

IEEE P802.3da D1.3 10 Mbps Multidrop Enhancements

CI **FM** SC **FM** P8 L13 # 56
 Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type **E** Comment Status **A** EZ
 Editor titles have shifted with Val coming back on board, put editors in alphabetical order
SuggestedRemedy
 Change "Editor-in-Chief" on line 14 to "Technical Editor"
 Move "Valerie Maguire, ... Managing Editor" before "George Zimmerman,... Technical Editor"
 Response Response Status **C**
 ACCEPT.

CI **00** SC **0** P8 L14 # 20
 Jones, Chad Cisco Systems, Inc.
 Comment Type **E** Comment Status **A** EZ
 George is the Technical Editor and Val is the Managing Editor.
SuggestedRemedy
 Change George's title to Technical Editor
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Accomodated by 56 which also flips the order.
 Proposed response to comment 56 is:
 Change "Editor-in-Chief" on line 14 to "Technical Editor"
 Move "Valerie Maguire, ... Managing Editor" before "George Zimmerman,... Technical Editor"

CI **1** SC **1.5** P21 L36 # 57
 Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type **E** Comment Status **A** EZ
 Add TPS "Transmit Power Signature" to abbreviations
SuggestedRemedy
 Add TPS "Transmit Power Signature" to abbreviations
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Change to AIP
 "transmit power signature" is not capitalized throughout document.
 Add TPS "transmit power signature" to abbreviations

CI **30** SC **30.16.1.1.8** P25 L1 # 1
 Maguire, Valerie Copperopolis; affl w/ CME Consulting
 Comment Type **E** Comment Status **A** EZ
 Tidy Editing Instruction text so that insertion instructions are consistent throughout the document.
SuggestedRemedy
 P25 L1: Replace "Insert new subclauses (30.16.1.1.8 through 30.16.1.1.14)" with "Insert new subclauses 30.16.1.1.8 through 30.16.1.1.14..."; P26 L50: Replace "Insert 30.17..." with "Insert new subclause 30.17..."; P37 L19: "Insert 79.3.9..." with "Insert new subclause 79.3.9..."; P48 L1: "Insert 148.4.7 ..." with "Insert new subclause 148.4.7..."; P54 L3: Replace "Insert new section 148.5.3.a..." with "Insert new subclause 148.5.3.a..."; P54 L13: Replace "Insert new section 148.5.3.7..." with "Insert new subclause 148.5.3.7..."
 Response Response Status **C**
 ACCEPT.

CI **45** SC **45.2.3.1.2** P33 L6 # 58
 Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type **T** Comment Status **A** Management
 The inclusion of 10BASE-T1M and 10BASE-T1S can't work as written in 45.2.3.1.2 because the PCS type selection does not include these phy types (or any of the BASE-T1 PHY types). Loopback needs to be controlled through the dedicated PHY register 3.2291, at bit 3.2291.14. The 3.2291.14 bit can't be a copy of 3.0.14, but since 10BASE-T1S isn't in 4.2.3.1.2, this is just cleanup, I believe, within the scope of 802.3da. A maintenance request is in preparation to deal with the other BASE-T1 PHYs, references to 45.2.3.1.2, and copy instructions.
SuggestedRemedy
 Remove 45.2.3.1.2 from the draft.
 At P34 L11, change editing instruction to "Change 45.2.3.72.2 as follows:" (removing "first paragraph"), and add the other 2 paragraphs of 45.2.3.72.2 to the draft, with the third paragraph shown deleted (indicated below by </SO> strikeout):
 "The default value of bit 3.2291.14 is zero.
 </SO> Bit 3.2291.14 is a copy of 3.0.14, and setting or clearing either bit shall set or clear the other bit. Setting either bit shall enable loopback. </SO>"
 At P73 L35 (168.4.4), change "register 3.0.14, defined at 45.2.3.1.2" to "register 3.2291.14, defined at 45.2.3.72.2"
 Response Response Status **C**
 ACCEPT.

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CI 79 SC 79.5 P38 L21 # 60
 Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type T Comment Status A PICS

Need to add PICS for PLCA TLVs

SuggestedRemedy

Add 79.5 and 79.5.3 to the draft, adding new row for:

item *PL | feature PLCA TLV | Subclause 79.3.9 | Value <blank> | Status O | Support Yes[] No[]

and, insert 79.5.13 after 79.5.12 PICS table with entries:

Item	Feature	Subclause	Value/Comment	Status	Support
PLC1	PLCA support/status field	79.3.9.1	Contains a bitmap identifying PLCA and DPLCA support defined in Table 79-21	PL:M	Yes [] N/A []
PLC2	node ID field	79.3.9.2	Contains an integer value indicating the PLCA nodeid	PL:M	Yes [] N/A []
PLC3	PLCA TLV usage rules	79.3.9.3	PLCA support/status TLV should contain no more than one PLCA TLV	PL:O	Yes [] No [] N/A[]

Response Response Status C

ACCEPT.

CI 148 SC 148.4.4.2 P41 L42 # 17
 Law, David HPE
 Comment Type E Comment Status A EZ

Typo.

SuggestedRemedy

... type of claim. See 148.4.7.2 ...' should read '... type of claim. See 148.4.7.2 ...' (mising space).

Response Response Status C

ACCEPT.

CI 148 SC 148.4.4.3 P41 L42 # 61
 Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type E Comment Status A EZ

Missing space after period "claim.See"

SuggestedRemedy

insert space between period and "See"

Response Response Status C

ACCEPT.

CI 148 SC 148.4.4.6 P43 L4 # 3
 Baggett, Tim Microchip
 Comment Type E Comment Status A Editorial

CI 1.2: Qualifiers described by short phrases are enclosed in parentheses. The Term "ldplca_en" should be enclosed in parenthesis.

More examples are identified in the PDF related to this comment. Changes are proposed to improve readability and to maintain consistency with the style used when originally creating the Clause 147 and 148 state diagrams.

SuggestedRemedy

See Baggett_3da_D1p3_CL148_StateDiagrams.pdf and enclose highlighted terms with parenthesis.

This change applies to:

Fig 148-3 P43

Fig 148-4 P44

Fig 148-8 P51

Proposed changes highlighted in orange. In general, if the transition contained only a single boolean term such as "!variable" or "variable = CONST" I then left it alone or highlighted in yellow as this seemed to be consistent and more readable. Liberal editorial license granted to maintain readability and consistency.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add parentheses to Figures 148-3, P148-4, and 148-8 to conditions shown in yellow highlight in Baggett_3da_D1p3_CL148_StateDiagrams-b.pdf with editorial license to handle any similar conditions that may be found.

CI 148 SC 148.4.4.6 P43 L15 # 9
 Law, David HPE
 Comment Type T Comment Status A PLCA

The new variable dplca_txop_node_count is used in Figure 148-3 'PLCA Control state diagram' but it is not defined.

SuggestedRemedy

Add a definition of the dplca_txop_node_count variable to subclause 148.4.4.2 'PLCA Control variables'.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add "dplca_txop_node_count

Copy of PLCA node count synchronized with PLCA SYNCING cycle.

Values: integer from 0 to 255

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CI 148 SC 148.4.4.6 P43 L26 # 7

Law, David HPE
 Comment Type T Comment Status A PLCA

The transition from the RECOVER state to the WAIT_TO state in Figure 148-3 'PLCA Control state diagram, part a' is missing a transition qualifier. Assuming this is an unconditional transition, the transition qualifier should be UCT (see IEEE Std 802.3-2022 subclause 21.5.3, item d).

SuggestedRemedy

Add the transition qualifier 'UCT' to the transition from the RECOVER state to the WAIT_TO state in Figure 148-3.

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.4.6 P43 L44 # 11

Law, David HPE
 Comment Type T Comment Status A PLCA

The new variable dplca_txop_node_id is used in the SYNCING state of figure 148-3 'PLCA Control state diagram', but it is not defined.

SuggestedRemedy

Add a definition of the dplca_txop_node_id variable to subclause 148.4.4.2 'PLCA Control variables'.

Response Response Status C
 ACCEPT IN PRINCIPLE.

Variable name in state diagram was incorrectly edited.
 Change "dplca_txop_node_id" in SYNCING state at P43 L45 to "dplca_txop_id"

CI 148 SC 148.4.4.6 P44 L21 # 8

Law, David HPE
 Comment Type T Comment Status A PLCA

I don't believe that the COL variable has been used in the Clause 148 PLCA Control state diagram before. As a result, it needs to be added to the additions to subclause 148.4.4.2 'PLCA Control variables' in the IEEE P802.3da draft.

SuggestedRemedy

[1] Change the text 'Insert new variables dplca_en, dplca_txop_end, ...' in subclause 148.4.4.2 to read 'Insert new variables COL, dplca_en, dplca_txop_end, ...'

[2] Add the following definition to subclause 148.4.4.2:

COL
 The MII signal COL.
 Values: TRUE or FALSE

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.4.6 P44 L37 # 10

Law, David HPE
 Comment Type E Comment Status A EZ

The action 'start_append_commit timer' in the BURST state of Figure 148-4 'PLCA Control state diagram' should read 'start_append_commit_timer' (remove the '_' after 'start' and add an '_' between 'commit' and 'timer').

SuggestedRemedy

See comment.

Response Response Status C
 ACCEPT.

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CI 148 SC 148.4.5.7 P45 L2 # 21

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A EZ

empty page. Is that because of the "change figure" note and the space will go away once integrated in 802.3? Or is there a hidden page break?

SuggestedRemedy

fix blank page.

Response Response Status C

ACCEPT IN PRINCIPLE.
No hidden page break. This is because of the structure of the amendment, which puts a full-page figure prior to a header & another full page figure.
Move editing instruction ("Change Figure 148-5 and Figure 148-6 as shown:") at top of page 46 to page 45.

CI 148 SC 148.4.5.7 P46 L14 # 5

Baggett, Tim Microchip

Comment Type T Comment Status A PLCA

Condition for transition from WAIT_IDLE to IDLE does not match fix #2 proposed on Page 11 of https://www.ieee802.org/3/da/public/032322/beruto_3da_01_230222_plca_fixes.pdf

SuggestedRemedy

Change the condition for transition from WAIT_IDLE to IDLE from:
MCD * (!CRS) * (!committed)
To:
(!CRS) * (!committed)

Response Response Status C

ACCEPT.

CI 148 SC 148.4.5.7 P47 L50 # 87

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S

Comment Type E Comment Status A EZ

Two arrowheads where path join in Figure 148-6 - 2 instances - (there should be only the one in the joining arc...

SuggestedRemedy

delete arrowhead coming from the left at P47 L50 (join from WAIT_MAC and TRANSMIT), and
delete downward arrowhead from FLUSH state at P47 L50 where arc to "C" joins with arc form WAIT_MAC & TRANSMIT.

Response Response Status C

ACCEPT.

CI 148 SC 148.4.7.1 P48 L18 # 22

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A EZ

unneded comma
"HARD claims (with COMMIT requests), "

SuggestedRemedy

delete the comma after "requests)"

Response Response Status C

ACCEPT.

CI 148 SC 148.4.7.1 P48 L23 # 23

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A EZ

"DPLCA" versus "D-PLCA". Every instance on this page includes the hyphen.

SuggestedRemedy

Change DPLCA to D-PLCA. Editors given license to search and replace through the document.

Response Response Status C

ACCEPT.

CI 148 SC 148.4.7.2 P48 L31 # 18

Law, David HPE

Comment Type T Comment Status A PLCA

The variable curlID is defined in subclause 148.4.7.2 'Variables', however, it doesn't seem to be used in the D-PLCA state diagrams in Figures 148-8 and 148-9.

SuggestedRemedy

Remove the variable curlID if it isn't used.

Response Response Status C

ACCEPT IN PRINCIPLE.
curlID is no longer used for D-PLCA. Remove it from 148.4.7.2.

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CI 148 SC 148.4.7.2 P49 L6 # 12

Law, David HPE
 Comment Type E Comment Status A EZ

The definition of the txop_claim_table variable (that's actually an array) says:

This variable contains the claim state of the 256 transmit opportunities IDs. The claim state of each ID can be:

- a. NONE, meaning ...
- b. SOFT, meaning ...
- c. HARD, meaning ...

We don't normally use a letter list to define the variable values, see the dplca_txop_claim variable defined in subclause 148.4.4.2 'PLCA Control variables' for an example.

SuggestedRemedy

Suggest that the text:

This variable contains the claim state of the 256 transmit opportunities IDs. The claim state of each ID can be:

- a. NONE, meaning ...
- b. SOFT, meaning ...
- c. HARD, meaning ...

is changed to read:

This variable contains the claim state of the 256 transmit opportunities IDs. The claim state of each ID can be:

- NONE, meaning ...
- SOFT, meaning ...
- HARD, meaning ...

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.7.3 P50 L9 # 13

Law, David HPE
 Comment Type E Comment Status A EZ

Although there is no rule, function names are generally all upper case, and that is the case for the existing functions in Clause 148 'PLCA Reconciliation Sublayer (RS)', see 148.4.5.3 'Functions'.

SuggestedRemedy

Suggest that the following changes be made to the function names.

max_hard_claim -> MAX_HARD_CLAIM
 pick_free_txop -> PICK_FREE_TXOP
 hard_claiming -> HARD_CLAIMING
 soft_claiming -> SOFT_CLAIMING
 clear_txop_table -> CLEAR_TXOP_TABLE
 clear_soft_claims -> CLEAR_SOFT_CLAIMS

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.7.5 P51 L10 # 14

Law, David HPE
 Comment Type T Comment Status A EZ

The transition from the DISABLED state to the WAIT_BEACON state in Figure 148-8 'D-PLCA Control State Diagram' is missing a transition qualifier. Assuming this is an unconditional transition, the transition qualifier should be UCT (see IEEE Std 802.3-2022 subclause 21.5.3, item d).

SuggestedRemedy

Add the transition qualifier 'UCT' to the transition from the DISABLED state to the WAIT_BEACON state in Figure 148-8.

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.7.5 P51 L32 # 86

Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type E Comment Status A EZ

Two arrowheads where path join in Figure 148-8 (there should be only the one from the side...)

SuggestedRemedy

Delete rising arrowhead at P51 L32 (right side of page)

Response Response Status C
 ACCEPT.

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CI 148 SC 148.4.7.5 P51 L49 # 15

Law, David HPE
 Comment Type T Comment Status A PLCA

The variable dplca_txop_node_count is used in Figure 148-8 'D-PLCA Control State Diagram' but is not defined in subclause 148.4.7.2 'Variables'.

SuggestedRemedy

As noted in another comment, the variable dplca_txop_node_count is also used in Figure 148-3 'PLCA Control state diagram' but is not defined. Assuming that comment is accepted, and a definition of dplca_txop_node_count is added to subclause 148.4.4.2, suggest that the following definition is added to subclause 148.4.7.2 'Variables':

dplca_txop_node_count
 See 148.4.4.2.

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.7.6 P52 L17 # 59

Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type E Comment Status A EZ

Clean up box on TXOP_END -

SuggestedRemedy

delete overlaid boxes on TXOP_END state in state diagram

Response Response Status C
 ACCEPT.

CI 148 SC 148.4.7.6 P52 L41 # 16

Law, David HPE
 Comment Type T Comment Status A EZ

The transitions from the UPDATE_SOFT and the UPDATE_HARD states to the NOTIFY state and from the DISABLED state to the WAIT_TXOP_END state in Figure 148-9 'D-PLCA Aging State Diagram' are missing transition qualifiers. Assuming that these are unconditional transitions, the transition qualifier should be UCT (see IEEE Std 802.3-2022 subclause 21.5.3, item d).

SuggestedRemedy

Add the transition qualifier 'UCT' to the transitions from the UPDATE_SOFT and the UPDATE_HARD states to the NOTIFY and from the DISABLED state to the WAIT_TXOP_END state in Figure 148-9.

Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.6 P116 L17 # 67

Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type T Comment Status A MPSE State diagram

Conditions out of PON_EVAL are not correct. Left branch and right branches need to always be greater than or equal to V_type0_th, mpd_type = mixed CANNOT be mismatched..., logic gets simpler and non-overlapping.

SuggestedRemedy

Change branches from PON_EVAL as follows (apply subscripts as per state diagram variables):

left branch (correct type, to power on):
 (VMPD ≥ Vtype0_th) & (
 ((mpd_type = 1) & (VMPD ≥ Vtype1_th)) |
 ((mpd_type = 0) & (VMPD < Vtype1_th)) |
 (mpd_type = mixed))

Right branch (mismatched):
 (VMPD ≥ Vtype0_th) & (
 ((mpd_type = 1) & (VMPD < Vtype1_th)) |
 ((mpd_type = 0) & (VMPD ≥ Vtype1_th)))

Response Response Status C
 ACCEPT.

CI 168 SC 168.1 P55 L13 # 24

Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A TCI

misplaced comma, needs to be after the parenthesis in this sentence.
 "...Trunk Connection Interface, or TCI (see 168.9) are..."

SuggestedRemedy

change to: "...Trunk Connection Interface or TCI (see 168.9), are..."

Response Response Status C
 ACCEPT IN PRINCIPLE.

TCI isn't an alternative name as the text would suggest, but rather an abbreviation. (the cross reference to 168.9 is not really needed and interferes with readability as well).
 Change "Trunk Connection Interface, or TCI (see 168.9) are" to
 "Trunk Connection Interface (TCI) are".

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CI 168 SC 168.1 P55 L18 # 62
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A Editorial
 "connected to a mixing segment as defined in 168.8" - we are fond of saying 'as defined', but 168.8 doesn't DEFINE a mixing segment, it provides specifications for one. The mixing segment is defined in 1.4... the follow on sentence is a bit redundant to this as well ...
SuggestedRemedy
 delete "as defined in 168.8."
 Change "The mixing segment for the operation of the 10BASE-T1M PHY is defined in terms of performance requirements." to
 "The performance requirements for the mixing segment are specified in 168.8."
 Response Response Status C
 ACCEPT.

CI 168 SC 168.1 P55 L23 # 63
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ
 Clause 147 is in the draft - should not be an external xref
SuggestedRemedy
 Change Clause 147 to an active xref
 Response Response Status C
 ACCEPT.

CI 168 SC 168.1.2.1 P56 L43 # 25
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 missing comma after "...between THEN and END..."
SuggestedRemedy
 change to "...between THEN and END, ..."
 Response Response Status C
 ACCEPT.

CI 168 SC 168.2 P57 L3 # 52
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type T Comment Status A 10BASE-T1S
 "The 10BASE-T1M PHY builds on the operation of the 10BASE-T1S PHY defined in Clause 147 when running half duplex in multidrop mode." suggests that the 10BASE-T1M PHY has modes other than multidrop - which isn't what is meant. A little wordsmithing of this introduction to 10BASE-T1M is needed to make it clear that the primary difference between the 10BASE-T1M and 10BASE-T1S PHY types is that T1M only supports multidrop.
SuggestedRemedy
 Change first 2 sentences of first paragraph of 168.2 (making edits and reversing the order of the sentences):
 The 10BASE-T1M PHY supports only shared media, i.e., multidrop, half duplex communications over a single balanced pair of conductors forming a mixing segment. The 10BASE-T1M PHY builds on the operation of the 10BASE-T1S PHY defined in Clause 147 when running half duplex in multidrop mode."
 Response Response Status C
 ACCEPT IN PRINCIPLE.

Might be easier to read if "i.e., multidrop" were in parens instead.
 The 10BASE-T1M PHY supports only shared media (i.e., multidrop) half duplex communications over a single balanced pair of conductors forming a mixing segment. The 10BASE-T1M PHY builds on the operation of the 10BASE-T1S PHY defined in Clause 147 when running half duplex in multidrop mode.

CI 168 SC 168.4.1 P60 L32 # 64
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ
 The 10BASE-T1M PCS Reset bit is in 45.2.3.72.1 , not 45.2.3.72
SuggestedRemedy
 Change 45.2.3.72 to 45.2.3.72.1
 Response Response Status C
 ACCEPT.

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CI 168 SC 168.4.4.5 P104 L11 # 71
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S
 Comment Type T Comment Status A MPSE State diagram
 unconditional entry to IDLE on 'discover_fault' must be conditioned on mpse_enable, or else it conflicts with the entry to DISABLE when the mpse is not enabled...
 SuggestedRemedy
 change leftmost entry to IDLE from "discover_fault" to 'mpse_enable * discover_fault'
 Response Response Status C
 ACCEPT.

CI 168 SC 168.6.4.4.1 P80 L1 # 68
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S
 Comment Type E Comment Status A Editorial
 This section is more than the Upper PSD, it doesn't make sense to have the upper PSD delineated by a section, the lower PSD, and the graph. So I suggest we drop the section headers and lump it all in to 168.6.4.4
 SuggestedRemedy
 Delete section header 168.6.4.4.1, Delete section header 168.6.4.4.2, add paragraph spacing between lines 9 & 10 (frequency range for equation 168-1 and "Lower PSD")
 Response Response Status C
 ACCEPT.

CI 168 SC 168.8 P82 L18 # 50
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S
 Comment Type E Comment Status A Editorial
 Sentence is long, complex, and hard to understand, and does not adequately capture that the TCI's two-conductor connection may be integrated within the DTE. Would be better as multiple simpler sentences:
 "The mixing segment shall be a linear topology, with DTE attached at a TCI, where each TCI has two connections on the mixing segment, one facing in the direction of the left edge termination of the mixing segment (TC1) and one facing in the direction of the right edge termination of the mixing segment (TC2), and a two-conductor connection facing the DTE (see Figure 168–18)."
 SuggestedRemedy
 Replace first sentence in 2nd paragraph of 168.8 with:
 "The mixing segment shall be a linear topology, with DTE attached to a trunk at a TCI. Each TCI has two connections, TC1 and TC2, on the mixing segment, one facing in each direction toward an edge termination. Additionally, each TCI has a two-conductor connection facing the DTE (see Figure 168-18). See 168.9 for more information on the TCI, which may be integrated within the DTE."
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 "The mixing segment shall be a linear topology, with DTE attached to a trunk at a TCI. Each TCI has two connections, TC1 and TC2, on the mixing segment, one facing in each direction toward an edge termination. Additionally, each TCI has a two-conductor connection facing the DTE (see Figure 168-18). See 168.9 for more information on the TCI, which may be integrated within the DTE."

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CI 168 SC 168.8 P82 L32 # 26

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A Editorial

we spell out trunk connection interface after using it at least 6 times in this section. Move the text to the first instance on line 18.

SuggestedRemedy

page 82, line 18, change TCI to trunk connection interface (TCI)
line 32, change trunk connection interface (TCI) to TCI

Response Response Status C

ACCEPT IN PRINCIPLE.
First reference in the section is on line 15, and ref to definition is incorrectly marked external... it's in the draft...

P82 L15 change "The TCI (1.4.558a) is an MDI"
to "The trunk connection interface (TCI) (1.4.558a) is an MDI" (and make 1.4.558a a real x-ref, not external)

P82 L32, change "any trunk connection interface (TCI)" to "TCI"

CI 168 SC 168.8.2 P83 L52 # 19

DiMinico, Christopher PHY-SI/SenTekse/MC Communications

Comment Type TR Comment Status A Mixing Segment

168.8.2 Return loss TBD

SuggestedRemedy

See diminico_SPMD_01_0724.pdf for TBD

Response Response Status C

ACCEPT IN PRINCIPLE.
Adopt mixing segment return loss on slide 11 of
https://www.ieee802.org/3/da/public/0724/diminico_SPMD_01a_0724.pdf

CI 168 SC 168.9 P84 L23 # 53

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S

Comment Type T Comment Status A TCI

Language about TCI connection in 168.9 to PMA needs to be aligned to the figures and description elsewhere (e.g., 168.8) which refers to the DTE rather than the PMA, and includes service loops & stubs within the DTE.

SuggestedRemedy

At P84 L22: Change "PMA (and any associated stub or service loop)" to "DTE (including any associated stub or service loop)"

At P84 L44; P85 L11; P86 L3; P86 L 19; Change "PMA" to "DTE"

Response Response Status C

ACCEPT.

CI 168 SC 168.9.1.1 P86 L3 # 2

Maguire, Valerie Copperopolis; aff'l w/ CME Consulting

Comment Type T Comment Status A TCI

Remove TC3 terminology and align text with 168.9.2.

SuggestedRemedy

Replace, "With the PMA (or simulated DTE load specified for the TCI) present at TC3," with "With a PMA or simulated DTE load present at the TCI attachment,"

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace, "With the PMA (or simulated DTE load specified for the TCI) present at TC3," with "With a PMA or simulated DTE load present at the TCI,"

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CI 168 SC 168.9.1.1 P86 L3 # 54
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A TCI
 We missed one TC3. Since there is only one place the DTE or DTE load can be, it is not needed to be said. This language should be aligned with that in other sections.
 SuggestedRemedy
 P86 L3 change "at TC3" to "at the TCI"
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Accomodated by comment 2:
 ACCEPT IN PRINCIPLE.
 Replace, "With the PMA (or simulated DTE load specified for the TCI) present at TC3," with "With a PMA or simulated DTE load present at the TCI,"

CI 168 SC 168.9.1.1 P86 L3 # 27
 Jones, Chad Cisco Systems, Inc.
 Comment Type T Comment Status A TCI
 TC3 still in the text, was removed last cycle.
 SuggestedRemedy
 replace TC3 with TCI attachment
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Accomodated by comment 2:
 ACCEPT IN PRINCIPLE.
 Replace, "With the PMA (or simulated DTE load specified for the TCI) present at TC3," with "With a PMA or simulated DTE load present at the TCI,"

CI 168 SC 168.9.2 P86 L19 # 55
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type E Comment Status A TCI
 The reference to "TCI attachment " suggests that the TCI is always detachable from the DTE - it isn't. The word attachment adds no clarity, so suggest we just say the DTE is present at the TCI.
 SuggestedRemedy
 P86 L19 delete "attachment"
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Accomodated by comment 2
 PROPOSED ACCEPT IN PRINCIPLE.
 Replace, "With the PMA (or simulated DTE load specified for the TCI) present at TC3," with "With a PMA or simulated DTE load present at the TCI,"

CI 168 SC 168.10 P87 L28 # 70
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Isolation
 Unpowered PHYs need isolation requirements to prevent ground loops when powered and unpowered PHYs are mixed
 SuggestedRemedy
 Replace text of Editor's note with - Comments needed to fill in isolation requirements for unpowered PHYs, particularly when locally-powered DTEs are mixed on the same mixing segment with DTEs powered through the mixing segment...
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 TFTD. Commenter doesn't provide a remedy, only flags an issue to be closed before technical completeness... Perhaps a pointer to existing work will help.
 Change the existing Editor's note (at page 87 line 29) to read:

Editor's Note (to be removed prior to Working Group Ballot):
 Comments needed to fill in isolation requirements for unpowered PHYs, particularly when locally-powered DTEs are mixed on the same mixing segment with DTEs powered through the mixing segment. Consider 169.9.6 as a starting point, with the exception of requirements specific to powering, and consolidating the two clauses by reference where possible.

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CI 169 SC 169.1.2 P97 L40 # 92

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type T Comment Status A Alternate power pairs

When power is NOT on the same conductors as data, the interface isn't the TCI. This needs to be explained here...

SuggestedRemedy

Add the following to the first paragraph of 169.1.2 at the end (line 40):

" The interface of the power entity to the medium is the MPI, with connection points MP1 and MP2 to the power trunk. When the power is provided over the same pairs as data, the MPI and the TCI are the same connection to the medium and the MPI must also meet the requirements for the TCI needed for the phy (see, e.g., 168.9). However, when data and power are carried on separate conductors, the MPI may be a separate device from the TCI and the related TCI requirements do not apply."

Editor to replace references (including figures) to TC1, TC2, TCI references from the rest of the clause with references to MP1, MP2, and MPI, respectively.

Response Response Status C

ACCEPT IN PRINCIPLE.

I think you mean (e.g., see 168.9) not (see, e.g., 168.9). No other changes.

Add the following to the first paragraph of 169.1.2 at the end (line 40):

" The interface of the power entity to the medium is the MPI, with connection points MP1 and MP2 to the power trunk. When the power is provided over the same pairs as data, the MPI and the TCI are the same connection to the medium and the MPI must also meet the requirements for the TCI needed for the phy (e.g., see 168.9). However, when data and power are carried on separate conductors, the MPI may be separate from the TCI and the related TCI requirements do not apply."

Editor to replace references (including figures) to TC1, TC2, TCI references from the rest of clause 169 with references to MP1, MP2, and MPI, respectively.

CI 169 SC 169.2 P98 L22 # 106

Paul, Michael Analog Devices
 Comment Type T Comment Status A Mixing segment - LATE

12 Ohm channel number and text describing the mixing segment needs to be updated

SuggestedRemedy

See presentation paul_da_01_2024_07_16.pdf

Response Response Status C

ACCEPT IN PRINCIPLE.
 (paul_da_01_2024_07_15_v1.pdf slide 16, with connector resistance changed based on voss contribution and group discussion)

Replace "169.2 Mixing segment
 The dc loop resistance of the mixing segment shall be 12Ω or less, measured from edge termination to edge termination"

with

"169.2 Mixing segment
 The mixing segment consists of cable, nodes, and terminations (see Figure 169-1).
 100Ω terminations are connected at the ends of the mixing segment and must be AC

coupled. The dc loop resistance of the cable (excluding connectors and attached DTEs) shall be less than or equal to 4Ω.

This resistance budget is based on supporting up to 17 in-line nodes (1 MPSE and 16 MPDs). Each DTE, including mated connectors and compensation components, adds up to 100 mΩ to the loop resistance."

--- STRAW POLL #1 ---

I support the sentence, "Each DTE, including mated connectors and compensation components, adds up to 100 mOhm to the loop resistance."

Yes - 27

No - 1

Need More Information - 6

Abstain - 5

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CI 169 SC 169.2 P98 L22 # 4

Baggett, Tim Microchip

Comment Type E Comment Status R Mixing Segment

The sentence refers to a dc loop resistance measured from edge termination to edge termination.

Is this really a *loop* resistance? The word "loop" would indicate to me the resistance from one edge terminator down one segment conductor through the opposite edge terminator, back up the opposite segment conductor. Clearly this isn't what is intended.

SuggestedRemedy

Please consider if "loop resistance" is the correct term here.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Delete "loop" at P98 L 22
TFTD whether 12 ohms is the right number or it should be 1/2 that...

CI 169 SC 169.3 P99 L9 # 108

Paul, Michael Analog Devices

Comment Type T Comment Status R MPD - LATE

Update unit load numbers to power mapping for type 0 and type 1 MPDs in this line: "For Type 0 MPDs, one unit load represents 1W. For Type 1 MPDs, one unit load represents 2W."

SuggestedRemedy

Change 1W to 1.2W. Change 2W to 4.5W as follows: "For Type 0 MPDs, one unit load represents 1.2W. For Type 1 MPDs, one unit load represents 4.5W." See presentation paul_da_01_2024_07_16.pdf

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Resolve based on 107
DEFER.

CI 169 SC 169.3 P99 L17 # 107

Paul, Michael Analog Devices

Comment Type T Comment Status R MPSE - LATE

Recalculate Table 169-1 using 24V nominal supply using and 4Ohms cable resistance. Also recalculate Type 1 power using 4Ohm cable

SuggestedRemedy

See presentation paul_da_01_2024_07_16.pdf

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Discussion -
change Table 169-1 as per (slide 14 OR slide 15) of paul_da_01_2024_07_15_v1.pdf
3 issues:
change 24 V levels
increase 50V current to 2 A
change other numbers to align with 100 mohms

STRAW POLL:

I support:

Changing the minimum 24 V nominal voltage to 21.6V

Y: 16+13 = 29

N: 0

A: 6+5 = 11

2A current on 50V systems:

Y: 10+11 = 21

N: 2

A: 11+7 = 18

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CI 169 SC 169.3 P99 L23 # 28

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A MPSE

inconsistent variable names. This comment needs processed with one against page 108, item 1 in table 169-5 to simplify the variable name to delete "(PON)".
on this page, the (min) and (max) need promoted back to normal text from subscript and remove the parenthesis.

SuggestedRemedy

remove parenthesis around min and max and promote this text from subscript to normal text.

Response Response Status C

ACCEPT.

CI 169 SC 169.4.3 P100 L18 # 29

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A MPSE

We never mention more than one MPSE on a mixing segment. While the TF has agreed that they do not want to go to the effort of defining how two MPSEs behave on a mixing segment, they also agreed that they didn't want to prohibit one from devising a proprietary scheme. We should make this statement.

SuggestedRemedy

add this text at the end of line 18: "This standard assumes one MPSE per mixing segment. More than one MPSE per mixing segment is beyond the scope of this standard."

Response Response Status C

ACCEPT.

CI 169 SC 169.4.3 P100 L32 # 30

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A Editorial

missing a word?
"depending on whether the specification in question is for exceeding dropping below a threshold"

SuggestedRemedy

add or: "depending on whether the specification in question is for exceeding or dropping below a threshold"

Response Response Status C

ACCEPT IN PRINCIPLE.

Suggest rewording for readability:

Change "When the MPI is not accessible, compliance to voltage specifications shall be met for a minimum or maximum of the voltage at TC1 and TC2, depending on whether the specification in question is for exceeding dropping below a threshold, respectively."

To:

"When the MPI is not accessible, compliance to voltage specifications is met at TC1 and TC2, and both TC's shall meet the specification. That is, if the specification calls for the voltage to exceed a value, then the minimum of the voltages at TC1 and TC2 exceeds the threshold, whereas if the specification calls for the voltage to be below a value, then the maximum of the two TC voltages is above the value."

CI 169 SC 169.4.4.3 P102 L15 # 75

Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S

Comment Type T Comment Status A MPSE State diagram

discover_backoff_timer isn't defined.

SuggestedRemedy

Insert: discovery_backoff_timer

A timer used to enforce the time between discovery cycles. See 169.4.6, and Table 169-3.

Response Response Status C

ACCEPT IN PRINCIPLE.

Remove extra period (See 169.4.6) and extraneous comma in remedy. The other defined timers in this clause only refer to Table 169-3.

Insert: discovery_backoff_timer

A timer used to enforce the time between discovery cycles. See Table 169-3.

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Cl 169 SC 169.4.4.3 P102 L16 # 81

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A Editorial

The TPS timer is in Table 169-5. Since the other timers have pointers, it should too.

SuggestedRemedy

Add "See Table 169-5" to the end of the description of tpsdo_timer.

Response Response Status C

ACCEPT IN PRINCIPLE.

Need a '.' at end. Also align with other definitions, which only refer to the table.

Replace "See 169.4.11.1." with "See 169.4.1.11.1 and Table 169-5."

Also, P102 L26, Replace " See T<ED> in Table 169-5." with "See Table 169-5."

Cl 169 SC 169.4.4.3 P102 L16 # 78

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ

The inrush timer is in Table 169-5. Since the other timers have pointers, it should too.

SuggestedRemedy

Add "See Table 169-5" to the end of the description of mpse_inrush_timer.

Response Response Status C

ACCEPT IN PRINCIPLE.

Need a '.' at end.

Add "See Table 169-5." to the end of the description of mpse_inrush_timer.

Cl 169 SC 169.4.4.3 P102 L19 # 79

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ

missing period at the end of the decription of tdiscover_high_timer

SuggestedRemedy

add period to match other timers...

Response Response Status C

ACCEPT.

Cl 169 SC 169.4.4.4 P102 L38 # 74

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ

duplicate colon. (discover_short::)

SuggestedRemedy

delete one of the colons

Response Response Status C

ACCEPT.

Cl 169 SC 169.4.4.4 P102 L44 # 89

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type T Comment Status A MPSE State Diagram

is discover_high_var used for anything? Was it supposed to be? I can't find it in the state diagram.

SuggestedRemedy

delete "discover_high_var" from outputs of do_discovery_high function (P102 L44)

Response Response Status C

ACCEPT.

Cl 169 SC 169.4.4.5 P104 L1 # 65

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status R MPSE State diagram

In Figures 169-3 and 169-4 there are connector tags A, C, and D, but no "B". Did we miss something?

SuggestedRemedy

Change tags C and D to B and C (P104 L2, P104 L53, P105 L2, P105 L43, P105 L52)

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Consider only if comment 82 is not accepted. (otherwise OBE by proposed remedy to comment 82)

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CI 169 SC 169.4.4.5 P104 L23 # 66
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type E Comment Status A EZ
 Below line 22 on Figure 169-3, and on all of Figure 169-4, the font size on transition conditions seems to have shrunk to 7 pt from the nominal 8pt.
 SuggestedRemedy
 Fix font size on transition conditions - all should be 8 pt (same as internal state processes)
 Response Response Status C
 ACCEPT.

CI 169 SC 169.4.4.5 P105 L30 # 85
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type E Comment Status A EZ
 arrowheads missing where paths join in Figure 169-3 and 169-4
 SuggestedRemedy
 add arrowheads at line joinings at P105 L30, L40, L50 on the left side of the page, and P106 L22 and L39 (left hand side of page)
 Response Response Status C
 ACCEPT.

CI 169 SC 169.4.4.5 P104 L31 # 31
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 transitions into left hand line missing arrowheads
 SuggestedRemedy
 add arrowheads to exit from DISCOVERY_HIGH_MARK1 at line 31, 40, and 52
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 (may be overwritten by other, more complex state diagram comments)

CI 169 SC 169.4.5 P106 L10 # 33
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 missing word: "the link to determine at least one MPD remains"
 SuggestedRemedy
 add if: "the link to determine if at least one MPD remains"
 Response Response Status C
 ACCEPT.

CI 169 SC 169.4.4.5 P105 L23 # 32
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 transitions into left hand line missing arrowheads
 SuggestedRemedy
 add arrowheads to exit from DISCOVERY_HIGH_MARK4 at line 23 and 39
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 (may be overwritten by other, more complex state diagram comments)

CI 169 SC 169.4.6 P106 L27 # 90
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Duplicate shalls
 duplicate shall describing state diagram function (applying high or low mark voltage) in do_discovery_high and do_discovery_lowx states.
 SuggestedRemedy
 P106 L27 and P106 L36 change "shall supply" to "supplies"
 Response Response Status C
 ACCEPT.

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CI 169 SC 169.4.6 P106 L28 # 82

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S

Comment Type T Comment Status A MPSE State diagram

This behavior is contrary to the state diagram, the do_discovery_high (and low) functions are executed when a state is entered. The state diagram won't wait to do the measurement... it only waits for the exit. "The MPSE shall wait T_Mark_measure between the entrance of a DISCOVERY_HIGH_MARKx state and measurement of mark event current..." - there is no way to see when the measurement happens.

Similarly for the T_Discover_measure waiting on line 37.

SuggestedRemedy

change "shall wait" to "waits" (2 instances, line 28 and line 37)
See state diagram and text changes in zimmerman_3da_01_0724.pdf
(text and diagrams also provided as a separate document 8023-169_proposed_Sdfixes_disc_diag.pdf)

Response Response Status C

ACCEPT.

CI 169 SC 169.4.6 P106 L31 # 73

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S

Comment Type E Comment Status A Duplicate shalls

duplicate shall. The behavior when detecting a short circuit is shown in the state diagram. However, the criterion measured is in the function description as well.

SuggestedRemedy

change "the MPSE shall return to the BACKOFF state." to "the MPSE returns to the BACKOFF state"

Response Response Status C

ACCEPT.

CI 169 SC 169.4.6 P106 L44 # 76

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S

Comment Type T Comment Status A MPSE State diagram

The BACKOFF state should reflect that the voltage is held at V_MPSE_reset, rather than have a separate "shall" here that is really describing state diagram behavior.

SuggestedRemedy

Add new function to 169.4.4.4 (in alphabetical order)
do_MPSE_reset
This function presents the reset event voltage (V_MPSE_reset) at the TCI.

Add "do_MPSE_reset" to the "BACKOFF" state in Figure 169-3.

Change "BACKOFF, it shall maintain..." to "BACKOFF, it maintains..." at P106 L44

Response Response Status C

ACCEPT.

CI 169 SC 169.4.6 P106 L47 # 77

Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmI,S

Comment Type T Comment Status A MPSE State diagram

the T_Discovery check and condition is not in the state diagram. Given that the time through the state diagram is driven by the cascade through 5 high_mark state timers and 5 low mark state timers, the time for discovery is deterministic and less than 5*(high_time_max + low_time_max), so this condition is unnecessary.

SuggestedRemedy

At P106 L47-48 (169.4.6) delete "The MPSE shall complete discovery within TDiscovery as defined in Table 169-3."
(leave in place " If no valid and compatible discovery response is detected, the MPSE shall wait at least TBackoff before reattempting discovery. An MPSE may successfully complete discovery, but then opt not to power the link.")
At P106 L 51-52, delete "If discovery is not completed before the TDiscovery timer expires, the current discovery cycle shall be aborted and the MPSE returns to BACKOFF."

Response Response Status C

ACCEPT.

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CI 169 SC 169.4.6 P106 L51 # 34

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status R MPSE State diagram

"If discovery is not completed before the TDiscovery timer expires, the current discovery cycle shall be aborted and the MPSE returns to BACKOFF."
this sentence belongs in the preceding paragraph as the second sentence.

SuggestedRemedy

move sentence, making paragraph at line 47 read:
"The MPSE shall complete discovery within TDiscovery as defined in Table 169-3. If discovery is not completed before the TDiscovery timer expires, the current discovery cycle shall be aborted and the MPSE returns to BACKOFF. If no valid and compatible..."

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Consider with comments 76 and 77, which substantially modify the text, along with comments in the duplicate shall topic.

CI 169 SC 169.4.6 P107 L1 # 35

Jones, Chad Cisco Systems, Inc.

Comment Type T Comment Status A MPSE

"Under all conditions, an MPSE shall present an invalid MPD discovery signature with one of the attributes as defined in Table 169-4."
This sentence is copied from CI 33 or 145. As those are point to point PoE, two PSEs should never be on the same link. It has been agreed that we want to allow more than one PSE per mixing segment. This sentence disallows that. Additionally, there is no need for this restriction for MPoE.

SuggestedRemedy

Delete the sentence.

Response Response Status C

ACCEPT IN PRINCIPLE.

Unless acting as an MPD, an MPSE shall present an invalid MPD discovery signature with one of the attributes as defined in Table 169-4.

CI 169 SC 169.4.6 P107 L19 # 110

Paul, Michael Analog Devices

Comment Type T Comment Status A MPSE - LATE

Item 5, "Discovery low event time" max is TBD

SuggestedRemedy

Set to 44ms. 20ms is allocated to settling, another 20ms should be allocated for a 50Hz power line cycle length of measurement, the extra 4ms is for margin. See Paul_da_01_20240124_v2.pdf slides 17-20 for a description of Mark-Discover timing.

Response Response Status C

ACCEPT.

CI 169 SC 169.4.6 P107 L19 # 109

Paul, Michael Analog Devices

Comment Type T Comment Status A MPSE - LATE

Item 4, "Discovery high event time" max is an emdash, but needs to be a number.

SuggestedRemedy

Set max to 44ms. 6.5ms is allocated to settling into the mark voltage, another 20ms should be allocated for a 50Hz power line cycle length of measurement, a further 12ms may be needed for compliance measurement ambiguity as the mixing segment settles back into discovery. The extra 6.5ms is margin. See Paul_da_01_20240124_v2.pdf slides 17-20 for a description of Mark-Discover timing.

Response Response Status C

ACCEPT.

CI 169 SC 169.4.6 P107 L21 # 111

Paul, Michael Analog Devices

Comment Type T Comment Status A MPSE - LATE

Total discovery time is a function of 5 discovery pulses that all have min / max timing specifications, this timer is not needed.

SuggestedRemedy

Remove Item 6 "Discovery Time" in table 169-3.

Response Response Status C

ACCEPT.

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CI 169 SC 169.4.6 P107 L43 # 80
 Zimmerman, George CME Consulting/ADI,APLGP,CSCO,MRVL,ONSMI,S
 Comment Type E Comment Status A Editorial
 The discovery rejection criteria parameters seem to need description. They just say "Reject discovery" which is what the title of the table is...
 SuggestedRemedy
 Change Item 1 description to "Reject discovery - short circuit", and item 2 to "Reject discovery - open circuit"
 Response Response Status C
 ACCEPT.

CI 169 SC 169.4.7 P108 L6 # 36
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A MPSE
 V{MPSE(PON)} is lengthy. We don't have an VMPSE that we need it differentiate from, so why have the (PON)? Delete (PON). This harmonizes with a comment made against page 99.
 SuggestedRemedy
 Delete (PON) from the symbol name of item 1 of Table 169-5 on line 6 and from the text in 169.4.10 on line 54.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Commenter's suggested remedy plus one other reference:
 Delete (PON) from:
 P108 L6: symbol name of item 1 of Table 169-5
 P108 L32: definition of Min Overload current on item 11 of Table 169-5
 P108 L54: text in 169.4.10

CI 169 SC 169.4.7 P108 L9 # 37
 Jones, Chad Cisco Systems, Inc.
 Comment Type T Comment Status R MPSE
 Item 2 of Table 169-5: we should not define the max as 100W as this will confuse some readers, mostly from the enforcement community. I suggest we delete the 100 and replace with an emdash. All that is important is we define the minimum power the MPSE shall deliver.
 to convey the upper limit, we should add V{MPSE}max on line 40 in 168.4.8, after "External safety requirements limit the power an MPSE can supply." with some further descriptive text at the end of the paragraph.
 SuggestedRemedy

delete 100 in Table 169-5 item 2, two places. Replace with emdash.
 Change line 40 to: "External safety requirements limit the power an MPSE can supply, V{MPSE}max."
 add "For these reasons, V{MPSE}max is left undefined in Table 169-5, Item 2."
 Response Response Status Z
 REJECT.
 This comment was WITHDRAWN by the commenter.

TFTD. Consider unintended consequences of leaving the maximum power output capability of a compliant MPSE unrestricted. Also note that 169.7.1 section requires the MPSE to be classified as a Limited Power Source under Annex Q of IEC 62368-1:2023, which implies a 100VA limit.

CI 169 SC 169.4.7 P108 L12 # 104
 Paul, Michael Analog Devices
 Comment Type T Comment Status R MPSE - LATE
 Item 3, "Output Slew Rate" has TBD for both the Min and Max values
 SuggestedRemedy
 See presentation paul_da_03_2024_07_16.pdf
 Response Response Status Z
 REJECT.
 This comment was WITHDRAWN by the commenter.

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Cl 169 SC 169.4.7 P108 L13 # 102
 Paul, Michael Analog Devices
 Comment Type T Comment Status A MPSE - LATE
 Item 4 Ilim has TBD in the min and max columns.
 SuggestedRemedy
 Ilim and Cport are linked and dependent on the outcome of presentation paul_01 . See presentation paul_da_02_2024_07_16.pdf
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Make changes per slide 22 of https://www.ieee802.org/3/da/public/0724/Paul_da_02_2024_07_15_v1.pdf

Cl 169 SC 169.4.8 P108 L39 # 83
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Editorial
 duplicate shall - Table 169-5 is already required...
 SuggestedRemedy
 change "shall be capable of" to "is capable of"
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Location to implement suggested remedy is P108 L39.

Cl 169 SC 169.4.11.1 P109 L12 # 38
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A MPSE
 We define TPS requirements but never explain why it exists. There is a sentence at the end that alludes to the purpose, but we can do better. Add some descriptive text to start the section.
 SuggestedRemedy
 Add before the text on line 12: "TPS allows MPDs to have sleep states to minimize power consumption. Presence of TPS reports to the MPSE that there are active MPDs on a mixing segment that may be consuming very low power."
 Response Response Status C
 ACCEPT IN PRINCIPLE.

Suggest rewording for readability along lines of commenter's suggested change:
 Also consider the title of 169.4.11.1.
 The TPS is a "signature" presented by an MPD, detected by an MPSE. 4 lines up (in 169.4.11) we call it the "MPD TPS". In 169.4.11.1 we call it the MPSE TPS.
 Change title of 169.4.11.1 to "MPSE detection of MPD transmit power signature (TPS)".
 Add text before the text on line 12: "TPS allows MPDs to minimize power consumption, for example, in sleep states. By sensing the presence of TPS, an MPSE can tell that there are active MPDs on the mixing segment, even if they are consuming minimal power."

Cl 169 SC 169.4.11.1 P109 L13 # 84
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Duplicate shalls
 duplicate shalls of what is already in the state diagram (TPS and behavior of removing power)
 SuggestedRemedy
 Change "TPS shall be defined" to "TPS is defined" (in first sentence of 169.4.11.1), and "Power shall be removed" to "Power is removed" in last sentence of first paragraph of 169.4.11.1
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Location to implement suggested remedy is P109 L13 and P109 L15.

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CI 169 SC 169.5 P109 L27 # 91
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type E Comment Status A Alternate power pairs
 "requiring power from the TCI" I believe power is drawn from the MPI...
 SuggestedRemedy
 change TCI to MPI at P109 L28
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5 P119 L36 # 51
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type E Comment Status A EZ
 Table 169-9 has the wrong title. It is about the MPD TPS parameters, not the MPSE discovery parameters (which is the title of Table 169-3).
 SuggestedRemedy
 Change title of Table 169-9 to "MPD Transmit Power Signature (TPS) parameters"
 Response Response Status C
 ACCEPT IN PRINCIPLE.

Think this should be, "Change title of Table 169-9 to "MPD transmit power signature (TPS) parameters" to align with capitalization in title of clause 169.5.5.3.

CI 169 SC 169.5.2 P109 L41 # 101
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Alternate power pairs
 MPD TCI... If the clause 169 protocol runs on separate wires from the data,the interface is just an MPI. The MPI may also be the TCI, but it is always an MPI.
 SuggestedRemedy
 Change title of 169.5.2 from MPD TCI to MPD MPI.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.2 P109 L48 # 93
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Alternate power pairs
 "MPDs draw power from the mixing segment" - this statement isn't necessary, and, if the MPD draws power from separate conductors, is not correct.

SuggestedRemedy
 Delete sentence. Or, alternatively, change to "MPDs draw power from an attached bus, which, if power and data are on the same conductors, is the mixing segment."
 Response Response Status C
 ACCEPT IN PRINCIPLE.

Delete sentence:
 "MPDs draw power from the mixing segment."

CI 169 SC 169.5.2 P110 L31 # 39
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 floating "]" character. Delete.

SuggestedRemedy
 delete "]" just after figure 169-5
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.2 P110 L48 # 94
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A MPD State diagram
 There appears to be no V_Mark_th in Table 169-7 or in the state diagram. It is possible that this was meant to be the entry check into the MARK states, which are currently the same as the entry check into the DISCOVERY states (V_Discovery_th)

SuggestedRemedy
 Delete V_Mark_th from P110 L45-47
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Insert "Editor's Note (to be removed prior to Working Group ballot): Commenters to consider whether a separate threshold is needed for the MARK states so that there may be hysteresis, or whether V_Mark_th can be deleted"

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CI 169 SC 169.5.3.2 P110 L51 # 95
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type T Comment Status A MPD State diagram
 There appears to be no V_Off_MPD in Table 169-8 or the state diagram. It is possible that this was meant to be the condition to exit PON_LOAD_ON... but unlikely since that threshold seems to need to be type-dependent.
 SuggestedRemedy
 Delete V_Off_MPD from 169.5.3.2 (P110 L51)
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.3 P111 L52 # 96
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ
 V_On_MPD is not a variable, it is a constant, and is already defined and properly used in 169.5.3...
 SuggestedRemedy
 Delete V_On_MPD from 169.5.3.3 Variables, at P111 L52
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.3 P111 L54 # 97
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type T Comment Status A MPD State diagram
 There is no definition for pd_max_power as a variable in 169.5.3.3. It is set to value "inrush" in the state diagram at states OFFLINE and IDLE. However, it is never mentioned anywhere else, and it appears that this variable simply should be deleted...
 SuggestedRemedy
 delete "pd_max_power <= inrush" from states OFFLINE and IDLE in Figure 169-6.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.6 P114 L9 # 98
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type T Comment Status A MPD State diagram
 Variable initialization - the state OFFLINE can be entered at any time from mpd_reset or lde_power_required, so it is important not to rely on variable resets that happen in PON_NO_POWER.
 it seems that present_tci_power and present_mismatch_indication need to be reset to FALSE here.
 SuggestedRemedy
 Add the following to state actions in OFFLINE:
 present_tci_power <= FALSE
 present_mismatch_indication <= FALSE
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.6 P114 L29 # 88
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSmi,S
 Comment Type E Comment Status A EZ
 Missing arrowheads at arcs joining in Figure 169-6 and 169-7
 SuggestedRemedy
 Add arrowheads on arcs joining from the right at P114 L40, P114 L51, P115 L31, P115 L44 and add arrowheads on arcs joining from the left at P114 L41, P115 L24, P115 L36, and P115 L50
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.3.6 P114 L40 # 40
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 more state transitions missing arrowheads.
 SuggestedRemedy
 two transitions to the left edge at line 40 and 51, one transition to the right edge at line 41.
 Response Response Status C
 ACCEPT.

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CI 169 SC 169.5.3.6 P115 L24 # 41
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 more state transitions missing arrowheads.
 SuggestedRemedy
 two transitions to the left edge at line 33 and 43, three transition to the right edge at line 24, 36, and 50.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.4 P117 L11 # 99
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status R MPD State diagram
 There is a requirement that "the MPD shall draw I_MPD_mark within T_MPD_discover of entering the state" (for DO_DISCOVERYx states). However, all DO_DISCOVERYx states are entered from DO_MARKn states, which are already required to draw I_MPD_mark by the first paragraph of 169.5.4 (P116 L52). Do we need this requirement? If so, then at least it should be "continue to draw" so that the reader understands there is no transition required.
 SuggestedRemedy
 Change ""shall draw I_MPD_mark" to "shall continue to draw I_MPD_mark" at P117 L11
 Response Response Status Z
 REJECT.
 This comment was WITHDRAWN by the commenter.

CI 169 SC 169.5.5 P118 L5 # 100
 Zimmerman, George CME Consulting/ADI,APLGp,CSCO,MRVL,ONSMi,S
 Comment Type T Comment Status A Alternate power pairs
 power is drawn from the MPI, not the mixing segment.
 SuggestedRemedy
 change "mixing segment" to "MPI" in two places - P118 L5, and in 169.5.5.1 at P118 L47
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.5 P118 L31 # 105
 Paul, Michael Analog Devices
 Comment Type T Comment Status A MPD - LATE
 T_{Inrush backoff} timer needs to be longer because Discovery High Event Time was (proposed) set to 44ms and the voltage regions for discovery high and Type 0 VPort_MPD are overlapping.
 SuggestedRemedy
 Set min and max values to 60ms and 75ms respectively
 Response Response Status C
 ACCEPT.

CI 169 SC 169.5.5 P118 L36 # 103
 Paul, Michael Analog Devices
 Comment Type T Comment Status A MPD - LATE
 Table 169-8 item 10 "Cport,Max" is TBD
 SuggestedRemedy
 Ilim and Cport are linked and dependent on the outcome of presentation paul_01 . See presentation paul_da_02_2024_07_16.pdf
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 OBE - accomodated by comment 102,
 Resolution to comment 102 is:
 ACCEPT IN PRINCIPLE.
 Make changes per slide 22 of
https://www.ieee802.org/3/da/public/0724/Paul_da_02_2024_07_15_v1.pdf

CI 169 SC 169.5.5 P118 L39 # 42
 Jones, Chad Cisco Systems, Inc.
 Comment Type T Comment Status A MPD
 500uA for disable current - this is 22.5mW BEST CASE (45V Vmpse). We require the MPD to actively indicate that it is underpowered. For sure this isn't enough to display a console port message, and not sure it's enough to flash an LED (the two examples given in the text for indication).
 SuggestedRemedy
 Raise this number. Perhaps we allow 1U for disabled (once we lower the U value to something less than 1 and 2W)? Or make this 5mA to get an order of magnitude more power.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Replace 500uA with 5mA in item 11 Table 169-8.

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CI 169 SC 169.5.5.3 P119 L33 # 43
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 sentence ends with two periods.
 SuggestedRemedy
 delete one period.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.6.1.1.2 P121 L5 # 46
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 spacing for this paragraph is wrong.
 SuggestedRemedy
 change spacing of the paragraph to single line.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.6.1.1.1 P120 L33 # 44
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 quotation marks are never closed.
 "An impulse test consisting of a 1500 V, 10/700 waveform, applied 10 times, with a 60 s interval between pulses. The shape of the impulses is 10/700 (10 µs virtual front time, 700 µs virtual time to half value), as defined in ITU-T Recommendation K.44.
 SuggestedRemedy
 close the quote:
 "An impulse test consisting of a 1500 V, 10/700 waveform, applied 10 times, with a 60 s interval between pulses. The shape of the impulses is 10/700 (10 µs virtual front time, 700 µs virtual time to half value)", as defined in ITU-T Recommendation K.44.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.7.1 P121 L46 # 47
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 appearance of PSE. Should be MPSE. I searched the doc and found this lone occurrence.
 SuggestedRemedy
 Change PSE to MPSE.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.6.1.1.2 P120 L51 # 45
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EZ
 quotation marks are never closed.
 "An impulse test consisting of a 1500 V, 10/700 waveform, applied 10 times, with a 60 s interval between pulses. The shape of the impulses is 10/700 (10 µs virtual front time, 700 µs virtual time to half value), as defined in ITU-T Recommendation K.44.
 SuggestedRemedy
 close the quote:
 "An impulse test consisting of a 1500 V, 10/700 waveform, applied 10 times, with a 60 s interval between pulses. The shape of the impulses is 10/700 (10 µs virtual front time, 700 µs virtual time to half value)", as defined in ITU-T Recommendation K.44.
 Response Response Status C
 ACCEPT.

CI 169 SC 169.7.6 P123 L9 # 48
 Jones, Chad Cisco Systems, Inc.
 Comment Type E Comment Status A EMC
 "In addition, the system may need to comply with more stringent requirements as agreed upon between customer and supplier, for the limitation of electromagnetic interference."
 Not sure why this interoperability standard is talking about agreements between the customer and supplier. This sentence is beyond the scope of an interop standard and should be deleted.
 SuggestedRemedy
 Delete this sentence.
 Response Response Status C
 ACCEPT.

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CI 169 SC 169.7.6 P 123 L 20 # 49

Jones, Chad Cisco Systems, Inc.

Comment Type E Comment Status A EMC

"Exact test setup and test limit values may be adapted to each specific application, subject to agreement between the customer and the supplier."

Not sure why this interoperability standard is talking about agreements between the customer and supplier. This sentence is beyond the scope of an interop standard and should be deleted.

SuggestedRemedy

delete ", subject to agreement between the customer and the supplier"
leaving just: "Exact test setup and test limit values may be adapted to each specific application."

Response Response Status C

ACCEPT.