Cl **145** *SC* **145.5.7** *P* *L* # 20

Law, David HPE

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

AUTOCLASS: The attribute defined in subclause 30.12.2.1.18o is aLldpXdot3LocAutoclassRequest, not aLldpXdot3LocPDAutoclassRequest, there is no 'PD' in the name.

SuggestedRemedy

Change the text '... through the aLldpXdot3LocPDAutoclassRequest (30.12.2.1.18o) attribute ...' to read '... through the aLldpXdot3LocAutoclassRequest (30.12.2.1.18o) attribute ...'.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.5.3.2.4** *P* *L* # 21

Law, David HPE

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

Attribute to state diagram variable mapping: The definition for the PSEAutoclassSupport variable in subclause
145.5.3.2.2 'Variables' states that 'This variable is mapped from the aLldpXdot3LocPSEAutoclassSupport (30.12.2.1.18m) attribute.'. Further, Figure 145-39 'PSE DLL Autoclass control state diagram' is the only state diagram that uses the PSEAutoclassSupport variable, and it is an input to the state diagram. Table 145-38 however shows the mapping from the PSEAutoclassSupport variable to the attribute. Table 145-38 should therefore be updated to reflect the variable definition and the use of the variable in the state diagram.

SuggestedRemedy

Change the direction of the mapping symbol from '<=' to be '=>' for the aLldpXdot3LocPSEAutoclassSupport entry in Table 145-38 'Attribute to state diagram variable cross reference for PSEs' to show that the mapping is from the attribute aLldpXdot3LocPSEAutoclassSupport to the variable PSEAutoclassSupport.

Response *Response Status* **C**

REJECT.

The arrow direction seems correct to the comment resolution group. Can you explain further?

The text for PSEAutoclassSupport in 145.5.3.2.2 states "A Boolean variable that indicates if the PSE supports Autoclass in the PSE. This variable is mapped into the aLldpXdot3LocPSEAutoclassSupport (30.12.2.1.18m) attribute."

Cl **145** *SC* **145.5.3.2.4** *P* *L* # 22

Law, David HPE

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

Attribute to state diagram variable mapping: The current text strikes out 'Type 2' after the 'or' then adds next
text that reads 'or greater than ...'. The resultant text therefore reads '... Type 1 or or greater than ...' hence the addition of the 'or' in the new text is unnecessary.

SuggestedRemedy

Change the text '... Type 1 or <S>Type 2</S><U>or greater than ...' to '... Type 1 or <S>Type 2</S><U>greater than ...'.

Response *Response Status* **C**

REJECT.

This text does not appear in the published version.

Cl **30** *SC* **30.12.3** *P* *L* # 23

Law, David HPE

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

LLDP Remote System Group managed object class: The syntax definition for an attribute should be proceeded with the
text 'APPROPRIATE SYNTAX:'.

SuggestedRemedy

In subclause 30.12.3.1.18f aLldpXdot3RemPowerClassExtA and subclause 30.12.3.1.18g aLldpXdot3RemPowerClassExtB change the text:

ATTRIBUTE
An ENUMERATED VALUE that has ...

to read:

ATTRIBUTE
APPROPRIATE SYNTAX:
An ENUMERATED VALUE that has …

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.8.1** *P* *L* # 24

Law, David HPE

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

Input voltage: Correction of a typo.

SuggestedRemedy

Change the text '... when nopower is TRUE ...' to read '... when the nopower variable is TRUE …

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.12** *P* *L* # 25

Law, David HPE

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

Layer Management for Link Layer Discovery Protocol: A BIT STRING of SIZE one is equivalent to a BOOLEAN therefore it would
seem clearer to define this as a Boolean and remove reference to the attribute returning a bit string which it is actually a bit.

SuggestedRemedy

[1] Change BIT STRING [SIZE (1)] to read BOOLEAN.
[2] Change the text 'A read-only attribute that returns a bit string ...' to read 'A read-only Boolean attribute ...'

In the following subclause:

30.12.2.1.18m aLldpXdot3LocPSEAutoclassSupport
30.12.2.1.18n aLldpXdot3LocAutoclassCompleted
30.12.2.1.18o aLldpXdot3LocAutoclassRequest
30.12.2.1.18r aLldpXdot3LocMeasVoltageSupport
30.12.2.1.18s aLldpXdot3LocMeasCurrentSupport
30.12.2.1.18t aLldpXdot3LocMeasPowerSupport
30.12.2.1.18u aLldpXdot3LocMeasEnergySupport
30.12.2.1.18w aLldpXdot3LocMeasVoltageRequest
30.12.2.1.18x aLldpXdot3LocMeasCurrentRequest
30.12.2.1.18y aLldpXdot3LocMeasPowerRequest
30.12.2.1.18z aLldpXdot3LocMeasEnergyRequest
30.12.2.1.18z1 aLldpXdot3LocMeasVoltageValid
30.12.2.1.18z2 aLldpXdot3LocMeasCurrentValid
30.12.2.1.18z3 aLldpXdot3LocMeasPowerValid
30.12.2.1.18z4 aLldpXdot3LocMeasEnergyValid

30.12.3.1.18o aLldpXdot3RemAutoclassRequest
30.12.3.1.18r aLldpXdot3RemMeasVoltageSupport
30.12.3.1.18s aLldpXdot3RemMeasCurrentSupport
30.12.3.1.18t aLldpXdot3RemMeasPowerSupport
30.12.3.1.18u aLldpXdot3RemMeasEnergySupport
30.12.3.1.18w aLldpXdot3RemMeasVoltageRequest
30.12.3.1.18x aLldpXdot3RemMeasCurrentRequest
30.12.3.1.18y aLldpXdot3RemMeasPowerRequest
30.12.3.1.18z aLldpXdot3RemMeasEnergyRequest
30.12.3.1.18z1 aLldpXdot3RemMeasVoltageValid
30.12.3.1.18z2 aLldpXdot3RemMeasCurrentValid
30.12.3.1.18z3 aLldpXdot3RemMeasPowerValid
30.12.3.1.18z4 aLldpXdot3RemMeasEnergyValid

Response *Response Status* **C**

REJECT.

There is no technical rationale for changing these as you point out that they are equivalent.

Cl **145** *SC* **145.2.5.4** *P* *L* # 26

Law, David HPE

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

Variables: The MirroredPDAutoclassRequest variable is defined twice, once in subclause 145.2.5.4 'Variables' due to its use in the Figure 145-14 'PSE Autoclass state diagram', and a second time in subclause 145.5.3.2.2 'Variables' due to its use in Figure 145-41 'PSE DLL Autoclass control state diagram'. These two definitions for the same variable are different:

Subclause 145.2.5.4:

A variable output by the PSE power control state diagram that indicates whether the PSE has received an Autoclass measurement request from the PD via the Data Link Layer. See 145.5. This variable is assigned through Table 145-38.

Subclause 145.5.3.2.2:

The copy of the ëPD Autoclass requestí field in the Power via MDI TLV that the PSE receives from the remote system. This variable is mapped from aLldpXdot3RemAutoclassRequest (30.12.3.1.18o) and assigned through Table 145-38.

The first sentence of the Subclause 145.2.5.4 definition is not correct, the MirroredPDAutoclassRequest variable is not output by any of the PSE power control state diagram, see Figure 145-40, Figure 145-41, and Figure 145-42. Instead the MirroredPDAutoclassRequest variable is directly sourced from the aLldpXdot3RemAutoclassRequest attribute as defined in Table 145-38. Based on this the subclause 145.5.3.2.2 definition is correct, and hence the subclause 145.2.5.4 definition should be matched to this.

SuggestedRemedy

Change the text:

A variable output by the PSE power control state diagram that indicates whether the PSE has received an Autoclass measurement request from the PD via the Data Link Layer. See 145.5. This variable is assigned through Table 145-38.

to read:

The copy of the 'PD Autoclass request' field in the Power via MDI TLV that the PSE receives from the remote system. This variable is mapped from aLldpXdot3RemAutoclassRequest (30.12.3.1.18o) and assigned through Table 145-38.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.5.3.2.2** *P* *L* # 27

Law, David HPE

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

Variables: The attribute defined in subclause 30.12.2.1.18n is aLldpXdot3LocAutoclassCompleted, not aLldpXdot3LocPSEAutoclassCompleted, there is no 'PSE' in the name.

The attribute defined in subclause 30.12.3.1.18n is aLldpXdot3RemAutoclassCompleted, not aLldpXdot3RemPSEAutoclassCompleted, there is no 'PSE' in the name.

SuggestedRemedy

In subclause 145.5.3.2.2, in the definition of the PSEAutoclassCompleted variable, change the text '... into the aLldpXdot3LocPSEAutoclassCompleted (30.12.2.1.18n) attribute.' to read '... into the aLldpXdot3LocAutoclassCompleted (30.12.2.1.18n) attribute.'.

In subclause 145.5.3.3.1, in the definition of the MirroredPSEAutoclassCompleted variable, change the text '... from the aLldpXdot3RemPSEAutoclassCompleted (30.12.3.1.18n) attribute.' to read '... from the aLldpXdot3RemAutoclassCompleted (30.12.3.1.18n) attribute.'.

In subclause 145.5.7 change the text '... by means of the aLldpXdot3LocPSEAutoclassCompleted (30.12.2.1.18n) attribute ...' to read '... by means of the aLldpXdot3LocAutoclassCompleted (30.12.2.1.18n) attribute ...'.

In subclause 145.5.7 change the text '... appear to the PD as a change in the aLldpXdot3RemPSEAutoclassCompleted (30.12.3.1.18n) attribute ...' to read '... appear to the PD as a change in the aLldpXdot3RemAutoclassCompleted (30.12.3.1.18n) attribute ...'

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.3.4.5** *P* *L* # 28

Law, David HPE

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

State diagram: The variable 'pse_assigned_class(X)' isn't defined or used anywhere else. The assignment should be choosing to set the PD maximum power based on the minimum of either the PD requested Class and the PSE assigned Class for the pairset. The 'pse_assigned_class_mode(X)' variable provides the PSE assigned Class, see subclause 145.3.3.4.2 'Variables'.

SuggestedRemedy

In the POWERED state of Figure 145ñ27 Dual-signature PD state diagram change pse_assigned_class(X) to read pse_assigned_class_mode (X) in the assignment pd_max_power_mode(X) <= min(pse_assigned_class(X), pd_req_class_mode(X)).

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.5.3.2.5** *P* *L* # 29

Law, David HPE

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

State diagram: The variable PSEAllocatedPowerValue_alt() should use the _alt(X) designation as described in subclause 145.5.3.2.1.

SuggestedRemedy

For the PSE_POWER_REVIEW state of Figure 145ñ42 PSE power control state diagram for dual-signature PDs in 4-pair mode, change the variable PSEAllocatedPowerValue_alt() to PSEAllocatedPowerValue_alt(X) on the transition to RUNNING state.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.5.3.2.5** *P* *L* # 30

Law, David HPE

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

State diagram: The variable PSEAllocatedPowerValue_alt() should use the _alt(X) designation as described in subclause 145.5.3.2.1.

SuggestedRemedy

For the PSE_POWER_REVIEW state of Figure 145ñ42 PSE power control state diagram for dual-signature PDs in 4-pair mode, change the variable PSEAllocatedPowerValue_alt() to PSEAllocatedPowerValue_alt(X) on the transition to RUNNING state.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

OBE by 28

Cl **1** *SC* **1.4.502** *P* **22** *L* **4** # 4

Anslow, Pete Ciena

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

IEEE Std 802.3bt-2018 deleted definitions for VPD (1.4.502) and VPSE (1.4.503). This leaves unresolved cross references to the definition for VPSE in 33.2.6 and 33.2.7.4 and to the definition for VPD in 33.3.3.3.

SuggestedRemedy

Provide replacement wording for "as defined in 1.4.515" in the explanation of VPSE in 33.2.6 and 33.2.7.4
Provide replacement wording for "as defined in 1.4.514" in the explanation of VPD in 33.3.3.3.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This defintions were already moved to 33.1.4 in CQ (page 18, lines 6-12).

We need to remove the references from the rest of Clause 33 or replace them with text that points to 33.1.4. This should be done in CQ.

Motion to enter rogue comment (comment 8) in CQ with the following resolution was made: Editor to replace references to VPSE and VPD defined in 1.4 by a reference to 33.1.4.

No changes to CV draft.

Cl **30** *SC* **30.9.2** *P* **42** *L* **2** # 3

Anslow, Pete Ciena

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

IEEE Std 802.3bt-2018 made changes to Clause 30 that deleted 30.9.2 "PD managed object class"
Figure 30-3 there is a box containing "oPD 30.9.2" where 30.9.2 is a cross-reference to the deleted subclause.

SuggestedRemedy

Remove this box and its contents from Figure 30-3.
Note that IEEE Std 802.3cg-20xx is making changes to Figure 30-3.

Response *Response Status* **C**

ACCEPT.

Cl **33** *SC* **33.6.3.3** *P* **75** *L* **4** # 1

Anslow, Pete Ciena

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

IEEE Std 802.3bt-2018 made changes to Clause 79 that deleted Equation (79-1) and Equation (79-2).
In 33.6.3.3, there are four cross-references to Equation (79-1) and three cross-references to Equation (79-2)
In 33.6.3.4, there is one cross-reference to Equation (79-1) and one cross-reference to Equation (79-2)

SuggestedRemedy

Replace the nine cross references with text defining how the values are derived.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement changes shown in comment1_resolution.txt

Cl **79** *SC* **79.3.2** *P* **80** *L* **4** # 5

Yseboodt, Lennart Signify

Comment Type **T** *Comment Status* **A** *Pres: Yseboodt2*

A Type 3 and Type 4 device sending a Power via MDI TLV is required to send the Type 3 and Type 4 extensions. Many implementations (Type 1/2) incorrectly ignore fields that have an unexpected length.

We should permit new devices to fall back to the Type 1/2 field length in certain cases.

SuggestedRemedy

Adopt yseboodt_0919_02_lldp.pdf

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

adopt changes shown in yseboodt_CV_01_0919_LLDP.pdf

also add editor's note below change stating "Please review and provide suggestions for text indicating guidance for implementers."

Cl **79** *SC* **79.3.8.1** *P* **93** *L* **2** # 2

Anslow, Pete Ciena

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

Footnote a to Table 79-8a has an external cross-reference to "33.3.8.1", which does not exist.
145.3.8.1 is "Input voltage" and the equivalent in Clause 33 is 33.3.7.1, so this may be what is meant, but there is no reference to VPort_PD-2P there.

SuggestedRemedy

Replace the external cross-reference to "33.3.8.1" with an external cross-reference to something that exists.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

We need to change the pointer and clarify that Vport_PD is in Clause 33 (not -2p)

Change to "The valid range of this field extends beyond the allowed operating range of Vport_PD or VPort_PD-2P; see 33.3.7.1 and 145.3.8.1."

Cl **145** *SC* **145.2.5.1** *P* **118** *L* **3** # 6

Yseboodt, Lennart Signify

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

"When this occurs, the PSE shall back off for at least T dbo as defined in Table 145-16 before attempting
another detection, except in the case of an open circuit as defined in 145.2.6.5. During this backoff, the PSE
shall not apply a voltage greater than V Off to the PI."

These two requirements only mean something when parsed together, it makes no sense for this to be two separate
requirements as discovered when writing a test plan for this specification.

SuggestedRemedy

Replace two sentences by:
"When this occurs, the PSE shall not apply a voltage greater than V Off to the PI for at least T dbo as defined in Table 145-16
before attempting another detection, except in the case of an open circuit as defined in 145.2.6.5."
Update PICS.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.1** *P* **118** *L* **4** # 7

Yseboodt, Lennart Signify

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

There are three instances of "Connection Check" capitalized thus.

SuggestedRemedy

Change to "Connection check" or "connection check" as appropriate on
- page 118, bottom
- page 120, CC_DET_SEQ, value 0
- page 135, do_cxn_chk, first sentence

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.5.7** *P* **142** *L* **4** # 8

Yseboodt, Lennart Signify

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

Comment by David Law.

Assuming the other necessary conditions are present, both the Figure 145-14 'PSE Autoclass state diagram' and the Figure 145-41 'PSE DLL Autoclass control state diagram' transition from IDLE_ACS to MEASURE_ACS_DLL and from IDLE to MEASURE respectively as a result of MirroredPDAutoclassRequest becoming true.

The exit condition from the state MEASURE in Figure 145-41 is do_autoclass_measure_done. According to subclause 145.2.5.6 'Functions' 'The variable formed by the function name appended with "_done" is used to indicate when the function has completed.'. More importantly it then state 'This variable is set to FALSE when the function is called and is set to TRUE once the function is complete and its output variables are valid.'. I will assume this applies to all functions in IEEE P802.3bt. Based on that do_autoclass_measure_done is TRUE until the MEASURE_ACS_DLL state is entered in Figure 145-14 where the do_autoclass_measure function is called.

And this is where the race condition exists since we assume all transitions are instantaneous. The variable do_autoclass_measure_done is TRUE, at some point MirroredPDAutoclassRequest becomes TRUE. At that instant Figure 145-41 transitions to MEASURE and tests the do_autoclass_measure_done viable to see if it is TRUE, at that same instant Figure 145-14 transitions to MEASURE_ACS_DLL, calls the do_autoclass_measure function which sets the do_autoclass_measure_done viable FALSE. It isn't clear to me what state the do_autoclass_measure_done viable is in when tested by the Figure 145-41 state diagram. If it were to see it TRUE, Figure 145-41 will then signal to the PD that the autoclass is complete, even though it hasn't even started.

SuggestedRemedy

Problem confirmed, resolution to be provided at the meeting.
(aka. I don't know how to fix it right now)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make the following changes:

1. Create a new variable in the PSE state diagram variable list (and a copy in the PSE DLL list) named 'ac_measurement_completed'.
Description: variable that indicates that an autoclass measurement has been completed. This variable is set by the state diagram.
2. Set ac_measurement_completed to FALSE in the IDLE state (Fig 145-41).
3. Create a new state MEASURE_ACS_DONE in Figure 145-13.The arcs from MEASURE_ACS_DLL and MEASURE_ACS to IDLE are routed through MEASURE_ACS_DONE.
In MEASURE_ACS_DONE, set ac_measurement_completed to TRUE
4. Create an arc with condition UCT from MEASURE_ACS_DONE to IDLE_ACS

Cl **145** *SC* **145.2.5.7** *P* **143** *L* **1** # 9

Yseboodt, Lennart Signify

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

Comment from David Law.

I noted an issue when I ran a simulation of a dual signature PD connected to a PSE, where the PSE has sufficient power for primary Alternate (Alternate A), but not for secondary Alternate (Alternate B). As a result the PSE denies power on secondary Alternative. After denying power on the secondary Alternate, the PSE cycles through IDLE_SEC however PD remains stuck in the DO_MARK_EVENT3 state on Mode B. As a result the PSE detects an invalid signature on the secondary Alternate, and then cycles through IDLE_SEC, START_DETECT_SEC and DETECT_EVAL_SEC continually while the PD remains in the DO_MARK_EVENT3 state.

The reason for this is that the PD is not seeing a voltage to take it out of classification on Alternative B. Now I note that subclause 145.2.10.11 'Turn off voltage' states that 'The voltage at the PI shall be equal or less than VOff, as defined in Table 145-16, when the PSE is in DISABLED, IDLE, BACKOFF, or ERROR_DELAY. The voltage at the corresponding pairset shall be equal or less than VOff, as defined in Table 145-16, when the PSE is in IDLE_PRI, WAIT_PRI, ERROR_DELAY_PRI, IDLE_SEC, WAIT_SEC, or ERROR_DELAY_SEC.' however the duration in the IDLE_SEC state isn't sufficient for the VPSE to reach VOff (less than or equal to 2.8V) which would bring the PD back to the IDLE state on the secondary Alternative.

I wondered why I hadn't seen a similar issue with a single signature PD, but the reason for this is an additional requirement to subclause 145.2.10.11 found in subclause 145.2.8.1 'PSE Multiple-Event Physical Layer classification' that reads 'If the PSE returns to IDLE, it shall maintain the PI voltage in the range of VReset for a period of at least TReset min before starting a new detection cycle.'. The time delay TReset ensure that VPSE reaches and remains at VReset (less than or equal to 2.8V) for a sufficient time to return the PD back to the IDLE state.

It is not clear to me if the 145.2.10.11 'Turn off voltage' requirement that the voltage at the PI shall be equal or less than VOff for the listed states means that the state cannot be exited until that voltage is reached at the PSE PI. And even if that is the requirement, if the PSE PI isn't held at that voltage for a period of time, reaching VOff and then immediately starting to increase again, as would occur on exit from IDLE_SEC to START_DETECT_PRI, may not result in a transition below the classification reset voltage VReset_PD.

As an aside I also noted that there isn't an equivalent to pse_ready (an implementation-dependent manner to probe the link segment) for the individual PSE Alternates. As a result, in this particular situation, the dual-signature semi-independent PSE state diagrams require the PSE to continue to perform detection and classification on the secondary Alternate even though the PSE has just denied power on that Alternative because it has insufficient power.

Lennart: issue confirmed.

SuggestedRemedy

What we're missing is a requirement to reset the pairset whenever the state machine goes through the dual-sig IDLE states.

After the sentence "If the PSE returns to IDLE, it shall maintain the PI voltage in the range of V Reset for a period of at least T Reset min before starting a new detection cycle." on page 162, add the following:
"If the PSE returns to IDLE_PRI or IDLE_SEC, it shall maintain the PI voltage on the corresponding pairset in the range of V Reset for a period of at
least T Reset min before starting a new detection cycle."

We are now describing state diagram behavior in text, this requires at least introduction of pse_ready_pri and pse_ready_sec to make this work.

Add both of those variables to 145.2.5.4 with appropriate text copied from pse_ready.

Further, change the condition from IDLE_PRI to START_DETECT_PRI to read:
pse_ready_pri * !pwr_app_pri * pwr_app_sec

And from IDLE_SEC to START_DETECT_SEC:
pse_ready_sec * ((!pwr_app_sec * pwr_app_pri) + (option_probe_alt_sec * !det_start_pri * !det_once_sec * !alt_pwrd_pri))

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.1** *P* **157** *L* **3** # 10

Yseboodt, Lennart Signify

Comment Type **T** *Comment Status* **A** *Pres: Yseboodt1*

When we designed the Autoclass mechanism that allows a PSE to learn about the maximum required power budget I forgot to deal with an important cornercase that makes it impossible for a PD to draw the maximum power as it is required to. Currently this would result in a Class 1 power allocation.

SuggestedRemedy

Adopt yseboodt_0919_01_autoclass.pdf

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.1** *P* **157** *L* **4** # 11

Yseboodt, Lennart Signify

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

There is a typo in Equation 145-4, "Vport_PSE-2p min" where "-2P" should be capitalized.

SuggestedRemedy

Fix.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.1** *P* **159** *L* **3** # 12

Yseboodt, Lennart Signify

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

Comment from David Law.

I note that subclause 145.2.8.1 'PSE Multiple-Event Physical Layer classification' includes the statement that
'If any measured IClass is equal to or greater than IClass_LIM min, a PSE shall return to IDLE.'.
Since IClass_LIM min is defined as 0.051 mA, this implies no margin, if IClass is 0.051 ma - 1nA the PSE shall not return to IDLE,
if IClass is 0.051 ma + 1nA the PSE shall return to IDLE.

Table 145-13 'Class signatures evaluated at the PSE PI' however defines > 45 mA and < 51 mA as 'Either class signature 4 or invalid class signature' and iclass_lim_det, iclass_lim_det_pri and iclass_lim_det_sec which are 'open arrow' entries to their respective state diagrams are defined as 'A variable indicating if any IClass measured by the PSE during do_classification is invalid or equal to or greater than IClass_LIM min'. As a result there appear to be some differences between PSE operation when connected to a single signature PD compared to when connected to a dual signature PD in respect to IClass limits when connected to a single signature PD compared to when connected to a dual signature PD.

For a PSE connected to a single signature PD, once the chosen threshold between > 45 mA and < 51 mA for Iclass is exceeded, iclass_lim_det is set
TRUE forcing the open arrow entry in to the Figure 145-13 IDLE state. Since this threshold is < 51 mA, if Iclass then reaches 51 mA the
subclause 145.2.8.1 requirement to return to IDLE are already met. Hence reaching or exceeding 51 mA does not result in different behaviours
when the PSE is connected to a single signature PD.

For a PSE connected to a dual signature PD, once the chosen threshold between > 45 mA and < 51 mA for Iclass is exceeded on a particular
alternative either iclass_lim_det_pri or iclass_lim_det_sec will be set TRUE. This will then force an open arrow entry in either
Figure 145-15 or Figure 145-16 in to the IDLE_PRI or IDLE_SEC state respectively. But this will not result Figure 145-13 entering the IDLE state.
Nor will it prevent the other alternative from powering up, assuming correct behaviour on that alternative.

If however Iclass reaches exactly 51 mA (with no margin) on a particular alternative, the subclause 145.2.8.1 requirement means that
Figure 145-13 has to return to the IDLE state.
This will cause sism to be set to FALSE resulting in both Figure 145-15 and Figure 145-16 returning them to the IDLE_PRI and IDLE_SEC states respectively.
Hence reaching or exceeding 51 mA does result in different behaviours when the PSE is connected to a dual signature PD.

SuggestedRemedy

This made my head hurt.
These conflicts are the result of us describing state diagram behavior in the text.

The desired behavior is already fully encoded in the state diagram, we do not need a conflicting text requirement.

On page 162, change the following text:
"If any measured I Class is equal to or greater than I Class_LIM min, a PSE shall return to IDLE. The PSE shall
limit class event currents to I Class_LIM and shall limit mark event currents to I Mark_LIM ."

to read:
"If any measured I Class is equal to or greater than I Class_LIM min, a PSE returns to IDLE, IDLE_PRI, or IDLE_SEC as appropriate.
The PSE shall limit class event currents to I Class_LIM and shall limit mark event currents to I Mark_LIM ."

Update PICS.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.1** *P* **160** *L* **3** # 18

Darshan, Yair Microchip

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

The spec requires to limit IClass and Imark to 100mA in case of overload/short circuit. In case of short circuit condition, depending on the dv/dt of the short, there MIGHT BE an overshoot above 100mA pending .It is not clear if current transient above 100mA for limited amplitude and duration is allowed since otherwise the classification circuit need much larger bandwidth for short-circuit condition during CLASS/MARK event. This transient is also depending on the dv/dt of the short condition.
I propose to unify all cases when we need to limit current with the allowannce of peak current >steady state current for 1ms maximum as we did for inrush.

SuggestedRemedy

The maximum peak transient current above Iclass_lim/Imark_lim shall not exceed 2000mA/TBD for 1msec max/TBD.Group to discuss TBD.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **145** *SC* **145.3.3.3.5** *P* **187** *L* **2** # 13

Yseboodt, Lennart Signify

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

An Autoclass enabled PD, when connected to a Type 1/2 PSE is still bound by all the Autoclass rules when in POWER_ON, even though the PSE does not know what Autoclass is. There is no need for this, in this case the PD should be allowed to simply forget about Autoclass.

SuggestedRemedy

In Figure 145-25, state DO_CLASS_EVENT_AUTO,
change the statement "pd_acs_req <= True"
to read:
"pd_acs_req <= long_class_event".

Note: that statement is correct, but takes a bit to figure out.
Reason to use this in stead of a more readable IF statement is not to have to redraw a substantial portion of this state diagram.
Trust me: it's cramped.

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.3.3.4.5** *P* **194** *L* **2** # 14

Yseboodt, Lennart Signify

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

Comment by David Law.

There is a typo in the dual-sig PD state diagram in Figure 145-27.
In the POWERED state, in the assignment pd_max_power_mode(X) <= min(pse_assigned_class(X), pd_req_class_mode(X)). I assume that pse_assigned_class(X) is a typo and should pse_assigned_class_mode(X).

SuggestedRemedy

Change:
- in Figure 145-27, POWERED STATE, change the first statement to read:
pd_max_power_mode(X) <= min(pse_assigned_class_mode(X), pd_req_class_mode(X))

Response *Response Status* **C**

ACCEPT.

Cl **145** *SC* **145.2.8.2** *P* **196** *L* **1** # 19

Darshan, Yair Microchip

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

In Table 145-21, the series input inductance will be applicable for any voltage not only for detection. This is the EMI filter equivalent.

SuggestedRemedy

Change the conditions to 2.7V to 57V and add a note that "Series inductance is applicable for all states."

Response *Response Status* **C**

REJECT.

** Late Comment **

This table is "Table 145–21—Valid PD detection signature characteristics, measured at the PD PI" and thus only applies during detection. There is no reason to change this.

Cl **145** *SC* **145.3.8.4.1** *P* **207** *L* **2** # 17

Bennett, Ken Sifos Technologies

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

The peak operating power exception currently refers to the "PSE-PI" in the TCUT portion of the specification. It should refer to the "PD PI" because PPort_PD and PPort_PD-2P describe power at the PD PI.

Additionally, this section uses the terms: "maximum PPort_PD"
"maximum PPort_PD-2P"
"PPort_PD max", and
"PPort_PD-2P max"
and then only describes "PPort_PD max" in the last sentence. Additional changes are proposed in this comment to make these terms consistent within this section, and to include the -2P term in the last sentence.

SuggestedRemedy

(Changed portions are quoted/bold)

Original Text:

..... the peak power shall not exceed "maximum PPort_PD" for single-signature PDs and "maximum PPort_PD-2P" for dual-signature PDs at the "PSE PI" for more than TCUT min, as defined in Table 145–16 and with 5% duty cycle. Peak operating power shall not exceed 1.05 × PPort_PD max for single-signature PDs and shall not exceed 1.05 × PPort_PD-2P max for dual-signature PDs on each pairset. "PPort_PD max refers" to the maximum power draw as permitted by 145.3.8.2.1.

Changed Text:

..... the peak power shall not exceed "PPort_PD max" for single-signature PDs and "PPort_PD-2P max" for dual-signature PDs at the "PD PI" for more than TCUT min, as defined in Table 145–16 and with 5% duty cycle. Peak operating power shall not exceed 1.05 × PPort_PD max for single-signature PDs and shall not exceed 1.05 × PPort_PD-2P max for dual-signature PDs on each pairset. "PPort_PD max and PPort_PD-2P max refer" to the maximum power draw as permitted by 145.3.8.2.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:

"Pport_PD max refers" to the maximum power draw as permitted by 145.3.8.2.1.

to:

"Pport_PD max and Pport_PD-2P max refer" to the maximum power draw as permitted by 145.3.8.2.1.

Add Editor's note to this section stating "Extended power requirements need to be reviewed and fixed if necessary."

Cl **145** *SC* **145.5.3.2.5** *P* **234** *L* **4** # 15

Yseboodt, Lennart Signify

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

Comment by David Law.

I noticed a couple of typos in relation to Figure 145-42 'PSE power control state diagram for dual-signature PDs in 4-pair mode'

On the transition from PSE_POWER_REVIEW to RUNNING the equation is (pse_new_value_alt(X) >= PSEAllocatedPowerValue_alt(X)) * (PSEAllocatedPowerValue_alt() [?] MirroredPSEAllocatedPowerValueEcho_alt(X)). I assume that (PSEAllocatedPowerValue_alt() is a typo and should be (PSEAllocatedPowerValue_alt(X).

SuggestedRemedy

Change:
- in Figure 145-42, from PSE_POWER_REVIEW to RUNNING, change to:
(pse_new_value_alt(X) >= PSEAllocatedPowerValue_alt(X)) *
(PSEAllocatedPowerValue_alt(X) != MirroredPSEAllocatedPowerValueEcho_alt(X))

Response *Response Status* **C**

ACCEPT.

Cl **145C** *SC* **145C.3** *P* **288** *L* **2** # 16

Yseboodt, Lennart Signify

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

Comment by Jason Tuenge.

This unbalance current requirement applies at the PSE PI connector (jack) when mated with a specified balanced cabling connector (plug).

[...]

The unbalance current requirements for PDs apply at the PD PI connector (jack) when mated with a specified balanced cabling connector (plug).

[...]

145C.3 Direct current resistance (DCR)

The maximum conductor DCR of 12.5 O in Figure 145C-1 and Figure 145C-3 is derived from a cabling topology consisting of:

-- 90 meters of 24 AWG horizontal cable (0.0938 O/m),

-- 10 meters of 26 AWG patch cord (0.14 O/m),

-- four inline connectors (0.3 O per connector).

Would your understanding be that this assumes two cords (and two connections), or four cords (and four connections)?

If the latter, seems "connector" and "connection" are being used interchangeably... And in any case, the above math would yield 11 O (not 12.5 O).

SuggestedRemedy

Input needed from mr. Diminico, at the very least the math indeed does not check out.

Response *Response Status* **C**

REJECT.

The next sentence states: The DCR of the 90 meters of cable is adjusted for a temperature increase of 45° C from 20° C to 65° C with a 0.4 % increase per degree C (0.1107 Ω/m), shown in Table 145C–2.