Cl **1** *SC* **1.3** *P* **50** *L* **41** # 398

Dawe, Piers — Nvidia

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

The OSFP specification has been updated. Notice that 1.3 says "Standards may be subject to revision, and parties subject to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below"

SuggestedRemedy

Update OSFP from Rev 5.0, October 2, 2022 to Rev 5.1, September 12th, 2024, or remove the date and revision number from the reference.
Update any other references as appropriate if new revisions are published.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update OSFP from Rev 5.0, October 2, 2022 to Rev 5.1, September 12th, 2024.

Cl **45** *SC* **45.2.1.213b** *P* **90** *L* **51** # 164

He, Xiang — Huawei

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

Add MDIO register for newly added "align_status" variable, see 177.4.1 and 177.11. It might be confusing to put it in 45.2.1.213b since the registers now in the table are for Inner FEC receive direction. We could

SuggestedRemedy

In 45.2.1.213b, add a new row above "Inner FEC lock 7" for the "align_status" in 177.4.1 and 177.11:
Bit(s) / Name / Description / R/W
1.2401.8 / align_status / alignment marker lock status for Inner FEC transmit direction / RO
And change "1.2401.15:8" to "1.2401.15:9" in the first row.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
There need to be bits for all 8 FEC lanes so use bits 1.2401.15 to 1.2401.8 for "Inner FEC alignment".

Add new bit definitions of the form: "1.2401.8 / Inner FEC alignment 0 / 1 = lane 0 is aligned / RO" etc.

Implement with editorial license.

Cl **45** *SC* **45.2.1.213c** *P* **91** *L* **31** # 122

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

Use of possessive, e.g., lane 0's Inner FEC total bits register, is not necessary or appropriate for a technical document. It is sufficient and appropriate to use "lane 0 Inner FEC total bits registers".

SuggestedRemedy

Replace "lane 0's" with "lane 0" here and 4 other places in Clause 45.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **45** *SC* **45.2.1.213g** *P* **93** *L* **44** # 4

Bruckman, Leon — Nvidia

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

In Table 45–177g bins 2 and 3 shall also be described

SuggestedRemedy

In Table 45–177g show registers 1.2416, 1.2417, 1.2418 and 1.2419 for lane 0 error bins 2 and 3 (same structure as for error bin 1)

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.1** *P* **94** *L* **17** # 35

KABRA, LOKESH SYNOPSYS

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

Include update to 3.0.5:2 "Speed Selection" values corresponding to 800 Gb/s and 1.6 Tb/s in Table 45-211-- PCS control 1 register bit definitions

SuggestedRemedy

Modify 3.0.5:2 bit field "Speed selection" description

Existing
1 1 x x = Reserved

Proposed
1 1 1 x = Reserved
1 1 0 1 = 1.6 Tb/s
1 1 0 0 = 800 Gb/s

Similar changes to be done in 4.0.5:2 and 5.0.5:2 bit field descriptions.

Response *Response Status* **C**

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

Cl **45** *SC* **45.2.3.1** *P* **94** *L* **18** # 1

Marris, Arthur Cadence Design Systems

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

PCS control 1 register speed selection bits need to be updated for 1.6 Tb/s. Similar issue for PHY and DTE XS control 1 registers

SuggestedRemedy

Bring Tables 45–234, 45-315, and 45-340 and update as necessary. Also after maintenance request https://www.ieee802.org/3/maint/requests/maint_1437.pdf is considered include 800 Gb/s selection also.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.2.7** *P* **94** *L* **17** # 36

KABRA, LOKESH SYNOPSYS

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

Update "PCS receive link status (3.1.2)" description

SuggestedRemedy

Existing
When a 10/25/40/50/100/200/400GBASE-R,

Proposed
When a 10/25/40/50/100/200/400/800GBASE-R, 1.6TBASE-R,

Second change :
Two instances of "(3.7.3:0)" to be corrected to "(3.7.4:0)".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.6.1** *P* **94** *L* **44** # 37

KABRA, LOKESH SYNOPSYS

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

Include update to "PCS type selection" values corresponding to 800 Gb/s and 1.6 Tb/s in Table 45-214-- PCS control 2 register bit definitions

SuggestedRemedy

Modify 3.7.4:0 bit field "PCS type selection" description

Existing
1 0 1 x x = Reserved

Proposed
1 0 1 1 x = Reserved
1 0 1 0 1 = Select 1.6TBASE-R PCS type
1 0 1 0 0 = Select 800GBASE-R PCS type

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Also add editor's note referencing maintenance request 1437 that addresses the 800G rate.
Implement with editorial licence.

Cl **45** *SC* **45.2.3.8** *P* **94** *L* **45** # 38

KABRA, LOKESH SYNOPSYS

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

Add capability field for 800GBASE-R & 1.6TBASE-R in this register

SuggestedRemedy

In Table 45-216-- PCS Status 3 register bit definitions,

Existing
3.9.15:8 Reserved Value always 0

Proposed
3.9.15:10 Reserved Value always 0
3.9.15:9 1.6TBASE-R capable 1 = PCS is able to support 1.6TBASE-R PCS type
0 = PCS is not able to support 1.6TBASE-R PCS type
3.9.15:8 800GBASE-R capable 1 = PCS is able to support 800GBASE-R PCS type
0 = PCS is not able to support 800GBASE-R PCS type

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
It is Table 45-239 that contains the ability bits, so modify Table 45-239.
Implement with editorial licence.

Cl **45** *SC* **45.2.3.8.1a** *P* **94** *L* **46** # 39

KABRA, LOKESH SYNOPSYS

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

Add new subsection

SuggestedRemedy

45.2.3.8.1a 1.6TBASE-R capable (3.9.9)
When read as a one, bit 3.9.9 indicates that the PCS is able to support the 1.6TBASE-R PCS type. When read as a zero, bit 3.9.9 indicates that the PCS is not able to support 1.6TBASE-R PCS type

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.8.1b** *P* **94** *L* **47** # 40

KABRA, LOKESH SYNOPSYS

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

Add new subsection

SuggestedRemedy

45.2.3.8.1b 800GBASE-R capable (3.9.8)
When read as a one, bit 3.9.8 indicates that the PCS is able to support the 800GBASE-R PCS type. When read as a zero, bit 3.9.8 indicates that the PCS is not able to support 800GBASE-R PCS type

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Also add editor's note referencing maintenance request 1439 that addresses the 800G rate.
Implement with editorial licence.

Cl **45** *SC* **45.2.3.15.1** *P* **94** *L* **48** # 41

KABRA, LOKESH SYNOPSYS

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

Update last line of 45.2.3.15.1

SuggestedRemedy

Existing
"100GBASE-R, and in 119.3 for 200G/400GBASE-R."

Proposed
"100GBASE-R, in 119.3 for 200G/400GBASE-R, in 172.3 for 800GBASE-R, and in 175.8 for 1.6TBASE-R.

Similar update required in 45.2.4.12.1, 45.2.5.12.1

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4** *P* **97** *L* **37** # 3

Marris, Arthur — Cadence Design Systems

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

A control bit needs to be added for the variable "PHY_XS_enhanced_ptp_accuracy_enable" listed in "Table 171–2—MDIO PHY 800GXS to Clause 172 control variable mapping"

SuggestedRemedy

Create a new "TimeSync PHY XS configuration" register at location 4.1813 with a "PHY XS enhanced PTP accuracy enable" bit. Add an ability bit for for enhanced PTP accuracy in "TimeSync PHY XS capability (Register 4.1800)".

Response *Response Status* **C**

ACCEPT.

Cl **116** *SC* **116.3.3.3** *P* **134** *L* **51** # 5

Bruckman, Leon — Nvidia

Comment Type **E** *Comment Status* **A** *(editorial)*

Text can be improved

SuggestedRemedy

Change: "and, for physical layer implementations that use the ILT function defined in Annex 178B, to indicate the ILT status."
to: "and, to indicate the ILT status for physical layer implementations that use the ILT function defined in Annex 178B."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **116** *SC* **116.3.3.4** *P* **135** *L* **42** # 6

Bruckman, Leon — Nvidia

Comment Type **E** *Comment Status* **A** *(editorial)*

Text can be improved

SuggestedRemedy

Change: "and, for physical layer implementations that use the ILT function defined in Annex 178B, to indicate the ILT status."
to: "and, to indicate the ILT status for physical layer implementations that use the ILT function defined in Annex 178B."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **116** *SC* **116.3.3.4.1** *P* **136** *L* **11** # 7

Bruckman, Leon — Nvidia

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

Typo: "the lower higher sublayer"

SuggestedRemedy

Change: "the lower higher sublayer"
to: "the next lower sublayer"

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.2.1** *P* **148** *L* **17** # 136

Brown, Matt — Alphawave Semi

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

SIGNAL_OK parameter is now defined with four parameters {OK, IN_PROGRESS, READY, FAIL} rather than two {OK, FAIL}. The signal_ok variable value is not defined for the two new values, only for OK and FAIL.

SuggestedRemedy

In 119.2.6.2.1 in the definition of the signal_ok variable…
Replace "It is true if the value was OK and false if the value was FAIL."
With: "It is true if the value was OK and
false otherwise."

Response *Response Status* **C**

ACCEPT.

Cl **169** *SC* **169.3.2** *P* **162** *L* **34** # 59

Opsasnick, Eugene Broadcom

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

In Figure 169-3, the block labeled "800GBASE-R n:32 PMA" immediately above the 800GBASE-R PMD should be a "32:n PMA" (not n:32).

SuggestedRemedy

Change "800GBASE-R n:32 PMA" to "800GBASE-R 32:n PMA" on line 34 of page 162. Note that the "n" should also be in italics.

Consider changing it to "800GBASE-R 32:p PMA" and add a definition of p under the figure to be consistent with Figure 174-3 on page 217.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
For the PMA immediately above the PMD, change "800GBASE-R n:32 PMA" to "800GBASE-R 32:p PMA", with "p" in italic font.Note that the "n" should also be in italics.
For the PMD service interface change "PMD:IS_UNITDATA_0:n-1" to "PMD:IS_UNITDATA_0:p-1" twice.
Add "p = NUMBER OF STREAMS OF DATA UNITS" to the legend.

Cl **170** *SC* **170.1** *P* **168** *L* **13** # 8

Bruckman, Leon Nvidia

Comment Type **ER** *Comment Status* **A** *(editorial)*

Missing "the"

SuggestedRemedy

Change: "and 1.6 Tb/s Media Independent"
to: "and the 1.6 Tb/s Media Independent"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **171** *SC* **171.1.1** *P* **177** *L* **9** # 166

Huber, Thomas Nokia

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

The "can be" was changed to "may be" in D1.2, but the corresponding statement for 800G at the bottom of the preceding page is still "can be", making the wording inconsistent between the two rates.

SuggestedRemedy

Other similar extender sublayer clauses also use "can be". Change the "may be" back to "can be".

Response *Response Status* **C**

ACCEPT.

Cl **171** *SC* **171.6.1** *P* **183** *L* **48** # 53

Opsasnick, Eugene Broadcom

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

The cross-reference to the definition of FEC_degraded_SER and rx_local_degraded for DTE 1.6TXS is wrong. It should not be 175.2.6.2.2, rather it should be 175.2.5.3 and 175.2.5.5.

SuggestedRemedy

Change: "… defined in 175.2.6.2.2 for DTE1.6TXS, …"
To: "… defined in 175.2.5.3 and 175.2.5.5 for DTE 1.6TXS, …"
with updates of the hyperlinks to the correct subclauses.

Response *Response Status* **C**

ACCEPT.

Cl **171** *SC* **171.6a** *P* **184** *L* **17** # 379

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

Enahanced PTP should likley come after the "normal" TimeSync function of path delay information.

SuggestedRemedy

Flip-flop Enhanced PTP accuracy and Path data delay for time synchronization

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **171** *SC* **171.6a** *P* **184** *L* **18** # 381

Slavick, Jeff Broadcom

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

The opening paragraph is not accurately representing the Enhanced PTP accuracy functionality.

SuggestedRemedy

Update the first paragraph to read:
If the sublayer below the 800GXS is an 800GBASE-ER1 PCS, the enhanced PTP accuracy feature provides the indication of where in the 800GMII stream 800GBASE-R alignment markers once existed. This indicator allows for subsequent insertion of 800GBASE-R alingment markers into the same spot in the data stream.

Response *Response Status* **C**

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

Cl **171** *SC* **171.9** *P* **195** *L* **0** # 380

Slavick, Jeff Broadcom

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

No PICS for TimeSync functions

SuggestedRemedy

Add PICS similar to Table 175-4 to Clause 171 but also add in the Enhanced PTP accuracy

Response *Response Status* **C**

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

Cl **171** *SC* **171.9** *P* **195** *L* **1** # 322

Nicholl, Gary Cisco Systems

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

Need to add a PICS item to address optional support for Enhanced PTP accuracy (see 171.6a).

SuggestedRemedy

Update PICS to add an item for optional support of Enhanced PTP accuracy (referencing 171.6a)

Response *Response Status* **C**

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

Cl **171** *SC* **171.9** *P* **195** *L* **1** # 321

Nicholl, Gary Cisco Systems

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

Need to update PICS to include path data delay for time synchronization (see 171.6b) . See 175.9.4.7 as an example for what was done for the 1.6TBASE-R PCS in Clause 175.

SuggestedRemedy

Updated PICs to include path data delay for time synchronization. See 175.9.4.7 as an example.

Response *Response Status* **C**

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

Cl **172** *SC* **172.1.6** *P* **204** *L* **48** # 52

Opsasnick, Eugene Broadcom

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

In Figure 172-2 (the block diagram of the 800G PCS), the lower interface says "PMA", but should be "PCS".

SuggestedRemedy

Change:"Service Interface below the PMA"
To: "Service Interface below the PCS"

Response *Response Status* **C**

ACCEPT.

Cl **174** *SC* **174.3.2** *P* **217** *L* **31** # 60

Opsasnick, Eugene Broadcom

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

In Figure 174-3, the signal "PMA:IS_SIGNAL.request" from the 1.6TBASE-R PCS to the 1.6TBASE-R 16:p PMA should be removed. The PCS does not have this output - see Figure 175.2 on page 226. No relavant PCS has this output at the service interface below the PCS - see also Fig. 172-2 (on page 198 of 802.3df-2014) and Fig. 119-2 (on page 4837 of 802.3-2022). See also the similar extender figure 169-3 for 800GMII on page 162.

SuggestedRemedy

Remove "PMA:IS_SIGNAL.request" out of the 1.6TBASE-R PCS in Figure 174-3.

Response *Response Status* **C**

ACCEPT.

Cl **174** *SC* **174.3.2** *P* **218** *L* **20** # 61

Opsasnick, Eugene Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

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 never actually 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. And then add the necessary inter-layer signals on the AUI connection between the two PMAs.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **174** *SC* **174.4** *P* **219** *L* **28** # 44

Opsasnick, Eugene Broadcom

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

Table 174-4 has an incorrect cross-reference to the PCS delay constraints

SuggestedRemedy

Change the cross-reference from "175.4" to be "175.5".

Response *Response Status* **C**

ACCEPT.

Cl **174A** *SC* **174A.6.1.1** *P* **642** *L* **22** # 77

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

The counter variable names tbecount and tbtcount are obscure and too similar to each other, making the text difficult to parse.
There is no need to use such abbreviated names. The text would be clearer with variable naming similar to the PCS counter names e.g. in 175.2.5.3.

SuggestedRemedy

Rename tbecount(k) to test_block_error_bin(k) and tbtcount to test_block_counter.

Apply elsewhere as necessary.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **174A** *SC* **174A.6.1.4** *P* **643** *L* **31** # 78

Ran, Adee Cisco Systems, Inc.

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

The description of the process can be simplified by initializing the distribution to that of BER_added (step c) and then iterating with i from 0 to p-1 (instead of treating i=0 as initial value). This would remove two steps (a and d) and yield the same result with fewer intermediate variables..

SuggestedRemedy

Rewrite the process as suggested.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The suggested change is indeed an improvement to the draft. The method is simplified without changing the result.
For illustration, the method rewritten as suggested is shown on the slide for Comment 78 in the following file:
https://www.ieee802.org/3/dj/public/24_11/brown_3dj_03_2411.pdf
Implement the suggested remedy with editorial license.

Cl **174A** *SC* **174A.8** *P* **645** *L* **35** # 80

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

In Table 174A–3 the last column has "in a PHY" but it is about an xMII extender.

SuggestedRemedy

Change to "in an xMII Extender".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **175** *SC* **175.5** *P* **244** *L* **4** # 116

Brown, Matt Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

Several instances of acronym "BT" with defining this acronym. Typically, in this draft the it "bit times (BT)".

SuggestedRemedy

change "BT" to "bit times (BT)"
also, in 184.7 and 186.5

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **175** *SC* **175.8** *P* **245** *L* **9** # 43

KABRA, LOKESH SYNOPSYS

Comment Type **E** *Comment Status* **A** *(editorial)*

Incorrect Variable reference given in Table 175--3 for "loopback"

SuggestedRemedy

Change 175.3 to 175.4

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176** *SC* **176.1.3** *P* **253** *L* **34** # 373

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

Eleven items is a bit more than what I'd considered to be several.

SuggestedRemedy

Change "Several terms" to "The following terms"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176** *SC* **176.1.4** *P* **254** *L* **47** # 45

Opsasnick, Eugene Broadcom

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

To convert from a AUI-2 to a AUI-1, a xBASE-R BM-PMA must be placed next to a xBASE-R SM-PMA.

SuggestedRemedy

Change: "… placed next to a 200GAUI-1 8:1 PMA."
To: "… placed next to a 200GBASE-R 8:1 PMA."

Response *Response Status* **C**

ACCEPT.

Cl **176** *SC* **176.1.4** *P* **255** *L* **1** # 372

Slavick, Jeff Broadcom

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

Forwarding of the clock is a necessary function for the PMA regardless of ILT. Since the PMA does not do any PPM compensation.

SuggestedRemedy

Remove the last paragraph of 176.1.4 that begins with "In order to support the inter-sublayer link training"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using response to comment # 26.

Cl **176** *SC* **176.1.4** *P* **255** *L* **1** # 26

Bruckman, Leon Nvidia

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

ILT does not require the clock to be passed through the PMA. The mission data requires it. ILT operates with local clock.

SuggestedRemedy

Delete: "In order to support the inter-sublayer link training (ILT) function,"

Response *Response Status* **C**

ACCEPT.

Cl **176** *SC* **176.1.5** *P* **255** *L* **50** # 46

Opsasnick, Eugene Broadcom

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

Footnote (e) to Table 176-2 mentions the PMA to connect to a 800GBASE-LR1 Inner FEC is "For 800GBASE-R 8:16 only". But this looks like the wrong ratio of lanes for the 800GBASE-R PMA.

SuggestedRemedy

Change: "For 800GBASE-R 8:16 only"
To: "For 800GBASE-R 4:32 only."

Response *Response Status* **C**

ACCEPT.

Cl **176** *SC* **176.2** *P* **256** *L* **47** # 374

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

The last several paragraphs of 176.2 are dealing with specific types of PMAs and the SIGNAL_OK function. We have 3 different types of PMAs whose functionality we do group into different sub-clauses later on, so making each its own sub-clause of 176.2 I think would organize it better.

SuggestedRemedy

Insert this heading "176.2.1 PMA service interface for m:n PMA" before the paragraph that begins with "In the transmit direction, the m:n PMAs"
Insert this heading "176.2.2 PMA service interface for n:m PMA" before the paragraph that begins with "In the transmit direction, the n:m PMAs"
Insert this heading "176.2.3 PMA service interface for n:n PMA" before the paragraph that begins with "In the transmit direction, the n:n PMAs"
Insert this heading "176.2.4 SIGNAL_OK for the PMA service interface" before the paragraph that begins with "The PMA receives signal status"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176** *SC* **176.2** *P* **257** *L* **30** # 47

Opsasnick, Eugene Broadcom

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

In Table 176-5, the middle column for the value of align_status_mux or all_locked_demux is listed as "N/A" for three of the rows. "N/A", not-applicable, implies there is no value or the status variable does not exist in this case. But the status variables are always there and in these cases, when the SIGNAL_OK input value is (not OK), they would have the value 'false'. But when the input SIGNAL_OK has a value of (not OK), the output does not really depend on the status variable, and it is a "don't care" for the calculation of the output IS_SIGNAL.indication.

SuggestedRemedy

In Table 176-5, Change the three entries of "N/A" for align_status_mux or all_locked_demux to "don’t care" (or "false"). The same change from "N/A" to "don’t care" should be applied to Table 176-6 on page 258.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "N/A" in Tables 176-5 and 176-6 to "don't care".
Apply this same change in Table 177-1 and Table 177-2.
Implement with editorial license.
[Editor's note: CC 177]

Cl **176** *SC* **176.2** *P* **257** *L* **39** # 377

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

Noting that there is a clock propagation in addition to the actual listed primitives should occur right after we list out those parameters and before we fully define them.

SuggestedRemedy

Move the last paragraph of 176.2 and 176.3 to be after the bullet list of interface primitives.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176** *SC* **176.3** *P* **258** *L* **26** # 249

Shrikhande, Kapil Marvell

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

The subclause is about the service interface below the PMA. Therefore, the PMA:IS_SIGNAL.indication primitive should be inst:IS_SIGNAL.indication, and the PMA:IS_SIGNAL.request primitive should be inst:IS_SIGNAL.request.

SuggestedRemedy

Replace PMA with inst as outlined in the comment.

Response *Response Status* **C**

ACCEPT.

Cl **176** *SC* **176.3** *P* **258** *L* **34** # 56

Opsasnick, Eugene Broadcom

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

Table 176-6 specifies how to set the output inst:IS_SIGNAL.request(SINGAL_OK) based on the input PMA:IS_SIGNAL.request(SIGNAL_OK) and the variable align_status_mux or all_locked_demux. However, when the sublayer above the PMA is a PCS, there is no PMA:IS_SIGNAL.request input.

SuggestedRemedy

Suggest adding two rows to Table 176-6 to account for the case where PMA:IS_SIGNAL.request input is not present. Add two rows with N/A for the IS_SIGNAL.request(SIGNAL_OK) input, and the output is based only on the internal variable being true or false. Something like:

New row 1: | N/A | true | OK |
+----------+----------+------------+
New row 2: | N/A | false | READY |

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested but instead of N/A, use "no primitive".

In addition, add a table footnote to "no primitive" to explain that "no primitive" means that PMA:IS_SIGNAL.request input is not present, for example, when the sublayer above the PMA is a PCS or PHY XS.

Implement with editorial license.

Cl **176** *SC* **176.3** *P* **258** *L* **34** # 248

Shrikhande, Kapil Marvell

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

In Table 176-6, when the sublayer above the PMA is a PCS, there is no PMA:IS_SIGNAL.request input (no PCS drives this signal). The table does not cover the common case of an m:n PMA with a PCS above.

SuggestedRemedy

Add two additional rows to the table with N/A in the left most column (no input value), and determine the output value of inst:IS_SIGNAL.request SIGNAL_OK signal depending only on the value of the align_status_mux variable. Alternative would be to have the PCS drive a signal to the PMA.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement using response to comment #56.

Cl **176** *SC* **176.4.1** *P* **260** *L* **4** # 55

Opsasnick, Eugene Broadcom

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

In figure 176-2 near line 4, there is an input called PMA:IS_SIGNAL.request. This input is required if the sublayer above the PMA is another PMA or an AUI. However, when the sublayer above the PMA is a PCS, this input is not present. All possbile PCS's, 200G/400G PCS (CL 119), 800G PCS (CL 172), and 1.6T PCS (CL 175) no not have this output at the service interface below the PCS.

SuggestedRemedy

A notation in Figure 176-2 should be added that PMA:IS_SIGNAL.request is not present when the sublayer above the PMA is a PCS or DTE XS.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **176** *SC* **176.4.2.6** *P* **268** *L* **27** # 58

Opsasnick, Eugene Broadcom

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

The PAM4 encode function should specify that PAM4 symbols be aligned to RS-FEC symbol boundaries. When the 2-bit PAM4 symbols are aligned to the 10-bit RS-FEC, there are exactly 5 PAM4 symbols within each RS-FEC symbol. However, if they are not aligned, then each RS-FEC symbol would contain the second bit of one PAM4 symbol, followed by the 8 bits of 4 PAM4 symbols, followed by the first bit of the next PAM4 symbol. The unaligned arrangement makes the RS-FEC error perfomance analysis more complicated since there is an unequal probability of the first and second bits of a PMA4 symbol being in error (RS-FEC performance for the symbol muxing 200G/lane interfaces has so far only been done for the "aligned case"). The aligned case should already be the norm for most or all implementations. Specifying it this way should just guarenteed the FEC performace is as already studied, and receiver implementations may also take advantage of this guarentee.

SuggestedRemedy

In subclause 176.4.2.6 "PAM4 encode" and 176.4.3.6 "PAM4 encode", add a requirement that the PAM4 symbols must align to the RS-FEC symbols such that each RS-FEC symbol contains 10 bits from exactly 5 full PAM4 symbols.

A similar requirement should be also be added to the PAM4 encoding description in 177.4.8. In this case, the PAM4 symbols should align with the start of a block of 8x Inner FEC codewords (see Fig. 177-6) after the circular shift.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **176** *SC* **176.4.4.2.1** *P* **271** *L* **10** # 48

Opsasnick, Eugene Broadcom

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

The definition of the variable "reset" refers to another variable "PMA_reset", but PMA_reset is not defined anywhere.

SuggestedRemedy

Add the definition of PMA_reset to the list of variables just prior to reset. PMA_reset = "Boolean variable that is true when set by a management entity and is false otherwise."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **176** *SC* **176.4.4.2.1** *P* **271** *L* **45** # 376

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

The mapping of SIGNAL_OK to signal_ok_*mux is an active mapping of the service interface to status value.

SuggestedRemedy

Change "It is true if the value was OK" to "It is true when the value is OK" in both signal_ok_mux and signal_ok_demux definitions.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176** *SC* **176.7.2** *P* **280** *L* **33** # 50

Opsasnick, Eugene Broadcom

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

It is stated that "During local loopback, the PMA continues to propagate data in the Tx direction and drives the Tx service interface below the PMA.". It is also stated in 176.7.3 on line 47 on the same page that "During remote loopback, the PMA continues to propagate data in the Rx direction and drives the Rx PMA service interface towards the PMA client." If both remote loopback and local loopbask are enabled, then these statements are contradictory. The service interfaces cannot transmit both loopback data and propoagated data.

SuggestedRemedy

The output data at each service interface should be defined when both local loopback and remore loopback are enabed (probably loopback data, not propagated data); or it must be stated that local loopback and remote loopback are mutually exclusive.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

On page 280, line 33…
replace: "During local loopback, the PMA continues to propagate data in the Tx direction and drives the Tx service interface below the PMA."
with: "During local loopback, the PMA continues to propagate data in the Tx direction."

And at line 47…
Replace:
"During remote loopback, the PMA continues to propagate data in the Rx direction and drives the Rx PMA service interface towards the PMA client"
with: "During remote loopback, the PMA continues to propagate data in the Rx direction."

Cl **176** *SC* **176.7.4** *P* **281** *L* **8** # 138

Brown, Matt Alphawave Semi

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

In 174A.6, a set of test methods are defined to measure the block error ratio for inter-sublayer links (ISLs). These test methods require the PRBS31Q error check to be enhanced to include block error checkers and block error bin counters as defined in 174A.6.1.1 and 174A.6.1.2.

SuggestedRemedy

Define block error counting and related counters. A contribution on this topic will be provided.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **176** *SC* **176.12** *P* **252** *L* **1** # 323

Nicholl, Gary — Cisco Systems

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

Need to update PICS to include path data delay for time synchronization (see 176.10) . See 175.9.4.7 as an example for what was done for the 1.6TBASE-R PCS in Clause 175.

SuggestedRemedy

Updated PICs to include path data delay for time synchronization. See 175.9.4.7 as an example.

Response *Response Status* **C**

ACCEPT.

Cl **176C** *SC* **176C.2** *P* **677** *L* **22** # 113

Brown, Matt — Alphawave Semi

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

Figure 178-2. The signals SLi and DLi are never defined in Annex 176C.

SuggestedRemedy

In Figure 176C-2, add a note similar to the note in Figure 179-2.

Response *Response Status* **C**

ACCEPT.

Cl **176C** *SC* **176C.2** *P* **678** *L* **11** # 153

Dudek, Mike — Marvell

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

Figure 176D-2 is still confusing. The boxes around what are called components don't include the package, which is part of what is being called a component in the text.

SuggestedRemedy

Change from "C2C component transmitter" and "C2C component receiver" to "C2C transmitter" and "C2C receiver" or "C2C transmitter device" and "C2C receiver device" or less preferred "C2C transmit function" and "C2C receive function" (as used in figure 178-2)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the text to "C2C transmitter' and 'C2C receiver'.

Cl **176C** *SC* **176C.3.1** *P* **679** *L* **27** # 134

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

To be consistent with the various PMD clauses the error allocation subclause should be a level 2 heading immediately after the overiew subclause.

SuggestedRemedy

Move "176C.3.1" to just before 176C.2 and change to a level 2 heading "176C.2". Similarly, move 176D.4 to just before 176C.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176C** *SC* **176C.3.1** *P* **679** *L* **27** # 133

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

The "Error ratio allocation" sublclause should not be a level 3 heading under service interfaces.

SuggestedRemedy

Change the heading number from "177C.3.1" to "176C.4" and renumber the subsequent level 3 headers.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176C** *SC* **176C.3.1** *P* **679** *L* **29** # 119

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

For consistency with PMD clauses, the error allocation subclause should be 2nd level heading right after the introduction.

SuggestedRemedy

Move 176C.3.1 to be immediately after 176C.1, with new heading number 176C.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176C** SC **176C.4.3** P **680** L **24** # 361

Sakai, Toshiaki — Socionext

Comment Type **T** *Comment Status* **A** *ERL*

In "Table 176C-1 Transmitter electrical characteristics at TP0v", Difference effective return loss, dERL (min) is still TBD. In "Table 176C-3 Receiver characteristics at TP5v", the dERL value for receiver is "-3dB". In CL178 (KR), the ERL values for transmitter and receiver are the same. (-3dB)
There is no reason not to set the dERL value for tranmitter to "-3dB".

SuggestedRemedy

Change C2C tranmitter dERL value from "TBD" to "-3dB".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #66.

Cl **176C** SC **176C.4.3.1** P **681** L **18** # 154

Dudek, Mike — Marvell

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

The only references to a PMA management function in 802.3dj are in clause 186 which isn't relevant to this AUI interface. The correct control function to be used for this C2C interface is the same as the one used in Clauses 178 and 179. The reference to the description is blank.

SuggestedRemedy

Delete the sentence. "The transmitter output may be manipulated using the control function or PMA management
interface as described in ."
Add a new paragraph "The transmitter output may be manipulated using the Type E1 Inter Sublayer link training function as described in Annex 178B.10

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

Cl **176D** SC **176D.1** P **696** L **14** # 195

Li, Tobey — MediaTek

Comment Type **ER** *Comment Status* **A** *(editorial)*

Typo in "400 Gb/s two-lane Attachment Unit Interface (200GAUI-2 C2M)"

SuggestedRemedy

Change "200GAUI-2 C2M" to "400GAUI-2 C2M".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176D** SC **176D.1** P **696** L **44** # 196

Li, Tobey — MediaTek

Comment Type **ER** *Comment Status* **A** *(editorial)*

Figure 176D-1,
200GAUI-1 shall be 200 Gb/s 1-LANE ATTACHMENT UNIT INTERFACE.
400GMII shall be 400 Gb/s MEDIA INDEPENDENT INTERFACE

SuggestedRemedy

Line 44, change "200GAUI-1 = 100 Gb/s 1-LANE ATTACHMENT UNIT INTERFACE" to "200GAUI-1 = 200 Gb/s 1-LANE ATTACHMENT UNIT INTERFACE"
Line 47, change "400GMII = 200 Gb/s MEDIA INDEPENDENT INTERFACE" to "400GMII = 400 Gb/s MEDIA INDEPENDENT INTERFACE"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176D** SC **176D.4** P **698** L **42** # 120

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

For consistency with PMD clauses, the error allocation subclause should be 2nd level heading right after the introduction.

SuggestedRemedy

Move 176D.4 to be immediately after 176D.1, with new heading number 176D.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **176D** *SC* **176D.7.13.2** *P* **715** *L* **4** # 319

Ghiasi, Ali — Ghiasi Quantum

Comment Type **E** *Comment Status* **A** *(editorial)*

Extra character

SuggestedRemedy

Remove the "e" between step and 176D.7.12.2

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **177** *SC* **177.2** *P* **290** *L* **37** # 378

Slavick, Jeff — Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

Noting that there is a clock propagation in addition to the actual listed primitives should occur right after we list out those parameters and before we fully define them.

SuggestedRemedy

Move the last paragraph of 177.2 to be after the bullet list of interface primitives.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **177** *SC* **177.4.2** *P* **291** *L* **45** # 383

Slavick, Jeff — Broadcom

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

With the addition of the deskew process the Convolutional interleaver no longer uses the PMA lanes directly but rather the deskewed lanes.

SuggestedRemedy

Add the word "deskewed" before PMA in the first sentence of 177.4.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **177** *SC* **177.4.2** *P* **291** *L* **47** # 384

Slavick, Jeff — Broadcom

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

No mechanism to identify the RS-FEC symbol boundaries is provided.

SuggestedRemedy

Change the sentence that begins with "The four RS-FEC symbols in each RS-FEC symbol-quartet are from four different RS-FEC codewords"
to "Using the RS-FEC boundaries found by the Alignment and Deksew process (see 177.4.1) the convolutioner interleaver creates groups of four RS-FEC symbols from four RS-FEC codewords."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **177** *SC* **177.4.2** *P* **291** *L* **52** # 385

Slavick, Jeff — Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

There is a , in the 1536 number.

SuggestedRemedy

Remove the comma

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **177** *SC* **177.5.2** *P* **298** *L* **22** # 386

Slavick, Jeff — Broadcom

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

Steps a) and b.2) and c) tell us what step to proceed to but b.1) does not.

SuggestedRemedy

Add go to step c) to end of step b) 1)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **177** *SC* **177.5.2** *P* **298** *L* **32** # 362

Slavick, Jeff Broadcom

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

Where flow 0 is "will be" indentified once the lock process is complete, it's not possible to fail to do that.

SuggestedRemedy

Change "may be" to "is"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **177** *SC* **177.5.2** *P* **298** *L* **45** # 32

Huang, Kechao Huawei

Comment Type **E** *Comment Status* **A** *(editorial)*

“FS” should be changed to "FAS", as it is the shortened form of "Frame Alignment Sequence", see subclause 177.4.7.1.

SuggestedRemedy

In page 298, change “FS” to "FAS" in Lines 45, 46, 48, 49, 51;
In page 298, change “FSs” to "FASs" in Line 47;
In page 302, change “FS” to "FAS" in Line 12

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement with editorial license and discretion.

[Editor's note: CommentType changed from T to E per request from commenter.]

Cl **177** *SC* **177.5.2.** *P* **298** *L* **27** # 387

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

The phrase "at least 140" is intending the minimum value of invalid codewords in which you take this branch. Alternative wording could be used to improve clarity of the function.

SuggestedRemedy

Change "at least 140" to "140 or more"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **177** *SC* **177.6.2.1** *P* **301** *L* **8** # 33

Huang, Kechao Huawei

Comment Type **E** *Comment Status* **A** *(editorial)*

“fs” should be changed to "fas", as it is the shortened form of "Frame Alignment Sequence", see subclause 177.4.7.1. Suggest to apply similar changes in subclause 177.6

SuggestedRemedy

Change "fs" to "fas" in subclause 177.6.2.1, 177.6.2.3, and figures 177-9 and 177-10

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

[Editor's note: CommentType changed from T to E per request from commenter.]

Cl **177** *SC* **177.6.2.1** *P* **301** *L* **15** # 34

Huang, Kechao Huawei

Comment Type **E** *Comment Status* **A** *(editorial)*

"frame sequence" should be changed to "frame alignment sequence"

SuggestedRemedy

In page 301, change "frame sequence" to "frame alignment sequence" in Lines 15,16,19.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement with editorial license and discretion.

[Editor's note: CommentType changed from T to E per request from commenter.]

Cl **177** *SC* **177.6.3** *P* **303** *L* **29** # 390

Slavick, Jeff Broadcom

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

The exit from CW_CHECK_1 and CW_CHECK_2 for values of 13 have the wrong variable name

SuggestedRemedy

Change valid_cw=13 to valid_cw_cnt=13 two places Fig 177-9

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **177** *SC* **177.12** *P* **311** *L* **1** # 324

Nicholl, Gary — Cisco Systems

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

Need to update PICS to include path data delay for time synchronization (see 177.10) . See 175.9.4.7 as an example for what was done for the 1.6TBASE-R PCS in Clause 175.

SuggestedRemedy

Updated PICs to include path data delay for time synchronization. See 175.9.4.7 as an example.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **178** *SC* **178.8.1** *P* **320** *L* **50** # 140

Brown, Matt — Alphawave Semi

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

Figure 178-2. The signals SLi and DLi are never defined in Clause 178.

SuggestedRemedy

In Figure 178-2, add a note similar to the note in Figure 179-2. Do the same for Figure 176C-2.

Response *Response Status* **C**

ACCEPT.

Cl **178** *SC* **178.9.2.1.1** *P* **323** *L* **35** # 189

Mellitz, Richard — Samtec

Comment Type **TR** *Comment Status* **A** *TF IL, delay*

The insertion loss and the delay for the test fixture needs to be tightly controlled to minimize the variability. That is because there will be load variability in the measurement equipment. The idea should be to add enough loss so as not to significantly signal degrade the signal but dampen the effects of test equipment load variability.

SuggestedRemedy

Change to:
The insertion loss of the test fixture shall be between 4 dB and 5 dB at 53.125 GHz. With a delay between 500 and 650 ps. (based on 1.2 dB /inch and 150 ps /inch and e_r approximately 3.2)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #65.

Cl **178** *SC* **178.9.2.1.1** *P* **323** *L* **35** # 65

Ran, Adee — Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *TF IL, ILdd*

TP0 to TP0v test fixture specifications has multiple TBDs.

As initial values, we can use the values from clause 163 scaled by a factor of 2.

SuggestedRemedy

Use:
ILdd between 3.4 dB and 10 dB at 53.125 GHz
ILD magnitude up to 0.4 dB from 0.05 GHz to 53.125 GHz
Tt is 0.005 ns

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comments #189 and #190 suggest a different ILdd range, different frequency range for ILD, and additional restrictions.

The CRG reviewed slide #28 in
https://www.ieee802.org/3/dj/public/24_11/ran_3dj_01_2411.pdf.

A wide range of IL for the test fixture makes ERL measurement results inconsistent. Thus, there is preference to make the range narrower than what was used in 802.3ck.

The following straw poll was taken.
Straw poll #TF-1 (directional)
For the top of the frequency range for test fixture ILD in 178.9.2.1.1, I prefer:
A: 85 GHz
B: 67 GHz
A: 25 B: 40

Change from:
The insertion loss of the test fixture shall be between TBD dB and TBD dB at 53.125 GHz. The magnitude of the insertion loss deviation of the test fixture shall be less than or equal to TBD dB from TBD GHz to 53.125 GHz. Insertion loss deviation is calculated as specified in 93A.4, where Tt is TBD ns, and fb and fr
values are taken from Table 178–12.

To:
The insertion loss of the test fixture shall be between 3.4 dB and 4.4 dB at 53.125 GHz. The magnitude of the insertion loss deviation of the test fixture shall be less than or equal to 0.2 dB from 0.05 GHz to 67 GHz. Insertion loss deviation is calculated as specified in 93A.4, where Tt is 0.005 ns, and fb and fr
values are taken from Table 178–12.

Cl **178** *SC* **178.9.2.1.1** *P* **323** *L* **36** # 190

Mellitz, Richard — Samtec

Comment Type **TR** *Comment Status* **A** *TF ILdd*

The fixture frequency content needs to extend beyond the Nyquist rate. S-parameter measurements are required for this test fixture for ERL. This fixture is also required for s-parameter measurements when computing COM for receiver compliance. A transition time of 5 ps is used for ERL computation and is trending to around 4 ps for COM. A frequency range needs to be chosen to minimize the Gibbs Phenomena. There can be significant error due to this for ERL or COM computation. Filtering can help, however, there is still an error. Consider the data has a sinc response, the loss difference of between 53 GHz and 85 GHz with a BT filter is about 10 dB which is just about amount of filtering need to minimize this error. The loss difference between 53 GHz and 67 GHz is about 4 dB which is likely to start showing this error.

SuggestedRemedy

Change to:
The magnitude of the insertion loss deviation of the test fixture shall be less than or equal to 0.2 dB from 0.05 GHz to 85 GHz. Insertion loss deviation is calculated as specified in 93A.4, where Tt is 0.005 ns, and fb and fr values are taken from Table 178–12.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #65.

Cl **178** *SC* **178.9.2.1.2** *P* **324** *L* **17** # 192

Mellitz, Richard — Samtec

Comment Type **TR** *Comment Status* **A** *TF Nbx*

N_bx in the Table 187A-7 should be 0 so test fixture will not interfere with measurement as in IEEE802.3ck.

SuggestedRemedy

Relace with the row 5 with:
Equalizer length associated with reflection signal: N_bx : 0

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The following straw poll was taken.
Straw poll #TF-2 (decision)
For N_bx of a test fixture in 178.9.2.1.2, I support:
A: 16
B: 0
A: 19 B: 33

In Table 178-7, change the value of N_bx from 16 to 0.

Cl **178** *SC* **178.9.2.1.2** *P* **324** *L* **23** # 66

Ran, Adee — Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *ERL*

Multiple ERL limits are TBD.

Using 802.3ck as a reference:
For KR test fixture at Tp0v, in 163.9.2.1.2 the minimum is 15 dB.
For CR transmitter at TP2, in 162.9.4 the minimum is 7.3 dB.
For CR receiver at TP3, in 162.9.5 the minimum is 7.3 dB.
For copper cables, in 162.11.2 the minimum is 8.25 dB.
For C2C at Tp0v, in 120F.3.1 dERL is -3 dB (as it is in 802.3dj Table 178–6 for KR).
For C2C channel, in 120F.4.3 the minimum is 9.7 dB.
For C2M host, in 120G.3.1 and in 120G.3.3 the minimum is 7.3 dB.
For C2M module, in 120G.3.2 and in 120G.3.4 the minimum is 8.5 dB.
For mated test fixture, in 162B.4.2 the minimum is 10.3 dB.

Unless shown otherwise, the same ERL requirements are appropriate for this project.

SuggestedRemedy

Use the values in the comment to replace the corresponding TBDs in 178, 179, 176C, 176D, and 179B.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The CRG reviewed the presentation
https://www.ieee802.org/3/dj/public/24_11/mellitz_3dj_01_2411.pdf.

For KR test fixture at Tp0v, set minimum ERL to 15 dB.
For CR transmitter at TP2, set minimum ERL to 7.3 dB.
For CR receiver at TP3, set minimum ERL to 7.3 dB.
For copper cables, set minimum ERL to 8.25 dB.
For C2C at Tp0v, set minimum dERL to -3 dB.
For C2C channel, set minimum ERL to 9.7 dB.
For C2M host, set minimum ERL to 7.3 dB.
For C2M module, set minimum ERL to 8.5 dB.
For mated test fixture, set minimum ERL to 10.3 dB.

Cl **178** *SC* **178.9.2.1.2** *P* **324** *L* **23** # 191

Mellitz, Richard — Samtec

Comment Type **TR** *Comment Status* **A** *TF ERL*

Consider ERL of 7 dB maybe minimal, 10 dB may be marginal, 15 dB may be good, and about 20 dB may be very good. Since ERL was scaled with T_r then relative amount of reflection from the test fixture should be the same as in 803.3ck.

SuggestedRemedy

Change to:
The ERL at TP0v shall be greater than or equal to 15 dB.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #66.

Cl **178** *SC* **178.9.2.1.3** *P* **314** *L* **34** # 63

Ran, Adee — Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *TX fixture RLcc (bucket)*

Test fixture RLcc parameters are TBD.
In 163.9.2.1.3 the specification is >=6 dB up to 40 GHz.
The suggested remedy is the same minimum with the frequency range adopted for 802.3dj.
Alternatively, this specification can be deleted, since RLcc of a bare TP0-TP0v test fixture (without a DUT attached to it) may be impractical to measure.

SuggestedRemedy

Change to "6 dB at all frequencies between 0.2 GHz and 67 GHz".

Response *Response Status* **C**

ACCEPT.

Cl **178** *SC* **178.9.2.1.3** *P* **324** *L* **33** # 193

Mellitz, Richard — Samtec

Comment Type **TR** *Comment Status* **R** *TF skew*

CD or DC are better quality indictor of line the quality of line imbalance because it will catch skew and should augment CC.

SuggestedRemedy

Add section:
178.9.2.1.x Test fixture differential-mode to common-mode return loss
The differential-mode to common-mode return loss of the test fixture at either port shall be less than or than or equal to 10 dB at all frequencies between 0.2 GHz and 85 GHz.

Response *Response Status* **C**

REJECT.
The comment does not provide sufficient justification to support the suggested remedy.

Cl **178** *SC* **178.10.2** *P* **334** *L* **35** # 67

Ran, Adee — Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *Channel ILdd*

Channel insertion loss (recommended) is a TBD equation.
As the editor's note says, this recommendation was not included in the baseline proposal and "Contributions in this area are encouraged".

SuggestedRemedy

A contribution providing a recommendation is solicited.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The normative channel specification is COM. The recommended maximum ILdd is provided in Table 178–11.

There has been no proposal for the recommended channel ILdd equation.

Replace the content of subclause 178.10.2 with a statement that the recommended max. ILdd at 53.125 GHz is 40 dB, with editorial license.

Cl **178A** *SC* **178A.1.4.3** *P* **727** *L* **42** # 197

Li, Tobey — MediaTek

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

Shaunt capacitance is defined in 93A.1.2.2

SuggestedRemedy

Change the reference of shunt capacitor C1 from 93A.1.2.2a to 93A.1.2.2

Response *Response Status* **C**

ACCEPT.

Cl **178A** *SC* **178A.1.6** *P* **728** *L* **24** # 198

Li, Tobey — MediaTek

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

Transmitter equalizer is defined in 178A.1.6.1

SuggestedRemedy

Change the reference to transmitter equalizer transfer function from 178A.1.2 to 178A.1.6.1

Response *Response Status* **C**

ACCEPT.

Cl **178A** *SC* **178A.1.10.2** *P* **737** *L* **5** # 141

Banas, David — Keysight Technologies, Inc.

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

The current definition of Ani yields an effective DER0 twice that intended, because it considers only the left tail of the distribution, while both left and right tails contribute to DER0.

SuggestedRemedy

P(-Ani) = DER0/2

Response *Response Status* **C**

REJECT.
DER is (and always has been) defined to be the area under the left (or negative) tail of the noise and interference distribution function. DER is not equivalent to a PAM-L symbol error ratio. The conversion between DER and a PAM-L symbol error ratio (SER) is clarified in NOTE 2 under 178A.1.10.2.The factor of (2L-2)/L in this conversion accounts for all of the possible ways the distribution of noise and interference amplitude can cross a PAM-L decision threshold.

Cl **178B** *SC* **178B** *P* **740** *L* **8** # 137

Brown, Matt — Alphawave Semi

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

ILT as defined in Annex 178B is relevant only to Physical Layer implementations that include physically instantiated links with 200 Gb/s or higher per lane. This should be clarified.

SuggestedRemedy

Add new subclause 178A.1 with title "Scope" and text as follows:
"This clause defines inter-sublayer link training (ILT) for Physical Layer implementations that include one or more inter-sublayer links (ISLs) (see 178B.2) with data rate of 200 Gb/s or higher per lane."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In the suggested remedy there is a typo, it should say: "subclause 178B.1"
Implement the suggested remedy with editorial license.

Cl **178B** *SC* **178B.4** *P* **741** *L* **49** # 51

Opsasnick, Eugene — Broadcom

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

The cross-reference to the subclause with the definition of "tx_mode" is incorrect. This occurs three times in Annex 178B. On page 741, line 49, on page 742, line 16, and on page 743, line 4.

SuggestedRemedy

Change: "(tx_mode = data, see 178B.13.2.1)"
To: "(tx_mode = data, see 178B.13.3.1)"
with update of the hyperlink to the correct subclause in all three places.

Response *Response Status* **C**

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

Cl **178B** *SC* **178B.5** *P* **744** *L* **16** # 117

Brown, Matt — Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

Figure 178B-3. Use of apostrophe <'>followed by "s" is for possession, which is not the case here.

SuggestedRemedy

Change "3's" to "3s" and "0's" to "0s"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **178B** *SC* **178B.5.3** *P* **745** *L* **26** # 24

Bruckman, Leon — Nvidia

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

PRBS13 is mentioned twice, while PRBS31 is missing.

SuggestedRemedy

Change: "and for free-running PRBS13 and free-running PRBS13 these two symbols"
To: "and for free-running PRBS13 and free-running PRBS31 these two symbols"

Response *Response Status* **C**

ACCEPT.

Cl **178B** *SC* **178B.5.3.3** *P* **747** *L* **48** # 25

Bruckman, Leon Nvidia

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

This section defined the PRBS31 behavior, but in many places (including the title) it indicates PRBS13 instead

SuggestedRemedy

In section 178B.5.3.3 change 6 occurences of PRBS13 to PRBS31

Response *Response Status* **C**

ACCEPT.

Cl **178B** *SC* **178B.5.4** *P* **748** *L* **27** # 114

Brown, Matt Alphawave Semi

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

Mode "PAM4" is ambiguous compared with "PAM4 with precoding".

SuggestedRemedy

When referencing the test pattern mode change mode "PAM4" to "PAM4 without precoding". Propagate this change throughout Annex 178B as necessary.

Response *Response Status* **C**

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

Cl **179** *SC* **179.8.4** *P* **244** *L* **4** # 115

Brown, Matt Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

Use of possessive "PMD's" not appropriate or necessary in a technical document. Since this clause is about the PMD, it is implicit that ILT here is for the PMD.

SuggestedRemedy

Either change "PMD's" to "PMD" or delete "PMD's"
Do the same in 179.9.4.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179** *SC* **179.9.4.9** *P* **364** *L* **4** # 204

Healey, Adam Broadcom Inc.

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

Equation (179-9) and Figure 179-4 do not agree.

SuggestedRemedy

In Equation (179-9), change "4 <= f < 40" to "4 <= f < 44".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The intended equation was with a breaking point at 44 GHz as written in the suggested remedy, consistent with the test fixture specifications.
Implement the suggested remedy and additionally change "40 <= f <= 60" to "44 <= f <= 60".

Cl **179** *SC* **179.9.4.10** *P* **364** *L* **46** # 205

Healey, Adam Broadcom Inc.

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

Equation (179-10) and Figure 179-5 do not agree.

SuggestedRemedy

In Equation (179-10), change "6(f-12.89)/(35-12.89)" to "5(f-12.89)/(35-12.89)". Make the same change to Equation (179-20).

Response *Response Status* **C**

ACCEPT.

Cl **179** *SC* **179.11** *P* **372** *L* **23** # 100

Ran, Adee Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **R** *CA specifications*

The four cable assembly classes are mentioned here and described as differing in only their maximum insertion loss, with reference to 179.11.2, but there is no indication of the classes there. The max Nyquist ILdd per class are listed in Table 179–13.

Also, there is nothing in this draft about cable reach. In previous standards there was some indication of the reach provided by the cable.

It would be helpful for readers to have in this subclause a table that lists the maximum reach and Nyquist ILdd for each cable assembly class. This is more important than the existing dashed list of CR1/CR2/CR4/CR8; the cable types per width are described in detail in Annex 179C and Annex 179D.

The suggested remedy is based on slide 5 in https://www.ieee802.org/3/dj/public/23_07/tracy_3dj_01a_2307.pdf with lengths interpolated between 1 m and 2 m.

SuggestedRemedy

Change the reference from 179.11.2 to Table 179-13.
In Table 179-13, create four columns for CA-A through CA-D. Move the "Insertion loss at 53.125 GHz, ILdd (max)" values to these columns.
Add a row with expected reach in meters: CA-A: 1, CA-B: 1.33, CA-C: 1.66, CA-D: 2.
Make other parameters common to all classes (straddled cells).

Response *Response Status* **C**

REJECT.

The CRG reviewed slide #37 in https://www.ieee802.org/3/dj/public/24_11/ran_3dj_01a_2411.pdf.

There was no consensus to implement the changes shown on the slide.

Cl **179** *SC* **179.11.3** *P* **374** *L* **47** # 101

Ran, Adee Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *CA specifications*

Cable assembly ERL parameters N and Nbx are TBD.
In 162.11.3 the values were 4500 and 0 respectively. In 802.3dj, the UI is halved and the maximum length is assumed to be the same (2 m for CA-D class).

SuggestedRemedy

Use N=9000 and Nbx=0.

Response *Response Status* **C**

ACCEPT.

Cl **179** *SC* **179.11.5** *P* **375** *L* **15** # 102

Ran, Adee Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *CA specifications*

Differential-mode to common-mode insertion loss equation is TBD. The reference in the text is to an equation in clause 162.

The parameter name in 178.10.5 was changed to "mode conversion insertion loss" to cover both ILcd and ILdc. It should be applied here too.

In 802.3ck the specification of this parameter are the same in KR (163.10.5) and CR (162.11.5). Therefore we can use the same equation and figure as in KR (178.10.5).

SuggestedRemedy

Rename the parameter to "mode conversion insertion loss" and use the same equation and figure as in 178.10.5. Implement with editorial license.
Change the reference in the text to point to the correct equation and figure.

Response *Response Status* **C**

ACCEPT.

Cl **179** *SC* **179.11.7.2** *P* **380** *L* **17** # 68

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

"mated test fixture" - it is "fixtures" everywhere else.

SuggestedRemedy

Change to "mated test fixtures"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179A** *SC* **179A.4** *P* **774** *L* **12** # 161

Dudek, Mike Marvell

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

TP5 should be TP5d in Table 179A-1 as stated in the text.

SuggestedRemedy

Change TP5 to TP5d

Response *Response Status* **C**

ACCEPT.

Cl **179A** *SC* **179A.5** *P* **774** *L* **34** # 85

Ran, Adee Cisco Systems, Inc.

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

Equations 179A-1 and 179A-2 have "TP2d" and "TP3d" which should be TP2 and TP3 (there is no "d" version). Also in the parameter list.

SuggestedRemedy

Change TP2d to TP2, and TP3d to TP3, in the equation and parameter list.

Response *Response Status* **C**

ACCEPT.

Cl **179A** *SC* **179A.5** *P* **775** *L* **7** # 86

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

In the "ILddCA,max (dB)" columns, the content should be numbers, and the cable assembly class should be in parentheses.

SuggestedRemedy

per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179A** *SC* **179A.5** *P* **776** *L* **13** # 88

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

The horizontal locations of TP0d and TP5d (still) appear almost aligned with those of TP1 and TP4, but these are very different test points. This could be improved.
Also, in the mated test fixture the test points should be annotated.

SuggestedRemedy

Move the TP0d line to the left and the TP5d line to the right, flush with the transmit and receive function, respectively. Extend the arrows appropriately.

In the mated test fixtures part of the diagram, add TP1 and TP2 labels on the top and TP4 and TP5 labels on the bottom, or in another way if preferred.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179B** *SC* **179B.2** *P* **778** *L* **12** # 310

Ghiasi, Ali Ghiasi Quantum

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

Figure is not visiable just the labels are visiable

SuggestedRemedy

Please use an import that is visibale in pdf

Response *Response Status* **C**

REJECT.

See Editor's note: "Figure 179B-1 equations have not been adopted, and serve as placeholders."

There is no graphic to display in Draft 1.2.

Cl **179B** *SC* **179B.4.1** *P* **781** *L* **47** # 84

Ran, Adee Cisco Systems, Inc.

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

The signaling rate and reference receiver bandwidth have been adopted.
(This was addressed by comment #442 against D1.1, but the resolution was not fully implemented).

SuggestedRemedy

Replace TBDs: f_b=106.25 GBd and f_r=0.55*f_b.

Response *Response Status* **C**

ACCEPT.
[Editor's note: Changed page from 747 to 781]

Cl **179B** *SC* **179B.4.1** *P* **782** *L* **12** # 311

Ghiasi, Ali Ghiasi Quantum

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

Figure is not visiable just the labels are visiable

SuggestedRemedy

Please use an import that is visibale in pdf

Response *Response Status* **C**

REJECT.

See Editor's note: "Figure 179B-2 equations have not been adopted, and serve as placeholders."

There is no graphic to display in Draft 1.2.

Cl **179B** SC **179B.4.2** P **783** L **2** # 89

Ran, Adee
Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *Test fixtures*

ERL is currently defined without a specified reference impedance. This means that the 100 Ohm specified for s-parameter measurements in 178A.1.3 is used.

But test fixtures transmission lines should be designed for impedance matching with the connectors which are practically lower impedance (92.5 Ohm it typical). Otherwise, when connected to boards or cables with 92.5 Ohms they will have a reflection, which will degrade all results (frequency and time domain)

Using a different reference impedance for measuring the test fixtures will encourage design with the correct impedance.

The suggested remedy is to specify a reference impedance of 92.5 Ohm differential for test fixture ERL. Optionally, this should apply to all test fixture S-parameter-based specifications.

SuggestedRemedy

Add an exception to the test fixture ERL calculation to use an impedance of 92.5 Ohm, with editorial license.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

Cl **179C** SC **179C.2** P **796** L **35** # 344

Kocsis, Sam
Amphenol

Comment Type **E** *Comment Status* **A** *(editorial)*

Editor's note is no longer needed

SuggestedRemedy

See contribution kocsis_3dj_01_2411

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement with editorial license and discretion.

Cl **179C** SC **179C.2.1** P **796** L **51** # 332

Kocsis, Sam
Amphenol

Comment Type **E** *Comment Status* **A** *(editorial)*

SFF-TA-1031 Rev 1.0 does not include SFP224

SuggestedRemedy

Add an Editor's note: The reference for SFP224 does not currently include 200G per lane specificatoins but it's expected to include before publication of this standard.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179C** SC **179C.2.3** P **798** L **42** # 337

Kocsis, Sam
Amphenol

Comment Type **E** *Comment Status* **A** *(editorial)*

SFF-TA-1027 Rev 1.0 does not include QSFP224

SuggestedRemedy

Add an Editor's note: The reference for QSFP224 does not currently include 200G per lane specificatoins but it's expected to include before publication of this standard.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179C** SC **179C.2.4** P **799** L **36** # 338

Kocsis, Sam
Amphenol

Comment Type **E** *Comment Status* **A** *(editorial)*

QSFP-DD MSA Revision to 7.?

SuggestedRemedy

Update QSFP-DD MSA Revision to 7.1

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179C** *SC* **179C.2.5** *P* **800** *L* **22** # 341

Kocsis, Sam — Amphenol

Comment Type **E** *Comment Status* **A** *(editorial)*

OSFP MSA Revision to 5.0?

SuggestedRemedy

Update OSFP MSA Revision to 5.1

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **179C** *SC* **179C.3.1** *P* **802** *L* **8** # 187

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

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

Looks like cut / paste error
Reference to Annex 162C is incorrect for Annex 179C.3.1
Wrong PMDs are referenced

SuggestedRemedy

Correct 1st sentence to
The supplier of a protocol implementation that is claimed to conform to Annex 179C, MDIs for
200GBASE-CR1, 400GBASE-CR2, 800GBASE-CR4, and 1.6TBASE-CR8 shall complete the following protocol
implementation conformance statement (PICS) proforma.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Most of the PICS items needs to be updated.
Implement suggested remedy and update the PICS items with editorial license and discretion.

Cl **180** *SC* **180.1** *P* **389** *L* **46** # 327

Nicholl, Gary — Cisco Systems

Comment Type **E** *Comment Status* **A** *(editorial)*

Is there a reason that "90-Time synchronization" was added as the last row in the Table 180-1. According to "https://www.ieee802.org/3/dj/public/24_09/nicholl_3dj_01a_2409.pdf" , slide 24, it should have been added at the top of the table. Similar comment for Table 180-2, 180-3, 180-4.
and against equivlanet tables in clauses 178, 179, 181, 182, 183, 185 and 187.

SuggestedRemedy

Move "90-Time synchronization" row to the top of Table 180-1 in accordance with "https://www.ieee802.org/3/dj/public/24_09/nicholl_3dj_01a_2409.pdf" , slide 24. Similar change to Table 180-2, 180-3, 180-4, and to equivalent tables in clauses 178, 179, 181, 182, 183, 185 and 187.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.1** *P* **389** *L* **49** # 69

Ran, Adee — Cisco Systems, Inc.

Comment Type **E** *Comment Status* **A** *(editorial)*

The text in footnote b, "If one or two 200GAUI-n is implemented in a PHY", has a numeric mismatch (two / is).

The fact that one or two AUIs can be included is mentioned in footnote c. Footnote b is a condition for having additional PMAs, and does not need to repeat what footnote c states.

Also, footnote c uses "instantiated" instead of "implemented" when talking about the same thing. We should be consistent.

In D1.2, for KR and CR PHYs (where only one AUI can be included in a PHY), this statement was changed to "If a 200GAUI-n is implemented in a PHY <...>". This wording is correct for all PHYs.

There are 11 instances of "if one or two" with 200GAUI-n, 400GAUI-n, 800GAUI-n, and 1.6TAUI-n.

SuggestedRemedy

Change "If one or two" to "If a" (in this instance, "If a 200GAUI-n is implemented in a PHY"). Apply similarly for all instances.
Change "implemented in a PHY" to "instantiated in a PHY" (19 instances).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.7.1** *P* **399** *L* **26** # 70

Ran, Adee
Cisco Systems, Inc.

Comment Type **E** *Comment Status* **A** *(editorial)*

The words "each lane" are not appropriate for "signaling rate", since it cannot be aggregated (unlike power and bit rate).

This was corrected in D1.2 in most places in the electrical clauses, but these words still appear in optical clauses (8 instances).

This comment is specific to the signaling rate parameter; other parameters are subject of other comments.

SuggestedRemedy

Delete "each lane" from "signaling rate in all optical Tx and Rx specifications tables.
Apply in all optical PMD clauses.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.7.1** *P* **400** *L* **10** # 72

Ran, Adee
Cisco Systems, Inc.

Comment Type **E** *Comment Status* **A** *(editorial)*

For RINxxOMA , it seems that the xx in this case should be 15.5 for 200G and 21.4 for other cases. But this is not clear that these are different parameters (and they have the same maximum value; does it make sense?)
Footnote c says "with “xx” referring to the value for Optical return loss tolerance.", but it should be the maximum value.
In previous PMD clauses the RIN parameter name included specific values. For example, in Table 167–7, RIN14OMA.

SuggestedRemedy

Either change footnote c to "Optical return loss tolerance (max)" and state clearly that this creates different parameters for 200G and for 400G/800G/1.6T, or preferably replace xx with numbers (separating to two rows).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.8.3.1.1** *P* **406** *L* **2** # 220

Johnson, John
Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

MDI nomenclature is inconsistent with Annex 180A here, as well as in 180.8.3.1.2 and 180.8.3.1.3.

SuggestedRemedy

Change "MDI pin" to "MDI position" in the text and tables to be consistent with nomenclature used in Annex 180A.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.9.1** *P* **410** *L* **9** # 170

Huber, Thomas
Nokia

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

In Table 180-16, the cross-references for the PRBS31Q, PRBS13Q, and SSPRQ patterns are incorrect; PRBS13Q is defined in 120.5.11.2.1, PRBS31Q in 120.5.11.2.2, SSPRQ in 120.5.11.2.4

SuggestedRemedy

Correct the references.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license

Cl **180** *SC* **180.9.5.1** *P* **413** *L* **12** # 229

Johnson, John
Broadcom

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

PMD types in Table 180-19 are wrong

SuggestedRemedy

Change PMD types from DRn-2 to DRn in Table 180-19

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license

Cl **180** *SC* **180.9.5.1** *P* **413** *L* **20** # 221

Johnson, John Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

The nomencalture of footnote (c) in Table 180-19 should match the nomenclature in Table 180-7.

SuggestedRemedy

Change footnote (c) to read: "The optical return loss tolerance (max) from Table 180–7 is applied at TP2." as in footnote (c) of Table 182-19.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.9.11** *P* **415** *L* **3** # 74

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

The dashed list item "N0 and N3 are to be measured <…>" is not part of the variable list for this equation; N0 and N3 are already defined.

SuggestedRemedy

Move the text of this item to a regular paragraph after the list.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180** *SC* **180.9.13** *P* **415** *L* **28** # 300

Ghiasi, Ali Ghiasi Quantum

Comment Type **E** *Comment Status* **A** *(editorial)*

121.8.10 is the Wrong reference

SuggestedRemedy

It should be 121.8.9

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **180A** *SC* **180A.2** *P* **807** *L* **24** # 329

Nicholl, Gary Cisco Systems

Comment Type **E** *Comment Status* **A** *(editorial)*

The second pargraph is referencing 16-position optical connectors and the 3rd paragraph then goes on to reference 12-position optical connectors. But the following sections then switch the order with 180A.3 referring to 12-position optical connectors and 180A.4 referrring to 16-position optical connectors.

SuggestedRemedy

Suggest switcing the order of the 2nd and 3rd paragraphs in 180A.2, to match the order of the subsequent subclauses 180A.3 and 180A.4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **181** *SC* **181.1** *P* **420** *L* **9** # 130

Brown, Matt Alphawave Semi

Comment Type **E** *Comment Status* **A** *(editorial)*

Acronym WDM is first introduced here in the clause but is not defined. Use same wording as provided for WDM in subclause 1.5 (base standard).

SuggestedRemedy

Change "WDM" to "Wavelength division multiplexing (WDM)"
Do the same in 183.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **181** *SC* **181.7.2** *P* **429** *L* **27** # 222

Johnson, John Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

In "lanec", footnote "c" should be superscripted

SuggestedRemedy

Make "c" superscripted.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **181** *SC* **181.9.1** *P* **434** *L* **17** # 171

Huber, Thomas — Nokia

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

In Table 181-11, the cross-references for the PRBS31Q, PRBS13Q, and SSPRQ patterns are incorrect; PRBS13Q is defined in 120.5.11.2.1, PRBS31Q in 120.5.11.2.2, SSPRQ in 120.5.11.2.4

SuggestedRemedy

Correct the references.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license

Cl **181** *SC* **181.9.13** *P* **439** *L* **8** # 301

Ghiasi, Ali — Ghiasi Quantum

Comment Type **E** *Comment Status* **A** *(editorial)*

121.8.10 is the Wrong reference

SuggestedRemedy

It should be 121.8.9

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **182** *SC* **182.7.2** *P* **454** *L* **35** # 235

Johnson, John — Broadcom

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

The requirement of no aggressors for 200G-DR1-2 only applies to single lane devices. If a DR1-2 PMD shares a multi-lane device with other DRn-2 PMDs, then the aggressor lanes must be used.

SuggestedRemedy

Change Table 182-8 footnote (e) to read: "No aggressors needed for 200GBASE-DR1-2 in a single lane device." as in footnote (e) of Table 180-8.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license

Cl **182** *SC* **182.8.3.1.1** *P* **459** *L* **25** # 223

Johnson, John — Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

MDI nomenclature is inconsistent with Annex 180A here, as well as in 182.8.3.1.2 and 182.8.3.1.3.

SuggestedRemedy

Change "MDI pin" to "MDI position" in the text and tables to be consistent with nomenclature used in Annex 180A.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **182** *SC* **182.9.1** *P* **463** *L* **9** # 121

Brown, Matt — Alphawave Semi

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

Table 182-16. The Inner FEC is specifically called 200GBASE-R Inner FEC, 400GBASE-R Inner, etc. Reference it by name.

SuggestedRemedy

Change "Scrambled idle test pattern encoded by the Inner FEC used by 200GBASE-R, 400GBASE-R, 800GBASE-R, or 1.6TBASE-R"
To "Scrambled idle test pattern encoded by the 200GBASE-R, 400GBASE-R, 800GBASE-R, or 1.6TBASE-R Inner FEC"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **182** *SC* **182.9.1** *P* **463** *L* **9** # 172

Huber, Thomas — Nokia

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

In Table 182-16, the cross-references for the PRBS31Q and PRBS13Q patterns are incorrect; PRBS13Q is defined in 120.5.11.2.1, PRBS31Q in 120.5.11.2.2

SuggestedRemedy

Correct the references.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license

Cl **182** *SC* **182.9.1** *P* **463** *L* **32** # 199

Brown, Matt — Alphawave Semi

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

In Table 182-17... The last pattern listed is "valid 200GBASE-R, 400GBASE-R, 800GBASE-R or 1.6TBASE-R signal". But this is not correct. It should be encoded by the Inner FEC, similar to test pattern 5. Given we repeated refer to this valid BASE-R signal, why not just define it as a test pattern.

SuggestedRemedy

In Table 182-16 add a new test pattern as follows:
Pattern: 7
Pattern description: "Valid 200GBASE-R, 400GBASE-R, 800GBASE-R, or 1.6TBASE-R signal encoded by the 200GBASE-R, 400GBASE-R, 800GBASE-R, or 1.6TBASE-R Inner FEC.
In Table 182-17 replace "valid 200GBASE-R, 400GBASE-R, 800GBASE-R or 1.6TBASE-R signal" with "7".
Similarly update Table 183-12 and Tabley 183-13.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license

Cl **182** *SC* **182.9.13** *P* **468** *L* **4** # 302

Ghiasi, Ali — Ghiasi Quantum

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

121.8.10 is the Wrong reference

SuggestedRemedy

It should be 121.8.9

Response *Response Status* **C**

REJECT.

182.9.13 is "Stressed receiver sensitivity" and the current cross reference is to "Stressed receiver sensitivity" which is correct. The suggested remedy points to "Receiver sensitivity" which is incorrect.

Note editorial comment #300 is the same comment against 180.9.13 and will not be implemented.

Cl **183** *SC* **183.9.1** *P* **488** *L* **9** # 173

Huber, Thomas — Nokia

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

In Table 183-12, the cross-references for the PRBS31Q, PRBS13Q, and SSPRQ patterns are incorrect; PRBS13Q is defined in 120.5.11.2.1, PRBS31Q in 120.5.11.2.2, SSPRQ in 120.5.11.2.4

SuggestedRemedy

Correct the references.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license
[matt] implement what?
[tom] fixed wording

Cl **183** *SC* **183.9.5.1** *P* **491** *L* **4** # 224

Johnson, John — Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

If no informative Annex is planned in D1.3, remove the reference in footnote (a)

SuggestedRemedy

Make footnote (a) consistent with other PMD clauses. Remove the phrase, "and the optical channel characteristics methodology described in Annex TBD".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **183** *SC* **183.9.5.1** *P* **491** *L* **21** # 123

Brown, Matt — Alphawave Semi

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

In Table 183-5 footnote a the is reference to an annex describing statistical link design methodology. However, this annex does not exist. Also, it seems that all of the necessary background is provided in the reference to G.652 Appendix I.

SuggestedRemedy

Delete ", and the optical channel characteristics
methodology described in Annex TBD"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **183** *SC* **183.9.13** *P* **493** *L* **11** # 303

Ghiasi, Ali — Ghiasi Quantum

Comment Type **E** *Comment Status* **A** *(editorial)*

121.8.10 is the Wrong reference

SuggestedRemedy

It should be 121.8.9

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **184** *SC* **184.2** *P* **498** *L* **43** # 420

Kota, Kishore — Marvell Semiconductor

Comment Type **E** *Comment Status* **A** *(editorial)*

ADC input signals in Figure 184-2 are labelled RX_Ai, RX_Aq, RX_Bi and RX_Bq. I think the labels A/B are used to highlight the fact that the polarization angle at the receiver is not necessarily aligned with the X/Y polarizations at the transmitter. However, A/B are somewhat arbitrary and do not clearly reflect the fact that those are orthogonal polarizations.

SuggestedRemedy

My suggestion is to use H/V (for horizontal and vertical) instead of A/B because it is common to use these letters in coherent DSPs instead of X/Y to indicate orthogonal polarizations. i.e. use RX_Hi, RX_Hq, RX_Vi, RX_Vq. Same change would also apply to uses of these names in 184.5.1 on page 508, lines 45, 47 and 51 and in 184.5.2 on page 509, line 5 and 184.5.7 on page 510, line 10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **184** *SC* **184.4.3** *P* **500** *L* **17** # 174

Huber, Thomas — Nokia

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

pcsla[q,i] is defined both here and in the first bullet at line 21, using slightly different words.

SuggestedRemedy

Delete the sentence at line 17.

Response *Response Status* **C**

ACCEPT.

Cl **184** *SC* **184.4.9** *P* **505** *L* **15** # 175

Huber, Thomas — Nokia

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

Table 184-2 and Table 184-4 (in 184.4.11.1) both show the entire pilot sequence. The first table shows it as bit pairs, the second as 4-level signal values as defined by the mapping in Table 184-3. It seems unncessary to duplicate the information in both formats. The concept of the pilot sequence needs to be introduced in 184.4.9, at least up thorugh Table 184-1 with the generator polynomial and seeds. Some of the information in 184.4.11.1 is also useful to understand, ie., that the values of the pilot sequence are chosen such that they will produce symbols that use the 'outer' points of the constellation, but otherwise the information in 184.4.11.1 seems unnecessary since 184.4.11 is about mapping bit pairs to symbols, and that mapping is itself the same for all bits in the DSP frame

SuggestedRemedy

Insert this text in 184.4.9, following table 184-1:
The bit-pairs that compose the pilot sequence are shown in table 184-2. They are selected such that they will produce symbols that use the outer 16QAM constellation points, as shown in figure 184-2.

Move figure 184-7 to be above table 184-2.

Delete clause 184.4.11.1.

Response *Response Status* **C**

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

Cl **184** *SC* **184.4.9** *P* **506** *L* **21** # 27

Huang, Kechao — Huawei

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

In Figure 184-6, the bit "0" after "Seed X:" (and "Seed Y:") is not necessary.

SuggestedRemedy

In Figure 184-6, delete "0" after "Seed X:"; delete "0" after "Seed Y:"

Response *Response Status* **C**

ACCEPT.

Cl **184** *SC* **184.10** *P* **519** *L* **1** # 325

Nicholl, Gary — Cisco Systems

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

Need to update PICS to include path data delay for time synchronization (see 184.8) . See 175.9.4.7 as an example for what was done for the 1.6TBASE-R PCS in Clause 175.

SuggestedRemedy

Updated PICs to include path data delay for time synchronization. See 175.9.4.7 as an example.

Response *Response Status* **C**

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

Cl **185** *SC* **185.6.2** *P* **532** *L* **34** # 239

Johnson, John — Broadcom

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

ETCC inequality is pointing the wrong way

SuggestedRemedy

Change condition to read: "for 1 < ETCC <= 3.4 dB"

Response *Response Status* **C**

ACCEPT.

Cl **185A** *SC* **185A.2.2** *P* **814** *L* **51** # 225

Johnson, John — Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

grammar: "comprises of"

SuggestedRemedy

Change "comprises of" to "comprises"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **185A** *SC* **185A.2.2.1** *P* **815** *L* **15** # 226

Johnson, John — Broadcom

Comment Type **E** *Comment Status* **A** *(editorial)*

The text suggests that the residual spec values are given in Table 185A-2, but only the parameters are in this table. The specs are given in tables in the PMD clauses.

SuggestedRemedy

Reword this sentence along the lines of, "Post-calibration residual parameters for the calibrated coherent detector front-end are listed in Table 185A–2. The values assigned to these parameters are defined by the Physical Layer specification that invokes the method."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **186** *SC* **186.2.3.1** *P* **550** *L* **1** # 76

Ran, Adee — Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **A** *(editorial)*

"One 800GMII data transfer is encoded into one 66-bit block. Idle characters are removed from the stream of 66b blocks"
"66b" seems to refer to "66-bit block" in the previous sentence. This inconsistency is not helpful.

There are many similar instances of block sizes in this clause, such as 66B and 257B in 186.2.3.2, and 128B elsewhere. The "B" suffix is potentially confusing as it often denotes bytes. Although this format is common for the encoding/transcoding schemes, we should avoid using it for block sizes.

SuggestedRemedy

Change all instances of block sizes written as #b or #B to "#-bit" except in the transcoder labels (64B/66B to 256B/257B transcoder). Also in subclause headings.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **186** *SC* **186.2.3.4** *P* **552** *L* **19** # 9

Bruckman, Leon Nvidia

Comment Type **ER** *Comment Status* **A** *(editorial)*

In Figure 186-5, the frames are contigous, but they are shown with spaces between them

SuggestedRemedy

In Figure 186-5 make the frames contigous, without space between them

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with editorial license and discretion.

Cl **186** *SC* **186.2.3.6** *P* **553** *L* **52** # 11

Bruckman, Leon Nvidia

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

We should also define what does the receiver do with the unused bits.

SuggestedRemedy

Add to the end of the first paragraph in the section: "and ignored by the receiver"

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.2.3.9** *P* **557** *L* **32** # 15

Bruckman, Leon Nvidia

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

Four times in the clause the CRC32 is written as CRC-32

SuggestedRemedy

Change four times CRC-32 to CRC32 in the whole clause.

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.2.3.9** *P* **557** *L* **32** # 16

Bruckman, Leon Nvidia

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

The sentence: "extended by 29 CRC-32 and an additional 64 pad bits after the 29th CRC-32 (total 992 bits)," is hard to parse

SuggestedRemedy

Change to: "extended by 29 CRC32 values with an additional 64 pad bits after the 29th CRC32 (total 992 bits),"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Rewrite the first sentence as three sentence to be more clear.

Change:
Using the 512-row representation of the 800GBASE-ER1 PCS frame, groups of 116 rows (1 192 480 bits), extended by 29 CRC-32 and an additional 64 pad bits after the 29th CRC-32 (total 992 bits), form the set of 1 193 472 bits that will be input to the FEC encoder (denoted as the FEC frame in this clause).

To:
The FEC frame is formed from 116 rows of the 512-row representation of the 800GBASE-ER1 PCS frame (1 192 480 bits). Each group of four rows is extended with the CRC32 (see 186.2.3.8). The 29th group of four rows is further extended with a 64 bit pad. The FEC frame consists of 1 193 472 bits.

Cl **186** *SC* **186.2.3.10** *P* **558** *L* **26** # 13

Bruckman, Leon Nvidia

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

ITU-T refers to a OFBGkj frame. It will be usefull to specify the relationship between the FEC frame and the ITU-T OFBGkj

SuggestedRemedy

Add the folowing text at the end of the section: "The FEC frame in this standard corresponds to the OFBGkj structure defined in ITU-T G.709.6"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The specific frame that is used by 800GBASE-ER1 is OFBG84. It would be better to include this detail in 186.2.3.9, where the FEC frame is initially descirbed, rather than in the clause about the scrambler.

Add "The FEC frame in this standard corresponds to the OFBG84 structure define in ITU-T G.709.6." Implement with editorial license.

Cl **186** *SC* **186.2.4.6.3** *P* **562** *L* **51** # 14

Bruckman, Leon Nvidia

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

The sentence: "If either…" is repeated in 186.2.4.7. No need (and may be confusing) to have the same requirement twice

SuggestedRemedy

Delete last sentence of 186.2.4.6.3

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.3.1.3** *P* **565** *L* **47** # 203

Brown, Matt Alphawave Semi

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

Now that the receive signal names are sufficiently unique compared to the transmit signal names AND it is already explained in 187.5.3, the note at the bottom of Figure 186-11 is no longer required.

SuggestedRemedy

Delete the note at the bottom of Figure 186-11.

Response *Response Status* **C**

ACCEPT.
[Editor's note: Changed the Clause/Subclause from 00/0 to 186/186.3.1.3]

Cl **186** *SC* **186.3.3.1.1** *P* **568** *L* **1** # 28

Huang, Kechao Huawei

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

The FEC codeword with 1376256 bits are mapped to 172032 DP-16QAM symbols, not 173032

SuggestedRemedy

Change "173032" to "172032" in Line 1;
Change "173031" to "172031" in Line 2

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "173032" to "172 032" in Line 1
Change "173031" to "172 031" in Line 2

Cl **186** *SC* **186.3.3.1.2** *P* **568** *L* **50** # 18

Bruckman, Leon Nvidia

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

A frame carries 7296 symbols not 175 104

SuggestedRemedy

Change: "for a total of 175 104 symbols per frame"
To: "for a total of 175 104 symbols per multi-frame"

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.3.3.1.2** *P* **569** *L* **17** # 29

Huang, Kechao Huawei

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

In Figure 186-12, the indexes of payload symbols should be modified such that the total number of payload symbols are 172032

SuggestedRemedy

In Frame 0: "S<0:29>", "S<30:92>", "S<93:155>" should be changed to "S<0:19>", "S<20:82>", "S<83:145>"
In Frame 1: "S<14195:14257>" should be changed to "S<14185:14247>"
In Frame 23: "S<164870:164922>", "S<164923:164985>", "S<171979:172041>" should be changed to "S<164860:164912>", "S<164913:164975>", "S<171969:172031>"

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.3.3.1.3** *P* **570** *L* **51** # 30

Huang, Kechao Huawei

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

In Table 186-4, there are 4 pilot symbols should be modified to aligned with that in OIF 800ZR.

SuggestedRemedy

Index 91 YQ: "-3" should be changed to "3"
Index 35 XQ: "-3" should be changed to "3"
Index 41 YI: "3" should be changed to "-3"
Index 71 XI: "-3" should be changed to "3"

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.3.3.1.7** *P* **574** *L* **15** # 31

Huang, Kechao Huawei

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

In Figure 186-14, "Insert Reserved field" should be included

SuggestedRemedy

Add "Insert Reserved field (X)" function below the "Insert TS field (X)"
Add "Insert Reserved field (Y)" function below the "Insert TS field (Y)"

Response *Response Status* **C**

ACCEPT.

Cl **186** *SC* **186.4.2.1** *P* **578** *L* **18** # 118

Brown, Matt Alphawave Semi

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

PCS_reset and PMA_reset definition refers to MDIO, rather than management in general.

SuggestedRemedy

Define reset, PCS_reset, and PMA_reset as done for the 1.6TBASE-R PCS in 175.2.6.2.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define the state variables as suggested. Implement with editorial license.

Cl **186** *SC* **186.8** *P* **589** *L* **1** # 326

Nicholl, Gary Cisco Systems

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

Need to update PICS to include path data delay for time synchronization (see 186.6) . See 175.9.4.7 as an example for what was done for the 1.6TBASE-R PCS in Clause 175.

SuggestedRemedy

Updated PICs to include path data delay for time synchronization. See 175.9.4.7 as an example.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **187** *SC* **187.5.1** *P* **598** *L* **47** # 177

Huber, Thomas Nokia

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

Missing a reference to the clause where the tests and measurements for the transmitter are defined.

SuggestedRemedy

In the text "… all transmitter measurements and tests defined in are made at TP2…", insert "187.8 and 187.9" between "in" and "are"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

Cl **187** *SC* **187.5.2** *P* **600** *L* **4** # 179

Huber, Thomas Nokia

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

The title of Table 187-2 needs to be modified - the PMD only deals with analog signals, not DP16QAM symbols. The table is indicating how those analog signals received from the PMA can be mapped to the inputs to the modulator.

SuggestedRemedy

Change the title to "Allowed analog signal to moduator input mappings"

Response *Response Status* **C**

ACCEPT.