

Cl 45 SC 45.2.1 P76 L43 # R2-1

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status A (B) (L)

Table 45-3 was not updated to match the D3.2 changes to registers 1.1477 and 1.1478. (a) Line 43 lists 1.1477 as "PMA/PMD interface lane training status", but D3.2 retitled it "PMA/PMD interface lane training status 1" in the heading of 45.2.1.169d (page 103) and in the TOC (page 17). (b) Line 44 still lists 1.1478 as "Reserved" with no subclause reference, although D3.2 adds subclause 45.2.1.169e "PMA/PMD interface lane training status 2 (Register 1.1478)" on page 104, defines bits 1.1478.7:0 (Receiver OK lane 7:0), and cites 1.1478.7:0 for rx\_ok in the variable-to-register mapping table on page 912. The adjacent rows in the same table block were edited in D3.2 (168c/168d/168e/168f renumbered to 169c/169d/169f/169g), and the next row 1.1479 already points to 45.2.1.169f, so 169e is the only missing entry. This also affects the resolution of D3.1 comment R1-188, which added register 1.1478 without the corresponding Table 45-3 row.

#### SuggestedRemedy

On page 76 line 43, change the Register name for 1.1477 to "PMA/PMD interface lane training status 1". On page 76 line 44, change the row "1.1478 Reserved" to "1.1478 PMA/PMD interface lane training status 2 45.2.1.169e".

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1 P78 L9 # R2-2

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (L)

The resolution of D3.1 comment R1-3 was not correctly implemented. The single D3.1 row "1.2900 through 1.3715 | PMA test block error bin counters" was split into two rows, but with the wrong boundary: page 78 line 9 reads "1.2900 through 1.3707 | PMA transmit test block error bin counters | 45.2.1.272" and line 10 reads "1.3708 through 1.3715 | PMA receive test block error bin counters | 45.2.1.272". Every other location in D3.2 uses the 1.3307/1.3308 boundary: 45.2.1.272 on page 127 lines 43 to 45 states the transmit direction registers span from 1.2900 to 1.3307 and the receive direction registers from 1.3308 to 1.3715 - Table 45-212v on page 128 begins the receive registers at 1.3308.15:0 - and the register-name annex on pages 350 and 351 gives test\_block\_error\_bin\_rx\_0\_<0:15> at 1.3308 to 1.3355 through test\_block\_error\_bin\_rx\_7\_16p at 1.3713 to 1.3715. As printed, the transmit row spans 808 registers and the receive row only 8, whereas each direction requires 408. The affected table is Table 45-3 (PMA/PMD registers), reproduced in the 45.8 register-address summary.

#### SuggestedRemedy

In Table 45-3 on page 78, change the transmit row range from "1.2900 through 1.3707" to "1.2900 through 1.3307", and the receive row range from "1.3708 through 1.3715" to "1.3308 through 1.3715".

Response Response Status W

ACCEPT.

Cl 45 SC 45.2.1.168a P101 L1 # R2-3

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status A (B) (L)

The D3.2 renumbering of the inserted Clause 45 subclauses from 45.2.1.168b through 45.2.1.168f to 45.2.1.169b through 45.2.1.169g was not applied to the first inserted subclause or to the editing instruction. Page 101 line 1 still reads "Insert 45.2.1.168a through 45.2.1.168f after 45.2.1.168 as follows:", but the subclauses that follow are 45.2.1.168a, 45.2.1.169b, 45.2.1.169c, 45.2.1.169d, 45.2.1.169e, 45.2.1.169f, and 45.2.1.169g. The cited range matches none of the inserted material, the stated insertion point is inconsistent with the 169x numbers, and 45.2.1.169a does not appear anywhere in D3.2. The orphaned 45.2.1.168a also propagates to the TOC (page 17 line 20), the Subclause cell for register 1.1459 in Table 45-3 (page 76 line 39), and the max\_wait\_timer\_duration row of the Annex 178B variable-to-register cross-reference table (page 911 line 38).

#### SuggestedRemedy

Renumber 45.2.1.168a (ILT max wait timer duration register, Register 1.1459) to 45.2.1.169a and update every occurrence: the subclause heading on page 101 line 3, the TOC entry on page 17 line 20, the Subclause cell in Table 45-3 on page 76 line 39, and the max\_wait\_timer\_duration row on page 911 line 38. Change the editing instruction on page 101 line 1 to read "Insert 45.2.1.169a through 45.2.1.169g after 45.2.1.169 as follows:".

Response Response Status C

ACCEPT IN PRINCIPLE.

It is the subclause numbering that is wrong.

On page 101:

Change:

"Insert 45.2.1.168a through 45.2.1.168f after 45.2.1.168 as follows:"

To:

"Insert 45.2.1.168a through 45.2.1.168g after 45.2.1.168 as follows:"

Renumber 45.2.1.169b through 45.2.1.169g so they become 45.2.1.168b through 45.2.1.168g

CI 176 SC 176.1 P348 L 25 # R2-4

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status R (L)

The D3.2 rewrite of the intrinsic-delay paragraph in 176.10 (page 348 lines 24 to 34) deleted the sentence "As recommended in 90A.7, the maximum delay value is allocated to the transmit path and the minimum delay value to the receive path.", which was present in D3.1 at page 347 lines 25 to 26. 176.10 still reports the eight\_max/\_min path data delay status variables at page 348 lines 36 to 41 (PMA\_delay\_ns\_TX\_max/\_min, PMA\_delay\_ns\_RX\_max/\_min and the subns equivalents), but nothing remaining in 176.10 specifies how the maximum and minimum delay values are apportioned between the transmit and receive paths. The parallel clause 177.9 (page 378 line 30) and the corresponding text at page 615 line 19 and page 690 lines 23 and 47 all retain the sentence, so the deletion also creates an inconsistency between otherwise-parallel subclauses.

#### SuggestedRemedy

Restore the allocation statement in 176.10. After "...sum of the transmit and receive delays is a constant value." on page 348 line 25, insert "As recommended in 90A.7, the maximum delay value is allocated to the transmit path and the minimum delay value to the receive path." If the D3.2 differentiation between the m:n/n:n and n:m PMAs requires distinct allocation rules, add equivalent wording defining the max/min allocation for each of the m:n, n:n, and n:m PMA cases.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 177 SC 177.11.4.1 P384 L 31 # R2-6

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status A (B) (L)

In the Transmit function PICS table of 177.11.4.1, newly added item TF11 "PRBS31 checker" cites 177.6.2.1, which is "PRBS31 test pattern checker" under 177.6.2 Test pattern checking, a receive-path function. Page 372 lines 40 to 42 state that the Inner FEC test pattern checkers are "used to check the signal on each receive input lane from the PMD service interface", and 177.6.2.1 requires checkers at the output of the PAM4 decoder. A receive function is therefore listed in the Transmit function table, while the Receive function table in 177.11.4.2 has no entry for 177.6.2.1. Items TF7 through TF11 and RF7 are all new in D3.2.

#### SuggestedRemedy

Delete item TF11 (PRBS31 checker, 177.6.2.1) from the Transmit function table of 177.11.4.1 and add it to the Receive function table of 177.11.4.2 as a new item (e.g. RF7 "PRBS31 test pattern checker", 177.6.2.1, status M, Support "Yes [ ]"), renumbering the existing RF7 (PRBS31-encoded-by-Inner-FEC RX mode, 177.6.2.3) to RF8. Align the feature wording with the subclause title "PRBS31 test pattern checker".

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

CI 177 SC 177.11.4.2 P384 L 46 # R2-7

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status A (B) (L)

In the Receive function PICS table of 177.11.4.2, the newly added item RF7 ("PRBS31-encoded-by-Inner-FEC RX mode", subclause 177.6.2.3, Status M) has an empty Support column. All other items in the Clause 177 PICS tables, including RF1 through RF6 in the same table and the companion transmit-side item TF8 (177.6.1.1) added by the same edit, show "Yes [ ]" in the Support column. As written the row cannot be completed by an implementer. This item was added in response to D3.1 comment R1-49 - the substance was implemented but the Support cell was left blank.

#### SuggestedRemedy

In the Receive function PICS table of 177.11.4.2 on page 384, add "Yes [ ]" to the Support column of item RF7, matching items RF1 through RF6 and item TF8 in 177.11.4.1.

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-174.

Cl 178 SC 178.9.3.4.1 P401 L 34 # R2-8

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status R (B) (E)

D3.2 corrected 178.9.2.5 (page 396 line 53) from "shall meet the specification dvf (min)" to "shall be within the range specified for dvf in Table 178-6", because Table 178-6 specifies dvf as a range (0 to 0.1 V) with no minimum value. The parallel statement in 178.9.3.4.1 (page 401 line 34) still reads that the difference steady-state voltage dvf "is less than or equal to the minimum specified in Table 178-6", referring to a nonexistent minimum and conflicting with the corrected 178.9.2.5. The identical stale wording remains in 176C.6.4.4.1 (page 809 line 44) referencing Table 176C-2, whose dvf is also given as a range (0 to 0.1 V).

**SuggestedRemedy**

On page 401 line 34, change "is less than or equal to the minimum specified in Table 178-6" to "is within the range specified for dvf in Table 178-6". Apply the corresponding change on page 809 line 44: "is within the range specified for dvf in Table 176C-2".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 178 SC 178.9.3.7 P404 L 39 # R2-9

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

The resolution of D3.1 comment R1-108 specified changing the citation to "Table 178-8, Table 178-14, and Table 178-15". The reference to 178-15 was added but the word "Table" was omitted, so page 404 line 39 reads "in Table 178-8, Table 178-14, and 178-15 and with the value of Tfx equal to twice the delay from TP5v to...". This is inconsistent with the parallel transmitter text in 178.9.2.3 (page 396 line 11), which correctly reads "Table 178-8, Table 178-14, and Table 178-15", and with the citations on page 402 line 2 and page 406 lines 4 and 42. The bare "178-15" reads as a subclause or equation number.

**SuggestedRemedy**

On page 404 line 39, change "in Table 178-8, Table 178-14, and 178-15 and with the value of Tfx" to "in Table 178-8, Table 178-14, and Table 178-15, and with the value of Tfx".

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 178 SC 178.14.3 P414 L 26 # R2-10

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

The D3.2 merge of PICS items AUI200G ("200 Gb/s per lane AUI-n C2C", Annex 176C) and AUIL200G ("Less than 200 Gb/s per lane AUI-n C2C", Annex 120F/120D/120B) into the single item AUIC2C was completed in the Clause 179 PICS (page 459 line 39, Feature = "AUI-n C2C") but left incomplete in the Clause 178 PICS. On page 414 line 26 the item label was changed to AUIC2C and the Value/Comment updated to "PMD is separated from the PCS by an AUI-C2C specified in Annex 120B, Annex 120D, Annex 120F, or Annex 176C", but the Feature cell still carries the leftover text "200 Gb/s per lane AUI-n C2C". Annex 120B, 120D and 120F specify AUIs at less than 200 Gb/s per lane, so the Feature label contradicts the item's own Value/Comment.

**SuggestedRemedy**

In 178.14.3 on page 414 line 26, change the Feature cell of item AUIC2C from "200 Gb/s per lane AUI-n C2C" to "AUI-n C2C", matching the AUIC2C row in the Clause 179 PICS on page 459 line 39.

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 179 SC 179.4 P422 L18 # R2-11

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

The resolution of D3.1 comment R1-302 expanded "the PMD client (PMA)" to "the PMD client (PMA immediately above the PMD)" but left the original closing parenthesis in place, producing a doubled parenthesis: "...exchange of encoded data between the PMD and the PMD client (PMA immediately above the PMD)". The PMD translates...". The three parallel sentences carrying the same D3.2 insertion (page 390 line 24, page 466 line 5, page 504 line 48) each have a single closing parenthesis.

#### SuggestedRemedy

On page 422 line 18, delete the extra closing parenthesis so the sentence reads "...the exchange of encoded data between the PMD and the PMD client (PMA immediately above the PMD). The PMD translates the encoded data to and from signals suitable for the specified medium."

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 179 SC 179.9.5.2 P440 L9 # R2-12

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

The 174A.9.6/174A.9.7 renumbering in D3.2 was applied to this citation by mechanical substitution, leaving the list out of numeric order: page 440 line 9 reads "either 174A.9.5, 174A.9.7, or 174A.9.6 with parameters provided in Table 179-13". D3.1 read "either 174A.9.5, 174A.9.6, or 174A.9.7". The identical artifact appears at page 838 line 23 (176D.8.11). All other citations of this method list in D3.2 are in ascending order, and the parallel clauses 180.9.14, 180.9.15, 181.9.14, 181.9.15, 182.9.14, 182.9.15, 183.9.14 and 183.9.15 were instead rewritten to "either 174A.9.5 or 174A.9.6" with an added prohibition sentence, so these two subclauses are also technically inconsistent with the rest of the draft in retaining 174A.9.7 as a permitted primary method.

#### SuggestedRemedy

On page 440 line 9 and page 838 line 23, change "either 174A.9.5, 174A.9.7, or 174A.9.6" to "either 174A.9.5, 174A.9.6, or 174A.9.7". If the intent was to align these subclauses with the treatment applied in Clauses 180 through 183, instead change to "either 174A.9.5 or 174A.9.6" and add the corresponding sentence used there.

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

A similar issue exists on page 838 line 23.

In both locations, the appropriate update would be to change "either 174A.9.5, 174A.9.7, or 174A.9.6" to "either 174A.9.5, 174A.9.6, or 174A.9.7".

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 178B SC 178B.12 P911 L 14 # R2-13

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (CA)

Duplicate table numbers in Annex 178B make all citations to Table 178B-3, Table 178B-4 and Table 178B-5 ambiguous. D3.2 split the D3.1 management-variable tables (uniquely numbered Table 178B-6 and Table 178B-7) into four tables and renumbered them starting at 178B-3, colliding with the pre-existing field-structure tables in 178B.7: Table 178B-3 is both "Control field structure for the O1 format" (page 886) and "Control variables and MDIO mapping for PAM4 interfaces" (page 911) - Table 178B-4 is both "Status field structure for the E1 format" (page 887) and "Status variables and MDIO mapping for PAM4 interfaces" (page 912) - Table 178B-5 is both "Status field structure for the O1 format" (page 888) and "Control variables and MDIO mapping for coherent interfaces" (page 913). No table is numbered 178B-7. Affected citations include page 456 lines 14 and 17, page 495 line 43, page 525 line 5, page 557 line 40, page 589 line 14, page 640 line 26 (185.10), page 691 line 47 (186.7.2), page 817 lines 10 and 12, page 844 lines 30 and 35, page 911 lines 3 and 6, page 884 line 41, page 887 lines 11 to 12, page 899, PICS items IL10, IL11 and IL12 on page 917, and PICS items M2 and M3 on page 918. Duplicate table numbers within a single annex are invalid irrespective of the ambiguity they create. The ambiguous citations occur in 179.14 and throughout Annex 178B.12.

#### SuggestedRemedy

Renumber the four management-variable tables in 178B.12 so they do not collide with the 178B.7 field-structure tables, i.e. Table 178B-6 (control variables and MDIO mapping for PAM4 interfaces), Table 178B-7 (status variables and MDIO mapping for PAM4 interfaces), Table 178B-8 (control variables and MDIO mapping for coherent interfaces), and Table 178B-9 (status variables and MDIO mapping for coherent interfaces). Update every citation of the management tables accordingly, including page 456 lines 14 and 17, page 495 line 43, page 525 line 5, page 557 line 40, page 589 line 14, page 640 line 26, page 691 line 47, page 817 lines 10 and 12, page 844 lines 30 and 35, page 911 lines 3 and 6, and PICS items M2 and M3 on page 918. Leave the citations to the field-structure tables on pages 884, 887 and 899 and PICS items IL10, IL11 and IL12 on page 917 unchanged.

Response Response Status W

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

[Editor's note: changed page from 456 to 911]

CI 180 SC 180.9.6.4 P487 L 14 # R2-19

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status R TDECQ-optimization (OI) (B)

The D3.2 edit removed the quantified convergence tolerance for the TDECQ sigmaG iteration. D3.1 read "is not within 1% of the target PAM4 SER" and "falling within 1% of the target PAM4 SER" - D3.2 now reads "is not equal to the target PAM4 SER of  $4.56 \times 10^{-4}$ " and "as close as practical to the target PAM4 SER". An iterative numerical search over continuous sigmaG with re-optimization of equalizer tap coefficients can never yield SER exactly equal to  $4.56 \times 10^{-4}$ , so the loop as written has no defined termination condition, and "as close as practical" supplies no numerical criterion. This makes a normative test procedure non-reproducible between implementations.

#### SuggestedRemedy

On page 487 lines 13 to 16, restore a quantified tolerance: "If max(SERL, SERR) is not within 1% of the target PAM4 SER of  $4.56 \times 10^{-4}$ , the process is iterated by changing sigmaG and reoptimizing the equalizer tap coefficients. TDECQ is calculated using the optimized sigmaG that results in max(SERL, SERR) falling within 1% of the target PAM4 SER." If a different tolerance is intended, state it numerically - do not leave "as close as practical" as the sole convergence criterion.

Response

Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 180 SC 180.9.8.2 P490 L 4 # R2-22

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status R TFT (OI)

The resolution of D3.1 comment R1-313 committed to specifying that BERadded equals 0 in the second sentence of 180.9.8.2. The sentence was reworded in D3.2 from "using ORx operating BER =  $2.4 \times 10^{-5}$  and  $p = 1$ " to "using BERmax (ORx operating BER target) of  $2.4 \times 10^{-5}$  and  $p = 1$ ", but no statement that BERadded equals 0 appears in 180.9.8, 180.9.8.1 or 180.9.8.2. Since 174A.9.5 defines BERmax = BERtotal - BERadded, readers cannot confirm that the Table 180-17 Hmax(k) values were computed with BERadded of 0.

#### SuggestedRemedy

On page 490 line 4, amend the second sentence of 180.9.8.2 to read: "The limit Hmax(k) is calculated using the method in 174A.9.5 using BERmax (ORx operating BER target) of  $2.4 \times 10^{-5}$ , BERadded of 0, and  $p = 1$ ."

Response

Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 180 SC 180.9.14 P492 L4 # R2-23

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R Rx sensitivity (OI)

Table 180-14 and Table 181-12 now list a single test pattern ("3") for Receiver sensitivity, changed in D3.2 from "3 or 5", but the body text of 180.9.14 (page 492 line 4) and 181.9.14 (page 522 line 33) still uses the plural construction "using one of the test patterns specified for receiver sensitivity in Table 180-14 [Table 181-12]". With only one pattern listed the plural is incorrect. The parallel clause 182.9.14 (page 554 line 4) uses the singular "using a test pattern for receiver sensitivity in Table 182-14".

#### SuggestedRemedy

On page 492 line 4, change "using one of the test patterns specified for receiver sensitivity in Table 180-14" to "using the test pattern specified for receiver sensitivity in Table 180-14". Make the same singular correction on page 522 line 33 with respect to Table 181-12.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 180 SC 180.9.14 P492 L15 # R2-24

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status R Rx sensitivity (Bp) (OI)

The sentence newly added in D3.2, "When testing using 174A.9.5 or 174A.9.6, the compliance shall not be further verified using 174A.9.7," conflicts with the referenced test methods. 174A.9.5 (page 752 lines 39 to 40) states "If this test fails, then the performance may be further verified using the method in 174A.9.6 or 174A.9.7", and 174A.9.6 (page 753 lines 6 to 7) states "If this test fails, then the performance may be further verified using the method in 174A.9.7". Neither annex sentence carries any qualifying or scoping language, and 174A.9.7 remains an explicitly permitted method in 179.9.5.2 (page 440 line 9) and 176D.8.11 (page 838 line 23), so the annex permission cannot be read as implicitly restricted to non-Clause-180-to-183 PMDs. A normative "shall not" in the PMD clause therefore directly negates a "may" in the method it invokes. The same sentence appears at page 492 line 15, page 494 line 21, page 522 line 49, page 523 line 33, page 554 line 16, page 555 line 15, page 586 line 54, and page 587.

#### SuggestedRemedy

Resolve the conflict in one direction and apply it consistently. Preferred: qualify the annex permissions so they defer to the referencing clause, e.g. in 174A.9.5 (page 752 lines 39 to 40) "...may be further verified using the method in 174A.9.6 or, where permitted by the referencing clause, 174A.9.7", and in 174A.9.6 (page 753 lines 6 to 7) "...may, where permitted by the referencing clause, be further verified using the method in 174A.9.7". Alternatively, delete the added prohibition sentence from all eight locations and rely on the method list in each subclause to define the permitted methods. If the statement is only guidance, recast it as a NOTE without "shall".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 180 SC 180.12.4.1 P498 L51 # R2-26

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status A PICS (B) (OI)

The PICS item for conversion of optical signals was reworded in D3.2 (D3.1 read "signals to four electrical signals", D3.2 reads "signals to symbol streams") but the stale lane count "four" in "Conversion of four optical signals" was left uncorrected. The cited subclause 180.5.3 (page 469 lines 28 to 31) states that the PMD Receive function converts "the n parallel optical signals" received from the MDI into separate symbol streams, and Clause 180 covers 200GBASE-DR1 (n=1), 400GBASE-DR2 (n=2), 800GBASE-DR4 (n=4) and 1.6TBASE-DR8 (n=8). A mandatory (M) PICS item requiring conversion of "four" optical signals is therefore incorrect for three of the four port types. The identical stale "four" survives the same rewording in the parallel rows: page 498 item F6 (180.12.4.1), page 527 item F7 (181.12.4.1), page 560 item F6 (182.12.4.1, cross-referencing 182.5.3 on page 539 line 28), and page 591 item F7 (183.12.4.1).

## SuggestedRemedy

Change the Feature text in all four rows to "Conversion of the n optical signals to symbol streams", matching the wording of 180.5.3, 181.5.3, 182.5.3 and 183.5.3: page 498 item F6, page 527 item F7, page 560 item F6, and page 591 item F7.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change feature of F6 in P498 and P560 to Conversion of n optical signals to symbol streams , n = 1,2,4,8

CI 181 SC 181.12.4.1 P528 L3 # R2-27

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R PICS (B) (OI)

The reworded Value/Comment for PICS item F9 states that Global\_PMD\_signal\_detect "is an indicator of the presence of an optical signal on all lanes", but the referenced subclause 181.5.4 (page 507 line 28) states it "is a global indicator of the presence of optical signals on all 4 lanes". The D3.2 rewrite dropped both "global" and the lane count that D3.1 carried, so the PICS entry no longer restates the referenced requirement. The generic wording is appropriate in Clauses 180, 182 and 183, whose bodies use "all n lanes", but not in Clause 181. The affected PICS item is F9.

## SuggestedRemedy

Change the Value/Comment of PICS item F9 on page 528 to match 181.5.4: "Global\_PMD\_signal\_detect is a global indicator of the presence of optical signals on all 4 lanes".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 182 SC 182.9.14 P554 L7 # R2-28

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A Rx Sensitivity (B) (OI)

The resolution of D3.1 comment R1-128 corrected the TECQ measurement cross-reference in 180.9.14 (D3.2 page 492 line 7 now reads "The TECQ of the conformance test signal is measured according to 180.9.7."), but the identical defect in the parallel clause 182.9.14 was not corrected. Page 554 line 7 still reads "The TECQ of the conformance test signal is measured according to 182.9.6, except that the test fiber is not used." Subclause 182.9.6 is "Transmitter and dispersion eye closure for PAM4 (TDECQ)" (page 551 line 20) - the TECQ measurement method is defined in 182.9.7 "Transmitter eye closure for PAM4 (TECQ)" (page 552 line 23). Secondly, 181.9.14 (page 522 line 39) and 183.9.14 (page 586 line 44) retain the "except that the test fiber is not used" wording removed from 180.9.14, although their cross-references are already correct.

## SuggestedRemedy

In 182.9.14 on page 554 line 7, change to "The TECQ of the conformance test signal is measured according to 182.9.7." For consistency with the R1-128 resolution applied to 180.9.14, also delete ", except that the test fiber is not used" in 181.9.14 (page 522 line 39) and 183.9.14 (page 586 line 44).

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy with editorial license.

CI 182 SC 182.9.15 P555 L13 # R2-29

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (OI)

The parallel receiver-sensitivity sentences in 182.9.14 and 182.9.15 diverge without technical justification following the D3.2 edit. 182.9.14 (page 554 lines 13 to 14) was updated to read "meets the BLER requirements in 182.2, measured at the PMA using the test method in either 174A.9.5 or 174A.9.6", but 182.9.15 (page 555 lines 12 to 13) was left as "meets the requirements in 182.2 using the test method in either 174A.9.5 or 174A.9.6", missing both "BLER" and "measured at the PMA".

## SuggestedRemedy

On page 555 lines 12 to 13, change "meets the requirements in 182.2 using the test method in either 174A.9.5 or 174A.9.6" to "meets the BLER requirements in 182.2, measured at the PMA using the test method in either 174A.9.5 or 174A.9.6", matching 182.9.14.

Response Response Status W

ACCEPT.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |                |      |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|------|--------------------|
| Cl 185                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SC 185.5.7        | P 628          | L 27 | # R2-30            |
| Hajduczenia, Marek                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   | RG Nets        |      |                    |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                    | E                 | Comment Status | A    | editorial (B) (OC) |
| <p>The sentence rewritten in D3.2 uses the numeral form "is set to 1", while the immediately following unchanged sentence in the same subclause (page 628 line 32) reads "set the Global_PMD_transmit_disable variable to one" and 185.5.8 (line 37) reads "set PMD_fault variable to one". D3.1 used "is set to one" here - the numeral was introduced by the edit, creating inconsistent value notation for the same variable within adjacent paragraphs.</p> |                   |                |      |                    |
| <i>SuggestedRemedy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                |      |                    |
| <p>On page 628 line 27, change "If either Global_PMD_transmit_disable is set to 1 or the variable c_tx_mode = QUIET (see 185.5.11)" to "If either Global_PMD_transmit_disable is set to one or the variable c_tx_mode = QUIET (see 185.5.11)".</p>                                                                                                                                                                                                              |                   |                |      |                    |
| Response                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Response Status C |                |      |                    |
| ACCEPT.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |      |                    |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                |      |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|------|---------------|
| Cl 185                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SC 185.11.4.1     | P 643          | L 35 | # R2-31       |
| Hajduczenia, Marek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   | RG Nets        |      |               |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | E                 | Comment Status | A    | PICS (B) (OC) |
| <p>D3.2 deleted the PICS item "Integration with management functions" (with cross-reference to the clause Overview) from the PMD functional specifications PICS of Clauses 180 (page 498), 181 (page 527), 182 (page 560) and 183 (page 591), renumbering the remaining F items. The identical item was left in place in the corresponding PICS of Clause 185 (page 643 line 35, "F2 Integration with management functions / 185.1 / O") and Clause 187 (page 720 line 35, "F2 ... / 187.1 / O"). Neither 185.1 nor 187.1 contains any statement about integration with management functions, so the same rationale applies and the six PMD clause PICS proformas are now inconsistent. The same deletion affects the parallel PICS table in 187.11.4.1.</p> |                   |                |      |               |
| <i>SuggestedRemedy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                |      |               |
| <p>In 185.11.4.1 (page 643 line 35) delete the row "F2 Integration with management functions / 185.1 / O" and renumber the remaining F items, updating any references to those item labels. Apply the same change in 187.11.4.1 (page 720 line 35).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                |      |               |
| Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Response Status C |                |      |               |
| ACCEPT IN PRINCIPLE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |      |               |
| <p>This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.</p> <p>However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy with editorial license.</p>                                                                                                                                                                                                                                                                                                                                                                                |                   |                |      |               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |                |     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|-----|---------------|
| Cl 185                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SC 185.11.4.1     | P 644          | L 3 | # R2-32       |
| Hajduczenia, Marek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   | RG Nets        |     |               |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | E                 | Comment Status | A   | PICS (B) (OC) |
| <p>D3.2 removed "(optional)" from the 185.5.7 heading (page 628 line 21) and made the transmitter-off behaviour mandatory whenever c_tx_mode = QUIET (page 628 lines 27 to 29), driven by the mandatory RTS-with-squelch state diagram of 185.5.11 (page 628 line 51, "A PMD shall provide the RTS function using the RTS with squelch state diagram (see 178B.11)"). The Clause 185 PICS was not updated to match: item F8 "Global PMD transmit disable function" still has Status "MD:O", so no PICS item captures the now-mandatory squelch/transmitter-off requirement, and a PMD could answer "No" to F8 while still being required to implement 185.5.11. The affected PICS item is F8.</p> |                   |                |     |               |
| <i>SuggestedRemedy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |                |     |               |
| <p>Update PICS item F8 in 185.11.4.1 to reflect the mandatory behaviour: either change F8's Status to M for the transmitter-off/squelch behaviour required by 185.5.7 and 185.5.11 while retaining a separate MD:O item for the optional Global_PMD_transmit_disable control variable, or, if optionality was intended, restore "(optional)" to the 185.5.7 heading and reword 185.5.7 accordingly.</p>                                                                                                                                                                                                                                                                                           |                   |                |     |               |
| Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Response Status C |                |     |               |
| ACCEPT IN PRINCIPLE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                |     |               |
| Change the status of PICS item F8 in 185.11.4.1 from "O" to "M".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                |     |               |

Cl 186 SC 186.2.3.3 P 652 L 14 # R2-33

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A ER1 payload (CA)

The sentence newly inserted at page 652 lines 6 to 7 states that "either the 8 FEC flows or a locally generated signal is mapped into the payload area", but the unmodified shall statement at line 14 still requires unconditionally that "The GMP mapper shall insert the serialized stream of 257-bit blocks corresponding to each FEC flow into the payload area of a 800GBASE-ER1 tributary frame." The normative requirement therefore contradicts the new descriptive text. In addition, the new "Payload" column of Table 186-1 calls for Scrambled Idle or LF to be transmitted for the non-OK SIGNAL\_OK states, yet no normative text in 186.2.3 specifies how that locally generated Scrambled Idle or LF signal is produced or mapped into the payload area - the only Clause 186 mention of LF substitution is receive-side (page 665 line 28).

#### SuggestedRemedy

Revise the shall statement at page 652 line 14 to cover both cases, e.g. "The GMP mapper shall insert into the payload area of a 800GBASE-ER1 tributary frame either the serialized stream of 257-bit blocks corresponding to each FEC flow or the locally generated signal, as determined by Table 186-1." Additionally, add normative text in 186.2.3, or a cross-reference to an existing definition, specifying how the locally generated Scrambled Idle and LF signals identified in the Payload column of Table 186-1 are generated and encoded into 257-bit blocks for mapping. Update PICS as needed.

Response Response Status W

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-93.

Cl 186 SC 186.2.4.7.6 P 665 L 6 # R2-34

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (L)

The resolution of D3.1 comment R1-59, which re-based the CSTAT bit references to the 0-based numbering of Figure 186-6, was implemented only on the transmit side. 186.2.3.5.11 (page 659 lines 5 to 8) now places am\_sf<0> in CSTAT<5>, am\_sf<1> (ORed with IFEC\_degraded\_SER) in CSTAT<7>, and am\_sf<2> in CSTAT<6>. The mirror-image receive text in 186.2.4.7.6 (page 665 lines 6 to 10) is unchanged from D3.1 and still extracts am\_sf<0> from CSTAT<6>, am\_sf<2> from CSTAT<7>, and am\_sf<1> from CSTAT<8>. The transmitter and receiver therefore disagree in both bit indices and am\_sf mapping, and CSTAT<8> lies outside the 8-bit 0-based CSTAT field of Figure 186-6. The lead-in on page 665 line 4 also states "The information in bits 5-7", which contradicts the CSTAT<6> / <7> / <8> bullets below it. As written, an implementation built from 186.2.4.7.6 cannot interoperate with one built from 186.2.3.5.11.

#### SuggestedRemedy

In 186.2.4.7.6 on page 665, change the three bullets to align with 186.2.3.5.11: "The value in CSTAT<5> is replicated to am\_sf<0> of the two flows" - "The value in CSTAT<6> is replicated to am\_sf<2> of the two flows" - "The value in CSTAT<7> is logically ORed with FEC\_degraded\_SER and replicated to am\_sf<1> of the two flows".

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment points out an error that needs to be fixed.

Implement the suggested remedy with editorial license.

CI 186 SC 186.2.6 P 668 L 14 # R2-35

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (L)

The newly inserted 186.2.6 states "The ER1 FEC shall provide the ready-to-send (RTS) function using the RTS without squelch state diagram (see 178B.11) as specified in Annex 178B." This mandatory requirement has no corresponding item in the Clause 186 PICS proforma - the Major capabilities/options table in 186.8.3.1 (page 696) lists only MD, DC, LBL, LBR, AML and TS. Comparable mandatory APSU requirements elsewhere in the draft do have PICS items (PMDAPSU for 178.8.9 on page 414 and for 179.8.9 on page 459, AUIPSU for 176C.6.3 on page 819).

*SuggestedRemedy*

Add an item to the Major capabilities/options table in 186.8.3.1 on page 696, consistent with the PMDAPSU entries in Clauses 178 and 179, e.g. Item "FECAPSU", Feature "APSU functions in the ER1 FEC", Subclause "186.2.6", Value/Comment "Provides the RTS function using the RTS without squelch state diagram of 178B.11", Status "M", Support "Yes [ ]".

Response Response Status W

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

CI 186 SC 186.2.6 P 668 L 14 # R2-36

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (CA)

186.2.6 requires the 800GBASE-ER1 FEC sublayer to use the "RTS without squelch state diagram", but the criterion for choosing between the two variants, given in the referenced subclause 178B.11 (page 906 lines 19 to 22), is expressed solely in terms of PMD behaviour: "A coherent PMD that squelches the output when the PMD is not ready to send uses the RTS with squelch state diagram ... A coherent PMD that does not squelch the output ... uses the RTS without squelch state diagram." Clauses 186 and 187 contain no statement that the 800GBASE-ER1 PMD does not squelch its output, so the selection made in 186.2.6 is not traceable to the stated criterion. This contrasts with the 800GBASE-LR1 case, where the PMD itself provides the RTS function (185.5.11, page 628 line 51) and squelching is explicitly specified (page 629 line 1).

*SuggestedRemedy*

Reword the criterion in 178B.11 (page 906 lines 19 to 22) in terms of the coherent interface rather than the PMD, consistent with 178B.11.2 (page 906 lines 36 to 37), e.g. "A coherent interface whose PMD squelches the output when not ready to send uses the RTS with squelch state diagram (Figure 178B-14) - otherwise it uses the RTS without squelch state diagram (Figure 178B-15)." Alternatively, add a statement in 187.5.11 (page 707) that the 800GBASE-ER1 PMD does not squelch its output when not ready to send.

Response Response Status W

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-102.

CI 186 SC 186.2.6 P 668 L 20 # R2-37

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A ER1 payload (CA)

The new subclause 186.2.6, added in D3.2 in response to D3.1 comment R1-68, states that for c\_tx\_mode = TRAINING, NOT-RTS, RTS, or FILL "the payload of the ER1 FEC frame is filled with the scrambled idle test pattern defined in 186.2.3.12." This is wrong on two counts. (1) 186.2.3.12 (page 661 lines 31 to 35) defines only a PRBS31 test pattern with initial state of all ones as specified in 49.2.8, and its generation is conditioned on tx\_test\_mode = 1 - no scrambled idle pattern is defined anywhere in Clause 186. The scrambled idle test pattern is defined in 172.2.4.11 (page 303 lines 3 to 5). Table 187-10 (page 713) already gets this right, citing "172.2.4, 186.2.3.12" for the scrambled idle pattern and "186.2.3.12" alone for PRBS31. (2) 186.2.3.12 fills the payload area of each of the eight 800GBASE-ER1 tributary frames before the GMP mapping process, not "the payload of the ER1 FEC frame". In addition, the three "Scrambled Idle" entries in the new Payload column of Table 186-1 (page 650) carry no cross-reference at all, leaving an undefined normative term.

#### Suggested Remedy

In 186.2.6 at page 668 lines 20 to 22, replace the sentence with wording that cites the defining subclause and the correct payload area, e.g. "When c\_tx\_mode = TRAINING, NOT-RTS, RTS, or FILL, the payload area of each of the eight 800GBASE-ER1 tributary frames is filled with the scrambled idle test pattern defined in 172.2.4.11, encoded by the 800GBASE-ER1 FEC sublayer." If PRBS31 is intended, as in the parallel LR1 text at 185.5.11 (page 629 line 3), cite 186.2.3.12 and name PRBS31 explicitly. Add the corresponding cross-reference to the three "Scrambled Idle" entries in the Payload column of Table 186-1 on page 650.

Response Response Status W

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-93.

CI 120F SC 120F.1 P 733 L 44 # R2-38

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

In the legend of the replacement Figure 120F-1, the entry reads "1.6TAUI-16 = 1.6 Tb/s 16--LANE ATTACHMENT UNIT INTERFACE" with a doubled hyphen. The same typo present in D3.1 was corrected to "16-LANE" in the replacement Figure 120G-1 on page 739 of D3.2, but was left uncorrected here, so the two otherwise-identical legends are now inconsistent. (The legend text carries no ballot line number - line 44 is the nearest numbered line above it.)

#### Suggested Remedy

In the legend of Figure 120F-1, change "16--LANE" to "16-LANE" so the entry reads "1.6TAUI-16 = 1.6 Tb/s 16-LANE ATTACHMENT UNIT INTERFACE", matching the legend of Figure 120G-1 on page 739.

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

Cl 176C SC 176C.7 P812 L 25 # R2-39

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status R (Bp) (E)

In Table 176C-8, the "Minimum channel signal to common-mode ratio, SCMRCH" row cites 176C.7.3.2 in the Reference column. Subclause 176C.7.3.2 is "Channel modal ERL" (page 816) - SCMRCH is specified in 176C.7.4 "Channel signal to common-mode ratio" (page 816 line 49). The equivalent rows in Table 178-16 (page 405) and the Clause 179 channel summary table (page 448) correctly cite 178.10.5 and 179.11.5. The row is also out of numeric order relative to the preceding 176C.7.3.3 row. The Reference column of this table was edited in D3.2 (the AC-coupling row was set to 176C.7.5), so this stale reference was missed. The row sits on an unnumbered table-cell line - line 25 is the nearest numbered line above.

## SuggestedRemedy

In Table 176C-8 on page 812, change the Reference cell of the "Minimum channel signal to common-mode ratio, SCMRCH" row from "176C.7.3.2" to "176C.7.4".

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 176C SC 176C.7.5 P817 L 1 # R2-40

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

The heading of the newly inserted subclause 176C.7.5 reads "AC Coupling" (unhyphenated, second word capitalized). This is inconsistent with the parallel headings 178.10.4 "AC-coupling" (page 411) and 179.9.1 "AC-coupling" (page 427), with the body text of 176C.7.5 itself on page 817 line 3 ("The channel AC-coupling specifications are identical to those of 178.10.4."), with Table 176C-8 on page 812 ("Maximum AC-coupling 3 dB corner frequency"), with PICS item CC4 on page 821 ("Channel AC-coupling"), and with the sentence-case style of sibling headings 176C.7.1 through 176C.7.4. The same string is propagated to the TOC entry on page 48 line 28.

## SuggestedRemedy

Change the heading on page 817 line 1 from "176C.7.5 AC Coupling" to "176C.7.5 AC-coupling", and update the corresponding table-of-contents entry on page 48 line 28 to match.

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 176C SC 176C.9.4.3 P 821 L 14 # R2-41

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

D3.2 adds new subclause 176C.7.5 (AC-coupling) and updates the AC-coupling row of Table 176C-8 to reference it, but the parallel PICS item CC4 (Channel AC-coupling) in 176C.9.4.3 still cites the parent subclause 176C.7. All sibling PICS rows in the same table cite leaf subclauses (CC1 to 176C.7.1, CC2 to 176C.7.2, CC3 to 176C.7.3), so CC4 is the only row pointing at the parent. This is a missed consequential edit from the change that created 176C.7.5. The affected PICS item is CC4.

#### SuggestedRemedy

In the Channel PICS table of 176C.9.4.3 on page 821 line 14, change the Subclause cell for item CC4 (Channel AC-coupling) from "176C.7" to "176C.7.5".

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 176D SC 176D.8.11 P 838 L 26 # R2-42

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status R (B) (E)

The NOTE newly added in D3.2 to 176D.8.11 (page 838 lines 26 to 29), and its twin in 176C.6.4.4 (page 807 lines 47 to 51), recommend a histogram-extrapolation method that differs from every other "In order to predict whether a receiver meets the BLER requirement in a short test time" NOTE in the draft. The ten pre-existing NOTES (pages 399, 440, 492, 494, 523 twice, 554, 555, 587 twice), unchanged from D3.1, use a linear fit of  $\log_{10}(H_m(i)(k))$  for  $k = n-2$  to  $n$  over "the three highest bins having a count of 10 or more", together with a check that the histogram slope is not increasing. The new NOTE instead uses a linear fit of the slope of  $\log_{10}(H_m(k))$  for  $k = 0$  to  $n$  with  $H_m(n)$  set to  $3/N$  and the intercept  $H_m(0)$  set to 1, and omits the slope-increase check. In addition, the new NOTE is self-inconsistent: it defines  $n$  such that  $H_m(k) = 0$  for all  $k \geq n$  and sets  $H_m(n)$  to  $3/N$  for the fit, but then states "The fit is performed only for values of  $k$  that have  $H_m(k) > 0$ ", which literally excludes the  $k = n$  anchor point it just constructed. The same NOTE appears in 176C.6.4.4.

#### SuggestedRemedy

Harmonize the extrapolation guidance. Either replace the new NOTE in 176D.8.11 (page 838 lines 26 to 29) and in 176C.6.4.4 (page 807 lines 47 to 51) with the wording already used in the other Error ratio requirements subclauses, or, if the  $k = 0$  to  $n$  method is intentionally preferred, apply it consistently to all twelve NOTES and state the rationale. In either case, correct the self-inconsistency by amending the last sentence to read "The fit is performed only for values of  $k$  that have  $H_m(k) > 0$ , together with the substituted point at  $k = n$ ."

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.4 P 876 L 25 # R2-43

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (CA)

The first APSU bullet requires an ISL's interfaces and sublayers to "implement the RTS function (see 178B.6 and 178B.10)". 178B.6 is the RTS function for PAM4 interfaces (page 878) and 178B.10 the RTS function for coherent interfaces (page 905) - these are mutually exclusive per interface type. The bullet at lines 44 to 45 on the same page treats the two cases as alternatives, and the PICS in 178B.13 makes MC1 (APSU for PAM4 interfaces, 178B.5) and MC2 (APSU for optical coherent, 178B.10) an O/1 exclusive choice. The conjunctive "and" literally demands both.

#### SuggestedRemedy

On page 876 line 25, change "implement the RTS function (see 178B.6 and 178B.10)" to "implement the RTS function (see 178B.6 or 178B.10, as applicable)".

Response Response Status W

ACCEPT IN PRINCIPLE.

The comment seems to refer to line 6.

Change: "implement the RTS function (see 178B.6)"

To: "implement the RTS function (see 178B.6 for PAM4 ISL's and 178B.10 for coherent ISLs)"

CI 178B SC 178B.4 P 876 L 44 # R2-44

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (CA)

In the text inserted into 178B.4 by the resolution of D3.1 comments R1-140 and R1-142, the cross-reference is missing a space: "the RTS and ILT functions defined in178B.6 and 178B.7". The parallel reference in the very next sentence (line 45) correctly reads "defined in 178B.10", and this is the only missing-space cross-reference of this form in the draft.

#### SuggestedRemedy

On page 876 line 44, change "the RTS and ILT functions defined in178B.6 and 178B.7" to "the RTS and ILT functions defined in 178B.6 and 178B.7".

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 178B SC 178B.5 P 877 L 4 # R2-45

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A RTS (B) (CA)

The D3.2 rewrite of 178B.5 replaced the D3.1 sentence "The RTS function uses inputs from the adjacent interface (via the service interface), its peer interface..." with a bulleted list whose first item broadens the adjacent-side input to "the adjacent interface and signal indication logic (SIL) in one or more sublayers between the local interface and its adjacent interface (via the service interface)". The parallel overview of the same RTS behaviour in 178B.6 (page 878 lines 39 to 40), a subclause also edited in D3.2, still states the input narrowly as "the SIGNAL\_OK parameter from the adjacent interface". The two descriptions of the same input disagree about where SIGNAL\_OK originates, and the newly introduced SIL concept appears in only one of the two places.

#### SuggestedRemedy

Align the 178B.6 overview with the new 178B.5 text. On page 878 lines 39 to 40, change "Wait for the adjacent interface to be ready for DATA mode, as indicated by the SIGNAL\_OK parameter from the adjacent interface being equal to READY or OK." to "Wait for the adjacent interface to be ready for DATA mode, as indicated by the SIGNAL\_OK parameter received on the service interface, from the adjacent interface or from the SIL of an intervening sublayer, being equal to READY or OK." Alternatively, if SIL is not intended as a distinct input source, revert the SIL addition in the first bullet of 178B.5.

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, related changes would be an improvement to the draft.

The text in 178B.5 is explaining in great detail how the SIGNAL\_OK traverse from one side of a retimer to the other. The phrase "from the adjacent interface" used in 178B.6 is used to differentiate between the SIGNAL\_OK that ultimately comes from the adjacent interface rather than the one that goes to the adjacent interface as illustrated in Figure 178B-4. Figure 178B-4 clearly illustrates what is meant by "SIGNAL\_OK from the adjacent interface".

It would be helpful to point the reader to the figure.

On page 878 line 40, change "by the SIGNAL\_OK parameter from the adjacent interface" to "by the SIGNAL\_OK parameter from the adjacent interface (see Figure 178B-4)".

CI 178B SC 178B.8.2.1 P 894 L 5 # R2-46

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status A Variables (B) (CA)

The D3.2 definition of mr\_adj\_los\_mode no longer states what the variable does - the D3.1 statement that it controls the behaviour of the training control state diagram was deleted and not replaced by any cross-reference. The neighbouring management variables mr\_restart and mr\_training\_enable state their effect. The functional description now appears only under adj\_los\_mode in 178B.8.3.1 (page 897), with no pointer from 178B.8.2.1. (The definition sits on unnumbered lines between line 4 and line 9 - line 4 is the nearest numbered line above.)

#### SuggestedRemedy

Append a cross-reference to the mr\_adj\_los\_mode definition, e.g. "This variable, together with tx\_lp\_on\_adj\_los\_ability and tx\_sq\_on\_adj\_los\_ability, determines the value of adj\_los\_mode (see 178B.8.3.1)."

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

CI 178B SC 178B.8.2.1 P 894 L 47 # R2-47

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A Restart (CA)

The rx\_fail\_on\_los variable definition added in response to D3.1 comment R1-248 ends with "The value of this variable is implementation dependent. Default for this variable is true." However rx\_fail\_on\_los is mapped in the 178B.12 status-variable table (page 912) to bit 1.1479.15, which Table 45-133f (page 105, 45.2.1.169f) defines as "Receiver recovery ability" with access RO. A default value is not meaningful for a read-only ability bit. The editor acknowledges this in an unresolved Editor's note at page 894 lines 49 to 51 ("The register bit for rx\_fail\_on\_los is defined as a read-only ability bit. Therefore defining a default is not meaningful. Proposals to address this are encouraged."), which must not remain in a draft submitted for recirculation. The two parallel new ability variables tx\_lp\_on\_adj\_los\_ability (page 895 lines 10 to 12, bit 1.1479.13, RO) and tx\_sq\_on\_adj\_los\_ability (page 895 lines 14 to 16, bit 1.1479.14, RO) correctly state only "The value of this variable is implementation dependent."

#### SuggestedRemedy

On page 894 line 47, delete the sentence "Default for this variable is true." so that the rx\_fail\_on\_los definition ends with "The value of this variable is implementation dependent.", matching tx\_lp\_on\_adj\_los\_ability and tx\_sq\_on\_adj\_los\_ability. Delete the Editor's note at page 894 lines 49 to 51 in its entirety. If a management-settable default is genuinely intended, instead change 1.1479.15 in Table 45-133f on page 105 from RO to R/W and retain the default statement.

Response Response Status W

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-110

Cl 178B SC 178B.8.3 P 896 L 40 # R2-48

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A (B) (CA)

The resolutions of D3.1 comments R1-182 and R1-183 restructured the opening paragraphs of 178B.8.3 to a per-lane subject, but the restructuring also deleted the trailing clause "and their associated variables, functions, counters and timers defined in this subclause", which was present in D3.1 and retained in the agreed remedy. The paragraphs now read "Each lane of 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 "Each lane of an interface using the O1 format implements one instance of each of the training control and the training frame lock state diagrams." The phrase does not appear anywhere else in D3.2, so 178B.8.3 no longer states that the associated variables, functions, counters and timers are instantiated per lane. The parallel per-interface subclause 178B.8.2 (page 893 lines 34 to 35) retains the equivalent wording, so the two subclauses are now inconsistent. (The paragraphs sit on unnumbered lines following the 178B.8.3 heading - line 32 is the nearest numbered line above.)

#### SuggestedRemedy

Restore the trailing clause in both paragraphs of 178B.8.3: "Each lane of 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." and "Each lane of 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."

#### Response

Response Status W

ACCEPT IN PRINCIPLE.

It seems this was an D3.2 implementation error that should be rectified.  
Implement the suggested remedy with editorial license.

Cl 178B SC 178B.8.3.1 P 898 L 6 # R2-49

Hajduczenia, Marek

RG Nets

Comment Type TR Comment Status A rx\_ok (CA)

The D3.2 split of the D3.1 variable local\_rx\_ready into the new rx\_ok (page 899, which took over the substantive "receiver is ready / no further adjustments required" definition and all the state-diagram conditions) plus a retained-but-redefined local\_rx\_ready leaves local\_rx\_ready inconsistent with its remaining consumers. Its definition is now reduced to "Boolean variable that indicates the state of the receiver. Its value is set by the training control state diagram (Figure 178B-10a).", which does not say which state of the receiver is indicated, nor the conditions for true and false. In Figure 178B-10a, local\_rx\_ready is set true only on entry to TRAIN\_REMOTE and set false on entry to SEND\_TRAINING, RX\_READY (nearest numbered line, page 901 line 42) and TRAIN\_FAIL - Figure 178B-10b never assigns it. It is therefore false throughout RX\_READY, PATH\_READY, WAIT\_DATAPATH and PATH\_UP, i.e. during normal data transmission. Three consumers were not updated and still cite local\_rx\_ready: isl\_ready (178B.8.2.1, page 893, "set to true when local\_rx\_ready and remote\_rx\_ready are true for all lanes"), PMD\_signal\_detect\_i (179.8.5, page 426 line 35, "the logical AND of the variables local\_rx\_ready and remote\_rx\_ready"), and register bit 1.1476.8 "isl ready" (45.2.1.169c, page 102 lines 24 and 26). Since isl\_ready is also a condition in the RTS update state diagram (Figure 178B-9, page 896 lines 10 and 22) and on the ISL\_READY exit (page 901 line 38), as drafted isl\_ready and PMD\_signal\_detect\_i can never remain true in the operational states. Separately, the SEND\_LOCAL branch of Figure 178B-10a (entered from QUIET on "lmr\_training\_enable \* quiet\_timer\_done") never assigns local\_rx\_ready at all, leaving it undefined whenever mr\_training\_enable is false, although PMD\_signal\_detect\_i and management bit 1.1420.15 read it with no mr\_training\_enable guard.

#### SuggestedRemedy

Resolve the split consistently. Either (a) do not clear local\_rx\_ready on entry to RX\_READY (and TRAIN\_FAIL and the PATH states as applicable) so that it stays true from TRAIN\_REMOTE through PATH\_UP, and give it a substantive definition on page 898 stating the conditions for true and false - or (b) if local\_rx\_ready is intended only as the transmitted "receiver ready" status bit of the training frame, restate the consumers in terms of rx\_ok: change isl\_ready in 178B.8.2.1 (page 893) to "set to true when rx\_ok and remote\_rx\_ready are true for all lanes of the interface", change PMD\_signal\_detect\_i in 179.8.5 (page 426 line 35) to "the logical AND of the variables rx\_ok and remote\_rx\_ready", and update the 1.1476.8 descriptions in 45.2.1.169c (page 102 lines 24 and 26). In either case add "local\_rx\_ready <= false" to the action block of the SEND\_LOCAL state in Figure 178B-10a (page 901 line 13) so the variable is defined on the non-training path.

#### Response

Response Status W

ACCEPT IN PRINCIPLE.

Slides 3 and 4 of the following contribution were reviewed by the CRG:  
[https://www.ieee802.org/3/dj/public/26\\_09/brown\\_3dj\\_03a\\_2609.pdf](https://www.ieee802.org/3/dj/public/26_09/brown_3dj_03a_2609.pdf)

Make the following changes to Figure 178B-10a/10b.

In the SEND\_TRAINING and TRAIN\_FAIL states, delete "local\_rx\_ready <= false".  
In the INITIALIZE and ISL\_FAIL states, add "local\_rx\_ready <= false".

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In the RX\_READY state, add "local\_rx\_ready <= true".

Cl 178B SC 178B.8.3.1 P 899 L 34 # R2-50

Hajduczenia, Marek

RG Nets

Comment Type ER Comment Status R (B) (CA)

The resolution of D3.1 comment R1-9 committed to adding a terminating period to the FILL entry in the tx\_mode value list in 178B.8.3.1. That edit was not made: the FILL entry ("FILL: transmit either training frames or LOCAL\_PATTERN") is unchanged from D3.1 and still lacks a period. Instead, the terminating periods were removed from the three sibling entries (TRAINING, LOCAL\_PATTERN, DATA), which had them in D3.1. The list is now uniformly periodless, which may reflect harmonization with the new periodless c\_tx\_mode list in 178B.11.2.1, but the agreed edit is absent.

## SuggestedRemedy

Either implement the agreed disposition by adding a terminating period to the FILL entry ("FILL: transmit either training frames or LOCAL\_PATTERN:") and restoring the periods on the TRAINING, LOCAL\_PATTERN and DATA entries - or, if the periods were deliberately removed to harmonize with the c\_tx\_mode value list in 178B.11.2.1, state that in the comment response so the record reflects the change actually made.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 178B SC 178B.11.2.1 P 907 L 30 # R2-51

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status A c\_tx\_mode (B) (CA)

The c\_tx\_mode enumerated value for the not-ready-to-send signal is spelled inconsistently. The variable definition in 178B.11.2.1 on page 907 spells it "NOT-RTS" with a hyphen, and 186.2.6 on page 668 line 21 likewise uses "NOT-RTS", but the new state diagram Figure 178B-15 on page 910 line 12 assigns "c\_tx\_mode <= NOT\_RTS" with an underscore. All of this text is new in D3.2. The underscore form matches the convention used for other multi-word enumerated values, e.g. IN\_PROGRESS in c\_rts\_status (page 907 line 23). (The definition sits on an unnumbered definition-list line - line 24 is the nearest numbered line above.)

## SuggestedRemedy

Use a single spelling throughout. Change "NOT-RTS" to "NOT\_RTS" in the c\_tx\_mode definition in 178B.11.2.1 on page 907 and in the sentence on page 668 line 21, matching Figure 178B-15.

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-132

[Editor's note: change line from 24 to 30]

Cl 178B SC 178B.12 P 911 L 3 # R2-52

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status A (B) (CA)

The introductory sentence of 178B.12 cites only "Table 178B-3 and Table 178B-4" (the PAM4 interface tables), while the following sentence at lines 5 to 6 correctly cites all four management tables, Table 178B-3 through Table 178B-6. D3.2 split the D3.1 management tables into PAM4 and coherent versions, but the update was applied only to the MDIO-mapping sentence. As written, the control and status variables for coherent interfaces are not identified as variables related with this annex.

## SuggestedRemedy

Change the sentence on page 911 line 3 to "The control and status variables related with this annex are listed in Table 178B-3, Table 178B-4, Table 178B-5, and Table 178B-6.", adjusting the table numbers to whatever final numbering results from resolving the duplicate table numbering in Annex 178B.

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

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CI 178B SC 178B.12 P912 L 26 # R2-53

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status A (B) (CA)

In Table 178B-4 the new rx\_ok row cites MDIO register/bit number "1.1478.7:0c". Footnote c states "Bit reference is provided for lane 0, bits for lanes 1 to 7 are located in the same register." That footnote presupposes a lane-0-only citation, but 1.1478.7:0 already spans all eight lanes: Table 45-133e (45.2.1.169e, page 104) defines 1.1478.7 as Receiver OK lane 7 through 1.1478.0 as Receiver OK lane 0. The footnote therefore has no referent. Every other footnote-c entry in the same table follows the lane-0 convention: polarity\_correction is "1.1476.0c" and lane\_training\_status is "1.1477.1:0c" (Table 45-133d assigns 1.1477.1:0 to lane 0, up to 1.1477.15:14 for lane 7).

## SuggestedRemedy

In Table 178B-4 on page 912 line 26, change the rx\_ok MDIO register/bit number from "1.1478.7:0c" to "1.1478.0c" so the citation is the lane 0 bit and footnote c applies consistently. Alternatively, if the intent is to cite the whole eight-lane field, delete the footnote c marker from this row.

Also, remove the golden color background for associated MDIO register/bit reference

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the the change proposed in the suggested remedy is an improvement to the draft.

In Table 178B-4 on page 912 line 26, change the rx\_ok MDIO register/bit number from "1.1478.7:0c" to "1.1478.0c"

Implement the suggested remedy.

CI 179B SC 179B.3.1 P926 L 30 # R2-54

Hajduczenia, Marek

RG Nets

Comment Type T Comment Status R (E)

Text added in D3.2 in response to D3.1 comment R1-150 states on page 926 lines 29 to 30 that the MDI connector configuration used to define the reference insertion loss is the "Single Row Surface Mount Technology Connector and Cage" defined in the OSFP1600 specification (see 179C.2.3). The cross-reference does not resolve: 179C.2.3 (OSFP1600, page 945 lines 31 to 41) does not define, name or mention a "Single Row Surface Mount Technology Connector and Cage" - it requires compliance with the OSFP MSA "Octal Small Form Factor Pluggable Module, Rev 5.22" specification and points to Figure 179C-5, Figure 179C-6 and Table 179C-4. The term appears nowhere else in D3.2. A normative requirement therefore rests on an unresolvable citation. Additionally, page 926 line 32 contains a duplicated article: "Usage of the the Single Row Surface Mount Technology Connector and Cage for cable assembly test fixtures is recommended."

## SuggestedRemedy

On page 926 lines 29 to 30, cite the source that defines the configuration rather than 179C.2.3, e.g. "...is the Single Row Surface Mount Technology Connector and Cage defined in the OSFP Octal Small Form Factor Pluggable Module, Rev 5.22 specification (the OSFP1600 mechanical specification referenced in 179C.2.3)." Alternatively add the configuration name explicitly to 179C.2.3 so the existing cross-reference resolves. Also delete the duplicated "the" on page 926 line 32.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

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CI **179B** SC **179B.3.1** P**926** L**31** # **R2-55**

Hajduczenia, Marek

RG Nets

Comment Type **TR** Comment Status **A** (B) (E)

In D3.1 the insertion-loss accounting sentences in 179B.2.1 and 179B.3.1 were identical and non-normative ("are to be accounted for in the measurements"). D3.2 rewrote only 179B.3.1 to "...shall be accounted for in the measurements" (page 926 lines 31 to 32) while leaving the parallel sentence in 179B.2.1 unchanged (page 926 lines 2 to 3). Two parallel provisions covering the same obligation for the two test fixtures now carry different normative strength, leaving it ambiguous whether the TP2/TP3 fixture accounting is required. Compare the parallel text in 179B.2.1.

## SuggestedRemedy

Align the two provisions. Either change 179B.2.1 (page 926 line 2) to read "Differences between the insertion loss of an actual test fixture and the reference insertion loss shall be accounted for in the measurements.", or revert 179B.3.1 (page 926 line 31) to the non-normative "are to be accounted for in the measurements".

Response Response Status **W**

ACCEPT IN PRINCIPLE.

The comment points out an inconsistency between the subclauses that define the individual test fixtures with regards to the differences from the reference IL.

The suggested remedy includes two options, aligning the text in 179B.2.1 to the text in 179B.3.1 (recently modified to "shall be") or reverting the change in 179B.3.1 (back to "are to be").

The change was made as a result of comment R1-150 (see <[https://www.ieee802.org/3/dj/comments/D3p1/8023dj\\_D3p1\\_comments\\_final\\_id.pdf#page=38](https://www.ieee802.org/3/dj/comments/D3p1/8023dj_D3p1_comments_final_id.pdf#page=38)>). However, the new text is inconsistent with previous test fixture Annexes (110B, 162B) and similar statements in PMD clauses (85, 92, 93, 94). Also, "accounting for the differences" is not a compliance requirement of the test fixture itself - it is guidance for the user of the test fixture. The wording "are to be accounted for" is more suitable for this purpose.

In 179B.3.1, change "shall be accounted for" to "are to be accounted for".

CI **179B** SC **179B.5.4** P**937** L**26** # **R2-56**

Hajduczenia, Marek

RG Nets

Comment Type **T** Comment Status **R** (Bp) (E)

PICS item TF3 "Mated test fixtures ERL / Greater than or equal to 10.3 dB" cites subclause 179B.4.2. In D3.2, 179B.4.2 was converted into a container heading ("Mated test fixtures return loss") and the ERL requirement ("The mated test fixtures ERL shall be greater than or equal to 10.3 dB, with Tfx equal to 0.15 ns") was moved into the new 179B.4.2.1 (page 930 lines 8 to 13). The TF3 citation therefore no longer points to the requirement. Sibling rows TF5 and TF6 were updated for the same restructuring (179B.4.4 and 179B.4.3 in D3.1 to 179B.4.2.3 in D3.2), so TF3 is an incomplete follow-through.

## SuggestedRemedy

In the Subclause cell of PICS item TF3 on page 937 line 26, change "179B.4.2" to "179B.4.2.1".

Response Response Status **C**

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI **179B** SC **179B.5.4** P**937** L**29** # **R2-57**

Hajduczenia, Marek

RG Nets

Comment Type **T** Comment Status **R** (E)

In the PICS table of 179B.5.4, the Value/Comment cell for item TF4 (Mated test fixtures common-mode to differential-mode insertion loss, 179B.4.3) is empty in D3.2. In D3.1 this cell read "Per Equation (179B-8)". Subclause 179B.4.3 is unchanged and imposes two mandatory requirements: the channel signal to common-mode ratio SCMRCH greater than 12 dB using the procedure of 179.11.5, and the common-mode to differential-mode insertion loss meeting Equation (179B-8). Item TF4 therefore carries status M with no stated requirement, and no PICS item covers the SCMRCH condition. All neighbouring items (TF1, TF2, TF3, TF5, TF6, TF7) do state a Value/Comment.

## SuggestedRemedy

Populate the Value/Comment cell for TF4 to cover both requirements of 179B.4.3, e.g. "SCMRCH greater than 12 dB and per Equation (179B-8)" - alternatively restore "Per Equation (179B-8)" in TF4 and add a separate PICS item for the SCMRCH requirement.

Response Response Status **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 179B SC 179B.5.4 P937 L 32 # R2-58

Hajduczenia, Marek

RG Nets

Comment Type E Comment Status R (Bp) (E)

In the PICS proforma table of 179B.5.4, the Value/Comment cells for items TF5 (line 32) and TF6 (line 35) read "Per Table (179B-2)". Parentheses around the number are the IEEE 802.3 convention for equations only (cf. TF1, "Per Equation (179B-3)") - tables are cited without parentheses. Item TF7 in the same table correctly cites "Table 179B-4", and all other "Per Table ..." PICS entries in the draft omit the parentheses. These two cells were rewritten in D3.2 (in D3.1 they read "Per Equation (179B-6)" and "Per Equation (179B-7)").

**SuggestedRemedy**

In the TF5 row (line 32) and TF6 row (line 35) on page 937, change "Per Table (179B-2)" to "Per Table 179B-2".

Response Response Status C

REJECT.

Although the comment proposes an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

The reference is to Equation (179B-2) but the cross-reference format is incorrect. With the proper format the reference should be as "Equation (179B-2)".

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 45 SC 45.2.1 P76 L 44 # R2-75

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status A (B) (L)

Register 1.1478 is listed as "Reserved" in Table 45-3 despite D3.2 adding subclause 45.2.1.169e "PMA/PMD interface lane training status 2 (Register 1.1478)" with a full bit-field definition in Table 45-133e. Any reader consulting Table 45-3 for Register 1.1478 will incorrectly conclude it is reserved and find no cross-reference to 45.2.1.169e.

**SuggestedRemedy**

In Table 45-3, change the entry for Register 1.1478 from: "1.1478 Reserved" to: "1.1478 PMA/PMD interface lane training status 2 45.2.1.169e"

Response Response Status W

ACCEPT.

Cl 45 SC 45.2.1 P78 L 9 # R2-76

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status A (B) (L)

Table 45-3 lists the PMA transmit test block error bin counters as "1.2900 through 1.3707" and the receive counters as "1.3708 through 1.3715." The normative text in 45.2.1.272 (page 127, lines 43-45) explicitly states the transmit direction registers span from 1.2900 to 1.3307 and the receive direction registers span from 1.3308 to 1.3715. Arithmetic confirms: 17 bins x 8 PMALs x 3 registers = 408 registers per direction; 2900+408-1=3307 (transmit end); 3308+408-1=3715 (receive end). The values "1.3707" and "1.3708" appear to be transpositions of "1.3307" and "1.3308."

**SuggestedRemedy**

In Table 45-3, change: "1.2900 through 1.3707 PMA transmit test block error bin counters" to "1.2900 through 1.3307 PMA transmit test block error bin counters" and "1.3708 through 1.3715 PMA receive test block error bin counters" to "1.3308 through 1.3715 PMA receive test block error bin counters."

Response Response Status W

ACCEPT.

Cl 45 SC 45.2.1 P76 L 43 # R2-77

Bruckman, Leon

NVIDIA

Comment Type E Comment Status A (B) (L)

The D3.2 Table of Contents and subclause title for 45.2.1.169d was updated to "PMA/PMD interface lane training status 1 (Register 1.1477)" to distinguish it from new subclause 45.2.1.169e. However, Register 1.1477 in Table 45-3 still reads "PMA/PMD interface lane training status" without the "1" suffix, inconsistent with the updated subclause title.

**SuggestedRemedy**

In Table 45-3, change the description for Register 1.1477 from "PMA/PMD interface lane training status" to "PMA/PMD interface lane training status 1" to match the 45.2.1.169d subclause title.

Response Response Status C

ACCEPT.

| Cl                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 45 | SC | 45.2.1 | P               | 101    | L | 1 | #       | R2-78 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|--------|-----------------|--------|---|---|---------|-------|
| Bruckman, Leon                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    |        |                 | NVIDIA |   |   |         |       |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TR |    |        | Comment Status  | A      |   |   | (B) (L) |       |
| The amendment instruction reads "Insert 45.2.1.168a through 45.2.1.168f after 45.2.1.168 as follows:" but the content that follows now comprises 45.2.1.168a plus 45.2.1.169b through 45.2.1.169g (seven subclauses). The instruction was not updated when D3.2 renumbered the subclauses from 168b-168f to 169b-169g and added new 45.2.1.169e. An editor applying this amendment would be misled into creating subclauses 168b-168f and would not know to insert 169b-169g. |    |    |        |                 |        |   |   |         |       |
| <i>SuggestedRemedy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |    |        |                 |        |   |   |         |       |
| Change the amendment instruction from "Insert 45.2.1.168a through 45.2.1.168f after 45.2.1.168 as follows:" to "Insert 45.2.1.168a and 45.2.1.169b through 45.2.1.169g after 45.2.1.168 as follows:"                                                                                                                                                                                                                                                                          |    |    |        |                 |        |   |   |         |       |
| Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |    |        | Response Status | W      |   |   |         |       |
| ACCEPT IN PRINCIPLE.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |    |        |                 |        |   |   |         |       |
| The subclause numbering is wrong and needs to be corrected.                                                                                                                                                                                                                                                                                                                                                                                                                   |    |    |        |                 |        |   |   |         |       |
| On page 101:<br>Change:<br>"Insert 45.2.1.168a through 45.2.1.168f after 45.2.1.168 as follows:"<br>To:<br>"Insert 45.2.1.168a through 45.2.1.168g after 45.2.1.168 as follows:"                                                                                                                                                                                                                                                                                              |    |    |        |                 |        |   |   |         |       |
| Renumber 45.2.1.169b through 45.2.1.169g so they become 45.2.1.168b through 45.2.1.168g                                                                                                                                                                                                                                                                                                                                                                                       |    |    |        |                 |        |   |   |         |       |

| Cl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 178B | SC | 178B.12 | P               | 911    | L | 14 | #        | R2-79 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----|---------|-----------------|--------|---|----|----------|-------|
| Bruckman, Leon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |    |         |                 | NVIDIA |   |    |          |       |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TR   |    |         | Comment Status  | A      |   |    | (B) (CA) |       |
| D3.2 introduces duplicate table numbers in Annex 178B. Table 178B-3 now appears twice: once as "Control field structure for the O1 format" (178B.7.4, page 886) and again as "Control variables and MDIO mapping for PAM4 interfaces" (178B.12, page 911). Similarly, Table 178B-4 appears as "Status field structure for the E1 format" (178B.7.5, page 887) and "Status variables and MDIO mapping for PAM4 interfaces" (178B.12, page 912). Table 178B-5 appears as "Status field structure for the O1 format" (178B.7.5, page 888) and "Control variables and MDIO mapping for coherent interfaces" (178B.12, page 913). In D3.1, the MDIO mapping tables were numbered 178B-6 and 178B-7. D3.2 renumbered and split them into 178B-3 through 178B-6, creating collisions with the pre-existing field-structure tables. All cross-references to "Table 178B-3", "178B-4", and "178B-5" throughout the document (Clauses 179, 180, 181, 182, 183, Annexes 176C, 176D) are now ambiguous. |      |    |         |                 |        |   |    |          |       |
| <i>SuggestedRemedy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |    |         |                 |        |   |    |          |       |
| Renumber the MDIO mapping tables in 178B.12 to non-conflicting numbers (e.g., restore 178B-6 through 178B-9 as in D3.1, or renumber the field-structure tables to 178B-2 through 178B-5 and the MDIO tables to 178B-6 through 178B-9). Update all cross-references accordingly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |    |         |                 |        |   |    |          |       |
| Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |    |         | Response Status | W      |   |    |          |       |
| ACCEPT IN PRINCIPLE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |    |         |                 |        |   |    |          |       |
| Resolved using the response to comment R2-13.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |    |         |                 |        |   |    |          |       |

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 186 SC 186.2.4.7.6 P 665 L 6 # R2-80

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status A (B) (L)

D3.2 updated 186.2.3.5.11 (transmit CSTAT) to shift the bit assignments from CSTAT<6/7/8> to CSTAT<5/6/7>: am\_sf<0> -> CSTAT<5>, am\_sf<2> -> CSTAT<6>, am\_sf<1> -> CSTAT<7>. However, 186.2.4.7.6 (receive CSTAT) was not updated and still reads: CSTAT<6> -> am\_sf<0>, CSTAT<7> -> am\_sf<2>, CSTAT<8> -> am\_sf<1>. The transmit and receive CSTAT bit assignments are now inconsistent: the transmitter encodes am\_sf into bits 5-7 but the receiver attempts to decode from bits 6-8. A link implemented per this specification would fail to correctly transfer the am\_sf<2:0> alignment marker subfield information.

## SuggestedRemedy

Update 186.2.4.7.6 to match the transmit mapping in 186.2.3.5.11: change "CSTAT<6> is replicated to am\_sf<0>" to "CSTAT<5> is replicated to am\_sf<0>", "CSTAT<7> is replicated to am\_sf<2>" to "CSTAT<6> is replicated to am\_sf<2>", and "CSTAT<8> is logically ORed" to "CSTAT<7> is logically ORed". Update the reference to "bits 5-7" accordingly.

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment points out an error that needs to be fixed.

Resolved using the response to comment R2-34.

[Editor's note: changed page number from 664 to 665]

CI 182 SC 182.12.4.6 P 563 L 17 # R2-81

Bruckman, Leon

NVIDIA

Comment Type TR Comment Status A PICS (B) (OI)

Table in 182.12.4.6 contains two PICS items both labeled "OM8": the first is "Transmitter functional symbol error histogram" (182.9.8) and the second is "Transmitter overshoot and undershoot" (182.9.9). The second OM8 and all subsequent items (OM9 through OM12) are offset by 1: OM8 should be OM9, OM9 should be OM10, etc. The same duplicate numbering exists in 183.12.4.4 (page 594).

## SuggestedRemedy

In 182.12.4.6, renumber the duplicate OM8 ("Transmitter overshoot and undershoot") to OM9 and renumber all subsequent items OM9->OM10, OM10->OM11, OM11->OM12. Apply the same correction in 183.12.4.4.

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft.

In 182.12.4.6 and 183.12.4.4 change duplicate 'OM8' for "Transmitter functional symbol error histogram" to 'OM7'.

Implement with editorial license.

CI 179B SC 179B.5.4 P 937 L 29 # R2-82

Bruckman, Leon

NVIDIA

Comment Type E Comment Status R (E)

PICS item TF4 "Mated test fixtures" (reference 179B.4.3) has an empty Value/Comment column in D3.2. In D3.1, TF4 included the value/comment "Per Equation (179B-8)". Equation (179B-8) still exists in 179B.4.3 in D3.2. The loss of this value reference leaves TF4 without a compliance criterion.

## SuggestedRemedy

Restore the Value/Comment for TF4 to "Per Equation (179B-8)" as it appeared in D3.1.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.13.5 P917 L41 # R2-83

Bruckman, Leon

NVIDIA

Comment Type E Comment Status A (B) (CA)

PICS items SM3 ("RTS with squelch state") and SM4 ("RTS without squelch state") in 178B.13.5 reference "178B.11" (a section heading). The corresponding items SM1 and SM2 reference specific subclauses "178B.11.1" and "178B.11.2". SM3 and SM4 should reference "178B.11.3" (the subclause containing the normative "shall" language for these states), consistent with the pattern established by SM1/SM2.

#### SuggestedRemedy

Change the Reference column for SM3 and SM4 in 178B.13.5 from "178B.11" to "178B.11.3."

Response Response Status C

ACCEPT.

CI 179B SC 179B.4.2 P926 L32 # R2-84

Bruckman, Leon

NVIDIA

Comment Type E Comment Status R (Bp) (E)

Duplicate word in 179B.4.2: "Usage of the the Single Row Surface Mount Technology (SMT) connector." The word "the" appears twice consecutively.

#### SuggestedRemedy

Delete the duplicate "the": change "Usage of the the Single Row Surface Mount Technology (SMT) connector" to "Usage of the Single Row Surface Mount Technology (SMT) connector."

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 179B SC 179B.5.4 P937 L26 # R2-85

Bruckman, Leon

NVIDIA

Comment Type T Comment Status R (Bp) (E)

PICS item TF3 "Mated test fixtures ERL" references "179B.4.2" which, after D3.2 restructuring, is now just a section heading. The ERL >= 10.3 dB normative requirement is now in 179B.4.2.1. This means TF3 does not point to any normative "shall" statement.

#### SuggestedRemedy

Change the Reference column for TF3 from "179B.4.2" to "179B.4.2.1."

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 178B SC 178B.8.3.1 P898 L13 # R2-86

WANG, Xuebo

Huawei Technologies Co., Ltd

Comment Type TR Comment Status R (Bp) (CA)

The definition of the variable local\_tf\_lock could be clearer. The current definition says that local\_tf\_lock is true when [...] and the training frame marker position has been identified on a lane of the interface. Actually, identifying the training frame marker position can only be achieved by a receiver. This point should be made clear to readers for better understanding. A precedent that can be referred to is the definition of the variable frame\_lock in subclause 72.6.10.3.1.

#### SuggestedRemedy

Change the statement "[...] the training frame marker position has been identified on a lane of the interface" to "[...] the training frame marker position has been identified by a receiver on a lane of the interface".

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

The draft is correct as written.

There is no consensus to make the proposed change.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

Cl 184 SC 184.5.11 P 607 L 8 # R2-87

Ran, Adeel Cisco Systems, Inc.

Comment Type E Comment Status R (withdrawn) (L)

"2-bit pair" is redundant and arguably incorrect - Table 184-5 shows bit pairs, not pairs of 2 bits. Compare to 177.4.6 "8:1 bit-pair interleaving".

This term also appears in 184.6.3 with an additional issue:

"The DP-16QAM demapper function shall map the four bit streams from the receive signal processing to 2-bit pairs"

The "four bit streams" are not defined anywhere; the "Receive signal processing" subclause mentions two streams of 16QAM symbols.

## SuggestedRemedy

P607 L8: Change "shall convert every 2-bit pairs" to "shall convert every bit pair".

P607 L12: Change "the resulting 2-bit pair to four-level signal mapping" to "the resulting bit pair to four-level signal mapping".

Table 184-5: In the table title and top row, change "2-bit pair" to "bit pair".

P608 L28: Change "shall map the four bit streams from the receive signal processing to 2-bit pairs" to "shall map the two 16QAM symbol streams from the receive signal processing to four streams of bit pairs".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 185 SC 185.5.7 P 628 L 23 # R2-88

Ran, Adeel Cisco Systems, Inc.

Comment Type E Comment Status R editorial (OC)

"The global PMD transmit disable function enables the optical transmitter to be disabled" Awkward phrasing.

Similar subclauses across the standard use the word "allows" instead: "allows all of the optical transmitters to be disabled" (12 instances in 802.3-2022, 4 in 802.3dj) or for single-lane, "allows the optical transmitter to be disabled" (9 instances in 802.3-2022, 1 in 802.3dj - 187.5.7).

## SuggestedRemedy

Change "enables" to "allows".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 119 SC 119.7.4.1 P 201 L 14 # R2-89

Nicholl, Gary Cisco Systems, Inc.

Comment Type TR Comment Status A (B) (L)

When 802.3dj added the option to support a stateless 64B/66B encoder, the PICS table in 119.7.4.1 was updated to add new PICS items TF2 and TF3, with TF2 being mandatory if the state-diagram encoder is used and TF3 being mandatory if the stateless encoder is used.

A similar change was made in the PICS table in 119.7.4.2 with the addition of new PICS items RF7 and RF8, with RF7 being mandatory if the state-diagram decoder is used and RF8 being mandatory if the stateless decoder is used.

When these changes were introduced, it appears to have been overlooked that the base standard already contains two other PICS items in Clause 119 related to the 64B/66B encoder and decoder state diagrams: SM5 and SM6 (see 119.7.4.9). These PICS items are now redundant, as they have effectively been replaced by TF2 and RF7, respectively.

Furthermore, SM5 and SM6 are inconsistent with TF2 and RF7 because they unconditionally require implementation of the state-diagram encoder and decoder, even when the optional stateless encoder and decoder are implemented. This creates conflicting PICS requirements.

The simplest solution is to delete PICS items SM5 and SM6

## SuggestedRemedy

Pull in subclause 119.7.4.9 from the base standard and delete PICS items SM5 and SM6.

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs be corrected.

Implement the suggested remedy with editorial license.

Cl 172 SC 172.7.4.2 P271 L27 # R2-90

Nicholl, Gary Cisco Systems, Inc.

Comment Type ER Comment Status A (B) (L)

The support column for PICS items RF12, RF13 and RF14 should be "Yes [ ], No [ ]" and not "Yes [ ], N/A [ ]". A similar issue exists for PICS items TF1, TF2 and TF3 in 172.7.4.1.

**SuggestedRemedy**

In subclause 172.7.4.2, update the support column for PICS items RF12, RF13 and RF14 to "Yes [ ], No [ ]".

In subclause 172.7.4.1, update the support column for PICS items TF1, TF2 and TF3 to "Yes [ ], No [ ]".

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Implement the suggested remedy with editorial licence.

Cl 185 SC 185.5.7 P628 L27 # R2-91

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A editorial (B) (OC)

"If either Global\_PMD\_transmit\_disable is set to 1 or the variable c\_tx\_mode = QUIET (see 185.5.11)" inconsistent and awkward wording.

**SuggestedRemedy**

Change to

"If either Global\_PMD\_transmit\_disable is set to 1 or c\_tx\_mode (see 185.5.11) is QUIET"

Response Response Status C

ACCEPT.

Cl 178B SC 178B.11.2.1 P907 L3 # R2-92

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status R c\_tx\_mode (CA)

c\_tx\_mode has 6 possible values: QUIET, TRAINING, RTS, NOT-RTS, FILL, and DATA, but 4 of them are equivalent

185.5.11 says "When c\_tx\_mode is TRAINING, RTS, or FILL, the PMD transmits PRBS31 encoded by the 800GBASE-LR1 Inner FEC".

186.2.6 says "When c\_tx\_mode = TRAINING, NOT-RTS, RTS, or FILL, the payload of the ER1 FEC frame is filled with the scrambled idle test pattern defined in 186.2.3.12".

Thus there is no functional difference between TRAINING, RTS, FILL, and NOT-RTS (the latter only used in 186.2.6). These values only represent (partially) the state of the state diagrams. While it might be considered useful for debugging, the state can be inferred from other variables (as is done in all other state diagrams).

The transmitter has three effective states: quiet, data, and a locally generated pattern. Since the same "fill" signal is used for both training and LOS scenarios, I suggest using the more generic name FILL for the unified value.

**SuggestedRemedy**

In the definition of c\_tx\_mode in 178B.11.2.1, delete the values TRAINING, RTS, and NOT-RTS.

In Figure 178B-14, change the assignments in TRAINING, LOCAL\_RTS, and WAIT\_DATAPATH to "c\_tx\_mode ← FILL".

In Figure 178B-15, change the assignments in TRAINING, TRAINING\_COMPLETE, LOCAL\_RTS, and WAIT\_DATAPATH to "c\_tx\_mode ← FILL".

In 185.5.11, change "When c\_tx\_mode is TRAINING, RTS, or FILL" to "When c\_tx\_mode is FILL".

In 186.2.6, change "When c\_tx\_mode = TRAINING, NOT-RTS, RTS, or FILL" to "When c\_tx\_mode is FILL".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 186 SC 186.2.2 P 650 L 22 # R2-93

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status A ER1 payload (CA)

In Table 186-1 the last column "Payload" contains values that are inconsistent with other specifications of ER1.

("Payload" is not defined in the text preceding the table, but based on the text in 186.2.3.3, the payload is what is mapped into the tributary frame)

In the first row, the value is "FEC:IS\_UNITDATA.request" but this is a name of a service interface primitive, which communicates the input from the client (PCS or PMA). It does not describe the payload, because the payload is the output of the "Pre-mapping distribution" block (based on Figure 186-3) which has gone through the "inverse RS-FEC transmit" processing.

The 2nd through 4th rows have "Scrambled Idle", but there is no definition of scrambled idle in this clause. If the input is scrambled idle as generated by the PCS, then scrambling is removed by the inverse RS-FEC transmit processing, and the input to the mapping will be unscrambled idle characters. But there is no specified functionality to generate idle characters in clause 186.

The 5th row has "LF", which is not defined anywhere in the draft. I assume it means Local Fault, an ordered set that is defined in the Reconciliation Sublayer. It is mentioned in 186.2.4.7.3 (without definition or reference), part of the receive function. But the \_transmit\_ function is not supposed to send local faults to the link partner... that would contradict the established use of this ordered set.

Note that "local fault" in 186.2.4.7.3 should be the 257-bit blocks created by transcoding the Local Fault ordered sets. Also, the replacement by local fault is repeated twice, in 186.2.4.7.3 and in 186.2.4.8, but occurs only once - the second instance is redundant.

Furthermore, 186.2.6 states that for some values of c\_tx\_mode, "the payload of the ER1 FEC frame is filled with the scrambled idle test pattern defined in 186.2.3.12". But 186.2.3.12 does not define a scrambled idle test pattern - it defines an encoded PRBS31 (there is no scrambled idle generator function in this sublayer).

Furthermore, when SIGNAL\_OK of FEC:IS\_SIGNAL.request is FAIL (meaning the adjacent interface has no data and is not training) it will be reflected into the RTS function by c\_adjacent\_signal\_ok=FAIL, and thus c\_adjacent\_intf\_rx\_ready=false and c\_local\_rts=false. These values prevent the RTS state diagram (Figure 178B-15) from progressing past TRAINING\_COMPLETE, but it is either there or in TRAINING, so c\_tx\_mode will be either TRAINING or NOT-RTS. These values are both specified in 186.2.6 to generate the test pattern defined in 186.2.3.12 (encoded PRBS31), not local fault.

In summary, the payload depending on FEC:IS\_SIGNAL.request(SIGNAL\_OK) is either the output of the "Pre-mapping distribution" block, or the encoded PRBS31 test pattern generator; this would match Figure 186-3. There is no "scrambled idle" or "LF" generator in the transmit direction.

## Suggested Remedy

In Table 186-1:

Add the following footnote to the "Payload" heading: "Input to the GMP mapping function (see 186.2.3.3)".

In the first row, change the value "FEC:IS\_UNITDATA.request" to "FEC flows" (matching the text in 186.2.3.3) or "Output of Pre-mapping distribution" (matching Figure 186-3).

In the 2nd through 5th row, change the value to "Output of Test-pattern generator".

In 186.2.6, change from

"the payload of the ER1 FEC frame is filled with the scrambled idle test pattern defined in 186.2.3.12"

to

"the payload of the ER1 FEC frame is filled with the test pattern defined in 186.2.3.12".

In 186.2.4.7.3, change "the payload area of the frame is replaced with local fault ordered sets" to "the payload area of the frame is replaced with 257-bit blocks corresponding to four Local Fault ordered sets (see 81.3.4 and 172.2.4.4)".

In 186.2.4.8, delete the (redundant) sentence "If the payload type or multiplex structure identification overhead (see 186.2.4.7.3) did not match the expected value, the 257-bit data blocks extracted from the GMP frame are replaced with LF ordered sets"

A contribution explaining the problems and the proposed changes will be provided.

## Response

Response Status C

ACCEPT IN PRINCIPLE.

The following related contribution was reviewed at the 802.3dj Annex 178B ad hoc meeting on 18 August 2026:

[https://www.ieee802.org/3/dj/public/adhoc/178b/26\\_0818/ran\\_178b\\_01a\\_260818.pdf](https://www.ieee802.org/3/dj/public/adhoc/178b/26_0818/ran_178b_01a_260818.pdf)

Slides 8 to 12 of the following contribution were reviewed by the CRG:

[https://www.ieee802.org/3/dj/public/26\\_09/brown\\_3dj\\_03a\\_2609.pdf](https://www.ieee802.org/3/dj/public/26_09/brown_3dj_03a_2609.pdf)

Implement the proposed changes on slides 10 and 11 of the following contribution:

[https://www.ieee802.org/3/dj/public/26\\_09/brown\\_3dj\\_03a\\_2609.pdf](https://www.ieee802.org/3/dj/public/26_09/brown_3dj_03a_2609.pdf)

Implement with editorial license.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

Cl 187 SC 187.8.1 P713 L9 # R2-94

Ran, Adeo Cisco Systems, Inc.

Comment Type ER Comment Status A Test patterns (B) (CO)

Incorrect references for test patterns 5 and 7:

Pattern 5, "Scrambled idle encoded by the 800GBASE-ER1 FEC sublayer", is generated by the 800GBASE-R PCS but then descrambled and re-encoded by the 800GBASE-ER1 Transmit function. The existing references are 172.2.4 (the PCS transmit function) and 186.2.3.12, which defines a PRBS31-based test pattern generator. There is no scrambled idle generator function in clause 186.

Pattern 7, "Valid 800GBASE-R signal encoded by the 800GBASE-ER1 FEC sublayer", also has a reference to 186.2.3.12, which is irrelevant.

## SuggestedRemedy

For pattern 5, change the reference from 172.2.4 to 172.2.4.11 (external) for the scrambled idle generator, and add 186.2.3 for the 800GBASE-ER1 transmit function.

For pattern 7, delete the reference to 186.2.3.12, and add instead 186.2.3 for the 800GBASE-ER1 transmit function.

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the comment identifies an error in the draft that should be corrected.

For pattern 5 change "Defined in" column to "172.2.4.11, 186.2.3"

For pattern 7 change "Defined in" column to "172.2.4, 186.2.3"

Cl 186 SC 186.2.2 P650 L8 # R2-95

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status R (withdrawn) (L)

"from the client sublayer above" - unnecessarily wordy, and has no precedence in 802.3 - it's either ""client sublayer" or "sublayer above" (9 times each). In this amendment there are 35 other instances of "client sublayer" without "above".

The "client sublayer" was defined as "above the 800GBASE-ER1 FEC sublayer" in the first sentence of the subclause. This is sufficient. The remaining instances (3 in this subclause) should be just "client sublayer".

Also in 184.3, where there are two instances - only the first should be kept.

## SuggestedRemedy

in 186.2.2, change the 2nd, 3rd, and 4th instances of "client sublayer above" to "client sublayer".

In 184.3, change the 2nd instance of "client sublayer above" to "client sublayer".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 186 SC 186.2.3.11 P661 L16 # R2-96

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A (B) (L)

Figure 186-10 contains the label "tx\_fec\_scrambled" which is not defined in clause 186 or anywhere in the draft.

186.2.3.9, which defines the scrambler, does not define any variables.

## SuggestedRemedy

Delete the label "tx\_fec\_scrambled".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft. The vector tx\_fec\_scrambled is not defined anywhere, is not adding any useful information to the figure, and could cause confusion if left in the figure (because it is not defined).

Implement the suggested remedy.

CI 186 SC 186.2.4.7.2 P664 L5 # R2-97

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status R (withdrawn) (L)

"The STAT octet present in every 800GBASE-ER1 tributary frame shall be monitored"  
There is no specification of what to do with the received value. "Monitored" is an undefined requirement.  
Based on 186.2.3.5.2, the information in this octet is "remote PHY fault", which is essentially the "local fault" of the link partner. Whether it is monitored or not does not seem to affect interoperability and should not be a normative requirement.

*SuggestedRemedy*

Change this sentence to "The STAT octet present in every 800GBASE-ER1 tributary frame includes the remote PHY fault indication (see 186.2.3.5.2)".

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 177 SC 177.4.2 P362 L47 # R2-98

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status A (B) (L)

The input to the convolutional interleaver in Figure 177-4 is labeled "FEC:IS\_UNITDATA\_i.request". This is a primitive that conveys one bit at a time. But the convolutional interleaver works on 40-bit blocks ("Data from the deskewed PMA lane is fed into each delay line one RS-FEC symbol-quartet at a time") and these blocks result from further processing of the FEC:IS\_UNITDATA\_i.request bit stream (variable delay caused by the deskew function, and "Delay odd PCS lanes" for 800GBASE-R).  
"FEC:IS\_UNITDATA\_i.request" is incorrect and misleading.

Figure 177-12 is the inverse operation, and has "To FEC:IS\_UNITDATA\_i.indication" as the output - this is not incorrect because no further processing is required. But if Figure 177-4 is modified, consider applying the same change in 177-12.

An alternative to the suggested remedy is to use the graphic representation of Figure 184-4 instead of text.

*SuggestedRemedy*

In Figure 177-4 change the input label from "FEC:IS\_UNITDATA\_i.request" to "4 RS-FEC symbols".  
Consider applying a similar change In Figure 177-12 for the output label.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft.

Change "FEC:IS\_UNITDATA\_i.request" in Figure 177-4 to "RS-FEC symbol-quartets".  
Change "To FEC:IS\_UNITDATA\_i.indication" in Figure 177-12 to "RS-FEC symbol-quartets".

Implement with editorial license.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             |                          |      |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------|------|------------------|
| CI 178B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | SC 178B.8.3 | P 896                    | L 48 | # R2-99          |
| Ran, Adeo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             | Cisco Systems, Inc.      |      |                  |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | E           | Comment Status           | R    | (withdrawn) (CA) |
| <p>"If &lt;...&gt; then the interface shall cause the PMA or Inner FEC to &lt;...&gt; and otherwise cause the PMA or Inner FEC to &lt;...&gt;"</p> <p>Mismatched clauses (shall and subject are missing in the "otherwise" part), resulting in difficulty to parse.</p> <p>Similarly in the next paragraph:</p> <p>"If &lt;...&gt; then the interface shall inform the PMA or Inner FEC that &lt;...&gt; and otherwise inform the PMA or Inner FEC that &lt;...&gt;"</p> <p><i>SuggestedRemedy</i></p> <p>Change the structure of the sentences to</p> <p>"If &lt;...&gt; then the interface shall cause the PMA or Inner FEC to &lt;...&gt;. Otherwise the interface shall cause the PMA or Inner FEC to &lt;...&gt;"</p> <p>"If &lt;...&gt; then the interface shall inform the PMA or Inner FEC that &lt;...&gt;. Otherwise the interface shall inform the PMA or Inner FEC that &lt;...&gt;"</p> <p><i>Response</i></p> <p>REJECT.</p> <p>This comment was WITHDRAWN by the commenter.</p> |             |                          |      |                  |
| <i>Response</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             | <i>Response Status</i> Z |      |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                          |      |                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------|------|-------------------|
| CI 179B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SC 179B.3.1 | P 926                    | L 30 | # R2-100          |
| Ran, Adeo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             | Cisco Systems, Inc.      |      |                   |
| Comment Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | T           | Comment Status           | R    | Test Fixtures (E) |
| <p>"Differences between the insertion loss of an actual test fixture and the reference insertion loss, including those arising from other MDI connectors, shall be accounted for in the measurements"</p> <p>179B.2.1 includes similar text for test fixtures used for host testing (HCB).</p> <p>The need to account for difference between reference and actual test fixtures is real. The addition of variability between MDI connectors exacerbates the problem. But there is still no guidance for the reader how to accomplish this "accounting", which is not trivial. As a result, this accounting is not done in many cases; host, module, and cable assembly measurements are subject to test fixture variability.</p> <p>The contribution &lt;<a href="https://www.ieee802.org/3/dj/public/26_07/heck_3dj_01_2607.pdf">https://www.ieee802.org/3/dj/public/26_07/heck_3dj_01_2607.pdf</a>&gt; described a possible way to account for the difference, which includes converting the reference insertion loss (real scalar function of frequency) to a reference s21 (complex scalar function of frequency). The corresponding comment was withdrawn, but the ideas in the presentation are correct: the "accounting" requires actual and reference s-parameters, not just loss.</p> <p>In practice, the actual S-parameters for HCBs are provided by vendors or can be measured. However, reference S-parameters are not provided. There can be various values (complex matrix functions of frequency that would match the reference test fixture loss, and leaving the choice to the reader's interpretation leaves the problem unsolved. It would be good to provide a set of S-parameters, separate for the HCB and for the MCB, that can be used by everyone.</p> <p><i>SuggestedRemedy</i></p> <p>A contribution is planned with two sets of S-parameters that approximate the reference loss of the HCB and MCB, and an analytic model that generates them.</p> <p>These S-parameters can be provided as examples in the 802.3 downloads folder.</p> <p><i>Response</i></p> <p>REJECT.</p> <p>The following contribution related to this comment was reviewed in the joint 802.3dj ad hoc meeting on August 27 2026:</p> <p>&lt;<a href="https://www.ieee802.org/3/dj/public/adhoc/optics/0826_OPTX/ran_3dj_adhoc_01_260827.pdf">https://www.ieee802.org/3/dj/public/adhoc/optics/0826_OPTX/ran_3dj_adhoc_01_260827.pdf</a>&gt;</p> <p>There was no consensus to make the suggested changes.</p> |             |                          |      |                   |
| <i>Response</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             | <i>Response Status</i> C |      |                   |

Cl 185 SC 185.5.11 P 628 L 51 # R2-101

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A RTS (B) (CA)

"A PMD shall provide the RTS function using the RTS with squelch state diagram (see 178B.11) as specified in Annex 178B"  
The referenced subclause includes two state diagrams. The relevant one for clause 185 is Figure 178B-14.  
There is no reference to the coherent RTS function definition (178B.10).  
"Annex 178B" is redundant.

#### SuggestedRemedy

Change to "A PMD shall provide the RTS function for coherent interfaces (see 178B.10) using the RTS with squelch state diagram (Figure 178B-14)".

Response Response Status C

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

Cl 186 SC 186.2.6 P 668 L 14 # R2-102

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A (B) (CA)

"The ER1 FEC shall provide the ready-to-send (RTS) function using the RTS without squelch state diagram (see 178B.11) as specified in Annex 178B."  
The referenced subclause includes two state diagrams. The relevant one for clause 186 is Figure 178B-15.  
There is no reference to the coherent RTS function definition (178B.10).  
"Annex 178B" is redundant.

#### SuggestedRemedy

Change to "A PMD shall provide the RTS function for coherent interfaces (see 178B.10) using the RTS without squelch state diagram (Figure 178B-15)".

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the text to:

"The ER1 FEC shall provide the ready-to-send (RTS) function for coherent interfaces (see 178B.10) using the RTS without squelch state diagram (Figure 178B-15)."

Cl 180 SC 180.5.12 P 471 L 18 # R2-103

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A editorial-RTS (B) (CA)

"A PMD shall provide the ready-to-send (RTS) function and the ILT function with a training frame of O1 format, specified in Annex 178B"  
In D3.2, Annex 178B includes two RTS functions - one for PAM4 and one for coherent, and one ILT function that was renamed to be specific to PAM4. Therefore specific references are required.

Also applies to 179.8.9, 181.5.12, 182.5.12, and 183.5.12, and with different wording, to the NOTE in 176C.3 and 176D.3.

#### SuggestedRemedy

Change to  
"A PMD shall provide the RTS function for PAM4 interfaces specified in 178B.6 and the ILT function for PAM4 interfaces specified in 178B.7 with the O1 training frame format".  
Apply the same change in 181.5.12, 182.5.12, and 183.5.12.  
Apply a similar change in 179.8.9 except use E1 instead of O1.

In the NOTE text in 176C.3 and 176D.3, change from  
"include the inter-sublayer link training (ILT) function with E1 format and the ready-to-send (RTS) function, as specified in Annex 178B"  
to  
"include the RTS function for PAM4 interfaces specified in 178B.6 and the ILT function for PAM4 interfaces specified in 178B.7 with the E1 training frame format".

Response Response Status C

ACCEPT IN PRINCIPLE.

In 180.5.12, change the reference of "RTS function" to "the ready-to-send (RTS) function of PAM4 interfaces specified in 178B.6 and the ILT function for PAM4 interfaces specified in 178B.7 with the O1 training frame format". Apply same changes to references of RTS functions in CL181~183.

Apply a similar change in 179.8.9 except use E1 instead of O1.

In the NOTE text in 176C.3 and 176D.3, change from  
"include the inter-sublayer link training (ILT) function with E1 format and the ready-to-send (RTS) function, as specified in Annex 178B"  
to  
"include the RTS function for PAM4 interfaces specified in 178B.6 and the ILT function for PAM4 interfaces specified in 178B.7 with the E1 training frame format".  
Implement with editorial license.

[Editor's note: Affects multiple clauses including 179 through 183]

CI 179B SC 179B.3.1 P926 L35 # R2-104  
 Ran, Adeo Cisco Systems, Inc.  
 Comment Type E Comment Status R (Bp) (E)  
 "Usage of the the Single Row Surface" - extra "the"  
 SuggestedRemedy  
 Change to "Usage of the Single Row Surface"  
 Response Response Status C  
 REJECT.  
 Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.  
 This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 169 SC 169.3.2 P212 L34 # R2-105  
 Ran, Adeo Cisco Systems, Inc.  
 Comment Type E Comment Status R (withdrawn) (CG)  
 "FEC:—for primitives issued on the interface between the FEC sublayer (see 169.2.4b), and the PMA, PCS, or PHY 800GXS above, called the FEC service interface"  
 Superfluous commas, and inconsistent with the previous items and with 80.3.2, 105.4.2, 116.3.2, and 174.3.2.  
 SuggestedRemedy  
 Change to  
 "FEC:—for primitives issued on the interface between the FEC sublayer (see 169.2.4b) and the PMA, PCS, or PHY 800GXS above called the FEC service interface"  
 Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 177 SC 177.6.2.3 P373 L3 # R2-106  
 Ran, Adeo Cisco Systems, Inc.  
 Comment Type T Comment Status A (B) (L)  
 "The Inner FEC shall support a test mode, where a PRBS31 test pattern is encoded by the Inner FEC (see 176.7.4)"  
 This subclause describes a test pattern checker function (or mode), but the first sentence describes it as if it were a generator function.  
 The cross reference 176.7.4 is to "PMA test patterns", not the right reference for this signal.  
 SuggestedRemedy  
 Change the sentence to  
 "The Inner FEC shall support a test mode, where the received signal corresponds to the PRBS31 encoded by Inner FEC test pattern (see 177.6.1.1)".  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
 While the proposed change could improve readability, the existing text is correct except for the cross-reference.  
 Change the cross-reference in the first sentence from:  
 "(see 176.7.4)"  
 to:  
 "(see 177.6.1.1)"

CI 177 SC 177.11.4.2 P384 L47 # R2-107  
 Ran, Adeo Cisco Systems, Inc.  
 Comment Type E Comment Status A (B) (L)  
 Item RFs is missing "Y [ ]" in the "support" column.  
 SuggestedRemedy  
 Add it.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Resolved using the response to comment R2-174.

Cl 178 SC 178.9.2.6 P397 L17 # R2-108

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status A (B) (E)

"measured with the transmitter equalization set to NO EQUALIZATION"  
NO EQUALIZATION is an enumerated value for the coefficient request (178B.7.4.6). But in this case it is not a single coefficient - its a preset value, so should be PRESET 1 (no equalization), as in 179.9.4.2.2.

*SuggestedRemedy*

Change to  
"measured with the transmitter equalization set to PRESET 1 (no equalization)".

Response Response Status W

ACCEPT.

Cl 180 SC 180.5.2 P469 L8 # R2-109

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A editorial-primitive (B) (OI)

"When operating in DATA mode, the PMD transmit function shall convert the n symbol streams requested by the PMD service interface PMD:IS\_UNITDATA\_0.request primitive to PMD:IS\_UNITDATA\_n-1.request primitive into n separate optical signals"

The first "primitive" is grammatically out of place, creating a sentence that is difficult to parse

There are 24 instances of "PMD service interface messages PMD:IS\_UNITDATA" in 802.3-2022, and I found only 2 instances of IS\_UNITDATA with "primitive" - so this change deviates from precedence and shouldn't have been made. There are still instances of "message" in this amendment too.

But if it is made, there is a clean way to do that, based on precedent clauses (e.g. 92.7.2, 138.5.2, 150.5.2, and 167.5.2) and even the phrasing used in 180.3, which use "i" as an index.

There are similar-form sentences in 180.5.3, and in corresponding subclauses in 181, 182, and 183.

*SuggestedRemedy*

In 180.5.2, change the quoted sentence to  
"When operating in DATA mode, the PMD transmit function shall convert the n symbol streams requested by the PMD service interface primitives PMD:IS\_UNITDATA\_i.request (i=0 to n-1) into n separate optical signals".

In 180.5.3, change from "for delivery to the PMD service interface using the PMD:IS\_UNITDATA\_0.indication primitive to PMD:IS\_UNITDATA\_n-1.indication primitive" to

"for delivery to the PMD service interface primitives PMD:IS\_UNITDATA\_i.indication (i=0 to n-1)".

Consider changing "primitives" to "messages" to be consistent with precedent clauses and with other places in this amendment.

Make the corresponding changes in 180.5.3, 181.5.2, 181.5.3, 182.5.2, 182.5.3, 183.5.2, and 183.5.3.

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement the following with editorial license:  
P469, L7~9:

When operating in DATA mode, the PMD transmit function shall convert the n symbol streams requested by the PMD service interface primitives PMD:IS\_UNITDATA\_i.request (i=0 to n-1) into n separate optical signals.

P469, L29:  
for delivery to the PMD service interface primitives PMD:IS\_UNITDATA\_i.indication (i=0 to n-1)

Also the same changes in CL 181~183.

|         |               |       |      |          |
|---------|---------------|-------|------|----------|
| Cl 178B | SC 178B.8.2.1 | P 894 | L 42 | # R2-110 |
|---------|---------------|-------|------|----------|

Ran, Adeel

Cisco Systems, Inc.

|              |   |                |   |              |
|--------------|---|----------------|---|--------------|
| Comment Type | T | Comment Status | A | Restart (CA) |
|--------------|---|----------------|---|--------------|

rx\_fail\_on\_los is defined as an ability (per the register bit, as noted in the editor's note), but in fact it is a "disability" - the receiver can't do anything but fail upon a LOS event. Even if this is treated as an "inverted ability bit", it is possible that the receiver can, by design, recover without failing (so rx\_fail\_on\_los is false), but management prefers to force a restart on every failure. This is not supported by the current definition (read-only).

The common way to specify management variables is ability + enable as separate variables.

The suggested remedy adds these management variables while keeping the semantic of rx\_fail\_on\_los, so the state diagram is not changed.

#### Suggested Remedy

Add the following variable definitions:

rx\_los\_recovery\_ability: Boolean variable that indicates that when the training control state diagram (Figure 178B-10b) is in the PATH\_UP state, the receiver can recover from loss of signal (rx\_ok = false) without a restart of the ILT function. The value of this variable is implementation dependent.

mr\_rx\_los\_recovery\_enable: Boolean variable that is set by management to enable recovery from loss of signal. The default value is false.

Change the definition of rx\_fail\_on\_los to:

rx\_fail\_on\_los: Boolean variable that is true when either rx\_los\_recovery\_ability or mr\_rx\_los\_recovery\_enable is false, and false otherwise.

Delete the editor's note after the definition.

In Table 178B-3, add a row for mr\_rx\_los\_recovery\_enable | 178B.8.2.1 | 1.1479.11 | 45.2.1.169f.

In Table 178B-4, replace rx\_fail\_on\_los with rx\_los\_recovery\_ability (keep mapping the MDIO register 1.1479.15)

In 45.2.1.169f, in the definition of bit 15, swap the 0 and 1 definitions (such that 1 indicates ability), and add a row for bit 11: Receiver recovery | 0=mr\_rx\_los\_recovery\_enable is false; 1=mr\_rx\_los\_recovery\_enable is true | R/W. Keep only bit 12 as reserved.

#### Response

Response Status C

ACCEPT IN PRINCIPLE.

Slides 5, 6, and 7 of the following contribution were reviewed by the CRG:  
[https://www.ieee802.org/3/dj/public/26\\_09/brown\\_3dj\\_03a\\_2609.pdf](https://www.ieee802.org/3/dj/public/26_09/brown_3dj_03a_2609.pdf)

Implement the changes on slides 6 and 7 of the following contribution:  
[https://www.ieee802.org/3/dj/public/26\\_09/brown\\_3dj\\_03a\\_2609.pdf](https://www.ieee802.org/3/dj/public/26_09/brown_3dj_03a_2609.pdf)

In Table 178B-3, add a row for mr\_rx\_los\_recovery\_enable | 178B.8.2.1 | 1.1479.11 | 45.2.1.169f.

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In Table 178B-4, replace rx\_fail\_on\_los with rx\_los\_recovery\_ability (keep mapping the MDIO register 1.1479.15)

Implement with editorial license.

**CI 184 SC 184.5.6 P 603 L 25 # R2-111**  
Ran, Adeo Cisco Systems, Inc.  
**Comment Type E Comment Status A (B) (L)**  
"BCH FEC codeword" (twice in this subclause) is inconsistent with the rest of the clause, which uses "BCH codeword".  
There is no other instance of "BCH FEC".

## **SuggestedRemedy**

Change "BCH FEC codeword" to "BCH codeword", twice.

**Response Response Status C**

ACCEPT IN PRINCIPLE.  
This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
However, the change proposed in the suggested remedy is an improvement to the draft.

Implement the suggested remedy.

**CI 185 SC 185.8.1 P 634 L 20 # R2-112**  
Ran, Adeo Cisco Systems, Inc.  
**Comment Type E Comment Status A Test patterns (B) (OC)**  
For pattern 8 (PRBS31 pattern encoded by 800GBASE-LR1 Inner FEC), the reference to 184.5.3 ("Permutation") is incorrect. The test pattern generator is defined in 184.7.

## **SuggestedRemedy**

Change the reference to 184.7.

**Response Response Status C**

ACCEPT IN PRINCIPLE.  
This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
However, the change proposed in the suggested remedy is an improvement to the draft.  
Implement the suggested remedy with editorial license.

**CI 175 SC 175.1.5 P 292 L 50 # R2-113**

WANG, Xuebo Huawei Technologies Co., Ltd

**Comment Type TR Comment Status A (B) (L)**

The current version says that "inst" can be PMA or FEC. However, for now, there are no defined FEC sublayers that are directly connected to 1.6TBASE-R PCS. Figure 175-7 on Page 302 has the same issue.

## **SuggestedRemedy**

Delete "or FEC", or remove the note "inst: PMA or FEC" and change "inst" to "PMA". Make the same change to Figure 175-7.

**Response Response Status W**

ACCEPT IN PRINCIPLE.  
This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out that the only sublayer currently allowed below the 1.6T PCS is a PMA, and a small change would be an improvement to the draft.

The option of changing all occurrences of "inst" to "PMA" would be a large and undesirable change to several subclauses within this clause. It is anticipated that future 802.3 amendments may likely add options for an Inner FEC sublayer below the 1.6T PCS as has been added to the 800G PCS in 802.3dj. Using the more generic "inst" for the interface definition below the PCS makes the 1.6T PCS clause more amenable to future amendments.

In Figures 175-2 and 175-7, change the legend at the bottom of the figures from:

"inst: PMA or FEC"

to:

"inst: PMA"

In 175.1.4, change the second sentence,

from:

"The lower interface of the PCS connects to a PMA or Inner FEC through the service interface below the PCS as necessary to support a PMD."

to:

"The lower interface of the PCS connects to a PMA through the service interface below the PCS to support a PMD."

In 175.2.1, change the 2nd paragraph,

from:

"When communicating with the 1.6TMII, the PCS uses an eight octet-wide, synchronous data path, with packet delineation being provided by transmit control signals (TXC<n> = 1) and receive control signals (RXC<n> = 1). When communicating with the PMA or Inner FEC sublayer, the 1.6TBASE-R PCS uses 16 encoded bit streams also known as PCS lanes. Per direction (receive or transmit), the PCS lanes originate from a common clock but may vary in phase and skew dynamically. The PMA and Inner FEC operate independently of packet

## IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

boundaries. The PCS provides the functions necessary to map packets between the 1.6TMI format and the service interface below the PCS."

to:  
"When communicating with the 1.6TMI, the PCS uses an eight octet-wide, synchronous data path, with packet delineation being provided by transmit control signals (TXC<n> = 1) and receive control signals (RXC<n> = 1). When communicating with the sublayer below the PCS, the 1.6TBASE-R PCS uses 16 encoded bit streams also known as PCS lanes. Per direction (receive or transmit), the PCS lanes originate from a common clock but may vary in phase and skew dynamically. The PCS provides the functions necessary to map packets between the 1.6TMI format and the service interface below the PCS."

|                                                                                                                                                                                                                                                                                                                                                                                  |                |                       |           |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|-----------|-------------------------|
| <b>CI 178B</b>                                                                                                                                                                                                                                                                                                                                                                   | <b>SC 178B</b> | <b>P910</b>           | <b>L1</b> | <b># R2-114</b>         |
| Ran, Adeel Cisco Systems, Inc.                                                                                                                                                                                                                                                                                                                                                   |                |                       |           |                         |
| <b>Comment Type</b>                                                                                                                                                                                                                                                                                                                                                              | <b>E</b>       | <b>Comment Status</b> | <b>R</b>  | <b>(withdrawn) (CA)</b> |
| In Figure 178B-15 there are transitions to "B" (TRAINING state) from all other states (total of 7), all with the same condition, "!c_isl_ready". This means c_isl_ready=false will cause a transition to TRAINING regardless of state. The diagram can be simplified by adding "!c_isl_ready" to the open arrow into TRAINING, which takes precedence over all other conditions. |                |                       |           |                         |

Further simplifications may be possible by considering the transitions into "A" (total of 5), which are all dependent on "c\_isl\_ready \* !c\_adjacent\_intf\_rx\_ready", and changing the transitions into "C" (total of 3) into regular arrows. If a change is made, this should be considered.

### SuggestedRemedy

In the open arrow into TRAINING, add "+ !c\_local\_rts".  
Delete all transitions to "B" and the "B" label.  
Change the two transitions into TRAINING\_COMPLETE (which are conditional on c\_isl\_ready) to UCT.  
Remove c\_isl\_ready from all other conditions.

Consider applying the suggested changes for the transitions into A and C.

A contribution with the proposed modified diagram will be provided.

|                 |                        |          |
|-----------------|------------------------|----------|
| <b>Response</b> | <b>Response Status</b> | <b>Z</b> |
| REJECT.         |                        |          |

This comment was WITHDRAWN by the commenter.

|                                                                               |                   |                       |            |                            |
|-------------------------------------------------------------------------------|-------------------|-----------------------|------------|----------------------------|
| <b>CI 183</b>                                                                 | <b>SC 183.5.7</b> | <b>P570</b>           | <b>L33</b> | <b># R2-115</b>            |
| Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting, L           |                   |                       |            |                            |
| <b>Comment Type</b>                                                           | <b>T</b>          | <b>Comment Status</b> | <b>A</b>   | <b>TX disable (B) (OI)</b> |
| 183.5.7 is missing a third paragraph that is in 180.5.7, 181.5.7 and 182.5.7. |                   |                       |            |                            |

### SuggestedRemedy

To keep all the IMDD optical clauses aligned, in 183.5.7 add a new third paragraph "If a PMD\_fault is detected, then the PMD may set the Global\_PMD\_transmit\_disable variable to one, turning off the optical transmitter in each lane."

|                                                                                                                                                                                                                     |                        |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------|
| <b>Response</b>                                                                                                                                                                                                     | <b>Response Status</b> | <b>C</b> |
| ACCEPT IN PRINCIPLE.                                                                                                                                                                                                |                        |          |
| This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. |                        |          |
| However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy [with editorial license].                                                                       |                        |          |

|                                                                                                                                                                                             |                    |                       |            |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|------------|---------------------|
| <b>CI 181</b>                                                                                                                                                                               | <b>SC 181.9.14</b> | <b>P522</b>           | <b>L39</b> | <b># R2-116</b>     |
| Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting, L                                                                                                                         |                    |                       |            |                     |
| <b>Comment Type</b>                                                                                                                                                                         | <b>T</b>           | <b>Comment Status</b> | <b>A</b>   | <b>TFT (B) (OI)</b> |
| The resolution of comment #R1-128 deleted the text ", except that the test fiber is not used". The comment only addressed 180.9.14 and did not request the same change in 181, 182 and 183. |                    |                       |            |                     |

### SuggestedRemedy

In 181.9.14 change "The TECQ of the conformance test signal is measured according to 181.9.7, except that the test fiber is not used." to "The TECQ of the conformance test signal is measured according to 181.9.7."

|                                                                                                                                                                                                                     |                        |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------|
| <b>Response</b>                                                                                                                                                                                                     | <b>Response Status</b> | <b>C</b> |
| ACCEPT IN PRINCIPLE.                                                                                                                                                                                                |                        |          |
| This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. |                        |          |
| However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy with editorial license.                                                                         |                        |          |

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

**Cl 182 SC 182.9.14 P554 L7 # R2-117**  
 Issenhuth, Tom Huawei Technologies Co., Ltd, Issenhuth Consulting, L  
**Comment Type T Comment Status A Rx Sensitivity (B) (OI)**  
 The resolution of comment #R1-128 deleted the text ", except that the test fiber is not used". The comment only addressed 180.9.14 and did not request the same change in 181, 182 and 183.  
**Suggested Remedy**  
 In 182.9.14 change "The TECQ of the conformance test signal is measured according to 182.9.7, except that the test fiber is not used." to "The TECQ of the conformance test signal is measured according to 182.9.7."  
**Response Response Status C**  
 ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
 However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy [with editorial license].

**Cl 183 SC 183.9.14 P586 L44 # R2-118**  
 Issenhuth, Tom Huawei Technologies Co., Ltd, Issenhuth Consulting, L  
**Comment Type T Comment Status A Rx Sensitivity (B) (OI)**  
 The resolution of comment #R1-128 deleted the text ", except that the test fiber is not used". The comment only addressed 180.9.14 and did not request the same change in 181, 182 and 183.  
**Suggested Remedy**  
 In 183.9.14 change "The TECQ of the conformance test signal is measured according to 183.9.7, except that the test fiber is not used." to "The TECQ of the conformance test signal is measured according to 183.9.7."  
**Response Response Status C**  
 ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
 However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy with editorial license.

**Cl 178B SC 178B.11.3 P910 L7 # R2-119**  
 Ran, Ade Cisco Systems, Inc.  
**Comment Type TR Comment Status R (withdrawn) (CA)**  
 In Figure 178B-15, if c\_local\_rts becomes false after PATH\_UP is reached (an "adjacent LOS" situation), it causes a transition to "A" (REVERT\_TO\_LOCAL\_CLOCK). After this transition, c\_tx\_mode is still DATA, but c\_local\_rts=false means the client is not ready to send - so there is no data to be transmitted on the service interface (and also, the local clock is used).  
 Since this state diagram does not include squelch and there is no training signal, the transmitter signal should indicate "NOT-RTS".  
**Suggested Remedy**  
 Add an assignment of c\_tx\_mode to "NOT-RTS" in REVERT\_TO\_LOCAL\_CLOCK.  
 Note that another comment suggest merging "NOT-RTS" with other values. If accepted, the merged value should be used.  
**Response Response Status Z**  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

**Cl 178B SC 178B.11.3 P910 L12 # R2-120**  
 Ran, Ade Cisco Systems, Inc.  
**Comment Type E Comment Status A c\_tx\_mode (B) (CA)**  
 In state TRAINING\_COMPLETE, the assigned value is "NOT-RTS", but the enumerated values of c\_tx\_mode include "NOT-RTS".  
 Note that another comment suggests merging NOT-RTS with other values.  
**Suggested Remedy**  
 If "NOT-RTS" remains a possible value, change the assigned value to NOT-RTS.  
**Response Response Status C**  
 ACCEPT IN PRINCIPLE.  
 Resolved using the response to comment R2-132.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 178B SC 178B.7 P879 L5 # R2-121

de Koos, Andras Microchip Technology Inc

Comment Type ER Comment Status A (B) (CA)

Type:  
 "...all the per-lane ILT functions (see 178B.7.1) "  
 per-lane ILT functions are defined in 178B.7.2.

## SuggestedRemedy

Correct the cross-reference

Response Response Status W

ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
 However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy.

CI 178B SC 178B.5 P878 L23 # R2-122

de Koos, Andras Microchip Technology Inc

Comment Type E Comment Status R (CA)

In the same way that there is a nice signal diagram between the per-interface ILT and RTS functions (Figure 178B-4), it would be helpful to have a similar diagram showing the signaling between the per-lane ILT functions and the per-interface ILT function.  
 Or add the per-lane ILT to/from per interface ILT signaling to Figure 178B-4 itself. The signaling should not be any more complicated than what already exists between the RTS function and the per-interface ILT function.

## SuggestedRemedy

Consider adding the signaling between the per-interface ILT function and the per-lane ILT function(s) to Figure 178B-4.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.8.2.1 P893 L43 # R2-123

de Koos, Andras Microchip Technology Inc

Comment Type E Comment Status R (CA)

Style question : when there is a NOTE relating to a variable's description, should it not have the same indentation as the variable's description?  
 Can find examples of both indented and un-indented NOTES in 802.3-2022, unfortunately (see variables list in Clauses 119 and 82, respectively).

## SuggestedRemedy

Consider indenting the NOTES to match the indentation of the variables' description.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 176D SC 176D.8.2 P834 L47 # R2-127

Dudek, Michael Marvell

Comment Type TR Comment Status R Peak voltage (E)

Having only 2 samples per UI with synchronous sampling is likely to miss the peak signal if there is significant overshoot.

## SuggestedRemedy

Change to 4 samples per UI. Or reword as "sampled synchronously with an effective rate of at least 4 samples per UI or sampled asynchronously.

Response Response Status W

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

This comment is a restatement of comment I-291, with an equivalent suggested remedy. Comment I-291 was rejected due to no consensus to make a change (see <[https://www.ieee802.org/3/dj/comments/D3p0/8023dj\\_D3p0\\_comments\\_final\\_id.pdf#page=83](https://www.ieee802.org/3/dj/comments/D3p0/8023dj_D3p0_comments_final_id.pdf#page=83)>).

No new data has been provided to substantiate the suggested remedy.

There was no consensus to make the suggested change.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI **176D** SC **176D.6.4** P**828** L**16** # **R2-128**

Dudek, Michael

Marvell

Comment Type **TR** Comment Status **R** SNDR (E)

This is a re-statement of un-satisfied comment I-312. The SNDR specification requirement for the C2M Host output needs to be met at the end of the 32dB channel with large NEXT aggressor. There is no channel beyond this point so having an SNDR requirement here that is more stringent than the preset 2 value for CR (which still expects to have significant additional loss before reaching the Rx) is unnecessary.

## SuggestedRemedy

Change the value from "Table 179-9" to "27.5dB" (the Preset 2 value for CR).

Response Response Status **C**

REJECT.

This comment is a restatement of comment I-312, and the suggested remedy is effectively the same.

Comment I-312 was rejected due to no consensus to make a change (see <[https://www.ieee802.org/3/dj/comments/D3p0/8023dj\\_D3p0\\_comments\\_final\\_id.pdf#page=88](https://www.ieee802.org/3/dj/comments/D3p0/8023dj_D3p0_comments_final_id.pdf#page=88)>).

No new data has been provided to substantiate the suggested remedy.

There was no consensus to make the proposed change.

CI **180** SC **180.9.8.2** P**490** L**10** # **R2-130**

Ghiasi, Ali

Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

Comment Type **TR** Comment Status **R** test pattern (OI)

Transmitter functional histogram test pattern is supposed to be given in Table 180-14, but looking at table 180-14 entry for Transmitter functional test is missing

## SuggestedRemedy

Please add to Table 180-14 entry for : Transmitter functional test and list pattern pattern 6

Response Response Status **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

CI **179** SC **179.9.5.3.3** P**442** L**23** # **R2-131**

Ghiasi, Ali

Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

Comment Type **TR** Comment Status **R** (E)

the draft list set of parameters for COM test channel calibration "the limits in Table 179-15. The COM is calculated using the method and parameters of 179.11.4 with the following considerations:". It is not clear if parameters below are exceptions or just list of parameters to consider.

Specifically item "e" defines SNDR with Np=85, if its just consideration then Dp would be assumed to be 0 but if its an exception then Dp=4

## SuggestedRemedy

Suggest replace consideration with parameters and make for item e specify Dp=0 if these aren't exception.

If the parameters were intended to be exception then replace consideration with exceptions.

Response Response Status **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

CI **178B** SC **178B.11.2.1** P**906** L**31** # **R2-132**

Law, David

Hewlett Packard Enterprise

Comment Type **E** Comment Status **A** c\_tx\_mode (B) (CA)

Subclause 178B.11.2.1 defines the transmit not-ready-to-send signal enumeration of the c\_tx\_mode variable as NOT-RTS (NOT dash RTS). Yet, the TRAINING\_COMPLETE state of Figure 178B-15 'RTS without squelch state diagram' assigns c\_tx\_mode to NOT\_RTS (NOT underscore RTS).

## SuggestedRemedy

Use a consistent spelling of the enumeration. Since we generally use underscores in state diagram names, suggest that:

[1] The text 'NOT-RTS: transmit the not-ready-to-send signal ...' in subclause 178B.11.2.1 on page 907, line 30 is changed to read 'NOT\_RTS: transmit the not-ready-to-send signal ...'.

[2] The text 'When c\_tx\_mode = TRAINING, NOT-RTS, RTS, or FILL ...' in subclause 186.2.6 on page 668, line 21 is changed to read 'When c\_tx\_mode = TRAINING, NOT\_RTS, RTS, or FILL ...'.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

Cl 178B SC 178B.12 P912 L21 # R2-133

Law, David Hewlett Packard Enterprise

Comment Type E Comment Status R (Bp) (CA)

The 'd' in the text '1.1420.8d' in the 'MDIO register/bit number' entry for ic\_sts should be superscripted as it is a footnote.

SuggestedRemedy

See comment.

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 178B SC 178B.12 P912 L32 # R2-134

Law, David Hewlett Packard Enterprise

Comment Type T Comment Status A MDIO RTS (B) (CA)

Table 178B-4 'Status variables and MDIO mapping for PAM4 interfaces' maps the remote\_rts variable to bit 1.1120.10, the 'Not ready to send' bit in the subclause 45.2.1.161 'BASE-R PAM4 PMD training LP control, lane 0 through lane 7' registers. Subclause 45.2.1.161 says, 'The BASE-R PAM4 PMD training LP control, lane 0 through lane 7 registers reflect the contents of the first 16-bit word of the training frame most recently received for each lane.'

Subclause 178B.8.2.1 'Variables', however, defines the remote\_rts variable as a 'Boolean variable that indicates the value of local\_rts variable in the peer interface. 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 not ready to send bit (see 178B.7.4.2) set to zero, otherwise it is set to false. If mr\_training\_enable is false then remote\_rts is always true.'. In addition, as noted in subclause 178B.7.1 'Per-interface ILT function', the remote\_rts variable is generated by the per-interface ILT function.

As a result, the remote\_rts variable is an interface variable rather than a lane variable and does not 'reflect the contents of the first 16-bit word of the training frame most recently received' on the respective lane. It therefore seems that the mapping of the remote\_rts variable to bit 1.1120.10 in Table 178B-4 should be removed. The 1.1120.10 'Not ready to send' bit would therefore be derived from the 'Not ready to send' bit in the control field (the first 16-bit word) of the training frame based on the register definition in subclause 45.2.1.161. If there is a desire to reflect the remote\_rts variable in a register, a 'Remote Ready to Send' bit could be added to subclause 45.2.1.169c 'PMA/PMD interface training status (Register 1.1476)'.

SuggestedRemedy

[1] Remove the mapping of the remote\_rts variable to bit 1.1120.10 in Table 178B-4.

[2] If desired, add a 'Remote Ready to Send' bit to register 1.1476 that is mapped to the remote\_rts variable as follows by changing the bit 1.1476.9 row to read:

Bit(s): 9

Name: Remote Ready to Send

Description: 1 = mr\_training\_enable is true and the not ready to send bit (see 178B.7.4.2) is set to zero for all lanes.

0 = mr\_training\_enable is false or the not ready to send bit is set to one for any lane.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the the change proposed in the suggested remedy is an improvement to the draft.

In Table 178B-4 -- Status variables and MDIO mapping for PAM4 interfaces:  
Change the assignment of remote\_rts to MDIO register bit 1.1476.15 and the clause reference to 45.2.1.169c

In 45.2.1.169c:  
Change the bit 1.1476.15 row to read:  
Bit(s): 15  
Name: Remote ready to send  
Description:  
1 = true  
0 = false  
Read/Write: "RO"  
Implement with editorial license.  
[Editor's note: Affects multiple clauses including 178, 45]

| CI 178B | SC 178B.7 | P 879 | L 42 | # R2-135 |
|---------|-----------|-------|------|----------|
|---------|-----------|-------|------|----------|

Law, David Hewlett Packard Enterprise

| Comment Type | T | Comment Status | A | (B) (CA) |
|--------------|---|----------------|---|----------|
|--------------|---|----------------|---|----------|

The last paragraph of subclause 178B.7 'ILT function for PAM4 interfaces' says 'Recovery from the ISL\_FAIL state in the training control state diagram (Figure 178B-10b) requires management to assert mr\_restart\_training or reset ...'. Subclause 178B.8.2.1 'Variables', however, defines the 'mr\_restart' variable as a 'Boolean variable used by management to restart the RTS and ILT functions.' which is used by the state diagrams (note mr\_restart\_training vs mr\_restart). Clause 136 uses mr\_restart\_training, as does subclause 45.2.1.95.1, although it appears to reference only mr\_restart\_training in Clause 76.

#### SuggestedRemedy

Use only either mr\_restart\_training or mr\_restart.

| Response | Response Status | C |
|----------|-----------------|---|
|----------|-----------------|---|

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft.

Change mr\_restart\_training to mr\_restart.

Implement the suggested remedy with editorial license.

| CI 178B | SC 178B.12 | P 911 | L 32 | # R2-136 |
|---------|------------|-------|------|----------|
|---------|------------|-------|------|----------|

Law, David

Hewlett Packard Enterprise

| Comment Type | T | Comment Status | A | MDIO (B) (CA) |
|--------------|---|----------------|---|---------------|
|--------------|---|----------------|---|---------------|

Subclause 45.2.1.161 (register 1.1120) says, 'The BASE-R PAM4 PMD training LP control, lane 0 through lane 7 registers reflect the contents of the first 16-bit word of the training frame most recently received for each lane.'. Table 178B-3 'Control variables and MDIO mapping for PAM4 interfaces', however, maps ic\_req, which is an output of Figure 178B-12 'Coefficient update state diagram', to the Initial condition request bits in register 1.1120 instead.

This doesn't meet the register description of 'reflecting the contents of the first 16-bit word' of the received training frame and would also prevent the use of register 1.1120 to drive the coefficient update state diagram when training is disabled. This is because ic\_sel, not ic\_req, is an input variable to the coefficient update state diagram.

On review of IEEE Std 802.3-2022 subclause 136.8.11.7.1 'Variables', I see that it is ic\_req that is '... derived from the "initial condition request" bits from the control field of the received training frames ...' and there is no ic\_sel variable. It therefore seems that the definition of ic\_req was changed in IEEE P802.3dj, and that ic\_sel was added to replace its function of reflecting the received "initial condition request" bits.

As a result, based on the register description, being able to use the register to drive the coefficient update state diagram when training is disabled, and since it appears that ic\_req was replaced with ic\_sel in the variables and coefficient update state diagram compared to Clause 136, I believe ic\_req should also be replaced with ic\_sel in Table 178B-3 'Control variables and MDIO mapping for PAM4 interfaces'.

#### SuggestedRemedy

Change 'ic\_req' to read 'ic\_sel' in the 1.1120.13:11 bits row of Table 178B-3 'Control variables and MDIO mapping for PAM4 interfaces'.

| Response | Response Status | C |
|----------|-----------------|---|
|----------|-----------------|---|

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft.

Implement the suggested remedy with editorial license.

Cl 178B SC 178B.7 P879 L38 # R2-137

Law, David Hewlett Packard Enterprise

Comment Type T Comment Status R (withdrawn) (CA)

The last sentence of subclause 45.2.1.161 'BASE-R PAM4 PMD training LP control, lane 0 through lane 7 registers (Register 1.1120 through 1.11273)' says 'When training is not disabled, the bits in registers 1.1120 through 1.11273 are read only; however, when training is disabled the R/W bits become writeable.'. It appears this is to allow the transmitter coefficients to be selected (Initial condition request/ic\_sel) and adjusted (Coefficient select/coef\_sel and Coefficient request bits/coef\_req) locally through this register when training is disabled. This seems to be confirmed by subclause 178B.7.2 'Per-lane ILT function' which says, 'When in LOCAL\_PATTERN mode, the pattern transmitted is specified in the clause or annex that defines the interface.', and 'The transmitter parameters are configured through management control variables.'.

The penultimate sentence of subclause 178B.7 'ILT function for PAM4 interfaces', however, says 'The state diagrams in Figure 178B-11 and Figure 178B-12 and their associated variables apply only when training is enabled (mr\_training\_enable = true)'. This doesn't seem correct, as it would prevent the Figure 178B-12 'Coefficient update state diagram' from operating when training is disabled. If that were the case, the coef\_sel and coef\_req values set through the 'BASE-R PAM4 PMD training LP control' registers would be ignored. Further, the ic\_sel, coef\_sel, and coef\_req variables are only described as being derived from the control field of the received training frames.

#### SuggestedRemedy

[1] Change the penultimate sentence of subclause 178B.7 to read 'The training control state diagram (Figure 178B-10a and Figure 178B-10b) and its associated variables are used by both TRAINING mode and LOCAL\_PATTERN mode of operation. The training frame lock state diagram (Figure 178B-12) and its associated variables apply only when training is enabled (mr\_training\_enable = true). The coefficient update state diagram and its associated variables apply when training is enabled and may be used to configure the Tx parameters when training is disabled.'.

[2] Change the text '... derived from the ... bits from the control field of the received training frames (see 178B.7.4)' in the subclause 178B.8.3.1 'Variables' definition for the ic\_sel, coef\_sel, and coef\_req variables to read '... derived from the ... bits from the control field of the received training frames (see 178B.7.4) when training is enabled and may be set by management when training is disabled.'.

As an example, the updated coef\_req variable description would read:

Enumerated variable derived from the "coefficient request" bits from the control field of the received training frames (see 178B.7.4) when training is enabled and may be set by management when training is disabled. This variable is assigned one of the following values: HOLD, DECREMENT, INCREMENT, NO EQUALIZATION.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 178B SC 178B.7 P879 L11 # R2-138

Law, David Hewlett Packard Enterprise

Comment Type T Comment Status R Variables (CA)

The second paragraph of subclause 178B.7 'ILT function for PAM4 interfaces' says 'The ILT function has three modes of operation based on the tx\_mode variable (see 178B.8.3.1):' and then lists the second as 'LOCAL\_PATTERN mode (tx\_mode = LOCAL\_PATTERN): a pattern is transmitted to the peer Interface'. The pre-antepenultimate paragraph then says 'LOCAL\_PATTERN mode is used when training is disabled (mr\_training\_enable = false)'. This appears to be unchanged text from IEEE P802.3dj draft D3.1.

A new variable, tx\_lp\_on\_adj\_los\_ability, appears to have been added to subclause 178B.8.2.1 'Variables' by IEEE P802.3dj D3.2, which '... indicates the interface supports sending LOCAL\_PATTERN when the training control state diagram (Figure 178B-14b) is in the PATH\_UP state ...'. Based on this, and the associated ADJ\_LOS\_LP and ADJ\_LOS\_RECOVERY states in Figure 178B-10b, 'Training control state diagram, part 2', the text in subclause 178B.7 needs to be updated, as LOCAL\_PATTERN mode/tx\_mode = LOCAL\_PATTERN is also used when training is enabled.

#### SuggestedRemedy

Suggest that the text 'LOCAL\_PATTERN mode is used when training is disabled (mr\_training\_enable = false)' is changed to read 'LOCAL\_PATTERN mode is used when training is disabled (mr\_training\_enable = false) if adjacent loss of signal mode is LOCAL\_PATTERN (mr\_adj\_los\_mode = LOCAL\_PATTERN) when the training control state diagram (Figure 178B-10b) is in the PATH\_UP state and local\_rts becomes false.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 172 SC 172.7.4.2 P271 L 20 # R2-149

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status A (B) (L)

PICS item RF12 was recently changed from !SD:M to O/2. The Support column should also have been updated accordingly. Mandatory items use "Yes or N/A", but Optional items should use "Yes or No"

## SuggestedRemedy

In PICS table in section 172.7.4.2, change Support column of item RF12  
from: "Yes [ ] N/A [ ]"  
to: "Yes [ ] No [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Resolved using the response to comment R2-90.

CI 172 SC 172.7.4.2 P271 L 24 # R2-150

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status A (B) (L)

PICS item RF13 was recently changed from !SD:M to O/2. The Support column should also have been updated accordingly. Mandatory items use "Yes or N/A", but Optional items should use "Yes or No"

## SuggestedRemedy

In PICS table in section 172.7.4.2, change Support column of item RF13  
from: "Yes [ ] N/A [ ]"  
to: "Yes [ ] No [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Resolved using the response to comment R2-90.

CI 172 SC 172.7.4.2 P271 L 27 # R2-151

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status A (B) (L)

PICS item RF14 is missing an entry in the Support column.

## SuggestedRemedy

In PICS table in section 172.7.4.2, add the following text in the Support column of item RF14

"Yes [ ] No [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Resolved using the response to comment R2-90.

CI 172 SC 172.7.4.1 P270 L 25 # R2-153

Opsasnick, Eugene Broadcom Inc.

Comment Type ER Comment Status A (B) (L)

PICS item TF1 was recently changed from !SE:M to O/1. The Support column should also have been updated accordingly. Conditional Mandatory items use "Yes or N/A", but Optional items should use "Yes or No"

## SuggestedRemedy

In PICS table in section 172.7.4.1, change Support column of item TF1  
from: "Yes [ ] N/A [ ]"  
to: "Yes [ ] No [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Resolved using the response to comment R2-90.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 172 SC 172.7.4.1 P270 L 29 # R2-154

Opsasnick, Eugene

Broadcom Inc.

Comment Type ER Comment Status A (B) (L)

PICS item TF2 was recently changed from SE:M to O/1. The Support column should also have been updated accordingly. Conditional Mandatory items use "Yes or N/A", but Optional items should use "Yes or No"

## SuggestedRemedy

In PICS table in section 172.7.4.1 change Support column of item TF2  
from: "Yes [ ] N/A [ ]"  
to: "Yes [ ] No [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Resolved using the response to comment R2-90.

CI 172 SC 172.7.4.1 P270 L 33 # R2-155

Opsasnick, Eugene

Broadcom Inc.

Comment Type ER Comment Status A (B) (L)

PICS item TF3 was recently added as an optional item. This item should use "Yes or No" in the Support column, not "Yes or N/A".

## SuggestedRemedy

In PICS table in section 172.7.4.1 change Support column of item TF3  
from: "Yes [ ] N/A [ ]"  
to: "Yes [ ] No [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error that needs to be corrected.

Resolved using the response to comment R2-90.

CI 178B SC 178B.7.7 P889 L 44 # R2-156

Slavick, Jeff

Broadcom Inc

Comment Type TR Comment Status R (withdrawn) (CA)

Per comment I-368 we inserted a new state named WAIT\_DATAPATH into the ILT function. This state is holding state between "training" finishing and "data mode" being enabled. In this state we send either training frames or local\_pattern. The state of the polarity correction function should be present in this state too.

## SuggestedRemedy

Change "tx\_mode = DATA" to "tx\_mode is FILL or DATA"

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI **178B** SC **178B.7.8** P **889** L **51** # **R2-157**

Slavick, Jeff

Broadcom Inc

Comment Type **TR** Comment Status **A** **ILT (CA)**

In CL136 you only ever made changes in TRAIN\_LOCAL and needed to respond to change requests in TRAIN\_LOCAL and TRAIN\_REMOTE.  
ILT has added two more states, RECOVERY and ISL\_READY, in which training frames could be sent or received with change requests.  
So for ILT we need to respond to requests in RECOVERY and ISL\_READY as well as TRAIN\_LOCAL and TRAIN\_REMOTE. ILT needs to permit the ability to generate requests in RECOVERY to escape (undo), in addition to in TRAIN\_LOCAL.

#### SuggestedRemedy

Change the allowed states in 2nd paragraph to be "TRAIN\_LOCAL or RECOVERY"  
Delete the 3rd and 4th paragraphs of 178B.7.8.  
Add the following after the 1st paragraph of 178B.7.10  
"When the training control state diagram (Figure 178B-10a and Figure 178B-10b) is in any state other than TRAIN\_LOCAL and RECOVERY, the interface shall not send any request to the peer interface.  
While the training control state diagram (Figure 178B-10a and Figure 178B-10b) is in any state other than TRAIN\_LOCAL, TRAIN\_REMOTE, ISL\_READY and RECOVERY the interface shall ignore requests from the peer interface."

Response Response Status **C**

ACCEPT IN PRINCIPLE.

The following related contribution was reviewed at the September 1 Clause 178B ad hoc meeting.  
[https://www.ieee802.org/3/dj/public/adhoc/178b/26\\_0901/slavick\\_178b\\_01a\\_260901.pdf](https://www.ieee802.org/3/dj/public/adhoc/178b/26_0901/slavick_178b_01a_260901.pdf)

Implement the proposed changes on slides 9, 11, and 15 of  
[https://www.ieee802.org/3/dj/public/adhoc/178b/26\\_0901/slavick\\_178b\\_01a\\_260901.pdf](https://www.ieee802.org/3/dj/public/adhoc/178b/26_0901/slavick_178b_01a_260901.pdf)

Implement with editorial license.

CI **178B** SC **178B.8.2.1** P **894** L **43** # **R2-158**

Slavick, Jeff

Broadcom Inc

Comment Type **TR** Comment Status **A** **Restart (CA)**

rx\_fail\_on\_los having a default does not make sense. Really should be an ability which forces rx\_fail\_on\_los to true and a control register which can force the transition to FAIL to occur when the ability to recover is possible.

#### SuggestedRemedy

Rename rx\_fail\_on\_los in 178B.8.2.1 to rx\_requires\_restart\_on\_los and remove the last sentence from the definition "Default for..."

Create new mr\_rx\_fail\_on\_los variable in 178B.8.2.1 "Boolean variable set by management. When true, the ILT function will transition to the ISL\_FAIL state upon a loss of signal event (rx\_ok becomes false) when in the training control state diagram (Figure 178B-10b) is in the PATH\_UP state."

Assign bit 11 in Table 45-133e as the MDIO register to map to the mr\_rx\_fail\_on\_los. 1 = true, 0 = false

In 178B.8.3.1 add new variable "rx\_fail\_on\_los" with a definition of "Boolean variable which controls if the training control state diagram (Figure 178B-10b) will go immediately to ISL\_FAIL when in the PATH\_UP state and rx\_ok becomes false. The value of the variable is the logical or of rx\_requires\_restart\_on\_los and mr\_rx\_fail\_on\_los"

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Resolved using the response to comment R2-110.

CI **45** SC **45.2.1.169c** P **102** L **24** # **R2-159**

Slavick, Jeff

Broadcom Inc

Comment Type **T** Comment Status **A** **(B) (L)**

MDIO register 1.1476.8 "isl\_ready" is mapped for both c\_isl\_ready and isl\_ready per Table 178B-4 and Table 178B-6 but the definition in Clause 45 it talks about remote\_rx\_ready but not c\_local\_rx\_ready

#### SuggestedRemedy

Update definition in Table 45-133b for isl\_ready to just be 1 = true and 0 = false

Response Response Status **C**

ACCEPT.

CI 178B SC 178B.12 P911 L40 # R2-160

Slavick, Jeff Broadcom Inc

Comment Type T Comment Status A MDIO (B) (CA)

The following variables have MDIO register bits they can be mapped to but are not in the mapping table:  
remote\_mc\_mode  
k

#### SuggestedRemedy

Add the following mappings to Table 178B-3:  
remote\_mc\_mode | 178B.8.3.1 | 1.1120.9:8 | 45.2.1.161

Add the following mapping to Table 178B-4:  
k | 178B.7.5.7 | 1.1420.5:3 | 45.2.1.167

Response Response Status C

ACCEPT IN PRINCIPLE.  
This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
However, proposed changes in the suggested remedy are an improvement to the draft. Implement the suggested remedy with editorial license.

CI 178B SC 178B.12 P911 L32 # R2-161

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status A MDIO (B) (CA)

Per ic\_sel definition this is the variable derived from the incoming training frames, while ic\_req is assigned per the coefficient update state diagram.

#### SuggestedRemedy

Change ic\_req to ic\_sel in Table 178B-3

Response Response Status W

ACCEPT IN PRINCIPLE.  
This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Resolved using the response to comment R2-136

CI 178B SC 178B.2 P874 L30 # R2-162

Slavick, Jeff Broadcom Inc

Comment Type T Comment Status A (B) (CA)

We state the RTS function is described in two sub clauses, which is true there are two different RTS functions and later in the overview we talk about PAM4 and coherent, so perhaps it'll be best to denote that 178B.6 is for PAM4 ISLs and 178B.10 is for coherent.

#### SuggestedRemedy

Change "The RTS function is described in 178B.6 and 178B.10."  
To: "The RTS function is described for PAM4 ISLs in 178B.6 and for coherent ISLs in 178B.10."

Response Response Status C  
ACCEPT.

CI 178B SC 178B.2 P874 L31 # R2-163

Slavick, Jeff Broadcom Inc

Comment Type T Comment Status R (CA)

The ILT function really provides methods and help facilitate establishing communication over the ISL. But the first sentence talks about it "controlling" and the second about how it provides optimization of the link, but really it's just coordinating those things and providing the tools to achieve optimizing the link performance.

#### SuggestedRemedy

Change "For PAM4 ISLs, the ILT function is an internal function of an AUI component or a PMD that controls the establishment of communication with a peer interface within an inter-sublayer link (ISL). The ILT function provides optimization of data signaling and coordinates the transition to DATA mode on an ISL. The ILT function is defined in 178B.7."

To "For PAM4 ISLs, the ILT function is an internal function of an AUI component or a PMD that facilitates the establishment of communication with a peer interface within an inter-sublayer link (ISL). The ILT function provides methods for optimization of data signaling and coordinates the transition to DATA mode on an ISL. The ILT function is defined in 178B.7 for PAM4 ISLs."

Response Response Status Z  
REJECT.

This comment was WITHDRAWN by the commenter.

IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

Cl **178B** SC **178B.8.3.1** P **898** L **43** # **R2-164**  
 Slavick, Jeff Broadcom Inc  
 Comment Type **TR** Comment Status **A** (B) (CA)  
 The remote\_mc\_mode variable is or is not assigned value, assignment is not optional.  
 SuggestedRemedy  
 Change "may be " to "is"  
 Response Response Status **W**  
 ACCEPT IN PRINCIPLE.  
 The assignment of one of the values is mandatory not optional. Appropriate language from the definition of local\_tp\_mode can be used.  
 In the definition of remote\_mc\_mode change:  
 "Enumerated variable that corresponds to the "modulation and precoding status" bits in the status field of received training frames. It may be assigned one of the following values:"  
 To:  
 "Enumerated variable that corresponds to the "modulation and precoding status" bits in the status field of received training frames and is assigned one of the following values:"

Cl **178B** SC **178B.6** P **878** L **38** # **R2-165**  
 Slavick, Jeff Broadcom Inc  
 Comment Type **T** Comment Status **R** RTS (Bp) (CA)  
 This list is dashed which means unordered, but really it's a series of steps, thus should be numbered.  
 SuggestedRemedy  
 Changed the list to be ordered rather than dashed (unordered).  
 Response Response Status **C**  
 REJECT.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
 Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.  
 This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl **178B** SC **178B.7** P **879** L **9** # **R2-166**  
 Slavick, Jeff Broadcom Inc  
 Comment Type **TR** Comment Status **R** Variables (CA)  
 The tx\_mode state is not really an indicator of the "mode" that ILT is operating in. Especially with the addition of the recovery states.  
 SuggestedRemedy  
 Presentation to be provided.  
 Response Response Status **Z**  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.7 P879 L37 # R2-167

Slavick, Jeff

Broadcom Inc

Comment Type T Comment Status R (withdrawn) (CA)

The LP control register (45.2.1.161) has fields that are R/W and the last sentence in 45.2.1.161 states that when training is disabled these are writable bits and read only when training is enabled.. This appears to be a method by which management was provided to configure the transmitter.

CI 136 does not call out when the given state machines that support LinkTraining are present or not. However, in the second to last paragraph 178B.7 the standard does explicitly state that the training frame lock and coefficient updates state diagrams are not present when mr\_training\_enable = false.

I do not believe we have provided an alternate method to program transmitter when training is disabled and in order to support what has been present in the standard we would need the coefficient update state diagram to be optionally present to support using MDIO reg 1120 to configure the transmitter state.

#### SuggestedRemedy

Change: "The training control state diagram (Figure 178B-10a and Figure 178B-10b) and its associated variables are used by both TRAINING mode and LOCAL\_PATTERN mode of operation. The state diagrams in Figure 178B-11 and Figure 178B-12 and their associated variables, apply only when training is enabled (mr\_training\_enable = true)."

To: "The training control state diagram (Figure 178B-10a and Figure 178B-10b) and its associated variables are used by both TRAINING mode and LOCAL\_PATTERN mode of operation. The training frame lock state diagrams in (Figure 178B-12) and Figure 178B-13 and their associated variables, apply only when training is enabled (mr\_training\_enable = true). The coefficient update state diagram and its associated variables apply when training is enabled and may be used to configure the Tx parameters when training is disabled."

In 178B.8.3.1 add the following to the end of the first sentence of ic\_sel, coef\_sel and coef\_req:

"when training is enabled and may be set by management when training is disabled."

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.10 P906 L2 # R2-168

Slavick, Jeff

Broadcom Inc

Comment Type T Comment Status R (Bp) (CA)

This list is dashed which means unordered, but really it's a series of steps, thus should be numbered.

#### SuggestedRemedy

Changed the list to be ordered rather than dashed (unordered).

Response Response Status C

REJECT.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 178B SC 178B.11.1 P906 L28 # R2-169

Slavick, Jeff

Broadcom Inc

Comment Type T Comment Status R (CA)

There are no stop timer events in the coherent state diagrams so this sentence is not necessary.

#### SuggestedRemedy

Remove "A timer is reset and stops counting upon entering a state where "stop\_x\_timer" is stated." from 178B.11.1

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.11.2 P908 L3 # R2-170

Slavick, Jeff

Broadcom Inc

Comment Type TR Comment Status A (B) (CA)

Figure 178B-14 and Figure 178B-15 do not have a PATH\_READY state.

#### SuggestedRemedy

In Figure 178B-14 rename the LOCAL\_RTS state to PATH\_READY

In Figure 178B-15 rename the BOTH\_DIR\_RTS state to PATH\_READY

Response Response Status W

ACCEPT.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 178B SC 178B.11.3 P909 L0 # R2-171

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status A State diagrams (B) (CA)

There is no SWITCH\_CLOCK state in Figure 178B-14

## SuggestedRemedy

Within Figure 178B-14:  
Insert a SWITCH\_CLOCK state with content of C\_USE\_TX\_CLOCK(recovered) and start c\_forward\_clock\_timer. Its entry is from the QUIET state with a criteria of c\_quiet\_timer\_done \* c\_adjacent\_intf\_rx\_ready \* c\_uses\_recovered\_clock. Its exit is to TRAINING with a criteria of c\_forward\_clock\_timer\_done.  
Add to the path from QUIET to TRAINING the criteria of "\*" !c\_uses\_recovered\_clock"  
In the INITIALIZE state add "C\_USE\_TX\_CLOCK(local)"

Response Response Status W

ACCEPT IN PRINCIPLE.

The comment correctly points out that Figure 178B-14 does not include the SWITCH\_CLOCK and thus the cross-reference in the definition of c\_forward\_clock\_timer should be deleted.

On page 907 line 50, change "RTS state diagram (Figure 178B-14 or Figure 178B-15)" To "RTS without squelch state diagram (Figure 178B-15)"

Implement with editorial license.

CI 176 SC 176.12.3 P353 L41 # R2-172

Nicholl, Gary Cisco Systems, Inc.

Comment Type ER Comment Status A (B) (L)

PICS items \*PMDO and \*PMDE are conditional optional. The support column should be "Yes [ ], No [ ], N/A [ ]"

## SuggestedRemedy

Change the support column for PICS items \*PMDO and \*PMDE from "Yes [ ], No [ ]" to "Yes [ ], No [ ], N/A [ ]"

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment correctly points out an error in the PICS items and provides the appropriate remedy.

Implement the suggested remedy with editorial license.

CI 176 SC 176.12.3.1 P354 L9 # R2-173

Nicholl, Gary Cisco Systems, Inc.

Comment Type E Comment Status R (Bp) (L)

The bottom line of the PICS table in 176.12.3.1 should be thick (same as the top and edge lines of the table). The same issue exists for the PICS table in 176.12.3.2.

## SuggestedRemedy

Update the format of the PICS tables in 176.12.3.1 and 176.12.3.2 to make the bottom line of the tables the same thickness as the lines at the top and edges of the table.

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment does highlight an formatting issue with the PICS tables.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 186 SC 186.8.3.2 P696 L38 # R2-175

Nicholl, Gary Cisco Systems, Inc.

Comment Type ER Comment Status A (B) (L)

The entry in the support column for PICS item TF6 is incorrect. This is a conditional mandatory item, so the support column should be "Yes [ ], N/A [ ]" and not "Yes [ ], No [ ]". A similar issue exists with PICS item RF10 in 186.8.3.3.

## SuggestedRemedy

Change the support column for PICS item TF6 in 186.8.3.2 from "Yes [ ], No [ ]" to "Yes [ ], N/A [ ]".

Change the support column for PICS item RF10 in 186.8.3.3 from "Yes [ ], No [ ]" to "Yes [ ], N/A [ ]".

Response Response Status W

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the comment identifies an error in the draft that should be corrected.

Implement the suggested remedy.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

CI 178 SC 178.14.3 P414 L14 # R2-176

Nicholl, Gary

Cisco Systems, Inc.

Comment Type ER Comment Status R (Bp) (E)

PICS items KR1, KR2, KR4, KR8, PHY and \*MD are all conditional optional. The support column should be "Yes [ ], No [ ], N/A [ ]"

## SuggestedRemedy

Change the support column for PICS items KR1, KR2, KR4, KR8, PHY and \*MD in 178.14.3 from "Yes [ ], No [ ]" to "Yes [ ], No [ ], N/A [ ]"

Response Response Status W

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the change proposed in the suggested remedy is an improvement to the draft.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

CI 186 SC 186.2.6 P668 L17 # R2-177

Huber, Thomas

Nokia

Comment Type ER Comment Status A (B) (CA)

The signaling of RTS status is between peer interfaces and is performed by the transmit function. This should be made more clear.

## SuggestedRemedy

Change "The RTS status is signaled via the MNT bits..." to

"In the transmit function, the RTS status is signaled to the peer node via the MNT bits..."

Response Response Status W

ACCEPT.

CI 186 SC 186.2.6 P668 L18 # R2-178

Huber, Thomas

Nokia

Comment Type ER Comment Status A (B) (CA)

Setting c\_rts\_status is part of the receive function; this should be more clear.

## SuggestedRemedy

Change "The variable c\_rts\_status is set..." to

"In the receive function, the variable c\_rts\_status is set ..."

Response Response Status W

ACCEPT.

CI 178B SC 178B.11.2.1 P907 L31 # R2-179

Huber, Thomas

Nokia

Comment Type ER Comment Status R c\_tx\_mode (CA)

The enumerated value NOT-RTS is a poor choice of name, especially since there is also a value RTS (so whenever the value is something other than RTS, it is "not RTS" from a logic perspective). The state when c\_tx\_mode is set to NOT-RTS is that training is complete and the upstream adjacent interface is not ready.

## SuggestedRemedy

Change NOT-RTS to ADJ-NOT-RDY. Make corresponding change in 186.2.6

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 178B SC 178B.12 P912 L38 # R2-180

Huber, Thomas

Nokia

Comment Type T Comment Status R (withdrawn) (CA)

It would be useful to include tx\_disable and tx\_mode as status variables in the MDIO interface.

## SuggestedRemedy

Add c\_tx\_mode to table 178B.4, referring back to 178B.8.3.1. Assign register bits in clause 45 for these variables as well.

Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

# IEEE P802.3dj D3.2 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet 2nd SA recirculation ballot comment

**Cl 178B SC 178B.12 P913 L 28 # R2-181**  
 Huber, Thomas Nokia  
**Comment Type T Comment Status R (withdrawn) (CA)**  
 It would be useful to include c\_tx\_mode as a status variable in the MDIO interface.  
**SuggestedRemedy**  
 Add c\_tx\_mode to table 178B.6, referring back to 178B.11.2.1. Assign a register bit in clause 45 for this variable as well.  
**Response Response Status Z**  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

**Cl 178B SC 178B.8.3.5 P901 L 23 # R2-182**  
 Osorio, Luz Nokia  
**Comment Type TR Comment Status R (withdrawn) (CA)**  
 The transition back from RECOVERY uses lane\_training\_status to determine if it failed before ISL\_READY. It should be set back to IN\_PROGRESS upon RECOVERY exit to maintain its meaning  
**SuggestedRemedy**  
 Add lane\_training\_status = IN\_PROGRESS assignment in TRAIN\_LOCAL  
**Response Response Status Z**  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

**Cl 178B SC 178B.12 P912 L 18 # R2-183**  
 Osorio, Luz Nokia  
**Comment Type ER Comment Status A (B) (CA)**  
 Table 178B-4, the variable reference for the management variable "training" is incorrect. It should 178B.8.3.1 (7th row)  
**SuggestedRemedy**  
 In table 178B-4, change the variable reference from 178B.8.2.1 to 178B.8.3.1  
**Response Response Status W**  
 ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
 However, the the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy.

**Cl 45 SC 45.2.1.165 P99 L 18 # R2-184**  
 Osorio, Luz Nokia  
**Comment Type TR Comment Status A RTS (B) (CA)**  
 local\_rts variable it's set to R/W  
**SuggestedRemedy**  
 Change variable to RO  
**Response Response Status W**  
 ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the the change proposed in the suggested remedy is an improvement to the draft.  
 In Table 178B-4 - Status variables and MDIO mapping for PAM4 interfaces:  
 Change the assignment of local\_rts to MDIO register bit 1.1476.9 and the clause reference to 45.2.1.169c  
 In 45.2.1.169c:  
 Change the bit 1.1476.9 row to read:  
 Bit(s): 9  
 Name: Local ready to send  
 Description:  
 1 = true  
 0 = false  
 Read/Write: "RO"  
 Implement with editorial license.  
 [Editor's note: the resolution affects clauses 45 and 178B]

**Cl 45 SC 45.2.1.161 P97 L 16 # R2-185**  
 Osorio, Luz Nokia  
**Comment Type TR Comment Status A MDIO RTS (B) (CA)**  
 remote\_rts variable it's set to R/W  
**SuggestedRemedy**  
 Change variable to RO  
**Response Response Status W**  
 ACCEPT IN PRINCIPLE.  
 The referenced bit does not represent the management variable remote\_rts, rather it reflects the content of the training frame for each lane. Note that comment R2-134 proposes to list remote\_rts as a management variable and assign an MDIO bit for remote\_rts.  
 Resolved using the response to comment R2-134.

Cl **178B** SC **178B.12** P**911** L**41** # **R2-186**  
 Osorio, Luz Nokia  
 Comment Type **TR** Comment Status **A** (B) (CA)  
 There is no consistency in the mapping of the following variables between control (R/W) and status (RO). There is benefit in having management access to these variables for debug reasons or specific applications.  
 ic\_req (set to R/W)  
 coef\_req (set to R/W)  
 coef\_sel (set to R/W)  
 local\_mc\_mode (set to RO)  
 local\_tp\_mode (set to RO)  
**SuggestedRemedy**  
 Set these variables to R/W by pointing to the control register (45.2.1.161)  
 local\_mc\_mode  
 local\_tp\_mode  
**Response** Response Status **W**  
 ACCEPT IN PRINCIPLE.  
 This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the changes proposed in the suggested remedy are an improvement to the draft.  
 Move local\_mc\_mode and local\_tp\_mode with their variable and MDIO references to Table 178B-4—Status variables and MDIO mapping for PAM4 interfaces.

Cl **177** SC **177.4.5** P**365** L**1** # **R2-187**  
 Swenson, Norman Nokia Corporation,Norman Swenson Consulting,Point  
 Comment Type **ER** Comment Status **A** (B) (L)  
 In equations 177-4, 177-5, and 177-6, the g in g(0), g(1), ..., should be boldface to be consistent with the notation in equation 177-2; in each case g() is a column vector.  
**SuggestedRemedy**  
 Make g boldface in the indicated equations wherever g(0), g(1), ..., appears.  
**Response** Response Status **W**  
 ACCEPT IN PRINCIPLE.  
 Use bold font for letter "g" in Equation 177-4, 177-5 and 177-6 to match Equation 177-2.  
 [Editor's note: changed page number for 364 to 365]

Cl **180** SC **180.9.6.4** P**485** L**3** # **R2-194**  
 Swenson, Norman Nokia Corporation,Norman Swenson Consulting,Point  
 Comment Type **TR** Comment Status **R** TDECQ-optimization (OI)  
 Some commenters have argued that minimizing mean squared error at  $\phi_0$  may not attain the optimal tap settings for minimizing TDECQ, which can change results measured using global optimization appearing in earlier drafts of the standard. We can potentially achieve lower TDECQ values by minimizing the sum of the mean squared errors measured at  $\phi_0 - 0.05T$  and  $\phi_0 + 0.05T$ , or the sum at  $\phi_0 - 0.05T$ ,  $\phi_0$ , and  $\phi_0 + 0.05T$ . This was suggested on pg. 4 of swenson\_3dj\_01a\_2607.pdf.  
**SuggestedRemedy**  
 Change "that result in the minimum mean squared error (MMSE) between  $y_n$  and  $x_n$ " to "that result in the minimum sum of the mean squared error between  $x_n$  and  $y_n$  measured at  $\phi = \phi_0$ ,  $\phi = \phi_0 - 0.05T$ , and  $\phi = \phi_0 + 0.05T$ ." A presentation will show results comparing the different methods.  
**Response** Response Status **Z**  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 180 SC 180.5.1 P468 L27 # R2-197

Dawe, Piers J G

NVIDIA

Comment Type TR Comment Status R signal detect (OI)

As previously pointed out, Figure 180-2 (block diagram) indicates that signal detect is disconnected from SIGNAL\_OK, contrary to all optical PMDs. 180.5.5 says "This standard imposes no response time requirements on the generation of the PMD\_signal\_detect\_i variable." It turns out that they are connected and timing is important: see 178B.8.3.1 as revised: rx\_ok "it shall be set to false when an input signal corresponding to tx\_disable = true in the peer is received for 100 ms (the minimum duration of the quiet\_timer) or longer". As the criterion for tx\_disable = true is Average launch power of OFF transmitter <= -15 dBm, which is the criterion in Table 180-5, Signal detection criteria for each lane: "Average optical power at TP3 <= -15 dBm", signal detect IS required, AND its timing is required (which is new and would surprise optical engineers if they read it). I am aware that other things have to be right for SIGNAL\_OK at the service interface to be OK. Also I am aware that both 180 and 178A say that various implementations of the signal detect function are permitted by this standard / the specific conditions for setting this variable to true or false are implementation dependent. Also that the timings for reporting to management might trail behind a state machine. Nevertheless, Clause 180 is seriously misleading. Part of the problem may be a belief that IMDD signal detect must be based on average optical power, or that now that 178B post-processes traditional optical power detection with other criteria, we may be using one name for two things. It is useful to distinguish between "is there a signal?" and "is everything ready?" so we should try to be clear.

#### SuggestedRemedy

Revise Figure 180-2 and 180.5.5 to be consistent with 178B.8.3.1, with appropriate cross-references.  
Similarly in other optical clauses.

Response Response Status U

REJECT.

This comment is a restatement of comment I-433, against Draft 3.0 and comments R1-289, R1-290, R1-292, and R1-293 against draft 3.1 as recorded in the following reports:  
[https://www.ieee802.org/3/dj/comments/D3p0/8023dj\\_D3p0\\_comments\\_final\\_id.pdf](https://www.ieee802.org/3/dj/comments/D3p0/8023dj_D3p0_comments_final_id.pdf)  
[https://www.ieee802.org/3/dj/comments/D3p1/8023dj\\_D3p1\\_comments\\_final\\_id.pdf](https://www.ieee802.org/3/dj/comments/D3p1/8023dj_D3p1_comments_final_id.pdf)

The following contribution was reviewed by the CRG:  
[https://www.ieee802.org/3/dj/public/26\\_09/dawe\\_3dj\\_03a\\_2609.pdf](https://www.ieee802.org/3/dj/public/26_09/dawe_3dj_03a_2609.pdf)

This new comment provides a different set of arguments that are addressed as follows.

Subclause 180.5.5 defines the criteria for signal detection of each lane and mapping that detection to management variable PMD\_signal\_detect\_i (effectively, 1 means power high enough, 0 means power not high enough).

180.5.4 specifies how the per-lane signal detect variables are aggregated into a single global management variable Global\_PMD\_signal\_detect.

Subclause 180.5.5 further notes "This standard imposes no response time requirements on the generation of the PMD\_signal\_detect\_i variable." This limitation is specifically on updating the variable defined in this subclause.

These subclauses do not require or suggest that either management variable is used for the purpose of APSU (ILT and/or RTS).

For the purposes of APSU, the variable rx\_ok indicates when a signal is good enough or not. It explicitly states the mechanism for detection is implementation specific: "The specific conditions for setting this variable to true or false are implementation dependent." There is no limitation on how the rx\_ok variable is updated. There is a requirement that (paraphrasing) after the transmitter signal is disabled for 100 ms rx\_ok shall be set to false. An implementation would have to ensure that it responds appropriately fast whatever mechanism it uses, perhaps the same as that used for signal\_detect. This should be sufficiently obvious to one skilled in the definition and implementation of such systems.

Straw poll #TF-1 (directional)

I support adding the following note in 180.5.5: "NOTE—Signal detect is not to be confused with rx\_ok (see 178B.7.2 and 178B.8.3)."

Yes: 13

No: 23

There is no consensus to make the proposed changes.

CI 179 SC 179.9.5.2 P440 L33 # R2-207

Djahanshahi, Hormoz

Microchip Technology Inc.

Comment Type E Comment Status R (Bp) (E)

In Table 179-13, the last entry is "BER", but in all other clauses and annexes this is "BERmax"

#### SuggestedRemedy

Change BER to BERmax in Table 179-13

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Although the suggested remedy is an improvement to the draft it is an editorial issue that may be addressed by referral to the IEEE SA Editorial staff.

This change is referred to IEEE SA Editorial staff for consideration during preparation for publication.

Cl 176C SC 176C.6.4.4 P 808 L 16 # R2-208

Djahanshahi, Hormoz

Microchip Technology Inc.

Comment Type E Comment Status A (B) (E)

In Table 176C-5, there is a typo in the BERadded value, i.e., "2.841x10<sup>-5</sup>" should have been "2.841x10<sup>-4</sup>", as per original submitted proposal in [https://www.ieee802.org/3/dj/public/24\\_09/brown\\_3dj\\_04\\_2409.pdf](https://www.ieee802.org/3/dj/public/24_09/brown_3dj_04_2409.pdf), slide #7. Alternatively, we can recalculate from BERadded=BERtotal-BERmax= 2.921x10<sup>-4</sup> - 8x10<sup>-6</sup> = 2.841x10<sup>-4</sup>. Also, we can see in subclause 176C.2, the correct BERadded is provided as "2.841x10<sup>-4</sup>".

**SuggestedRemedy**

Change text to "BERadded=2.841x10<sup>-4</sup>" in Table 176C-5

Response Response Status C

ACCEPT IN PRINCIPLE.  
This comment does not apply to the substantive changes between IEEE P802.3dj D3.1 and D3.2 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.  
However, the change proposed in the suggested remedy is an improvement to the draft. Implement the suggested remedy.