Cl **178B** *SC* **178B.8.2.1** *P* **894** *L* **7** # 1

Marris, Arthur — Self

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

"SQ" and "LP" are poor identifiers for mr_adj_los_mode enumerations as they could be interpreted as "square" and "link partner"

SuggestedRemedy

Rename "SQ" to "SQUELCH" and "LP" to "LOCAL_PATTERN" in 178B.8.2.1, Figure 178B–10b, and Table 45–133e.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.8.9** *P* **426** *L* **31** # 2

Marris, Arthur — Self

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

Comment 409 against draft 3.0 capitalized "local_pattern". This was the correct thing to do as tx_mode enumerated values are in upper case in the base standard.

SuggestedRemedy

In Clauses 179, 180, 181, 182, and 183 capitalize the enumerated values for tx_mode.

Also on page 432 change "(i.e., coef_req is “Hold”)" to "(i.e., coef_req is “HOLD”)"

Capitalize ic_req values in Table 179–8 and Table 179–9

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.272** *P* **18** *L* # 3

Hajduczenia, Marek — RG Nets

Comment Type **E** *Comment Status* **X**

D3.1 renamed Table 45-212u and its register-row descriptions/variables from generic "PMA test block error bin" to "PMA transmit test block error bin" (variable suffix _tx_), but the enclosing narrative was not updated. The subclause heading 45.2.1.272 ("PMA test block error bin counter registers"), the descriptive and intro sentences on p126, the ToC entry (p18), and the 45.8 register-address summary (p78) all still read generic "PMA test block". With a tx/rx register split present (rx registers 1.3308+ also map to 45.2.1.272), the lone "transmit"-titled table does not match its generic-named subclause and no parallel receive table is shown. In D3.0 (Table 45-212t, 45.2.1.271) everything was consistently generic.

SuggestedRemedy

Make naming consistent across the subclause: either (a) keep "PMA transmit" on the tx table, add a matching "PMA receive test block" table/text for the _rx_ registers, and update the 45.2.1.272 heading and intro to describe both directions; or (b) revert Table 45-212u title and row descriptions to generic "PMA test block". In either case align the heading (45.2.1.272), the p126 narrative, the ToC (p18), and the 45.8 summary row (p78).

Proposed Response *Response Status* **O**

Cl **120** *SC* **120** *P* **203** *L* # 4

Hajduczenia, Marek — RG Nets

Comment Type **E** *Comment Status* **X**

On D3.1 pages 203 and 204 the running header/footer carries the wrong project designation: header "IEEE Draft P802.3df/D3.1" and footer "IEEE P802.3df 400 Gb/s and 800 Gb/s Ethernet Task Force". Adjacent dj pages (200-202, 205-209) correctly read "IEEE Draft P802.3dj/D3.1" and "IEEE P802.3dj 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Task Force". In D3.0 both pages were correct; the D3.1 date-update edit introduced the stale "df" designation.

SuggestedRemedy

Correct the page 203 and 204 header to "IEEE Draft P802.3dj/D3.1" and footer to "IEEE P802.3dj 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet Task Force" to match all adjacent pages.

Proposed Response *Response Status* **O**

Cl **171** *SC* **171.6.1** *P* **239** *L* # 5

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

The where-clause for tx_am_sf was botched in the D3.0->D3.1 edit - it seems that the "where" statement is missing and the newly inserted text should be part of the "tx_am_sf" variable definition, and not as a self standing text

SuggestedRemedy

Fix per comment + the same issue in 171.6.2

Proposed Response *Response Status* **O**

Cl **177** *SC* **177.5.8** *P* **370** *L* **20** # 6

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

Missing space in newly inserted sentence: "from the120-bit block multiplexer" -- "the" is run together with "120-bit". This text is new in D3.1 and appears in 177.5.8 Convolutional deinterleaver.

SuggestedRemedy

Change "from the120-bit block multiplexer" to "from the 120-bit block multiplexer".

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* **404** *L* **46** # 7

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

In Table 178-13 (Channel characteristics summary), the "Maximum AC-coupling 3 dB corner frequency" row has a blank Reference cell. In D3.0 it cited 178.10.5. The D3.1 renumbering shifted AC-coupling to 178.10.4 and other rows were updated (e.g., SCMRCH 178.10.6->178.10.5), but this row's Reference was emptied rather than updated. Every other row carries a Reference. The blank also appears in the duplicate at p812.

SuggestedRemedy

Set the Reference cell of the "Maximum AC-coupling 3 dB corner frequency" row in Table 178-13 to 178.10.4 (also at the p812 duplicate).

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.10.3.3** *P* **409** *L* **47** # 8

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

In the "where" list, RLcd(f) cites sCD11(f) as "defined in (176D.8.3)", but 176D.8.3 is the parent subclause "Return loss specifications". sCD11(f) is defined in the child subclause 176D.8.3.3 "Mixed-mode reflection coefficients". The parallel Clause 179 reference on p445 and sibling definitions (RLcc/RLdc, p437/p438) correctly cite 176D.8.3.3.

SuggestedRemedy

Change "(176D.8.3)" to "(176D.8.3.3)" to point to the precise defining subclause, matching the parallel Clause 179 reference on p445.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.8.9** *P* **426** *L* **31** # 9

Hajduczenia, Marek RG Nets

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

The tx_mode enumerated values were renamed to uppercase (TRAINING, LOCAL_PATTERN, FILL, DATA) in the definition at 178B.8.3.1 (p899), but five PMD body-text references still use the old lowercase value: "tx_mode = local_pattern" on p426, p470, p509, p541, and p571. Additionally, the newly added FILL entry in the definition list (p899) lacks a terminating period ("FILL: transmit either training frames or LOCAL_PATTERN"), unlike the sibling TRAINING/LOCAL_PATTERN/DATA entries.

SuggestedRemedy

Update the five body-text references to "tx_mode = LOCAL_PATTERN" (p426, p470, p509, p541, p571) to match the renamed enumeration, and add a terminating period to the FILL definition on p899.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.9.4.8.2** *P* **436** *L* **35** # 10

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

Stray doubled closing parenthesis in the ERL substitution bullets. In 179.9.4.8.2 (p436): "the transmitter sDC22(f))." and in 179.11.3.2 (p448): "the channel sCD11(f))." each have only one opening paren, so the second ")" is stray. Adjacent bullets in the same lists correctly use a single paren (e.g., sCD11(f). / sCD22(f).). The defect also recurs at the parallel s-parameter bullets on p836 and p923.

SuggestedRemedy

Remove the extra closing parenthesis in each affected bullet (e.g., "sDC22(f).", "sCD11(f).") on p436 and p448, and apply the same fix to the parallel occurrences on p836 and p923.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.11.2** *P* **448** *L* **7** # 11

Hajduczenia, Marek RG Nets

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

A new normative shall-requirement for cable assembly fitted insertion loss (added per comment I-168) computes the value using the 93A.3 procedure with fmin = 0.01 GHz, fmax = 67 GHz, and Df = 0.01 GHz. An accompanying Editor's note states the I-168 resolution did not provide these parameters and the editor inferred them from 178A.1.3. The inferred values are unconfirmed: 178A.1.3 specifies only a measurement sweep range (>=10 MHz to >=67 GHz), not 93A.3 fitting parameters, and a related fitted-IL computation on p921 uses fmin = 0.05 GHz, conflicting with the 0.01 GHz used here.

SuggestedRemedy

WG to confirm the intended fmin/fmax/Df for the 93A.3 fitted insertion loss calculation in 179.11.2 and either ratify or correct the inferred values (note the fmin discrepancy vs. 0.05 GHz on p921), then resolve and remove the Editor's note.

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* **484** *L* **34** # 12

Hajduczenia, Marek RG Nets

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

Figure 180-11 still labels the nominal sub-eye threshold levels Pth1/Pth2/Pth3, but the surrounding text and Equations (180-4), (180-5), (180-6) were renamed in D3.1 to P0,th1/P0,th2/P0,th3. The figure (which the text says illustrates these thresholds) was not updated, mismatching the equations.

SuggestedRemedy

Update the Figure 180-11 threshold labels from Pth1/Pth2/Pth3 to P0,th1/P0,th2/P0,th3 to match Equations (180-4) through (180-6) and the text on p484.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **485** *L* **17** # 13

Hajduczenia, Marek RG Nets

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

D3.1 introduces a new unresolved Editor's note: "The variable yi in the following text is not the same as yn defined above, but rather appears to represent samples of the vertical histogram of yn...". This is an open nomenclature placeholder acknowledging the symbol usage (yi vs yn) is not finalized and should be resolved before publication.

SuggestedRemedy

Resolve the yi/yn nomenclature ambiguity (clarify or rename the histogram-sample variable so it is distinct from yn) and remove the Editor's note, or carry it explicitly as an unresolved-comment item.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **42** # 14

Hajduczenia, Marek RG Nets

Comment Type **ER** *Comment Status* **X**

In subclause 180.9.8.2 (Test functional symbol error histogram), the TFSEH is said to be "measured using a functional receiver as defined in 180.9.8.1 using the method defined in 180.9.8.2" -- the subclause references itself as its own measurement method. This self-reference was introduced by the D3.0->D3.1 renumbering (D3.0 referenced 180.9.9.1 and 180.9.9.2). The actual measurement method is 174A.9.3, as cited by the parent subclause 180.9.8.

SuggestedRemedy

Change "using the method defined in 180.9.8.2" to "using the method defined in 174A.9.3" to point to the actual measurement method (consistent with the parent 180.9.8).

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **11** # 15

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

The new slope-check NOTEs in 180.9.14 (p492) and 180.9.15 (p494) have unbalanced parentheses: "(log10(Hm(k)) - log10(Hm(4)) / (k - 4) should be less than (log10(Hm(4)) - log10(Hm(2)) / 2". Each leading "(" is never closed, making the scope of the division ambiguous. The document's own equivalent text on p398 and p439 uses correctly bracketed numerator differences. The same defect recurs on p494, p523, p554, p555, and p587.

SuggestedRemedy

Group the numerator differences against the divisors so the expressions read ((log10(Hm(k)) - log10(Hm(4))) / (k - 4)) and ((log10(Hm(4)) - log10(Hm(2))) / 2), consistent with p398/p439. Apply to all occurrences (p492, p494, p523, p554, p555, p587).

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.15** *P* **493** *L* **45** # 16

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

The newly inserted bullet reads "greater than 200MHz" with no space between value and unit, contrary to IEEE/SI style (the draft uses "4 MHz", "27 MHz" elsewhere). The same defect repeats in the parallel inserted bullets on p523, p555, and p587.

SuggestedRemedy

Change "greater than 200MHz." to "greater than 200 MHz." on p493, and apply the same fix to the identical bullets on p523, p555, and p587.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.8** *P* **521** *L* **3** # 17

Hajduczenia, Marek RG Nets

Comment Type **ER** *Comment Status* **X**

The sentence "The transmitter functional symbol error histogram is measured using the method defined in 181.9.8" is a circular self-reference (181.9.8 is the subclause containing the sentence). In D3.0 the corresponding text referenced 180.9.9, and the parallel D3.1 clauses 182 and 183 correctly reference 180.9.8. The D3.0->D3.1 renumbering incorrectly applied the 181 prefix.

SuggestedRemedy

Change "measured using the method defined in 181.9.8" to "measured using the method defined in 180.9.8".

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.5.7** *P* **540** *L* **30** # 18

Hajduczenia, Marek RG Nets

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

The D3.1 rename PMD_global_transmit_disable -> Global_PMD_transmit_disable was applied to Clauses 179/180/181/185/187 and to the Clause 182/183 variable-mapping PICS tables (p558 Table 182-18, p589), but was missed in the Clause 182/183 body text and PICS detail rows, which still use the old name: 182.5.7 body (p540, two sentences), Clause 182 PICS item F13 (p561), 183.5.7 body (p570), and Clause 183 PICS item F14 (p592). The same variable is now named two ways within these clauses.

SuggestedRemedy

Change PMD_global_transmit_disable to Global_PMD_transmit_disable in the 182.5.7 body (p540), Clause 182 PICS F13 (p561), the 183.5.7 body (p570), and Clause 183 PICS F14 (p592), so all references match the renamed PICS table entries (p558, p589) and the other PMD clauses.

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.9.8** *P* **552** *L* **44** # 19

Hajduczenia, Marek RG Nets

Comment Type **ER** *Comment Status* **X**

In 182.9.8 (p552) and 183.9.8 (p585) the renumbered cross-references are wrong: the text cites Equation (180-5) and Equation (180-6) for Tx_DUT_power_budget and Channel_insertion_loss, but in D3.1 those are the PAM4 threshold equations Pth2=Pave and Pth3 (p484-485), unrelated to the power budget. The power-budget quantities are defined by Equation (180-18) and Equation (180-19) (p488-489). The parallel Clause 181 functional-test text on p521 correctly cites (180-18)/(180-19). The D3.0 references (180-28)/(180-29)/(180-31) were mis-renumbered.

SuggestedRemedy

In 182.9.8 (p552) and 183.9.8 (p585), change "Equation (180-5)" to "Equation (180-18)" and "Equation (180-6)" to "Equation (180-19)", matching the power-budget definitions in 180.9.8.1 and the parallel Clause 181 text on p521.

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.3.1.4** *P* **626** *L* **9** # 20

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

In the new subclause 185.3.1.4 "PMD:IS_SIGNAL.request(SIGNAL_OK)", the body text names the wrong primitive: "The PMD:IS_SIGNAL.indication primitive is generated by the 800GBASE-LR1 Inner FEC...". It should refer to the .request primitive, consistent with the heading and the 185.3.1.4.1 Semantics section. This is leftover copy from the .indication subclause (185.3.1.3).

SuggestedRemedy

Change "The PMD:IS_SIGNAL.indication primitive is generated..." to "The PMD:IS_SIGNAL.request primitive is generated by the 800GBASE-LR1 Inner FEC to indicate the status of the transmit function via the SIGNAL_OK parameter."

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.5.6** *P* **629** *L* **16** # 21

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

The sentence newly added to 185.5.6 PMD reset function, "PMD reset shall reset the ILT and RTS functions associated with the PMD (see 185.5.11)," terminates with a comma and is immediately followed by the next subclause heading (185.5.7), leaving an incomplete/dangling sentence. The same trailing-comma pattern recurs in the parallel clauses at p469/508/540/570 (180/181/182/183.5.12).

SuggestedRemedy

Replace the trailing comma with a period: "...associated with the PMD (see 185.5.11)." Apply the same fix to the parallel clauses on p469, p508, p540, and p570.

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.5.11** *P* **629** *L* **49** # 22

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

New subclause heading 185.5.11 reads "Autonomous path startup functions (APSU) functions" with "functions" duplicated. All parallel clauses (178.8.9, 179.8.9, 180.5.12, 181.5.12, 182.5.12, 183.5.12, 187.5.11) use "Autonomous path startup (APSU) functions".

SuggestedRemedy

Change heading 185.5.11 (and its ToC entry on p40) to "Autonomous path startup (APSU) functions".

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.1.3.4** *P* **651** *L* **15** # 23

Hajduczenia, Marek RG Nets

Comment Type **ER** *Comment Status* **X**

Two unresolved "(XREF)" cross-reference placeholders shipped in new D3.1 text on p651: one in the sentence mapping FEC:IS_SIGNAL.request to the MNT bits (before Table 186-1) and one in the sentence about the SIL function reading the received MNT bits (before Table 186-2).

SuggestedRemedy

Replace each "(XREF)" with the correct cross-reference to the subclause that defines the MNT field/bits.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.1.3.4** *P* **652** *L* **1** # 24

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

In new D3.1 text on p652, the primitive name is written "FEC:IS_SIGNALindication(SIGNAL_OK)", missing the period between SIGNAL and indication. The correct primitive name (used 165 times elsewhere in D3.1) is FEC:IS_SIGNAL.indication.

SuggestedRemedy

Change "FEC:IS_SIGNALindication(SIGNAL_OK)" to "FEC:IS_SIGNAL.indication(SIGNAL_OK)".

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.6.1** *P* **690** *L* **21** # 25

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

PHY name typo in the rewritten path-delay paragraph: "800BASE-ER1 FEC sublayer" is missing the 'G'; the correct name "800GBASE-ER1" is used consistently elsewhere in the same paragraph on p690.

SuggestedRemedy

Change "800BASE-ER1 FEC sublayer" to "800GBASE-ER1 FEC sublayer".

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* **693** *L* **26** # 26

Hajduczenia, Marek RG Nets

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

The newly added IFEC_hi_ser row in Table 186-10 has an empty Variable reference (subclause) cell, unlike all adjacent rows which cite 186.2.3.1.3 or 186.2.3.5.2. The variable IFEC_hi_ser is not defined or referenced anywhere in Clause 186. A new Editor's note on the same page acknowledges this gap (added per comment I-11, no reference in clause). This unresolved open item/placeholder should not remain in a recirculation draft.

SuggestedRemedy

Resolve before publication: either add a Clause 186 definition/usage of IFEC_hi_ser and populate its subclause reference in Table 186-10, or remove the IFEC_hi_ser row; then delete the Editor's note.

Proposed Response *Response Status* **O**

Cl **176C** *SC* **176C.6.4.5.2** *P* **810** *L* **38** # 27

Hajduczenia, Marek RG Nets

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

The jitter-adjustment sentence was changed from "Table 176C-2 for package A" (D3.0) to "Table 176C-2 for package class A" (D3.1). The qualifier does not resolve: Table 176C-2 (p803) lists single JH4u/JHRMS limits (0.118/0.023 UI) with no class A/class B differentiation, so "for package class A" references a per-class entry that does not exist in that table.

SuggestedRemedy

Change "as close as practical to their limits in Table 176C-2 for package class A" to "as close as practical to their limits in Table 176C-2", dropping the per-class qualifier that has no corresponding distinction in Table 176C-2.

Proposed Response *Response Status* **O**

Cl **176D** *SC* **176D.8.3.4** *P* **836** *L* **45** # 28

Hajduczenia, Marek RG Nets

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

The new body text of 176D.8.3.4 cites the wrong RL mask equations, off by one. It says common-mode-to-common-mode is satisfied by Equation (179-15) and common-mode-to-differential-mode by Equation (179-16). However Equation (179-14) is RLcc and Equation (179-15) is RLdc; Equation (179-16) is not the mask used here. Table 176D-9 (p837) and the parallel Clause 179 text (p436) both correctly pair ERLCC with Equation (179-14) and ERLDC with Equation (179-15), so the body contradicts its own table.

SuggestedRemedy

In the 176D.8.3.4 body, change "Equation (179-15)" to "Equation (179-14)" for the ERLCC sentence, and "Equation (179-16)" to "Equation (179-15)" for the ERLDC sentence, to match Table 176D-9 and the parallel Clause 179 text.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.7.8.4** *P* **891** *L* **26** # 29

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

In Figure 178B-12, two coef_sts assignments read "COEFFICIENT AT LIMIT AND QUALIZATION LIMIT" (missing leading E in EQUALIZATION). This does not match the enumerated value defined in 178B.9 (p897): "COEFFICIENT AT LIMIT AND EQUALIZATION LIMIT". The correct spelling renders fine elsewhere on the same page (e.g., "NO EQUALIZATION").

SuggestedRemedy

In both occurrences on p891, change "QUALIZATION" to "EQUALIZATION" so each assignment reads "coef_sts = COEFFICIENT AT LIMIT AND EQUALIZATION LIMIT".

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* **902** *L* **10** # 30

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

The state box in Figure 178B-10b is labeled "WAIT_DATAPTH", a misspelling of "WAIT_DATAPATH". This is a newly added state in the D3.1 state-diagram rework; the correct spelling appears nowhere in D3.1, so the state name is unresolvable/inconsistent.

SuggestedRemedy

Change the state name in Figure 178B-10b from "WAIT_DATAPTH" to "WAIT_DATAPATH".

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* **929** *L* **32** # 31

Hajduczenia, Marek RG Nets

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

After the 179B.4 restructuring, two PICS items cite the wrong subclause. TF5 (Mated test fixtures common-mode to common-mode return loss, Per Equation (179B-6)) cites 179B.4.4, which is now "Mated test fixtures integrated crosstalk noise" (p927). TF6 (Per Equation (179B-7), common-mode to differential-mode return loss) cites 179B.4.3, which is now the common-mode to differential-mode insertion loss subclause (Equation (179B-8)). Both return-loss requirements and Equations (179B-6)/(179B-7) reside in 179B.4.2.2 "Mated test fixtures modal return loss specifications" (p923). The equation numbers were updated but the subclause references were not.

SuggestedRemedy

In Table 179B-5, change the Subclause cell of both TF5 and TF6 to 179B.4.2.2 (the modal return loss specifications subclause containing Equations (179B-6) and (179B-7)).

Proposed Response *Response Status* **O**

Cl **179D** *SC* **179D.1.1** *P* **941** *L* **34** # 32

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

In the newly added clause referencing Table 179D-5, the PMD type is misspelled "1.6TBAESE-CR8" (letters transposed) instead of "1.6TBASE-CR8". The correct spelling appears elsewhere on the same page.

SuggestedRemedy

Change "Table 179D-5 for 1.6TBAESE-CR8" to "Table 179D-5 for 1.6TBASE-CR8".

Proposed Response *Response Status* **O**

Cl **180A** *SC* **180A.4** *P* **947** *L* **18** # 33

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

Two defects in rewritten D3.1 text. (1) Misplaced closing parenthesis in the 2-lane PMD sentence: "(400GBASE-DR2 or 400GBASE-DR2-2 is implemented with this optical connector)," should close after the PMD list, as in the three sibling paragraphs on the same page and the parallel paragraph on p945. (2) Grammar error: "When an single 8-lane PMD (1.6TBASE-DR8 or 1.6TBASE-DR8-2)..." should use "a".

SuggestedRemedy

(1) Move the closing parenthesis: "...(400GBASE-DR2 or 400GBASE-DR2-2) is implemented with this optical connector, ...". (2) Change "When an single 8-lane PMD" to "When a single 8-lane PMD".

Proposed Response *Response Status* **O**

Cl **186A** *SC* **186A.3** *P* **963** *L* **25** # 34

Hajduczenia, Marek RG Nets

Comment Type **E** *Comment Status* **X**

Missing word "in" in newly inserted test-vector sentence: "for the 800GBASE-ER1 FEC sublayer as shown Figure 186A-1." The parallel VP4 sentence on p966 correctly reads "as shown in Figure 186A-2."

SuggestedRemedy

Change "as shown Figure 186A-1" to "as shown in Figure 186A-1".

Proposed Response *Response Status* **O**

Cl **184** *SC* **184.12.4.3** *P* **620** *L* **12** # 35

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

Sec. 184.12.4.3 and Sec. 184.12.4.6 are both sub-sections titled 'Management' under Sec. 184.12.4, each independently defining items M1 and M2 with the same feature names and the same Sec. 184.11 reference. The duplicate sections make the PICS proforma ambiguous -- a reader cannot determine which Status values are normative. The M1 Status values differ between the two sections ('O' vs '!MD:M'), and the M2 Value/Comment is present in one but absent in the other.

SuggestedRemedy

Remove Sec. 184.12.4.3 (p. 619, lines 12-20). Retain Sec. 184.12.4.6 (p. 620) as the sole Management sub-section, correcting its M2 Value/Comment field and renaming it Sec. 184.12.4.3 to restore sequential numbering.
Add 'Table 184-6 and Table 184-7' to the Value/Comment field of M2 in Sec. 184.12.4.6.

Proposed Response *Response Status* **O**

Cl **184** *SC* **184.12.4.2** *P* **619** *L* **37** # 36

Bruckman, Leon NVIDIA

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

Sec. 184.6.1 (Receive signal sampling) contains a normative 'shall': 'Each Rx_XI, Rx_XQ, Rx_YI, and Rx_YQ signal shall be sampled at a sampling rate equal to or greater than the 800GBASE-LR1 signaling rate' (p. 607, line 43). The Receive Function PICS table (Sec. 184.12.4.2) starts at RF1 for Sec. 184.6.2, skipping Sec. 184.6.1 entirely. This 'shall' requirement is not represented by any PICS conformance item.

SuggestedRemedy

Add a new PICS entry (e.g., RF0) to Sec. 184.12.4.2 for Sec. 184.6.1 'Receive signal sampling,' Status M, confirming that the ADC sampling rate meets the minimum 800GBASE-LR1 signaling rate requirement.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.11** *P* **909** *L* **25** # 37

Bruckman, Leon NVIDIA

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

Sec. 178B.9 (Training retimers) contains a normative 'shall': 'The local clock shall meet the signaling rate range specified for the interface' (p. 904, line 4). There is no corresponding PICS entry in the Annex 178B PICS proforma.

SuggestedRemedy

Add a new PICS entry (e.g., RT1) in Sec. 178B.11 for Sec. 178B.9, Status M, confirming the local clock signaling rate requirement.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.11.4** *P* **909** *L* **47** # 38

Bruckman, Leon NVIDIA

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

Sec. 178B.10 states 'If the MDIO interface is not implemented, an alternate mechanism to access management variables shall be provided' (p. 905, line 37). The Sec. 178B.11.4 Management PICS table has only M1 for MDIO mapping (MD:M) with no entry for alternate access. Sec. 184.12 addresses this correctly with a dedicated '!MD:M' item; Annex 178B has no equivalent.

SuggestedRemedy

Add a new PICS item M2 to Sec. 178B.11.4 with Status '!MD:M', 'Alternate access to management variables when MDIO not implemented,' referencing Sec. 178B.10.

Proposed Response *Response Status* **O**

Cl **174** *SC* **174.1.4** *P* **275** *L* **35** # 39

Bruckman, Leon NVIDIA

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

Tables cited in reversed order. The text reads 'Table 174-3 and Table 174-2 specify the correlation between PHY types and clauses.' Per standard document convention, tables are cited in ascending numerical order. Table 174-2 (electrical PHY types) appears first in the document, followed by Table 174-3 (optical PHY types).

SuggestedRemedy

Change 'Table 174-3 and Table 174-2' to 'Table 174-2 and Table 174-3'.

Proposed Response *Response Status* **O**

Cl **174** *SC* **174.2.5** *P* **277** *L* **37** # 40

Bruckman, Leon NVIDIA

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

Wrong annex reference for the 1.6TAUI-16 C2M. The text states 'The 1.6TAUI-16 C2M is specified in Annex 176D,' but Annex 176D covers 200GAUI-1 C2M, 400GAUI-2 C2M, 800GAUI-4 C2M, and 1.6TAUI-8 C2M -- the 8-lane variant, not the 16-lane. The immediately following line (line 41) also references Annex 176D for 1.6TAUI-8 C2M (correct), making the duplication obvious. The 1.6TAUI-16 C2M is consistently referenced as Annex 120G throughout the document (TOC, line 3649, lines 17530, 33782, 38873).

SuggestedRemedy

Change 'The 1.6TAUI-16 C2M is specified in Annex 176D.' to 'The 1.6TAUI-16 C2M is specified in Annex 120G.'

Proposed Response *Response Status* **O**

Cl **174** *SC* **174.4** *P* **283** *L* **35** # 41

Bruckman, Leon NVIDIA

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

Table 174-4 AUI row: Name '1.6TAUI-4 C2C or C2M' -- the interface 1.6TAUI-4 does not exist; the standard defines 1.6TAUI-8 and 1.6TAUI-16.

SuggestedRemedy

Replace the row with: Sublayer='1.6TAUI-8 C2C or C2M component', bit times=73 728, pause_quanta=144, ns=46.08. Notes column unchanged.

Proposed Response *Response Status* **O**

Cl **174** *SC* **174.5** *P* **287** *L* **28** # 42

Bruckman, Leon NVIDIA

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

Table 174-6 footnote e states '1 UI equals 8.31543 ps at PMD lane signaling rate of 113.4375 GBd.' The correct value is 8.81543 ps (1 / 113.4375e9 = 8.81543e-12 s). The table body confirms the error: SP3=68 UI and SP4=386 UI are consistent only with 8.81543 ps (0.6 ns / 8.81543 ps = 68.1; 3.4 ns / 8.81543 ps = 385.7), not with 8.31543 ps (which gives 72 and 409). The same '8.31543' typo appears in Table 116-6 (doc line 13668) and Table 169-6 (doc line 16352).

SuggestedRemedy

In Table 174-6 footnote e, change '8.31543 ps' to '8.81543 ps'. Apply the same correction to the identical footnote in Table 116-6 and Table 169-6.

Proposed Response *Response Status* **O**

Cl **171** *SC* **171.2** *P* **232** *L* **29** # 43

Bruckman, Leon NVIDIA

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

Nomenclature error: the text refers to 'DTE 1.6XS' (missing the letter 'T'). The correct standardized sublayer name is 'DTE 1.6TXS' throughout all other uses in this clause and document.

SuggestedRemedy

Change 'DTE 1.6XS' to 'DTE 1.6TXS'.

Proposed Response *Response Status* **O**

Cl **171** *SC* **171.7** *P* **241** *L* **26** # 44

Bruckman, Leon NVIDIA

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

Incorrect figure insertion instruction: the amendment text says 'Insert new Figure 171-3a after Figure 173-3' but Figure 171-3a logically belongs in Clause 171 and should be inserted after Figure 171-3, not after Figure 173-3 (which is in Clause 173, page 273).

SuggestedRemedy

Change 'Insert new Figure 171-3a after Figure 173-3' to 'Insert new Figure 171-3a after Figure 171-3'.

Proposed Response *Response Status* **O**

Cl **176** *SC* **176.6** *P* **342** *L* **1** # 45

Bruckman, Leon NVIDIA

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

Section heading '176.6' reads: '200GBASE-R 1:1, 400GBASE-R 2:2, 800GBASE-R 4:4, 1.6TBASE-R 8:8, 1.6TBASE 16:16 PMAs'. The last entry is '1.6TBASE 16:16 PMAs' -- the '-R' suffix is missing from the PHY type name. All other uses in the document correctly use '1.6TBASE-R 16:16 PMA' (e.g., Table 176-3 footnote a, Table 176-4 heading).

SuggestedRemedy

Change '1.6TBASE 16:16 PMAs' to '1.6TBASE-R 16:16 PMAs' in the section heading.

Proposed Response *Response Status* **O**

Cl **176** *SC* **176.6** *P* **343** *L* **36** # 46

Bruckman, Leon NVIDIA

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

Figure 176-13 legend reads 'n = 1 (200GBASE-R), 2 (400GBASE-R), 4 (800GBASE-R), or 8 (1.6TBASE-R)'. This omits n = 16 for the 1.6TBASE-R 16:16 PMA, even though the figure caption and section heading explicitly include the 16:16 PMA.

SuggestedRemedy

Change the legend to: 'n = 1 (200GBASE-R), 2 (400GBASE-R), 4 (800GBASE-R), 8 (1.6TBASE-R 8:8 PMA), or 16 (1.6TBASE-R 16:16 PMA)'.

Proposed Response *Response Status* **O**

Cl **177** *SC* **177.7.3** *P* **374** *L* **7** # 47

Bruckman, Leon NVIDIA

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

Normative 'shall' statement references the wrong state diagram figure. The text reads: 'An Inner FEC Pad detection process as illustrated in the state diagram in Figure 177-13 shall be implemented...' Figure 177-13 is the Inner FEC self-synchronization state diagram. The pad detection state diagram is Figure 177-14. Implementations following this text literally would implement a second instance of the sync state diagram instead of the pad-lock process.

SuggestedRemedy

Replace 'Figure 177-13' with 'Figure 177-14' in the second sentence of 177.7.3.

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.1** *P* **387** *L* **47** # 48

Bruckman, Leon NVIDIA

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

Table 178-4 (Relationship between clauses and PHY types defined in Clause 178) lists the associated PCS clause for 1.6TBASE-KR8 as '172--1.6TBASE-R PCS'. Clause 172 is the 800GBASE-R PCS, not the 1.6TBASE-R PCS. The 1.6TBASE-R PCS is Clause 175. This is contradicted by 178.3 in the same clause, which correctly states 'the Clause 175 PCS for 1.6TBASE-KR8'. The 800GBASE-KR4 row in the same table correctly shows '172'.

SuggestedRemedy

Change '172--1.6TBASE-R PCS' to '175--1.6TBASE-R PCS' in Table 178-4.

Proposed Response *Response Status* **O**

Cl **177** *SC* **177.11.4.1** *P* **383** *L* **13** # 49

Bruckman, Leon NVIDIA

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

PICS table 177.11.4.1 (Transmit function) is missing entries for several mandatory functions. Sec. 177.4.1 states alignment marker lock 'is required for 200GBASE-R, 400GBASE-R, 800GBASE-R, and 1.6TBASE-R Inner FEC' (normative requirement). Sec. 177.6.1.2 states 'The Inner FEC shall include a PRBS31 test-pattern generator'; Sec. 177.6.1.5 uses 'shall' for the SSPRQ generator; Sec. 177.6.2.1 uses 'shall' for the PRBS31 checker; Sec. 177.6.1.1 and 177.6.2.3 contain additional 'shall' requirements for PRBS31-encoded-by-Inner-FEC modes. None of these mandatory items appear in the PICS proforma. Additionally, PICS item TF5 is labelled '8:1 PAM4 interleaving' but Sec. 177.4.6 is titled '8:1 bit-pair interleaving' -- these should match.

SuggestedRemedy

Add PICS items for: symbol demultiplexing/deskew (177.4.1, M); PRBS31 test-pattern generator (177.6.1.2, M); SSPRQ generator (177.6.1.5, M); PRBS31 checker (177.6.2.1, M); PRBS31-encoded-by-Inner-FEC TX mode (177.6.1.1, M); PRBS31-encoded-by-Inner-FEC RX mode (177.6.2.3, M). Also rename TF5 feature from '8:1 PAM4 interleaving' to '8:1 bit-pair interleaving' to match Sec. 177.4.6.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.1** *P* **419** *L* **17** # 50

Bruckman, Leon NVIDIA

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

Table 179-4 (Relationship between clauses and PHY types defined in Clause 179) lists the associated PCS clause for 1.6TBASE-CR8 as '172--1.6TBASE-R PCS'. Clause 172 is the 800GBASE-R PCS. The 1.6TBASE-R PCS is Clause 175. This is contradicted by 179.3, which correctly states 'the Clause 175 PCS for 1.6TBASE-CR8'. The 800GBASE-CR4 row in the same table correctly shows '172'.

SuggestedRemedy

Change '172--1.6TBASE-R PCS' to '175--1.6TBASE-R PCS' in Table 179-4.

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.6** *P* **390** *L* **14** # 51

Bruckman, Leon NVIDIA

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

Table 178-5 (delay constraints) footnote b states '256 ps for 1.6TBASE-KR8' as the pause_quantum value. For 1.6TBASE, 1 pause_quantum = 512 bit times x 0.625 ps/bit = 320 ps, per Clause 174 Table 174-4 footnote c which explicitly states '320 ps' for 1.6TBASE. The value 256 ps corresponds to a hypothetical 2 Tb/s system and is clearly a transcription error. Verification: Table 178-4 lists 232 pause_quanta for 118,784 bit times (118,784 / 512 = 232, correct), but 232 x 256 ps = 59.4 ns not 74.24 ns; only 232 x 320 ps = 74.24 ns is consistent with the ns column.

SuggestedRemedy

In footnote b of Table 178-5, change '256 ps for 1.6TBASE-KR8' to '320 ps for 1.6TBASE-KR8'.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.6** *P* **422** *L* **14** # 52

Bruckman, Leon NVIDIA

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

Table 179-5 (delay constraints) footnote b states '256 ps for 1.6TBASE-CR8' as the pause_quantum value. For 1.6TBASE, 1 pause_quantum = 320 ps (512 x 0.625 ps), per Clause 174 Table 174-4 footnote c. The value 256 ps is wrong: 232 x 256 ps = 59.4 ns, not 74.24 ns as shown in the table's ns column; 232 x 320 ps = 74.24 ns is consistent. The same '256 ps' error occurs in Table 178-4 footnote b (p. 389, line 14) for 1.6TBASE-KR8.

SuggestedRemedy

In footnote b of Table 179-5, change '256 ps for 1.6TBASE-CR8' to '320 ps for 1.6TBASE-CR8'.

Proposed Response *Response Status* **O**

Cl **169** *SC* **169.4** *P* **216** *L* **1** # 53

Bruckman, Leon NVIDIA

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

Table 169-4 lists 96 pause_quanta for all seven 800GBASE 4-lane PMD rows: 800GBASE-KR4, 800GBASE-CR4, 800GBASE-DR4, 800GBASE-FR4-500, 800GBASE-DR4-2, 800GBASE-FR4, and 800GBASE-LR4. The correct value is 116 pause_quanta: these rows all have 59,392 bit times and 74.24 ns. Verification: 59,392 / 512 = 116; 116 x 640 ps = 74.24 ns (640 ps = 1 pause_quantum at 800 Gb/s). With 96 pause_quanta: 96 x 640 ps = 61.44 ns, inconsistent with 74.24 ns. The individual PMD clause delay tables (178.6, 179.6, 180.4.1, 181.4.1, 182.4.1) all correctly state 116 pause_quanta for the same entries.

SuggestedRemedy

In Table 169-4, change 96 pause_quanta to 116 pause_quanta for all seven 800GBASE 4-lane PMD rows: 800GBASE-KR4, CR4, DR4, FR4-500, DR4-2, FR4, and LR4.

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.4.1** *P* **567** *L* **22** # 54

Bruckman, Leon NVIDIA

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

Clause 183.4.1 states the maximum delay is '59,392 bit times (96 pause_quanta or 74.24 ns)'. The value '96 pause_quanta' is arithmetically wrong: 59,392 bit times / 512 = 116 pause_quanta; 116 x 640 ps = 74.24 ns. With 96 pause_quanta: 96 x 640 ps = 61.44 ns, inconsistent with the stated 74.24 ns. All other 800GBASE 4-lane PMD delay subclauses (178.6, 179.6, 180.4.1, 181.4.1, 182.4.1) correctly state 116 pause_quanta. The error was copied from Table 169-4 which also has this bug.

SuggestedRemedy

Change '96 pause_quanta' to '116 pause_quanta' in 183.4.1.

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.1** *P* **534** *L* **35** # 55

Bruckman, Leon NVIDIA

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

Incorrect cross-reference in 182.1: 'the purpose of each 800 Gb/s PHY sublayer is summarized in 116.2.' Subclause 116.2 covers 200 Gb/s/400 Gb/s Ethernet sublayer purposes; 800 Gb/s sublayer purposes are summarized in 169.2. The analogous Clause 180.1 (closely related clause) correctly says '169.2'.

SuggestedRemedy

Change 'summarized in 116.2' to 'summarized in 169.2' in the 800 Gb/s sentence of 182.1.

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.3.1.4** *P* **626** *L* **11** # 56

Bruckman, Leon NVIDIA

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

Subclause title is 'PMD:IS_SIGNAL.request(SIGNAL_OK)' but the body text reads: 'The PMD:IS_SIGNAL.indication primitive is generated by the 800GBASE-LR1 Inner FEC to indicate the status of the transmit function via the SIGNAL_OK parameter.' The primitive name in the body is wrong -- it should be PMD:IS_SIGNAL.request (a request sent from the Inner FEC down to the PMD), not PMD:IS_SIGNAL.indication (which is the receive-direction primitive defined in the preceding subclause 185.3.1.3).

SuggestedRemedy

In the first sentence of 185.3.1.4, change 'The PMD:IS_SIGNAL.indication primitive' to 'The PMD:IS_SIGNAL.request primitive'.

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.5.11** *P* **629** *L* **49** # 57

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

Subclause title duplicates the word 'functions': '185.5.11 Autonomous path startup functions (APSU) functions'. All other PMD clauses (187.5.11, 180.5.12, etc.) use the consistent title 'Autonomous path startup (APSU) functions' without the leading 'functions' word.

SuggestedRemedy

Change '185.5.11 Autonomous path startup functions (APSU) functions' to '185.5.11 Autonomous path startup (APSU) functions'.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **15** # 58

Bruckman, Leon NVIDIA

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

Two unfilled cross-reference placeholders remain in the normative text: (1) p. 650 line 15: 'FEC:IS_SIGNAL.request is mapped to the MNT bits (XREF) as shown in Table 186-1.' (2) p. 650 line 34: 'information from the received MNT bits (XREF) to determine the status...' Both placeholders should reference the subclause that defines the MNT bit mapping, which is 186.2.3.5.11.

SuggestedRemedy

Replace both '(XREF)' placeholders with '(see 186.2.3.5.11)'.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.3.5.11** *P* **660** *L* **1** # 59

Bruckman, Leon NVIDIA

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

Off-by-one error in CSTAT bit range: the text states 'Bits 5-7 are used to convey the information encoded in am_sf<2:0>' but the code table immediately below assigns CSTAT<6>, CSTAT<7>, and CSTAT<8> to am_sf<0>, am_sf<2>, and am_sf<1> respectively. If CSTAT uses 1-based indexing (bits 1-8), then 'bits 5-7' corresponds to CSTAT<5>, <6>, <7> -- not <6>, <7>, <8>. The same error appears in 186.2.4.7.6.

SuggestedRemedy

In both 186.2.3.5.11 and 186.2.4.7.6, change CSTAT<6>, <7>, <8> to: CSTAT<5>, <6>, <7>.

Proposed Response *Response Status* **O**

Cl **187** *SC* **187.3.1** *P* **703** *L* **17** # 60

Bruckman, Leon NVIDIA

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

Three instances of incorrect primitive names in Clause 187.3.1 service interface semantics: (1) 187.3.1.1.2 'When generated' (p. 703 l.17): 'The 800GBASE-ER1 PMA generates PMA_UNITDATA.request continuously.' (2) 187.3.1.1.3 'Effect of receipt' (p. 702 l.21): 'The effect of receipt of the PMA_UNITDATA.request by the PMD...' (3) 187.3.1.2.2 'When generated' (p. 702 l.38): 'The PMD generates PMA_UNITDATA.indication continuously.' The correct primitive name at the PMD service interface is 'PMD:IS_UNITDATA.request/.indication', not 'PMA_UNITDATA.request/.indication'.

SuggestedRemedy

(1) Change 'PMA generates PMA_UNITDATA.request' to 'PMA generates PMD:IS_UNITDATA.request'. (2) Change 'receipt of the PMA_UNITDATA.request' to 'receipt of the PMD:IS_UNITDATA.request'. (3) Change 'PMD generates PMA_UNITDATA.indication' to 'PMD generates PMD:IS_UNITDATA.indication'.

Proposed Response *Response Status* **O**

Cl **175** *SC* **175.1.4** *P* **289** *L* **23** # 61

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

Typo: 'The lower interface of the PCS connects to a PMA or Inner FEC though the service interface below the PCS.' -- 'though' should be 'through'. The immediately preceding sentence correctly uses 'through'.

SuggestedRemedy

Change 'though the service interface' to 'through the service interface'.

Proposed Response *Response Status* **O**

Cl **175** *SC* **175.2.4.6** *P* **294** *L* **31** # 62

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

Typo: 'the PRBS9 pad at the end of the alignment maker group are ignored on receive.' -- 'maker' should be 'marker'.

SuggestedRemedy

Change 'alignment maker group' to 'alignment marker group'.

Proposed Response *Response Status* **O**

Cl **177** *SC* **177.5.8** *P* **370** *L* **19** # 63

Bruckman, Leon NVIDIA

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

Redundant word: 'The values of Q are shown in table Table 177-3.' -- 'table' appears twice (lowercase then capitalized). The corresponding transmit sentence in 177.4.2 correctly reads '...shown in Table 177-3.'

SuggestedRemedy

Delete the lower-case 'table': '...shown in Table 177-3.'

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.1** *P* **461** *L* **10** # 64

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

Grammatical error: 'These PMDs types provide point-to-point...' -- 'PMDs' combined with 'types' is incorrect. Clause 183.1 correctly reads 'These PMD types provide...' The same error appears in Clause 182.1 (p. 530, line 9).

SuggestedRemedy

Change 'These PMDs types provide' to 'These PMD types provide' in 180.1 and 182.1.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.1** *P* **503** *L* **8** # 65

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

Two subject-verb disagreements: (1) 'The optical signals generated by this PMD type is modulated' -- plural 'signals' requires 'are modulated'. (2) 'The PMD provide point-to-point' -- singular 'PMD' requires 'provides'.

SuggestedRemedy

(1) Change 'is modulated' to 'are modulated'. (2) Change 'The PMD provide' to 'The PMD provides'.

Proposed Response *Response Status* **O**

Cl **177** *SC* **177.11.4.4** *P* **384** *L* **13** # 66

Bruckman, Leon NVIDIA

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

Missing feature name for TIM1

SuggestedRemedy

Add feature name to TIM1

Proposed Response *Response Status* **O**

Cl **174** *SC* **174.2.13** *P* **279** *L* **7** # 67

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

Although in the base standard in similar setions titles the word "Degrade" is capitalized, it seems not necessary.

SuggestedRemedy

Change: "FEC Degrade" to "FEC degrade"

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **652** *L* **1** # 68

Bruckman, Leon NVIDIA

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

It is not clear what is the payload carried in the GMP frame when the MNT field is not OK and what will be the value of the 257-bit data blocks extracted at the receiver from the GMP payload in this case. Section 186.2.4.7.3 specifies the payload for the case of: "When any of the GID, IID, MAP, PT, or MSI values do not match the expected value, the payload area of the frame is replaced with local fault ordered sets." and section 186.2.4.8 specifies that: "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."

SuggestedRemedy

Specify that in case of MNT # OK the GMP payload carries local faults, and the 257-bit blocks recovered are replaced with link fault ordered set.

Proposed Response *Response Status* **O**

Cl **177A** *SC* **177A** *P* **849** *L* **7** # 69

Bruckman, Leon NVIDIA

Comment Type **E** *Comment Status* **X**

VPn arrows are different in the 3 annexes with test vectors 177A, 184A and 186A

SuggestedRemedy

Use the VPn arrows from Annex 184A for annexes 177A and 186A.

Proposed Response *Response Status* **O**

Cl **176C** *SC* **176C.5** *P* **802** *L* **14** # 70

Bruckman, Leon NVIDIA

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

Table 176C-1 footnote b states 'One pause_quantum is equal to 2.56 ns for 200GAUI-1, 1.28 ns for 400GAUI-2, 640 ps for 800GAUI-4, and 256 ps for 1.6TAUI-8.' The value '256 ps for 1.6TAUI-8' is wrong. For 1.6TBASE-R, 1 pause_quantum = 512 bit times x 0.625 ps = 320 ps. The 1.6TAUI-8 row shows 144 pause_quanta / 46.08 ns: 144 x 320 ps = 46.08 ns (correct); 144 x 256 ps = 36.86 ns (does not match 46.08 ns). Table 176D-1 footnote b contains the identical error (p. 824).

SuggestedRemedy

In footnote b of Table 176C-1 (and identically in Table 176D-1), change '256 ps for 1.6TAUI-8' to '320 ps for 1.6TAUI-8'.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.1** *P* **128** *L* **37** # 71

Brown, Matthew Qualcomm

Comment Type **E** *Comment Status* **X**

The editor's note has served its purpose.

SuggestedRemedy

Delete editor's note.
Also, delete similar editors notes at the following locations:
page 129 line 38
page 131 line 40 and line 51
page 132 line 47
page 133 line 41
page 134 line 46
page 135 line 12 and line 50
page 136 line 45
page 137 line 12

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.11.2** *P* **448** *L* **7** # 75

Brown, Matthew Qualcomm

Comment Type **E** *Comment Status* **X**

This editor's note has served its purpose.

SuggestedRemedy

Delete editor's note.

Proposed Response *Response Status* **O**

Cl **178A** *SC* **178A.1.3** *P* **853** *L* **14** # 76

Brown, Matthew Qualcomm

Comment Type **E** *Comment Status* **X**

This editor's note has served its purpose.

SuggestedRemedy

Delete editor's note.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.1** *P* **488** *L* **37** # 77

Brown, Matthew Qualcomm

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

Comment I-25 against Draft 3.0 pointed out that the penalty attributed to a transmitter based on transmitter jitter may be optimistic if the functional receiver has a clock tracking bandwidth much higher than the assumed minimum of 4 MHz. However, the functional receiver calibration as defined in Draft 3.1 induces a penalty for receivers with better worst case tracking bandwidth. This ensures that a false pass does not occur. However, it does impose an unnecessary penalty upon a transmitter with negligible low-frequency jitter. The test as defined ensures no false passes but unfortunately might false fail a transmitter with very good low-frequency but otherwise near-marginal performance. An informative note in this regard would be helpful.

SuggestedRemedy

Add the following (or similar) informative note near the definition of ORx_TECQ_correction variable as follows:
"NOTE--The correction factor given by ORx_TECQ_correction might be moderately pessimistic depending upon the relative characteristics of the device used as the reference receiver and the transmitter under test. A failure of the TFT accurately identifies a transmitter that is not generally interoperable. However, the test might falsely fail a generally interoperable transmitter."

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.11** *P* **522** *L* **1** # 78

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

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

D3.0 comment #490 made a change in 180.9.12 (180.9.11 in D3.1). The comment response did not state to make the same changes in 181/182/183

SuggestedRemedy

To keep the IMDD clauses aligned in 181.9.11, 182.9.11 and 183.9.11 Change the existing paragraph
"The extinction ratio of a PAM4 optical signal is defined as the ratio of the average optical launch power level P3, measured over ... waveforms captured at the output of the reference receiver defined in 18x.9.2."
to
"The extinction ratio of a PAM4 optical signal is defined as the ratio of the average optical launch power levels P3 and P0, as defined for OMA_outer (see 18x.9.5).
With editorial license

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **20** # 79

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

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

In offline consensus building there was agreement to add a new exception to Table 180-18.

SuggestedRemedy

In Table 180-18 add a line for "Average launch power of each non test signal lane (max)" with a value of -15dBm. A supporting presentation will be provided

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **34** # 80

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

Comment Type **E** *Comment Status* **X**

The subclause heading is incorrect as "Test functional symbol error histogram (TFSEH)"

SuggestedRemedy

Change the subclause heading from
"Test functional symbol error histogram (TFSEH)"
to
"Transmitter functional symbol error histogram (TFSEH)"

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.4.10.1** *P* **666** *L* **48** # 81

He, Xiang — Huawei Technologies Co., Ltd

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

The requirement “The first 257-bit block of each 800GBASE-ER1 tributary multi-frame is distributed to flow 0” is incorrect.
For the eight 800GBASE-ER1 FEC flows, each FEC flow has its own frame and multi-frame. With the round-robin distribution on Tx side (186.2.3.2), blocks from PCS flow 0 always go to FEC flow <0,2,4,6> (assuming we are numbering the eight FEC flows as 0 to 7 - this is also a problem that we only stated there are 8 FEC flows but not the numbering/index of them), and blocks from PCS flow 1 always go to FEC flow <1,3,5,7>. It is a valid requirement to align the first block from each multi-frame to the correct PCS flow. We should use more precise description on the Rx side.

SuggestedRemedy

Change
“The first 257-bit block of each 800GBASE-ER1 tributary multi-frame is distributed to flow 0”
to:
“The first 257-bit block of each 800GBASE-ER1 tributary multi-frame from even FEC flow is distributed to flow 0, and the first 257-bit block of each 800GBASE-ER1 tributary multi-frame from odd FEC flows is distributed to flow 1 ”.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.3.2** *P* **652** *L* **51** # 82

He, Xiang — Huawei Technologies Co., Ltd

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

"The stream of 257-bit blocks shall be distributed to 8 FEC flows in a round-robin manner" is not clear.
1. It only stated there are 8 FEC flows but not the numbering of them.
2. It should clearly state where the 257-bit blocks from flow 0 and flow 1 go to, in order to match the statement on the Rx side (186.2.4.10.1)

SuggestedRemedy

Change:
"The stream of 257-bit blocks shall be distributed to 8 FEC flows in a round-robin manner"
to:
"The stream of 257-bit blocks shall be distributed to 8 FEC flows (0 through 7) in a round-robin manner, with 257-bit blocks from flow 0 distributed to even numbered FEC flows and 257-bit blocks from flow 1 distributed to odd numbered FEC flows."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.9** *P* **490** *L* **31** # 83

Johnson, John — Broadcom Corporation

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

Update 180.9.9, Transmitter overshoot and undershoot, to reference by exception the revised definitions of P0, P3 and OMAouter specified in 180.9.5, rather than the references to 122.8.4 given in 140.7.7.

SuggestedRemedy

Replace "Transmitter overshoot and undershoot are calculated using the methods in 140.7.7, with the exception that the hit ratio used to determine Pmax and Pmin is 1 × 10–4."
with "Transmitter overshoot and undershoot are calculated using the methods in 140.7.7, with the exceptions that P0, P3 and OMAouter are measured using the methods in 180.9.5 and the hit ratio used to determine Pmax and Pmin is 1 × 10–4."
Apply to the same sentence in 181.9.9, 182.9.9 and 183.9.9, with editorial license.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.10** *P* **490** *L* **43** # 84

Johnson, John — Broadcom Corporation

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

Update 180.9.10, Transmitter power excursion, to reflect the 1e-4 hit ratio introduced in 180.9.9 for Transmitter overshoot and undershoot.

SuggestedRemedy

Replace "Transmitter power excursion is defined in 140.7.8."
with "Transmitter power excursion is defined in 140.7.8, with the exception that the hit ratio used to determine Pmax and Pmin is 1 × 10–4."
Apply to the same sentence in 181.9.10, 182.9.10 and 183.9.10, with editorial license.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **471** *L* **53** # 85

Johnson, John — Broadcom Corporation

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

Update the spec limits for Transmitter power excursion (max) to agree with the revised spec limit for Transmitter overshoot and undershoot.

SuggestedRemedy

Update the spec limit for Transmitter power excursion, each lane (max) in Table 180-7 from 2.3 dBm to 2.9 dBm.
See slides in johnson_3dj_01_0726.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.7.1** *P* **511** *L* **31** # 86

Johnson, John — Broadcom Corporation

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

Update the spec limits for Transmitter power excursion (max) to agree with the revised spec limit for Transmitter overshoot and undershoot.

SuggestedRemedy

Update the spec limit for Transmitter power excursion, each lane (max) in Table 181-5 from 2.9 dBm to 3.5 dBm.
See slides in johnson_3dj_01_0726.

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.7.1** *P* **543** *L* **8** # 87

Johnson, John — Broadcom Corporation

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

Update the spec limits for Transmitter power excursion (max) to agree with the revised spec limit for Transmitter overshoot and undershoot.

SuggestedRemedy

Update the spec limit for Transmitter power excursion, each lane (max) in Table 182-7 from 2.3 dBm to 2.9 dBm.
See slides in johnson_3dj_01_0726.

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.7.1** *P* **573** *L* **39** # 88

Johnson, John — Broadcom Corporation

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

Update the spec limits for Transmitter power excursion (max) to agree with the revised spec limit for Transmitter overshoot and undershoot.

SuggestedRemedy

Update the spec limit for Transmitter power excursion, each lane (max) in Table 183-6 from 2.9 dBm to 3.5 dBm for 800GBASE-FR4 and from 3.8 dBm to 4.4 dBm for 800GBASE-LR4.
See slides in johnson_3dj_01_0726.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.14** *P* **522** *L* **52** # 89

Johnson, John — Broadcom Corporation

Comment Type **E** *Comment Status* **X**

The sentence describing the application of the LRS TX exception table in 180.9.14 needs some additional clarification for better readability.

SuggestedRemedy

Replace "... meets the transmit characteristics given in Table 181–5 except for characteristics in Table 180–18 with references in 181.9."
with "... meets the transmit characteristics given in Table 181–5 except for the characteristics listed in Table 180–18, with the references to 180.9 in that table replaced by the corresponding references in 181.9."

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.9.14** *P* **554** *L* **18** # 90

Johnson, John — Broadcom Corporation

Comment Type **E** *Comment Status* **X**

The sentence describing the application of the LRS TX exception table in 180.9.14 needs some additional clarification for better readability.

SuggestedRemedy

Replace "... meets the transmit characteristics given in Table 182–7 except for characteristics in Table 180–18 with references in 182.9."
with "... meets the transmit characteristics given in Table 182–7 except for the characteristics listed in Table 180–18, with the references to 180.9 in that table replaced by the corresponding references in 182.9."

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.9.14** *P* **587** *L* **1** # 91

Johnson, John — Broadcom Corporation

Comment Type **E** *Comment Status* **X**

The sentence describing the application of the LRS TX exception table in 180.9.14 needs some additional clarification for better readability.

SuggestedRemedy

Replace "... meets the transmit characteristics given in Table 183–6 except for characteristics in Table 180–18 with references in 183.9."
with "... meets the transmit characteristics given in Table 183–6 except for the characteristics listed in Table 180–18, with the references to 180.9 in that table replaced by the corresponding references in 183.9."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **482** *L* **50** # 92

Johnson, John — Broadcom Corporation

Comment Type **E** *Comment Status* **X**

Move the note after Figure 180-10 to follow Equation 180-3 where the variable "a" is first referenced.

SuggestedRemedy

Remove the NOTE after Figure 180-10.
After Equation 180-3, insert the text: "where the variable a is an integer in the range –3 to 0 associated with the permitted number of feed-forward precursor taps as specified in Table 180–16."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **21** # 93

Johnson, John — Broadcom Corporation

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

The threshold parameter equations shown in Figure 180-11 are the same as Equations 180-4/5/6, but those equations define the nominal thresholds, which are distinguished by a subscript "0", while the parameters in the figure don't have it.

SuggestedRemedy

Add the subscript "0" to Pth1, Pth2 and Pth3 in Figure 180-11. Because Equations 180-4/5/6 are nearby in the text, it's redundant to show the equations on the figure, and they should be deleted.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **482** *L* **20** # 94

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

*** Comment submitted with the file image.png attached ***

Notation for X(n) is inconsistent with zn and yn

SuggestedRemedy

Change x(n) to xn

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **4** # 95

El-Chayeb, Ahmad — Keysight Technologies Inc

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

*** Comment submitted with the file image.png attached ***

Current TDECQ reference equalizer optimization method is ambiguous and leaves the method open to interpretation causing measurement repeatability issues.

SuggestedRemedy

Change the following sentence:

"Alternative optimization methods may be used to determine equalizer tap weights if they report equal or lower mean values of TDECQ."

to:

"Alternative optimization methods may be used to determine equalizer tap weights if they report comparable TDECQ values."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **6** # 96

El-Chayeb, Ahmad — Keysight Technologies Inc

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

Description of eye diagram creation is confusing and does not match the figure referenced.

SuggestedRemedy

TDECQ Measurement does not require an eye diagram. Remove the text below from the draft (lines 6 to 11).

Remove:
"An eye diagram is formed from the equalized captured waveform, yn, as follows. With the coefficients fixed at the determined values, sweep the sampling phase ϕ from ϕ0 – T/2 to ϕ0 + T/2. For each phase ϕ, plot the scatter plot of yn. An example eye diagram is shown in Figure 180–11. The feedback symbol x(n) changes at phase ϕ = ϕ0 – T/2.
NOTE — The colored Gaussian noise η(t) added to r(t) in Figure 180–10 is not reflected in the eye diagram. It is accounted for separately when estimating the SER in the analysis block."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **17** # 97

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

The histogram windows in Figure 180-11 are shown at non-ideal location.

SuggestedRemedy

Center the two histogram windows in the middle of the eye.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **45** # 98

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

Nominal sub-eye thresholds has a 0 subscript that does not show up anywhere else in the clause. The 0 subscript should be removed.

SuggestedRemedy

Change the following text:

"The nominal sub-eye threshold levels P0,th1, P0,th2, and P0,th3, are determined from the OMATDECQ and the average optical power of the eye diagram (Pave) as defined in Equation (180–4), Equation (180–5), and Equation (180–6), and illustrated in Figure 180–11."

to:

"The nominal sub-eye threshold levels Pth1, Pth2, and Pth3, are determined from the OMATDECQ and the average optical power of the eye diagram (Pave) as defined in Equation (180–4), Equation (180–5), and Equation (180–6), and illustrated in Figure 180–11."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **50** # 99

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

Nominal sub-eye threshold P0,th1 in equation 180-4 has a 0 subscript that does not show up anywhere else in the clause. The 0 subscript should be removed.

SuggestedRemedy

Change "P0,th1" to "Pth1"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **53** # 100

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

Nominal sub-eye threshold P0,th2 in equation 180-4 has a 0 subscript that does not show up anywhere else in the clause. The 0 subscript should be removed.

SuggestedRemedy

Change "P0,th2" to "Pth2"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **485** *L* **2** # 101

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

Nominal sub-eye threshold P0,th3 in equation 180-4 has a 0 subscript that does not show up anywhere else in the clause. The 0 subscript should be removed.

SuggestedRemedy

Change "P0,th3" to "Pth3"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **486** *L* **53** # 102

El-Chayeb, Ahmad — Keysight Technologies Inc

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

Current language seems to allows an SER target greater than the target PAM4 SER. This would essentially change the spec line of SER up by 1%.

SuggestedRemedy

Change the following text:

"When the SER is estimated, the actual thresholds, Pth1, Pth2, and Pth3, are adjusted by up to ±1% of OMATDECQ to minimize max(SERL, SERR). If max(SERL, SERR) is not within 1% of the target PAM4 SER of 4.56 × 10-4, the process is iterated by changing σG and reoptimizing the equalizer tap coefficients. TDECQ is calculated using the optimized σG that results in max(SERL, SERR) falling within 1% of the target PAM4 SER."

to:

"When the SER is estimated, the actual thresholds, Pth1, Pth2, and Pth3, are adjusted by up to ±1% of OMATDECQ to minimize max(SERL, SERR). If max(SERL, SERR) is not within 1% less than the target PAM4 SER of 4.56 × 10-4, the process is iterated by changing σG and reoptimizing the equalizer tap coefficients. TDECQ is calculated using the optimized σG that results in max(SERL, SERR) falling within 1% less than the target PAM4 SER."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **6** # 103

El-Chayeb, Ahmad — Keysight Technologies Inc

Comment Type **ER** *Comment Status* **X**

The TDECQ calculation method described in clause 180.9.6.4 page 484 line 6 through page 487 line 24 is confusing to the reader. A clear TDECQ calculation method helps measurement accuracy and repeatability across different test and measurement vendors.

SuggestedRemedy

Re-write the TDECQ calculation method described in clause 180.9.6.4 starting on page 484 line 6 through page 487 line 24 to be clearer to the reader to ensure measurement repeatability across test and measurement vendors. A supporting presentation with alternative text will be provided.

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.8.8** *P* **392** *L* **29** # 104

Simms, William NVIDIA Corporation

Comment Type **E** *Comment Status* **X**

No period at end of sentence

SuggestedRemedy

add period 179.8.8.

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.9.2** *P* **393** *L* # 105

Simms, William NVIDIA Corporation

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

note for me: did we mean to drop package classes

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.9.3.1** *P* **398** *L* **19** # 106

Simms, William NVIDIA Corporation

Comment Type **E** *Comment Status* **X**

cites specifcation in 178.9.2.1 but should be 178.9.2.2

SuggestedRemedy

change reference to 178.9.2.2

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.9.3** *P* **397** *L* **40** # 107

Simms, William NVIDIA Corporation

Comment Type **E** *Comment Status* **X**

Table 178-9 row 'Difference effective return loss, dERL (min) cites 178.9.3.6 and should be 178.9.3.7

SuggestedRemedy

change reference to 178.9.3.7

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.9.3.7** *P* **403** *L* **39** # 108

Simms, William NVIDIA Corporation

Comment Type **E** *Comment Status* **X**

question if Receiver Different ERL (178.9.3.7)should reference table 178-15 as Transmitter ERL does (178.9.2.3)

SuggestedRemedy

add table 178-15 if required

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.10** *P* **404** *L* **48** # 109

Simms, William NVIDIA Corporation

Comment Type **E** *Comment Status* **X**

Note for me: check justification to lower SCMR from 20dB to 17dB. I see Rich's presentation for ERL of 17, but nothing for SCMR.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.10.1** *P* **406** *L* **50** # 110

Simms, William NVIDIA Corporation

Comment Type **E** *Comment Status* **X**

Note no longer present "When channel scattering parameters are measured with a reference impedance other than R0, they shall be transformed per 178A.1.3 and Equation (178A–4) before COM computation."

SuggestedRemedy

if note unintentionally removed, add "When channel scattering parameters are measured with a reference impedance other than R0, they shall be transformed per 178A.1.3 and Equation (178A–4) before COM computation."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.5.2** *P* **468** *L* **8** # 111

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **E** *Comment Status* **X**

"PMD:IS_UNITDATA_0.request to PMD:IS_UNITDATA_n–1.request " , the use of primitives in this subclause has been changed to xxxx primitive. Should be consistent.

SuggestedRemedy

change to "PMD:IS_UNITDATA_0.request primitive to PMD:IS_UNITDATA_n-1.request primitive"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.5** *P* **480** *L* **5** # 112

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **E** *Comment Status* **X**

"OMA_outer" needs editorial fix.

SuggestedRemedy

change outer to subscript.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **480** *L* **53** # 113

mi, guangcan Huawei Technologies Co., Ltd

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

this sentence talks about using the clock derived from the recovered clock from the AUI signal. The AUI interface here should be the AUI interface immediately attached to the PMA then the PMD under test, therefore can only be an AUI-C2M. AUI-C2C is not relevant here.

SuggestedRemedy

change " an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) " to " an xAUI-n chip-to-module (C2M).

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.2** *P* **482** *L* **21** # 114

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **E** *Comment Status* **X**

A series of variables are defined in this subclause. The variables z_n, y_n, and x(n) are all used to describe discrete values. While r(t), z(t), and eat(t) are used to represent continuous values dependent of t. It is better to change x(n) to x_n so that it is consisten with the discrete naming style.

SuggestedRemedy

change x(n) to x_n. Implement with editorial license to fix other instances.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **1** # 115

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **E** *Comment Status* **X**

"assumed …... for Gaussian noise η(t), ". While when η(t) was defined as "colored Gaussian noise".

SuggestedRemedy

change to "for colored Gaussian noise η(t), determine the equalizer"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **7** # 116

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **E** *Comment Status* **X**

"ϕ0 – T/2 to ϕ0 + T/2. ", the division sign and the number "2" should be straight up

SuggestedRemedy

change the division sign and the number to straight up. Also the case in line 9 on the same page.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **486** *L* **54** # 117

mi, guangcan Huawei Technologies Co., Ltd

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

In the calculation of TDECQ, requiring the calculated max(SER_L, and SER_R) against a target SER range, "within 1% of the target PAM4" , leads to non-optimal result and leaves ambiguitiy in the result. The calculation is numerical with arbitrarily adding noise of RMS sigma_G. It is very possible to approximate the target SER as much as the precision settings allowed. while 1% of the target PAM4 SER is 4.8e-6, a significant SER number by itself, allowing such a big range may lead to variation of the TDECQ calculation result.

SuggestedRemedy

change to ". If max(SERL, SERR) is greater than the target PAM4 SER of 4.56 × 10-4, the process is iterated by decreasing σG and reoptimizing the equalizer tap coefficients. If max(SERL, SERR) is lower than the target PAM4 SER of 4.56 × 10-4, the process is iterated by increasing σG and reoptimizing the equalizer tap coefficients." and "TDECQ is calculated using the optimized σG that results in max(SERL, SERR) meeting the target PAM4 SER."

the work "meeting" can be changed to approximating.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **488** *L* **40** # 118

mi, guangcan Huawei Technologies Co., Ltd

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

"It equals 1.5 dB, which decreases the required ORx operating BER to 2.4 × 10–5 " This sentence seems to say, test margin 1.5dB = operating BER of Orx is 2.4e-5. while the intention I believe is the BER target assuming random error can be tightened to 2.4e-5.

SuggestedRemedy

change to "It equals to 1.5dB. The BER target assuming random error is changed to 2.4e-5. The transmitter functional symbol error mask is calcualted using this BER target."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **488** *L* **48** # 119

mi, guangcan Huawei Technologies Co., Ltd

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

this reference of test fiber to Table 180-9 (illustrative link budget) is wrong. Test fiber

SuggestedRemedy

delete "specified in Table 180-9". The test fiber and VOA approximates the compliance optical channel specificed in Table 180-15 was already stated at the beginning of this section. There is no need to repeat here anyway.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **488** *L* **46** # 120

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

"TDECQ max" needs editorial fix

SuggestedRemedy

change to "TDECQ (max)"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **488** *L* **33** # 121

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

"OMAouter", the outer should be subscript

SuggestedRemedy

change outer to subscript.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **489** *L* **27** # 122

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

" OMA (max) spec " needs editorial fix

SuggestedRemedy

change to OMA_outer (max)". Where outer is subscript.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **489** *L* **30** # 123

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

this sentencet "is the actual ORx receiver sensitivity OMA at the TECQ measured for the transmitter under test" needs editorial fix.

SuggestedRemedy

change to "is the Orx receiver sensitivity OMAouter at the measured TECQ of the transmitter under test"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **37** # 124

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

"using ORx operating BER = 2.4 × 10–5" should not use the "=" sign here.

SuggestedRemedy

change to "using ORx operating BER of 2.4e–5"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **38** # 125

mi, guangcan Huawei Technologies Co., Ltd

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

"This operating BER is ORx_RxS BER decreased by amount corresponding to Test_margin increase of
ORx_RxS_OMA." again, seems to claim that the ORx with input OMA = ORX_RxS_OMA + test margin, will operate at 2.4e-5. this would be a requirement on the ORx. What if an ORx shows lower BER than 2.4e-5 at this input OMA?

SuggestedRemedy

need clarify. Will discuss with the TFSEH team before July meeting to come in with clarification, or withdraw.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **42** # 126

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

"using the test pattern as given in Table 180–14." no need of "as":

SuggestedRemedy

delete as

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.9** *P* **490** *L* **33** # 127

mi, guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **X**

P_max and P_min, max and min should be straight up

SuggestedRemedy

change max and min to straight up.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **491** *L* **49** # 128

mi, guangcan Huawei Technologies Co., Ltd

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

"The TECQ of the conformance test signal is measured according to 180.9.6, except that the test fiber is not
used." is repeating what is said in 180.9.7, defining TECQ.

SuggestedRemedy

change to "The TECQ of the conformance test signal is measured according to 180.9.7"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **2** # 129

mi, guangcan Huawei Technologies Co., Ltd

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

174A.9.6 is PMA method of all lanes in PMD. While to measure the receiver sensitivity, the lowest OMAouter value, of any one lane, using all lane method can not isolate the contribution to the error histogram of the lane under test from all other lanes. the all lanes PMA method can not be easily adopted to measure the receiver sensitivity.

SuggestedRemedy

delete 174A.9.6, also in stressed receiver sensitivity.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **6** # 130

mi, guangcan Huawei Technologies Co., Ltd

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

this note says "When measuring receiver sensitivity of a complete PHY at the PCS", the receiver sensitivity is not a characteristic of a complete phy, it is defined as the characteristic of the PMD, and is defined as per lane characteristic. A complete phy using a pmd compliant to CL180 needs to satisfy the error ratio requirement as defined in 180.2. however, extending the phy requirement to receiver sensitiviy definition and method is wrong and un-necessary.

SuggestedRemedy

delete the note.

Proposed Response *Response Status* **O**

Cl **176** *SC* **176.5.2** *P* **342** *L* # 131

de Koos, Andras Microchip Technology Inc

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

The PMA needs clarification for what Rx and Tx mean
For example, an 8:1 PMA is identical to a 1:8 PMA, just with the Rx/Tx labels reversed. Whether it is an 8:1 PMA or a 1:8 PMA depends what it is attached to in the PHY stack, not the function it performs.
But this presents problems, especially for the management objects.
Two interpretations are possible:
A: 'RX' management objects always connect to the RX for an 8:1 PMA, and to the RX of the 1:8 PMA (And Tx PMA always to Tx registers). That seems strange, since it means that one MDIO register would connect to either path through the PMA, depending on how this PMA is attached with in the PHY stack.
B: 'RX' management objects for the 8:1 PMA connect to the 'TX' of the 1:8 PMA, and vice versa. Each path through the PMA (whatever tits Rx/Tx label) is connected to a single set of management variables that would not change depending on how the PMA is connected in the PHY stack. This makes much more sense (to me, at least!)

This absolutely needs to be clarified, especially for the PMA_delay status variables for TimeSync. There, the 'Rx' and 'Tx' delays are calculated differently. The delays would be reported incorrectly if approach A were to be used!

SuggestedRemedy

In sections 176.5.2, change the sentence to:
The transmit function of the n:m PMAs is identical to the receive function of the m:n PMAs (see 176.4.3), and uses the 'RX' PMA Management variables.

(and a similar update for section 176.5.3)

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8** *P* **487** *L* **34** # 132

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **X**

As was noted in comment I-121 against D3.0, FRx is a confusing abbreviation to use for "functional receiver", as FR is already used to identify single fiber pair 2 km CWDM PMDs. The abbreviation is used only four times in this clause and subclause 180.9.8.1, and defined again in 180.9.8.1. Since it is used infrequently, it can be deleted without causing any issues in terms of readability of the text.

SuggestedRemedy

In the first paragraph, replace:
The transmitter functional test uses a functional receiver (FRx) defined in 180.9.8.1 to measure a transmitter functional symbol error histogram (TFSEH) defined in 180.9.8.2. A block diagram showing the FRx is shown in Figure 180–12. The transmitter under test is connected to the FRx by a test fiber which meets the requirements in 180.9.6.2.
with:
The transmitter functional test uses a functional receiver defined in 180.9.8.1 to measure a transmitter functional symbol error histogram (TFSEH) defined in 180.9.8.2.A block diagram of the test configuration is shown in Figure 180-12. The transmitter under test is connected to the functional receiver by a test fiber which meets the requirements in 180.9.6.2.

In the second paragraph, replace "FRx" with "functional receiver".

In figure 180-12, delete "(FRx)"

Delete "(FRx)" in the heading of subclause 180.9.8.1, and replace "FRx" with "functional receiver" in the first sentence of that subclause.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.8** *P* **521** *L* **3** # 133

Huber, Thomas Nokia

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

The intent seems to be to refer to 180.9.8, but the text says 181.9.8 (which is this clause)..

SuggestedRemedy

Change 181.9.8 to 180.9.8.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.8** *P* **521** *L* **11** # 134

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **X**

Defining "FRx" here adds no value since it is not used a second time.

SuggestedRemedy

Delete "(FRx)"

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.9.8** *P* **552** *L* **39** # 135

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **X**

Defining "FRx" here adds no value since it is not used a second time.

SuggestedRemedy

Delete "(FRx)"

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.9.8** *P* **585** *L* **18** # 136

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **X**

Defining "FRx" here adds no value since it is not used a second time.

SuggestedRemedy

Delete "(FRx)"

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **7** # 137

Huber, Thomas Nokia

Comment Type **E** *Comment Status* **X**

It is only the UNITDATA primitives that are defined for i=0 to 31; the SIGNAL primitive is not per-lane

SuggestedRemedy

Change "The primitives are defined for i = 0 to 31." to "The UNITDATA primitives are defined for i = 0 to 31."

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **15** # 138

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **X**

Missing crossreference 'XREF'

SuggestedRemedy

This should be pointing to 186.2.3.5.11; add the cross-reference

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **34** # 139

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **X**

Missing crossreference 'XREF'

SuggestedRemedy

This should be pointing to 186.2.4.7.6; add the cross-reference

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B** *P* **874** *L* **1** # 140

Huber, Thomas Nokia

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

Annex 178B should include a subclause describing an RTS mechanism for use with coherent PMDs. Shoehorning LR1 into the IMDD mechanism and describing ER1 as tunneling the SIGNAL_OK status of the AUI across the PMD is not sufficient for supporting APSU with coherent PMDs.

SuggestedRemedy

Add new subclause 178B.6 "RTS function for coherent ISLs", with subclauses 178B.6.1 "RTS function for coherent interfaces" and 178B.6.2 "State diagram". A detailed presentation covering this and other related issues will be provided.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.2** *P* **874** *L* **28** # 141

Huber, Thomas Nokia

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

The last two sentences of the second paragraph and the second sentence of the third paragraph are specific to IMDD ISLs. If the coherent RTS FSM is adopted, they will need to be made generic.

SuggestedRemedy

A detailed presentation covering this and other related issues will be provided.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.4** *P* **876** *L* **3** # 142

Huber, Thomas Nokia

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

Several cross-references are specific to IMDD ISLs. If the coherent RTS FSM is adopted, they will need to be made generic.

SuggestedRemedy

A detailed presentation covering this and other related issues will be provided.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.5** *P* **876** *L* **33** # 143

Huber, Thomas Nokia

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

178B.5 through 178B.8 are all specific to IMDD PHYs. If the coherent RTS FSM is adopted, it will be better to gropu those 4 together into one subclause.

SuggestedRemedy

Add a new 178B.5 header titled "RTS and ILT functions for IMDD ISLs". Make current clauses 178B.5 to 178B.8 level-3 headings below this, clarifying that they are specific to IMDD interfaces. A detailed presentation covering this and other related issues will be provided.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.2.1** *P* **893** *L* **42** # 144

Huber, Thomas Nokia

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

The NOTE related to the variable adjacent_signal_ok seems not correct. It says: "NOTE—For an interface below a PMA or Inner FEC (AUI component or PMD), SIGNAL_OK is received via the IS_SIGNAL.request primitive of the service interface above the interface. For an interface above a PMA (AUI component), the SIGNAL_OK is received via the IS_SIGNAL.indication primitive of the service interface below the interface". Service interfaces are defined at the top of the sublayer - so for an interface below a PMA or Inner FEC, SIGNAL_OK is received via IS_SIGNAL.request for that layer that is below the PMA or Inner FEC. The primitive for the layer above (i.e., the PMA or Inner FEC) would be at the top of that layer above. In other words, if you want to commnuicate something down the stack, you use the layer below's service interface to do it.

SuggestedRemedy

Change the first sentence of the note to read as follows:
NOTE - For an interface below a PMA or Inner FEC (AUI component or PMD), SIGNAL_OK is received via the IS_SIGNAL.request primitive of the service interface of the AUI component or PMD.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.3** *P* **900** *L* **9** # 145

Huber, Thomas Nokia

Comment Type **E** *Comment Status* **X**

timers should be in alphabetical order

SuggestedRemedy

Move quiet_timer after propagation_timer

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.15.3** *P* **459** *L* **3** # 146

Healey, Adam Broadcom Inc.

Comment Type **E** *Comment Status* **X**

Item AUIAPSU states a requirement for the AUI which is already covered in 176C.6.3.. It does not belong in this table.

SuggestedRemedy

Remove item AUIAPSU. Consolidate items *AUI200G and AUIL200G in a single item, "AUIC2C" with Feature "AUI-n C2C" and Value/Comment "PMD is separated from the PCS by an AUI-C2C specified in Annex 120B, Annex 120D, Annex 120F, or Annex 176C".

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.14.3** *P* **413** *L* **26** # 147

Healey, Adam Broadcom Inc.

Comment Type **E** *Comment Status* **X**

There is no obvious reason to have AUI200G and AUIL200G as separate items. Also, per 21.6.2, the notation O.<n> means "at least one of the group of options labeled by the same numeral <n> is required." It is more appropriate to use O/<n> which means "one and only one of the group of options labeled by the same numeral <n> is required." The PMD is either in the same package as the PCS or it isn't.

SuggestedRemedy

Consolidate items *AUI200G and AUIL200G in a single item, "AUIC2C" with Feature "AUI-n C2C" and Value/Comment "PMD is separated from the PCS by an AUI-C2C specified in Annex 120B, Annex 120D, Annex 120F, or Annex 176C". Change the status for item PHY and new item AUIC2C to "PMD:O/3".

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **493** *L* **11** # 148

Healey, Adam — Broadcom Inc.

Comment Type **E** *Comment Status* **X**

Per IEEE 802.3 editorial guidelines <http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#numbers>, "Do not include any separators in the digits to the right of the decimal point or include any trailing zeros in tables or in text."

SuggestedRemedy

Remove trailing zeros from values in Table 180-20 as necessary. Similarly in Table 178-11, Table 179-14, and Table 185-16.

Proposed Response *Response Status* **O**

Cl **179B** *SC* **179B.4.1** *P* **920** *L* **2** # 149

Heck, Howard — TE Connectivity

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

MTF insertion loss specification and the method for accounting for differences between the fitted insertion loss of an actual test fixture and the reference insertion loss remains an open from D3.0.

SuggestedRemedy

Change page 920, line 9 to ILdd(f) is the fitted insertion loss in dB at frequency f

Change page 918 line 1 and page 918, line 28 and to
The effects of differences between the fitted insertion loss of an actual test fixture and the reference insertion loss are to be accounted for in the measurements.

Add text describing the de-embed/re-embed method for account for the differences between MTF actual and reference insertion loss that will be provided in a planned supporting presentation to be given at the Plenary.

Proposed Response *Response Status* **O**

Cl **179B** *SC* **179B.3.1** *P* **918** *L* **29** # 150

Heck, Howard — TE Connectivity

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

There may be multiple configurations of MDI connectors (SMT right angle 1x1, Stacked SMT right angle 2x1, Cabled host, Vertical SMT, etc) which can introduce different high speed performance variabilities. It is requested that this clause reference recommended specific configurations to minimize variations between MCB and Cable Assembly suppliers.

SuggestedRemedy

Add text: A single port 1x1 SMT right angle MDI connector or 1x1 Cabled host MDI connector is normative for the MCB specifications. Other connector configurations are informative.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.2** *P* **479** *L* **23** # 151

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

The CRU definition is inadequete and will introduce TDECQ measurement error!
See also unsatisfied comment 253 D3.0

SuggestedRemedy

Suggest to following improvement:
The CRU has a corner frequency of 4 MHz and a slope of 20 dB/decade up to at least 40 MHz. The CRU maximum jitter transfer peak is 0.3 dB from 40 kHz to 40 MHz.
See ghiasi_3dj_01_2607

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.9.4.2.1** *P* **429** *L* **23** # 152

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

The CRU definition is inadequete and will introduce linear pulse fit measurement error!
See also unsatisfied comment 264 D3.0.

SuggestedRemedy

Suggest to following improvement:
The CRU has a corner frequency of 4 MHz and a slope of 20 dB/decade up to at least 40 MHz. The CRU maximum jitter transfer peak is 0.3 dB from 40 kHz to 40 MHz.
See ghiasi_3dj_01_2607

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.9.2** *P* **550** *L* **29** # 153

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

The CRU definition is inadequete and will introduce TDECQ measurement error!
See also unsatisfied comment 252 D3.0.

SuggestedRemedy

Suggest to following improvement:
The CRU has a corner frequency of 4.27 MHz and a slope of 20 dB/decade up to at least 42.7 MHz. The CRU maximum jitter transfer peak is 0.3 dB from 4.27 kHz to 42.7 MHz.
See ghiasi_3dj_01_2607

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **480** *L* **53** # 154

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

802.3dj has spend last 1.5 year how to best capture jitter in TDECQ and FRx, unless xAUI-n (C2M) interface operate with jitter tolerance condition in 176D.8.14 TDECQ measurement can be too optimistic.

SuggestedRemedy

Add sentence: For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the tes pattern is derived from the clock recovered from the xAUI-n input signal. The xAUI-n input signal is that described for the Jitter tolerance test in 176D.8.14. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal.
Suggest above text and a fiigure to be provided to move into a section called "Transmitter Under Test Requirements"
See ghiasi_3dj_02_2605

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.6** *P* **519** *L* **53** # 155

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

802.3dj has spend last 1.5 year how to best capture jitter in TDECQ and FRx, unless xAUI-n (C2M) interface operate with jitter tolerance condition in 176D.8.14 TDECQ measurement can be too optimistic.

SuggestedRemedy

Add sentence: For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The xAUI-n input signal is that described for the Jitter tolerance test in 176D.8.14. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal.
Suggest above text and a fiigure to be provided to move into a section called "Transmitter Under Test Requirements" Either locally create the section or just reference the section created in 180.9.6.x
See ghiasi_3dj_02_2605

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.9.6** *P* **551** *L* **36** # 156

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

802.3dj has spend last 1.5 year to best capture jitter in TDECQ and FRx, unless xAUI-n (C2M) interface operate with jitter tolerance condition in 176D.8.14 TDECQ measurement can be too optimistic
see unsatisfied D3.0 comment 260

SuggestedRemedy

Add sentence: For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The xAUI-n input signal is that described for the Jitter tolerance test in 176D.8.14. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal.
Suggest above text and a fiigure to be provided to move into a section called "Transmitter Under Test Requirements" Either locally create the section or just reference the section created in 180.9.6.x
See ghiasi_3dj_02_2605

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.9.6** *P* **583** *L* **49** # 157

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

802.3dj has spend last 1.5 year to best capture jitter in TDECQ and FRx, unless xAUI-n (C2M) interface operate with jitter tolerance condition in 176D.8.14 TDECQ measurement can be too optimistic
see unsatisfied D3.0 comment 261

SuggestedRemedy

Add sentence: For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the tes pattern is derived from the clock recovered from the xAUI-n input signal. The xAUI-n input signal is that described for the Jitter tolerance test in 176D.8.14. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal.
Suggest above text and a fiigure to be provided to move into a section called "Transmitter Under Test Requirements" Either locally create the section or just reference the section created in 180.9.6.x
See ghiasi_3dj_02_2605

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.9** *P* **487** *L* **40** # 158

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

802.3dj has spend last 1.5 year to best capture jitter in TDECQ and FRx, unless xAUI-n (C2M) interface operate with jitter tolerance condition in 176D.8.14 TDECQ measurement can be too optimistic
see unsatisfied D3.0 comment 262

SuggestedRemedy

Add sentence: For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the tes pattern is derived from the clock recovered from the xAUI-n input signal. The xAUI-n input signal is that described for the Jitter tolerance test in 176D.8.14. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal. Will provide the figure.
See ghiasi_3dj_02_2609

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8** *P* **487** *L* **33** # 159

Ghiasi, Ali — Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

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

TFT test no longer defines any conditions for transmitter under test that existed in D3.0 such as xAUI-n input operating and there is conunter propagating traffic

SuggestedRemedy

Add following sentense in 180.9.8 - A block diagram showing the FRx is shown in Figure 180–12 with transmitter under test meeting the requirements in XYZ.
In 180.9.6 create a new section called "Transmitter Under Test Requirements"

For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The xAUI-n input signal is that described for the Jitter tolerance test in 176D.8.14. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal. Will provide the figure.
See ghiasi_3dj_02_2609

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **15** # 160

Mascitto, Marco — Infinera Canada Inc.,Nokia

Comment Type **E** *Comment Status* **X**

I assume the XREF was not updated and should point to 186.2.3.5.11.

SuggestedRemedy

Update the XREF

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **34** # 161

Mascitto, Marco — Infinera Canada Inc.,Nokia

Comment Type **E** *Comment Status* **X**

I assume the XREF was not updated and should point to 186.2.3.5.11.

SuggestedRemedy

Update the XREF

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.2** *P* **651** *L* **33** # 162

Mascitto, Marco — Infinera Canada Inc.,Nokia

Comment Type **ER** *Comment Status* **X**

This sentence is difficult to read.

SuggestedRemedy

Replace:
The SIL function uses information received from the 800GBASE-ER1 PMA via PMA:IS_SIGNAL.indication and information from the received MNT bits (XREF) to determine the status communicated to the SIGNAL_OK value communicated via FEC:IS_SIGNAL.indication.

With:
The SIL function uses information received from the 800GBASE-ER1 PMA via PMA:IS_SIGNAL.indication and information from the received MNT bits (XREF) to determine the SIGNAL_OK value that is communicated via FEC:IS_SIGNAL.indication.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.1** *P* **649** *L* **1** # 163

Mascitto, Marco — Infinera Canada Inc.,Nokia

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

Regarding Figure 186-3 receive direction, the OH/FAM processing block should have an arrow pointing to the SIL block that indicates that MNT bits are used to determine the value of the SIGNAL_OK parameter for FEC:IS_SIGNAL.indication (see Table 186-2).

SuggestedRemedy

Add the arrow.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.1** *P* **649** *L* **1** # 164

Mascitto, Marco — Infinera Canada Inc.,Nokia

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

The FEC:IS_SIGNAL.indication primitive has only the SIGNAL_OK parameter explicitly associated with it. Looking at Figure 186-3, the FEC deinterleave and decode block has an arrow to the SIL, indicating that it provides some data this primitive uses when it invokes its functions. What data is that? Is it related to the FEC_degraded_SER bit specified in 186.2.4.2?

SuggestedRemedy

Please clarify.

Proposed Response *Response Status* **O**

Cl **187** *SC* **187.5.11** *P* **707** *L* **50** # 165

Mascitto, Marco — Infinera Canada Inc.,Nokia

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

APSU functions for this PMD are supported by Cl186 but through mechanisms not originally intended for this purpose. Adopting the proposal in huber_178b_01_260603 provides a cleaner and more future-proof solution for supporting the RTS function in PMDs that do not require the ILT function.

SuggestedRemedy

Adopt a separate RTS state diagram for coherent PMDs, as proposed in huber_178b_01_260603.

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.5.11** *P* **629** *L* **51** # 166

Mascitto, Marco — Infinera Canada Inc.,Nokia

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

APSU functions for this PMD are supported but through mechanisms not originally intended for this purpose. Adopting the proposal in huber_178b_01_260603 provides a cleaner and more future-proof solution for supporting the RTS function in PMDs that do not require the ILT function.

SuggestedRemedy

Adopt a separate RTS state diagram for coherent PMDs, as proposed in huber_178b_01_260603.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.5** *P* **902** *L* **1** # 167

Mascitto, Marco — Infinera Canada Inc.,Nokia

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

Not all implementations may be able to support all the recovery methods shown in Figure 178B-10b. The FAIL state must be supported by all implementations (default).

SuggestedRemedy

Specify an implementation dependent variable that indicates the recovery modes supported as described in osorio_178b_03_260625.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.10** *P* **907** *L* **22** # 168

Slavick, Jeff — Broadcom Inc

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

remote_tf_lock is derived from the LP status frames not the LD status frames.

SuggestedRemedy

Change MDIO reference from 45.2.1.167 to 45.2.1.163 for remote_tf_lock in Table 178B-7.

Proposed Response *Response Status* **O**

Cl **169** *SC* **169.2.10** *P* **210** *L* **40** # 169

Slavick, Jeff — Broadcom Inc

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

800GBASE-ER1 does not use the ILT and RTS functions. APSU is the result of establishing end to end communicatioin. ILT and RTS functions provide means to establish communication across ISLs, but are not required to do so (like in the case of ER1).

SuggestedRemedy

Update 116.2.9, 169.2.10 and 174.2.12
Autonomous path start-up (APSU) is the orderly startup of the path, which occurs when SIGNAL_OK reaches the OK status at every sublayer interface in both directions. This requires communication to be established across all ISLs within the path (see 178B.3) along with all sublayers transmit and receive paths operating as expected. PHYs and Physical layers capable of sending SIGNAL_OK in both the transmit and receive directions are able to make use of APSU.

Annex 178B defines the RTS and ILT functions that facilitate establishing the communication and the transfer of SIGNAL_OK across ISLs found within a path. These functions are supported by many PMD and AUI components that utilize various types of medium.

Details of how each PMD or AUI component supports APSU are found in the relevant clauses.

APSU is specified for use by the following PMD and AUI types:

<existing list of PMD and AUI types>

Update 178B.1 to be:
This annex defines the functions to support autonomous path startup (APSU) for Physical Layer implementations that include one or more inter-sublayer (ISLs) (see 178B.3) with data rate of 200 Gb/s.

Update 178B.2 first paragraph to be:
APSU is the coordinated, orderly initialization of all ISLs and sublayers in a path (Figure 178B–1). APSU is facilitated by the combination of the ready-to-send (RTS) function and the inter–sublayer link training (ILT) function. APSU is described in 178B.4.

Update 178B.4 to be:

APSU is not intrinsically a function, it is an externally observable behavior resulting from establishing communication through all sublayers in the path in both directions. Support for APSU is defined as follows:
— An ISL can be activated using APSU if the two interfaces and the associated sublayers (e.g. PMA, Inner FEC), implement the RTS function (see 178B.6) and the ILT function (see 178B.7), or have equivalent functions.
— A PHY can be activated using APSU if every ISL and sublayer within the PHY can be activated using APSU.

— An xMII Extender can be activated using APSU if every ISL and sublayer within it can be activated using APSU.
— A Physical Layer can be activated using APSU if the PHY and xMII Extender (if implemented) can be activated using APSU.
— A path can be activated using APSU if the Physical Layer at each end can be activated using APSU.

A path that does not meet the above criteria is not defined to support APSU. An ISL, PHY, Physical Layer, or path that cannot be activated using APSU may be activated using management or other means beyond the scope of this annex.

APSU is the result of SIGNAL_OK for every sublayer interface reaching the OK status. This occurs when:
— Each ISL establishes communication in both directions. For PMD and AUI components using the ILT and RTS functions local_rts and remote_rts are both true.
— Each sublayer is receiving and transmitting data of the expected format.
— End-to-end communication between the RS sublayers is established.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.10** *P* **906** *L* **12** # 170

Slavick, Jeff Broadcom Inc

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

In Table 178B-6 we list both PMA_reset and PMD_reset which are mapped to the same MDIO register bit and these are then used by the "reset" variable.

SuggestedRemedy

In Table 178B-6 update PMA_reset Control variable name to "reset (PMA_reset, PMD_reset)" and remove the PMD_reset row.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.168c** *P* **102** *L* **28** # 171

Slavick, Jeff Broadcom Inc

Comment Type **E** *Comment Status* **X**

on lane # is not necessary in the description for bit 7:0 as the Name column already specifies which lane it is

SuggestedRemedy

Remove "on lane #" from the description column for bits 7:0 in Table 45-133c

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.10** *P* **906** *L* **34** # 172

Slavick, Jeff Broadcom Inc

Comment Type **E** *Comment Status* **X**

Group all the mr variables together

SuggestedRemedy

Move mr_adj_los_mode to be after mr_training_enable in Table 178B-6

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.168e** *P* **104** *L* **13** # 173

Slavick, Jeff Broadcom Inc

Comment Type **ER** *Comment Status* **X**

In Table 45-133e adjacent los mode uses RW while the other bits (and footnote) use R/W

SuggestedRemedy

make the RW a R/W

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.5.11** *P* **630** *L* **1** # 174

Slavick, Jeff Broadcom Inc

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

All other clauses specifying APSU functions use the form of tx_mode = local_pattern when specifying the state and not "is".

SuggestedRemedy

Change "tx_mode is local_pattern" to "tx_mode = local_pattern"

Proposed Response *Response Status* **O**

Cl **187** *SC* **187.5.11** *P* **707** *L* **50** # 175

Slavick, Jeff — Broadcom Inc

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

800G-ER1 is not really using the APSU functions. And it's better to point to the service interface where the mapping of signal_ok is done.

SuggestedRemedy

Change "APSU functions are supported by 800GBASE-ER1 FEC sublayer (see 186.2)."
To: "The 800GBASE-ER1 PMD supports APSU via the 800GBASE-ER1 FEC sublayer (see 186.2.2).

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.2.1** *P* **894** *L* **17** # 176

Slavick, Jeff — Broadcom Inc

Comment Type **ER** *Comment Status* **X**

"the APSU" does not make sense.

SuggestedRemedy

Remove the word "the"

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.5** *P* **876** *L* **38** # 177

Slavick, Jeff — Broadcom Inc

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

This list of what the ILT functions are made of, not a pick which ones you want list.

SuggestedRemedy

Delete ", and" from the first item in the dashed list.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.8.9** *P* **426** *L* **31** # 178

Slavick, Jeff — Broadcom Inc

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

We're using upper case for enumerations.

SuggestedRemedy

In 179.8.9, 180.5.12, 181.5.12, 182.5.12, 183.5.12, 185.5.11 change local_pattern to LOCAL_PATTERN.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.7.2** *P* **880** *L* **14** # 179

Slavick, Jeff — Broadcom Inc

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

We can be more specific on what "exit the transmit disable state" so it clears it's a variable change not a state diagram state change.

SuggestedRemedy

Add "(tx_disable = false)" after "transmit disable state".

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.7.8** *P* **889** *L* **51** # 180

Slavick, Jeff — Broadcom Inc

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

The TRAIN_LOCAL state in is Figure 178B-10a but you list both in this paragraph but only 10a in the next.

SuggestedRemedy

In the 2nd paragraph of 178B.7.8 remove the "and Figure 178B-10b".
In the 4th paragraph of 178B.7.8 add "and Figure 178B-10b" after Figure 178B-10a

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.7.8.4** *P* **891** *L* **26** # 181

Slavick, Jeff — Broadcom Inc

Comment Type **ER** *Comment Status* **X**

Missing an E in EQUALIZATION

SuggestedRemedy

Change QUALIZATION to EQUALIZATION on lines 26 and 33.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3** *P* **896** *L* **40** # 182

Slavick, Jeff — Broadcom Inc

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

We've gone from a bit akward to really akward.
D3.0 was:
An interface using the E1 format implements one instance of each of the training control, the training frame lock and the coefficient update state diagrams, and their associated variables, functions, counters and timers defined in this subclause, independently for each lane.
D3.1 is :
An interface using the E1 format implements one instance per lane of each of the training control, the training frame lock and the coefficient update state diagrams, and their associated variables, functions, counters and timers defined in this subclause.

SuggestedRemedy

make it:
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.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3** *P* **896** *L* **44** # 183

Slavick, Jeff — Broadcom Inc

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

We've gone from a bit akward to really akward.
D3.0 was:
An interface using the O1 format implements one instance of each of the training control and the training frame lock state diagrams, and their associated variables, functions, counters and timers defined in this subclause, independently for each lane.
D3.1 is :
An interface using the O1 format implements one instance per lane of each of the training control and the training frame lock state diagrams, and their associated variables, functions, counters and timers defined in this subclause..

SuggestedRemedy

make it:
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.

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.9.4.2.3** *P* **431** *L* **22** # 184

Slavick, Jeff — Broadcom Inc

Comment Type **ER** *Comment Status* **X**

We have updated the enumrations to be upper case so we should use upper case in Table 179-8 too

SuggestedRemedy

Change initialize to INITIALIZE and preset to PRESET in Table 179-8, Table 179-9 and their footenotes
In 178.9.3.4.3 change preset 1 to PRESET 1
In 178.9.3.6 change preset 1 to PRESET 1 in the NOTE (twice)
In 179.8.9 change preset 1 to PRESET 1 and preset 6 to PRESET 6
In 179.9.4.2.1 change "preset 1" to PRESET 1 (removing the "'s)
In 179.9.4.2.2 change preset 1 to PRESET 1
In 179.9.5.3.3 change preset 1 to PRESET 1 in step b)
In 179.9.5.3.5 change preset 1 to PRESET 1
In 179.9.5.5.5 change preset 1 to PRESET 1 in the NOTE (twice)
in 176C.6.4.5.3 change preset 1 to PRESET 1 in step 3
In 176C.6.4.7 change preset 1 to PRESET 1 in the NOTE (twice)
In 176D.8.7 change preset 1 to PRESET 1
In 176D.8.12.2 change preset 1 to PRESET 1 in step c)
In 176D.8.12.4 change preset 1 to PRESET 1
In 176D.8.14 change preset 1 to PRESET 1 in the NOTE (twice)

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **898** *L* **6** # 185

Slavick, Jeff — Broadcom Inc

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

With the addition of the recovery states (branches out of PATH_READY) the you now have local_rx_ready being used when mr_training_enable = true and training=false. Only when both mr_training_enable = true and training=true can local_rx_ready be dependent upon having optimized the remote transmitter.

SuggestedRemedy

Change "mr_training_enable" to "training" in the definition of local_rx_ready.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **898** *L* **7** # 186

Slavick, Jeff — Broadcom Inc

Comment Type **E** *Comment Status* **X**

Missing space

SuggestedRemedy

Insert a space at the start of the sentence that begins with "The specific conditions"

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.5** *P* **901** *L* **26** # 187

Slavick, Jeff — Broadcom Inc

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

In Figure 136-7 we require that remote_tp_mode be not PAM2 before moving to TRAIN_REMOTE.
In 178B.x.x.x we state that transmiting non-PAM2 is required but there is no normative statement to that effect in that paragraph.

SuggestedRemedy

Add "*(remote_tp_mode != PAM2)" as a criteria for the transition from TRAIN_LOCAL to TRAIN_REMOTE in Figure 178B-10a

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **898** *L* **11** # 188

Slavick, Jeff — Broadcom Inc

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

Stating that variable takes on a particular value in a given state diagram state meas its value should be set by the state diagram.
In Figure 136-7 local_rx_ready is a variable set in the state diagram and depends upon a local_trained variable.
We should take on this same format for 178B-10

SuggestedRemedy

Rename local_rx_ready to local_trained and remove the last sentence of the current definition.
Create a new definition for local_rx_ready with a definition of "Boolean variable that indicates the state of the receiver. The value of local_rx_ready is set by the training control state diagram (Figure 178B-10a and Figure-10b).
In Figure 178B-10a and 10b replace all current instances of local_rx_ready with local_trained

In Figure 178B-10a add "local_rx_ready = false" to the INITIALIZE and RECOVERY states.
In Figure 178B-10b add "local_rx_ready = false" to the LOSS_OF_SIGNAL state.
In Figure 178B-10a add "local_rx_ready <= true" to TRAIN_REMOTE and RX_READY states.
In Figure 178B-10b add "local_rx_ready <= true" to PATH_UP state.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.5** *P* **902** *L* **27** # 189

Slavick, Jeff — Broadcom Inc

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

Not all implementations may be capable of supporitng all recover modes.

SuggestedRemedy

Implement the suggested updates in "Indication of support for recovery states" presentation to the June 25, 2026 178B ad-hoc

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* **14** *L* **16** # 190

Maguire, Valerie — Copperopolis

Comment Type **E** *Comment Status* **X**

Final FM files have been generated by Pete Anslow and reviewed by the P802.3dg Editorial team. It seems impossible that IEEE Std 802.3dg won't publish this year.

SuggestedRemedy

Replace "20xx" with "2026"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.8.2** *P* **476** *L* **49** # 191

Lewis, David — SPECIPHY / Lumentum

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

The allocation of channel insertion loss to fiber cable attenuation and connection / splice loss does not account for cases where link distance is less than the maximum. For example an optical circuit switch (OCS) may be connected via short fiber cables and a number of connectors / patch panels. A presentation in support of this comment can be provided at the next Task Force meeting.

SuggestedRemedy

Change the second paragraph to: "The maximum link distance is based on an allocation of 0.25 dB total fiber cable attenuation, with the remainder of the maximum channel insertion loss specified in Table 180-12 being allocated to connection and splice loss. For example, with no discrete reflections greater than -55 dB, a total connection and splice loss allocation of 2.75 dB supports either five connections with an average insertion loss per connection of 0.5 dB, or alternatively an optical switch with insertion loss of 2 dB and one connection with insertion loss of 0.5 dB. Connections with different loss characteristics may be used provided the requirements of Table 180-10 are met."

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.8.2** *P* **516** *L* **52** # 192

Lewis, David SPECIPHY / Lumentum

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

The allocation of channel insertion loss to fiber cable attenuation and connection / splice loss does not account for cases where link distance is less than the maximum. For example an optical circuit switch (OCS) may be connected via short fiber cables and a number of connectors / patch panels. A presentation in support of this comment can be provided at the next Task Force meeting.

SuggestedRemedy

Change the second paragraph to: "The maximum link distance is based on an allocation of 0.25 dB total fiber cable attenuation, with the remainder of the maximum channel insertion loss specified in Table 181-10 being allocated to connection and splice loss. For example, with no discrete reflections greater than -55 dB, a total connection and splice loss allocation of 3.25 dB supports either six connections with an average insertion loss per connection of 0.5 dB, or alternatively an optical switch with insertion loss of 2 dB and two connections with average insertion loss of 0.5 dB. Connections with different loss characteristics may be used provided the requirements of Table 181-8 are met."

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.8.2** *P* **547** *L* **52** # 193

Lewis, David SPECIPHY / Lumentum

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

The allocation of channel insertion loss to fiber cable attenuation and connection / splice loss does not account for cases where link distance is less than the maximum. For example an optical circuit switch (OCS) may be connected via short fiber cables and a number of connectors / patch panels. A presentation in support of this comment can be provided at the next Task Force meeting.

SuggestedRemedy

Change the second paragraph to: "The maximum link distance is based on an allocation of 1 dB total fiber cable attenuation, with the remainder of the maximum channel insertion loss specified in Table 182-12 being allocated to connection and splice loss. For example, with no discrete reflections greater than -55 dB, a total connection and splice loss allocation of 3 dB supports either six connections with an average insertion loss per connection of 0.5 dB, or alternatively an optical switch with insertion loss of 2 dB and two connections with average insertion loss of 0.5 dB."

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.8.2** *P* **579** *L* **52** # 194

Lewis, David SPECIPHY / Lumentum

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

The allocation of channel insertion loss to fiber cable attenuation and connection / splice loss does not account for cases where link distance is less than the maximum. For example an optical circuit switch (OCS) may be connected via short fiber cables and a number of connectors / patch panels. A presentation in support of this comment can be provided at the next Task Force meeting.

SuggestedRemedy

Change the second paragraph to: "The maximum link distance for 800GBASE-FR4 is based on an allocation of 1 dB total fiber cable attenuation, with the remainder of the maximum channel insertion loss specified in Table 183-11 being allocated to connection and splice loss. For example, with no discrete reflections greater than -55 dB, a total connection and splice loss allocation of 3 dB supports either six connections with an average insertion loss per connection of 0.5 dB, or alternatively an optical switch with insertion loss of 2 dB and two connections with average insertion loss of 0.5 dB."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **491** *L* **45** # 195

Dudek, Michael Marvell

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

This comment is in support of comment i-493 against D3.0. For a multilane system what matters is the Frame Loss Ratio of the interface which is a function of the performance of all the lanes. It is not necessary for all the lanes to meet the specification here. Also it is not possible to test the performance of the individual lanes when using scrambled idle (pattern 5). Also the test method called out in 174A.9.6 (allowed by page 492 line 2) specifically allows is a multilane test.

SuggestedRemedy

Delete "of each lane" here and for stressed sensitivity on page 493 line 37. Make the equivalent changes in clauses 181, 182, and 183 (note that the change is not needed in 181.9.15 or 183.9.15 as they already do not say "of each lane". If the committee decision is that all lanes must meet the specification individually then pattern 5 needs to be removed as a test pattern option, 174A.9.6 needs to be deleted and exceptions need to be made to 174A.9.5 and 174A.9.7 which allow the use of 174A.9.6.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **33** # 196

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **X**

The name is "transmitter functional symbol error histogram on line 36 and on page 487 line 34

SuggestedRemedy

Change "test" to "transmitter"

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.8** *P* **521** *L* **3** # 197

Dudek, Michael Marvell

Comment Type **ER** *Comment Status* **X**

This is a circular reference.

SuggestedRemedy

Change 181.9.8 to 180.9.8

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **36** # 198

Dudek, Michael Marvell

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

The histograms should be centered 0.05UI before and after the sampling phase. Not just "nominally".

SuggestedRemedy

Delete "nominally"

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.11.3.2** *P* **448** *L* **45** # 199

Dudek, Michael Marvell

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

The cable assembly S parameters should be used for these tests not those for the channel. Channel isn't defined here

SuggestedRemedy

Change "channel" to "cable assembly" in 4 places

Proposed Response *Response Status* **O**

Cl **176C** *SC* **176C.6.4.4** *P* **808** *L* **53** # 200

Dudek, Michael Marvell

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

Measuring the very low probabilities in this table is not possible in a reasonable test time and also is not necessary as they are much lower than the required Frame loss ratio probability.

SuggestedRemedy

Below the table add a note "In order to predict whether a receiver meets the BLER requirement in a short test time it is acceptable to have zero counts in a 10 second test for any bin which has a probability less than 1e-11.

Proposed Response *Response Status* **O**

Cl **176D** *SC* **176D.8.11** *P* **839** *L* **30** # 201

Dudek, Michael Marvell

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

Measuring the very low probabilities in this table is not possible in a reasonable test time and also is not necessary as they are much lower than the required Frame loss ratio probability.

SuggestedRemedy

Below the table add a note "In order to predict whether a receiver meets the BLER requirement in a short test time it is acceptable to have zero counts in a 10 second test for any bin which has a required probability less than 1e-11.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.1** *P* **463** *L* **49** # 202

Dudek, Michael Marvell

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

Figure 120F-1 (and Figure 120G-1) show the 1.6TAUI-16 betweem BM-PMA's however the rest of the draft indicates that the 1.6TBASE-R SM-PMA is used.

SuggestedRemedy

Add a footnote to the 1.6TAUI-16 indications in Figures 120F-1 and 120F-2 stating that the 1.6TAUI-16 SM-PMA is used. Or probably better replace BM-PMA with PMA and add a footnote to that stating. "BM-PMA's are used for 200GAUI-2, 400GAUI-4 and 800GAUI-8, the 1.6GAUI-16 uses the SM-PMA. Consider also

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.5.1** *P* **467** *L* **20** # 203

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **X**

The sentence can be worded better

SuggestedRemedy

Replace "While TP2 and the patch cord for transmitter measurements and tests are shown in Figure 183–2, they are not part of the medium" with "While TP2 and the patch cord used for transmitter measurements and tests are shown in Figure 183–2, they are not part of the medium." Make the same change in clauses 181, 182 and 183

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **483** *L* **54** # 204

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

Change "capture waveform" to "captured waveform"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **4** # 205

Dudek, Michael Marvell

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

If a DUT is tested with an optimization method that results in a lower TDECQ it can have a lower OMA. There is an interoperability issue if the Rx stressed sensitivity is calibrated with the MMSE algorithm and would have had a lower TDECQ if optimized using this other method.

SuggestedRemedy

Change "equal or lower" to "equal or similar"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **43** # 206

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **X**

Refering to 180.9.8.2 in 180.9.8.2 is a circular reference.

SuggestedRemedy

Delete "using the method in 180.9.8.2"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8** *P* **485** *L* **45** # 207

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **X**

It would read better if the pass/fail criterion where moved to the test description rather than being in the histogram description.

SuggestedRemedy

Move "A probable failure is indicated by either of the following:
— exceeding the TFSEH mask defined in Table 180–17
— a value greater than 0 in counter test_block_error_bin_i_k (see 174A.9.2), for k greater than 8" from page 489 line 45 to page 487 line 46

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **30** # 208

Dudek, Michael Marvell

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

The receiver sensitivity test is intended to ensure inter-operability with worst case transmitters that have the given TDECQ/TECQ. It is expected that a low extinction ratio will be more worst case for a receiver than a high extinction ratio, therefore the min extinction ratio should be used for the LRS test.

SuggestedRemedy

Change the min extinction ratio to 3.5dB and the max to 4.5dB in table 180-18.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.9.8** *P* **521** *L* **13** # 209

Dudek, Michael Marvell

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

Table 181-13 requires minimum loss. Including the VOA in this description isn't possible.

SuggestedRemedy

Either delete "VOA and" or add "with the exception that the channel loss is not minimum". Make the equivalent change in clauses 182 and 183.

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.9.2** *P* **393** *L* **26** # 210

Dudek, Michael Marvell

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

In Table 178-6 Difference steady-state voltage is listed as a range. However the reference clause 178.9.2.5 only requires meeting the minimum value. Also as long as the Differential peak-to-peak voltage specification is met there doesn't seem to be a reason to have a maximum difference steady-state voltage.

SuggestedRemedy

Change this just to min with the unchanged value of 0V.

Proposed Response *Response Status* **O**

Cl **178** *SC* **178.9.2** *P* **393** *L* **25** # 211

Dudek, Michael Marvell

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

The transmitter common-mode to differential mode return loss is specified in 178.9.2.7 but is missing from Table 178-6

SuggestedRemedy

Add Common-mode to differenential-mode return loss RLdc(min) to Table 178-6. Reference 178.9.2.7 and value Equation 178-2

Proposed Response *Response Status* **O**

Cl **176C** *SC* **176C.6.4.5.2** *P* **810** *L* **38** # 212

Dudek, Michael Marvell

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

"package class A"no longer exists in Table 176C-2.

SuggestedRemedy

Delete "for package class A"

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.5** *P* **902** *L* **11** # 213

Law, David Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Subclause 178B.8.1 'State diagram conventions' says 'The notation used in the state diagrams follows the conventions of 21.5.'. Table 21–1 'State diagram operators' in subclause 21.5 defines the use of the [left arrow] character as the 'Assignment operator'.

SuggestedRemedy

Change the two instances of the use of the characters '<=' as the assignment operator in the WAIT_DATAPTH state in Figure 178B–10b 'Training control state diagram, part 2' to use the [left arrow] character.

Proposed Response *Response Status* **O**

Cl **169** *SC* **169.3.2** *P* **211** *L* **45** # 214

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Since a new Figure 169–2a is being inserted after Figure 169–2 (see page 213), suggest that '... are illustrated in Figure 169–2, Figure 169–3, Figure 185–2 ...' should read '... are illustrated in Figure 169–2, Figure 169–2a, Figure 169–3, Figure 185–2 ...'.

SuggestedRemedy

See comment

Proposed Response *Response Status* **O**

Cl **173** *SC* **173.4.2** *P* **273** *L* **1** # 215

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

The editing instructions for the figure in subclause 173.4.2 '8:32 PMA' say 'Replace Figure 173–3 with the following', and the title of Figure 173–3 is '8:32 PMA functional block diagram'. On review of the published IEEE Std 802.3-2024, I believe that Figure 173–3 is '32:8 PMA functional block diagram', and it is Figure 173–4, which is part of subclause 173.4.2 '8:32 PMA', that is '8:32 PMA functional block diagram'.

SuggestedRemedy

Suggest that 'Replace Figure 173–3 with the following:' should read 'Replace Figure 173–4 with the following' and that 'Figure 173–3—8:32 PMA functional block diagram' should read 'Figure 173–4—8:32 PMA functional block diagram'.

Proposed Response *Response Status* **O**

Cl **176D** *SC* **176D.4** *P* **825** *L* **12** # 216

Law, David — Hewlett Packard Enterprise

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

Figure 176D–3 illustrates PMA:IS_UNITDATA_0:k.request as an arrow output from the top of the k:n PMA input to the bottom of the C2M Component (module side) above. This doesn't seem correct, as IS_UNITDATA_0:k.request is the transmit path and should therefore be output by the C2M component (module side) and input to the k:n PMA (see Figure 176-2).

SuggestedRemedy

Reverse the direction of the PMA:IS_UNITDATA_0:k.request between the C2M Component (module side) and the k:n PMA.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.5** *P* **877** *L* **6** # 217

Law, David — Hewlett Packard Enterprise

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

Figure 178B 'RTS and ILT functions within interfaces' shows the SIGNAL_OK parameter of inst:IS_SIGNAL.request and the tx_symbol parameter of inst:IS_UNITDATA_i.request primatives as inputs to the RTS function and transmit function, respectively, and the SIGNAL_OK parameter of inst:IS_SIGNAL.indication and the rx_symbol parameter of inst:IS_UNITDATA_i.indication as outputs from the RTS function and receive function, respectively.

The definition for the adjacent_signal_ok variable in subclause 178B.8.2.1 includes the note 'For an interface below a PMA or Inner FEC (AUI component or PMD), SIGNAL_OK is received via the IS_SIGNAL.request primitive of the service interface above the interface. For an interface above a PMA (AUI component), the SIGNAL_OK is received via the IS_SIGNAL.indication primitive of the service interface below the interface.'.

Subclause 176C.4 'Service interfaces' says 'For an AUI component above the AUI channel, the SIGNAL_OK parameter of the PMA:IS_SIGNAL.indication primitive corresponds to the variable rts_status of the RTS function, as defined in 178B.8.2.1.' and 'For an AUI component below the AUI channel, the SIGNAL_OK parameter of the PMA:IS_SIGNAL.request primitive corresponds to the variable rts_status of the RTS function, as defined in 178B.8.2.1.'.

Figure 176C–3 shows PMA:IS_UNITDATA_0:k.request as an input to the interface below the PMA, the C2C component (host side), and PMA:IS_UNITDATA_0:k.request as an output from the interface above the PMA, the C2C component (module side).

As a result, I believe that the figure only illustrates an interface below a PMA.

SuggestedRemedy

Change the title of Figure 178B–3 'RTS and ILT functions within interfaces' to read 'RTS and ILT functions within an interface below a PMA (AUI component or PMD)' and add a new Figure titled 'RTS and ILT functions within an interface above a PMA (AUI component)' with the PAM service interface primitives mirrored.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.2.1** *P* **893** *L* **53** # 218

Law, David — Hewlett Packard Enterprise

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

Subclause 178B.6 'RTS function' says that 'The state of the rts_status variable is provided by the interface to the adjacent interface via the service interface SIGNAL_OK parameter.'. Subclause 176D.4 'Service interfaces' says that 'For an AUI component above the AUI channel, the SIGNAL_OK parameter of the PMA:IS_SIGNAL.indication primitive corresponds to the variable rts_status of the RTS function ...' and that ' For an AUI component below the AUI channel, the SIGNAL_OK parameter of the PMA:IS_SIGNAL.request primitive corresponds to the variable rts_status of the RTS function ...'.

As a result, I believe that the rts_status variable maps to the SIGNAL_OK parameter of the IS_SIGNAL.indication primitive if the interface is below the PMA, and to the SIGNAL_OK parameter of the IS_SIGNAL.request primitive if the interface is above the PMA.

SuggestedRemedy

[1] Add the following text to the rts_status variable definition:

The rts_status maps to the SIGNAL_OK parameter of the output IS_SIGNAL primitive on the service interface.

[2] Based on the note provided for the adjacent_signal_ok variable, which is mapped from the SIGNAL_OK parameter, add the following note to the rts_status variable:

NOTE—For an interface below a PMA or Inner FEC (AUI component or PMD), rts_status maps to the SIGNAL_OK parameter of the IS_SIGNAL.indication primitive of the service interface above the interface. For an interface above a PMA (AUI component), rts_status maps to the SIGNAL_OK parameter of the IS_SIGNAL.request primitive of the service interface below the interface.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.5** *P* **878** *L* **14** # 219

Law, David — Hewlett Packard Enterprise

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

Subclause 178B.8.2.1 'Variables' defines adjacent_signal_ok as an 'Enumerated variable derived from the value of the SIGNAL_OK parameter on the service interface.'. The SIGNAL_OK parameter is shown as an input to the RTS Function, and the adjacent_signal_ok variable is used by the ILT function (see Figure 178B–10b Training control state diagram, part 2). It, therefore, appears that the adjacent_signal_ok variable is derived from the SIGNAL_OK parameter by the RTS Function, and then passed to the ILT function.

SuggestedRemedy

Add an arrow labelled 'adjacent_signal_ok' from the RTS Function box to the ILT function box.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **898** *L* **11** # 220

Law, David — Hewlett Packard Enterprise

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

The definition of the local_rx_ready variable in subclause 178B.8.3.1 'Variables' says 'When in the RECOVERY state (Figure 178B–10a) this variable is false.'. The use of descriptive language ("is") rather than normative language ("shall") makes this a statement of behaviour rather than a requirement. The RECOVERY state of Figure 178B–10a, however, does not set the local_rx_ready variable to any value.

SuggestedRemedy

Either:

[1] Add the action 'local_rx_ready <= false' to the RECOVERY state of Figure 178B–10a state diagram

or

[2] Change the text 'When in the RECOVERY state (Figure 178B–10a) this variable is false.' to read 'It shall be set to false on entry to the RECOVERY state (Figure 178B–10a)'.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.2.1** *P* **893** *L* **39** # 221

Law, David — Hewlett Packard Enterprise

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

Suggest that it should be clarified that the adjacent_signal_ok variable is derived from the SIGNAL_OK parameter of the input IS_SIGNAL primitive on the service interface.

SuggestedRemedy

[1] Change the text '... the SIGNAL_OK parameter on the service interface.' to read '... the SIGNAL_OK parameter of the input IS_SIGNAL primitive on the service interface.'.
[2] Change the NOTE to read 'NOTE—For an interface below a PMA or Inner FEC (AUI component or PMD), the adjacent_signal_ok variable is derived from the SIGNAL_OK parameter of the IS_SIGNAL.request primitive of the service interface above the interface. For an interface above a PMA (AUI component), the adjacent_signal_ok variable is derived from the SIGNAL_OK parameter of the IS_SIGNAL.indication primitive of the service interface below the interface.

Proposed Response *Response Status* **O**

Cl **173** *SC* **173.4.2** *P* **1273** *L* **1** # 222

Law, David — Hewlett Packard Enterprise

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

The editing instructions for the figure in subclause 173.4.2 '8:32 PMA' say 'Replace Figure 173–3 with the following', and the title of Figure 173–3 is '8:32 PMA functional block diagram'. On review of the published IEEE Std 802.3-2024, Figure 173–3 is '32:8 PMA functional block diagram', and it is Figure 173–4, which is part of subclause 173.4.2 '8:32 PMA', that is '8:32 PMA functional block diagram'.

SuggestedRemedy

Suggest that 'Replace Figure 173–3 with the following:' should read 'Replace Figure 173–4 with the following' and that 'Figure 173–3—8:32 PMA functional block diagram' should read 'Figure 173–4—8:32 PMA functional block diagram'.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **480** *L* **45** # 223

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

The text says "TDECQ is measured with all
receive lanes in operation using pattern 3 or 5 (see Table 180–13)." The purpose of this is not clear. This relates to unsatisfied rejected comment I-388 from D3.0.

SuggestedRemedy

Change to: "TDECQ is measured with all
receive lanes in operation using pattern 3 or 5 (see Table 180–13) in order to subject the optical lane under test to possible crosstalk interference."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **480** *L* **53** # 224

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

The text says "For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or
a valid xBASE-R signal." The xAUI-n has two inputs: one from the channel going towards the host, and one from the host going towards the channel. I presume this is meant as the one from the host going towards the channel. That should be clearer. This relates to unsatisfied rejected comment I-390 from D3.0.

SuggestedRemedy

Change to: "For those cases where the optical lane under test is normally fed by an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **481** *L* **4** # 226

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

Section 180.9.6.1 says "The optical splitter and variable reflector are adjusted so that each transmitter is tested with the optical return
loss specified in Table 180–7. The state of polarization of the back reflection is adjusted to create the
greatest RIN." Section 180.9.6.2 on the next page says "The channel provides back reflection with return loss specified in Table 180–15. The state of polarization of
the back reflection is adjusted to create the greatest RIN." This seems very redundant.

SuggestedRemedy

Eliminate "The channel provides back reflection with return loss specified in Table 180–15. The state of polarization of
the back reflection is adjusted to create the greatest RIN." from Section 180.9.6.2.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **3** # 227

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

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

The text says "Alternative optimization methods may be used to determine equalizer tap weights if they report equal or lower mean values of TDECQ." If alternative methods are proposed they should be spelled out. Having an unspecified test methodology can result in different measurements by different parties, resulting in interoperability issues.

SuggestedRemedy

Delete the sentence unless specific altrernative methods are proposed and specified.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **485** *L* **17** # 228

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

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

The use of y_i and y_n in the spec is confusing, as the note indicates.

SuggestedRemedy

Replace occurences of y_i on the remainder of this page and the following page with Y_i, and indicate that this is the mean power of the i^th histogram bin.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **485** *L* **28** # 229

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

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

The method of estimating SER using a "CDF" (which is not really a CDF, because it is not monotonically nondecreasing) for y and a Gaussian approximation is unnecessarily complex and double or triple counts errors. It also excludes the Gaussian tail probabilities as described in swenson_3dj_01a_2603.pdf. This relates to unsatisfied rejected comment I-397 from D3.0.

SuggestedRemedy

Revise calculation of SER by using Q functions (tabulated integrals of the Gaussian distribution) or with appropriate analytic appxoimations that can be expressed in closed form. A presentation will give details.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **485** *L* **41** # 230

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

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

The CDF(y) method of calculating SER assumes that the eye is open to begin with before noise is added. But with a TDECQ of 3.4 dB, there may be some points that cross the nearest threshold without added noise. This relates to unsatisfied rejected comment I-415 from D3.0.

SuggestedRemedy

Since the transmitted symbol sequence is known and synchronized with the received waveform, the probability of symbol error can be computed for a particular y given x using a Q function, even when y is in the wrong decision region. Use this method to compute the SER. A presentation will be given with details.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **471** *L* **33** # 231

Maniloff, Eric — Ciena Corporation

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

To meet the (OMAouter)min requirement of -1 + max(TECQ,TDECQ) dBm at max TECQ/TDECQ of 3.4dB with minimum ER requires a minimum of 3.6dBm of optical average launch power. Current average launch power (max) is specified at 4dBm. The margin of 0.4dB is not practical for manufacturing, temperature, aging. A minimum of 1 dB of difference between min and max value is required for product manufacturing and across lifetime and environmenntal conditions for the worst TDECQ at the minimum ER specified to statisfy the (OMAouter)min requirement. Typically this difference has been 1.5 dB.

SuggestedRemedy

Change value in table 180-7, Average launch power, each lane(max) from "4" dBm to "5" dBm.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.2** *P* **473** *L* **15** # 232

Maniloff, Eric — Ciena Corporation

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

Changing the Tx Power Max, requires a corresponding update to the Average receive power, each lane(max).

SuggestedRemedy

Change value in table 180-8, Average receive power, each lane(max) from "4" dBm to "5" dBm, and increase the damage threshold to maintain a 1dB offset from the Average receive power (max)

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.7.1** *P* **542** *L* **35** # 233

Maniloff, Eric — Ciena Corporation

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

To meet the (OMAouter)min requirement of -1 + max(TECQ,TDECQ) dBm at max TECQ/TDECQ of 3.4dB with minimum ER requires a minimum of 3.6dBm of optical average launch power. Current average launch power (max) is specified at 4dBm. The margin of 0.4dB is not practical for manufacturing, temperature, aging. A minimum of 1 dB of difference between min and max value is required for product manufacturing and across lifetime and environmenntal conditions for the worst TDECQ at the minimum ER specified to statisfy the (OMAouter)min requirement. Typically this difference has been 1.5 dB.

SuggestedRemedy

Change value in table 182-7, Average launch power, each lane(max) from "4" dBm to "5" dBm.

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.7.2** *P* **544** *L* **16** # 234

Maniloff, Eric — Ciena Corporation

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

Changing the Tx Power Max, requires a corresponding update to the Average receive power, each lane(max).

SuggestedRemedy

Change value in table 182-8, Average receive power, each lane(max) from "4" dBm to "5" dBm, and increase the damage threshold to maintain a 1dB offset from the Average receive power (max)

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **483** *L* **13** # 235

Maniloff, Eric — Ciena Corporation

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

The maximum main tap coefficient limit w(0) of 2.5 was determined for an FFE reference equalizer in the absence of a DFE. The addition of the DFE in the reference equalizer changes the magnitude of the main tap coefficient of the FFE filter. A proposed reduction of the maximum main tap value is suggested based on the relationship between the DFE tap value and the main tap coefficient evolution due to the addtion of the DFE. This reduction to the max limit takes into account the DFE max value of b(1) of bmax = 0.33. A support presentation will be/has been presented at the 6/24 ad-hoc.

SuggestedRemedy

Change value in table 180-16, Main tap coefficient limit w(0) Maximum value from "2.5" to "1.9"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **483** *L* **17** # 236

Maniloff, Eric — Ciena Corporation

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

The minimum normalized first postcursor tap coefficient limit w(1)/w(0) of -0.6 was determined for an FFE reference equalizer in the absence of a DFE. The addition of the DFE in the reference equalizer changes the magnitude of the first precursor tap coefficient of the FFE filter. A proposed increase of the minimum first postcursor tap value is suggested based on the relationship between the DFE tap value and the first postcursor tap coefficient evolution due to the addtion of the DFE. This reduction to the min limit takes into account the DFE max value of b(1) of bmax = 0.33. A support presentation will be/has been presented at the 6/24 ad-hoc.

SuggestedRemedy

Change value in table 180-16, Normalized feed-forward tap coefficient limits w(i)/w(0), i=1 Minimum value from "-0.6" to "-0.27"

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **471** *L* **42** # 237

Maniloff, Eric — Ciena Corporation

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

Over peaking of transmitters is not effectively prevented. The overshoot limit is not effective as higher bandwidth transmitters could be over peaked and still meet an overshoot specification. Use of Ceq from the Reference Rx gives insight into whether the Tx is overpeaked. With the introduction of the DFE into he Reference Rx, the calculation of Ceq needs to be modified to account for the DFE tap.

SuggestedRemedy

Add Ceq_TXBW into Table 180-7 with a Minimum value of 0dB. Similar changes should be made in clauses 181, 182, 183. The definition of this parameter is: Ceq_TXBW = 10log10(Ceq)+10log10(OMAouter) -10log10(OMA_TDECQ)-10*l0g10(1+b) +10*log10(1/(1-b)). See details in https://www.ieee802.org/3/dj/public/26_05/alloin_3dj_03_2605.pdf

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7** *P* **470** *L* **46** # 238

Maniloff, Eric — Ciena Corporation

Comment Type **E** *Comment Status* **X**

"(e.g., a 400GBASE-DR4 PMD…" Should refer to 400GBASE-DR2, as this clause is about 200G/lane PMDs

SuggestedRemedy

Replace 400GBASE-DR4 with 400GBASE-DR2

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **487** *L* **2** # 239

Maniloff, Eric — Ciena Corporation

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

The 1% of the target PAM4 SER is too precise. This would require an accuracy within +/- 0.005 dB in TDECQ and may prevent convergence.

SuggestedRemedy

Remove this criterion or replace it with a target of convergence within +/-0.05dB of TDECQ

Proposed Response *Response Status* **O**

Cl **176D** *SC* **176D-3** *P* **829** *L* **5** # 240

Rysin, Alexander NVIDIA

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

The current value R_peak of module output in AUI-C2M is set too high. The current value cannot be met in simulation even for slightest deviation from the COM reference model. Prior work (mi_3dj_02a_2507) also showed that the current value may be unreachable. Data from recent interoperability events (e.g. calvin_3dj_01a_2601) show that most tested modules cannot meet the R_peak and v_f specifications together for the same TX preset.

SuggestedRemedy

Change module output R_peak to 0.44 to provide some margin for reasonable deviations from the COM reference model parameters.

Proposed Response *Response Status* **O**

Cl **176D** *SC* **176D.8.12.2** *P* **842** *L* **30** # 241

Rysin, Alexander NVIDIA

Comment Type **ER** *Comment Status* **X**

The word "noise" appears twice in succession:

"For a given noise RMS noise voltage σ_ns measured at the Tx test reference, the spectral density of the noise source N_s(f) used for calculation of COM may be calculated using Equation (179–18)."

SuggestedRemedy

Change:
"For a given noise RMS noise voltage σ_ns measured at the Tx test reference..."
to:
"For a given RMS noise voltage σ_ns measured at the Tx test reference..."

Proposed Response *Response Status* **O**

Cl **179** *SC* **179.9.5.3.3** *P* **441** *L* **45** # 242

Rysin, Alexander NVIDIA

Comment Type **E** *Comment Status* **X**

The word "noise" appears twice in succession:

"For a given noise RMS noise voltage σ_ns measured at the Tx test reference, the spectral density of the noise source N_s(f) used for calculation of COM may be calculated using Equation (179–18)."

SuggestedRemedy

Change:
"For a given noise RMS noise voltage σ_ns measured at the Tx test reference..."
to:
"For a given RMS noise voltage σ_ns measured at the Tx test reference..."

Proposed Response *Response Status* **O**

Cl **176D** *SC* **176D.8.3.4** *P* **836** *L* **45** # 243

Rysin, Alexander NVIDIA

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

176D.8.3.4 cites the wrong equation numbers for two of the three modal return loss mask requirements. The subclause currently reads:

"The common-mode to common-mode return loss specification is satisfied by either meeting the requirement of Equation (179–15) or having ERL_CC value higher than the specification in Table 176D–9."

"The common-mode to differential-mode return loss specification is satisfied by either meeting the requirement of Equation (179–16) or having ERL_DC higher than the value in Table 176D–9."

Common-mode to common-mode (CC) return loss mask (RLcc) is defined in Eq. 179–14 and common-mode to differential-mode (DC) return loss mask (RLdc) is defined in Eq. 179–15.

SuggestedRemedy

In 176D.8.3.4, first sentence, change "Equation (179–15)" to "Equation (179–14)."

In 176D.8.3.4, second sentence, change "Equation (179–16)" to "Equation (179–15)."

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **898** *L* **8** # 244

Osorio, Luz Nokia

Comment Type **ER** *Comment Status* **X**

Missing space after period in "[...] that the remote transmit has been optimized if mr_training_enable is true, that the local receive equalizers have been optimized, and that no further adjustments are required for normal data transmission.The specific conditions for"

SuggestedRemedy

"that the remote transmit has been optimized if mr_training_enable is true, that the local receive equalizers have been optimized, and that no further adjustments are required for normal data transmission. The specific conditions for"

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **898** *L* **7** # 245

Osorio, Luz Nokia

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

Since the recovery after failure of local_rx_ready does not mandate training takes place (sending ILT frames), it is not possible for the receiver to optimize the remote transmit by requesting adjustments from the local receiver.

Change mr_training_enable to training in the defintion

SuggestedRemedy

"that the remote transmit has been optimized if mr_training_enable training is true, that the local receive equalizers have been optimized, and that no further adjustments are required for normal data transmission. The specific conditions for"

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.1** *P* **897** *L* **26** # 246

Osorio, Luz Nokia

Comment Type **ER** *Comment Status* **X**

Add a reference to the INITIALIZE defintion. Use the same format as the rest of the document.

"or the value INITIALIZE."

SuggestedRemedy

"or the INITIALIZE setting in table 179-8."

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.5** *P* **901** *L* **4** # 247

Osorio, Luz Nokia

Comment Type **ER** *Comment Status* **X**

The starting state uses the name INTIALIZE which could be mistaken with the INTIALIZE coefficient setting. Suggest using START

SuggestedRemedy

Change INITIALIZE to START

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.8.3.5** *P* **902** *L* **40** # 248

Osorio, Luz Nokia

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

add recovery options and ability variables as proposed in osorio_178b_03_260625

An updated proposal presentation will be provided if there are changes required after the June 25th ad-hoc

SuggestedRemedy

Implement changes per the presentation proposal

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.10** *P* **906** *L* **7** # 249

Osorio, Luz Nokia

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

Add management variables proposed in osorio_178b_03_260625

An updated proposal presentation will be provided if there are changes required after the June 25th ad-hoc

SuggestedRemedy

Implement changes per the presentation proposal

Proposed Response *Response Status* **O**

Cl **176** *SC* **176.4.1** *P* **325** *L* **15** # 250

Law, David — Hewlett Packard Enterprise

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

Figure 176–2 '200GBASE-R 8:1, 400GBASE-R 16:2, 800GBASE-R 32:4, 1.6TBASE-R 16:8 PMAs functional block diagram' and Figure 176–12 '200GBASE-R 1:8, 400GBASE-R 2:16, 800GBASE-R 4:32, 1.6TBASE-R 8:16 PMAs functional block diagram' show a SIL block in both the IS_SIGNAL.request and IS_SIGNAL.indication primitive paths, and Figure '176–9—1:8 symbol-pair demultiplexer functional block diagram' shows an output to the 'SIL'.

There, however, doesn't appear to be any reference to 'SIL' or 'Signal indication logic' in Clause 176. I believe, however, the operation of the SIL on the IS_SIGNAL.indication path is described in the penultimate paragraph of subclause 176.2 'PMA service interface' and the associated Table 176–5, and the operation of the SIL on the IS_SIGNAL.request path is described in the penultimate paragraph of subclause 176.3 'Service interface below PMA', and associated Table 176-6.

SuggestedRemedy

[1] In subclause 176.2 'PMA service interface', change the text 'For the m:n and n:m PMAs the SIGNAL_OK parameter at the client interface is set according to Table 176–5.' to read 'For the m:n and n:m PMAs the SIGNAL_OK parameter at the client interface is set by the signal indication logic (SIL) according to Table 176–5.'.

[2] In subclause 176.3 'Service interface below PMA', change the text 'For m:n and n:m PMAs, the SIGNAL_OK parameter at the interface below the PMA is set according to Table 176–6.' to read 'For m:n and n:m PMAs, the SIGNAL_OK parameter at the interface below the PMA is set by the SIL according to Table 176–6.'.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.12.4.1** *P* **499** *L* **7** # 251

Law, David — Hewlett Packard Enterprise

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

PICS item F9 'Global Signal Detect function', referencing subclause 180.5.4, says 'Report to the PMD service interface the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' and item F10 'Global Signal Detect behavior', also referencing subclause 180.5.4, says SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes'.

I don't think this is correct, as the Global_PMD_signal_detect variable defined in subclause 180.5.4 'PMD global signal detect function' is only used by the MDIO registers, with the PMD:IS_SIGNAL.indication primitive generated by the RTS function.

In addition, doesn't a 200GBASE-DR1 PMD have only one lane, a 400GBASE-DR2 PMD have only two lanes, but a 1.6TBASE-DR8 PMD have eight?

SuggestedRemedy

Delete PICS item F9 and change the Value/Comment text of PICS item F10 from 'SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes' to 'Global_PMD_signal_detect is an indicator of the presence of an optical signal on all lanes, or lane 0 for a 200GBASE-DR1 PMD.

Proposed Response *Response Status* **O**

Cl **181** *SC* **181.12.4.1** *P* **528** *L* **3** # 252

Law, David — Hewlett Packard Enterprise

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

PICS item F10 'Global Signal Detect function', referencing subclause 181.5.4, says 'Report to the PMD service interface the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' and item F11 'Global Signal Detect behavior', also referencing subclause 181.5.4, says SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes'.

I don't think this is correct, as the Global_PMD_signal_detect variable defined in subclause 181.5.4 'PMD global signal detect function' is only used by the MDIO registers, with the PMD:IS_SIGNAL.indication primitive generated by the RTS function.

SuggestedRemedy

Delete PICS item F10 and change the Value/Comment text of PICS item F11 from 'SIGNAL_DETECT is a global indicator ...' to read 'The Global_PMD_signal_detect variable is a global indicator ...'.

Proposed Response *Response Status* **O**

Cl **182** *SC* **182.12.4.1** *P* **561** *L* **9** # 253

Law, David — Hewlett Packard Enterprise

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

PICS item F9 'Global Signal Detect function', referencing subclause 182.5.4, says 'Report to the PMD service interface the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' and item F10 'Global Signal Detect behavior', also referencing subclause 182.5.4, says SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes'.

I don't think this is correct, as the Global_PMD_signal_detect variable defined in subclause 182.5.4 'PMD global signal detect function' is only used by the MDIO registers, with the PMD:IS_SIGNAL.indication primitive generated by the RTS function.

In addition, doesn't 200GBASE-DR1-2 PMD have only one lane, a 400GBASE-DR2-2 PMD have only two lanes, but a 1.6TBASE-DR8-2 PMD have eight?

SuggestedRemedy

Delete PICS item F9 and change the Value/Comment text of PICS item F10 from 'SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes' to read 'Global_PMD_signal_detect is an indicator of the presence of an optical on all lanes, or lane 0 for a 200GBASE-DR1-2 PMD.

Proposed Response *Response Status* **O**

Cl **183** *SC* **183.12.4.1** *P* **592** *L* **7** # 254

Law, David — Hewlett Packard Enterprise

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

PICS item F10 'Global Signal Detect function', referencing subclause 183.5.4, says 'Report to the PMD service interface the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' and item F11 'Global Signal Detect behavior', also referencing subclause 183.5.4, says SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes'.

I don't think this is correct, as the Global_PMD_signal_detect variable defined in subclause 183.5.4 'PMD global signal detect function' is only used by the MDIO registers, with the PMD:IS_SIGNAL.indication primitive generated by the RTS function.

SuggestedRemedy

Delete PICS item F10 and change the Value/Comment text of PICS item F11 from 'SIGNAL_DETECT is a global indicator ...' to read 'The Global_PMD_signal_detect variable is a global indicator ...'.

Proposed Response *Response Status* **O**

Cl **185** *SC* **185.11.4.1** *P* **644** *L* **46** # 255

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

In PICS item F6, the reference to the SIGNAL_DETECT parameter should be to the SIGNAL_OK parameter (see subclause 185.3.1.3.1).

SuggestedRemedy

In PICS item F6, change the text '... the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' to read 'the message PMD:IS_SIGNAL.indication (SIGNAL_OK)'.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.1** *P* **649** *L* **31** # 256

Law, David — Hewlett Packard Enterprise

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

Subclause 186.2.2 '800GBASE-ER1 FEC sublayer service interface' says, 'The SIL function uses information received from the 800GBASE-ER1 PMA via PMA:IS_SIGNAL.indication and information from the received MNT bits (XREF) to determine the status communicated to the SIGNAL_OK value communicated via FEC:IS_SIGNAL.indication. The mapping is as shown in Table 186–2.'.

Since the SIL is using the received MNT bits, which are conveyed in the OH field (see Figure 186–6), and I assume extracted by the 'OH/FAM processing' function in the 'Demapping' block in Figure 186–3 '800GBASE-ER1 FEC functional block diagram', doesn't there need to be a connection from the 'OH/FAM processing' box to the IS_SIGNAL.indication SIL box in Figure 186–3?

This seems to be confirmed by page 6 of the contribution 'A proposal to support APSU for 800GBASE-ER1/ER1-20' available at <https://www.ieee802.org/3/dj/public/adhoc/178b/26_0414/nicholl_178b_01_260414.pdf#page=6>, which shows a red line from the 'OH/FAM processing' box to the FEC:IS_SIGNAL.indication primative.

SuggestedRemedy

Add an additional input from the 'OH/FAM processing' box to the SIL box in the IS_SIGNAL.indication primitive path in Figure 186–3 '800GBASE-ER1 FEC functional block diagram'.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.3.5** *P* **656** *L* **22** # 257

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

In Figure 186–6 'Contents of the OH field in eight frame multi-frame', shouldn't the LSB of the CSTAT field be bit 0, not bit 5?

SuggestedRemedy

Change '5' above the LSB of the CSTAT field in Figure 186–6 to read '0'.

Proposed Response *Response Status* **O**

Cl **186** *SC* **186.2.3.5.11** *P* **660** *L* **10** # 258

Law, David — Hewlett Packard Enterprise

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

Subclause 186.2.2 '800GBASE-ER1 FEC sublayer service interface' says 'The signal status received via FEC:IS_SIGNAL.request is mapped to the MNT bits (XREF) as shown in Table 186–1.' and 'The SIL function uses ... from the received MNT bits (XREF) to determine the status communicated ...'.

Further, while the MNT bits are illustrated as part of the CSTAT field in Figure 186–6 'Contents of the OH field in eight frame multi-frame', this is no reference to the 'MNT bits' in subclause 186.2.3.5.11 'Client status (CSTAT)' which just says, 'Bits 1-3 are used to convey the SIGNAL_OK status as described in Table 186–1.'.

SuggestedRemedy

Assuming that MNT means Maintenance:

[1] Change the two instances of '... MNT bits (XREF) ...' is subclause 186.2.2 to read '... MNT bits (186.2.3.5.11) ...'
[2] Change the text 'Bits 1-3 are used to convey the SIGNAL_OK status as described in Table 186–1.' to read 'Bits 1-3 are the Maintenance (MNT) bits and are used to convey the SIGNAL_OK status as described in Table 186–1.'.

Proposed Response *Response Status* **O**

Cl **187** *SC* **187.11.4.1** *P* **720** *L* **46** # 259

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

In PICS item F6, the reference to the SIGNAL_DETECT parameter should be to the SIGNAL_OK parameter (see subclause 185.3.1.3.1).

SuggestedRemedy

In PICS item F6, change the text '... the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' to read 'the message PMD:IS_SIGNAL.indication (SIGNAL_OK)'.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.5** *P* **876** *L* **42** # 260

Law, David — Hewlett Packard Enterprise

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

Subclause 178B.5 'RTS and ILT functions within an interface' says 'The RTS function uses inputs from the adjacent interface (via the service interface), its peer interface (via the ILT function), and its per-interface ILT function to permit the ILT function to transition to DATA mode.'.

My understanding is that the inputs from the adjacent interface (via the service interface) is the SIGNAL_OK parameter of the IS_SIGNAL.request primitive from the interface above the PMA to the adjacent interface below the PMA, and the SIGNAL_OK parameter of the IS_SIGNAL.indication primitive from the interface below the PMA to the adjacent interface above the PMA. In other words, this condition is communicated 'downward' via IS_SIGNAL.request and communicated 'upward' via IS_SIGNAL.indication.

Isn't it possible, however, for the Signal indication logic (SIL) in a sublayer in the path between adjacent interfaces to modify the SIGNAL_OK parameter of the IS_SIGNAL primitive communicated between adjacent interfaces, for example the Clause 176 Physical Medium Attachment (PMA) sublayer with RS-FEC symbol multiplexing (see Figure 176–12 and Tables 176–5 and 176–6) and Clause 177 Inner Forward Error Correction Sublayer (see Figure 177–2).

As a result, isn't the SIL in the sublayers between adjacent interfaces, if present, also part of APSU and used as an input to enable the ILT function to transition to DATA mode?

SuggestedRemedy

In subclause 178B.5, change the text 'The RTS function uses inputs from the adjacent interface (via the service interface) ...' to read 'The RTS function uses inputs from the adjacent interface, including any SIL between (via the service interface) ...'.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **480** *L* **53** # 261

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

The text says "For those cases where there is an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal." A channel fed PRBS31Q by a xAUI-n input normally transmits a PRBS31Q. Are we talking about a case where the xAUI input to the channel under test is ignored, and a pattern generator produces an SSPRQ instead that the channel under test transmits? This should be clearer. This relates to unsatisfied rejected comment I-390 from D3.0.

SuggestedRemedy

Change to: "For those cases where the optical lane under test is normally fed by an xAUI-n chip-to-chip (C2C) or chip-to-module (C2M) interface (see Table 180–1 through Table 180–4), the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal. The pattern of the xAUI-n input signal may be PRBS31Q, scrambled idle, or a valid xBASE-R signal. The xAUI-n input signal is ignored and the optical lane under test transmits the specified test pattern instead."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.1** *P* **478** *L* **45** # 262

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

TDECQ and TECQ have changed significantly from previous versions with the conversion from an FFE to a DFE for the reference equalizer. To avoid confusion with TDECQ and TECQ for 100G, the name should be changed to something else.

SuggestedRemedy

Change "Transmitter and Dispersion Eye Closure for PAM4 (TDECQ)" to "Transmitter and Dispersion Eye Closure for PAM4 - DFE (TDECQ-D)". Make similar changes for TECQ. Make the changes where appropriate throughout the document.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **18** # 263

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

Figure 180-11 looks like a continuous time eye diagram, because interpolation has been done between the sample points. A sampled eye diagam consistent with the text would be more appropriate.

SuggestedRemedy

Replace the eye diagram with a similar one that does not interpolate between the discrete sample points.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **37** # 264

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

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

The text states "Two vertical histograms are measured through the eye diagram, nominally centered 0.05 UI before and after
sampling phase ϕ0." and later "The precise time position of the pair of histogram windows is adjusted to minimize TDECQ while keeping the histogram windows spaced 0.1 UI apart." Since we are searching over \phi_0 to find the optimal sampling phase \phi, there is no need for this language. Also, we need one sample per symbol in each histogram.

SuggestedRemedy

Delete the word nominally from the first sentence and add additional qualifiers to give: "Two vertical histograms are measured through the eye diagram, centered 0.05 UI before and after

sampling phase ϕ0, interpolating the eye diagram if necessary. Each histogram captures one sample for each symbol in the test pattern for each captured repetition of the test pattern." Eliminate the second sentence beginning "The precise time position..."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **487** *L* **24** # 265

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

We should explicitly state the search range for \phi_0.

SuggestedRemedy

Change "TDECQ is the minimum value of TDECQ(ϕ0) calculated over the range of ϕ0." to "TDECQ is the minimum value of TDECQ(ϕ0) calculated over the range of ϕ0, 0 \leq \phi_0 <T".

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **41** # 267

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

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

The current text states: "Each histogram window has a width of 0.04 UI. Each histogram window has outer height boundaries which are set beyond the extremes of the eye diagram (so that no further samples would be captured by increasing the vertical separation of the height boundaries)." It is important that all of the symbols in the test pattern are represented in the histogram, and all of the symbols in the pattern should be represented by the same number of samples so that no symbols are overrepresented or underrepresented. For these reasons, the concept of a window should be eliminated, and the text should state that the histograms should capture a sample for each symbol in the test pattern for one or more repetitions of the test pattern, interpolating if necessary.

SuggestedRemedy

Delete the first sentence in the paragraph and replace the paragraph with the following: "Each histogram has outer height boundaries which are set beyond the extremes of the eye diagram (so that no further samples would be captured by increasing the vertical separation of the height boundaries). Each symbol in the test pattern is represented equitably in each histogram, with interpolation of the eye diagram samples if necessary."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.1** *P* **480** *L* **45** # 268

Swenson, Norman — Nokia Corporation,Norman Swenson Consulting,Point

Comment Type **ER** *Comment Status* **X**

The test says "TDECQ is measured with all receive lanes in operation using pattern 3 or 5 (see Table 180–13)." The purpose of this is not clear. This relates to unsatisfied rejected comment I-388 from D3.0.

SuggestedRemedy

Change to: "TDECQ is measured with all receive lanes in operation using pattern 3 or 5 (see Table 180–13) in order to subject the optical lane under test to possible crosstalk interference."

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **11** *L* **3** # 270

Dawe, Piers J G — NVIDIA

Comment Type **E** *Comment Status* **X**

Amendment:

SuggestedRemedy

Amendment 13,

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.1** *P* **462** *L* **6** # 271

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

D3.0 comment 417 which was misunderstood: Table 180-1 and 2, Physical Layer clauses associated with... are clones of each other, and they don't fit on a single page. Each really has three columns. The status (optional, required or conditional) is the same in each. But the presentation obscures the very high level of commonality. Also it is inaccurate: there is no "Clause 117--400 Gb/s RS" for example; Clause 117 is for both 200 Gb/s and 400 Gb/s operation. Really, we are indicating what is relevant in the clause, not which clause we mean, so it should be in a separate column from the clause number.

SuggestedRemedy

Present these two tables as a single table with four columns: Clause number, 200GBASE-DR1 (with the abbreviated titles from Table 180-1), 400GBASE-DR2 (with the abbreviated titles from Table 180-2), Status.
Combine footnotes c and e.
Follow Table 167-2, not Table 122-1 which inefficiently interleaves rows from two tables.
Make similar improvements in other clauses

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.1** *P* **463** *L* **6** # 272

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

D3.0 comment 418 which was misunderstood: Table 180-3 and 4, Physical Layer clauses associated with... are not quite clones of each other, and they don't fit on a single page. Each really has three columns. The status (optional, required or conditional) is the same in each. But the presentation obscures the very high level of commonality and makes it hard to spot the differences (PCS and PMA). Also it is inaccurate: there is no "120F--800GAUI-8 C2C" for example; Annex 120F is for many MAC rates. Really, we are indicating what is relevant in the clause, not which clause we mean, so it should be in a separate column from the clause number.

SuggestedRemedy

Present these two tables as a single table with four columns: Clause number, 800GBASE-DR4 (with the abbreviated ~titles from Table 180-3), 1.6TBASE-DR8 (with the abbreviated titles from Table 180-4), Status. There will be one more row than in Table 180-3.
Combine footnote d.
Follow Table 167-2, not Table 122-1 which inefficiently interleaves rows from two tables.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.1** *P* **462** *L* **45** # 273

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

These tables of what makes up a particular Physical Layer are not so useful for teaching beginners because they leave out the elephant in the room: the PMD clause. Beginners don't read everything all at once: they have to start somewhere. I know we have omitted this before.

SuggestedRemedy

Add a row:
| 180 | 200GBASE-DR1 PMD | 400GBASE-DR2 PMD | Required |
So the table can stand by itself.
And similarly for other similar tables.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.2** *P* **464** *L* **48** # 274

Dawe, Piers J G NVIDIA

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

D3.0 comment 419: 174A, particularly Table 174A-1, lays out the standard error allocations for the sublayers in a PHY. This paragraph is applicable to pluggable modules where the decisions are made in the module, errors can be counted at its PMA, and some error budget is reserved for the following AUIs in the receive path. But it is not correct for RTLR, LPO, NPO and CPO where there is no C2M AUI. For some of these, a different BERadded should be used, and for others, the PCS method at line 53 is more relevant.

SuggestedRemedy

Either:
Change the first sentence to:
With a compliant input signal, a PMD receiver is expected to meet the block error ratio (BLER) of 1.45 x 10^-11 (see 174A.6), measured at the PMA adjacent to the PMD using the method described in 174A.9, with the appropriate BERadded. For a receiver in a module with an AUI C2M, BERadded is 6.4 x 10^-5. For a receiver where the PMA adjacent to the PMD is the final PMA in the receiver (e.g. in a host ASIC), BERadded is 3.2 x 10^-5. For a receiver where the PMA adjacent to the PMD is followed by an AUI C2C then the final PMA in the receiver, BERadded is 5 x 10^-5.
Or,
Add this information in 180.9.14 (see another comment) and refer to it here.
Similarly in other optical clauses.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.2** *P* **465** *L* **48** # 275

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

D3.0 comment 420 (once in the bucket): the logic of this subclause is obscured. The idea is that we have an FLR expectation, which is translated to a PHY receiver BLER expectation, which is further translated to a PMD receiver BLER expectation using the BERadded method. But the second and third paragraphs in this subclause (and similar) are out of order.

SuggestedRemedy

Swap the second and third paragraphs so that the logic behind these requirements is more apparent, here and in similar subclauses.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **486** *L* **52** # 276

Dawe, Piers J G NVIDIA

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

D3.0 comment 477 and the changed definition of OMAouter: the threshold adjust range (relaxed from 0% to 1% in 802.3cd/D3.3, April 2018) dates from the early years of ECQ when we didn't have much experience with PAM4 and believed that OMA was accurately measured and representative (which could have been more true then at 27 GBd than it is now at 106 and 113 GBd). 1% is too restrictive and a cause of the disappointing scatter that we see in TDECQ measurements. It's aggressive double jeopardy; ECQ penalises unequal eyes correctly and proportionately without this rule. This rule relies on an "accurate" determination of OMA, which as we have discovered is easier said than done, and the real receiver doesn't know or care about it. It is based on a belief that the thresholds ought to be at 1/6, 1/2, 5/6 which isn't true, even in textbooks, for band-limited PAM4 and for some noise mechanisms. P802.3db/D1.2 (100GBASE-SR1 family) adopted 2% in August 2021 and I have not heard any complaints. Transmitter and receiver implementers are reticent about revealing the limits of their abilities, but I hear that transmitter implementers do not want to spend time and money tweaking for something that doesn't matter and is sometimes counter-productive, while real receivers (same silicon for SMF and MMF) are pretty tolerant and find their own thresholds well enough.

It would be possible to write a more reasonable rule if there were a defined threat that ECQ doesn't already address.

SuggestedRemedy

Change +/-1% to +/-2%

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **5** # 277

Dawe, Piers J G NVIDIA

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

The correct BERadded is a normative fact; it should not be in an informative NOTE.
Table 180-19 provides BERadded for only one scenario, while there are several (D3.0 comment 419).
We should do a thorough job in the table, and either refer to it in 180.2 which is explaining why the spec is like it is, or repeat the info there.

SuggestedRemedy

At line 2, change "measured at the PMA using the test method in either 174A.9.5, 174A.9.6, or 174A.9.7" to "measured at the PMA using the test method in either 174A.9.5, 174A.9.6, or 174A.9.7, or at the PCS using the method of 174A.11". Delete the first informative note.
Change "The error mask Hmax(k) to be used in the method of 174A.9.5 is provided in Table 180-20." to "The error mask Hmax(k) to be used in the method of 174A.9.5 for a detachable PMD/PMA is provided in Table 180-20."
In Table 180-19, provide each BERadded as a separate row or sub-row:
Errors counted at a detachable PMA that could be followed by AUI C2M and AUI C2C 6.4e-5
Errors counted at a detachable PMD/PMA that is followed by an AUI C2C 4 x 10^-5
Errors counted at a non-detachable PMA in the host 3.2 x 10^-5
Errors counted at the PCS in the host 3.2 x 10^-5
In 180.2, after "BERadded equal to 6.4 x 10^-5.", add "See Table 180-19 for other scenarios."
Similarly in other optical clauses.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.5** *P* **479** *L* **53** # 278

Dawe, Piers J G NVIDIA

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

The improved OMA definition leaves some loose ends:
If the waveform is an inverted SSPRQ, does one use 7+ threes and 6+ zeros or 6+ threes and 7+ zeros?
Why 6 and 7?
The statistics of 7 vs. 7 or more could be better or worse; it depends what's in SSPRQ.
Other things being equal, excluding "or more" makes the analysis simpler (although no-one would do it by hand anyway). Similarly, does "central 2 UI" give better or worse consistency than 2.5 to 4.5 / 2 to 4? Starting at 2 is probably undesirable.
We changed the definition because a measurement on just two runs is open to error caused by ISI, but measuring with PRBS13Q still has that problem. PRBS13Q is the reason why we say 7 and 6 not 7 and 7.

SuggestedRemedy

Change the text so that:
The definition is with SSPRQ;
Runs of 7, whether zeros or threes, except when using PRBS13Q;
Users are warned that PRBS13Q (7 and 6 because that's what's available) is less accurate; in case of a conflict, SSPRQ takes precedence;
Choose "runs of" vs. "or more" and central vs. 2.5 to 4.5 according to the evidence.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **492** *L* **8** # 279

Dawe, Piers J G NVIDIA

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

This NOTE contains quantitative technical information relating to compliance. It is not "informative"

SuggestedRemedy

Promote it to regular text.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **483** *L* **29** # 280

Dawe, Piers J G NVIDIA

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

D3.0 comment 469: the feedback tap coefficient limit, 0.33, is too weak, and even worse than in D3.0 (the definition has changed). The low limit encourages bad transmitter setup. Copper clauses use a limit of 0.85.

SuggestedRemedy

At least restore the status quo (0.43) which would leave a good allocation for losses between TP2 and TP5. There is very little traditional frequency-dependent loss between TP2 and TP3, and a moderate amount between TP3 and TP4, so that's a good allocation for losses between TP4 and TP5. Preferably, change the limit to 0.5.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **483** *L* **19** # 281

Dawe, Piers J G NVIDIA

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

D3.0 comment 468: The tap weights were created by drawing limit lines that passed a population of transmitters, some time ago. The main tap maximum and the other FFE tap limits need review, taking the DFE into account and considering what is cost-effective for receivers. In particular, the we will see less of the characteristic alternating FFE tap weights because the DFE can do that job better, so taps 3+ should be tightened up.

SuggestedRemedy

Review the tap weight limits and make changes as appropriate.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **483** *L* **25** # 282

Dawe, Piers J G NVIDIA

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

D3.0 comment 468: causal vs. anticausal pulse shapes are not equivalent.
This pre-post equalizer coefficient difference limit |w(1)/w(0) - b(1) - w(-1)/w(0)| seeks to keep the attack and decay of the signal pulse similar. Yet the evidence from https://ieee802.org/3/dj/public/25_05/chayeb_3dj_01_2505.pdf#page=8 and 9, plotted in https://ieee802.org/3/ds/public/Interim_May_27-28-2026/dawe_3ds_01_260527.pdf , shows that for a real receiver, the situation is very far from symmetrical; relatively fast attack (c(-1) close to zero) and slow decay (c(+1) strongly -ve) is tolerated well (naturally), but the opposite is not.

SuggestedRemedy

Remove the absolute bars | |. If necessary, add a minimum limit, e.g. -0.55, remembering that there are acceptable signals off the bottom of the plot in dawe_3ds_01_260527.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **488** *L* **50** # 283

Dawe, Piers J G NVIDIA

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

This says "the best estimate of the actual MPI and DGD penalties of the test fiber", yet the fibre alone doesn't make much MPI. The reflections between transmitter and connectors, and receiver and connectors, are more important. It is not clear which reflections are taken as baseline and which are attributed to the fibre, particularly as both transmitter and receiver reflectances are not necessarily at the spec limits. MPI varies with polarisation yet there is no polarisation control in Figure 180-12.

SuggestedRemedy

If the TFT section is kept;
if MPI penalty variations are important, explain how the MPI penalty is to be estimated and add polarisation control. If MPI penalty variations are not so important or not feasible to estimate with confidence, use a fixed allocation

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **482** *L* **30** # 284

Dawe, Piers J G NVIDIA

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

This makes out that the ECQ measurement apparatus takes T-spaced samples at phi, then phi is swept. Neither a sampling scope nor a real-time scope do that; they collect samples all across the waveform / pattern; certain samples fall in the histogram windows, others don't.

SuggestedRemedy

Delete Eq. 180-2. Delete the "sampler" on the left of Figure 180-10, or at least make it clear that it samples the whole waveform at uniform density.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **483** *L* **13** # 285

Dawe, Piers J G NVIDIA

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

D3.0 comment 466: transmitted SMF signals should not be over-emphasised, so the main tap should not be < approx 1, if there were no DFE tap. The minimum used to be 0.9 (one can think of that as 10% tolerance): it was changed to 0.8 when the DFE tap was added. However, over-emphasised signals use little DFE, so 0.8 allows an excessively over-emphasised signal. Long story short: a much more accurate criterion is main tap + feedback tap < limit (in the same way as the formula for pre-post-cursor tap coefficient difference limit contains the feedback tap). Relative to the signalling rate, 200G silicon is slower than 100G or 50G silicon, and 200G receivers are designed to cope well with slow signals. Designing them to cope with badly set-up signals as well would be wasteful.

SuggestedRemedy

Change 0.8 to: 0.9 - b(1).

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **43** # 286

Dawe, Piers J G NVIDIA

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

"Minimum measurement time is 60 seconds", "a value greater than 0 in counter".
1. 802.3 is not a test specification. There was an 802.3 test specification; it was a separate document which was withdrawn a long time ago. We specify observable behaviours at interfaces.
2. With not maximum measurement time and no indication of a statistical criterion, this is down to chance. It's not a specification.
I said I would TR such material.

SuggestedRemedy

If the TFT section is kept, define a proper, observable, repeatable criterion, for bins 9+. No limit for some of them would be proper.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **1** # 287

Dawe, Piers J G NVIDIA

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

802.3 is not a test specification (the 802.3 companion test specification was withdrawn).

Previously, and for ECQ in other clauses, we had " One way of doing this, using estimated PAM4 symbol error ratio as the figure of merit for the equalized signal, is described below." and "Alternative optimization methods such as minimum mean squared error (MMSE) may be used to determine equalizer tap weights to reduce test time, and are expected to report equal or higher values of TDECQ. These alternative methods should not be used for receiver sensitivity and stressed receiver sensitivity calibration." So it was clear that the normative value is the best value (which does not take long to find, in spite of assertions that it must). We said that a short cut that reads high may be used, where reading high does not weaken the spec. Which would have been the case even if not stated.

But this says: "For a given sampling phase phi0 and assumed RMS value sigmaG for Gaussian noise eta(t), determine the equalizer coefficients w and b(1), subject to the limits in Table 180–16, that result in the minimum mean squared error (MMSE) between yn and x(n). Alternative optimization methods may be used to determine equalizer tap weights if they report equal or lower mean values of TDECQ." This tries to make the inaccurate high-reading over-prescriptive method normative, but allows better methods, but doesn't say when.

There are other flaws in this but the whole concept is misguided they should be removed when the damage in this draft is undone.

SuggestedRemedy

What a mess. Replace the whole of 180.9.6 with the normal stable ECQ definition, following 167.8.6 (the latest sound version, I believe) with the few known relevant modifications for SMF vs. MMF and the addition of the DFE.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **472** *L* **50** # 288

Dawe, Piers J G NVIDIA

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

27% overshoot is a lot. As it is on each side, the envelope is 156%of the OMA.
As SSPRQ contains 65,000 UI we are basing the measurement on the 6th-worst UI (roughly), which is on the edge of too few for a good measurement. If a signal's overshoot involves ISI but not on those UI, we would miss that. Another SSPRQ-like pattern could give a different result.

SuggestedRemedy

I wonder if 1e-4 is too ambitious and we should set the spec at e.g. 5e-3, with different limits.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.5.1** *P* **467** *L* **44** # 289

Dawe, Piers J G NVIDIA

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

D3.0 comment 433: This shows the signal detect after the usual AND gate at the bottom of the diagram, but an unconnected SIGNAL_OK at the top of the diagram. But these are connected; the ILT/RTS functions will be asleep until signal detect reports that there is light coming in and it is worth waking up. A consideration of squelch shows that getting this right can be important. Optical signal detect protects the DSP from processing crosstalk (successfully or not) when there is no input, and it definitively keeps the receiver from getting confused if the light has disappeared and confusing those debugging the network. For these purposes it does not matter that it is slow, nor that it doesn't identify a good signal; it unambiguously identifies a too-weak or no signal. Every optical clause has had this for a long time; 187 for example still does, in the traditional way. But there might be implementations where delivering the signal detect information to the right place in RTS is impractical.

SuggestedRemedy

Show signal detect as a recommended input to "ILT/RTS functions". Several clauses.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.5.4** *P* **468** *L* **48** # 290

Dawe, Piers J G NVIDIA

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

D3.0 comment 436: global signal detect should gate RTS. It would be advisable for the lane-by-lane signal detect to gate ILT training (no light = nothing to train on): see another comment.

SuggestedRemedy

Add sentence that Global_PMD_signal_detect should (recommended) be used as an input to the RTS function of 178A. Several optical clauses.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.6** *P* **878** *L* **46** # 291

Dawe, Piers J G NVIDIA

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

D3.0 comment 433 and others: signal detect should gate RTS. RTS should not move to DATA mode if no light is coming in, whether or not a retimer has locked its clock to something.

SuggestedRemedy

Add text that for an optical PMD or PMD/PMA, local_rts should not be set to true if signal detect indicates that there is no optical input.

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.7.2** *P* **880** *L* **1** # 292

Dawe, Piers J G NVIDIA

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

D3.0 comment 433 and 436: a receiving PMD or PMA should not claim all is well if no light is coming in.

SuggestedRemedy

Add text here and possibly in 178B.8.3 saying that if the lane-by-lane signal detect is 0, per-lane ISL should (recommended) not move to mission mode or stay there (although it may transmit onto the line).

Proposed Response *Response Status* **O**

Cl **178B** *SC* **178B.7** *P* **879** *L* **41** # 293

Dawe, Piers J G NVIDIA

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

This 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; the timing of this action is implementation dependent and beyond the scope of this standard" which sounds permanent or at least aggravating.

SuggestedRemedy

I wonder if this should say that if the link was up and signal_detect transitions from OK to not, the state diagram should be restarted, or whether it should stay down until the return of the optical signal causes something else to restart it.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.14** *P* **491** *L* **45** # 294

Dawe, Piers J G NVIDIA

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

D3.0 comment 493: as is explained at length in 174A.9 (referenced at line 53), receiver sensitivity is a property of the lanes together ("interface BER" concept, transferred to BLER), not each lane separately. We ensure that each transmit lane is good enough individually, and each channel lane individually. We test a receiver by applying the same optical power on each lane, but the receiver can share its error allocation across its lanes how it chooses, just as it can allocate errors to LSB and MSB, or I and Q, within a lane, as it chooses. This is what happens naturally if the errors are checked at the PCS, and it's fine: we put symbol distribution in the FEC to prepare for it. 174A.9.5 says "If this test passes for each lane, then the PHY or xMII Extender will meet the expected codeword error ratio. If this test fails, then the performance may be further verified using the method in 174A.9.6 or 174A.9.7." Those who wish to qualify a multilane receiver (e.g., 800GBASE-DR4) as multiple single-lane PMDs (e.g., 4 x 200GBASE-DR1) will continue to do so; those who don't like 174A.9.6 (evaluate the performance of all physical lanes in an AUI component or PMD) because they don't want to convolve the per-lane BLER histograms together, can continue to use 174A.9.5 or 174A.9.7 (evaluate the performance of each physical lane in an AUI component or PMD).

SuggestedRemedy

Here, remove "of each lane" from line 45 (because the sensitivity of a single lane in a multi-lane PMD is not a spec item) and add "on each lane" on page 492 line 1 after "OMAouter" because this really is the OMA to be applied to each victim lane. Similarly in 180.9.15 for SRS. Similarly in other IMDD clauses.

I hope that the electrical clauses and AIs don't have this defect to be corrected.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **471** *L* **44** # 295

Dawe, Piers J G NVIDIA

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

D3.0 comment 466: With the current histogram spacing and width, good links can be made with non-compliant TDECQ and TECQ - because it is not a useful thing to limit, as explained before. It is a penalty, which the receiver can tolerate with no specific limit, as it just one component of required sensitivity. Optimising ECQ at the expense of performance is bad. The things that matter (at 4.56e-4) are the net useful modulation amplitude, OMA-TDECQ, and the residual penalty, K = ECQ -dBo(Ceq), and the overshoot. 800GBASE-LR4 has a limit of 3.9 dB, showing what is possible.

SuggestedRemedy

If the histogram spacing and width remains as is, increase the TDECQ and TECQ limits to 3.8 dB. The net useful modulation amplitude, OMA-TDECQ, is unchanged.
Do this for all IMDD PMDs except 800GBASE-LR4.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **482** *L* **30** # 296

Dawe, Piers J G NVIDIA

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

This equation has z on both sides. One can do that in an assignment programming, e.g. n=n+1, but not in an equation.

SuggestedRemedy

This equation doesn't represent how an oscilloscope works anyway, but choose a distinct letter for each thing until we start to run out of letters.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **482** *L* **32** # 297

Dawe, Piers J G NVIDIA

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

The vector w is not a set, it is a vector or "tuple" where the order matters (but credit for putting w in bold).

SuggestedRemedy

Remove the curly brackets

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **472** *L* **8** # 298

Dawe, Piers J G NVIDIA

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

D3.0 comment 442: as line rates are increased, maintaining a particular extinction ratio becomes increasingly challenging (this will be even worse at 400G). However, MPI can get worse at low extinction ratio, when it happens (rarely - fading) although for PAM4 this is a fairly weak function. On the other hand ECQ improves with low extinction ratio (linearity), differently for different technologies but it always happens (not fading). Also, RF power and supply voltage can be reduced at lower extinction ratio, and/or modulators can be made smaller or faster. We have addressed this before, in 100GBASE-DR where we reduced the minimum from 5 dB to 3.5 dB for a 0.3 increase in OMA-TDECQ (see https://ieee802.org/3/cd/public/July17/dawe_3cd_01_0717.pdf), then in 100GBASE-FR1, 100GBASE-LR1 and later PMDs when we specified 3.5 dB across the board.
It is time to take the next step in this long-running secular trend.
Notice D3.0 comment 72, proposing reducing the OMA for DR by 0.6 dB, had some support. So it might be reasonable to take the simpler approach of increasing the budget by 0.2 dB by improving the sensitivity by 0.2 dB.
By the way, if an additional 0.2 dB seems large when Table 190-9 says "includes an allocation of 0.1 dB for MPI penalty" some transmitter-related MPI penalty is measured in TDECQ, and in 2017 we estimated 0.3 dB extra for going from 5 dB to 3.5 dB extinction ratio, consistent with this proposal.
We could use a budgeting formula that relates predicted MPI penalty to extinction ratio (not changing TDECQ) if the numbers were thought large enough to make it worthwhile.

SuggestedRemedy

Reduce the extinction ratio limit from 3.5 dB to 3 dB.
Similarly to what we did for 100GBASE-DR: change OMA min from
-0.1, -1+max(TECQ, TDECQ) for all extinction ratios, to
-0.1, -1+max(TECQ, TDECQ) for extinction ratio >= 3.5 dB
+0.1, -0.8+max(TECQ, TDECQ) for extinction ratio <3.5 dB.
In Table 180-9, Illustrative link power budget, change "Power budget (for max TDECQ)" to Power budget (for max TDECQ and 3.5 dB extinction ratio).
Apply this to DR (180) and DR-2 (182) (the other IMDD clauses have higher reflections).

Or, more simply:
Reduce the extinction ratio limit from 3.5 dB to 3 dB.
Reduce the receiver sensitivity and stressed receiver sensitivity by 0.2 dB
Increase the budget and the allocation for MPI penalty by 0.2 dB.

Apply this to clauses 180 and 182.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.7.1** *P* **472** *L* **9** # 299

Dawe, Piers J G NVIDIA

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

D3.0 comments 443, 319-321: The transmitter transition time limit was scaled from 100G where a product receiver with FFE-based or other linear equalization was considered. Today at 200G, transmitter bandwidth relative to the line rate is more challenging, and receivers have DSP, with design learnings from copper where the signals are *much* slower, so they tolerate slow signals well. 34/2/2 ~8 ps max is no longer necessary. There may be a relationship between (bandwidth and shape) -> group delay response -> difficult to equalise and error floor, which could be investigated further. However, this is a specification; we specify outcomes, not possible causes. A signal that the ECQ equaliser finds difficult to equalise, gets a bad rating anyway. Transmitter transition time is not very accurate because it relies on the definition of OMA, which is less reliable than we hoped. The relation between bandwidth and transition time is not 1:1. A transmitter implementer with poor (bandwidth and shape) can get a pass on transition time by cranking up the emphasis, which makes the signal worse but compliant. This spec item encourages bad behaviour. The ECQ main tap max, and the overshoot limit, also catch undesirable signals but in a more reasonable, balanced way. We don't need this as well.
Notice that for 800GBASE-LR4, the limit is 13 ps for a 7% faster line rate, and it's probably the same receiver DSP that tolerates this.

SuggestedRemedy

Change 8 ps to 10 ps for all IMDD except 800GBASE-LR4, or remove the item completely and rely on well-chosen ECQ, tap weight and overshoot limits to protect us from bad signals on the far right of the ECQ map.

Proposed Response *Response Status* **O**

Cl **174A** *SC* **174A.9.6** *P* **753** *L* **1** # 300

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

D3.0 comment 421 (174A.9 is not as user-friendly as it should be): I think it has been noted before that the order of subclauses here does not represent their contents. 174A.9.5, Error mask test method using PMA measurements, says "If this test fails, then the performance may be further verified using the method in 174A.9.6 or 174A.9.7." 174A.9.7, BLER method for a single lane using PMA measurements, says "ratio.If this test fails, then the performance may be further verified using the method in 174A.9.6." 174A.9.6, BLER method for all lanes using PMA measurements, doesn't: it's the end of the line.

SuggestedRemedy

Swap 174A.9.6 and 174A.9.7.
Insert a space after "ratio."
Improve the subclause titles to match their contents and relate to each other:
174A.9.5--Error mask test method *for each lane* using PMA measurements
174A.9.7 to be 6--BLER method for *each* lane using PMA measurements
174A.9.6 to be 7--BLER method for all lanes using PMA measurements
or
174A.9.5--*Lane-by-lane* error mask test method using PMA measurements
174A.9.7 to be 6--*Lane-by-lane* BLER method for using PMA measurements
174A.9.6 to be 7--BLER method for all lanes using PMA measurements

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.3** *P* **482** *L* **18** # 301

Dawe, Piers J G NVIDIA

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

The notation seems inconsistent. We have z_n and x(n); both seem to be series, or an element in a series, but they are written differently.

SuggestedRemedy

Remove the unnecessary algebra and clean up the remaining notation.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.3** *P* **465** *L* **5** # 302

Dawe, Piers J G NVIDIA

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

This language "between the PMD and the PMD client" and "receives signal status information from the client sublayer" is arcane and obfuscatory (and not consistent). "Client" is not defined, and not in the vocabulary of the analog engineers who should be reading this clause. It may be needed for the generalised "MAC client" but for each PMD type, there is only one "client" type: PMA or Inner FEC. 174.3.1 uses much more palatable language: "the next higher sublayer".

SuggestedRemedy

In this clause, change "the PMD client" to "the PMA immediately above the PMD". Change "the client sublayer" to "the PMA". Make similar changes in other clauses.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.3** *P* **465** *L* **20** # 303

Dawe, Piers J G NVIDIA

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

This has been changed from "the status" to "signal status information" but it is not clear which signal: it might be the "data" signal that the PMA is sending to the PMD, or the one the PMA is receiving from the PMD, or something else. Following a reference above to 174.3 led me to 174.3.1 "The IS_SIGNAL.request primitive is used to define the transfer of signal status to a sublayer from the next higher sublayer" which doesn't seem right: the primitive should transfer something, not define the transfer of something. And still, no indication of which signal. 174.3.3 leads to 116.3.3. 116.3.3.4 gets to the point.

SuggestedRemedy

Back in 180.3, say which signal, and because SIGNAL.request is such an oddball, provide a cross-reference to 116.3.3.4. Make related changes as appropriate.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.15** *P* **493** *L* **45** # 304

Dawe, Piers J G NVIDIA

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

The frequency of the sinusoidal interferer was changed from minimum 100 MHz to minimum 200 MHz, but it's still a single frequency. The sampling scope aliases it to some other frequency and the software FFE will amplify it according to the apparent frequency, not the real one, causing error.

SuggestedRemedy

1. Change from a sine tone to a PRBS generator (not synchronous to the victim) with a high enough signalling rate that wherever the aliasing takes the apparent frequencies to (there are many real frequencies in a PRBS), the overall enhancement will be reasonably consistent. A PAM2 PRBS is more "bounded-like" than a PAM4 one as well as having a uniform spectrum.
2. Limit the amount of bounded interference.
3. In 121.8.10.1, we say "care should be taken to avoid harmonic relationships between the sinusoidal interferer, the sinusoidal jitter, the signaling rate, and the pattern repetition rate". After taking advice from scope experts: add the sampling rate of the scope to that list.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **488** *L* **40** # 305

Dawe, Piers J G NVIDIA

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

This says that Test_margin equals 1.5 dB, which decreases the required ORx operating BER to
2.4e5. But, 1.5 dB and 2.4e5 are not related, and there is no *required* ORx operating BER, although an ORx operating BER for calculating the bin mask is chosen in 180.9.8.2. It doesn't "equal" 1.5 dB as the output of some formula or measurement; it was chosen.

SuggestedRemedy

If the TFT section is kept, change to just "It is set to 1.5 dB."

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.1** *P* **489** *L* **19** # 306

Dawe, Piers J G NVIDIA

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

This says that an example estimate of the transmitter under test actual TDECQ value over the
test fiber is the measured DUT_TECQ value plus the best estimate of the actual transmitter under test CD penalty over the test fiber. Clearly this is wrong. The best estimate of TDECQ is TDECQ. We know that CD penalty is not exactly the same as TDECQ-TECQ.

SuggestedRemedy

If the TFT section is kept, decide which is meant and use it.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8** *P* **487** *L* **32** # 307

Dawe, Piers J G NVIDIA

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

The TFT section has a blow-by-blow recipe but no introductory statement of what it is trying to do.

SuggestedRemedy

If the TFT section is kept,
Add a sentence explaining what it is for;
Address the relation between the numbers in this section and the other clauses and annexes that have very different numbers;
Adjust the numbers in this section so they relate reasonably to the rest of the draft.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **489** *L* **37** # 308

Dawe, Piers J G NVIDIA

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

This says "This operating BER is ORx_RxS BER decreased by ...". Yet there is no sensitivity BER. Sensitivity is defined by BLER.

SuggestedRemedy

If the TFT section is kept, clear up the logic.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.6.4** *P* **484** *L* **21** # 309

Dawe, Piers J G NVIDIA

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

As it says in page 486 line 52, the actual thresholds, Pth1, Pth2, and Pth3, are adjusted. So they are *not* Pth3 = Pave + OMA_TDECQ/3 as alleged. See D3.0 comment 474.

SuggestedRemedy

Correct Figure 180-11. Either use Pth3 and so on, correctly positioned wrt the eye but not misstated as Pave + OMA_TDECQ/3, or use P0, th3 =Pave + OMA_TDECQ/3, but move the horizontal lines to those levels

Proposed Response *Response Status* **O**

Cl **169** *SC* **169.8** *P* **221** *L* **50** # 310

Opsasnick, Eugene Broadcom Inc.

Comment Type **E** *Comment Status* **X**

The editing instruction says to change 169.6, but is located in section 169.8

SuggestedRemedy

Change "169.6" to 169.8" in the first line of 169.8.

Proposed Response *Response Status* **O**

Cl **169** *SC* **169.8** *P* **221** *L* **53** # 311

Opsasnick, Eugene Broadcom Inc.

Comment Type **E** *Comment Status* **X**

The newly inserted text in this paragraph is not underlined.

SuggestedRemedy

Underline the inserted text around "and Clause 176 through Clause 187".

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8.2** *P* **487** *L* # 312

Rubin, Amir NVIDIA

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

The STD shouldn't aim for Hmax(k) assuming uncorrelated BER of 2.4e-5 for k in the range 1 to 8. This target uncorrelated BER is much lower than the required uncorrelated BER in Table 174A-1 for the PMD-to-PMD segmenet. Further, failing tested units having Hmax(k) higher than 0 for all k in the range 9 to 16 regardless of the test duration is too agressive, and for long enough tests will fail tested units that should pass.

SuggestedRemedy

Change the STD to aim for Hmax(k) for k = 2 to 16 assuming uncorrelated BER of 2.28e-4 as required in the PMD-to-PMD. Note: k=1 doesn't fit here, since higher Hmax(1) may result from lower uncorrelated BER.
So the recommended change in table is:
Hmax(2) = 0.223
Hmax(3) = 0.092
Hmax(4) = 0.0284
Hmax(5) = 7e-3
Hmax(6) = 1.44e-3
Hmax(7) = 2.5e-4
Hmax(8) = 3.88e-5
Hmax(9) = 5.28e-6
Hmax(10) = 6.46e-7
Hmax(11) = 7.16e-8
Hmax(12) = 7.27e-9
Hmax(13) = 6.86e-10
Hmax(14) = 5.89e-11
Hmax(15) = 4.76e-12
Hmax(16) = 3.87e-13

Clarification: the Hmax values consider only the PMD-to-PMD uncorrelated BER and ignore the contribution of the remaining parts of the channel defined for the test as shown in Figure 180-12. It is therefore assumed that the test margin of 1.5dB will compensate for these remaining parts.

Proposed Response *Response Status* **O**

Cl **180** *SC* **180.9.8** *P* **34** *L* **34** # 313

Dawe, Piers J G NVIDIA

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

It is not clear to me how AUI errors are accounted for (see Table 174A-1). Normally in 802.3 "a transmitter" means the transmitted signal, impaired by everything behind it including host jitter, power supply noise, AUI errors and so on. Yet I wonder if this is intended as a module test. From Figure 180-12 it seems there are no receive side AUI errors.

SuggestedRemedy

If the TFT section is to be kept, clarify whether the mask is applicable with or without AUI errors in the transmitter. By reference to 174A, explain what to do in the other scenario.

Proposed Response *Response Status* **O**