

Update the function to return another value reporting that power should be denied and the state machine needs to be changed to take account of this value.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See also number 47
do_classification updates mr_pd_class_detected and pd_requested_power, which are moved to the variable declarations.
Add to mr_pd_class_detected 'Class 0 is returned if an invalid classification signature is detected.'
Correct page 49 line 34, 43 and 44 to remove the 'shall not power' and replace with 'shall classify the PD as class 0'

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **5** # **143**

Law, David 3Com

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

The definition of the PSE Enable bit states 'The PSE function shall be disabled by setting bit 11.0 to logic zero. When the PSE function is disabled by this bit, the MDI shall function as it would if it had no PSE function.'. Hence setting this bit when, for example, a PD is being powered should result in the Power being removed and the state machine moving back to the IDLE state. Unfortunately that does not happen at present as the mr_pse_enable variable is only checked on exit from the IDLE state an while this will ensure the PSE will not start once i the IDLE state the PSE will not go to the IDLE state if in any other state.

SuggestedRemedy

Add the condition '+ (mr_pse_enable = false)' to the open arrow entry condition into the IDLE state. Remove the (mr_pse_enable = true) * condition from the exit from the IDLE state.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The function of the previous mr_pse_enable is now an enumeration. The enumeration of "disable" will force and hold the state diagram in the idle state.

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **5** # **144**

Law, David 3Com

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

There appears to be a typo in the condition that reads (pse_reset _ power_on) should read (pse_reset + power_on).

SuggestedRemedy

Change the text (pse_reset _ power_on) to read (pse_reset + power_on).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Typo has been corrected with other changes to the entry to TEST_MODE state.

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **6** # **145**

Law, David 3Com

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

Subclause 33.6.1.1.4 states that the when the PSE Enable bit is 1 the Force Power Test Control bit is ignored and when the PSE Enable bit is 0 the Force Power Test Control bit controls the test mode. Hence the AND condition (mr_pse_enable = true) to enter the TEST_MODE state seems incorrect.

SuggestedRemedy

Suggest that (mr_pse_enable = true) should read (mr_pse_enable = false).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The register bits have been changed to a enumeration, which has remedied the problem described.

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **36** # **146**

Law, David 3Com

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

Wont the transition from DETECTION_TEST to IDLE the mr_detection_test=true will cause the state machine to continually detect then if a valid PD is detected return to IDLE the detect What is the useful purpose of this - is this is what intended.
Further the register bit associated with mr_detection_test states that when the PSE Enable bi is 1 the Detection Test Control bit will have no effect yet there is no such condition in the state machine. Recommend that this condition be removed from the bit and the state machine is not updated.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The error existed, we are removing the Detection_test functionality and creating a sticky statu bit to reflex the detection of a PD in normal operation.

Cl **33** *SC* **Figure 33-5** *P* **43** *L* **16** # **147**
Law, David 3Com

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

The transition from START_DETECTION to DETECT_EVAL is based on the conditon apply_probes_done however this varaible is not defined.

SuggestedRemedy

Defined the variable apply_probes_done.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

There is a global definition of function done signals and the function name has been changed to "DO_DETECTION"

Cl **33** *SC* **Figure 33-6** *P* **44** *L* **8** # **150**
Law, David 3Com

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

The variable mr_overload is not defoned. Think it should be called mr_overcurrent.

SuggestedRemedy

Change the instances of 'mr_overload' to read 'mr_overcurrent'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment 189 for the resolution

Cl **33** *SC* **33.2.4** *P* **44** *L* **33** # **152**
Law, David 3Com

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

This subclause states 'The PSE is not required to continuously probe the link segment to detect a PD signature. The period of time when a PSE is not attempting to detect a PD signature is implementation dependent.' yet the state machine seems to return to the IDLE state that straight to the START_DETECTION state without any delay.

SuggestedRemedy

Update the text or the state machine as appropriate.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See 193

Cl **33** *SC* **33.1.1** *P* **36** *L* **44** # **158**
Law, David 3Com

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

The term MPI is defined and then referenced in the fifth and sixth paragraphs of this subclaus respectively yet the term is not used elsewhere.

SuggestedRemedy

Delete fifth and sixth paragraphs of this subclause.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Also delete MPI reference on page 2, line 41.

Cl **33** *SC* **33.1.3** *P* **37** *L* **11** # **160**
Law, David 3Com

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

The term 'Integrated Power via MDI' in used in the first sentence of this subclause but nowhere else in the draft. In addition this sentence states that 'Integrated Power via MDI comprises an optional non-data entity within the Physical Interface Circuitry' but in the case of a Midspan the Power via MDI entity is not within the Physical Interface Circuitry.
I am therefore not sure if the intent here is to define 'Integrated Power via MDI' but as a term for the non-integrated mode is not provided and the following text goes on to illustrate a Midspan PSE.

SuggestedRemedy

Change the first sentence of this subclause to read 'Power via MDI comprises an optional nor data entity'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.1.3** *P* **37** *L* **11** # **161**

Law, David 3Com

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

The second sentence of this subclause states that 'Figure 33-1 depicts the positioning of the Power via MDI entity in the case of the PD.' however there is nothing that is labeled 'Power via MDI entity' and in this case isn't the Power via MDI entity the PD anyway. The same seems to also be true for the third sentence of this subclause in relation to the PSE.
Also suggest that '... depicts the positioning ...' should read ... depicts the architectural positioning ...'.

SuggestedRemedy

Change the second sentence of this subclause to 'Figure 33-1 depicts the architectural positioning of the PD.'
Change the third sentence of this subclause to 'Figure 33-2 and Figure 33-3 depict the architectural positioning of the PSE in the cases of the Endpoint PSE and the Midspan PSE, respectively.'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change text "Figure 33-1 depicts the positioning of the Power via MDI entity in the case of the PD." to "Figure 33-1 depicts the positioning of Power via MDI in the case of the PD." Also, fixed the sentence on page 38 line 1 similarly.

Cl **33** *SC* **33.1.3** *P* **37** *L* **20** # **163**

Law, David 3Com

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

Since the MDI is illustrated in Figures 33-1 to 33-3 suggest that the PI also be included. In the case of Figure 33-1 and 33-2 the best suggestion I can come up with to replace the annotation MDI with is MDI/PI.

SuggestedRemedy

1. Change MDI to MDI/PI in figures 33-1 & 33-2.
2. Annotate the PI in Figure 33-3.
3. Add the expansion for PI to Figures 33-1 to 33-3.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Solved by modifications of Figures 33-1, 33-2 and 33-3. File "ArchDwgsDTE-Pwr.pdf' from Geoff Thompson show the changes required.

Add 'PD = Powered Device', 'PI = Power Interface' , 'PSE = Power Sourcing Equipment' to the annotations.

Cl **33** *SC* **33.2** *P* **38** *L* **35** # **164**

Law, David 3Com

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

The term 'Link Segment' is used a number of times to refer to the link between the PSE and PD however a 'Link Segment' can only exist between a Endpoint PSE and a PD. I believe the correct term to be used here is 'Link Section' - see Page 2, Line 21.

SuggestedRemedy

Replace the term 'Link Segment' with 'Link Segment' throughout this subclause.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace the term 'Link Segment' with 'Link Section', where appropriate, throughout this subclause 33.2.

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

McCormack, Michael 3Com

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

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 802.3af 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* **U**

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.

Cl **33** *SC* **33.2.9** *P* **52** *L* **40** # **170**

McCormack, Michael — 3Com

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

This comment refers to Item 14 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 802.3af to be either unsuccessful or irrelevant in many markets.

SuggestedRemedy

Suggest that the limit be changed to "15.4 mW or the rated output of the PSE supply; which ever is less."

Proposed Response *Response Status* **C**

REJECT.

straw poll (early January, Vancouver)

A 4 R 7 DC 1

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.

The commentor accepted the rejection of this comment in lieu of comment #169.

Cl **33** *SC* **33.2.9** *P* **52** *L* **19** # **171**

172 — 3Com

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

This comment refers to Items 7 a & b of Table 33-6.

Could the duty cycle be reduced the allow lower overall power? We picked these numbers without great discussion

SuggestedRemedy

Lower the on time / off time duty cycle.

Proposed Response *Response Status* **C**

REJECT.

The current duty cycle allows for a 73mW PD.

Cl **33** *SC* **33.4.1** *P* **65** *L* **12** # **172**

McCormack, Michael — 3Com

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

I respectfully submit that the proper time and place to allow double isolated PDs is during this project.

SuggestedRemedy

Suggest we change the text to read "isolation between the MDI and any other user accessible conductors." not specifying ground or any other type of lead. I also suggest we add amendment to o each of the PHY clauses with words to the effect "For devices implementing Power Via the MDI (Clause 33) the isolation requirements shall be between the MDI leads an any user accessible conductors."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Include the contents of document 'Isolation_agreement.pdf' generated 1-28-2003, deleting the words "PSE and" and "each" from the proposed changes to 33.4.1

Mike McCormack to provide a template change page to clause 25 that states that there is no change required to clause 25.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT IN PRINCIPLE.

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

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

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **3** # **182**

Thaler, Pat — Agilent Technologies

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

it is inconsistant to put some booleans in to conditions as x=true or x=false and to put others i 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* **U**

ACCEPT IN PRINCIPLE.

use the x and !x notation

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

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT IN PRINCIPLE.

Specific instructions in comment 286, 287

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **18** # **184**

Thaler, Pat — Agilent Technologies

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

Why does the exit from DETECT_EVAL include ttot_timer_done+tdet_timer_done rather than just tdet_timer_done? The timers were started at the same time and ttot_timer will be less than tdet_timer so it shouldn't need to be tested here.
More importantly, shouldn't these exit from START_DETECTION because if the detection is taking excessive time the state machine could be stuck in START_DETECTION and not make it to DETECT_EVAL?

This comment also applies to the START_CLASSIFICATION and CLASSIFICATION_EVAL states. Exceeding tpdc timer should cause an exit from START_CLASSIFICATION. tdet plus tpdc is much less than ttot so there is no reason to test for time exceeding ttot.

SuggestedRemedy

Please clarify or change.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove Ttot from the state machine and for that matter from the entire standard.
Insert Tpon_timer to begin after completion of detection.
Stike Ttot on lines 17 & 32
Replace Ttot on line 41 with Tpon
Timer Tdet will be "timed out" from the start_detection state.
Apply_probes function will be renamed as DO_DETECTION and return a "done" signal which is called and not assigned a value.
The state "Detect_Eval" will be rename "Detect_Done" and it will start Tpon_timer
Remove "and optional classification" from note 16 on page 54 line 14

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

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **19** # **186**

Thaler, Pat — Agilent Technologies

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

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 power levels and one with a condensed set. It would be simpler to just have one variable.

Proposed Response *Response Status* **U**

ACCEPT.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **49** # **188**

Thaler, Pat
Agilent Technologies

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

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* **U**

ACCEPT.

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

Thaler, Pat
Agilent Technologies

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

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 duration.

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* **U**

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* **33.2.3.5** *P* **43** *L* **46** # **190**

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **41** # **191**

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **44** *L* **20** # **192**

Thaler, Pat — Agilent Technologies

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

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* **U**

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

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT.

Cl **33** *SC* **33.2.5** *P* **46** *L* **47** # **194**

Thaler, Pat — Agilent Technologies

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

"Behavior ... is undefined" is a too broad as it allows for various forms of odd behavior.

SuggestedRemedy

Replace the sentence with
"May accept or regect a signature in the bands between ... and Rbadmax."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"The PSE may accept or reject a signature resistance in the bands between ... and Rbadmax.

Cl **33** *SC* **33.2.3.5** *P* **45** *L* **31** # **195**

Thaler, Pat — Agilent Technologies

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

The state machine and its variables do not cover all the possible outcomes of classification. 33.2.7.2 requires and 33.2.7.3 allows the PSE to not power the PD when it gets classification results outside the valid class ranges.

SuggestedRemedy

Add a value of "invalid" to each of the variables output by do_classification. OR the term pd_requested_power=invalid into the right hand exit from CLASSIFICATION_EVAL.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The group has decided that in order to provide consistent behavior of PSEs which do perform classification and those PSEs that do not perform classification that all PSEs will default to class 0 those PDs which exhibit classification signatures that are beyond the range of Class 4 The text has been amended to match the state machine, rather than the state machine to match the text as suggested in the comment.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **33.2.7.3** *P* **49** *L* **33** # **197**

Thaler, Pat — Agilent Technologies

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

Why do the current and voltage methods handle out of range and ambiguous values differently?
Ambiguous:
Table 33-4 indicates that measured Iclass between to class values (e.g. >5 mA and <8 mA) may be classified as either of the adjacent classifications. On the other hand, the fourth sentence of 33.2.7.3 says that a voltage measurement between 15 V and 20 V causes the PD to be not powered or powered as Class 0.
Out of range:
The measured current method requires that the device not be powered if the current is too high but the measured voltage method allows the PSE to choose between not powering or assuming class 0 when the voltage at the highest current range is too low.

SuggestedRemedy

These should be equivalent conditions so both methods should treat them the same.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment is no longer applicable because the forced current classification method has been removed from the draft (see comment #44).

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

Thaler, Pat — Agilent Technologies

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

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 it 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* **U**

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* **33.2.3.3** *P* **42** *L* **9** # **199**

Thaler, Pat — Agilent Technologies

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

Normally we allow for a tolerance in state machine timers. A number of the timers here (e.g. tbdo, tdet, ttot) do not have tolerences - they reference a table that has a fixed value for them. Add a tolerence. A fairly wide tolerence should be allowed if possible as it simplifies implementation of slow counters.

Also tpdc has a very broad range in Table 33-6 (from 10 to 75 ms). It isn't clear why it is so broad.

SuggestedRemedy

Proposed Response *Response Status* **C**

REJECT.

The committee has preferred to provide windows for all value instead of a single number and tolerance bands around that such a number. We believe we have created windows that are generally very broad. As we have set windows (or ranges) there is no need for tolerances on the endpoints as the requirements is to be between the endpoints. Tpdc was specified to be fairly wide as the designs to implement the timer are expected to range from RC circuits to 25MHz counter, to simply all implementations without burdening unnecessarily we have usec a wide window.

Cl **33** *SC* **33.2.8.1** *P* **51** *L* **21** # **201**

Thaler, Pat — Agilent Technologies

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

Delete the sentence "During this detection backoff, the PSE is exempted from the overall Ttot ...." as it is meaningless
Ttot is specified as the time from beginning of detection to finishing the applicaiton of power. During backoff, detection has not yet begun so of course Ttot does not apply just as it does not apply when the PSE is not doing detection due to implementation dependent considerations.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment is no longer applicable. An overhaul of the state machine has removed the variable Ttot.

Cl **33** *SC* **33.2.8.1** *P* **51** *L* **26** # **202**

Thaler, Pat — Agilent Technologies

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

The state machine doesn't show this as an option. It skips backoff if an open circuit is detected. Perhaps what is optional is the detection of the open circuit.

SuggestedRemedy

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This will be addressed as part of the overhaul of the State machine.

This was addressed by the state machine. Skipping backoff is no longer an alternative, backoff must be skipped. However, manufacturers are free to implement a delay similar to backoff. This would occur in the idle mode.

Cl **33** *SC* **33.2.9** *P* **55** *L* **5** # **204**

Thaler, Pat — Agilent Technologies

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

According to the state machine, Tlim is the time to the beginning of the removal of power. The text here "the power shall be disconnected from the port within Tlim" seems to state that the power removal is complete within Tlim. Probably this was not meant as power turn off time is 500 ms maximum and Tlim is 50 to 75 ms. Please clarify.

SuggestedRemedy

"shall initiate power turn off within Tlim"?

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change page 54, line 5 to
If a short circuit condition is detected, power removal from the port shall begin within T LIM and be complete by T OFF.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

REJECT.

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.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT.

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

Thaler, Pat — Agilent Technologies

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

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. I 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* **U**

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* **33.3.4** *P* **62** *L* **31** # **208**

Thaler, Pat — Agilent Technologies

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

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 leas 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 remai above 21 volts.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

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

Cl **33** *SC* **33.3.5** *P* **63** *L* **48** # **209**

Thaler, Pat — Agilent Technologies

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

re: "shall ... turn off at voltages > 30 V when it is fed by a 44 V-57 V source connected through a 20 ohm series resistor.

This is a meaningless and untestable requirement as a voltage less than 30 volts should not occur when the PD is fed by a 44 V or higher source connected through a 20 ohm series resistor.

SuggestedRemedy

Perhaps it should be when the input voltage dorps below 30 volts when fed through a source connected through a 20 ohm series resistor - to do the test the source voltage is reduced until the input voltage drops below 30 volts.

Furthermore, it should be the PD power supply because the powered device may have an alternate power source and may continue to operate.

Also, either use the proper less than or equals and greater than or equals symbols or use just < and >. I prefer the latter for analog measurements.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved by resolution to comment #66

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

Thaler, Pat — Agilent Technologies

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

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 PDs.

SuggestedRemedy

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

Proposed Response *Response Status* **U**

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* **33.4.1.1.2** *P* **66** *L* **5** # **212**

Thaler, Pat — Agilent Technologies

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

Part of the broad market potential argument for DTE power was based on powering Ethernet interfaces for items such as light controllers and various sensors(an example given was the lights and sensors at Disney World). In many instances such devices would be outside a singl building environment. Therefore, the statement that "such requirements are beyond the scope of this standard" and the recommendation that such situations be handled by the use of non-electrically conducting link segments (which don't provide DTE power) is inconsistant with the intent of the 802.3af project.

SuggestedRemedy

Historically, the repeater specifications from which this was copied was written before 10BASE-T and the MAUs at the time were required to provide 500 V isolation. When 10BASE-T was added, we used isolation levels (the same as those in 33.4.1) that were the same as those required for connection to external phone lines because 10BASE-T connections could be in a wiring closet with phone lines and be accidentally connected to an external line. These isolation levels assume that there is surge suppression at the building entry and are intended to handle the residual of surge that gets through the surge suppressio device.

Remove the statement "It is recommended ..." and provide reference to at least one safety standard that would supply requirements for the additional protection.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

In 33.4.1.1.2 , page 66, line 7:

"Protection requirements for such hazards are beyond the scope of this standard. Guidance on these requirements may be found in IEC 60950-1, Section 6 Connection to telecommunication networks, as well as any local and national codes related to safety."

Delete this sentence: It is recommended that the above situation be handled by the use of a non-electrically conducting link seg-ment (see Clause 15, 26 or 38).

Copy of e-mail from Pat Thaler accepting this resolution:

pat_thaler@agilent.com wrote:

Steve,

Yes, assuming that you also will be removing the recommendation to use non-conducting media, this entirely satisfies the comment.

Regards,
Pat

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

Thaler, Pat — Agilent Technologies

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

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 it injects power.

Proposed Response *Response Status* **U**

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* **33.6.1.2** *P* **76** *L* **27** # **214**

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT IN PRINCIPLE.

This has been handled by changes to the State Machine.

There are no bits for the PD.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

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** *PICS*

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* **U**

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** *PICS*

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* **U**

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* **6** # **218**

Thaler, Pat — Agilent Technologies

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

Alternative A and B should be shown as options with indication that at least one of them must be implemented. Also, the choice of alternative isn't optional for midspan PSEs, so the status should take that into account.

SuggestedRemedy

Make separate PICS options for Alternative A and Alternative B implementation with status
for Alternative B of
MID:M
END:O.2
for Alternative A
END:O.2

(O:2 assumes you used .1 for measured voltage/measured current alternatives - use a unique number for each set of alternatives. See 21.6.2 for explanation of the symbols.)

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve with resolution to comment #338.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT.

Forward comment to PICS editor Gerry Nadeau.

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

Thaler, Pat — Agilent Technologies

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

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* **U**

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* **33.7.3.6** *P* **89** *L* **8** # **222**

Thaler, Pat — Agilent Technologies

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

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* **U**

ACCEPT.

Forward to Gerry Nadeau.

Cl **33A** *SC* *P* **92** *L* **7** # **223**

Thaler, Pat — Agilent Technologies

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

33A and 33C provide sample circuits and test procedures for detection. Why don't they do the same for classification?

SuggestedRemedy

Provide equivalent support for classification in the annexes.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a new picture for 33A, provided by Dave Dwelley.

PSE-10 does test for classification, no changes required.

SIG-A modifications (Page 116 - 117 D4.0)
d) PD classification current
11) Set the voltage source to sweep from 15V to 20V.
12) Observe the current at In and verify that it falls in the valid range per Table 33-11.

Cl **33** *SC* **Table 33-2** *P* **46** *L* **46** # **225**

Law, David 3Com

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

In all Notes to this table the text 'the PSE must' appears which seems to be a misuse of the word must. To quote the IEEE Style Guide [http://standards.ieee.org/guides/style/2000Style.pdf] 'The use of he word must is deprecated and shall not be used when stating mandatory requirements; must is used only to describe unavoidable situations.' In addition a mandatory requirement shouldn't really be stated in a note to a table. At a minimum the word 'must' should be replaced with 'shall'; in each of these notes as they seem to be mandatory requirements. Further, suggest that the text from these notes be moved to, and incorporated into, subclause 33.2.6.
In addition Items 7, 8 and 9 in Table 33-2 use the word 'must' in their names. While in this case it is indeed just the parameter name and not in violation of the style guide consider removing or replacing must in these parameter names.

SuggestedRemedy

Change the word 'must' to shall in each of the Table 33-2 notes.
Incorporate the text of the notes into subclause 33.2.6.
Consider removing or replacing the word 'must' in the parameter names of Items 7, 8 & 9.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove 'must' and the quotes from the table (4 places). Replace the 'must' with 'shall' in the notes (4 places.) In Note 5, replace 'must wait' with 'waits'.

Additionally, scrub the document for 'shall' statements in the notes and promote them to regular text.

Follow the style manual for the use of notes and mandatory requirements.

Change the 'notes' column to be called ' additional information'.

Cl **33** *SC* **33.2.5.1** *P* **47** *L* **6** # **228**

Law, David 3Com

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

Isn't the conformance test point for all these measurements the PI. This subclauses, and its subclauses, refers to performing measurements at the port, powering pairs and to the link segment. In another comment I have suggested that 'port' should be 'PI' but what about the term 'link segment'.
From the definitions earlier on in the draft it would appear that where 'link segment' is used it should at least be replaced with 'link section' otherwise these requirements would be restricte to Endpoint PSEs and would not apply to Midspan PSEs - a Midspan PSE can only be connected to a link section. This doesn't seem to be correct.
Furthermore, don't all these measurement requirements still stand even if there PSE PI being probed is unconnected. For example the text in subclause 33.2.6.2 states that 'The PSE shall reject link segments as having an invalid signature ...' but shouldn't it reject as having an invalid signature anything that matches the rejection criteria regardless if it is a link segment (should be section) or not.

SuggestedRemedy

Examine the cases where terms such as 'The PSE shall reject link segments' to see if they are appropriate and replace with terminology referring to the PSE PI instead if appropriate.
Perform a global search, and if necessary, replace of the term 'link segment' with the term 'link section'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Edit action item. Commenter will scan D4.01 for appropriate changes.

Cl **33** *SC* **33.2.6.2** *P* **47** *L* **31** # **230**

Law, David 3Com

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

The requirements for the bands between Rgood and Rbad are clearly defined in Note 8 however what if a PSE measures a signature that has resistance that meets Rgood and capacitance that meets Csig but a voltage offset that exceeds Vos. Is it intended to be implementation dependent whether this is accepted as a valid signature or not. If so, there should be some text stating that if the signature doesn't meet the requirements of either the Detection criteria nor the Rejection criteria then the decision to report the signature as valid or invalid is undefined but one of the two values shall be returned.

SuggestedRemedy

Suggest text clarifying the action on any signature that does not meet either the Detection criteria nor the Rejection criteria be added. I may need to be made clear that a value of ether valid or invalid has to be returned to the state machine.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a paragraph below c in the rejection criteria:

In instances where the resistance and the capacitance meet the detection criteria but one or both of the offset tolerances are exceeded, the detection behavior of the PSE is undefined.

In table 33-2 change ''accept signature impedance" to "accept signature resistance", "reject signature impedance" to "reject signature resistance"

in section 33.2.6.1 change
"A PSE shall accept as a valid signature a link segment with all of the following characteristics between the powering pairs, as specified in Table 33-2:
a) resistance R good ,
b) signature capacitance tolerance C sig ,
c) signature offset voltage tolerance V os , and
d) signature offset current tolerance I os ."

to

"A PSE shall accept as a valid signature a link segment with both of the following characteristics between the powering pair with offset voltage tolerance Vos and offset current tolerance Ios, as specified in Table 33-2:
a) resistance R good and
b) capacitance C good"

Cl **33** *SC* **33.2.6.2** *P* **47** *L* **35** # **232**

Law, David 3Com

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

Rgood is defined as 19K min and 26.5K max and Rbad is defined as 15K min and 33K max. Hence a value of say 22K could be read as being within the range of both values hence meeting the requirems of both the Detection criteria 33.2.6.1 a) resitance Rgood and the Rejection criteria 33.2.6.2 a) Rbad. Clearly this is not correct and this seems to be due to the Rejection criteria 33.2.6.2 '... the following characteristics between the powering pairs ... resistance Rbad' actaully meaning a resitance less than Rbad min and greater than Rbad max. This however isn't the normall use of a min max specification in a Table and is therfore slighlty confusing. A note to Table 33-2 starts to clarify this (note 8) but this note does not include a shall statement wheras 33.2.6.2 a) does so this still could be open to some interpretation from a standards point of view.

SuggestedRemedy

Suggest that text
'a) resistance Rbad' or
'b) capacitance Cbad'
should be changed to
'a) resistance less than Rbad min' or
'b) resistance greater than Rbad max' or
'c) capacitance Cbad'

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.8.1** *P* **51** *L* **25** # **234**

Law, David 3Com

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

The text states '... may optionally omit the detection backoff.' however on examination of the state diagram in Figure 33-5 it seems that it is mandatory to omit backoff when (mr_pse_alternative = B) * (signature = open_circuit). Since in cases of conflict the state diagram overrides the text the, latter is the mandatory requirement.

SuggestedRemedy

Change the state diagram if the text describes the desired behavior.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The text will be changed to reflect the mandatory nature of the state machine.

Cl **33** *SC* **33.2.7.3** *P* **49** *L* **34** # **236**

Law, David 3Com

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

The text states '... the PSE shall not power the PD.' however there is no value provided for the do_classification function in the state diagram in Figure 33-2 that could allow such an action t be taken - the only results of the do_classifcation function is a Class. Since in the case of conflict the state diagram overrides the text I am not to sure what the result would be here. A similar issue exists on line 43 and 44 of subclause 33.2.7.3. These two instances also have the added issue that there is an option provided here.

SuggestedRemedy

Update the state diagram to be able to accept and act upon the do_classification function returning a value that indicates power should be denied to the PD.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The text that said 'shall not power' has been removed.

Cl **33** *SC* **33.2.9** *P* **51** *L* **35** # **240**

Law, David 3Com

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

Shouldn't some text be added to state that power shall not be enabled until the state diagram has completed Detection and classification successfully.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change :'The PSE shall provide power to the PI in conformance with Table 33–6.'
to
'When the PSE provides power to the PI it shall conform with Table 33-6, Figure 33-5 and Figure 33-6.'

Cl **33** *SC* **33.6.1.2.5** *P* **77** *L* **36** # **241**

Law, David 3Com

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

The description of these bits needs to be brought into alignment with the Cause 30 attribute aPSEPowerDetectionStatus and the equivalent SNMP object. In addition resolution of the need for the two states provided here but not in the MIB also needs to be discussed.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Cl **33** *SC* **33.6.1.1.2** *P* **75** *L* **41** # **249**

Law, David 3Com

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

The text the predicates the operation of this bit on the state of the PSE Enable bit does not match the State Diagram which in the case of conflict will override this text. It is also not clear why this lock out is require. (We added it to Force Power Control so that at least two bits had to be set to force power on but don't see that level of caution is required for this bit.

SuggestedRemedy

Remove the connection to the PSE Enable bit or update the State Diagram to reflect the bit description.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Detection test capability was removed in favor of a sticky bit in the status register and a counter in the MIB indicates successful detection.

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **2** # **252**

Law, David 3Com

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

There is a very weak link between the text and the state diagram. While this is understandable due to the state diagram having been added after much of the text was written we should make sure any discrepancies are fixed as in the case of conflict the state diagram will override the text.
Please note that 100% support having the State Diagrams - this is not a criticism of them - it just where we are due to the evolution of this document.

SuggestedRemedy

Consider the following:

Add a cross reference to 33.2.4 in the apply_probes function
Rename 33.2.4 to be 'PD detection function' and 33.2.5 and 33.2.6 and their subclauses, subclauses of 33.2.4.
Consider renaming the apply_probes functiontion to be the do_detection function.

Add a cross refernce to 33.2.7 in the do_classification function
Remname 33.2.7 the be the PD Classifiction function.

Move 33.2.8 and 33.2.8.1 to be an introduction and overview of the State Diagram and its operation. At a minimum the two descriptions should match.

Remane 33.2.9 Power Supply Function.

Consider adding a diagram to show the vairaibles that are passed between these functions and the state diagram. That can be supplied.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Move page 47, line 40 to top of detect section page 44 line 42
Move 33.2.8 per instructions.
We will not add the word "Function" to the section titles, and will attempt to limit the term "function" to only the appropriate sections of the state machine.

Cl **33** *SC* **33.2.3.2** *P* **40** *L* **50** # **253**

Law, David 3Com

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

Two uses of 'must' instead of 'shall'.

SuggestedRemedy

Change the following 'must's to 'shall's:

P40 - L50 - 33.2.3.2
'The PSE must monitor ...' to read 'The PSE shall monitor ...' or 'The PSE monitors ...' as there is a shall statement else where that covers this.

P64 - L34 - Table 33-15
'... 10mA minimum current must be maintained ...' to read '... 10mA minimum current shall be maintained ...' but this is a note therfore consider moving thes etext to be in a subclause.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change 'The PSE must monitor either the DC or AC Maintain Power Signature (MPS, see 33.2.11).' to 'The PSE monitors the Maintain Power Signature (see 33.2.11).'

Change '10mA minimum current must be maintained when the PD is fed . . .' to 'Minimum current requirement applies when the PD is fed . . .'

Cl **33** *SC* **33.3.6** *P* **64** *L* **14** # **254**

Law, David 3Com

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

The shall for Item a) in the list seems to contradict with the shall on Line 40 that relates to timing. The timing also seems the contradict the item a) in the last list of this subclause.

SuggestedRemedy

Suggest the text 'within the timing constrains specified below.' be added after the first list in this subclause and change the text 'may be ...' to read 'within the timing constrains specified below may be ...'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Due to other changes to the document, an editorial change occurred to insert the relevant timing into the both lists' item a).

Cl **30A** *SC* **30A.18** *P* **28** *L* **22** # **255**
Law, David 3Com

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

Typo 'midSpanBasic' should read 'bMidSpanBasic'.

SuggestedRemedy

Change the text 'midSpanBasic' to read 'bMidSpanBasic'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.2** *P* **40** *L* **39** # **256**
Law, David 3Com

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

The error condition variable should include Values (true and false) and should contain text tha states it is set to true when mr_overload is true.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved with resolution to comment #177

Cl **33** *SC* **33.5.6** *P* **74** *L* **15** # **267**
Nikolich, Paul Consultant

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

In section 33.5.6 Telephony Voltages it is noted:
"Application of any of the above voltages to a PSE or a PD shall not result in any safety hazard."

This sentence is too vague. Please add text which specifically defines where the telephony voltages are applied to the PSE/PD electrical interfaces such that a safety hazard is not induced.

SuggestedRemedy

This sentence is too vague. Please add text which specifically defines where the telephony voltages are applied to the PSE/PD electrical interfaces such that a safety hazard is not induced.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change 'Application of any of the above voltages to a PSE or a PD shall not result in any safety hazard.'
to
'Application of any of the above voltages to the PI of a PSE or a PD shall not result in any safety hazard.'

Cl **33** *SC* **Table 33-14** *P* **62** *L* **46** # **268**
Hemmah, Steven TI

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

Input Voltage spec in accordance with the PD
Power Supply Input Voltage, and a second spec be added which could be called Input Voltage After Startup.

SuggestedRemedy

I would like to suggest that the Input
Voltage spec be changed to have a minimum of 42VDC in accordance with the PD
Power Supply Input Voltage, and a second spec be added which could be called Input Voltage After Startup which could then be spec'ed from 36V (min) to 57V (max).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved by resolution to comment #66

Cl **30** *SC* **30.9.1.1.6** *P* **14** *L* **40** # **275**
Grow, Robert Intel

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

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* **U**

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* **30.9.1.1.8** *P* **15** *L* **44** # **276**
Grow, Robert Intel

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

Behaviour is inaccurate, the value maps to two bits.

SuggestedRemedy

Change to read: "Overcurrent and MPS Absent bits specified in 33.6.1.2.2 and 33.6.1.2.3.;"

Proposed Response *Response Status* **C**

ACCEPT.

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

Grow, Robert Intel

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

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 MDIC registers. There are currently no PD control bits defined, so there is no need for this object (o 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* **U**

ACCEPT IN PRINCIPLE.

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

Cl **33** *SC* **33.3.1** *P* **38** *L* **22** # **281**

Grow, Robert Intel

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

The figure is confusing with regards to 33.2.1. Subclause 33.2.1 describes an MDI equivalent with all eight signals defined. The PD and PSE in Figure 33-3 violate that description in that it shows an MDI with only 2 pairs at the PHY.

SuggestedRemedy

Change figure to illustrate handling of unused pairs between PSE and MDI. I believe a mid-span PSE could be a cross connect (close to what is illustrated), between two eight-pin modular connectors, etc. Add of a cross-connect to the PSE cable interface, and changing title of Figure 33-4 to only refer to endpoint PSE. Add to the end of page 40 line 10: "and use the eight pin modular jack illustrated in Figure 33-4." Add to paragraph on page 40 line 15: "Midspan PSEs may use eight pin modular connectors or another cross connect technology compatible with the channel specification of this clause."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Bob to mark up the editor's draft to correct the figure.

Add the text "PI" to the PSE connection.

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

Grow, Robert Intel

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

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 enablin transition out of IDLE.

Proposed Response *Response Status* **U**

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 fo 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* **33.2.3.4** *P* **42** *L* **24** **#** **287**

Grow, Robert — Intel

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

The state diagram uses two signals from these functions (apply_probe_done, do_classification_done) but these signals are not defined. The functions are also treated like variables in the state diagram (admittedly something done in other state diagrams of 802.3) b assigning TRUE and FALSE to them. Either treat the functions like timers (start command and done signal) or at least indicate that they produce a done signal.

SuggestedRemedy

Preferred change: Add a sentence at the beginning of this subclause. "All functions are invoked with a start command (e.g., start do_classification) and at completion produce a done signal (e.g., do_classification_done)." Add "apply_probes_done" to START_CLASSIFICATION and SIGNATURE_INVALID exit transitions from DETECT_EVAL. Delete DETECT_EVAL action ("apply_probes <= false"). Change action in START_DETECTION from "apply_probes <= TRUE" to "start apply_probes" and similar changes to do_classification.

Alternate change: Add a sentence at the beginning of this subclause. "All functions at completion produce a done signal (e.g., do_classification_done)."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change the diagram function call to match Clause 48, eg DO_CLASSIFICATION and rename the "apply_probes" function and references to it to "DO_DETECTION". Each function will set a "done" signal, which will be specified as the first sentence of the 33.2.3.4 subclause per suggested remedy.

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

Grow, Robert — Intel

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

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* **U**

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 at two times per second.

Cl **33** *SC* **33.3.2.2** *P* **58** *L* **#** **293**

Grow, Robert — Intel

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

No control bit has been defined for the PD, yet it is referenced here and in the MIB.

SuggestedRemedy

Add an optional PD Enable bit in the MDI and define this variable as equivalent to PD Enable

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove all PD objects from Clause 30 and supporting declarations from the annexes. Change the PD state machine (remove the PD enable). Do a global search on all variations of PD enable e.g. PD_enable, PDEnable, etc., and delete.

The group did not reject the concept of having a manageable PD, but we are not going to do i as part of 802.3af.

Cl **33** *SC* **33.3.2.3** *P* **59** *L* **10** # **294**

Grow, Robert — Intel

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

The behavior of power_on and pd_reset should be equilivent. If a reset can force a PD requiring power into the NOT_MDI_POWERED state, so can the power_on variable.

SuggestedRemedy

Remove the universal transition into REQUESTING_POWER and change the universal transition into NOT_MDI_POWERED to "pd_reset + power_on".

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved with text included in document PD_SM_Updates.pdf provided by Mike McCormack.

Cl **33** *SC* **33.6.1.1.5** *P* **76** *L* **18** # **296**

Grow, Robert — Intel

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

Some PSE functions are now performed when PSE Enable is zero. Text needs to be corrected.

SuggestedRemedy

Change paragraph to read: "PSE normal operation shall be enabled by setting bit 11.0 to a logic one, and normal operation disabled by setting bit 11.0 to logic zero. When normal operation is disabled, and neither bits 11.1 nor 11.4 are set, the MDI shall function as it would if it had no PSE function.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

overtaken by the enumeration of bits 0:1

Cl **33** *SC* **33.6.1.2** *P* **76** *L* **24** # **298**

Grow, Robert — Intel

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

No PD status is defined, yet the PD state diagram produces a power_received indication.

SuggestedRemedy

Either define some PD status bits (e.g., power_received) or remove all references to PD in this section and other text referencing Register 12 (e.g., 33.6.1).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

remove all references to PD in this section and other text referencing Register 12 (e.g., 33.6.1). Eg rename Table 33-18 to PSE Status register bit definitions.

Cl **01** *SC* **1.4.170** *P* **2** *L* **9** # **302**

Thompson, Geoff — Nortel Networks

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

The exisiting text as shown in 1.4.170 is technically incorrect even though it is what appears i the 1998 and 2000 editions. This somehow got screwed up during the many revisions. Note that the original definition came from the 10BASE5 coax clause! (Ref 802.3:1990, 8.1.2). The term MDI is applied to all media interfaces at all speeds (The sole exception is the use of the term FOMDI in 9.9) throughout the standard, it is not specific to twisted pair. (See figs 22-1 and 44-1)

SuggestedRemedy

Change to:
1.4.xxx Medium Dependent Interface (MDI): The mechanical and electrical interface between the transmission medium and the MAU (1 or 10 Mb/s) or the PHY (higher speeds) and also any associated (optional per 802.3 clause 33) Powered Device (PD) or endpoint Power Sourcing Equipment (PSE).

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change editorial instructions to: "delete current 1.4.170 text and insert" suggested remedy tex

Cl **30** *SC* **30.9.2.1.2** *P* **17** *L* **1** # **308**

Thompson, Geoff — Nortel Networks

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

Paste error, "acPSEAdminControl" is incorrect

SuggestedRemedy

Replace with: "acPDAdminControl"

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.16.1** *P* **23** *L* **10** # **311**
Thompson, Geoff Nortel Networks

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

There is a logical inconsistency in the levels to which the names are bound in namebinding.
nbPSE-repeaterName NAMED BY SUPERIOR OBJECT CLASS oRepeaterPorts
nbPSE-midSpanName NAMED BY SUPERIOR OBJECT CLASS oPSEGroup
I think they should both be either port or group

SuggestedRemedy

Fix

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change nbPSE-repeaterName to nbPSE-repeaterPortName

change nameBinding(6) pse-repeaterName(26)}; to nameBinding(6) pse-repeaterPortName(26)};

change nbPSE-midSpanName to nbPSE-pseGroupName

Also, need to update the management arc spreadsheet

Cl **30A** *SC* **30A.16.1** *P* **32** *L* **10** # **312**
Thompson, Geoff Nortel Networks

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

Shouldn't
REGISTERED AS {iso(1) member-body(2) us(840) ieee802dot3(10006)csmacdmgt(30) nameBinding(6) pse-pseGroupName(28)}; be
pse-midSpanGroupName(28)};

SuggestedRemedy

Fix

Proposed Response *Response Status* **C**

REJECT.

See Figure30-4. The binding is between the PSE and the PSE group objects. No fixes required.

Cl **30A** *SC* **30A.16.2** *P* **25** *L* **34** # **313**
Thompson, Geoff Nortel Networks

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

Repair to cure deficiency called out in Editor's Note

SuggestedRemedy

Fix

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.16.2** *P* **26** *L* **3** # **314**
Thompson, Geoff Nortel Networks

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

Repair to cure deficiency called out in Editor's Note

SuggestedRemedy

Fix

Proposed Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.16.2** *P* **26** *L* **24** # **315**
Thompson, Geoff Nortel Networks

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

Repair to cure deficiency called out in Editor's Note

SuggestedRemedy

Fix

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.2.3.5** *P* **46** *L* **33** # **326**
Thompson, Geoff Nortel Networks

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

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

SuggestedRemedy

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

resolved by resolution of comment #25

Cl **00** *SC* *P* *L* **#** 327

Thompson, Geoff — Nortel Networks

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

I can find no text much less any prominent text that says that the scope of this document is limited to cabling plants consisting of point-to-point links. There is no warning that the detectic schemes may be compromised or spoofed by cabling plant that is multi-point as opposed to point-to-point links. This warning is necessary because there are ISDN wiring schemes of this sort and they may not be obviously different to end users

SuggestedRemedy

Add text during intro portion that indicates the scope is specifically limited to point-to-point link

Add text to warn that it must be assured that only point-to-point links are cabled into PSEs an PDs. Text in the detection portion (33.2.8.1) to this effect would be good also.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

on page 36, line 27 add:
The detection and powering algorithms are likely to be compromised by cabling that is multi-point as opposed to point-to-point, resulting in unpredictable performance and possibly damaged equipment.

Cl **33** *SC* **33.4.2** *P* **66** *L* **14** **#** 330

Thompson, Geoff — Nortel Networks

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

The text: "Each wire pair of the PSE or PD shall withstand without damage the application of short circuits of any wire to any other wire within the 4-pair cable for an indefinite period of time."
...seems to imply that we can expect 4 pair cable. I don't think that is supported by 11801. What happens if a 25 pair cable is used? Is there any requirement to withstand faults to other links?

SuggestedRemedy

I'm not sure what the remedy is here. It certainly needs to be discussed in the meeting.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change "Each wire pair of the PSE or PD shall withstand without damage the application of short circuits of any wire to any other wire within the 4-pair cable for an indefinite period of time."
to
"Each wire pair of the PSE or PD shall withstand without damage the application of short circuits of any wire to any other wire within the cable for an indefinite period of time."

Cl **33** *SC* **33.4.8.3** *P* **70** *L* **3** **#** 332

Thompson, Geoff — Nortel Networks

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

Regarding the text: "The cabling specifications for 100 ohm balanced cabling are described in ISO/IEC 11801-2002."
...doesn't quite cover it because we (should) support cabling less than Cat 5 (i.e cat 5e). After all, if someone is running 10BASE-T on Cat 3 then they don't need to put in new cabling to support DTE Power.

SuggestedRemedy

Perhaps: "The cabling specifications for 100 ohm balanced cabling are described in ISO/IEC 11801-2002. Some cable category specifications that only appear in earlier editions are also supported."

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.6.1.1.3** *P* **76** *L* **8** **#** 335

Thompson, Geoff — Nortel Networks

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

Line 8 is not quite strong enough.

SuggestedRemedy

Change to: "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."

Proposed Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.4.1** *P* **65** *L* **24** **#** 343

Thompson, Geoff — Nortel Networks

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

There is no text that addresses the very real isolation requirements of a multiport device (presumably a PSE). We should have the equivalent in clause 33 of the following text:
9.5.7 Electrical isolation
Network segments that have different isolation and grounding requirements shall have those requirements provided by the port-to-port isolation of the repeater set.

SuggestedRemedy

Add the following text or equivalent to the end of 33.4.1
"Conductive link segments that have different isolation and grounding requirements shall have those requirements provided by the port-to-port isolation of the multi-port network interface devices (NID)."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Conductive link segments that have different isolation and grounding requirements shall have those requirements provided by the port-to-port isolation of network interface devices (NID).

Cl **33** *SC* **33.2** *P* **38** *L* **33** # **345**

Thompson, Geoff

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

I can find no place where there is a specification as to which side of the PSE is tied to ground (i.e. negative ground vs. the positive ground usually found in mid-fifties British sports cars with Lucas electrics.)

SuggestedRemedy

I request that a specification be added that dictates which side of the supply is common.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

An Environment A PSE shall switch the more negative conductor. It is allowable to switch both conductors.

Insert at the end of 33.4.1.1.1

Cl **33** *SC* **33.2.3.5** *P* **43** *L* **5** # **346**

McCormack, Mike

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

setting mr_pse_enable to disable does not disable the PSE.

This is a late comment entered on behalf of the SM AdHoc to fix a deficiency discovered during rework of the SM.

SuggestedRemedy

create a new state called disable with the global entry of mr_pse_enable = disable.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is resolved with details in document PSE_SM_4_01.PDF provided by Mike McCormack.