

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

CI 45 SC 45.2.1 P77 L 32 # 1

Marris, Arthur

self

Comment Type T Comment Status D (B1) (L)

All of the registers from 1.2412 through 1.2436 are for lane 0 only and there are equivalent registers for lanes 1 through 7 in the range 1.2437 through 1.2611.

However, only the last two counters have "lane 0" in their names. However all the registers should have "lane 0" in their names to make it clear that there are equivalent registers following on for the other lanes for all of them.

SuggestedRemedy

Add "lane 0" in the register name for registers 1.2412 through 1.2423

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1 P77 L 52 # 2

Marris, Arthur

self

Comment Type TR Comment Status D (B1) (L)

The range of the "IFEC symbol error counter, lane 16 to 31" registers should be "1.2770 through 1.2801" rather than "1.2770 through 1.2799".

SuggestedRemedy

Change range to "1.2770 through 1.2801" in 45.2.1

In 45.2.1.222 on page 110 line 21 make it "IFEC symbol error counter, lane 1 through 31 (Register 1.2212 through 1.2241, and 1.2770 through 1.2801)"

In the body of 45.2.1.222 update the text to clarify that lanes 1 through 15 are in the block 1.2212 through 1.2241 and lanes 16 through 32 are in the block 1.2270 through 1.2801.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.60c P87 L 4 # 3

Marris, Arthur

self

Comment Type ER Comment Status D (B1) (L)

This is the "800G PMA/PMD extended ability register" not the "800G PMA/PMD extended ability 2 register".

SuggestedRemedy

Delete "2" on lines 4, 6, and 9

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.271 P122 L 46 # 4

Marris, Arthur

self

Comment Type T Comment Status D (B1) (L)

Table 450212t shows the assignment of bits for the lane 0 PMA test block error bin 0 to bin 3 registers in the transmit direction, and the text in the third paragraph mentions test_block_error_bin_tx_0_16p and test_block_error_bin_tx_1_0 registers, however there is no "tx" in the names and descriptions in Table 450212t.

SuggestedRemedy

On line 46 change "Table 450212t Lane 0 PMA test block error bin register definitions (for 4 of the 17 bins)"

to "Table 450212t Lane 0 PMA transmit test block error bin register definitions (for 4 of the 17 bins)"

In the table add "transmit" to the names. For example make the first name "PMA transmit test block error bin 0 lower"

In the table add "tx" to the descriptions. For example make the first description "test_block_error_bin_tx_0_0[15:0]"

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 184 SC 184.10 P615 L 45 # 5

Marris, Arthur

self

Comment Type TR Comment Status D (B1) (L)

In "Table 18405 Inner FEC status variables and MDIO mapping" are defined to use PMA registers test_block_error_bin_0_<0:15> and test_block_error_bin_0_16p. These registers are required by the AU1 so a new set of inner fec registers need to be defined for the PRBS31 checker.

SuggestedRemedy

Create 51 new "Inner FEC test error bin" registers at 1.2644 through 1.2694, with similar functionality to the existing PMA registers test_block_error_bin_0_k and test_block_error_bin_0_16p.

In 184.6.2 and Table 184-5:

Rename "test_block_error_bin_0_k" to "Inner_FEC_test_block_error_bin_k"

Rename "test_block_error_bin_0_16p" to "Inner_FEC_test_block_error_bin_16p"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license

[Editor's note: CC 45]

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Cl 45 SC 45.2.1.217.6a P109 L5 # 6

Marris, Arthur self
 Comment Type T Comment Status D (B1) (L)

Correct subclause title and and make it clear this is for the 800G-ER1 FEC.

SuggestedRemedy

Change "45.2.1.217.6a IER1 FEC remote loopback ability (1.2201.7)"
 to: "45.2.1.217.6a 800G-ER1 FEC remote loopback ability (1.2201.7)"

on line 7 change "the ER1 FEC" to "the 800G-ER1 FEC"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

It is the "800GBASE-ER1 FEC" rather than the "800G-ER1 FEC"

Change from: "45.2.1.217.6a IER1 FEC remote loopback ability (1.2201.7)"
 to: "45.2.1.217.6a 800GBASE-ER1 FEC remote loopback ability (1.2201.7)"

on line 7 change "the ER1 FEC" to "the 800GBASE-ER1 FEC"

Implement with editorial licence.

Cl 45 SC 45.2.1.257 P115 L8 # 7

Marris, Arthur self
 Comment Type E Comment Status D (B1) (L)

Change PS to "pilot sequence" for clarity

SuggestedRemedy

Change "PS" to "pilot sequence"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 186 SC 186.7.2 P690 L12 # 8

Marris, Arthur self
 Comment Type T Comment Status D (B1) (L)

In Table 18608 IFEC_degraded_SER points to bit 1.2201.2.

This is incorrect as 1.2201.2 is for high SER

SuggestedRemedy

Create new bit in Clause 45 at register location 1.2201.12 to indicate IFEC degraded SER.

Change 1.2201.2 to 1.2201.12 on line 12 in Table 168-8 for IFEC_degraded_SER and
 make appropriate additions in "45.2.1.217 IFEC status register (Register 1.2201)" for this
 new bit

Proposed Response Response Status W

PROPOSED ACCEPT.

[Editor's note: CC: 186, 45]

Cl 45 SC 45.2.1.217.6c P109 L15 # 9

Marris, Arthur self
 Comment Type TR Comment Status D Management (L) (B1)

The bit definitions for 1.2201.4 and 1.2201.5 are incorrect. These bits are nothing to do with
 the 800GBASE-ER1 FEC but are for indicating IFEC status signalled by the partner AUI
 attached PCS.

SuggestedRemedy

Change "45.2.1.217.6c IFEC received local degraded (1.2201.5)" description to:

"When read as a one, bit 1.2201.5 indicates that the local degraded SER signal has been
 received. This bit reflects the state of rx_local_degraded for the IFEC."

Change "45.2.1.217.6d IFEC received remote degraded (1.2201.4)" description to:

"When read as a one, bit 1.2201.4 indicates that the remote degraded SER signal has
 been received. This bit reflects the state of rx_rm_degraded for the IFEC."

Proposed Response Response Status W

PROPOSED ACCEPT.

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CI 179B SC 179B.4.5 P914 L9 # 10

Chen, Chi-Hua Chunghwa Telecom Laboratories

Comment Type T Comment Status D (B1) (E)

*** Comment submitted with the file Corrected Equation (179B-8).pdf attached ***

Equation (179B-8) appears to contain a minor numerical inaccuracy. Specifically, the value currently stated as 53.12 should be corrected to 53.125.

SuggestedRemedy

Corrected Equation (179B-8) is written in the attached file.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The following file was submitted along with this comment:

https://www.ieee802.org/3/dj/comments/D3p0/8023dj_D3p0_comment_i-10_attachment.pdf

Resolve using the response to comment #177.

CI 186 SC 186.7.2 P690 L10 # 11

Marris, Arthur self

Comment Type TR Comment Status D (B1) (L)

Missing status variables in Table 186.7.2.1 FEC sublayer status variables and MDIO mapping

SuggestedRemedy

In Table 186-8

Add IFEC_high_SER status variable mapping to 1.2201.2

Add remote PHY fault indication status variable as described in 186.2.3.5.2 and map to new status bit 1.2411.2

Proposed Response Response Status W

PROPOSED ACCEPT.

[Editor's note: CC: 186, 45]

CI 45 SC 45.2.1.269 P121 L15 # 14

Marris, Arthur self

Comment Type E Comment Status D (B1) (L)

For 1.2733.13 "0 = Lane 20 alignment marker is not locked" should read "0 = Lane 29 alignment marker is not locked"

SuggestedRemedy

Change 20 to 29 on line 15 to fix this typo.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.60b P85 L32 # 15

Marris, Arthur self

Comment Type E Comment Status D (B1) (L)

Typo in description of bit 1.73.6 in Table 45.058bu800G PMA/PMD ability register bit definitions

SuggestedRemedy

Change:

0 = PMA/PMD is not able to perform 800GBASE-DR8-2

To

0 = PMA/PMD is not able to perform 800GBASE-KR4

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.139 P90 L26 # 16

Marris, Arthur self

Comment Type ER Comment Status D (B1) (L)

Missing space in "0 = Lane 9Tx output precoder disabled"

SuggestedRemedy

Change "9Tx" to "9 Tx"

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 180 SC 180.5.12 P466 L38 # 18
 Brown, Matthew Qualcomm
 Comment Type E Comment Status D editorial (B1) (CA)
 "functions" appears twice in title
 SuggestedRemedy
 change heading to "180.5.12 Autonomous path startup (APSU) functions"
 change heading 181.5.12, 182.5.12, and 183.5.12 similarly
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 180 SC 180.9.6.3 P479 L10 # 19
 Brown, Matthew Qualcomm
 Comment Type E Comment Status D editorial (B1) (OI)
 In Figure 180-10, the arrow-line goes through the summer beside the detector.
 SuggestedRemedy
 Split the line on each side of the summer.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 180 SC 180.9.6.3 P479 L22 # 22
 Brown, Matthew Qualcomm
 Comment Type E Comment Status D Reference equalizer(B1) (OI)
 The variable "a" is not well defined here. It would be helpful to the reader to clearly
 associate this with the permitter number of precursor taps as specified in Table 180-16.
 SuggestedRemedy
 Change the note the the following or similar:
 "NOTEùThe variable a is an integer in the range ù3 to 0 associated with the permitted
 number of precursor taps as specified in Table 180-16."
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement the suggested remedy with editorial license.
 Note however that this comment may be overtaken by other comments such as comment
 #465.

Cl 181 SC 181.5.5 P506 L39 # 26
 Brown, Matthew Qualcomm
 Comment Type ER Comment Status D editorial(B1) (OI)
 In Table 181-2, the text "For any lane" is redundant since the specification in this clause is
 for each lane. This text should have been deleted when 181.5.5 and 181.5.4 were updated
 in an early draft. Should align this table with Table 181-5 and Table 182-5. Same for Table
 183-2.
 SuggestedRemedy
 In Table 181-2 and Table 183-2, delete "For any lane;" twice.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 174A SC 174A.6 P744 L25 # 27
 Brown, Matthew Qualcomm
 Comment Type E Comment Status D (B1) (CG)
 list of figures and tables should include Figure 174A-11
 SuggestedRemedy
 Change "(see Figure 174Aù6, Table 174Aù1, and Table 174Aù2)"
 To "(see Figure 174Aù6, Figure 174A-11, Table 174Aù1, and Table 174Aù2)"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 174A SC 174A.13 P755 L43 # 28
 Brown, Matthew Qualcomm
 Comment Type T Comment Status D (B1) (CG)
 This figure should include allocation of FLR for the PCS to PCS path.
 SuggestedRemedy
 Add arrows and label for PCS-to-PCS path, similar to Figure 174A-10, except for error
 expectations listing only "FLR < 6E-11".
 Proposed Response Response Status W
 PROPOSED ACCEPT.

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Cl 1 SC 1.3 P57 L9 # 31
 Brown, Matthew Qualcomm
Comment Type E Comment Status D Normative references (B1) (E)
 The following normative reference is never referenced in the draft:
 "SFF-8665, Rev 1.9.11, July 11, 2025, QSFP+ 4X Pluggable Transceiver Solutions."
SuggestedRemedy
 Delete this reference or alternately move to bibliography if there is a desire to keep it in the draft as informative information.
 Alternately, if the lack of reference was an oversight then add the reference where needed.
Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Resolve with the response to Comment #324.

Cl 178 SC 178.10.1 P402 L12 # 32
 Brown, Matthew Qualcomm
Comment Type E Comment Status D (B1) (E)
 Per style manual, use of the word "can" in the sense of "is permitted" is deprecated.
 Instead, use the word "may".
SuggestedRemedy
 Change "parameters can be measured" to "parameters may be measured".
Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Change the wording to be consistent with the text in the NOTE at the bottom of Table 179-19. Apply the same change to Table 176C-10.
 Implement with editorial license.
 [CC: 178, 176C]

Cl 183 SC 183.9.13 P585 L42 # 33
 Brown, Matthew Qualcomm
Comment Type E Comment Status D editorial (B1) (OI)
 Per style manual, use of the word "can" in the sense of "is permitted" is deprecated.
 Instead, use the word "may".
SuggestedRemedy
 Change "the square wave test pattern can be used" to "the square wave test pattern may be used".
Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 179C SC 179C.2.3 P926 L36 # 34
 Turner, Michelle Editorial Coordination
Comment Type TR Comment Status D Normative references (B1) (E)
 The reference to SFF-TA-1027 appears inside a permissive construction (use of ömayö). Because ömayö indicates an optional choice rather than a requirement, this wording does not cite SFF-TA-1027 normatively, even though the document is listed in the Normative References clause.
SuggestedRemedy
 If SFF-TA-1027 is required for proper implementation, please consider rewriting the sentence using normative language.
 If SFF-TA-1027 is not required for implementation, please move it to the Bibliography as an informative reference.

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 The comment points out an ambiguity in the current draft. There are two parts. First, a host/module "may" use a QSFP224 form factor. Second, if it does then it "shall" comply with SFF-TA-1027. Further, this issue also applies to 179C.2.4 and 179C.2.5 in the same manner.
 Propose to change the following text from:
 "the mechanical interface between the PMD and the cable assembly may be a mated pair of connectors as defined in SFF-TA-1027, Rev 1.0.7, 2025-05-30, QSFP2 Connector, Cage, & Module Specification"
 to:
 "the mechanical interface between the PMD and the cable assembly may be a mated pair of QSFP224 connectors. If QSFP224 is used, the implementation shall comply with the QSFP224 Component Mechanical Specification in SFF-TA-1027, Rev 2.0, September 9, 2025."

Implement similar corrections, with editorial license, in 179C.2.4 and 179C.2.5 as necessary.
 Also, update the reference in 1.4 to "SFF-TA-1027, Rev 2.0, September 9, 2025".
 Implement with editorial license.

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Cl 179C SC 179C.2.5 P928 L 21 # 35

Brown, Matthew Qualcomm

Comment Type E Comment Status D Normative references (B1) (E)

Revision "5.1" does not match revision "5.22" in subclause 1.4. Also, "Specification" should not be capitalized since it is not part of the reference title.

SuggestedRemedy

Change "5.1" to "5.22".
Change "Specification" to "specification".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license.
Note that the response to comment #34 may result in further related changes to this subclause.

Cl 185A SC 185A.2.3 P947 L 38 # 36

Brown, Matthew Qualcomm

Comment Type E Comment Status D (B1) (OC)

Regarding this text... "Processing steps can be consolidated and changed in order but may not perform any additional signal processing with the purpose of compensating for transmitter signal distortions except for those explicitly mentioned below."
Per style manual, use of the word "can" in the sense of "is permitted" is deprecated.
Instead, use the word "may".

SuggestedRemedy

Change "Processing steps can be consolidated" to "Processing steps may be consolidated".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 185A SC 185A.2.4.1 P949 L 23 # 37

Brown, Matthew Qualcomm

Comment Type T Comment Status D (B1) (OC)

There are two issues with the following text: "ENOB can be measured using sine waves as described in IEEE Standard 1241-2023, Section 9.4 provided that the amplitude and frequency of the sine wave used for the measurement are specified." Per style manual, use of the word "can" in the sense of "is permitted" is deprecated. Instead, use the word "may".
However, if the ENOB is not measured using the method in 1241-2023 then how should one measure it. Can it be measured in any way that one wants?

SuggestedRemedy

Change "ENOB can be measured using" to "ENOB is measured using"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 182 SC 182.9.1 P548 L 5 # 39

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

Comment Type E Comment Status D editorial (B1) (OI)

In Table 182-14, the parameter Transmitter eye closure for PAM4 (TECQ) has an incorrect cross reference to 182.9.7. It should be cross referenced to 182.9.8

SuggestedRemedy

Change the TECQ cross reference to 182.9.8

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.
Note that this comment might be overtaken by other comments such as comment #71.

Cl 182 SC 182.9.1 P548 L 5 # 40

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

Comment Type E Comment Status D editorial (B1) (OI)

In Table 182-14 the parameter and associated cross reference to TDECQ_CER is missing

SuggestedRemedy

In Table 182-14 add the parameter TDECQ_CER after TDECQ with a pattern of 6 and cross reference to 182.9.7

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.
Note that this comment might be overtaken by other comments such as comment #71.

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CI 183 SC 183.9.1 P581 L15 # 41
 Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,
 Comment Type E Comment Status D editorial (B1) (OI)
 In Table 183-14 the parameter and associated cross reference to TDECQ_CER is missing
SuggestedRemedy
 In Table 183-14 add the parameter for TDECQ_CER after TDECQ with a pattern of 6 and cross reference to 183.9.7
Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement suggested remedy with editorial license.
 Note that this comment might be overtaken by other comments such as comment #71.

CI 183 SC 183.9.1 P581 L17 # 42
 Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,
 Comment Type E Comment Status D editorial (B1) (OI)
 In Table 183-14, the parameter Transmitter functional symbol error histogram is missing the related subclause cross reference
SuggestedRemedy
 In Table 183-14 for transmitter functional symbol error histogram add a cross reference to 183.9.9
Proposed Response Response Status W
 PROPOSED ACCEPT.

CI FM SC FM P8 L41 # 45
 McClellan, Brett Marvell Semiconductor, Inc.
 Comment Type E Comment Status D (B1) (CG)
 typo
SuggestedRemedy
 change 'Mcclellan' to 'McClellan'
Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 178A SC 178A.1.9.1 P857 L47 # 51
 Shakiba, Mohammad Huawei Technologies Canada Co., Ltd.
 Comment Type TR Comment Status D 'OM signal amplitude (B1) (E)
 *** Comment submitted with the file
 802d3_TFR_SAB_comments_D3p0_Shakiba260318.xls attached ***

Equation (178A-37) defines signal amplitude, (A_s) used in Equation (178A-36) for COM calculation. However, Equation (178A-37) defines the signal amplitude at the launch point. Since noise amplitude (A_ni) for COM calculation (described in section 178A.1.9.2 and its referenced sections and equations) is for noise at the input of the DFE slicer, A_s should also be defined as the signal amplitude at this point. This was the case in Annex 93A.
SuggestedRemedy

Modify Equation (178A-37) to include the effect of the signal chain on the signal amplitude up to the DFE slicer input (from before TxFFE to after RxFFE). This can be achieved by adding a multiplying factor equal to the main cursor of the equalized pulse response (h^(0)(0)) to Equation (178A-37).
 FYI, the COM Matlab code implementation seems to have used the correct equation as it is still following the procedure defined in section 93A.1.6 to calculate A_s.

Proposed Response Response Status W
 PROPOSED REJECT.
 [Editor's note: The commenter indicated that the file submitted with the comment was unintentional.]
 The optimization of the discrete-time equalizer defined in 178A.1.8 forces the value of the pulse response at the input to the decision feedback equalizer (or maximum likelihood sequence detector) to be 1 at n = d+1 (the "main cursor").
 The value of Ani is also computed from the inter-symbol interference and noise at the input to the decision feedback equalizer (or maximum likelihood sequence detector) and therefore is subject to the same filtering and scaling.
 There is no difference in the scale between As and Ani and since the value of the "main cursor" is 1, it does not need to be included in the equation. Equation (178A-37) is correct as written.

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Cl 178 SC 178.14.3 P407 L15 # 58

de Koos, Andras Microchip Technology Inc

Comment Type ER Comment Status D (B1) (E)

It is unclear how the PICS items PMA100, FEC100, and PCS100 relate to the 200GBASE-KR1 PMD. Are they meant to be in this table?

SuggestedRemedy

Clean up the Clause 178 PICS table - The equivalent table in Clause179 (CR) looks a lot cleaner - includes references to 800GBASE-R and does NOT include references to 100GBASE-P/R.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

There are several discrepancies in the PICS tables that require significant rework. Recreate the PICS subclause based on the structure of Clause 179 PICS, with editorial license.

Cl 178 SC 178.14.3 P407 L18 # 59

de Koos, Andras Microchip Technology Inc

Comment Type ER Comment Status D (B1) (E)

Typo : "200GBASE-P PMA"

SuggestedRemedy

Replace with "200GBASE-R PMA"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 177 SC 177.4.7.1 P362 L41 # 60

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type ER Comment Status D (B1) (L)

The hyphen in "48-bits" is redundant, and should be removed.

SuggestedRemedy

Change "48-bits" to "48 bits".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 186 SC 186.4.3 P685 L25 # 61

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type TR Comment Status D (B1) (L)

In 5_BAD state of state diagram 186-19, the assignment "mfas_lock<x> <= false" is redundant with the same assignment in LOSS_OF_ALIGNMENT state, and should be removed. Setting fec_mfas_restart_lock <= true will restart all 8 instances of state diagram 186-19 (x=0,...,7), and they will go to LOSS_OF_ALIGNMENT with mfas_lock<x> <= false there. Having the redundant assignment in 5_BAD seems to imply that just the single instance is being reset, but if that was the case then fec_mfas_restart_lock should also be indexed with <x>. Similar issues in state diagram 186-17 and 186-18 had been resolved per comment #386 against D2.2.

SuggestedRemedy

In 5_BAD state of state diagram 186-19, remove the assignment of mfas_lock<x> to false, and leave only the assignment of fec_mfas_restart_lock to true.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #407.

Cl 178B SC 178B.8.3.1 P888 L16 # 63

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type TR Comment Status D (B1) (CA)

The value of local_mc_mode is initially set to PAM2 by the training control state diagram instead of training frame lock state diagram. A similar issue happens in Line 33 on Page 888. The value of local_tp_mode is initially set to synchronous PRBS13 by the training control state diagram instead of training frame lock state diagram.

SuggestedRemedy

Change "training frame lock state diagram" to "training control state diagram" in Line 16 on Page 888.

Make the same change in Line 33 on Page 888.

Proposed Response Response Status W

PROPOSED ACCEPT.

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CI 174A SC 174A.13 P755 L43 # 64

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type TR Comment Status D (B1) (CG)

In Figure 174A-11, CRC error ratio for FEC-to-FEC path should be less than 5.7×10^{-11} instead of 1.45×10^{-11} according to 174A.7.

SuggestedRemedy

Change "CRC error ratio < 1.45×10^{-11} " to "CRC error ratio < 5.7×10^{-11} ".

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 174A SC 174A.4 P743 L45 # 65

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type ER Comment Status D (B1) (CG)

"MAC-TO-MAC" in the sub-clause title should be "MAC-to-MAC".

SuggestedRemedy

Change "MAC-TO-MAC" to "MAC-to-MAC".

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 174A SC 174A.9.6 P749 L12 # 66

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type TR Comment Status D (B1) (CG)

For step b), Ha(k) should reflect the error distribution over all lanes that are not tested by the PMA. When using Equation (174A-5) to calculate Ha(k), the value of n should be specified to be 544 as Ha(k) is calculated without convolution of per-lane error histogram. The same issue also exists in 174A.9.7. A contribution related to this comment was presented in March plenary meeting and the option 1 therein was supported. See https://www.ieee802.org/3/dj/public/26_03/wang_3dj_01a_2603.pdf

SuggestedRemedy

Implement option 1 of the proposed change on slide 5 in https://www.ieee802.org/3/dj/public/26_03/wang_3dj_01a_2603.pdf

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 178B SC 178B.10 P895 L50 # 67

WANG, Xuebo Huawei Technologies Co., Ltd

Comment Type TR Comment Status D (B1) (CA)

The variables local_mc_mode and local_tp_mode are set according to control field bits of training frames from the link partner (LP), and are encoded in the status field of training frames of the local device (LD). Thus, these two variables should correspond to 45.2.1.167, the PMD training LD status registers, instead of 45.2.1.165, the PMD training LD control registers. A contribution related to this comment was presented in March plenary meeting. See https://www.ieee802.org/3/dj/public/26_03/mi_3dj_01a_2603.pdf

SuggestedRemedy

Implement the proposed change on slide 5 in https://www.ieee802.org/3/dj/public/26_03/mi_3dj_01a_2603.pdf

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

CI FM SC FM P14 L1 # 68

Maguire, Valerie Copperopolis

Comment Type E Comment Status D (B1) (CG)

IEEE Std 802.3da has published

SuggestedRemedy

Replace "20xx" with "2026"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
802.3dk was also approved.
Change "IEEE Std 802.3da™-20xx" to "IEEE Std 802.3da™-2026"
Change "IEEE Std 802.3dk™-20xx" to "IEEE Std 802.3dk™-2026"
[Editor's note: changed Clause/Subclause to FM]

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

Cl 176 SC 176.4.2.3.1 P322 L 52 # 76

Ran, Adee Cisco Systems, Inc.

Comment Type TR Comment Status D (B1) (L)

"The 4-codeword deskew aligns PCSLs to a four codeword boundary relative to the start of the alignment marker block across all PCSLs"

The expression "alignment marker block" is used once in 176A where it refers to what we usually call "alignment marker group" (subject of another comment). In clause 176 it is used 3 times (176.4.2.3.1, 176.4.2.3.2, and 176.4.2.3.3) and seems to refer to the (single) alignment marker on each PCSL.

This expression is used in the base standard only once, in clause 82, with the meaning of single alignment markers (which are 66-bit blocks in that case). But from clause 119 and on, alignment markers are not 66-bit blocks anymore.

SuggestedRemedy

Change from
 "relative to the start of the alignment marker block across all PCSLs"
 to
 "relative to the start of the alignment marker on each PCSL".

Apply the same change in 176.4.2.3.2, and 176.4.2.3.3.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

In 176.4.2.3.1, 176.4.2.3.2, and 176.4.2.3.3:

Change:
 "... relative to the start of the alignment marker block across all PCSLs."
 To:
 "... relative to the start of the alignment markers across all PCSLs."

Implement with editorial license.

Cl 176 SC 176.4.4.2 P332 L35 # 79

Ran, Adee Cisco Systems, Inc.

Comment Type E Comment Status D (B1) (L)

(Comment resubmitted from WG ballot)

This subclause includes a dashed list with one item (external reference to Figure 119-12), and then a paragraph with multiple statements regarding different PMAs, which would be more readable as a table or a list.

It should be the other way around: single statement in a text paragraph, and multiple statements in a list.

The suggested remedy is one way of improving this text, using a table. Other ways may be considered.

SuggestedRemedy

Use the following content, with editorial license:

The 200GBASE-R 8:1, 400GBASE-R 16:2, 800GBASE-R 32:4, and 1.6TBASE-R 16:8 PMAs use the alignment marker lock state diagram from Clause 119 (Figure 119-12), with the definitions of variables in 176.4.4.2.1, functions in 176.4.4.2.2, and counters in 176.4.4.2.3. Table 176-<new> lists the locations of additional variable definitions and values, and the values of the index x, which denotes the PMA service interface lane number.

Add a new table 176-<new> with columns for PMA type, reference clause for variables, and the range of x.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The current text in 176.4.4.2 is technically correct as written, but could be improved for clarity. Further, the definition of the index variable, x, is included in the definitions in Clauses 119, 172, and 175 and can be removed from 176.4.4.2.

Replace the text in 176.4.4.2 with:

"The 200GBASE-R 8:1, 400GBASE-R 16:2, 800GBASE-R 32:4, and 1.6TBASE-R 16:8 PMAs use the alignment marker lock state diagram from Clause 119 (Figure 119-12).

Any constants, variables, functions, or counters used in the alignment marker lock state diagram (Figure 119-12), that are not defined in the following subclauses, shall use the values and definitions for each PMA from the following subclauses:

- For 200GBASE-R 8:1 PMA, use 119.2.6.2
- For 400GBASE-R 16:2 PMA, use 119.2.6.2
- For 800GBASE-R 32:4 PMA, use 172.2.6.2
- For 1.6TBASE-R 16:8 PMA, use 175.2.6.2

Implement with editorial license.

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

Cl 176 SC 176.4.4.3 P334 L39 # 80

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D (B1) (L)

"shall each implement m alignment marker processes as depicted in Figure 119012"
Figure 119-12 is titled "Alignment marker lock state diagram".

SuggestedRemedy

Change "alignment marker processes" to "alignment marker lock processes".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 176 SC 176.7.1.2 P341 L18 # 81

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status D ILT reference (L) (B1)

"in the LINK_READY state on lane i (see Figure 178B010)"
There is no such state.

SuggestedRemedy

Change "LINK_READY" to "ISL_READY".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #371.

Cl 176 SC 176.7.3 P341 L42 # 82

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D (B1) (L)

Typo: IS_UNIT_DATA (twice)

SuggestedRemedy

Change to IS_UNITDATA

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 177 SC 177.2 P355 L21 # 83

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status D (B1) (L)

For SIGNAL_OK in the transmit direction (.request primitive) there is the following text:
"When SIGNAL_OK is IN_PROGRESS or FAIL, the corresponding tx_symbol parameters on all lanes are unspecified"
In the subsequent paragraph, for the receive direction (.indication primitive) there is a similar text but it also includes the READY state.

The READY state indicates that the sublayer that generates the primitive is not generating valid data - either because of incomplete training on an adjacent interface or because AM lock and deskew is still underway. Therefore, the data that the inner FEC sublayer provides to the next sublayer will also be invalid, both for indication and for request.

However, this paragraph actually describes the behavior of the client sublayer (PMA), so the wording "the corresponding tx_symbol parameters" refers to the PMA's transmitted symbol. The statement does not describe the inner FEC sublayer's output, and thus is not required in this subclause.

SuggestedRemedy

Since the paragraph about the PMA's signal status information describes the PMA's output, it should be deleted from this clause.

If the paragraph is retained, change the quoted sentence to
"When the value of SIGNAL_OK is READY, IN_PROGRESS, or FAIL, the corresponding tx_symbol parameters of the PMA:IS_SIGNAL.request_i primitive on all lanes are unspecified".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change
"When SIGNAL_OK is IN_PROGRESS or FAIL, the corresponding tx_symbol parameters on all lanes are unspecified"
to
"When the value of SIGNAL_OK is READY, IN_PROGRESS, or FAIL, the corresponding tx_symbol parameters of the PMA:IS_SIGNAL.request_i primitive on all lanes are unspecified".

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Cl 177 SC 177.7.2.1 P369 L 50 # 84

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status D (B1) (L)

There is only one signal_ok variable in the inner FEC sublayer, but it seems that there should be one for each of the two interfaces (similar to the PMA's signal_ok_mux and signal_ok_demux).

There are no state diagrams for the client sublayer interface function but the inner FEC should have a function for identifying the symbol boundaries similar to the PMA multiplex synchronization state diagram (Figure 176-10), which uses signal_ok_mux. The currently defined signal_ok is for the PMD service interface, and should thus be called signal_ok_demux. Alternatively, it can be called pmd_signal_ok.

SuggestedRemedy

Rename signal_ok to signal_ok_demux in the definition and the state diagrams that use it (Figure 177-13 and Figure 177-14).

Consider adding signal_ok_mux to represent the PMA's SIGNAL_OK and specifying how it affects the transmit process.

Proposed Response Response Status W

PROPOSED REJECT.

The signal_ok in the synchronization state diagram is clearly defined to be relevant to PMD:IS_SIGNAL.indication. The client sublayer interface function has been defined in 177.4.1.1, which referred to CL176. Adding new text explaining this process would be redundant.

Cl 179 SC 179.9.4.7.2 P431 L 10 # 86

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status D (B1) (E)

"The set may be filtered by eliminating transitions heavily affected by ISI"

The set A_i is the transition times corresponding to a specific transition (location in the test pattern) i.

All these transitions are equally affected by ISI, so this sentence seems to be misplaced.

The intent is probably to filter specific sets (values of i) that are heavily affected by ISI.

SuggestedRemedy

Delete the quoted sentence.

Add a sentence instead to the paragraph preceding the dashed list, which describes the set A:

"For example, locations where the transition slope is low due to ISI should be eliminated".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 179 SC 179.9.4.7.2 P431 L 21 # 87

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status D (B1) (E)

Equation 179-10 includes the term RJdd_i, which is not defined and not used elsewhere. This seems to be a typo, and the term should be RJrms_i, which appears in the paragraph and the dashed list preceding the equation.

SuggestedRemedy

Change RJdd_i to RJrms_i

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 179 SC 179.9.4.7.2 P431 L 26 # 88

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status D (B1) (E)

"calculate the best-fit coefficients for the polynomial in 1 / s_i"

DJdd, the "deterministic jitter component" of the dual-Dirac model, is always a positive value, regardless of the sign of the slope. The noise amplification factor is the inverse absolute value of the slope.

SuggestedRemedy

Change to the absolute value, i.e., 1 / |s_i|, both in the text and in equation 179-12.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 179 SC 179.11.6.2.2 P449 L 23 # 89

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D (B1) (E)

(Comment resubmitted from WG ballot)

A single exception does not require a list (there are many such exceptions in the draft without a list).

SuggestedRemedy

Merge the list into the preceding paragraph, with editorial license.

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 181 SC 181.9.6 P 517 L 46 # 95

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status D editorial (B1) (OI)

TDECQ is defined based on 180.9.6, with three exceptions.

The first exception (signaling rate and pattern) is not required (for FR4-500 these are the same as in DR).

The second exception (source clock of the SSPRQ) is not required (the same requirement exists in 180.9.6.1).

The third exception is to use optical channel specified in 181.9.6.1 (instead of the one in 180.9.6.2). This should be expanded to include an optical filter in the test setup (similar to Figure 122-4), unlike 180.9.6.1.

SuggestedRemedy

Remove the first and second exceptions.

Expand the third exception, or add another exception, to use an optical filter in the test setup.

Consider adding a figure of the setup with the optical filter.

Proposed Response Response Status W

PROPOSED REJECT.

The first and second exceptions are almost identical to specifications in 180.9.6 but point to the test pattern table in Clause 181 rather than Clause 180.

The third exception talks about the optical compliance channel, which does not include an optical filter. The optical filter is considered to be part of the receiver.

Cl 182 SC 182.9.6 P 549 L 23 # 97

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status D (B1) (OI)

TDECQ is defined based on 180.9.6, with a list of exceptions.

The penultimate exception (source clock of the SSPRQ) is not required (the same requirement exists in 180.9.6.1).

SuggestedRemedy

Remove the exception for clock source of SSPRQ.

Proposed Response Response Status W

PROPOSED REJECT.

The penultimate exception is almost identical to specifications in 180.9.6 but points to the test pattern table in Clause 182 rather than Clause 180.

Cl 182 SC 182.9.6.1 P 550 L 12 # 98

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D editorial (B1) (OI)

In Table 182015 the first column "PMD type" is unnecessary, because all PMD types have the same parameters and values.

Compare with the similar Table 180015, which does not include this column.

SuggestedRemedy

Remove the first column.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 184 SC 184.3 P 598 L 48 # 101

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status D (B1) (L)

"When SIGNAL_OK is FAIL, the tx_symbol parameters of the

FEC:IS_UNITDATA_i.indication primitives are undefined"

FEC:IS_UNITDATA_i.indication parameter is rx_symbol, not tx_symbol.

SuggestedRemedy

Change tx_symbol to rx_symbol.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 176A SC 176A P 768 L 45 # 102

Ran, Adeo Cisco Systems, Inc.

Comment Type ER Comment Status D (B1) (L)

"The first of the four codewords contains the alignment marker block"

"Alignment marker block" is not defined in 802.3dj or the base standard. Its usage here seems to refer to the "alignment marker group" which is defined in 175.2.4.6 and used extensively in clause 175 and annex 175A, consistent with previous PCS clauses and annexes.

SuggestedRemedy

Change "alignment marker block" to "alignment marker group".

Proposed Response Response Status W

PROPOSED ACCEPT.

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

Cl 176B SC 176B.3 P773 L5 # 103

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status D (B1) (CG)

176B.3 is titled "Special Case for 200GBASE-R, 400GBASE-R, and 800GBASE-R PMAs", and includes Figure 176B04, which provides examples of 800GBASE-R PHYs with back-to-back PMAs. However, there are no examples of the equally relevant 200GBASE-R and 400GBASE-R PHYs.

Realizing that adding detailed 200G and 400G labeling to the same figure would make it unreadable, and new figures would be almost identical, this could be noted in the text and/or in a NOTE inside the figure.

The suggested remedy is a NOTE.

SuggestedRemedy

Add a NOTE inside the figure:

NOTE---400GBASE-R and 200GBASE-R PHYs are formed in a similar way except that the number of lanes is divided by two and four, respectively.

Implement with editorial license.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 179C SC 179C.1 P918 L23 # 112

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D (B1) (E)

In Table 179C-1, the heading for the first column, "MDI types", should be "MDI connector type", to match the text in the first paragraph that points to this table.

SuggestedRemedy

Change the heading to "MDI connector type".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 185 SC 185.11.4.3 P644 L8 # 118

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

Comment Type E Comment Status D (B1) (OC)

In optical measurements PICS table the term "Tx clock phase noise: total periodic jitter (max)" should not include "(max)"

SuggestedRemedy

Remove "(max)" from the feature description

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 187 SC 187.11.4.3 P718 L9 # 119

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

Comment Type E Comment Status D (B1) (OC)

In optical measurements PICS table the term "Tx clock phase noise: total periodic jitter (max)" should not include "(max)"

SuggestedRemedy

Remove "(max)" from the feature description

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 184 SC 184.4 P599 L5 # 125

Huber, Thomas Nokia

Comment Type TR Comment Status D (B1) (L)

The text indicates that the alignment lock and deskew are the same as specified in 172.2.5.1, except that deskew is only required to a 2-symbol boundary. However, 172.2.5.1 specifies the state machine in figure 172-6 is required. That state machine counts FEC codeword errors and restarts lock if 3 consecutive uncorrected codewords are received. The LR1 inner FEC does not decode the FEC, so it doesn't need this state machine.

SuggestedRemedy

Change the sentence to read:

The alignment lock and deskew function shall be identical to the processes specified in 172.2.5.1 except that only a deskew to 20-bit (two RS-FEC symbols) boundaries across all PCS lanes is required, and the codeword monitor function in Figure 172-6 is not required.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

CI 186 SC 186.4.3 P 685 L 25 # 129

Huber, Thomas

Nokia

Comment Type T Comment Status D (B1) (L)

In Figure 186-19, in the 5_BAD state, there is no need to set mfas_lock<x> to false. Setting fec_mfas_restart_lock to true will cause a transition to the loss of alignment state, which sets mfas_lock<x> to false.

SuggestedRemedy

remove "mfas_lock<x> <= false" from the 5_BAD state

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #407.

CI 73A SC 73A.1a P 723 L 24 # 130

Huber, Thomas

Nokia

Comment Type ER Comment Status D (B1) (L)

The description of host class priority is overly complex and leaves the reader guessing. The intended meaning is that if a PMD supports more than one host class, it should advertise one of them, with the preference being to prioritize them in the order HL, HN, HH.

SuggestedRemedy

Replace "If the PMD is compliant to more than one host class, the recommended priority of which host class to indicate would be HL followed by HN. So for example, HL would be advertised if the PMD supports all three host classes"

with
"If the PMD is compliant to more than one host class, it is recommended to advertise HL class if that is supported; if HL is not supported (and thus the PMD supports only HN and HH), it is recommended to advertise HN."

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 178B SC 178B.7.4 P 876 L 18 # 139

Huber, Thomas

Nokia

Comment Type ER Comment Status D ILT frame (CA) (B1)

The "continue training" field in the E1 and O1 frame is inaccurately named. Signaling not-RTS or RTS is not a continuation of the ILT function, it is part of the RTS function. The use of the ILT frame structure to indicate nor-RTS or RTS status should not be confused with that signaling being part of the ILT function.

SuggestedRemedy

In both tables 178B-2 and 178B-3, rename the "Continue training" field to "RTS status", and change the definition of the 1 value to "not ready to send". Change heading 178B.7.4.2 to "RTS status".

Proposed Response Response Status W

PROPOSED REJECT.
Renaming the bit to RTS status and defining that 1 means not ready will create confusion. Indications are usually positive.

CI 177 SC 177.5.2 P 365 L 37 # 143

Bruckman, Leon

NVIDIA

Comment Type E Comment Status D (B1) (L)

Figure 177-11 is related with section 177.5.2.

SuggestedRemedy

Move Figure 177-11 to be before section 177.5.3

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 178B SC 178B.8.3.5 P 891 L 49 # 144

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status D state diagram (CA) (B1)

There is no guidance how the FAIL state is exited.

SuggestedRemedy

Add to the end of 178B.7 - ILT function, this text:
öRecovery from the FAIL state in the Training control state diagram (Figure 178B-10) requires management to assert mr_restart_training or reset; the timing of this action is implementation dependent and beyond the scope of this standard.ö

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

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Cl 178 SC 178.8.10 P388 L37 # 146

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status D ILT (B1) (E)

The PMD reset, resets also the RTS function as shown in Figure 178B-9. See also the reset variable definition in 178B.8.2.1.

SuggestedRemedy

Change: "PMD reset shall reset the inter-sublayer link training (ILT) and ready-to-send (RTS) functions associated with the PMD"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

To avoid duplicate definitions, the PMD reset function can refer to 179.8.10, like the other functions.

Change the text of 178.8.10 to:

The specification of PMD reset function is identical to that of 179.8.10.

See also related comment #381.

Cl 176 SC 176.6.1 P340 L10 # 147

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status D (B1) (L)

In Figure 176-13 there is an input from each PAM4 decode block to the SIL, but there is no requirement to monitor anything in the PAM4 decoder that can be used as a signal failure detection

SuggestedRemedy

Either define what shall be monitored by the PAM4 decoder or in Figure 176-13:

- remove the arrow from the PAM4 decode blocks to the SIL block
- remove the SIL block and pass the IS_SIGNAL.request directly to the Service Interface below the PMA and IS_SIGNAL.indication directly to the Service Interface above the PMA

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The 200G/lane n:n PMA has a PAM4 encode and decode, but no CDR. The CDR is part of the AUI-component. The last sentence of 176.2 and 176.3 already indicates that the n:n PMA passes the SIGNAL_OK parameter through the PMA without any modification.

Remove the SIL blocks in Figure 176-13 and pass IS_SIGNAL from input to output without any modification (pass-through).

Implement with editorial license.

Cl 178B SC 178B.11.3 P898 L29 # 148

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status D (B1) (CA)

The polarity test appears twice

SuggestedRemedy

Delete the second appearance of the polarity test in Table 178B.11.3

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 176 SC 176.12.3 P349 L52 # 149

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status D (B1) (L)

MDIO has its own table (Table 176.12.3.6)

SuggestedRemedy

Delete MDIO row from Table 176.12.3

Proposed Response Response Status W

PROPOSED REJECT.

MDIO is a major capability, therefore listed in Table 176.12.3. The MDIO capability is also a condition for the line items in Table 176.12.3.6. MDIO is listed as a major capability in other clauses as well.

The draft is correct as written. There isn't sufficient justification to adopt the suggested remedy.

Cl 177 SC 177.6.1.1 P368 L4 # 172

He, Xiang

Huawei Technologies Co., Ltd

Comment Type E Comment Status D (B1) (L)

"FEC lane" should be "Inner FEC lane". Also line 51 on this page.

SuggestedRemedy

Change "FEC lane" to "Inner FEC lane". Apply this fix throughout the clause.

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 178 SC 178.9.2.3 P391 L11 # 176

Healey, Adam Broadcom Inc.

Comment Type TR Comment Status D ERL (B1) (E)

The receiver 3 dB bandwidth and the target detector error ratio for the dERL measurement is not defined. It is presumably the values specified in Table 178-15 but this table is not included in the list of references for parameter values.

SuggestedRemedy

In the first sentence of 178.9.2.3, change "àwith the values in Table 178-8 and Table 178-14, with differential reference impedanceà" to "àwith the values in Table 178-8, Table 178-14, and Table 178-15, with differential reference impedanceà".

Proposed Response Response Status W

PROPOSED ACCEPT.

[Editor's note: changed page from 954 to 391]

Cl 179B SC 179B.4.5 P914 L9 # 177

Healey, Adam Broadcom Inc.

Comment Type TR Comment Status D (B1) (E)

RLdc(f) is specified to be 15 dB for frequencies greater than or equal to 53.12 GHz and less than 67 GHz. The lower limit should be 53.125 GHz.

SuggestedRemedy

Change "53.12" to "53.125".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 178B SC 178B.8.2.1 P885 L34 # 185

Osorio, Luz Nokia

Comment Type TR Comment Status D (B1) (CA)

training_status is, based on this definition, the aggregated value of the lane_training_status. It is an enumerated variable with 4 possible values. However, in the Management Variables table, it is linked to a MDIO Boolean variable (1.151.2), which only indicates whether training is in progress. It further suggests this a per lane indication providing a link to 8 lanes.

Based on the variable definition, if any lane is FAIL, then the training_status value must also be set to FAIL.

The current Management Variables definition would dictate that all 8 values must be set to FAIL, which makes it impossible to know which lane actually failed.

There must be a way for management to know the status of each lane clearly so that fault isolation can proceed in case of a failure.

SuggestedRemedy

Add lane_training_status to the Management Variables (2 bits per lane) to indicate the status of each signal.

Change training_status to be an aggregate per interface indicator (2 bits).

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #387.
[Editor's note: CC 45, 178B]

Cl 178B SC 178B.8.2.1 P885 L26 # 186

Osorio, Luz Nokia

Comment Type TR Comment Status D (B1) (CA)

rts_status is missing from the Management Variables

SuggestedRemedy

Add per interface rts_status to the Management Variables (2 bits)

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #387.

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

Cl 178B SC 178B.10 P 895 L 34 # 187
 Osorio, Luz Nokia
 Comment Type ER Comment Status D (B1) (CA)
 The cross-reference note indicator "c" is not formatted as a superscript for coef_sts
 SuggestedRemedy
 Fix formatting of note cross-reference
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 178B SC 178B.10 P 895 L 37 # 188
 Osorio, Luz Nokia
 Comment Type ER Comment Status D (B1) (CA)
 The cross-reference note indicator "b" is not formatted as a superscript for local_tf_lock
 SuggestedRemedy
 Fix formatting of note cross-reference
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 178B SC 178B.10 P 895 L 38 # 189
 Osorio, Luz Nokia
 Comment Type TR Comment Status D (B1) (CA)
 Incorrect MDIO register/bit number for remote_tf_lock. It should 1.1420.9
 SuggestedRemedy
 Fix register reference
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 178B SC 178B.10 P 895 L 40 # 190
 Osorio, Luz Nokia
 Comment Type TR Comment Status D Management (CA) (B1)
 Incorrect MDIO register/bit number for local_rx_ready. The referenced MDIO bit is a training complete indicator. The title and the description of the bit are conflicting
 SuggestedRemedy
 Fix the register definition or point to the correct MDIO bit
 Proposed Response Response Status W
 PROPOSED REJECT.
 The Receiver ready bit in the transmitted status field is the local_rx_ready

Cl 178B SC 178B.10 P 895 L 40 # 191
 Osorio, Luz Nokia
 Comment Type ER Comment Status D (B1) (CA)
 The cross-reference note indicator "c" is not formatted as a superscript for local_rx_ready
 SuggestedRemedy
 Fix formatting of note cross-reference
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 178B SC 178B.10 P 895 L 41 # 192
 Osorio, Luz Nokia
 Comment Type TR Comment Status D (B1) (CA)
 Incorrect MDIO register/bit reference for remote_rx_ready. It should 45.2.1.163
 SuggestedRemedy
 Fix register reference
 Proposed Response Response Status W
 PROPOSED ACCEPT.

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Cl 178B SC 178B.10 P 895 L 41 # 193
 Osorio, Luz Nokia
 Comment Type TR Comment Status D Management (CA) (B1)
 Incorrect MDIO register/bit number for remote_rx_ready. The referenced MDIO bit is a training complete indicator. The title and the description of the bit are conflicting
 SuggestedRemedy
 Fix the register definition or point to the correct MDIO bit
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Chnage reference from 45.2.1.167 to 45.2.1.163.

Cl 178B SC 178B.4 P 867 L 5 # 194
 Mascitto, Marco Infinera Canada Inc.,Nokia
 Comment Type E Comment Status D Definitions (CA) (B1)
 The word "activated" is used extensively in this subclause. Considering the first paragraph in 178B.2, it may be more consistent to use the word "initialized" instead. If my interpretation is incorrect and "activated" is not a synonym for "initialized", please define "activated" in 178B.3.

SuggestedRemedy
 Replace all instances of the word "activated" with the word "initialized".
 Proposed Response Response Status W
 PROPOSED REJECT.
 The term "activated" is used extensively in the base standard and is self explanatory.

Cl 178B SC 178B.3 P 866 L 16 # 195
 Mascitto, Marco Infinera Canada Inc.,Nokia
 Comment Type TR Comment Status D (B1) (CA)
 The Physical Layer extends from RS to MDI, and includes the RS and MDI.
 SuggestedRemedy
 Extend the arrows representing the boundaries of the Physical Layer to include the MDI.
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement the suggested remedy with editorial license.

Cl 178B SC 178B.5 P 867 L 34 # 196
 Mascitto, Marco Infinera Canada Inc.,Nokia
 Comment Type E Comment Status D (B1) (CA)
 The words "for the entire interface" makes the sentence confusing. The sentence also reads a bit awkward.
 SuggestedRemedy
 Replace:
 The ILT function is composed of one per-interface ILT function for the entire interface and one per-lane ILT function for each lane associated with the interface.
 With:
 The ILT function within an interface is composed of:
 - one per-interface ILT function, and
 - n per-lane ILT functions, one for each of n lanes associated with the interface.

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement suggested remedy with editorial license

Cl 178B SC 178B.5 P 867 L 36 # 197
 Mascitto, Marco Infinera Canada Inc.,Nokia
 Comment Type TR Comment Status D (B1) (CA)
 An input is missing. The RTS function uses inputs from:
 a) adjacent interface (via the service interface)
 b) peer interface (via the ILT function)
 c) its own per-interface ILT function
 to transition to DATA mode.

SuggestedRemedy
 Replace:
 The RTS function uses inputs from the adjacent interface (via the service interface) and the peer interface (via the ILT function) to permit the ILT function to transition to DATA mode.
 With:
 The RTS function uses inputs from the adjacent interface (via the service interface), its peer interface (via the ILT function), and its per-interface ILT function to permit the ILT function to transition to DATA mode.
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement suggested remedy with editorial license

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Cl 178B SC 178B.6 P 869 L 28 # 198

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

While the first sentence is technically correct, it may help the reader to list the control actions in the order in which they will occur.

SuggestedRemedy

Replace:

The RTS function facilitates the indication of the local interface readiness to switch to DATA mode (local_rts) to other interfaces (peer and adjacent) and controls the switch over of the transmitter clock source to its DATA mode clock (when necessary).

With:

The RTS function controls the switch over of the transmitter clock source to its DATA mode clock (when necessary) and facilitates the indication of the local interface readiness to switch to DATA mode (local_rts) to other interfaces (peer and adjacent).

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 178B SC 178B.7 P 870 L 9 # 199

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

It may help the reader to place this sentence after the paragraph that follows, so that they are introduced to the three modes of operation before stating something specific about one of those modes.

SuggestedRemedy

Place the sentence which starts at line 9 after the paragraph that begins on line 13.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 178B SC 178B.7 P 870 L 14 # 200

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

To add clarity to TRAINING mode, it is suggested to use similar phrasing to LOCAL_PATTERN mode.

SuggestedRemedy

Replace:

TRAINING mode (tx_mode = training): training frames are sent between peer interfaces

With:

TRAINING mode (tx_mode = training): training frames are transmitted to the peer interface

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 178B SC 178B.7.2 P 870 L 51 # 201

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type TR Comment Status D Functions (CA) (B1)

The first sentence of this subclause appears to suggest that the per-lane ILT function generates local pattern data so that an adaptation process can take place when in LOCAL_PATTERN mode. We do not want imply or suggest this. The only mode where adaptation is taking place is in TRAINING mode.

SuggestedRemedy

Replace:

The per-lane ILT function is responsible for the locally generated data that is transmitted while not in DATA mode and for the adaptation processes of the received signal.

With:

The per-lane ILT function is responsible for the locally generated training frames that are transmitted while in TRAINING mode and for the adaptation processes of the received signal. It is also responsible for the locally generated pattern that is transmitted while in LOCAL_PATTERN mode.

Proposed Response Response Status W

PROPOSED REJECT.
The Per-lane ILT function is also responsible for squelching in the QUIET state (Figure 178B-10). The sentence as is covers this case also, while the proposed text will need more details.

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Cl 178B SC 178B.7.2 P 871 L 1 # 202

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

Comma missing.

SuggestedRemedy

Add comma after the word "mode":
"When in TRAINING mode, the frame format [à]"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 178B SC 178B.7.2 P 871 L 7 # 203

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

Comma missing.

SuggestedRemedy

Add comma after the word "mode":
"When in LOCAL_PATTERN mode, the pattern transmitted [à]"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 178B SC 178B.8.2.1 P 885 L 4 # 204

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type TR Comment Status D (B1) (CA)

APSU is the behaviour that is observed on a path, not at an interface (see 178B.2 and 178B.4). mr_restart applies to an interface, not the entire path.

SuggestedRemedy

Replace the definition of mr_restart with:
Boolean variable used by management to restart the RTS and ILT functions.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 178B SC 178B.8.3 P 887 L 3 # 207

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

Sentence is a bit awkward.

SuggestedRemedy

Replace:
An interface using the E1 format implements one instance of each of the training control, the training frame lock and the coefficient update state diagrams, and their associated variables, functions, counters and timers defined in this subclause, independently for each lane.

With:

An interface using the E1 format implements one instance per lane of each of the training control, the training frame lock and the coefficient update state diagrams, and their associated variables, functions, counters and timers defined in this subclause.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 178B SC 178B.8.3 P 887 L 7 # 208

Mascitto, Marco Infinera Canada Inc.,Nokia

Comment Type E Comment Status D (B1) (CA)

Sentence is a bit awkward.

SuggestedRemedy

Replace:
An interface using the O1 format implements one instance of each of the training control and the training frame lock state diagrams, and their associated variables, functions, counters and timers defined in this subclause, independently for each lane.

With:

An interface using the O1 format implements one instance per lane of each of the training control and the training frame lock state diagrams, and their associated variables, functions, counters and timers defined in this subclause.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

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Cl 185 SC 185.10 P 640 L 15 # 229
 Maniloff, Eric Ciena Corporation
 Comment Type ER Comment Status D (B1) (OC)
 Control Variable Reset is labeled improperly
 SuggestedRemedy
 Change "Reset" to "PMD_reset"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 185 SC 185.10 P 640 L 30 # 230
 Maniloff, Eric Ciena Corporation
 Comment Type ER Comment Status D PMD variables (OC) (B1)
 Status variables "fault" "Transmit fault" and "receive fault" are labeled improperly
 SuggestedRemedy
 Change to "PMD_fault", "PMD_transmit_fault", and "PMD_receive_fault"
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 In Table 185-18 change
 "Fault" to "PMD fault"
 "Transmit fault" to "PMD transmit fault"
 "Receive fault" to "PMD receive fault"
 For Global PMD signal detect change the variable reference to "185.5.4"
 Add a new row with variable name "PMD signal detect", variable reference "187.5.5", MDIO
 number "1.10.1" and MDIO reference "45.2.1.9.6"
 In Tables 180-21, 181-14, 182-19 and 183-17 change "PMD_global_transmit_disable" to
 "Global_PMD_transmit_disable"
 In Tables 180-22, 181-15, 182-20 and 183-18 change "PMD_global_signal_detect" to
 "Global_PMD_signal_detect"
 With editorial license

Cl 187 SC 187.10 P 714 L 9 # 233
 Maniloff, Eric Ciena Corporation
 Comment Type ER Comment Status D (B1) (OC)
 Control Variable Reset is labeled improperly
 SuggestedRemedy
 Change "Reset" to "PMD_reset"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 174A SC 174A.9 P 745 L 27 # 241
 Ghiasi, Ali Ghiasi Quantum LLC, Marvell Semiconductor, Inc.
 Comment Type TR Comment Status D (B1) (CG)
 In case of Clause 180 or 181 there is no Inner FEC
 SuggestedRemedy
 Need to clarify an Inner FEC only for PMDs defined with Inner FEC
 Proposed Response Response Status W
 PROPOSED REJECT.
 The PMD for Clause 180 and Clause 181 is covered by the first item in the list "a PMD at
 each end and a medium between". In the subsequent subclause (174A.9.1) detail test
 configuration for each case is provided in Figure 174A-1 and Figure 174A-2.

Cl 176D SC 176D.8.7 P 830 L 1 # 304
 Dudek, Michael Marvell
 Comment Type E Comment Status D (B1) (E)
 missing "and"
 SuggestedRemedy
 Change "step size coefficient" to "step size and coefficient"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

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Cl 177 SC 177.5.8 P367 L38 # 317

Nicholl, Gary Cisco Systems, Inc.

Comment Type TR Comment Status D (B1) (L)

To ensure that the the convolutional deinterleaver shall correctly perform the inverse function of the convolutional interleaver function, it is important that the convolutional deinterleaver is aligned to the 120-bit block structure in the same way as the convolution interleaver.

The alignment between the convolution interleaver and the 120-bit block structure in the transmit direction is defined by the following sentence in 177.4.3:
"The first RS-FEC symbol-quartet within a 120-bit block is always from delay line 0."

Need a similar sentence in the receive direction, to ensure that the first RS-FEC symbol-quartet within a 120-bit block is always sent to delay line 0.

SuggestedRemedy

Add the following sentence at the end of the second paragraph of 177.5.8:
"The first RS-FEC symbol-quartet (40 bits) within a 120-bit block received from the 120-bit block demultiplexer is sent to Delay Line 0."

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #413.

Cl 179C SC 179C.2.3 P926 L34 # 324

Kocsis, Sam Amphenol Corporation

Comment Type TR Comment Status D Normative references (B1) (E)

This section is the primary place to use the normative reference SFF-8665.

SuggestedRemedy

Add sentence "The combination of connector, cage, and module that can be used to create a QSFP224 solution is defined in SFF-8665, Rev x.x.x, yyyy-mm-dd."

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
The implementation of a "QSFP224" solution requires a specific set combination of components.
Those components are defined in SFF-TA-1027. The reference to SFF-8665 is redundant and the backwards compatibility of older QSFP+ hardware is not applicable. The reference to SFF-8665 does not appear anywhere else in the document and can be removed in subclause 1.4.
Delete the reference to SFF-8665 in subclause 1.4.
Impelment with editorial license.

Cl 179B SC 179B.5.4 P917 L41 # 333

Kocsis, Sam Amphenol Corporation

Comment Type TR Comment Status D (B1) (E)

Table 179B-5 does not exist.

SuggestedRemedy

Remove Item TF8 from the table.

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 179C SC 179C.1 P918 L15 # 334

Kocsis, Sam Amphenol Corporation

Comment Type ER Comment Status D (B1) (E)

The reference to "multi-lane" connectors is not necessary.

SuggestedRemedy

Remove the sentence "The SFP-DD224, QSFP224, QSFP-DD1600, and OSFP1600 are also referred to as multilane connectors."

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
The distinction made by this sentence is not used anywhere, so it is not necessary.
Note that comment #345 suggests removal of SFP224, which would make all connectors multi-lane.
Implement the suggested remedy with editorial license.

Cl 178A SC 178A.2 P863 L28 # 347

Kocsis, Sam Amphenol Corporation

Comment Type TR Comment Status D SCMR_CH definition (B1) (E)

The lack of nomenclature around the terms of sigma_ts and VCMch used in calculating SCMR_CH can be confusing for the reader.

SuggestedRemedy

Add the following "nomenclature" to clarify the terms. sts is "the channel-induced differential timing noise" calculated using Equation (178A-56) and Equation (178A-57). VCMch is "the channel-generated common-mode voltage" calculated using Equation (178A-58) through Equation (178A-60).

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
In 178A.2, define sigma_ts to be the "RMS value of the signal" and VCM_CH to be the "common-mode peak-to-peak voltage at the channel output due to channel differential-mode to common-mode conversion".
Implement with editorial license.

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CI 179A SC 179A.1 P900 L15 # 349

Kocsis, Sam Amphenol Corporation
 Comment Type ER Comment Status D (B1) (E)
 missing "the"

SuggestedRemedy

Change sentence from "This annex provides information on transmitter, receiver, and channel parameters associated with test points TP0d and TP5d", to "This annex provides information on the transmitter, receiver, and channel parameters associated with test points TP0d and TP5d"

Proposed Response Response Status W

PROPOSED REJECT.
 The sentence is correct as written (this annex addresses some parameters, not necessarily all parameters). It is consistent with 162A.1, 136A.1, and 92A.1

CI 179A SC 179A.1 P900 L23 # 350

Kocsis, Sam Amphenol Corporation
 Comment Type ER Comment Status D (B1) (E)
 missing "the"

SuggestedRemedy

Change sentence from "TP0d is depicted in link block diagram of Figure 17902." to "TP0d is depicted in the link block diagram of Figure 17902."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 change from
 "TP0d is depicted in link block diagram of Figure 179-2"
 to
 "TP0d is depicted in Figure 179-2"
 Apply a similar change in 179A.3 for TP5d.

CI 179A SC 179A.1 P900 L40 # 351

Kocsis, Sam Amphenol Corporation
 Comment Type ER Comment Status D (B1) (E)
 missing " ".

SuggestedRemedy

Change "3.45dB" to "3.45 dB".

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 176D SC 176D.8.13.2 P832 L6 # 352

Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type TR Comment Status D (B1) (E)
 The description for host test is not clear enough for average reader

SuggestedRemedy

Create a figure starting with Figure 176D-7b but add module package, host package, and partial host channel

Proposed Response Response Status W

PROPOSED REJECT.
 The suggested remedy does not provide sufficient detail to implement.

CI 176D SC 176D.8.13.2 P832 L8 # 353

Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type TR Comment Status D (B1) (E)
 The description for module test is not clear enough for average reader

SuggestedRemedy

Create a figure starting with Figure 176D-8b but add module package and host package

Proposed Response Response Status W

PROPOSED REJECT.
 The suggested remedy does not provide sufficient detail to implement.

CI 178B SC 178B.8.2.1 P885 L18 # 356

Slavick, Jeff Broadcom Inc
 Comment Type T Comment Status D Variables (CA) (B1)
 Rewording the 2nd sentence defining remote_rts behavior can help the reader understand its behavior better.

SuggestedRemedy

Change: "If mr_training_enable is true and the δcontinue trainingö bit of the control field of received training frames on all lanes of the interface is zero then remote_rts is set to true, otherwise it is set to false."
 To: "If mr_training_enable is true then remote_rts is set to true when the received training frames on all lanes of the interface have the δcontinue trainingö bit set to zero (see 178B.7.4.2), otherwise it is set to false."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Implement suggested remedy with editorial license

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CI 169 SC 169.1.4 P205 L19 # 357

Slavick, Jeff Broadcom Inc

Comment Type **TR** Comment Status **D** (B1) (CA)

In the copper tables ILT/RTS is listed as conditional for PHYs that don't use 178B but with a footnote stating it's mandatory for 800GAUI-4 C2M/C2C. Currently these PHYs don't use ILT/RTS, so the conditional value is based on the existence of a 800GAUI-4 being present.

SuggestedRemedy

In Table 169-3a Add a new footnote that says "Mandatory for 800GAUI-4 C2C and 800GAUI-4 C2M." and replace the footnote b in the 178B column with a reference to this new footnote.

Proposed Response Response Status **W**

PROPOSED REJECT.

The requirement for ILT/RTS is conditional upon there being an 800GAUI-4 in the PHY. Thus these are marked with C with footnote "b" pointing us to the PMD clause.

The PMD clause repeats that ILT/RTS is conditional with the footnote 'd': "ILT and RTS functions are mandatory for the 800GAUI-4 C2C and 800GAUI-4 C2M."

Thus the information request by the comment and suggested remedy is already provided. The approach taken was to avoid these summary tables in 169 from blowing up with special cases for the various PMD types. Instead, the special cases are taken care of in the PMD clause.

CI 177 SC 177.5.5 P366 L42 # 361

Slavick, Jeff Broadcom Inc

Comment Type **TR** Comment Status **D** (B1) (L)

The definition of the bin_counters in Clause 177 and 184 are not entirely accurate. It states that they count for exactly k corrected bits, but then the highest bin also increments if you changed k or more bits.

Also, stating bin_0 is counting codewords received with no detectable errors would be useful to clarify its behavior.

SuggestedRemedy

Implement the changes shown in https://www.ieee802.org/3/dj/public/26_01/opsasnick_3dj_01b_2601.pdf slides 13 and 14

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 178B SC 178B.10 P895 L37 # 362

Slavick, Jeff Broadcom Inc

Comment Type **ER** Comment Status **D** (B1) (CA)

MDIO mapping table for local_tf_lock has a non-superscript for b. It's written as 151.1b

SuggestedRemedy

Make the b a reference to the footnote b

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 45 SC 45.2 P76 L45 # 364

Slavick, Jeff Broadcom Inc

Comment Type **TR** Comment Status **D** (B1) (L)

The register address for Reserved section after 1.1478 appears to be a typo for the first address.

SuggestedRemedy

Change "1.4479 through 1.1499" to "1.1479 through 1.1499"

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 116 SC 116.2.9 P170 L53 # 366

Slavick, Jeff Broadcom Inc

Comment Type **E** Comment Status **D** (B1) (CG)

The list of PHYs and AUIs are ordered in PMD first then AUI last rather than 200G then 400G. I would think makes more sense to list all 200G then all 400G.

SuggestedRemedy

Move 200GAUI-C2C and 200G-C2M before 400G-KR2 and perhaps insert an empty line before doing the 400G list.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

A space in a dashed list would be rather odd. It is not necessary to provide an accurate list. Also, conventionally we list interfaces types by Medium length.

Move the 200GAUI-1 C2C/C2M to start of list and 400GAUI-2 C2C/C2M just before 400GBASE-KR2.

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Cl 169 SC 169.2.10 P 207 L 7 # 367

Slavick, Jeff Broadcom Inc

Comment Type E Comment Status D (B1) (CG)

The order of the PHY list intermixes DR and FR.

SuggestedRemedy

Move 800G-FR4-500 to be after 800G-FR4

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

By convention we normally list by medium length, not by medium/modulation type.

Instead, move 800GAUI-4 C2C/C2M to start of list.

Cl 178B SC 178B.8.2.4 P 886 L 18 # 369

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D State diagrams (B1) (CA)

As shown in https://iee802.org/3/dj/public/26_03/slavick_3dj_03_2603.pdf Figure 178B-9 could be simplified. During the March plenary some feedback indicated the desire to retain the isl_ready check from SWITCH_CLOCK to FORWARD_RTS. However, local_rts is really an indicator of Yes we're transmitting on mission mode clock. isl_ready is a condition of both local and peer Rx (in training mode) are happy and that has no bearing on the transmitters state. The edits proposed related to https://iee802.org/3/dj/public/26_03/slavick_3dj_01_2603.pdf cover the concerns that were raised.

SuggestedRemedy

Update Figure 178B-9 per https://iee802.org/3/dj/public/26_03/slavick_3dj_03_2603.pdf slide 3

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #206.

Cl 174 SC 174.1.4 P 272 L 18 # 370

Slavick, Jeff Broadcom Inc

Comment Type T Comment Status D (B1) (CG)

Is footnote b necessary for 1.6T given all PMDs require it to be present. Yes RTS may not be possible if you have 1.6TAUI-16, but you need to read the spec to know that so what clarification is being made that would otherwise be missed?

SuggestedRemedy

Remove footnote b from Table 174-2 and 174-3.

Proposed Response Response Status W

PROPOSED REJECT.

It is always mandatory for the PMD and for 1.6TAUI-8 but not for 1.6TAUI-16. A clarification for the latter is provided in each PMD clause.

Cl 176 SC 176.7.1.2 P 341 L 18 # 371

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D ILT reference (L) (B1)

Figure 178B-10 does not have a state named LINK_READY. It is now named PATH_READY.

SuggestedRemedy

Change LINK_READY to PATH_READY

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 176 SC 176.7.1.2 P 341 L 22 # 372

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (L)

ILT is run for both settings of mr_training_enable so stating ILT is disabled is not accurate. In 178B.7 we refer to it as training enabled and training disabled.

SuggestedRemedy

Change "ILT is disabled" to "training is disabled"

Proposed Response Response Status W

PROPOSED ACCEPT.

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CI 177 SC 177.4.8.2 P364 L10 # 373

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (L)

ILT is run for both settings of mr_training_enable so stating ILT is disabled is not accurate. In 178B.7 we refer to it as training enabled and training disabled.

SuggestedRemedy

Change "ILT is disabled" to "training is disabled"

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 177 SC 177.5.1.1 P364 L34 # 374

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (L)

ILT is run for both settings of mr_training_enable so stating ILT is enabled is not accurate. In 178B.7 we refer to it as training enabled and training disabled.

SuggestedRemedy

Change "ILT is enabled" to "training is enabled"

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 177 SC 177.5.1.1 P364 L36 # 375

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (L)

ILT is run for both settings of mr_training_enable so stating ILT is disabled is not accurate. In 178B.7 we refer to it as training enabled and training disabled.

SuggestedRemedy

Change "ILT is disabled" to "training is disabled"

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 177 SC 177.5.1.1 P364 L37 # 376

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (L)

All the other precoder conditions for non-training mode of operation state it is set as required by implementation rather than specifically stating management entity. And this is the receiver not the transmitter.

SuggestedRemedy

Change "data at the transmitter is controlled by a management entity" to "received data is set as required by the implementation"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change the wording in 177.5.1.1

From:

"... then the precoding of data at the transmitter is controlled by a management entity."

To:

"... then the inverse precoding of the received data is set as required by the implementation."

CI 179 SC 179.8.2 P420 L44 # 377

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (E)

ILT has two data generation modes TRAINING and LOCAL_PATTERN. The training pattern gen is not necessarily the source of the LOCAL_PATTERN stream of symbols.

SuggestedRemedy

In 179.8.2, 180.5.2, 181.5.2, 182.5.2, 183.5.2

Change: "When operating in TRAINING mode, the PAM4 symbol stream on each lane is taken from the output of the training pattern generator in the ILT function (see 178B.7.3.3)."

To: "When operating in TRAINING mode, the PAM4 symbol stream on each lane is provided by the ILT function (see 178B.7)."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license in all indicated locations and elsewhere if necessary.

[CC 179, 180, 181, 182, 183]

IEEE P802.3dj D3.0 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Initial SA ballot comments

Cl 179 SC 179.8.4 P421 L 26 # 378
 Slavick, Jeff Broadcom Inc
 Comment Type **TR** Comment Status **D** (B1) (E)
 remote_rts is a RTS function variable not an ILT function variable.
 SuggestedRemedy
 change ILT to RTS
 Proposed Response Response Status **W**
 PROPOSED ACCEPT.
 [Editor's note: Changed line from 27 to 26]

Cl 179 SC 179.8.9 P422 L 27 # 380
 Slavick, Jeff Broadcom Inc
 Comment Type **TR** Comment Status **D** (B1) (E)
 What pattern is sent when tx_mode = local_pattern should apply regardless of the state of mr_training_enable
 SuggestedRemedy
 In 179.8.9, 180.5.12, 181.5.12, 182.5.12, 183.5.12
 Remove "when mr_training_enable is false and"
 Proposed Response Response Status **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 The phrase is indeed not required.
 The effect of local_pattern in conjunction with mr_training_enable should be based on definitions in Annex 176B rather than in the PMD clauses.
 In the indicated locations, change from
 "When mr_training_enable is false and tx_mode = local_pattern"
 to
 "When tx_mode = local_pattern"
 Implement with editorial license.
 [CC 179, 180, 181, 182, 183]

Cl 179 SC 179.8.10 P422 L 36 # 381
 Slavick, Jeff Broadcom Inc
 Comment Type **TR** Comment Status **D** (B1) (CA)
 If we're going to call out ILT needs to be reset, so should RTS.
 SuggestedRemedy
 change "ILT function" to "ILT and RTS functions"
 Proposed Response Response Status **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 The proposed change in the suggested remedy improves the accuracy of the draft. Note that similar text is not provided in the PMD reset subclauses in clauses 180 through 183, though it is equally relevant there.
 Implement the suggested remedy in 179.8.10.
 Also, in 180.5.6, 181.5.6, 182.5.6, 183.5.6, and other places as appropriate add the following text:
 "PMD reset shall reset the ILT and RTS functions associated with the PMD (see <ref>)"
 with the appropriate reference.
 Implement with editorial license.
 [CC 178, 179, 180, 181, 182, 183]

Cl 176C SC 176C.4 P797 L 3 # 382
 Slavick, Jeff Broadcom Inc
 Comment Type **E** Comment Status **D** (B1) (E)
 The acronym RTS has already be referred to.
 SuggestedRemedy
 In 176C.4 and 176D.4: Change "ready-to-send (RTS)" to "RTS"
 Proposed Response Response Status **W**
 PROPOSED ACCEPT.

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Cl 178B SC 178B.7.7 P 880 L 42 # 383

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (CA)

Now that we specify a specific pattern to transmit when training is disabled (local_pattern), an implementation could potentially do auto polarity correction.

SuggestedRemedy

Change: "NOTEùPolarity detection and correction is not available when training is disabled."

To: "NOTEùWhen training is disabled support of polarity detection and correction is implementation dependent."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 178B SC 178B.10 P 895 L 22 # 384

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D Management (CA) (B1)

Table 178B-6 says its control variables but many status variables are listed in it.

SuggestedRemedy

Move the following from Table 178B-6 to Table 178B-7:

training_status
coef_sts
ic_sts
local_tf_lock
remote_tf_lock
local_rx_ready
remote_rx_ready
remote_rts

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl 45 SC 45.2.1.96 P 90 L 0 # 385

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D (B1) (L)

The descriptions for 45.2.1.96 point to the ILT clauses and we haven't added 178B to those lists.

SuggestedRemedy

Update the following clauses to be:

45.2.1.96.1 Receiver status 0 (1.151.0)

This bit maps to the state variable rx_trained as defined in 72.6.10.3.1, local_trained in 136.8.11.7.1 and local_rx_ready in 178B.8.3.1.

45.2.1.96.2 Frame lock 0 (1.151.1)

This bit maps to the state variable frame_lock as defined in 72.6.10.3.1 and local_tf_lock in 136.8.11.7.1 and 178B.8.3.1.

45.2.1.96.3 Startup protocol status 0 (1.151.2)

This bit maps to the state variable training as defined in 72.6.10.3.1, 136.8.11.7.1 and 178B.8.3.1.

45.2.1.96.4 Training failure 0 (1.151.3)

This bit maps to the state variable training_failure as defined in 72.6.10.3.1, 136.8.11.7.1 and 178B.8.3.1.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 178B SC 178B.10 P 895 L 22 # 386

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D Management (CA) (B1)

Bit 151.2 is mapped to the variable "training" for the other two startup protocols.

SuggestedRemedy

Change training_status to training.

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 178B SC 178B.10 P 895 L 0 # 387

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status D Management (CA) (B1)

training_status and rts_status are not mapped to MDIO registers.

SuggestedRemedy

Assign the bits in Table 45-133c as follows:

1.1476.14:13 | rts_status | 0 - FAIL, 1 - IN_PROGRESS, 2 - READY, 3 - OK

1.1476.11:10 | training_status | 0 - FAIL, 1-IN_PROGRESS, 2 - READY, 3-OK

In Table 178B-7 add rows for rts_status and training_status referencing those bit assignments.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

[Editor's note: CC 178B, 45]

Cl 180 SC 180.9.6.4 P 480 L 32 # 392

Swenson, Norman Nokia Corporation,Norman Swenson Consulting,Point

Comment Type ER Comment Status D TDECQ (B1) (O)

"The test pattern specified for TDECQ (see Table 180013)à" The test pattern for TDECQ is not specified in Table 180-13. It is specified in Table 180-14 in combination with Table 180-13.

SuggestedRemedy

Change Table 180-13 to Tables 180-13 and 180-14.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change "The test pattern specified for TDECQ (see Table 180–13) is transmitted repetitively"

to "The test pattern specified for TDECQ (see Table 180–14) is transmitted repetitively"

Cl 177 SC 177.1 P 354 L 4 # 398

Opsasnick, Eugene Broadcom Inc.

Comment Type E Comment Status D (B1) (L)

In Figure 177-2, the input and output UNITDATA signals at the top of figure use the index "i" to represent n input lanes and output lanes. "n" is defined on the previous page, but "i" is not defined until later in the subclause. On the bottom of the figure the UNITDATA input & output lanes are indexed as "**_0:n-1". This is more consistent with the representation of a variable number of I/O lanes as shown in other clauses (e.g. Figure 176-2 on page 321).

SuggestedRemedy

In Figure 177-2 on page 354:

change:

"FEC:IS_UNITDATA_i.request"

to:

"FEC:IS_UNITDATA_0:(n-1).request"

change:

"FEC:IS_UNITDATA_i.indication"

to:

"FEC:IS_UNITDATA_0:(n-1).indication"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 171 SC 171.6.1 P 235 L 48 # 399

Opsasnick, Eugene Broadcom Inc.

Comment Type E Comment Status D (B1) (L)

Lines 48-51 on page 236 contain one very long run-on sentence that should be broken up into separate sentences. It might also be better to separate the equation from the definition of the variables.

SuggestedRemedy

Replace the text in 171.6.1 with:

"The variable tx_am_sf is set as follows:

tx_am_sf<2:0> = {FEC_degraded_SER + rx_local_degraded,0,0}

FEC_degraded_SER and rx_local_degraded are defined in 172.2.6.2.2 for DTE 800GXS and in 175.2.5.3 and 175.2.5.5 for DTE 1.6TXS. The "+" symbol denotes a logical OR."

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 171 SC 171.6.2 P236 L4 # 400

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status D (B1) (L)

Lines 4-7 on page 236 contain one very long run-on sentence that should be broken up into separate sentences. It might also be better to separate the equation from the definition of the variables.

It is also very confusing to assign this "TX" variable from the RX inputs. It should be explained that the "tx_am_sf" variable is actually propagating in the RX direction.

SuggestedRemedy

Replace the text in 171.6.2 with:
 "The variable tx_am_sf is set as follows:
 tx_am_sf<2:0> = {RXRD,RXLD, 0}

RXRD and RXLD are signals from the PCS on the PCS service interface. They are defined in 172.1.5.1 for the PHY 800GXS and in 175.1.4.1 for the PHY 1.6TXS. Note that for the PHY XS, the tx_am_sf variable is used in the alignment markers of the data propagating in the RX direction towards the MAC.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Replace the text in 171.6.2 with:

"The variable tx_am_sf is set as follows:
 tx_am_sf<2:0> = {RXRD,RXLD, 0}

RXRD and RXLD are signals from the PCS on the PCS service interface. They are defined in 172.1.5.1 for the PHY 800GXS and in 175.1.4.1 for the PHY 1.6TXS."

Cl 178 SC 178.14.4.2 P409 L42 # 401

Opsasnick, Eugene Broadcom Inc.

Comment Type E Comment Status D (B1) (E)

in the table row for PC10 "Training", the Value/Comment column capitalizes the value TRUE. The rest of 802.3dj seems to always keep Boolean values "true" and "false" in lower case, even though the base standard, IEEE802.3-2022, seems to have a mix of uppercase and lowercase.

SuggestedRemedy

Change "TRUE" to "true" on line 42 of page 409.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 176 SC 176.4.4.2 P332 L38 # 402

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status D (B1) (L)

The paragraph starting at line 38 on page 332 contains cross-references for variable definitions and defines the value of x for four separate PMA types. It is very wordy and hard to follow. The text can be cleaned up with the addition of a simple table.

SuggestedRemedy

Replace the text of the second paragraph of 176.4.4.2 with the following text and a new table (Table 176-n) as described below.

Change:

"Any constants, variables, functions, or counters used in the above Clause 119 state diagram which are not defined in the following subclauses shall use the values and definitions from 119.2.6.2 for the 200GBASE-R 8:1 PMA and 400GBASE-R 16:2 PMA, the values and definitions from 172.2.6.2 for the 800GBASE-R 32:4 PMA, and the values and definitions from 175.2.6.2 for the 1.6TBASE-R 16:8 PMA. The variable x in the definitions of 119.2.6.2 is used as an index for the PMA service interface lane number and shall use the values of x = 0 to 7 for the 200GBASE-R 8:1 PMA, x = 0 to 15 for the 400GBASE-R 16:2 PMA, x = 0 to 31 for the 800GBASE-R 32:4 PMA, and x = 0 to 15 for the 1.6TBASE-R 16:8 PMA."

To:

"Any constants, variables, functions, or counters used in the above Clause 119 state diagram which are not defined in the following subclauses shall use the values and definitions of the variables defined in the subclauses referenced in Table 176-N. The index variable x in these definitions is used to indicate the PMA service interface lane number and shall take the values as specified in Table 176-N."

Table 176-N:

column headers:
 PMA type | variable references | x

4 rows with these entries:

200GBASE-R 8:1	119.2.6.2	0 to 7
400GBASE-R 16:2	119.2.6.2	0 to 15
800GBASE-R 32:4	172.2.6.2	0 to 31
1.6TBASE-R 16:8	175.2.6.2	0 to 15

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #79.

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CI 177 SC 177.4.2 P 358 L 15 # 403

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status D (B1) (L)

At end of the second paragraph, there is an extra instance of the word "table".

SuggestedRemedy

Replace:
 "... are shown in table Table 177-3."
 with:
 "... are shown in Table 177-3."

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 186 SC 186.7.2 P 689 L 39 # 404

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status D (B1) (L)

The Status variable "FEC_hi_ser" is missing from Table 186-8.

SuggestedRemedy

Add variable FEC_hi_ser to Table 186-8. Also add it to a bit definitions in Clause 45 if needed.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #11

CI 186 SC 186.4.3 P 685 L 26 # 407

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status D (B1) (L)

In state diagram Figure 186-19, the assignment "mfas_lock<x> <= false" in the state 5_BAD is redundant with the same assignment in the LOSS_OF_ALIGNMENT state.

See comment #386 against D2.2 (https://www.ieee802.org/3/dj/comments/D2p2/8023dj_D2p2_comments_final_id.pdf) which removed similar assignments from the state diagrams 186-17 and 186-19. This figure is similar to those and was just missed in the D2.2 comment, and it should be cleaned up now. Note that one figure was removed in D2.3 -- Figures 186-19 and 186-20 in Draft 2.2 became Figures 186-18 and 186-19 in Draft 2.3, respectively.

SuggestedRemedy

Remove "mfas_lock<x> <= false" from the 5_BAD state in Figure 186-19.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 186 SC 186.4.3 P 686 L 1 # 408

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status D state diagram (L) (B1)

State diagram Figure 186-20 is used for the RX alignment marker location field syncing. As stated in another comment, the statement to "start multiframe_counter" is missing. The state diagram also requires either 8 non-zero values or 5 zero values in a row to match in order to use the new value, but this should not be necessary since the AML value used is after FEC correction. This state diagram is actually two state diagrams that interact and the interaction is not very clear. This process could be simplified to use the aml_value as-is unless the expected RAML location it is part of an uncorrectable codeword. The state diagram can then be simplified and made easier to understand.

SuggestedRemedy

Simplify and make more clear the state diagram figure 186-20 for alignment marker location tracking. A consensus presentation with changes for this state diagram is planned.

Proposed Response Response Status W

PROPOSED REJECT.

The commenter indicated that a related consensus presentation will not be available for the CRG meeting.

The suggested remedy does not provide sufficient detail to implement.

CI 178B SC 178B.8.3.1 P 887 L 24 # 409

Opsasnick, Eugene Broadcom Inc.

Comment Type E Comment Status D Variables (CA) (B1)

It would be much easier for the reader if the text values of all enumerated variables used in the state diagrams were written in upper case. Note that several variables already use upper case for their enumerated values such as lane_training_status and local_mc_mode and all enumerated variables in 178B.8.2.1.

SuggestedRemedy

In 178B.8.3.1, put the enumerate values in upper case for these variables: coef_req, coef_sts, ic_req, ic_sel, ic_sts, tx_mode.
 In both the variable definitions and when used in the state diagrams or text.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license

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Cl 120 SC 120.1.1 P199 L 22 # 410

Opsasnick, Eugene Broadcom Inc.

Comment Type E Comment Status D (B1) (L)

The last paragraph on 120.1.1 that defines how the terms SM-PMA and BM-PMA are used in this clause is unnecessary since those terms are not used at all in Clause 120. But it should still be noted that this clause defines the bit-muxing PMAs since there is now a new clause which define the SM-PMAs. This is clearly stated in the previous paragraph.

SuggestedRemedy

In 120.1.1, remove the last paragraph:

"When necessary to differentiate the bit-multiplexing PMA (BM-PMA) types defined in this clause from the symbol-multiplexing PMA (SM-PMA) types defined in Clause 176, the term BM-PMA is used. Within this clause the term PMA refers specifically to the BM-PMA."

Proposed Response Response Status W

PROPOSED REJECT.

This paragraph is necessary to provide terminology to reference the bit-multiplexing PMA or BM-PMA. It clarifies that PMA used in this clause is the BM-PMA that is reference in other clauses. Finally, as worded, it avoids having to rename PMA throughout this clause to BM-PMA as otherwise might be necessary.

Cl 120 SC 120.1.1 P199 L 19 # 411

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status D (B1) (L)

The first sentence states that this clause defines bit-multiplexing for 200GE and 400GE implementations. But there is no indication of when this type of lane multiplexing is needed. Add some color for the reader so this single statement makes sense, Especially since the Clause title implies it is used for all 200/400 type PMAs.

SuggestedRemedy

In 120.1.1change the the first paragraph from:

"This clause specifies the Physical Medium Attachment (PMA) sublayer types that use bit-multiplexing for 200GBASE-R and 400GBASE-R Physical Layer implementations."

To:

"This clause specifies the Physical Medium Attachment (PMA) sublayer types that use bit-multiplexing for 200GBASE-R and 400GBASE-R Physical Layer implementations. Bit-multiplexing is used for 200GBASE-R PMA interfaces of 8, 4, and 2 lanes, and for 400GBASE-R PMA interfaces of 16, 8 and 4 lanes. Symbol-muxing, as defined in Clause 176, is used for 200GBASE-R PMA interfaces of 1 lane, and for 400GBASE-R PMA interfaces of 2 lanes."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

It would be helpful provide a bit more clarity on the scope of PMA types defined in this clause. However, it would be overstepping to define PMA types defined in other clauses. Instead add the following sentence only:

"Bit-multiplexing PMAs defined in this clause include 200GBASE-R PMA with interfaces of 8, 4, and 2 lanes, and 400GBASE-R PMA with interfaces of 16, 8, and 4 lanes."

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CI 120 SC 120.1.4 P200 L7 # 412

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status D (B1) (L)

The numbered items 2, 3, and 4 in the list of item b) define the AUIs that run at 25G/lane, 50G/lane, and 100G/lane, respectively. These terms are used in the later list items 5 to 10. Those later list items also refer the AUI types that run at 200G/lane. There should be new item (5) added after item (4) to define these new AUI types.

SuggestedRemedy

In 120.1.4, add a new item between list items 4 and 5 (a new #5), and update the numbering on the rest of the list accordingly.

New list item 5:

"5) 200GAUI-1 is a 106.25 GBd single lane PAM4 physical instantiation of the 200 Gb/s connection. 400GAUI-2 is a 106.25 GBd by 2 lane PAM4 physical instantiation of the 400 Gb/s connection."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The referenced list is for AUIs that are affiliated with the BM-PMA defined in Clause 120. It would therefore not be appropriate to add 200GAUI-1 and 400GAUI-2 the that list.

However, it would be helpful to point the reader to where these are defined.

Change item 7 to the following (adding references to the PMD clauses and AUI annexes):

"7) For a PHY that includes a 200GAUI-1 interface (see Annex 176C and Annex 176D) or a 200GBASE-KR1 (see Clause 178), 200GBASE-CR1 (see Clause 179), 200GBASE-DR1 (see Clause 180), or 200GBASE-DR1-2 (see Clause 182) PMD, the signaling rate range for the output of any 200GAUI-8, 200GAUI-4, or 200GAUI-2 PMA within the PHY shall be limited to ± 50 ppm (see 176B.4)."

Similarly change items 8 through 10.

Implement with editorial license.

CI 177 SC 177.5.8 P367 L14 # 413

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status D (B1) (L)

177.5.8 "Convolutional deinterleaver" does not give any information regarding the relationship of the 120-bit block inputs from the 120-bit block distribution (multiplexer) to the 40-bit symbol-quartets distributed to each of the three delay lines. 177.4.3 requires that the first RS-FEC quartet within a 120-bit block is always from delay line 0. A similar statement should be added to 177.5.8.

SuggestedRemedy

In 177.5.8, Add this text to the end of the second paragraph:

"Symbol quartets of data from the 120-bit block multiplexor are distributed sequentially to delay line 0, delay line 1, and delay line 2. The first 40-bit symbol quartet of each 120-bit block is always aligned to delay line 0."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Add the following text at the end of the second paragraph of 177.5.8:

"RS-FEC Symbol-quartets from the 120-bit block multiplexor are distributed sequentially to delay line 0, delay line 1, and delay line 2. The first 40-bit RS-FEC symbol-quartet from each 120-bit block is always aligned to delay line 0."

CI 178A SC 178A.1.8.1 P854 L36 # 414

Swenson, Norman Nokia Corporation, Norman Swenson Consulting, Point

Comment Type ER Comment Status D Quantizer definition (B1) (E)

The quantizer is actually a 1UI (T-spaced) sampler and quantizer. This should be explicitly stated.

SuggestedRemedy

Change "The input to the feed-forward filter is the output of the quantizer." to "The input to the feed-forward filter is the output of the quantizer, which samples and quantizes its input at 1 UI intervals."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The "quantizer" is first introduced in 178A.1.7 and is illustrated in Figure 178A-7. Additional descriptive text should be added where the block is first introduced.

In 178A.1.7, change the first sentence from "...at the output of the quantizer." to "...at the output of the quantizer which samples the signal and noise once per unit interval and quantizes the amplitude to discrete levels."

In 178A.1.8.1, change the second sentence from "...is the output of the quantizer." to "...is the output of the quantizer (see Figure 178A-7)."

Implement with editorial license.

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Cl 180 SC 180.1 P457 L49 # 416

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (CG)

This says "are required according to the guidelines in 176B.5.1"; 176B.5.1 says "require".
So it's not guidelines.

SuggestedRemedy

Delete "the guidelines in": up to 4 times per PMD clause.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

In Table 180-1 footnote b, delete "the guidelines in".

Repeat for other similar tables in clause 178 through 183, 185, and 187.

[Editor's note: CC: 178 through 183, 185, 187]

Cl 180 SC 180.1 P458 L6 # 417

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (OI)

Table 180-1 and 2, Physical Layer clauses associated with... are clones of each other.
Each really has 3 columns. The status (optional, required or conditional) is the same in each. But the presentation obscures the very high level of commonality.

SuggestedRemedy

Present these as a single table with four columns: Clause number, 200GBASE-DR1 (with the abbreviated titles from Table 180-1), 400GBASE-DR2 (with the abbreviated titles from Table 180-2), Status.

Combine footnotes c and e.

Proposed Response Response Status W

PROPOSED REJECT.

Combining the four tables together does not improve the clarity of the draft but rather results in a table that is more difficult to read since it would need to include a four PCS rows (one for each Ethernet rate), four xMII rows (one for each Ethernet rate), etc., where only one of those rows would be relevant to any one PHY type. An example with with only two Ethernet rates can be found in Table 122-1 in the base standard.

Cl 180 SC 180.1 P460 L6 # 418

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (OI)

Table 180-3 and 4, Physical Layer clauses associated with... are not quite clones of each other. Each really has 3 columns. The status (optional, required or conditional) is the same in each. But the presentation obscures the very high level of commonality and makes it hard to spot the differences (PCS and PMA).

SuggestedRemedy

Present these as a single table with four columns: Clause number, 200GBASE-DR1 (with the abbreviated titles from Table 180-1), 400GBASE-DR2 (with the abbreviated titles from Table 180-2), Status. There will be one more row than in Table 180-3.

Combine footnote d.

Proposed Response Response Status W

PROPOSED REJECT.

Resolve using the response to comment #417.

Cl 180 SC 180.2 P461 L41 # 420

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (OI)

The paragraphs in this subclause are ordered top - bottom - middle.

SuggestedRemedy

Swap the second and third paragraphs so that the logic behind these requirements is more apparent. Several clauses.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implemented the suggested remedy with editorial license. Essentially reordering the three paragraphs of 180.2 to :

"A complete PHY is expected to meet the frame loss ratio specifications in 174A.6.

With a compliant input signal, a PHY receiver is expected to meet the BLER of 1.45×10^{-11} (see 174A.6), measured at the PCS using the method described in 174A.11, with BERadded equal to 3.2×10^{-5} .

With a compliant input signal, a PMD receiver is expected to meet the block error ratio (BLER) of 1.45×10^{-11} (see 174A.6), measured at the PMA adjacent to the PMD using the method described in 174A.9, with BERadded equal to 6.4×10^{-5} ."

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Cl 174A SC 174A.9 P745 L 22 # 421

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D (B1) (CG)

The FEC bin histogram, BER_added and masks methodology is very complicated. It needs more accessible explanation.

SuggestedRemedy

Add a more accessible explanation, with graphs and examples to illustrate what is going on. Show how the method can be simplified when assessing error rates around PMDs, where BER_added is relatively small.

Proposed Response Response Status W

PROPOSED REJECT.

The suggested remedy does not provide sufficient detail to implement.

Cl 170 SC 170.4.3 P223 L 7 # 422

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D (B1) (L)

800GMII and 1.6TMII are different; a prospective customer reading a PICS is entitled to know which is being offered.

SuggestedRemedy

Create major options (not exclusive) for 800GMII and 1.6TMII

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

Cl 178 SC 178.10.1 P401 L 16 # 424

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D (B1) (E)

This table contains "C_d⁽¹⁾", "C_d⁽²⁾" and so on. A superscript denotes either exponentiation or some sort of footnote or reference, yet the former would not be consistent with the units and the latter are missing. Computer programs don't have variable names containing superscript, and such names are difficult for humans too.

SuggestedRemedy

Change to C_d1", "C_d2" and so on. Similarly R_d and so on

Scrub the draft for unnecessary superscript notation, so that it does not appear outside 178A.1, Channel Operating Margin.

Proposed Response Response Status W

PROPOSED REJECT.

The format of the die capacitance symbol is consistent with the convention specified in 178A and used in 179, 176C, and 176D.

[CC: 178, 179, 176C, 176D]

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CI 176D SC 176D.8.2 P 828 L 31 # 427

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D (B1) (E)

This says "For compliance testing, it is sufficient to measure it from a square wave output with a period of at least 128 UI". There is no such square wave in this spec, and no alternative is offered. "At least" makes the measurement arbitrary. The nonlinear processes in the transmitter are not in their normal state - 128 UI is much more extreme than the SONET CID. 802.3 is not a compliance test spec; we define parameters not write test definitions. As the measurement doesn't need the scope to lock to the signal, one can just look at the envelope of a scrambled idle or scrambled RF signal; this avoids over- or under-measurement.

I wonder whether this could be done with PRBS13Q.

SuggestedRemedy

Change "For compliance testing, it is sufficient to measure it from a square wave output with a period of at least 128 UI, while lanes not under test transmit PRBS31Q" to "with the lane under test transmitting pattern 7 (e.g. idle, RF, or a one-lane portion of one of these), while lanes not under test transmit pattern 7 (e.g. other lanes from a common PCS) or PRBS31Q.

Proposed Response Response Status W

PROPOSED REJECT.

The square wave output is well-defined by the text subject of the comment.

There is a long precedence for mentioning in electrical specifications patterns that are not specified by a table with pattern numbers. As an example, PRBS9, which is used in numerous clauses, is defined by a footnote to Table 68-6, does not have a pattern number, and is not mandatory to implement, although some parameters are specified to be measured on that pattern alone.

As the comment states, "maximum voltage" measurements could be made on other signals, but the engineer needs to ensure that what is measured is indeed all-but-1e-7 of the range of the voltage in question. The text subject of the comment provides a fast way to get a good estimate of that range if a suitable pattern is available, which is the case in many practical test situations.

Introducing a new term "pattern 7" which is not defined in Annex 176D (and is described in the suggested remedy only by examples) does not improve the technical clarity or accuracy of the text.

CI 176D SC 176D.8.3 P 829 L 2 # 428

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D (B1) (E)

This says "the test fixture delay is defined as the propagation delay between the coaxial connector on the test fixture and the host-facing connection, excluding the mating interface discontinuity". The test fixture has two mating interfaces per lane, one at the coaxial connector and the other at the host-facing connection, each of which can have a discontinuity. It is not stated which one is to be excluded.

SuggestedRemedy

Please clarify. Three places.

Proposed Response Response Status W

PROPOSED REJECT.

The suggested remedy does not provide sufficient detail to implement.

CI 180 SC 180.3 P 462 L 10 # 430

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (OI)

parameter of the PMD:IS_SIGNAL.request provides

SuggestedRemedy

parameter of the PMD:IS_SIGNAL.request *primitive* provides
Four clauses

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Indeed in the same page, the service interface primitives are referenced both with or without the word primitive. E.g.

The SIGNAL_OK parameter of the PMD:IS_SIGNAL.indication *primitive* corresponds to the variable
rts_status of the ready-to-send (RTS) function (see 180.5.12), as defined in 178B.8.2.1.
vs

When SIGNAL_OK is either IN_PROGRESS or FAIL, the rx_symbol parameters of PMD:IS_UNITDATA_i.indication on all lanes are unspecified.

Remedy:

Add primitive to where appropriate with editorial license to make the draft consistent.

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Cl 180 SC 180.3 P462 L 10 # 431

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D service interface (B1) (CG)

This says "provides the status from ISLs above the PMD". This is the only use of "ISL" in the clause, and there is no cross-reference. The thing above a PMD is always a PMA, so this unfamiliar term seems unnecessary. "the status" is too vague. Naming a status primitive as "request" is unnatural and confusing (although we have a reason to do it), so it should be explained more thoroughly.

SuggestedRemedy

Change "is used for the PMA above the PMD to indicate the validity of PMD:IS_UNITDATA_i.request".
Give a cross-reference.
Four clauses.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
The text as written could be improved. Similar changes are warranted in 177.2 and 184.3. A similar sentence would be beneficial in the service interface definitions in clauses 178 and 179.
In 180.3, 181.3, 182.3, 183.3...
Change: "The SIGNAL_OK parameter of the PMD:IS_SIGNAL.request provides the status from ISLs above the PMD"
To: "The PMD receives signal status information from the client sublayer using the PMD:IS_SIGNAL.request primitive"
Make similar changes in 177.2 and 184.3 but with changing "PMD" to "FEC".
Add similar sentences in 178, 179.
In 177.2, replace the 5th paragraph (starting with "The Inner FEC receives signal status information") with following sentence:
"The Inner FEC sublayer receives signal status information from the client sublayer using the FEC:IS_SIGNAL.request primitive."
Add the same sentence as a new paragraph at the end of 184.3.
Implement with editorial license.
[Editor's note: CC: 178 through 183]

Cl 180 SC 180.5.1 P463 L 48 # 432

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (CA)

This says "The inter-sublayer link training (ILT) and RTS functions indicated in Figure 18002 are defined in Annex 178B." but 178B is called APSU now.

SuggestedRemedy

Insert APSU:
The inter-sublayer link training (ILT) and RTS functions (APSU) indicated in Figure 18002 are defined in Annex 178B.
Four clauses.

Proposed Response Response Status W

PROPOSED REJECT.
It is the ILT and RTS functions that are implemented, not APSU. This can be also understood by looking at 178B, APSU as defined in 178B.5 is a startup process. RTS and ILT functions as defined in 178B.5 are the functions that a physical interface would implement.

Cl 180 SC 180.5.1 P464 L 7 # 433

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D signal_detect (B1) (OI)

This shows the signal detect after the usual AND gate at the bottom of the diagram, but an unconnected SIGNAL_OK at the top of the diagram. But these are connected; the ILT/RTS functions will be asleep until signal detect reports that there is light coming in and it is worth waking up. A consideration of squelch shows that getting this right can be important.

SuggestedRemedy

Show signal detect as an input to "ILT/RTS functions"

Proposed Response Response Status W

PROPOSED REJECT.

802.3dj now uses a different mechanism local_rx_ready that defines the perceived quality of the signal from the perspective of ILT.
Signal detect as defined may or may not be helpful at the discretion of the implementor.

Related comment 436.

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Cl 180 SC 180.5.4 P465 L 29 # 436

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D signal_detect (B1) (OI)

In existing optical PMDs, the relation between signal detect function and SIGNAL_OK is simple. In this draft it is not stated in these sections where one would expect it. There should be some text explaining how the global and/or lane-by-lane signal detect function relates to SIGNAL_OK.

SuggestedRemedy

Add text explaining how the global and/or lane-by-lane signal detect function relates to SIGNAL_OK.

Proposed Response Response Status W

PROPOSED REJECT.

For PMDs that uses RTS and ILT function, SIGNAL_OK is dependent on the rts_status and not related to the signal detect functions. The local_rx_ready variable is used to define the perceived quality of the signal in ILT function.

Signal detect as defined may or may not be helpful at the discretion of the implementor. Related comment 433.

Cl 180 SC 180.7.1 P468 L 27 # 438

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (OI)

This is an underlined less than symbol

SuggestedRemedy

Use a less than or equal symbol. Scrub the draft.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

Cl 180 SC 180.7.1 P468 L 47 # 444

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (OI)

It's not RINxxOMA, it's RINxOMA, as defined in 1.4.515. Same name for a thing, every time (style manual, 10.1 Homogeneity).

SuggestedRemedy

Change RINxxOMA to RINxOMA, 25 times (plus contents). Change "xx dB" to "x dB", 5 times. Change " "xx" " to x (in italics, no quotation marks, as in the base standard), four times.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The parameter name "RINxOMA" is used in 9 clauses in the base standard including: 52, 58, 68, 75, 140, 141, 151, 158, and 160; while only clauses 122 and 139 use "RINxxOMA". The definition in 1.4.515 is RINxOMA where x in "RINxOMA" and in "x dB" is non-italic. Use of italic and non-italic, for x in "x dB" is otherwise inconsistent in the base standard.

Throughout the draft, change all instances of RINxxOMA to RINxOMA and change "xx dB" to "x dB" with "x" not italic in both cases.

[Editor's note: CC: 180, 181, 182, 183]

Cl 180 SC 180.7.1 P468 L 47 # 445

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D RINxxOMA (B1) (OI)

Transmitter noise is included in TDECQ and TECQ. We introduced a RIN limit too, -132 dB/Hz at 50G/lane, because we don't attempt to find the shape of the RIN spectrum, which determines how the RIN is amplified by the equalizer, so we just keep fairly small. At 100G/lane, the limit is -136 (more noise bandwidth). At 200G/lane, we reduced the limit by another 3 dB, keeping things in proportion. Then we added the DFE (in the reference receiver and in real DSP), so there is much less noise enhancement. TDECQ and TECQ pick up electrical noises such as from power supplies as well as true RIN - these are not at high enough frequencies to undergo noise enhancement.

SuggestedRemedy

Change the RIN limit to -137 dB/Hz. Four clauses.

Proposed Response Response Status W

PROPOSED REJECT.

Noise enhancement dependent on DSP implementation, it is not necessarily that DFE is implemented in a commercial DSP. Modern CW laser or EML could support -139dB/Hz which helps in providing clean transmitter signal. Data or evidence is needed to reduce the RIN limit.

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Cl 180 SC 180.8 P458 L 24 # 449

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (O)

There is an informative reference to ITU-T G.652 (08/2024) here. ITU-T G.652 (08/2024) does not appear in Annex A, bibliography. 1.3, normative references, has only: ITU-T Recommendation G.652, 2016--Characteristics of a single-mode optical fibre and cable.

SuggestedRemedy

Preferably, delete "2016".
Scrub the draft for missing and out-of-date references.

Proposed Response Response Status W

PROPOSED REJECT.

Annex A is in the base standard 802.3-2022. changing the reference in the base standard may affect multiple existing specifications. The need of updating bibliography in Annex A will need to be addressed in 802.3 maintenance process.

For 802.3dj, keep the reference as is in the footnote:

b The dispersion specifications are based on the statistical link design methodology documented in Appendix I of Recommendation ITU-T G.652 (08/2024), over the wavelength range 1304.5 nm to 1317.5 nm.

Note that this referenced Appendix of ITU-T G.652 is the statistical link design method for chromatic dispersion and PMD, which was brought in the discussion in 802.3dj and evolved into an appendix of ITU-T standard. It wouldn't have been captured in the base standard of 802.3.

Retaining the date is necessary to differentiate between the previous and new version.

No other out of date references have been identified by the CRG.

However, a normative reference to ITU-T G.652 (08/2024) is required.

Add a reference to ITU-T G.652 (08/2024) in subclause 1.3.

Implement with editorial license.

[Editor's note: changed page/line from 472/48 to 458/24]

Cl 180 SC 180.9.1 P475 L 8 # 450

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D test pattern (B1) (O)

The square wave was used for an old-fashioned way of measuring RIN, which is no longer in the draft. It is not needed for anything now, as Table 180-14 shows. Given the work on OMA definition and its susceptibility to reflections, it is not clear that allowing transmitter transition time (which relies on OMA; see 180.9.13) to be defined two ways is feasible any more.

SuggestedRemedy

Remove the square wave from tables 180-13 and 14.

In 180.9.13, change "a test pattern specified for transmitter transition time in Table 180-14" to "the test pattern given in Table 180-14", and delete "with the exception that the square wave test pattern may be used".

Similarly in other IMDD clauses.

In 45.2.1.254 Inner FEC Square Wave testing control register (Register 1.2404), add text to say that square wave generation is optional.

In figures 176-2 and 13, delete "Required, "

In 176.7.4.6 Square wave (quaternary) test pattern, it is clear that this is optional. Add "(optional)" to the subclause titles of 176.7.4.6 and 177.6.1.6, as in 176.7.2 and 176.7.3.

Proposed Response Response Status W

PROPOSED REJECT.

Allowing a variety of test patterns provides flexibility to implementors and users to use appropriate test pattern as their testing set up allows.

No evidence has been provided that square wave is not relevant for the transition time and wavelength measurements.

The suggested remedy also includes an editorial change. But the text correct as written and consistent with other similar subclause.

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CI 180 SC 180.9.2 P476 L5 # 453

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (OI)

This sentence extends over 4 lines and it is hard to parse. It can be divided cleanly. Also we should be clear whether it's the Bessel-Thomson response that should not exceed, or what.

SuggestedRemedy

IEEE Std 802.3db has a partial fix but use the wording in IEEE Std 802.3dk: change: at least 1.3 x 106.25 GHz, and at frequencies above 1.3 $\hat{1}$ 106.25 GHz, the response should ... to: at least 1.3 x 106.25 GHz. At frequencies above 1.3 $\hat{1}$ 106.25 GHz, *its* response should ...
Four clauses.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The text as written has a few issues. Per Figure 180-7, the reference receiver also includes a CRU, the response is due to the combination of OE and scope, and the grammar in the sentence lacking.

Change the text in 180.9.2 to the following:

The reference receiver is composed of an O/E converter, a clock recovery unit (CRU), and a pattern-triggered oscilloscope as shown in Figure 180-7.

The combined frequency response of the O/E converter and oscilloscope has a 3 dB bandwidth of approximately 53.125 GHz with a fourth-order Bessel-Thomson response for frequencies up to at least 1.3 x 106.25 GHz and a response no higher than -20 dB for frequencies greater than 1.3 x 106.25 GHz.

The CRU has a corner frequency of 4 MHz and a slope of 20 dB/decade. The CRU may be implemented in hardware or software depending on oscilloscope technology.

CI 180 SC 180.9.3 P476 L29 # 454

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (OI)

There are multiple patterns allocated for this parameter in Table 180-14. The patterns are not defined there; they are defined by reference in Table 180-13.

SuggestedRemedy

Change "using the test pattern defined in Table 180-14" to "using a test pattern as in Table 180-14" or to "using one of the test patterns given in Table 180-14". Similarly in 180.9.4 and other optical clauses.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement "using one of the test patterns given in Table 180-14".

Implement with editorial license to update other instances in optical PMD clauses, 180, 181, 182, 183

CI 180 SC 180.9.6.1 P477 L37 # 456

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (OI)

test pattern 3 or pattern 3 - we should be consistent. Table 180-13, column 1, says "Pattern".

SuggestedRemedy

Delete "test" before pattern in several places.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Use pattern whenever the purpose is to say the transmitted or received pattern, i.e., not specifically pointing to test pattern number in Table 180-13. Use "test pattern x" whenever there is a reference to a specific pattern. Implement with editorial license.

CI 180 SC 180.9.6.1 P477 L46 # 457

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D test pattern (B1) (CO)

SSPRQ contains a section for challenging CDRs. There is no point challenging the CRU in the scope; that only degrades the measurement. SSPRQ is not used for testing receivers. So it must be there to challenge the PMAs between the PCS and the Tx PMD. Yet this says "The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal" - which I believe is for practical considerations in ICs, some years ago.

SuggestedRemedy

Change "The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal."

to "The pattern of the xAUI-n input signal should be SSPRQ on the lane under test, and test patterns 3, 5 or 6 on the other lanes. However, test patterns 3, 5 or 6 may be used on the lane under test.

Proposed Response Response Status W

PROPOSED REJECT.

The SSPRQ test pattern was adopted in IEEE 802.3bs specifically for testing of TDECQ (for optical transmitters) and SECQ (for optical receiver test calibration). See comment #50 here:

http://www.ieee802.org/3/bs/comments/P802d3bs_D1p3_comments_final_ID.pdf

The high stress and low-frequency content was intended to challenge the "low-frequency" control loops that might be implemented within an optical transmitter. It was not intended for receiver testing. There is no assurance that AU1 or PMD receiver will be able to effectively track SSPRQ without penalty compared to other test patterns. Note that the analyses referenced in comment #50 shows that the phase stress is considerably higher than for the patterns specified for RX testing.

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Cl 180 SC 180.9.6.2 P478 L32 # 458

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D editorial (B1) (OI)

Table layout

SuggestedRemedy

Make the table full width. Make the first two columns wide enough for the equations. The feature to "size columns to contents" with table full width might do this.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license.

Cl 180 SC 180.9.6.3 P479 L7 # 460

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D Reference equalizer (B1) (OI)

This says "This reference equalizer ... does not imply any particular receiver equalizer implementation." Clearly that is not the case; it says "The reference equalizer is a 15-tap, T-spaced, feed-forward equalizer (FFE), followed by a 1-tap decision feedback equalizer (DFE)..." That's particular.

SuggestedRemedy

Change "does not imply any particular receiver equalizer implementation" to "does not imply that a compliant product should contain any particular receiver equalizer implementation".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Change "does not imply any particular receiver equalizer implementation"
To: "does not imply any particular receiver equalizer architecture in a compliant implementation"
Implement with editorial license.

Cl 180 SC 180.9.6.4 P481 L26 # 471

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D TDECQ-histogram(B1) (OI)

A histogram is a table of value, count pairs. A histogram *window* is a box on the scope screen.

SuggestedRemedy

Change "The precise time position of the pair of histograms is adjusted to minimize TDECQ while keeping the histograms spaced 0.1 UI apart."
to: "The precise time position of the pair of histogram windows is adjusted to minimize TDECQ while keeping the histogram windows spaced 0.1 UI apart."

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 180 SC 180.9.6.4 P482 L1 # 475

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status D editorial (B1) (OI)

These are not functions: unlike the Gaussian probability density function mentioned later, there is no smooth formula. They are distributions, from measurement.

SuggestedRemedy

Change "cumulative probability function" to "cumulative probability distribution", several times.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
Implemented suggested changes in all 6 instances in 802.3dj, all on page 482.

Cl 178B SC 178B P865 L7 # 494

Dawe, Piers J G

NVIDIA

Comment Type ER Comment Status D (B1) (CA)

Put the abbreviation in the title as we do for PMD, PMA, PCS...

SuggestedRemedy

Autonomous path startup (APSU) functions for electrical and optical interfaces

Proposed Response Response Status W

PROPOSED ACCEPT.