Cl **00** *SC* **0** *P* *L* # 11

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

The format used for defining the various status counters for the PCS (175.2.5.3), PMA (176.7.4.1), and Inner FEC (177.5.4.1, 184.5.7) vary wildly from clause to clause.
Rewrite/reformat the counter definitions in the same style.

SuggestedRemedy

Reformat the counter definitions in 175.2.5.3, 176.7.4.1, 177.5.4.1, and 184.5.7 to be the same format. Use either 175.2.5.3 ro 177.5.4.1/184.5.7 as the template.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Reformat the counter definitions in 176.7.4.1, 177.5.4.1, and 184.5.7 to use the same format as 175.2.5.3.
Implement with editorial license.
[Editor's note: CC: 176, 177, 184]

Cl **1** *SC* **1.5** *P* **57** *L* **28** # 270

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

Abbreviations ILcd and ILdc are also used, and should be defined.

SuggestedRemedy

Add definitions for ILcd and ILdc.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
ILcd and ILdc are used only as variables (italicized), not acronyms.

Cl **45** *SC* **45.2.1** *P* **70** *L* **7** # 272

Ran, Adee — Cisco

Comment Type **T** *Comment Status* **D** *(bucket)*

Inner FEC registers are contained in the PMA/PMD section but there is no reference to the inner FEC positioning in the stack, nor to the clauses where it is defined (177 and 184).

SuggestedRemedy

Add test describing the inner FEC MDIO positioning (in the same MMD as the PMD).

Proposed Response *Response Status* **W**

PROPOSED REJECT.
There is precedence for having FEC control and status registers in the PMA/PMD address space and the postioning of this FEC functionility is not called out in 45.2.1. There is no justification for making an exception for the inner FEC registers.

Cl **45** *SC* **45.2.1** *P* **70** *L* **7** # 271

Ran, Adee — Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

The base text of 45.2.1 includes references to multiple PMA sublayers and how MMD addresses are allocated.
This text points to 83.1.4, 109.1.4, and 120.1.4, but does not include the corresponding references to the new PMAs: 173.1.4 (apparently missed by 802.3df) and 176.11.

SuggestedRemedy

Bring in the first paragraph of 45.1.2 and add references to 173.1.4 and 176.11.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Bring in the first paragraph of 45.2.1 from the base standard and add references to 173.1.4 and 176.1.5

Cl **45** *SC* **45.2.1.213a** *P* **92** *L* **13** # 6

Marris, Arthur — Cadence Design Systems

Comment Type **T** *Comment Status* **D** *(bucket)*

Replace the 8 enable bits with a single reset bit in Table 45–177a

SuggestedRemedy

In Table 45–177a delete rows "Inner FEC enable lane 1" to "Inner FEC enable lane 7" and in the row for "1.2400.0" change "enable" to "reset"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #1.

Cl **45** *SC* **45.2.1.213a** *P* **92** *L* **14** # 91

Nicholl, Shawn — AMD

Comment Type **TR** *Comment Status* **D** *(bucket)*

Description column of fields in "Table 45-177a - Inner FEC control register bit definitions" is inconsistent with other MDIO registers.

SuggestedRemedy

Propose the following text for the description column of 1.2400.7 row:
1 = Enable Inner FEC on lane 7
0 = Disable Inner FEC on lane 7

Propose similar update to description column of 1.2400.0 through 1.2400.6 rows.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #1.

Cl **73** *SC* **73.6.2.5.3** *P* **122** *L* **46** # 92

Nicholl, Shawn AMD

Comment Type **TR** *Comment Status* **D** *(bucket)*

The paragraph that begins "The variable an_rs_fec_int_negotiated_control indicates that RS-FEC-Int ..." is located in the incorrect sub-clause.

SuggestedRemedy

Propose to move the paragraph such that it is inserted after the second paragraph of 73.6.2.5.4 (consistent with editorial guidance found in 802.3ck-2022, Sub-Clause "73.6.5.3 FEC control variables").

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.6.4** *P* **125** *L* **25** # 93

Nicholl, Shawn AMD

Comment Type **E** *Comment Status* **D** *(bucket)*

Currently says "D[10:0] and D[47:16] contains the Unformatted Code Field ...", but should use the singular verb.

SuggestedRemedy

Propose "D[10:0] and D[47:16] contain the Unformatted Code Field"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.8** *P* **128** *L* **21** # 94

Nicholl, Shawn AMD

Comment Type **ER** *Comment Status* **D** *(bucket)*

Typo mr_lp_adv_extened_ability[32:1] in "Table 73-6-Backplane Ethernet Auto-Negotiation variable to MDIO register mapping"

SuggestedRemedy

Propose mr_lp_adv_extended_ability[32:1]

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.10.2** *P* **130** *L* **14** # 546

Dawe, Piers Nvidia

Comment Type **E** *Comment Status* **D** *(bucket)*

This is contrary to the standard order (slow to fast).

SuggestedRemedy

Put the new entry immediately below the 100G/lane one. As the base document is out of order and this project amendment cannot deliver a properly ordered table without cleaning it up, bring the other two link_fail_inhibit_timer rows into the draft and put them in the right order.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This would be best addressed at the revision project to create the updated base standard. Bringing in additional rows not relevant to 802.3dj scope would not be useful.

Cl **73A** *SC* **73A.1a** *P* **640** *L* **40** # 97

Nicholl, Shawn AMD

Comment Type **E** *Comment Status* **D** *(bucket)*

Currently says "... indicates additional abilities that were not accommodated in the link codeword Base Page ..." Present tense seems more appropriate.

SuggestedRemedy

Propose "... indicates additional abilities that are not accommodated in the link codeword Base Page ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **116** *SC* **116.1.4** *P* **138** *L* **18** # 114

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Table 116-3b has a thick bar on the right side of clause 73 M

SuggestedRemedy

adddress the formatting issue

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **116** *SC* **116.3.3.4.1** *P* **150** *L* **12** # 152

Bruckman, Leon Nvidia

Comment Type **E** *Comment Status* **D** *(bucket)*

Missing comma

SuggestedRemedy

To make consistent with the text in the previous section penumtimate paragph, add a comma before: but it is considered…
Or delete the coma in the previous section penumtimate paragph, wathever makes sense grammatically.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
On page 149 line 27 delete comma preceding " but it is considered".

Cl **116** *SC* **116.4** *P* **150** *L* **52** # 24

Brown, Matt Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

Delay limits for the 200GBASE-R Inner FEC are TBD in Table 116-6 but are indeed defined in 177.7.

SuggestedRemedy

Update Table 116-6 with the delay numbers specified in 177.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **116** *SC* **116.4** *P* **151** *L* **49** # 25

Brown, Matt Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

Delay limits for the 400GBASE-R Inner FEC are TBD in Table 116-7 but are indeed defined in 177.7.

SuggestedRemedy

Update Table 116-7 with the delay numbers specified in 177.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **119** *SC* **119.3** *P* **162** *L* **33** # 14

Brown, Matt Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

Error bin counters are provided for 800GBASE-R and 1.6TBASE-R PCS but not for the 200GBASE-R or 400GBASE-R PCS. These counters are needed for accurate testing of a PHY receive path per 174A.7.

SuggestedRemedy

In Clause 119 add bin counters FEC_codeword_error_bin_i as defined in 172.3.6 stating that these counters are optional if the PCS is used in a PHY that includes 200 Gb/s per lane PMD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In addition to bin counters FEC_codeword_error_bin_i as defined in 172.3.6, also add FEC_cw_counter as defined in 172.3.5. Since these counters are already optional in Clause 172, there is no need to restrict the optionality to " PHYs that includes 200 Gb/s per lane PMD"
Implement with editorial license.

Cl **120B** *SC* **120B** *P* **642** *L* **1** # 427

Dudek, Mike Marvell

Comment Type **TR** *Comment Status* **D** *COM (bucket)*

The response to comment 152 on draft D1.2 was not fully implemented. 200GAUI-8 C2C Annex 120B is also listed in tables 178-1 as an allowed optional interface for 200GBASE-KR etc. but it has the same problem as Annex 120D had with an allocated BER of 1e-5 whereas the Phy only allocates 6.7e-6 to the C2C interface when using the 200GAUI-1 C2M interface

SuggestedRemedy

Bring Annex 120B into 802.3dj and add an equivalent modification to the Channel COM test as has been done to Clause 120D for D1.3 with Case 1 And Case 2 and the same DER0 values for 200GAUI-8 and 400GAUI-16

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Annex 120B specifies receiver characteristics with maximum PCS FEC symbol error ratio of 1.1e-5 (consistent with BER<1e-6), transmitter characteristics with probability 1e-6, and COM with DER0=1e-6.
These specifications result in maximum BER lower than the 6.7e-6 allocated for other C2C interfaces, so there is no need to change the COM parameters.

Cl **120F** *SC* **120F.1** *P* **645** *L* **53** # 428

Dudek, Mike Marvell

Comment Type **E** *Comment Status* **D** *(bucket)*

The reference to 120F.4 should be a hot link as this is changed in 802.3dj

SuggestedRemedy

Make it so.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **169** *SC* **169.2.4** *P* **172** *L* **50** # 42

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

This clause should include a reference to the 800GBASE-ER1 PMA

SuggestedRemedy

Add a sentence: The 800GBASE-ER1 PMA is specified in clause 186.3

Proposed Response *Response Status* **W**

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

Cl **169** *SC* **169.2.10** *P* **173** *L* **45** # 153

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

ILT provides a mechanism to control the modulation, not the module. Also ILT coordinates transition to DATA mode.

SuggestedRemedy

Change: "For each ISL, ILT provides a mechanism for a receiver to control transmitter states, such as equalization, module, and precoding states on the link partner transmitter, and to indicate the receiver state."
To: "For each ISL, ILT provides a mechanism for a receiver to control transmitter states, such as equalization, modulation, and precoding states on the link partner transmitter, to indicate the receiver state, and to coordinate transition to DATA mode."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **169** *SC* **169.4** *P* **178** *L* **22** # 43

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

Table 169-4 is missing rows for the 800GBASE-ER1 PCS and PMA

SuggestedRemedy

Add a row for the PMA. Depending on the disposition of other comments about ER1 architecture, add a row for the ER1 PCS or the ER1 FEC. The values for both in clause 186 are still TBD.

Proposed Response *Response Status* **W**

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

Cl **169** *SC* **169.4** *P* **178** *L* **23** # 44

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

Clause 176 has delay constraints for 800G 32:4 and 4:4 PMAs, clause 177 has values for 800GBASE-R inner FEC, and clause 184 has values for the LR1 inner FEC

SuggestedRemedy

Replace the TBDs wiith the appropriate values from Table 176-7, Table 177-5, and from clause 184.7 for the LR1 inner FEC.

Proposed Response *Response Status* **W**

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

Cl **169** *SC* **169.4** *P* **178** *L* **23** # 154

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

The values for 800GBASE-R Inner FEC and 800GBASE-LR1 are defined in the respective referenced sections.

SuggestedRemedy

Fill the TBDs in Table 169-4 for 800GBASE-R Inner FEC and 800GBASE-LR1 with the values in the referenced sections

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #44.

Cl **171** *SC* **171.1** *P* **190** *L* **8** # 373

D'Ambrosia, John — Futurewei, U.S. Subsidiary of Huawei

Comment Type **TR** *Comment Status* **D** *(bucket)*

800GMII is noted as required in first entry in Table 171-1

SuggestedRemedy

1. Change table entry to optional
2. Add note to 800GMII table entry - The 800GMII is an optional interface. However, if the 800GMII is not implemented, a conforming
implementation behaves functionally as though the RS and 800GMII were present.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.1** *P* **190** *L* **8** # 374

D'Ambrosia, John — Futurewei, U.S. Subsidiary of Huawei

Comment Type **TR** *Comment Status* **D** *(bucket)*

1.6TMII is noted as required in first entry in Table 171-1a

SuggestedRemedy

1. Change table entry to optional
2. Add note to 1.6TMII table entry - The 1.6TMII is an optional interface. However, if the 1.6TMII is not implemented, a conforming
implementation behaves functionally as though the RS and 1.6TMII were present.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.7** *P* **200** *L* **41** # 418

Nicholl, Gary — Cisco Systems

Comment Type **TR** *Comment Status* **D** *(bucket)*

Annex 176B does not show any MMD numbering.

SuggestedRemedy

Change the second sentence from:
"Annex 173A and Annex 176B show additional examples of 800GXS partitioning and MMD numbering"
to:
"Annex 173A shows additional examples of 800GXS partitioning and MMD numbering using the BM PMA. 176B.6.2 shows additional examples of 800GXS paritioning using both BM PMA and SM PMA".

Change the second sentnce of the second paragrpah from:
"Annex 176B shows additional examples of 1.6TXS partitioning and MMD numbering."
to:
"176B.7.2 shows additional examples of 1.6TXS partitioning"

Change the title of 171.7 from:
"800GXS and 1.6TXS partitioning example"
to:
"800GXS and 1.6TXS partitioning examples"

Make sure to underline any added text and to strikethrough any deleted text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.8** *P* **203** *L* **16** # 4

Marris, Arthur — Cadence Design Systems

Comment Type **TR** *Comment Status* **D** *(bucket)*

In Table 171-3 the register names have had "in ns" and "in sub-ns" deleted from their names. This is incorrect, the register names should be as specified in IEEE Std 802.3cx-2023. Also "RX" and "TX" indication does not match between MDIO and Clause 172 variable naming.

SuggestedRemedy

In Table 171-3 the register names have had "in ns" and "in sub-ns" deleted from their names. This was correct in draft 1.2 and the register names need to be reverted to their draft 1.2 state (see IEEE Std 802.3cx-2023 for the correct register names).
The Clause 172 status variable variables names have "RX" in their names when it should be "TX" and vice versa. Please correct this

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Revert the register names to those used in D1.2 as described in the suggested remedy. No change is required for the Clause 172 status vaiable names. Since the PHY XS is essentially an upside down PCS (Clause 172), there needs to be a Rx/Tx transposition between a Clause 172 status variable and the corresponding PHY XS status variable in Clause 171, for example the Rx path delay in Clause 172 is actually the Tx path delay in the PHY XS in Clause 171.

Cl **171** *SC* **171.9.5.5** *P* **216** *L* **22** # 95

Nicholl, Shawn — AMD

Comment Type **TR** *Comment Status* **D** *(bucket)*

Currently says "transmits what it receives from the 800GMII". However, this sub-clause pertains to 1.6TXS.

SuggestedRemedy

Propose "transmits what it receives from the 1.6TMII".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174** *SC* **174.2.12** *P* **231** *L* **41** # 155

Bruckman, Leon — Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

ILT coordinates transition to DATA mode.

SuggestedRemedy

Change: "equalization, modulation, and precoding states on the link partner transmitter, and to indicate the receiver state."
To: "equalization, modulation, and precoding states on the link partner transmitter, to indicate the receiver state and to coordinate transition to DATA mode."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174** *SC* **174.3.2** *P* **235** *L* **20** # 87

Opsasnick, Eugene — Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

In Figure 174-4 (1.6T Inter-sublayer interfaces with Inner FEC), there is no AUI. The Inner FEC will (almost) always be in an optical module below an AUI connection to a host. It would be better to show the Inner FEC below an AUI in this figure since the layer stack shown, while logically correct, will rarely, if ever, be used.

SuggestedRemedy

Add a "1.6T BASE-R 8:8 PMA" between the "1.6T BASE-R 16:8 PMA" on line 14 and the "1.6TBASE-R Inner FEC" on line 20 which creates an AUI interface between the two PMAs. And then add the necessary inter-layer signals on the AUI connection between the two PMAs.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The intent of this diagram (see figure title) is to show intersublayer interfaces not provide an exhaustive set of implementation configurations, which is provided instead in Annex 176B.

Cl **174A** *SC* **174A.4** *P* **662** *L* **3** # 161

Bruckman, Leon — Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

Pre-FEC BER should be 2.21 × 10–4.

SuggestedRemedy

Change: " 2.21 × 10–14."
To: "2.21 × 10–4."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174A** *SC* **174A.5** *P* **668** *L* **14** # 469

Maki, Jeffery — Juniper Networks

Comment Type **T** *Comment Status* **D** *(bucket)*

"Frame loss ratio for entire PHY" is wrong or at least has been unnecessarily truncated to one significant digit compared to other cases in the draft and in the published 802.3-2022 standard.

SuggestedRemedy

Change "Frame loss ratio for entire PHY" to 6.2x10^-11.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #467.

Cl **174A** *SC* **174A.5** *P* **668** *L* **17** # 470

Maki, Jeffery — Juniper Networks

Comment Type **T** *Comment Status* **D** *(bucket)*

"Frame loss ratio for entire PHY" is wrong or at least has been unnecessarily truncated to one significant digit. In turn, the "Codeword error
ratio for entire PHY" is wrong.

SuggestedRemedy

Change "Codeword error ratio for entire PHY" to 1.50x10^-11.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #467.

Cl **174A** *SC* **174A.5** *P* **668** *L* **19** # 471

Maki, Jeffery — Juniper Networks

Comment Type **T** *Comment Status* **D** *(bucket)*

"Frame loss ratio for entire PHY" is wrong or at least has been unnecessarily truncated to one significant digit. In turn, the "BER for entire PHY (BERtotal)" is wrong.

SuggestedRemedy

Change "BER for entire PHY (BERtotal)" to 2.93x10^-4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #467.

Cl **174A** *SC* **174A.6** *P* **663** *L* **7** # 430

Dudek, Mike — Marvell

Comment Type **T** *Comment Status* **D** *(bucket)*

174A.7.1 does not constrain the error ratio of an ISL, only of the PCS to PCS link.

SuggestedRemedy

Delete this sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174A** *SC* **174A.6.1** *P* **662** *L* **21** # 377

D'Ambrosia, John — Futurewei, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **D** *(bucket)*

Text in the body of the specification as well as in figures appears inconsistent, as at times it is talking at the PMD level, while other parts seem to be talking about at the PHY. And in the figures it refers to receiver under test.

SuggestedRemedy

Use "PHY" consistently unless specifically testing a PMD

Proposed Response *Response Status* **W**

PROPOSED REJECT.
No inconsistencies are noted. The comment does not provide enough detail to understand the issue.

Cl **174A** *SC* **174A.6.1.1** *P* **663** *L* **25** # 431

Dudek, Mike — Marvell

Comment Type **T** *Comment Status* **D** *(bucket)*

It would be helpful to describe where the pre-coder is in the testing.

SuggestedRemedy

In Figure 174A-1. 174A-2 , 174A-3 and 174A-4 change the title of the boxes to"PMD transmit function (including pre-coder if used)" and "PMD receive function (including pre-coder if used) or add a sentence at line 17 "The Transmit and Receive PMD functions include precoding when it is used."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This level of detail is beyond the the scope of this annex and is described in detail for each PMD and AUI component.
The proposed change does not improve clarity or accuracy of the draft.

Cl **174A** *SC* **174A.6.1.3** *P* **664** *L* **35** # 162

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

In Hm is not clear what is the meaning of "m"

SuggestedRemedy

Define the meaning of "m" in Hm or remove the "m"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
H_m is a set of measured histograms.
Change: "Hm(i)(k) is a set of 17-bin histograms"
To: "Hm(i)(k) is a set of measured 17-bin histograms"

Cl **174A** *SC* **174A.6.1.3** *P* **664** *L* **41** # 163

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

The polynomial for PRBS31Q is not defined

SuggestedRemedy

Define that the PRBS31Q is produced by the polynomial defined in Equation (49–2) and shown in Figure 49-9.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The PRBS31Q test pattern is defined in the either the PMA clause or the Inner FEC clause. This detail is beyond the scope of this annex. The proposed change does not improve clarity or accuracy of the draft.

Cl **174A** *SC* **174A.6.1.3** *P* **664** *L* **48** # 432

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **D** *(bucket)*

Wrong equation reference

SuggestedRemedy

Change Equation 174A-3 to 174A-1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174A** *SC* **174A.6.1.4** *P* **665** *L* **16** # 164

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

max should not replace m but be target for Hm(k)

SuggestedRemedy

Change: "Hmax(k)"
to: "max(Hm(k))" in the 3 occurencences in this section.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
h_max(k) is a maximum limit for the corresponding measured value h_m(k), for each value k on each lane i. This is a per-lane test, so for any k there is only one measured value. However, the purpose of the histograph should be clarified.
Add the following sentence at the beginning of the second paragraph of 174A.6.1.4: "The upper limit for H_m(i)(k) is defined by the histogram H_max(k)."

Cl **174A** *SC* **174A.6.1.4** *P* **665** *L* **24** # 165

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

Define the ranges of k and i

SuggestedRemedy

Change: "for all k and i."
To: "for k = 0 to 16 and i = 0 to p-1"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The lane index i and number of lanes p are defined in 174A.6.1.2. It is not necessary to repeat this elsewhere.

Cl **174A** *SC* **174A.7.1.1** *P* **666** *L* **41** # 107

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

the purpose of PCS-to-PCS error ratio test is to test the performance of a PHY, which should include transmitting-side PCS, PMA and PMD, the Medium, and the receiving-side PMD, PMA and PCS. Therefore the test configuration should include the fulll link, with the testing pattern generated by the PCS Transmitter under test.

The current drawing is more suitable for a receiver test, with a generic test source, an unspecified test channel and receiver under test.

SuggestedRemedy

The PMA transmit function should also consider the three variations with different AUI instantiation.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The test configuration showing in Figure 174A-4 is for measurement of the PHY receiver path only. Contribution of errors from a real PHY transmit path is accomodated by step f and g in 174A.7.1.4.
Note that comment #8 proposes adding a new test for PHY transmitter

Cl **174A** *SC* **174A.7.1.3** *P* **667** *L* **1** # 129

Slavick, Jeff — Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

This section is not really "measuring" or comparing the hisograms to anything it's just acquiring the data. In 174A.6.1.3 we don't incluce the word measurement in the section title.

SuggestedRemedy

Remove the word "measurement" from the title of 174A.7.1.3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The text literally says that these are measurements "An error histogram using PCS counters is measured using the following method:"
However, it makes sense to align the subclause titles in 174A.6.1.3 and 174A.7.1.3.
Change the title of 174A.6.1.3 to "PMA error histogram measurement"

Cl **174A** *SC* **174A.7.1.4** *P* **667** *L* **26** # 168

Bruckman, Leon — Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

Point e) is unclear

SuggestedRemedy

Change: "substituting Hms(k) for Hx(k) for Hms (i)(k) for Hy(k)"
To: "substituting Hms(k) for Hx(k) and Hms (i)(k) for Hy(k)"

Proposed Response *Response Status* **W**

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

Cl **174A** *SC* **174A.7.1.4** *P* **667** *L* **35** # 106

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

The last sentence of this subclause "The measured codeword error ratio is expected be less than 1.45 e-11." is misleading.

At the beginning, it states "The following method is used to calculate the block error ratio using FEC bin counters provided in the PCS."
Step h defines the block error ratio as Hms(16), not the code word error ratio.

CL174A.8 provides the definition of FEC codeword error ratio, which seems to be Hm(16).

It is unclear which error ratio shoule be less than 1.45e-11.

SuggestedRemedy

change to "the measured block error ratio is expected to be less….". Or state the relation between codeword error ratio and block error ratio in the subclause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The measured codeword error ratio"
To "The measured block error ratio"

Cl **174A** *SC* **174A.9** *P* **668** *L* **12** # 467

Maki, Jeffery — Juniper Networks

Comment Type **T** *Comment Status* **D** *(bucket)*

"Frame loss ratio for entire PHY" is wrong or at least has been unnecessarily truncated to one significant digit. In turn, the "Codeword error
ratio for entire PHY" is wrong and the "BER for entire PHY (BERtotal)" is wrong.

SuggestedRemedy

Change "Frame loss ratio for entire PHY" to 6.2x10^-11, "Codeword error
ratio for entire PHY" to 1.50x10^-11, and change "BER for entire PHY (BERtotal)" to 2.93x10^-4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
As explained in 174A.3, 6.2E-11 is frame loss ratio target for the entire link from the RS transmit at one end to the RS receive at the other end. As further explained in 174A.4 and 174A.5 the net frame loss ratio is allocated to two xMII extenders (one at each end, 0.1E-11 each) and the PHY to PHY link (from PCS transmit at one end to the PCS receive at the other end, 6E-11). The total is 6.2E-11.

Cl **174A** *SC* **174A.9** *P* **668** *L* **16** # 434

Dudek, Mike — Marvell

Comment Type **TR** *Comment Status* **D** *(bucket)*

AUI's from Annex 120B also need to meet the requirement described in footnote a

SuggestedRemedy

Add "Annex 120B (i.e. 25Gb/s per lane)" to the list in Tables 174A-1, 174A-2 and 174A-3

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The BER target current defined in Annex 120B is 1E-6 which meets the requirement defined in footnote a.

Cl **174A** *SC* **174A.9** *P* **668** *L* **16** # 433

Dudek, Mike — Marvell

Comment Type **E** *Comment Status* **D** *(bucket)*

Footnote a should be applied to the xAUI-n C2C in the bottom row as well as the top.

SuggestedRemedy

Make this change in tables 174A-1 and 174A-2 Also in a74A-1 delete the extraneous "at" in the last sentence of footnote a where it says "to meet at the BER allocations .."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174A** *SC* **174A.9** *P* **668** *L* **29** # 468

Maki, Jeffery — Juniper Networks

Comment Type **T** *Comment Status* **D** *(bucket)*

"Frame loss ratio for entire PHY" is wrong or at least has been unnecessarily truncated to one significant digit. In turn, the "Codeword error
ratio for entire PHY" is wrong and the "BER for entire PHY (BERtotal)" is wrong.

SuggestedRemedy

Change "Frame loss ratio for entire PHY" to 6.2x10^-11, "Codeword error
ratio for entire PHY" to 1.50x10^-11, and change "BER for entire PHY (BERtotal)" to 2.93x10^-4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #467.

Cl **175** *SC* **175.2.4.6.1** *P* **247** *L* **1** # 181

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

The acronym AM (and plural AMs) is used a few times but never defined. Better to just spell it out.

SuggestedRemedy

Change "AM" to "alignment marker" is several places at page/line: 247/1, 248/12, 249/42, 249/51,249/54, 251/32 x2, 253/16 x2

Proposed Response *Response Status* **W**

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

Cl **175** *SC* **175.2.4.6.2** *P* **266** *L* **2** # 476

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Typo in variable name tx_acrambled_f1_i<256:0>.

SuggestedRemedy

Change tx_acrambled_f1_i<256:0> to be tx_scrambled_f1_i<256:0>.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **175** *SC* **175.2.5.3** *P* **254** *L* **41** # 21

Brown, Matt — Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

The following description is overly specific: "The following counters shall be implemented to aid a network operator in determining the link quality." It is also for PHY and LINK testing in general.

SuggestedRemedy

Change to "The following counters shall be implemented:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.1.3** *P* **270** *L* **32** # 16

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

The terms defined in this subclause are not ordered in a consistent way. Typically for definitions we order them alphanumerically according to the rules according to the guidelines here:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#sort

SuggestedRemedy

Reorder the terms alphanumerically according to the guidelines.

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.1.4** *P* **271** *L* **33** # 477

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Should modify "Delay alternating PCSLs by two RS-FEC codewords …" to be "Delay of alternating PCSLs by two RS-FEC codewords …"

SuggestedRemedy

Change:
"Delay alternating PCSLs by two RS-FEC codewords …"
To:
"Delay of alternating PCSLs by two RS-FEC codewords …".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The comment proposes a change that is not sufficiently justified. The current text is technically correct as written.

Cl **176** *SC* **176.1.4** *P* **271** *L* **42** # 478

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Now that PMAL is a defined term, the parenthetical "(lanes)" on line 43 should be updated to "(PMALs)".

SuggestedRemedy

Replace "(lanes)"
with: (PMALs).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Since PMAL has been defined as lanes operating at 212.5Gb/s, it will be better to simply replace "... and data streams (lanes) operating at 212.5 Gb/s" with "and PMALs".
Implement the suggested remedy with editorial license.

Cl **176** *SC* **176.2** *P* **273** *L* **47** # 480

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Prior to line 47 on page 273, at the start of four paragraphs that describe the various PMA *.request and *.indication primitives, it would be good to add a cross-reference to the PMA block diagrams which illustrate the interface primitives and their positions either above or below the PMA to orient the reader to their position.

SuggestedRemedy

Suggest adding a single sentence paragraph prior to the pargraph starting at line 47 with wording similar to "The PMA service interfaces are illustrated in Figure 176-2, 176-11 and 176-12."

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.2** *P* **274** *L* **17** # 85

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

In the last sentence of the pargraph right before Table 176-5, the statement "[the parameter] is set to the value of the received SIGNAL_OK value" is ambigous. Which received SIGNAL_OK is to be used? There are two different SIGNAL_OK inputs.

The same kind of statement is made in the last sentence of the paragraph immediately before Table 176-6 on page 275, in subclause 176.3, line 29.

Both of these statements should be made more clear.

SuggestedRemedy

In 176.2, immediately prior to Table 176-5 change the sentence from:
"For the n:n PMAs, the SIGNAL_OK parameter at the client interface is set to the value of the received SIGNAL_OK value.
to:
"For the n:n PMAs, the SIGNAL_OK parameter at the client interface is set to the value of the received SIGNAL_OK parameter from the sublayer below the PMA (inst:IS_SIGNAL.indication(SIGNAL_OK))."

And in subclause 176.3, change the last sentence immediately prior to Table 176-6 from:
"For the n:n PMAs, the SIGNAL_OK parameter at the interface below the PMA is set to the value of the received SIGNAL_OK value."
to:
"For the n:n PMAs, the SIGNAL_OK parameter at the interface below the PMA is set to the value of the received SIGNAL_OK parameter from the sublayer above the PMA (PMA:IS_SIGNAL.request(SIGNAL_OK))."

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.3** *P* **275** *L* **6** # 479

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Verb tense is not correct.

SuggestedRemedy

Change: "…, the m:n PMAs sends n parallel symbol streams …"
to: "…, the m:n PMAs send n parallel symbol streams …".

And on line 11 of the same page 275,
Change: "…, the n:m PMAs sends m parallel symbol streams …"
to: "…, the n:m PMAs send m parallel symbol streams ..."

And on line 18 of the same page 275,
Change: "…, the n:n PMAs sends n parallel symbol streams …"
to: "…, the n:n PMAs send n parallel symbol streams ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4** *P* **276** *L* **16** # 481

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Now that PMAL is a defined term, it can be used to replace term "212.5 Gb/s interface lanes".

SuggestedRemedy

Replace:
"Note that m equals the number of PCSLs and n equals the number 212.5 Gb/s interface lanes for each xBASE-R m:n PMA."
With:
"Note that m equals the number of PCSLs and n equals the number PMALs for each xBASE-R m:n PMA."

Similar updates can be made thoughout Clause 176 where there are referecnes to "212.5 Gb/s interface lanes" such as line 51 on page 292.

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.4.1** *P* **276** *L* **21** # 482

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Should add "PMAL" term when referring to the appropriate PMA interface lanes.

SuggestedRemedy

Replace:
"In the transmit (multiplexing) direction, the m:n PMAs perform a transmit function which multiplexes RS-FEC symbols from m PCSL input lanes received at the PMA service interface to n output lanes at the service interface below the PMA. In the receive (demultiplexing) direction, the m:n PMAs perform a receive function which demultiplexes RS-FEC symbols from n input lanes at the service interface below the PMA to m PCSL output lanes toward the PMA service interface."

With:
"In the transmit (multiplexing) direction, the m:n PMAs perform a transmit function which multiplexes RS-FEC symbols from m PCSL input lanes received at the PMA service interface to n PMAL output lanes at the service interface below the PMA. In the receive (demultiplexing) direction, the m:n PMAs perform a receive function which demultiplexes RS-FEC symbols from n PMAL input lanes at the service interface below the PMA to m PCSL output lanes toward the PMA service interface."

Similar updates can be made to 176.5.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In 176.4.1
Change:
"In the transmit (multiplexing) direction, the m:n PMAs perform a transmit function which multiplexes RS-FEC symbols from m PCSL input lanes received at the PMA service interface to n output lanes at the service interface below the PMA. In the receive (demultiplexing) direction, the m:n PMAs perform a receive function which demultiplexes RS-FEC symbols from n input lanes at the service interface below the PMA to m PCSL output lanes toward the PMA service interface."
To:
"In the transmit (multiplexing) direction, the m:n PMAs mutiplex RS-FEC symbols from m PCSLs at the PMA service interface to n PMALs at the service interface below the PMA. In the receive (demultiplexing) direction, the m:n PMAs demultiplex RS-FEC symbols from n PMALs at the service interface below the PMA to m PCSLs toward the PMA service interface."

In 176.5.1
Change:
"In the transmit (demultiplexing) direction, the n:m PMAs perform a transmit function which demultiplexes RS-FEC symbols from n input lanes at the PMA service interface to m PCSL output lanes at the service interface below the PMA. In the receive (multiplexing) direction, the n:m PMAs perform a receive function which multiplexes RS-FEC symbols from m PCSL input lanes at the service interface below the PMA to n output lanes at the PMA service interface."
To:
"In the transmit (demultiplexing) direction, the n:m PMAs demultiplex RS-FEC symbols from n PMALs at the PMA service interface to m PCSLs at the service interface below the PMA. In the receive (multiplexing) direction, the n:m PMAs multiplex RS-FEC symbols from m PCSLs at the service interface below the PMA to n PMALs at the PMA service interface."

Implement the with editorial license.

Cl **176** *SC* **176.4.2.4.2** *P* **281** *L* **32** # 96

Nicholl, Shawn AMD

Comment Type **TR** *Comment Status* **D** *(bucket)*

Currently says "… and for the 400GBASE-R 32:4 PMA, the odd lanes …"

SuggestedRemedy

Propose "… and for the 400GBASE-R 16:2 PMA, the odd lanes …"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4.3.2.1** *P* **286** *L* **30** # 86

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

The statement "… continues until all eight PCS lanes have alignment marker lock using the same 20-bit symbol-pair boundary" can be made more clear by stating what is meant by the "same boundary".

SuggestedRemedy

Change the sentence on page 286, line 30
from:
"This process of a one-bit slip followed by alignment marker search continues until all eight PCS lanes have alignment marker lock using the same 20-bit symbol-pair boundary."
to:
"This process of a one-bit slip followed by alignment marker search continues until all eight PCS lanes have alignment marker lock using the 20-bit boundary set by the demultiplexer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In the Suggested Remedy, replace the word "set" by "chosen".
Change:
"This process of a one-bit slip followed by alignment marker search continues until all eight PCS lanes have alignment marker lock using the same 20-bit symbol-pair boundary."
To:
"This process of a one-bit slip followed by alignment marker search continues until all eight PCS lanes have alignment marker lock using the 20-bit boundary chosen by the demultiplexer."

Implement with editorial license.

Cl **176** *SC* **176.4.4.2.1** *P* **289** *L* **25** # 483

Opsasnick, Eugene Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

Definition of variable restart_lock_demux<y> states that it is set to true in the SYMBOL_LOCK_RESTART state, but is is actually set to true in two separate states in state diagram Figure 176-10.

SuggestedRemedy

Change: "Boolean variable that is set to true in the SYMBOL_LOCK_RESTART state to restart …"
To: "Boolean variable that is set to true in the SYMBOL_LOCK_RESTART and SLIP_CONTROL states to restart …"

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.4.4.2.3** *P* **290** *L* **4** # 484

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Numbers less than or equal to 10 (ten) should be written out.

SuggestedRemedy

Change: "Counts 3 alignment marker intervals."
To: "Counts three alignment marker intervals."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4.4.3** *P* **290** *L* **34** # 145

He, Xiang Huawei

Comment Type **T** *Comment Status* **D** *(bucket)*

The index y is not a PMAL but a PAML number.

SuggestedRemedy

Change "where y is the input PMAL" to "where y is the input PMAL number"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4.4.3** *P* **291** *L* **2** # 84

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

The initial condition (open arrow) to enter the LOSS_OF_ALIGNMNET state in Figure 176-9 is "reset + !all_locked_mux". (!signal_ok_mux) should be added to this condition

SuggestedRemedy

Change the open arrow condition to enter LOSS_OF_ALIGNMENT state from:
reset + !all_locked_mux
to:
reset + !signal_ok_mux + !all_locked_mux

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.4.4.3** *P* **291** *L* **16** # 83

Opsasnick, Eugene Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

In the Figure 176-9 state diagram, after entering ALIGNMENT_FAIL state, the state machine will transition immediately to LOSS_OF_ALIGNMENT_STATE. There should be an arc added from ALIGNMENT_FAIL to LOSS_OF_ALIGNMENT (as an unconditional transition). Adding this arc will make the state diagram easier for the reader to understand. Without this arc, the reader must figure out that setting restart_lock_mux to true causes restart_lock in Figure 119-2 to be true, and that variable causes the Fig. 119-12 state machine to go to the LOCK_INIT state which sets the amps_lock<x> variable to false and when any amps_locks<x> is false for x = 0 to 31, then the variable all_locked in clause 119 also becomes false. And then all_lock_mux in CL 176 takes the value of CL 119 all_locked. And finally the user can see that (!all_locked_mux) is an open arrow global transition condition to the LOSS_OF_ALIGNMENT state.

SuggestedRemedy

In the Figure 176-9 state diagram, add an unconditional transition arc (UCT) from the ALIGNMENT_FAIL state to the LOSS_OF_ALIGNMENT state.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The state diagram is correct as shown. It follows similar state diagrams in Cl119 which does not show the UCT transition. The comment has a fair point that in CL176, the level of indirection is greater and showing the UCT transition is better. Not strictly needed though.

Cl **176** *SC* **176.4.4.3** *P* **292** *L* **17** # 485

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

In Figure 176-10, the state transitions out of SLIP_CONTROL and SYMBOL_LOCK_RESTART do not have a condition.

SuggestedRemedy

Unconditional state transitions should be labelled "UCT".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In Fig 176-10, label the unconditional state transitions out of SLIP_CONTROL and SYMBOL_LOCK_RESTART with "UCT"

Cl **176** *SC* **176.7.4** *P* **298** *L* **3** # 18

Brown, Matt Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

Subclause 176.7.4 specifies that test pattern generators and checker defined in 120.5.11.2 are optional but does not elaborate which ones. Necessary pattern generators are PRBS31Q, PRBS13Q, SSPRQ, and square wave. Necessary pattern checkers are PRBS31Q and PRBS13Q.

SuggestedRemedy

Create a subclause for each pattern generator and checker that is optionally required and refer back to 120.5.11.2.x for details.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Create subclauses for PRBS31Q, PRBS13Q, SSPRQ and Square wave patterns. State that PRBS31Q pattern generator and checker are mandatory. State that PRBS13Q, PRBSQ9, SSPRQ and square wave generators are optional. Within each subclause, point to the subclause that describes the pattern in 120.5.11.2 for further details.
Implement with editorial license.

Cl **176** *SC* **176.7.4** *P* **298** *L* **3** # 19

Brown, Matt Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

Draft 1.2 comment #135 adopted response said that the PRBS31Q block error counters were mandatory but not the checker. The PRBS31Q pattern checker with block error checking is needed for PMD and AUI component testing.

SuggestedRemedy

Specify that the PRBS31Q pattern check is mandatory.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.7.4.1** *P* **298** *L* **26** # 12

Brown, Matt — Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

Some of the block error counters may increment closed to once per block. As such, these counters, if 32 bits, will saturate around 30 seconds after being reset to zero. In order to ensure that there is at least 15 minutes between reset and saturation, bin counters for 0, 1, 2, and 3 should be larger.

SuggestedRemedy

Specify the counter size for test_block_error_bin_i_k to be 48 bits for k from 0 to 3 and 32 bits otherwise.

Proposed Response *Response Status* **W**

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

Cl **176** *SC* **176.11** *P* **300** *L* **15** # 5

Marris, Arthur — Cadence Design Systems

Comment Type **T** *Comment Status* **D** *(bucket)*

Table 176–8 needs populating

SuggestedRemedy

Refer to "Table 45–3—PMA/PMD registers" in IEEE Std 802.3 for the correct MDIO register bit references

Proposed Response *Response Status* **W**

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

Cl **176B** *SC* **176B.3** *P* **683** *L* **12** # 378

D'Ambrosia, John — Futurewei, U.S. Subsidiary of Huawei

Comment Type **E** *Comment Status* **D** *(bucket)*

This subclause is included to highlight the co-existence of bit and symbol muxing in an implementation, but the figure uses generic language fort he PMA sublayers that doesn't help.

SuggestedRemedy

Add "BM-" or "SM-" as appropriate to the PMA sublayer boxes in Fig 176B-4.`

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176B** *SC* **176B.4.1** *P* **660** *L* **51** # 424

Dudek, Mike — Marvell

Comment Type **TR** *Comment Status* **D** *(bucket)*

The editor's notes do not appear to be correct for the AUI's in the tables. E.g. 200GAUI-8 is not clause 176C. It should only apply to the PMA's and the changes to the PMA's are not what the editor's note implies. E.G. The sublayer in the first row of Table 176B-1 should not be changed from 200GBASE-R 8:n PMA to 200GBASE-R 8:8 PMA it appears to be correct as it is:

SuggestedRemedy

Make the necessary changes and delete the editor's note. Also on page 663 line 35, page 665 line 3, and page 668 line 3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The editor's notes convey that the tables should also include guidance for use of AUIs with 50 Gb/s per lane and 25 Gb/s per lane (e.g., 200GAUI-8). Including these was deferred since it was not clear initially these were specified for use with the new PHY types defined in 802.3dj. However, updates to D1.2 and D1.3 imply that indeed these lower lane-rate AUIs are intended.
Update the tables per the editor's notes in 176B.4.1, 176B.4.2, 176B.5.1, and 176B.5.2.
Implement with editorial license.

Cl **176B** *SC* **176B.6.2** *P* **695** *L* **28** # 417

Nicholl, Gary — Cisco Systems

Comment Type **TR** *Comment Status* **D** *(bucket)*

Incorrect reference. Reference to "Figure 176B-2" should be "Fgure 176B-3"

SuggestedRemedy

Change "Figure 176B-2" to "Figure 176B-3".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.3** *P* **701** *L* **47** # 436

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **D** *(bucket)*

It might be confusing that "any PMA" includes bit muxed PMA's

SuggestedRemedy

replace "PMA" with "SM-PMA" just in these sentences where it is talking about "any PMA". E.g. change "The PMA above the 200 Gb/s per lane AUI-C2C is any m:1 PMA for 200GAUI-1, m:2 PMA for
400GAUI-2, m:4 PMA for 800GAUI-4, and m:8 PMA for 1.6TAUI-8, as specified in Clause 176." to "The PMA above the 200 Gb/s per lane AUI-C2C is any m:1 SM-PMA for 200GAUI-1, m:2 SM-PMA for
400GAUI-2, m:4 SM-PMA for 800GAUI-4, and m:8 SM-PMA for 1.6TAUI-8, as specified in Clause 176.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.4.1** *P* **702** *L* **43** # 437

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **D** *Test points (bucket)*

The procedure in Annex 163A calls for the computations in 163A.3.1 and 163.4.1 which refer to calculations in Annex 93A that are different from those for 200G in Annex 178A.

SuggestedRemedy

Change to "using the procedure in Annex 163A but replacing the COM related calculations in Annex 93A with those of Annex 178A"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.4.3.1** *P* **704** *L* **17** # 169

Bruckman, Leon Nvidia

Comment Type **T** *Comment Status* **D** *ILT (bucket)*

inter-sublayer link training has a defined acronnym already used in this Annex in 176C.3.

SuggestedRemedy

Change: "inter-sublayer link training"
To: "ILT"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.4.3.1** *P* **704** *L* **19** # 134

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *ILT (bucket)*

Listing the coefficients and presets that are supported by the PMD here will lay the groundwork for reuse of the 178B over interfaces with differing support.

SuggestedRemedy

Add the following with editorial license at the end of the second paragraph of 176C.4.3.1
"The coefficients and presets supported by the C2C transmiter during link training are:
-- k_list = {-3, -2 -1, 0, 1}
-- preset 1
-- preset 2
-- preset 3
-- preset 4
-- preset 5"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement the suggested remedy with considerations of any changes due to other comments about presets.

Cl **176C** *SC* **176C.4.4.4.1** *P* **707** *L* **44** # 444

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **D** *ITT Np (bucket)*

The noise source emulates non-equalizable distortions not equalizable

SuggestedRemedy

Change "equalizable" to "non-equalizable"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.5.1** *P* **711** *L* **37** # 559

Heck, Howard TE Connectivity

Comment Type **E** *Comment Status* **D** *(bucket)*

The value for COM single-ended receiver transmitter termination resistance in Table 176C-6 is highlighted in orange. This value is consistent with those in 178 and 179.

SuggestedRemedy

Remove the orange highlighting.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.5.1** *P* **711** *L* **37** # 203

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

46.25 has orange highlight.

SuggestedRemedy

Remove highlight.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176D** *SC* **176D.6.2** *P* **730** *L* **26** # 265

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **D** *(bucket)*

Typical gDC1 gain for C2M is just few dB's, and there is no reason to have the same gDC1 as KR/CR

SuggestedRemedy

Reduce gDC1 to -12 dB

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This comment is an exact restatement of comment #318 against D1.2.
The response to that comment was:
"REJECT.
The comment does not provide sufficient justification to support the suggested remedy.
It is unclear what benefit the change would achieve. The reference receiver is only used to calibrate the noise in input tests. Even if the typical gDC1 value is limited as stated (without data to support this claim) the results would not changed by reducing the range."
This comment does not include new information to support changing previous decisions.

Cl **176D** *SC* **176D.7.6** *P* **732** *L* **50** # 135

Slavick, Jeff — Broadcom

Comment Type **TR** *Comment Status* **D** *ILT (bucket)*

Listing the coefficients and presets that are supported by the PMD here will lay the groundwork for reuse of the 178B over interfaces with differing support.

SuggestedRemedy

Add the following with editorial license at the end of the first paragraph of 176D.7.6
"The coefficients and presets supported by the C2M transmiter during link training are:
-- k_list = {-3, -2 -1, 0, 1}
-- preset 1
-- preset 2
-- preset 3
-- preset 4
-- preset 5"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement the suggested remedy with considerations of any changes due to other comments about presets.

Cl **177** *SC* **177.2** *P* **307** *L* **47** # 486

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

"may" indicates an optional function. In the context of the first paragraph in 177.2, "might" could be preferred.

SuggestedRemedy

Change: "For the 200GBASE-R Inner FEC, the client sublayer may be the 200GBASE-R 8:1 SM-PMA or 200GBASE-R 1:1 SM-PMA."

To: "For the 200GBASE-R Inner FEC, the client sublayer might be a 200GBASE-R 8:1 SM-PMA or a 200GBASE-R 1:1 SM-PMA."

And make similar changes to each sentence in the first paragraph of 177.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "For the 200GBASE-R Inner FEC, the client sublayer may be the 200GBASE-R 8:1 SM-PMA or 200GBASE-R 1:1 SM-PMA."
To: "For the 200GBASE-R Inner FEC, the client sublayer is either a 200GBASE-R 8:1 SM-PMA or a 200GBASE-R 1:1 SM-PMA."
And make similar changes in 177.2 and 184.3.
[Editor's note: CC: 177, 184]

Cl **177** *SC* **177.2** *P* **308** *L* **22** # 487

Opsasnick, Eugene Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

The last sentence prior to Table 177-1 states "When the value of SIGNAL_OK is IN_PROGRESS or FAIL, the corresponding rx_symbol parameters on all lanes are unspecified.". This implies the rx_symbol parameters have valid values when SINGAL_OK is OK or READY. However, the READY value is set when "all_synced==false". Shouldn't the rx_symbol parameter also be invalid/unspecified when the SIGNAL_OK is READY?

The same may be true for the SINGNAL_OK description immediately prior to Table 177-2 on page 309.

SuggestedRemedy

Change: "When the value of SIGNAL_OK is IN_PROGRESS or FAIL, the corresponding rx_symbol parameters on all lanes are unspecified."

To: "When the value of SIGNAL_OK is READY, IN_PROGRESS or FAIL, the corresponding rx_symbol parameters on all lanes are unspecified."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4** *P* **309** *L* **27** # 121

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

Introductory sentence could be useful

SuggestedRemedy

Add the following to 177.4 "The following processes are performed independently on each FEC service interface input lane.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.1** *P* **309** *L* **32** # 276

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

"4-symbol" is used only here, elsewhere the term "symbol quartet" is used instead.

SuggestedRemedy

Change to "symbol quartet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.1.1** *P* **310** *L* **29** # 120

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

The demultiplexing function refers to "service interface below the PMA" but this is above the Inner FEC.

SuggestedRemedy

Add "with the exception that it operates on the Inner FEC service interface input lanes"

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.1.2** *P* **310** *L* **36** # 419

Nicholl, Gary Cisco Systems

Comment Type **T** *Comment Status* **D** *(bucket)*

I think the sentence "The data
stream is not altered.", although accurate, is confusing/contradictory as the first sentence in the subclause states that "The alignment marker lock function is performed as defined in 176.4.3.3.", , and 176.4.3.3 by definition does alter the data stream.

I tihnk it would be better to update Figure 177-3 to show the symbol demultiplex and alignment marker lock functions for 200G/400G to be "off to the side" from the main data path, with the main data path drawn as a straight arrow from top to bottom of diagram (indicating that the main data path is passthrough and is not altered in any way).

SuggestedRemedy

Delete the sentence "The data path is not altered" on line 36.

Update the 200GBASE-R/400GBASE-R portion of Figure 177-3 as described in the comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Keep the "data stream is not altered", and update the diagram to show a straight arrow.
Otherwise implement the suggested remedy with editorial license.

Cl **177** *SC* **177.4.1.3** *P* **310** *L* **47** # 45

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

The wording here is a bit awkward - the intent is to define a much stricter maximum skew tolerance in the inner FEC than in 800GBASE-R PCS, but the text says "… Skew between PCSLs is removed as defined in 172.2.5.1, except that the 800GBASE-R deskew function shall support a maximum Skew of 25 ns between PCS lanes..."

SuggestedRemedy

Use language more like what 172.2.5.1 uses. Change the text to read "… Skew between PCSLs is removed as defined in 172.2.5.1, except that a maximum Skew of 25 ns is supported between PCS lanes..."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.1.3** *P* **310** *L* **52** # 46

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

The wording here is a bit awkward - the intent is to define a much stricter maximum skew tolerance in the inner FEC than in 800GBASE-R PCS, but the text says "… Skew between PCSLs is removed as defined in 172.2.5.1, except that the 1.6TBASE-R deskew function shall support a maximum Skew of 25 ns between PCS lanes..."

SuggestedRemedy

Use language more like what 175.2.5.1 uses. Change the text to read "… Skew between PCSLs is removed as defined in 175.2.5.1, except that a maximum Skew of 25 ns is supported between PCS lanes..."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.1.5** *P* **311** *L* **15** # 277

Ran, Adee Cisco

Comment Type **T** *Comment Status* **D** *(bucket)*

The reader may be curious why symbol multiplexing is not performed for 200GBASE-R and 400GBASE-R PHYs.

This is because the data on each PCS lane already includes 4-way RS-FEC interleaving performed by the PMA (as illustrated in Figure 176–6). But that may be difficult to understand if not stated explicitly.

SuggestedRemedy

Add an informative note at the end of 177.4.1.5:
"NOTE--In 200GBASE-R and 400GBASE-R PHYs, this operation is not required, since the output of the PMA below the PCS is already symbol multiplexed with 4-way interleaving (see Figure 176–6)."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.2** *P* **311** *L* **18** # 146

He, Xiang Huawei

Comment Type **T** *Comment Status* **D** *(bucket)*

The term "PMA lane" is not accurate. Within the Inner FEC sublayer, it is an "Inner FEC lane".

SuggestedRemedy

Change "PMA lane" to "Inner FEC lane", to be consistent within the clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.2** *P* **311** *L* **25** # 34

Huber, Thomas — Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

The text here seems a bit repetetive. The four paragraphs that start at line 25 spell out the delays for each delay line for each rate in detail, and then at line 50 there is a more abstract specification of the same thing.

SuggestedRemedy

Rewrite the first paragraphs to be algorithmic rather than per-rate:
"The first line (Delay Line 0) delays the data by 4x2xQ RS-FEC symbols, the second line (Delay Line 1) by 4x1xQ RS-FEC symbols, and the last line (Delay Line 2) adds no delay. The values of Q are shown in table 177-X."
Add a table with a column for the rate (200GBASE-R, 400GBASE-R, etc.) and a column for the value of Q.
Delete the sentence at lin 51 that starts with "The number Q differs for each..." and the bullet list that follows (this information is replaced by the table).

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.2** *P* **311** *L* **26** # 279

Ran, Adee — Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

Commas are missing in the 4 paragraphs about delay lines, and periods are inconsistent.

SuggestedRemedy

In the first paragraph, add commas after "200GBASE-R" and before "and the last line". Similarly for the other 3 paragraphs.

Add a period at the end of the second and third paragraphs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.2** *P* **311** *L* **42** # 115

Slavick, Jeff — Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

The deskewed data is fed into the covolutioner.

SuggestedRemedy

Change " The input data from the FEC service interface lane is fed into" to: "The data from deskewed PMA lane is fed into"

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.2.5** *P* **311** *L* **10** # 489

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

The plural of PCSL ahouls be PCSLs, not PCSLS.

SuggestedRemedy

Change "PCSLS" to "PCSLs" (lowercase s).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.2.5** *P* **311** *L* **50** # 490

Opsasnick, Eugene — Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

Incorrect cross-reference.

SuggestedRemedy

Change "Figure 177-5" to "Figure 177-4".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.4** *P* **312** *L* **34** # 280

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

The last sentence in 177.4.4 is "Within each RS-FEC symbol, bit 0 is transmitted first and bit 9 is transmitted last". The transmission order is relevant for the 120-bit block creation, not for the circular shift (circular shift would be the same regardless of the bit order within a symbol).

SuggestedRemedy

Move the quoted sentence to 177.4.3.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.5** *P* **313** *L* **24** # 281

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

Missing commas

SuggestedRemedy

Add a comma after "flows".
Add commas before and after "m<119:0>".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.5** *P* **313** *L* **51** # 282

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

the integer i is a scalar, not a vector, so it should not be in boldface here (it is not bold in other instances)..

SuggestedRemedy

Remove the boldface format from i.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.5** *P* **313** *L* **51** # 283

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"(s0,i, s1,i, s2,i, s3,i, s4,i, s5,i, s6,i) is the binary vector corresponding to the element α_i in the Galois Field GF(2^7) with primitive polynomial x^7 + x^3 + 1"

This reads as if the s bits are the binary representation of the 128 elements of the field - but per Equation 177-2 these are actually the binary coefficients in the linear combination of α_0 through α_6 that creates α_i. I suspect these are not the same.

SuggestedRemedy

Move the quoted sentence after the subsequent one (which states that the elements can be expressed as a linear combination), and change "binary vector corresponding to" to "binary coefficients of the linear combination that creates".

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.5** *P* **314** *L* **1** # 284

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

The second sentence in the first paragraph spans 5 lines and includes 6 commas, 3 instances of "and", and 2 instances of "where". It is difficult to follow.
It also includes "first", but there seems to be no further steps.

SuggestedRemedy

Rewrite this sentence, preferably breaking it into more readable pieces.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.7** *P* **315** *L* **10** # 285

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"The rate… is…"
The exact rate depends on the input rate which has some tolerance.
It would be helpful for the reader to write the ratio of the output rate and the input rate. This information should preferably be placed in the "summary of functions" in 117.1.3 as well.

SuggestedRemedy

Change "the rate" to "the nominal rate".
Add a statement about the ratio, here and in 177.1.3.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.7.1** *P* **316** *L* **6** # 421

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **D** *(bucket)*

The FAS descriptions in table 177-4 have the MSB transmitted first as other clauses do and as is shown with the vectors in Annex 177A. In other clauses the MSB is also transmitted first and is shown as the left most bit in diagrams. Figure 177-8 however might be interpreted as the FAS being transmitted in the other order.

SuggestedRemedy

Clarify Figure 177-8 to match the text and Annex

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.9** *P* **317** *L* **4** # 286

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"These test patterns are used to test adjacent layer interfaces or to perform testing between an Inner FEC and external testing equipment"

Which adjacent layer interfaces? and what is "testing between"?

These generators are only in the output direction, so they can only be used to drive the PMD service interface (which is then used with external testing equipment).

SuggestedRemedy

Change to
"If implemented, these test patterns can be used to drive the PMD service interface for PMD testing purposes".

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.9** *P* **317** *L* **5** # 287

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

It is not specified what happens when more than one generator is enabled on the same lane.
The definitions in clause 120 which are referenced include different control variables and MDIO mappings, and the case where two are enabled is only covered in 45.2.1.170.

Note that some of the patterns in clause 120 are not per-lane but here all patterns have enable bits per lane.

SuggestedRemedy

Add text in 177.4.9 stating that all generators are per-lane, that enabling any of the pattern generators on a lane affects only that lane, and that the behavior when more than one generator is enabled on the same lane is not specified.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5** *P* **317** *L* **27** # 123

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

Introductory sentence could be useful

SuggestedRemedy

Add the following to 177.5 "The following processes are performed independently on each PMD service interface input lane.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.5.1.1** *P* **317** *L* **43** # 491

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

The second and third sentences of the third paragraph of 177.5.1.1 is hard to understand. Also, this is the first use of "ILT" in this clause and it should be spelled out.

SuggestedRemedy

Suggest changing:
"If ILT function is enabled by the management variable mr_training_enable (see 178B.15), the precoding state on the link partner transmitter is requested using the ILT function. If ILT is disabled by the management variable mr_training_enable, the precoding state on the link partner transmitter is set by management."

to:
"If inter-sublayer link training (ILT) is enabled by the control variable mr_training_enable (see 178B.15), precoding of the received data is enabled at the link partner (transmitter) as requested by the receiver using ILT. If ILT is disabled, then the precoding of data at the transmitter is controlled by a management entity."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.2** *P* **318** *L* **4** # 501

Opsasnick, Eugene Broadcom

Comment Type **ER** *Comment Status* **D** *(bucket)*

Extra "to" and missing verb in second sentence of 177.5.2.

SuggestedRemedy

Change:
"The eight codewords inserted as pad (see 177.4.7) are used to frame to the data stream and then removed before the received data is processed."
to:
"The eight codewords inserted as pad (see 177.4.7) are used to frame the data stream and are then removed before the received data is processed further."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.5.2** *P* **318** *L* **7** # 290

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The initial ("blind") deinterleaving and synchronization is performed on bit pairs, since they cannot rely on the FEC decoder.
The source of the bit pairs is likely hard decoding of the input symbols into PAM4 and then into bits.
However, the same deinterleaving is later performed on the input symbols, which are more than bit pairs. This is currently not stated.

SuggestedRemedy

Add text stating that the alignment found by the initial synchronization based on the PAM4 hard decoding is used for deinterleaving of soft inputs into the Inner FEC decoding.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.2** *P* **318** *L* **7** # 289

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"Blind 1:8 bit-pair deinterleaving (each pair of bits corresponding to a PAM4 symbol) is performed to eight Inner FEC flows"

It is unclear what "blind" refers to in this operation. "blind" is no defined in 802.3 and its occasional use is inconsistent.

Perhaps "initial" is more adequate here.

SuggestedRemedy

Change "blind" to "initial" in the quoted sentence and the one with the other instance of "blind" in this subclause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the first sentence to:
"1:8 bit-pair deinterleaving (each pair of bits corresponding to a PAM4 symbol) is performed to eight Inner FEC flows. The initial position is not specified."

Cl **177** *SC* **177.5.2** *P* **318** *L* **19** # 116

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

The statement that you can identify flow 0 and how its done should be one paragraph

SuggestedRemedy

Combine paragraph 4 & 5 in 177.5.2.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4** *P* **319** *L* **10** # 488

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Typo in tense of "PAM4 symbols".

SuggestedRemedy

Change: "… for each received PAM4 symbols."
To: "… for each received PAM4 symbol."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.5.4** *P* **319** *L* **10** # 291

Ran, Adee Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

"The Inner FEC decoder is a soft-decision decoder that requires a higher resolution than two bits for each received PAM4 symbols"

Wording can be improved.

SuggestedRemedy

Change to
"The Inner FEC decoding assumes soft-decision operation that requires a resolution of more than two bits for each received symbol".

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4** *P* **319** *L* **11** # 293

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"The decoder evaluates the incoming codeword and determines the most likely codeword value"

Then input to the decoder is not a codeword (a codeword is a member of a set of 128-bit vectors). The input is a vector of "soft" samples that corresponds to a transmitted codeword.

SuggestedRemedy

Change to "The decoder evaluates the incoming block of 64 rx_symbol inputs and determines the most likely codeword value".

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4** *P* **319** *L* **11** # 292

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The assumed correction capability of the decoder is not stated.
Also, it is not stated what happens when a codeword is uncorrectable. I assume the decoder does not mark the data as error in any way (since it is an inner code) but it is not stated. The error patterns that appear in this case are not described.

Compare to the RS-FEC decoder specification in 91.5.3.3 (where there are normative specifications for correction capability and uncorrectable error marking).

This is important information for testing, monitoring and analyzing the performance of an implementation.

The suggested remedy is based on slide 9 of
https://www.ieee802.org/3/df/public/22_05/22_0517/bliss_3df_01a_220517.pdf.

SuggestedRemedy

Add some test e.g.
"The decoder is expected to correct all codewords in which hard decision would result in up to one bit error and most codewords with up to three bit errors. Codewords that are not decoded correctly will contain at least four bit errors"
Or modifications of the above if necessary.

If there is no consensus for additional text (either the one above or otherwise), add an editor's note inviting contributions in this area.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4..1.5** *P* **319** *L* **52** # 118

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

We're specifyng the behavior of bin 3, so starting with "Note' could be a bit misleading

SuggestedRemedy

Change the last sentence to read "Error bin 3 incrments when three or more bits are corrected in an Inner FEC codeword."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4.1.1** *P* **319** *L* **21** # 294

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

"The output of the Inner FEC decoder will recognize the miscorrected codewords as corrected codewords."

The output is not a separate entity, it is a block of 120 bits that has no information about the type of codeword it came from. The counter is internal to the decoder.

SuggestedRemedy

Change to
"The Inner FEC decoder will treat any miscorrected codeword as a corrected codeword."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to:
"The Inner FEC decoder interprets miscorrected codewords as corrected codewords."
Implement with editorial license.

Cl **177** *SC* **177.5.4.1.1** *P* **319** *L* **24** # 117

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

There is a reference to clause 45 here, I think we want that all to be in the tables

SuggestedRemedy

Delete the "(see 45.2.1.213h)"
In 177.5.4.1 add the following senetence "Mapping of the counters to management variables is specified in 177.10"

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4.1.4** *P* **319** *L* **45** # 108

Mi, Guangcan Huawei Technologies Co., Ltd

Comment Type **ER** *Comment Status* **D** *(bucket)*

inner FEC bin counters can be used to roughly measure pre-Inner FEC BER. Pre-FEC BER is implicit.

SuggestedRemedy

change to "pre-Inner-FEC BER"

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.5.4.1.5** *P* **319** *L* **48** # 13

Brown, Matt — Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

The index "i" is typically used for the lane number. Since counters need to be defined per lane, this index "i" will cause some ambiguity in the management variables and MDIO register definitions. For similar bin counters defined in 174A.6 and 176.7.4.1 the index "k" is used for this purpose.

SuggestedRemedy

For the bin counters defined in 177.5.4.1.5 change the index "i" to "k". Also update Table 177-7 and definitions in Clause 45 appropriately.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.5.4.1.5** *P* **319** *L* **49** # 395

Shrikhande, Kapil — Marvell

Comment Type **T** *Comment Status* **D** *(bucket)*

The definition of the inner fec codeword error bin counters in 177.5.4.1.5 could be edited to better align to the FEC codeword error bin counter in 175.2.5.3.

SuggestedRemedy

Align bin counter definition format in 177.5.4.1.5 to the bin counter in 175.2.5.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #11.

Cl **177** *SC* **177.5.7** *P* **320** *L* **15** # 122

Slavick, Jeff — Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

We're restoring to the data stream to its original order, but it could have errors in the so we can't state it’s the orignial data from the SM-PMA and that'd be the far end SM-PMA not the local one.

SuggestedRemedy

Change "to restore the original data received from the BASE-R SM-PMA." to be "to restore the order of the data received to be compatible with the BASE-R SM-PMA."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.6.2.1** *P* **320** *L* **33** # 493

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

The word AND should be lowercase.

SuggestedRemedy

Change: "… for all eight flows AND the Inner FEC …"
to: "… for all eight flows and the Inner FEC …"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.2.1** *P* **320** *L* **34** # 494

Opsasnick, Eugene — Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Remove comma used between phrases when it is not separating independent clauses of a compound sentance.

SuggestedRemedy

change: " … is identified, and is set to false …"
to: " … is identified and is set to false …"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.2.1** *P* **320** *L* **34** # 296

Ran, Adee — Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

The definition of all_synced does not (strictly) cover the case where sync_flow<x> is true for all eight flows but the Inner FEC flow 0 is not identified.
Also, "and" here has no special meaning and should not be capitalized.

SuggestedRemedy

Change "set to false when sync_flow<x> is false for any x" to "set to false otherwise".
Change "AND" to "and".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.2.1** *P* **320** *L* **43** # 492

Opsasnick, Eugene Broadcom

Comment Type **ER** *Comment Status* **D** *(bucket)*

The word boolean should be capitalized.

SuggestedRemedy

Replace "boolean" with "Boolean" in the definition of these variables:
fas_valid
Inner_FEC_sync_status
slip_done
test_cw
test_fas

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.2.1** *P* **321** *L* **2** # 498

Opsasnick, Eugene Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

The definition of the variable restart_inner_fec_sync states it is set by a process, but it can now be set by two separate processes.

SuggestedRemedy

Replace: "A Boolean variable that is set by the Inner FEC synchronization process …"

with: "A Boolean variable that is set by the Inner FEC synchronization process or the Inner FEC pad detection process …"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.2.1** *P* **321** *L* **13** # 497

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

The definition of sync_flow<x> should be made more clear. What does it mean to be "in a flow of Inner FEC"? Also, a range of values should be given as "A to B" instead of "A:B".

SuggestedRemedy

Suggest changing the definition of sync_flow<x> from:
"A Boolean variable that is set to true when the receiver has found the correct boundary of codewords in a flow of Inner FEC, where x = 0:7"

to:
"A Boolean variable that is set to true after the inner FEC codeword boundary is found for an inner FEC flow, where x=0 to 7 and represents an inner FEC flow ID before identifing the actual inner FEC flow numbering."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.6.2.1** *P* **321** *L* **22** # 495

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

The varaible "valid_cw" is used in the state diagram in Figure 177-10 and should be added to the list of variable definitions.

SuggestedRemedy

Add definition of "valid_cw" to list of variable definitions in 177.6.2.1 in alphabetical order.

Suggested definition (to make CAL_SYNDROME function obsolete):
"A boolean variable that is set to true when the calculated syndrome of the Inner FEC codeword beign tested is zero and is set to false otherwise."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.6.2.2** *P* **321** *L* **26** # 496

Opsasnick, Eugene Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

The function CAL_SYNDROME is not necessary and should be removed from the list of functions and from the state diagram in figure 177-10. The variable "valid_cw" (definition is missing), should be defined to make this function not necessary.

SuggestedRemedy

Remove CAL_SYNDROME from the list of functions. Remove CAL_SYNDROME from figure 177-10 in states CW_CHECK_1, CW_CHECK_2 and CW_CHECK_3

Also remove references to CAL_SYNDROME in definition of bad_cw_cnt and valid_cw_cnt counters in 177.6.2.3

Change the definition of bad_cw_cnt from:
"Counts the number of invalid Inner FEC codewords based on the output of CAL_SYNDROME function. A codeword is considered invalid when its syndrome is non-zero."
to:
"Counts the number of invalid inner FEC codewords received within a period of 150 codewords."

Change the definition of valid_cw_cnt from:
"Counts the number of valid Inner FEC codewords based on the output of CAL_SYNDROME function. A codeword is considered valid when its syndrome is zero."
to:
"Counts the number of valid inner FEC codewords within a period of 50 codewords."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.6.2.3** *P* **321** *L* **45** # 502

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

The definion of "fas_cnt" is "Counts the interval of Inner FEC codewords between two adjacent pads." What is the interval value? How many codewords?

SuggestedRemedy

Add a number to to explicitly state the number of codewrds that need to be counted or else add a cross-reference to the subclause with this information.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add a cross-reference to the subclause, and implement this change with editorial license.

Cl **177** *SC* **177.6.3** *P* **321** *L* **53** # 499

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

Should add a statement that the 8 self-sync processes operate independantly of each other and spell out the word synchronization. Should also state that 8 such processes are required on each input lane.

SuggestedRemedy

Change:
"The Inner FEC sublayer shall implement eight self-sync processes as shown in Figure 177–10 to identify the boundaries of the Inner FEC codewords."

to:
"The Inner FEC sublayer shall implement eight self-synchronization processes as shown in Figure 177–10 for each input lane in the receive direction. Each synchronization process operates independantly on an Inner FEC flow to identify the boundaries of the Inner FEC codewords."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.6.3** *P* **321** *L* **54** # 500

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

Should add a statement that a PAD detection process is required for each input lane.

SuggestedRemedy

Change:
"Pad detection process follows the process shown in Figure 177–10."

to:
"An inner FEC Pad detection process as illustrated in the state diagram in Figure 177–10 shall be implemented for each input lane in the receive direction."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **322** *L* **4** # 507

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

In figure 176-10, a space is needed between the logical-OR (+) operator and variable name.

SuggestedRemedy

Replace "+restart_inner_fec_sync" with "+ restart_inner_fec_sync".

And make the same change in Figure 177-11 on page 323, line 4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **322** *L* **10** # 504

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

In figure 176-10, the condition to transition out of stte INNER_FEC_SYNC_INIT is incorrect.

SuggestedRemedy

Change the condition from:"all_synced" to "UCT"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **322** *L* **12** # 505

Opsasnick, Eugene Broadcom

Comment Type **ER** *Comment Status* **D** *(bucket)*

In figure 176-10, in CW_CHECK_3 state, the extra space between variable names and increment operator ++ should be removed.

SuggestedRemedy

Replace "cw_cnt ++" with "cw_cnt++"
and
replace "bad_cw_cnt ++" with "bad_cw_cnt++"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **322** *L* **21** # 506

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

In figure 176-10, the new state UNSYNC could use a better name.

SuggestedRemedy

Rename state "UNSYNC" to be "RESTART_SYNC"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **322** *L* **22** # 119

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

In Fig 177-10 the exit from INNER_FEC_SYNC can't be all_sync because that's false when any sync_flow is false and in that state we set it false and need to go through the sync process to set it to true.

SuggestedRemedy

Create new variable "none_synced" -- A Boolean variable that is set to true when sync_flow<x> is false for all eight flows and is set to false when sync_flow<x> is true for any x.

In Fig. 177-10 replace the all_sync criteria from INNER_FEC_SYNC_INIT to GET_BLOCK to be UCT

In Fig 177-11 replace the restart_inner_fec_sync criteria for entering FAS_LOCK_INIT with none_synced

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #504.

Cl **177** *SC* **177.6.3** *P* **322** *L* **23** # 503

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

In figure 176-10, in state CW_CHECK_1, the conditional increment of cw_cnt should be written with the condition in parentheses on the same line as the increment. See figure 1-1 in 1.2.1.

SuggestedRemedy

Change:
"if valid_cw
valid_cw_cnt++"
to:
"valid_cw_cnt++ (if valid_cw)"

in three places: in CW_CHECK1, CW_CHECK_2 and CW_CHECK3 states.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **323** *L* **6** # 508

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

In figure 177-11, there are three separate states with the name, COUNT_NEXT. They should have different names.

SuggestedRemedy

Leave COUNT_NEXT as-is at line 6.
On line 24, change "COUNT_NEXT" to "COUNT_2ND".
On line 28, change "COUNT_NEXT" to COUNT_3RD".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #297.

Cl **177** *SC* **177.6.3** *P* **323** *L* **9** # 509

Opsasnick, Eugene Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

In figure 177-11, there is an incomplete change to FAS_LOCK_INIT state from D1.2 comment #389.

SuggestedRemedy

In FAS_LOCK_INIT state, add:
"fas_lock <= false"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **323** *L* **13** # 510

Opsasnick, Eugene Broadcom

Comment Type **ER** *Comment Status* **D** *(bucket)*

In figure 177-11, in BAD_FAS state, the extra space between variable names and increment operator ++ should be removed.

SuggestedRemedy

Replace "bad_fas_cnt ++" with "bad_fas_cnt++"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.6.3** *P* **323** *L* **29** # 297

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

In Figure 177-11 there are two states titled "COUNT_NEXT", with identical operations and transition conditions.
I assume both are required (if not, the bottom one should be deleted).

SuggestedRemedy

Rename the states to COUNT_NEXT_1 and COUNT_NEXT_2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.10** *P* **325** *L* **9** # 147

He, Xiang Huawei

Comment Type **T** *Comment Status* **D** *(bucket)*

"Inner FEC enable lane x" variables are not defined or backed by any proposal, and should be removed in the next draft.

SuggestedRemedy

Remove rows "Inner FEC enable lane 0" through "Inner FEC enable lane 7" in Table 177-6.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #1.

Cl **177** *SC* **177.10** *P* **325** *L* **29** # 1

Marris, Arthur — Cadence Design Systems

Comment Type **TR** *Comment Status* **D** *(bucket)*

Change the "enable" control variables to a single "reset" variable

SuggestedRemedy

In Table 177–6 rename "Inner FEC enable lane 0" to "Inner FEC reset"
Make the variable reference be to 177.6.2.1 (where Inner FEC reset is defined)
Delete rows for "Inner FEC enable lane 1" to "Inner FEC enable lane 7"
Delete editor's note below Table 177-6
In Table 45–177a delete rows "Inner FEC enable lane 1" to "Inner FEC enable lane 7" and in the row for "1.2400.0" change "enable" to "reset"
On page 320 line 53 for the reset variable change the cross reference from "45.2.1.1.1" to "45.2.1.213a"

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.10** *P* **326** *L* **9** # 17

Brown, Matt — Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

In Table 177-6 the enable bits are never defined in this clause nor are they necessary.

SuggestedRemedy

Remove the enable bits from Table 177-6 and delete the editor's note below.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #1.

Cl **177** *SC* **177.10.** *P* **325** *L* **9** # 298

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

Table 177-6 includes control variables for per-lane inner FEC enable. As stated in the editor's note, these variables are not defined.

There idea of disabling the FEC and the behaviors of the encoder and decoder in this state have never been discussed.

If the intent is to have a way to power down the FEC logic, then the adjacent PMD's output enable and signal detect functions can be used. However, this would not be observable and need not be specified in a standard.

SuggestedRemedy

Delete the "Inner FEC enable" control variables in table 177-6 and the corresponding MDIO registers in clause 45.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #1.

Cl **177** *SC* **177.10.** *P* **325** *L* **39** # 299

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The status variable name "pmal_locked_demux" is not mentioned in the referenced 177.4.1.2. It is defined in 176.4.4.2.1.
Also, it is a per-lane variable.

SuggestedRemedy

Either change the cross-reference to clause 176, or add text in 177.4.1.2 that the inner FEC has separate status variables for this function (only in the transmit direction? Or both?)
Add "lane 0 through 7".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the cross reference to clause 176, and implement with editorial license.

Cl **177** *SC* **177.10.** *P* **328** *L* **48** # 301

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The "ability" variables listed in Table 177-7 do not appear in the variable reference subclauses.

Also, for each ability it is sufficient to have one bit for the whole inner FEC sublayer (not a bit per lane).

SuggestedRemedy

Add text describing the ability bits in the corresponding subclauses.
Make these bits global rather than per-lane.

Proposed Response *Response Status* **W**

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

Cl **178** *SC* **178.7.1** *P* **338** *L* **42** # 28

Brown, Matt Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

The skew numbers from previous generations should be fine.

SuggestedRemedy

Delete the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.7.2** *P* **339** *L* **12** # 29

Brown, Matt Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

Skew constraints for 1.6TBASE-R based on 800GBASE-R should be fine.

SuggestedRemedy

Delete the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.8.9** *P* **340** *L* **32** # 126

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *ILT (bucket)*

Listing the coefficients and presets that are supported by the PMD here will lay the groundwork for reuse of the 178B over interfaces with differing support.

SuggestedRemedy

Add the following with editorial license after the first paragraph of 178.8.9
"The coefficients and presets supported by the PMD transmit function are:
-- k_list = {-3, -2 -1, 0, 1}
-- preset 1
-- preset 2
-- preset 3
-- preset 4
-- preset 5"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement the suggested remedy with considerations of any changes due to other comments about presets.

Cl **178** *SC* **178.10.1** *P* **350** *L* **38** # 558

Heck, Howard TE Connectivity

Comment Type **E** *Comment Status* **D** *(bucket)*

The value for COM single-ended receiver termination resistance is highlighted in orange.This value is consistent with those in 179 and 176C.

SuggestedRemedy

Remove the orange highlighting.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178A** *SC* **178A.1.8.1** *P* **758** *L* **33** # 534

Dawe, Piers Nvidia

Comment Type **E** *Comment Status* **D** *(bucket)*

If Nb is the number of feedback taps, Nf is the number of feedforward taps. Obvs. Although OIF use it for something else. 10GBASE-LRM uses EqNf and EqNb. 802.3ck has:
DFE maximum span including floating taps N_f (but it doesn't have receiver FFE taps so the contradiction doesn't apply) and
Number of DFE floating tap banks N_bg.

SuggestedRemedy

Change Number of (FFE) taps per floating tap group, from Nf to N_fg

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
For consistency with the notation used in Annex 93A, change "Number of floating tap groups" from N_{g} to N_{wg} and change "Number of taps per floating tap group" from N_{f} to N_{wf}. The change from "b" to "w" in the subscripts indicates that this floating tap structure is in the feed-forward filter defined in Annex 178A, whose tap coefficients are denoted as w(i), and not in the feedback filter as defined in Annex 93A.
Implement with editorial license.
[Editor's note: CC: 178, 179, 176C, 176D.]

Cl **178B** *SC* **178B.5** *P* **766** *L* **33** # 355

Ran, Adee Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

The first two paragraphs of 178B.5 are not about the protocol, but about AUI components and PMDs.
They seem to belong to 178B.4, based on its title.

SuggestedRemedy

Move these paragraphs to 178B.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The first paragraph of 178B.5 is related to the section, so it should stay in 178B.5.
Move the second paragraph of 178B.5 to the begining of 178B.4
Implement with editorial license.

Cl **178B** *SC* **178B.5** *P* **767** *L* **1** # 381

Healey, Adam Broadcom Inc.

Comment Type **T** *Comment Status* **D** *(bucket)*

The "continue training" bit is in the control field. Also the cross-reference to 178B.8.8 does not point to the definition of the "Continue training" bit.

SuggestedRemedy

Change to "The continue training bit in the control field of the training frames (see 178B.7.2) if training is enabled."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178B** *SC* **178B.11.4** *P* **781** *L* **33** # 133

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *ILT (bucket)*

The list of supported coefficients may be different for various components

SuggestedRemedy

Replace the {-3, -2, -1, 0, 1} in the definition of k_list with "is defined by the AUI component or PMD"

Proposed Response *Response Status* **W**

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

Cl **178B** *SC* **178B.14.2.1** *P* **783** *L* **31** # 382

Healey, Adam Broadcom Inc.

Comment Type **T** *Comment Status* **D** *(bucket)*

The "Continue training" bit is in the control field.

SuggestedRemedy

Change the last sentence of the definition of local_rts to "The logical-NOT of this variable is encoded as the “continue training” bit in the control field of transmitted training frames."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.
Also in the definition of remote_rts change: "of the status field" to "of the control field".

Cl **178B** *SC* **178B.14.3.5** *P* **789** *L* **41** # 141

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **D** *(bucket)*

Ambigous transition if timer_done and tf_lock both occur simultaneously

SuggestedRemedy

Add "!recovery_timer_done *" to the transition back to TRAIN_LOCAL

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178B** *SC* **178B.14.3.5** *P* **790** *L* **20** # 143

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Fig 178B-9 has an extraneous line

SuggestedRemedy

extran | to th right of the UCT exiting POLARIY_INVERT

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Remove extraneous line from Figure 178B-9.

Cl **178B** *SC* **178B.14.3.5** *P* **790** *L* **20** # 142

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **D** *(bucket)*

Fig 178B-9 has text box overlapping lines

SuggestedRemedy

tf_offset in GET_NEW_MARKER is covering up lies

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Fix the GET_NEW_MARKER box and text to avoid overlap.

Cl **178B** *SC* **178B.15** *P* **792** *L* **6** # 7

Marris, Arthur Cadence Design Systems

Comment Type **T** *Comment Status* **D** *(bucket)*

MDIO register bit references need to be added to Tables 178B-6 and 178B-7

SuggestedRemedy

Consider a proposal on how to do this during the January 2025 802.3dj task force meeting

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the repsonse to comment #170

Cl **178B** *SC* **178B.15** *P* **792** *L* **13** # 170

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

The Management tables need to be updated

SuggestedRemedy

Update Tables 178B-6 and 176B-7 variables and references. Refer to lane 0 of the upstream interface and add a footnote for the other interfaces/lanes (similar to Clause 162 Table 162–7).

Proposed Response *Response Status* **W**

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

Cl **179** *SC* **179.7.1** *P* **368** *L* **41** # 30

Brown, Matt Alphawave Semi

Comment Type **T** *Comment Status* **D** *Skew (bucket)*

The skew numbers from previous generations should be fine.

SuggestedRemedy

Delete the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.7.2** *P* **369** *L* **12** # 31

Brown, Matt — Alphawave Semi

Comment Type **T** *Comment Status* **D** *Skew (bucket)*

Skew constraints for 1.6TBASE-R based on 800GBASE-R should be fine.

SuggestedRemedy

Delete the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.8.9** *P* **372** *L* **43** # 132

Slavick, Jeff — Broadcom

Comment Type **TR** *Comment Status* **D** *ILT (bucket)*

Listing the coefficients and presets that are supported by the PMD here will lay the groundwork for reuse of the 178B over interfaces with differing support.

SuggestedRemedy

Add the following with editorial license after the first paragraph of 179.8.9
"The coefficients and presets supported by the PMD transmit function are:
-- k_list = {-3, -2 -1, 0, 1}
-- preset 1
-- preset 2
-- preset 3
-- preset 4
-- preset 5"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement the suggested remedy with considerations of any changes due to other comments about presets.

Cl **179** *SC* **179.9.4.5** *P* **378** *L* **50** # 304

Ran, Adee — Cisco

Comment Type **T** *Comment Status* **D** *dSNDR (bucket)*

The procedure for calculation of dSNDR may be somewhat easier to follow with an illustration.

Compare to the similar calculation of dR_peak and dv_f, defined in Annex 163A, which is illustrated by Figure 163A–1.

SuggestedRemedy

Add a figure in 179.9.4.5 similar to Figure 163A–1 but with "reference SNDR" and "measured SNDR".
Add text referring to the figure with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.9.4.5.3** *P* **380** *L* **22** # 305

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *Reference SNDR (bucket)*

H_t(f) is not fully defined since T_r is not provided.

SuggestedRemedy

Add a reference to T_r in Table 179-18

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Several COM parameters (from Table 179-18) are required for the calculation of the reference SNDR but are currently not mentioned.
- Equation 179-11 has H_t(f) which refers to 178A.1.6.2 which needs T_r.
- Equation 179-15 has S_tn(theta) which refers to Equation 178A-18 which needs SNR_TX and f_b.
Add the following paragraph at the end of 179.9.4.5.3:
"Calculation of the reference SNDR uses values in Table 179-18 for the parameters f_b, T_r, SNR_Tx."
Include any other missing parameters.
Implement with editorial license.

Cl **179** *SC* **179.11** *P* **390** *L* **33** # 309

Ran, Adee Cisco

Comment Type **T** *Comment Status* **D** *Nomenclature (bucket)*

The term "cable assembly class" has been used as a placeholder for several drafts. No comments have been received to use another term.
It is suggested to formally adopt this term.

SuggestedRemedy

Unify the document by changing any other term referring to the cable assembly class with editorial license.
Delete the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.11.1** *P* **391** *L* **28** # 311

Ran, Adee Cisco

Comment Type **T** *Comment Status* **D** *eference impedance (bucket)*

The reference differential impedance is stated, but there are also common-mode and mode-conversion specifications for cable assemblies.

SuggestedRemedy

Add a specification for common-mode impedance of 25 Ohm, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.11.7** *P* **393** *L* **48** # 312

Ran, Adee Cisco

Comment Type **E** *Comment Status* **D** *COM (bucket)*

The minimum value of COM is included in Table 179-13, and has an exception for some cases. Having one value and referring to it is preferable.

SuggestedRemedy

Replace "3 dB" with a reference to Table 179-13 with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.11.7.1** *P* **396** *L* **44** # 456

Simms, William NVIDIA

Comment Type **T** *Comment Status* **D** *COM (bucket)*

Table 179-18 - COM parameter values uses a value of 0.54 for the minimum allowed versus the preset2 which has 0.50 (-0.025) from table 179-8. Should COM limits match the presets?

SuggestedRemedy

Make COM table entry 0.475 (0.5-0.025)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The transmitter specifications in Table 179-7 require ability to reduce c(0) to 0.5 or lower, consistent with preset 2. This enables receivers to reduce the input dynamic range.
The COM parameters only specify the search range. There is no evidence that the current range of c(0) is insufficient - in fact, with the current parameters the selected value is always 1.

Cl **179** *SC* **179.11.7.2.2** *P* **398** *L* **32** # 313

Ran, Adee Cisco

Comment Type **E** *Comment Status* **D** *COM (bucket)*

Some of the parameters are given in Table 179-17 (as in the case of the signal path in 179.11.7.2.1).

SuggestedRemedy

Change "using the parameters in Table 179–16" to "using the parameters in Table 179–16 and Table 179-17.".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.11.7.2.2** *P* **398** *L* **34** # 314

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *COM (bucket)*

The calculation of the NEXT path includes:
"The parameter z_p^(h) for the transmitter is taken from the aggressor path column"
But there is no such column.
Similarly for the FEXT (line 46).

Comparing to 162.11.7.1.1 and 162.11.7.1.2, the value of z_p was specified separately in each one but the value was the same, 110.3 mm (and it makes sense).

SuggestedRemedy

The reference to the "aggressor path column" should be removed.
The text in 179.11.7.2.2 can refer to the similar text in 179.11.7.2.1, with an exception that S is the measured NEXT/FEXT instead of through S-parameters.
Impalement with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.12** *P* **399** *L* **21** # 315

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

The PMD is specified in 179.8 and 179.9. 179.14 contains management variable mapping and is irrelevant here.

SuggestedRemedy

Change the reference per the comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179A** *SC* **179A.4** *P* **799** *L* **12** # 267

Ghiasi, Ali Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **D** *(bucket)*

Host channels here is actually package+Host PCB

SuggestedRemedy

Suggest to call it Host package + host PCB, as the channel may implay the connector loss is incldued

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The Host Channel does include the connector loss. The text above Table179A-1 clearly states what losses are included in the Host Channel.

Cl **179A** *SC* **179A.4** *P* **799** *L* **16** # 266

Ghiasi, Ali Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **D** *(bucket)*

Recommended channel IL in table 179A-1 don't add up

SuggestedRemedy

Assuming the via is part of channel, with loss of 2.45 dB connector and 3.8 dB HCB sums to 6.25 dB, the Max Host channel loss would be:
Host-Low=12.75-6.25=6.5 dB
Host-Med=17.75-6.25=11.5 dB
Host-High=22.75-6.25=16.5 dB

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using response to comment #267.

Cl **179A** *SC* **179A.5** *P* **801** *L* **47** # 532

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

17.5

SuggestedRemedy

17.75, twice

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The comment indicates a typo in a label in Figure 179A-2. Replace 17.5 with 17.75 and Implement formating with editorial license.

Cl **179A** *SC* **179A.5** *P* **802** *L* **12** # 560

Heck, Howard TE Connectivity

Comment Type **T** *Comment Status* **D** *(bucket)*

The first channel min calculation in Figure 179A-3 contains an error. The equation states that 13 dB @ 53.125 GHz = (16+4.45+4.45)-(2*9.75). The correct equationis 13 dB = (16+8.25+8.25)=(2*9.75). The 8.25 dB is taken from Table 179A-3 (Minimum insertion loss budget values at 53.125 GHz)

SuggestedRemedy

Change the equation in Figure 179A-3 to "Channel Min (TP0d-TP5d) = 13 dB @ 53.125 GHz = (16+8.25+8.25)-(2*9.75)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement as proposed in suggested remedy.

Cl **179A** *SC* **179A.5** *P* **802** *L* **13** # 531

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

13 dB ... = (16+4.45+4.45)-(2*9.75)

SuggestedRemedy

13 dB ... = (16+8.25+8.25)-(2*9.75)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #560.

Cl **179B** *SC* **179B.1** *P* **803** *L* **23** # 527

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

Now that we have adopted a reference impedance of 92.5 ohm for ERL, we need to address the other specs. All these parameters are measured with a VNA which does the calculations for us, so we can use whatever impedances are suitable.

SuggestedRemedy

Adopt consistent reference impedances for all spec items in this annex.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The comment is not specific about the scope of "other" specs or propose a specific change.

Cl **179B** *SC* **179B.4.1** *P* **806** *L* **1** # 380

D'Ambrosia, John Futurewei, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **D** *(bucket)*

There doesn’t appear to be a figure - was it deleted? is this an editorial issue?

SuggestedRemedy

add figure to 179B-2

Proposed Response *Response Status* **W**

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

Cl **179B** *SC* **179B.4.2** *P* **807** *L* **7** # 530

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

The round trip loss to the MCB connector is 7.6 dB from one side, and more from the other, so an ERL of 10.3 dB is very weak.

SuggestedRemedy

Now that we have a suitable reference differential impedance, choose a suitable ERL limit.

Proposed Response *Response Status* **W**

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

Cl **179B** *SC* **179B.4.6** *P* **810** *L* **29** # 525

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **D** *(bucket)*

Some parameters are in the paragraphs, others are in the tables.

SuggestedRemedy

Move the parameters fMin fMax fStep (max) to the table(s)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The current text formatting reflects the style of previous projects, but can be confusing to track all of the necessary information. Implement suggested remedy with editorial license.

Cl **179B** *SC* **179B.4.6** *P* **810** *L* **30** # 526

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **D** *(bucket)*

Don't put unnecessary ambiguity in a definition.

SuggestedRemedy

Change "maximum frequency spacing of 10 MHz" to " frequency spacing of 10 MHz"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The current text formatting reflects the style of previous projects, but may be unnecessarily ambiguous. Implement suggested remedy as proposed.

Cl **179B** *SC* **179B.4.6** *P* **811** *L* **8** # 216

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

It is out of convention to specify a value "Less than xxx".
Similar issue in Table 179B-5.

SuggestedRemedy

Change "Integrated near-end crosstalk noise voltage" to "Integrated near-end crosstalk noise voltage (max)"
Change "Less than TBD" to "TBD"
Make similar updates in Table 179B-5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.
Note that comment #217 proposes a value to use in place of TBD.

Cl **179C** *SC* **179C.1** *P* **814** *L* **12** # 519

Dawe, Piers — Nvidia

Comment Type **E** *Comment Status* **D** *(bucket)*

Media Dependent Interface

SuggestedRemedy

Medium Dependent Interface

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Medium Dependent Interface is consistent with the current nomenclature definitions.
Change "Media Dependent Interface" to "Medium Dependent Interface" across the draft with editorial license.

Cl **179D** *SC* **179D.1.1** *P* **828** *L* **34** # 518

Dawe, Piers — Nvidia

Comment Type **T** *Comment Status* **D** *(bucket)*

This says "a common set of electrical parameters specified in 179.11, enabling a 1 m length". What length(s) it enables is not relevant to this discussion of connector types and breakout, and it is not accurate.

SuggestedRemedy

Delete "enabling a 1 m length"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The current project scope supports multiple cable types of varying lengths, and so the current text is incorrect.
Implement the suggested remedy with editorial license.

Cl **180** *SC* **180.5.1** *P* **414** *L* **24** # 317

Ran, Adee — Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

The text boxes in Figure 180-2 are somewhat cluttered.

SuggestedRemedy

Change the service interface labels to "PMD:IS_UNITDATA_i.request" and "PMD:IS_UNITDATA_i.indication" (instead of "0 to 3").

Move the text "For clarity…" to the bottom of the diagram, and precede it with "NOTE".

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement part of the proposed remedy: "Move the text "For clarity…" to the bottom of the diagram, and precede it with "NOTE".
Implement similarly in other optical PMD clauses as necessary, with editorial license.

Cl **180** *SC* **180.5.4** *P* **415** *L* **1** # 318

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"The state of the Global_PMD_signal_detect variable is conveyed to PMD client sublayers via the PMD service interface"

This is not true anymore; the service interface conveys the state of the ILT function (as shown in the diagram). The variable has a different semantic and is only accessible through management.

SuggestedRemedy

Delete the quoted sentence.

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.7.1** *P* **463** *L* **26** # 344

Ran, Adee Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

As a result of the resolution of comment #71 against D1.2, almost all rows in Table 180-7 now include the words "each lane". The few rows that do not, are also applicable per lane.

Also, the modified names of the parameters were not consistently applied to references to these parameters outside the table; for example footnote c as "RINxxOMA" without "each lane".

Apparently the whole table is applicable for each lane. The current parameter naming creates unnecessary clutter in the table and elsewhere in the clause, and having "each lane" on some of the parameters and not on others can raise questions.

SuggestedRemedy

Add " on each lane" to the table heading. Delete it from the rows it appears on.
If necessary, add text above the table to clarify.

Delete "each lane" from the names of the parameters elsewhere in this clause (e.g. the text below the table).

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add "each lane" where appropriate. With editorial license

Cl **180** *SC* **180.8** *P* **421** *L* **41** # 321

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

The words "shall meet the" appear twice in succession.

SuggestedRemedy

Delete once.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.8** *P* **421** *L* **42** # 322

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

"per the definitions in 180.9" seems irrelevant. There are not specifications related to Table 180-10 in 180.9.

SuggestedRemedy

Delete "per the definitions in 180.9".

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

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

Cl **180** *SC* **180.8.1** *P* **422** *L* **44** # 325

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

Dispersion slope unit is ps/(nm^2 km).

IEEE Std 260.1-2004 (4.3) requires parentheses in such cases.
The IEEE SA style guide says a multiplication sign is required, but we often do not follow this rule.

SuggestedRemedy

Add parentheses.
Consider adding a multiplication sign.

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

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

Cl **180** *SC* **180.8.3.1.1** *P* **423** *L* **52** # 327

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

"leftmost" and "rightmost" are standard English words (that appear in dictionaries). The hyphenated compounds are nonstandard and do not help the reader.

Note that 180.8.3.1.3 uses the correct words.

SuggestedRemedy

Change to "leftmost" and "rightmost", here and elsewhere in this clause.

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.8.3.1.1** *P* **424** *L* **1** # 328

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

Table 180-14 is for 800GBASE-DR4.

SuggestedRemedy

Change the reference to Table 180-13.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.8.3.2** *P* **426** *L* **33** # 329

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

No need for quotes in "fiber optic cabling".

SuggestedRemedy

Delete the quotes.

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.8.3.2** *P* **426** *L* **41** # 330

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The NOTE about transmitter compliance testing does not appear in any of other MDI requirements subclauses. It is not required.

SuggestedRemedy

Delete this NOTE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.9.5** *P* **430** *L* **35** # 331

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

Footnote a of Table 180-18 says "Relative to main tap".
"Main tap" is not defined anywhere, though it may be assumed that it is the largest positive value.
Even with that assumption, It is unclear whether this means that the coefficient limits are normalized by the main tap's coefficient or that the coefficient indices are such that the main tap index is 0, or both.

I suspect the answer is "both" but it is not clear from the text.

SuggestedRemedy

Change footnote a to read "The main tap is marked by i=0. The minimum and maximum values are relative to this tap's coefficient."

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy (also in 181, 182, and 183) with editorial license.
[Editor's note: CC: 180, 181, 182, 183]

Cl **180** *SC* **180.9.5** *P* **430** *L* **46** # 15

Brown, Matt — Alphawave Semi

Comment Type **T** *Comment Status* **D** *(bucket)*

Table 180-8. Footnote b redundantly defines the limit of FFE gain. The row for FFE gain specifies the target value 1 so it doesn't need to be repeated in the footnote. However, the footnote is helpful to explain what FFE gain is.

SuggestedRemedy

Change footnote b to "The sum of the all equalizer coefficients."

Proposed Response *Response Status* **W**

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

Cl **180** *SC* **180.9.13** *P* **433** *L* **37** # 335

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The transition time and the RINxxOMA of the SRS test transmitter are said to be "no greater than the value specified in Table 180–7".

However, for the extinction ratio it just says "as given", which is unclear; should it be above the minimum of a transmitter, or no higher than the minimum (because the intent is to stress the receiver)?

The suggested remedy assumes that ER is just required to be compliant (rather than be used as stress). If this is not the case, something else should be written.

SuggestedRemedy

Change "are as given in" to "are within the limits specified in".

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

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

Cl **180** *SC* **180.10.1** *P* **433** *L* **47** # 336

Ran, Adee — Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

Why is "IEC 62368-1" in green? It is not expected to become an active cross-reference.

Similarly for IEC references in 180.10.2.

SuggestedRemedy

Change the format of these references to regular text.

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

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

Cl **180** *SC* **180.11** *P* **435** *L* **46** # 337

Ran, Adee — Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

"PMD_signal_detect_3, to PMD_signal_detect_2"

SuggestedRemedy

Delete "to".

Implement similarly in other optical PMD clauses as necessary, with editorial license.

Proposed Response *Response Status* **W**

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

Cl **181** *SC* **181.1** *P* **438** *L* **49** # 338

Ran, Adee — Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

169.2 is included in this amendment.

SuggestedRemedy

Make it an active link.

Proposed Response *Response Status* **W**

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

Cl **181** *SC* **181.3** *P* **440** *L* **6** # 339

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

"where i = 0 to n–1"
For this PMD, the number of PMD lanes is always 4 (as stated on the subsequent line). Using "n" just makes life harder for the reader, especially since n (with this meaning) only appears a few times in the clause, and in some places (e.g. Figure 181-2, 181.5.2, 181.5.3) explicit numbers are used.

Note that the "n" in 800GAUI-n is a different variable and should be kept as is.

SuggestedRemedy

Change to "where i = 0 to 3".
Delete "The number of parallel streams, n, is 4.".

In 181.5.4 change n to 4.
In 181.5.5, in Table 181-15, and in Table 181-16, change "n-1" to 3.

Proposed Response *Response Status* **W**

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

Cl **181** *SC* **181.4.1** *P* **440** *L* **25** # 340

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

169.4 is included in this amendment.

SuggestedRemedy

Make it an active link.

Proposed Response *Response Status* **W**

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

Cl **181** *SC* **181.4.2** *P* **440** *L* **28** # 341

Ran, Adee Cisco

Comment Type **ER** *Comment Status* **D** *(bucket)*

169.5 is included in this amendment.

SuggestedRemedy

Make it an active link (twice).

Proposed Response *Response Status* **W**

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

Cl **181** *SC* **181.9.11** *P* **456** *L* **39** # 343

Ran, Adee Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

The subclause title includes a specific value of xx, 17.1, but the text still has "xx".

SuggestedRemedy

Reword the subclause text to use the specific value.
In the reference to 180.9l.11 add "with xx equal to 17.1".

Proposed Response *Response Status* **W**

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

Cl **182** *SC* **182.7.1** *P* **471** *L* **27** # 33

Landry, Gary Texas Instruments

Comment Type **TR** *Comment Status* **D** *(bucket)*

OMAouter vs max(TECQ, TDECQ) figure was not updated when the OMAouter (min) values were changed in D1.3.

SuggestedRemedy

Update the figure to match D1.3 data. To be specific, OMAouter (min) line should be -0.3 dBm for max(TECQ, TDECQ) < 0.9 dB and 1.2+max(TECQ, TDECQ) dBm for > 0.9 dB.

Proposed Response *Response Status* **W**

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

Cl **182** *SC* **182.9.1** *P* **507** *L* **8** # 111

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

Table 182-12 lists the pattern that will be used by the PMDs in CL182 and its last column gives references of the definition of these test pattern. This table can be found in all PMD clauses. Table 182-12 uses the subclauses in CL177 Inner FEC as reference sources for all test pattern, because the PMD interfaces with inner FEC sublayer. This is good for test pattern 5 and 7 where the test pattern is encoded by the 800GBASE-R Inner FEC. However, for other test patterns that are generic to all PMDs, referencing to the original source would be a better choice.

Take square wave as an example, CL 177.4.9.4 says "The Inner FEC may optionally support a square wave (quaternary) test-pattern generator, as specified in 120.5.11.2.4, on each transmit output lane towards the PMD service interface." This subclause is not defining the pattern of square wave, rather stating a function of the Inner FEC sublayer. For readers who want to know the definition of squarewave, one will have to jump again to 120.5.11.2.4. Therefore it is better to just reference directly to 120.5.11.2.4 in Table 182-12.

SuggestedRemedy

change the defined in reference to 120.5.11.2.4

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The reference here points to test pattern function defined for the Inner FEC. This subclause in turn leverages specifications in another subclause.

Cl **182** *SC* **182.9.1** *P* **507** *L* **9** # 112

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

Table 182-12 lists the pattern that will be used by the PMDs in CL182 and its last column gives references of the definition of these test pattern. This table can be found in all PMD clauses. Table 182-12 uses the subclauses in CL177 Inner FEC as reference sources for all test pattern, because the PMD interfaces with inner FEC sublayer. This is good for test pattern 5 and 7 where the test pattern is encoded by the 800GBASE-R Inner FEC. However, for other test patterns that are generic to all PMDs, referencing to the original source would be a better choice.

Take square wave as an example, CL 177.4.9.4 says "The Inner FEC may optionally support a square wave (quaternary) test-pattern generator, as specified in 120.5.11.2.4, on each transmit output lane towards the PMD service interface." This subclause is not defining the pattern of square wave, rather stating a function of the Inner FEC sublayer. For readers who want to know the definition of squarewave, one will have to jump again to 120.5.11.2.4. Therefore it is better to just reference directly to 120.5.11.2.4 in Table 182-12.

SuggestedRemedy

change the defined in reference to in 120.5.11.2.2

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #111

Cl **182** *SC* **182.9.1** *P* **507** *L* **11** # 113

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

Table 182-12 lists the pattern that will be used by the PMDs in CL182 and its last column gives references of the definition of these test pattern. This table can be found in all PMD clauses. Table 182-12 uses the subclauses in CL177 Inner FEC as reference sources for all test pattern, because the PMD interfaces with inner FEC sublayer. This is good for test pattern 5 and 7 where the test pattern is encoded by the 800GBASE-R Inner FEC. However, for other test patterns that are generic to all PMDs, referencing to the original source would be a better choice.

Take square wave as an example, CL 177.4.9.4 says "The Inner FEC may optionally support a square wave (quaternary) test-pattern generator, as specified in 120.5.11.2.4, on each transmit output lane towards the PMD service interface." This subclause is not defining the pattern of square wave, rather stating a function of the Inner FEC sublayer. For readers who want to know the definition of squarewave, one will have to jump again to 120.5.11.2.4. Therefore it is better to just reference directly to 120.5.11.2.4 in Table 182-12.

SuggestedRemedy

change the defined in reference to in 120.5.11.2.1

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #111

Cl **182** *SC* **182.9.1** *P* **507** *L* **16** # 98

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

Table 182-12 lists the pattern that will be used by the PMDs in CL182 and its last column gives references of the definition of these test pattern. This table can be found in all PMD clauses. Table 182-12 uses the subclauses in CL177 Inner FEC as reference sources for all test pattern, because the PMD interfaces with inner FEC sublayer. This is good for test pattern 5 and 7 where the test pattern is encoded by the 800GBASE-R Inner FEC. However, for other test patterns that are generic to all PMDs, referencing to the original source would be a better choice.

Take square wave as an example, CL 177.4.9.4 says "The Inner FEC may optionally support a square wave (quaternary) test-pattern generator, as specified in 120.5.11.2.4, on each transmit output lane towards the PMD service interface." This subclause is not defining the pattern of square wave, rather stating a function of the Inner FEC sublayer. For readers who want to know the definition of squarewave, one will have to jump again to 120.5.11.2.4. Therefore it is better to just reference directly to 120.5.11.2.4 in Table 182-12.

SuggestedRemedy

change the defined in reference to in 120.5.11.2.3

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #111

Cl **184** *SC* **184.1.2** *P* **515** *L* **35** # 375

D'Ambrosia, John — Futurewei, U.S. Subsidiary of Huawei

Comment Type **TR** *Comment Status* **D** *(bucket)*

Fig 184-1 does not show the correct boundaries of a PHY. It ends at the PMD sublayer, not the MEDIUM.

SuggestedRemedy

Change lower boundary of PHY to the bottom of the PMD sublayer box.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **184** *SC* **184.4.5** *P* **522** *L* **5** # 35

Huber, Thomas — Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

The description of the parity polynomial says "A partity polynomial p(x) of degree 15 is efind as the remainder from the division (modulo 2) of m(x) x x^16 by the generator polynomial showni in Equation (184-2)". The intent of this is that the resulting parity polynomial p(x) is in equation 184-2 (with the generator polynomial in (184-1), but that isn't what the text says.

SuggestedRemedy

Change the text to read: "A parity polynomial p(x) of degree 15 is defined as the remainder from the division (modulo 2) of m(x) x x^16 by the generator polymomial, as shown in Equation (184-2)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "A parity polynomial p(x) of degree 15 is defined as the remainder from the division (modulo 2) of m(x) x x16 by the generator polynomial shown in Equation (184–2)" to: "A parity polynomial p(x) of degree 15 (shown in Equation 184-2) is defined as the remainder from the division (modulo 2) of m(x) x x16 by the generator polynomial shown in Equation (184–1)"
Implement with editorial license.

Cl **184** *SC* **184.5.7.2** *P* **528** *L* **20** # 473

Kota, Kishore — Marvell Semiconductor

Comment Type **TR** *Comment Status* **D** *(bucket)*

This section defines an uncorrected codeword as "An uncorrected FEC codeword is a codeword that contains errors that were not corrected, including FEC codewords that may have been miscorrected or not completely corrected". However, codewords which are miscorrected are not detectable as uncorrected codewords.

SuggestedRemedy

Update the definition to something similar to: "An uncorrected FEC codeword is a codeword with errors which are detectable at the decoder, but the decoder is unable to correct."

Proposed Response *Response Status* **W**

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

Cl **184** *SC* **184.5.7.2** *P* **535** *L* **19** # 349

Ran, Adee — Cisco

Comment Type **TR** *Comment Status* **D** *(bucket)*

The definition of the "uncorrected CW counter" seems to assume that the inner FEC is capable of detecting codewords that are uncorrectable, or that may have been miscorrected.
This capability exists in the RS-FEC (and there is a "shall" statement for ability to detect uncorrectable errors). Is it assumed that a soft-decision BCH decoder can also detect a miscorrected codeword or a "not completely corrected" one?

Note that there is no information about the assumed correction capability of the decoder.

Also note that the definition of the corresponding counters in 177.5.4.1.1. and 177.5.4.1.2 is different; a miscorrected codeword is counted in the "corrected" codeword, suggesting that the decoder cannot detect an uncorrectable codeword.

SuggestedRemedy

Possibly, add some test about the ability to detect uncorrected codewords (and how it can be done) somewhere in this clause.
Or change the definition of this counter to account for not being able of such detection.

Proposed Response *Response Status* **W**

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

Cl **185** *SC* **185.3.1.1** *P* **545** *L* **13** # 72

Sluyski, Mike — Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

This clause include a reference (184.4.11.1) and later to (185.5.2).

SuggestedRemedy

Would it be better and clearer to reference Figure 185-2 instead of text 184.4.11.1 (Picture is clearer than words). Likewise Reference to Figure 185-5 than text in 185.5.2.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Subclause 185.3.1.1 specifies the receipt of the PMD:IS_UNITDATA.request primitive.
The noted referece to 184.4.11.1 specifies how the primitive is created and contains relevent information not included in the Figure 185-2 or 185-3.
No change to the draft
[Editor's note: changed subclause from 185.3.1.1 800GBASE-L to 185.3.1.1]

Cl **185** *SC* **185.7** *P* **552** *L* **45** # 101

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **D** *(bucket)*

It is unclear what is "a simplex fiber optic link segment". For 800GBASE-LR1, the fiber optical link use a pair of SMF, which would be a duplex optic link.It is also unclear what purpose this sentence serve.

SuggestedRemedy

clarify the prupose of this sentence. Or delerte it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In second to last sentence in 185.7 change "The fiber optic cabling model (channel) defined here is the same as a simplex fiber optic link segment"
to
"The fiber optic cabling model (channel) defined here applies to each simplex fiber that makes up the duplex fiber link segment".
Make the same wording change in 180.8, 182.8 and 187.7.
Implement with editorial license.

Cl **185** *SC* **185.8.3** *P* **555** *L* **34** # 157

Bruckman, Leon — Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

There is no Lane wavelength (range) in Table 185-5

SuggestedRemedy

If this is called "Carrier frequency (range)" in Table 185-5, then make naming consistent. Update also Table 185-11 row 2.
If not, add Lane wavelength (range) to Table 185-5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In Table 185-11 and 185.8.3 change "Lane wavelength (range)"
to
"Carrier frequency (range)".
Implement with editorial license.

Cl **185** *SC* **185.12.4.1** *P* **562** *L* **10** # 401

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Transmitter nominal center frequency is not applicable to this PMD.

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.12.4.1** *P* **562** *L* **13** # 402

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Receiver nominal center frequency is not applicable to this PMD

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.12.4.4** *P* **563** *L* **19** # 404

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

SMSR is not defined as a parameter in clause 185

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.12.4.4** *P* **563** *L* **34** # 405

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Adjustable range of transmit
optical power is not defined for clause 185

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.12.4.4** *P* **563** *L* **36** # 406

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Minimum average channel power at maximum adjustable power setting is not applicable to clause 185 PMDs

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.12.4.4** *P* **563** *L* **41** # 407

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

800GBASE-LR1 is an unamplified PMD, ROSNR is not defined

SuggestedRemedy

Delete entries OM11 and OM13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.12.4.24** *P* **562** *L* **40** # 403

Maniloff, Eric — Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

PMD receive center frequency ability is not applicable to this PMD

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.2** *P* **542** *L* **36** # 71

Sluyski, Mike — Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

Does IEEE style allow embedded parameter values as part of the text (e.g. BERadded equal to 3.2 x 10-5 and BERadded equal to 6.4 x 10-5)

SuggestedRemedy

A small table might be clearer than values buried In text.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Stating parameter values as text is supported by IEEE and widely used in IEEE Std 802.3-2022.
No changes to the draft.
[Editor's note: changed subclause from 185.5.2 Error ratio allocation to 185.2]

Cl **185A** *SC* **185A** *P* **839** *L* **6** # 520

Dawe, Piers — Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

ETCC is normative, like TDECQ or COM.

SuggestedRemedy

Change "informative" to "normative.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186** *P* **576** *L* **6** # 182

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **D** *(bucket)*

The acronym AMs is used but never defined. Better to just spell it out. Exception is if it is used specifically for a field name of "AM".

SuggestedRemedy

Change "AMs" to "alignment markers".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Make suggested change throughout clause 186. Implement with editorial license.

Cl **186** *SC* **186.2.2** *P* **568** *L* **23** # 37

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

The AM field was renamed FAM to clarify that it is not the 800GBASE-R AMs.

SuggestedRemedy

Change OH/AM to OH/FAM

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.3.6** *P* **572** *L* **51** # 38

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

With the addition of the AML field, the overhead is no longer a subset of what is in the OIF IA. Also, the reference to ITU-T G.709.6 should be to ITU-T G.709.1

SuggestedRemedy

Revise the text to read: "The frame overhead is based on the frame defined in subclause 4.3.3 of OIF-800ZR-01.0, which is a subset of what is defined in Recommendation ITU-T G.709.1."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.4.1** *P* **580** *L* **20** # 127

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **D** *(bucket)*

Don't have the counters be their own sub-headings, just be inline functionality that is part of the decoder.

SuggestedRemedy

Add this sentence prior to the 186.2.4.1.1 heading "The following counters shall be implemented to aid a network operator in determining the link quality."

Remove the sub-headings of 186.2.4.1.1-4 and make them inline definitions like is done in 175.2.5.3

Update the references in Table 186-8
Implement with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **186** *SC* **186.3.3.1.2** *P* **589** *L* **17** # 40

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

In figure 186-13, 'mfas' should be 'faw' to align with the text in 186.3.3.1.5 (faw is used here to avoid conflict with the MFAS field in the PCS frame structure in clasue 186.2)

SuggestedRemedy

Change mfas to faw

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.4.2.1** *P* **597** *L* **6** # 41

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **D** *(bucket)*

As is tersely explained in 186.2.3.5.1 (with reference to G.709.6, where there is additional detail), the FAM field contains 32 bytes that are providing the frame alignment pattern, and 28 bytes that are reserved (0x00). The alignment process should only be looking at the 32 bytes; the 28 bytes that are transmitted as 0x00 are not required to match.

SuggestedRemedy

Revise the definition of fam_valid to consider only the 32 bytes that have the frame alignment pattern rather than the entire FAM field:
"A Boolean variable that is set to true if the first 256 bits of the FAM field are a valid PCS frame alignment mechanism sequence..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.1** *P* **614** *L* **8** # 74

Sluyski, Mike Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

The optical signal generated by these PMD types are modulated using a dual polarization 16-state quadrature amplitude modulation

SuggestedRemedy

either signal is plural as in signals or the are should be is if singular.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The optical signal generated by these PMD types are modulated" to "The optical signals generated by these PMD types are modulated".

Cl **187** *SC* **187.2** *P* **615** *L* **34** # 75

Sluyski, Mike Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

Reference 174A.4 is not linked.

SuggestedRemedy

Link reference to 174A.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.3.1.1** *P* **618** *L* **13** # 76

Sluyski, Mike Cisco

Comment Type **E** *Comment Status* **D** *(bucket)*

This clause include a reference (186.3.3.1.6) and later to (187.5.2).

SuggestedRemedy

Would it be better and clearer to reference Figure 187-2 instead of text 186.3.3.1.6 (Picture is clearer than words). Likewise Reference to Figure 187-5 than text in 187.5.2.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Subclause 187.3.1.1 specifies the receipt of the PMD:IS_UNITDATA.request primitive.
The noted referece to 186.3.3.1.6 specifies how the primitive is created and contains relevent information not included in the Figure 187-2 or 187-3.
No change to the draft
[Editor's note: changed subclause from "187.3.1.1 800GBASE-E" to 187.3.1.1]

Cl **187** *SC* **187.8.3** *P* **627** *L* **42** # 159

Bruckman, Leon Nvidia

Comment Type **TR** *Comment Status* **D** *(bucket)*

There is no Lane wavelength (range) in Table 187-5

SuggestedRemedy

If this is called "Carrier frequency (range)" in Table 187-5, then make naming consistent.
Update also Table 187-11 row 2.
If not, add Lane wavelength (range) to Table 187-5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In Table 187-11 and 187.8.3 change "Lane wavelength (range)"
to
"Carrier frequency (range)".
Implement with editorial license.

Cl **187** *SC* **187.8.6** *P* **628** *L* **8** # 160

Bruckman, Leon Nvidia

Comment Type **ER** *Comment Status* **D** *(bucket)*

Redundant "is".

SuggestedRemedy

Change: "ETCC is the quality metric is used to define"
To: "ETCC is the quality metric used to define"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.1** *P* **634** *L* **10** # 410

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Transmitter nominal center frequency is not applicable to this PMD.

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.1** *P* **634** *L* **13** # 411

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Receiver nominal center frequency is not applicable to this PMD

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.2** *P* **634** *L* **40** # 412

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

PMD receive center frequency ability is not applicable to this PMD

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.4** *P* **635** *L* **34** # 413

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Adjustable range of transmit
optical power is not defined for clause 187

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.4** *P* **635** *L* **36** # 414

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Minimum average channel power at maximum adjustable power setting is not applicable to clause 187 PMDs

SuggestedRemedy

Delete this entry.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.4** *P* **635** *L* **41** # 415

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Clause 187 PMDs are not amplified, receiever OSNR and tolerance are not applicable or defined.

SuggestedRemedy

Delete entries OM11 and OM13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.12.4.6** *P* **636** *L* **21** # 416

Maniloff, Eric Ciena

Comment Type **T** *Comment Status* **D** *(bucket)*

Clause 187 is not a DWDM PMD

SuggestedRemedy

Delete entry for DWDM black link

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.