Cl **1** *SC* **1.5** *P* **57** *L* **22** # 33

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

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

The abbreviation FAW is not listed

SuggestedRemedy

Add to 1.5
FAW frame alignment word

Proposed Response *Response Status* **W**

PROPOSED REJECT.
"FAW" is a field specific to the FEC frame defined in Clause 186, like PS, TS, etc., and thus is not an acronym in the broad sense. If we add one field name (acronym) like this we would effectively be obligated to add all (acronym) field names.

Cl **45** *SC* **45.2.1** *P* **71** *L* **30** # 10

Marris, Arthur — Cadence Design Systems

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

An address space of 1500 needs to be reserved in Table 45–3 for the duplication of ILT training registers for the AUI upper component

SuggestedRemedy

Expand the address space allocated to "Duplication of ILT training registers for the AUI upper component" appropriately, suggest 1.3000 to 1.4500, as the range of the PMA test block error bin counters is likely to be reduced. Add a new subclause at the end of PMA/PMD register subsection to describe these registers

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.161** *P* **90** *L* **14** # 38

Bruckman, Leon — Nvidia

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

Missing new preset 6 that was added duirng D1.3 CRG

SuggestedRemedy

In Table 45-129 change "Reserved" for Initial condition request = 101 to "preset 6"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.165** *P* **92** *L* **10** # 39

Bruckman, Leon — Nvidia

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

Missing new preset 6 that was added duirng D1.3 CRG

SuggestedRemedy

In Table 45-131 change "Reserved" for Initial condition request = 101 to "preset 6"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.168a** *P* **94** *L* **8** # 2

Marris, Arthur — Cadence Design Systems

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

Grammar. Change "defines" to "define"

SuggestedRemedy

Change "defines" to "define". Also correct typo by changing "1.1464" to "1.1463"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.168c** *P* **95** *L* **35** # 3

Marris, Arthur — Cadence Design Systems

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

Correct table reference

SuggestedRemedy

Correct table reference on line 39 to be to 45-133c. Also in bit description for 1.1477.8 delete "lane 0"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.168d** *P* **96** *L* **12** # 4

Marris, Arthur — Cadence Design Systems

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

Make minor tweaks to bit descriptions in Table 45–133d

SuggestedRemedy

For 1.1478.13 change "It indicates" to "This bit indicates"
For 1.1478.10 change "each input lane is" to "all input lanes are"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.177b** *P* **99** *L* **1** # 5

Marris, Arthur — Cadence Design Systems

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

Correct register number in the title

SuggestedRemedy

Change "1.1816" to "1.1819"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.178c** *P* **100** *L* **3** # 6

Marris, Arthur — Cadence Design Systems

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

Correct table number

SuggestedRemedy

Change "45-142c" to "45-141c" in two places, and change subclause number from "45.2.1.178c" to "45.2.1.177c"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Correct the subclause and table numbering with editorial license.

In addition, to match the change of the feature name in CL 186, change the text in the Description column of this table from:
"alignment marker location transparency"
to:
"alignment marker location"
in 45.2.1.178c and 45.2.1.178c.1.

Cl **45** *SC* **45.2.1.213b** *P* **101** *L* **15** # 40

Bruckman, Leon — Nvidia

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

In table 45–142c new 1.2402.15 bit defined as "PRBS31 is FEC encoded" is not used in the draft. Clause 177 uses 8 bits for this function that will be defined in clause 45.2.1.213e

SuggestedRemedy

Either change the definition of bit 1.2402.15 to "Reserved", or change the references in section 177.9 to become a sinlge bit pointing to this bit

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change bit 1.2402.15 to "Reserved"

Cl **45** *SC* **45.2.1.213e** *P* **103** *L* **6** # 7

Marris, Arthur — Cadence Design Systems

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

Editor's note needs to be removed

SuggestedRemedy

Replace editor's note with suitable content

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The bits for this register are defined already in 177.4.9.1 and are listed in Table 177-7. Add necessary table and text in 45.2.1.213e.

Cl **45** *SC* **45.2.1.213n** *P* **107** *L* **23** # 8

Marris, Arthur — Cadence Design Systems

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

Correct register range and add table to define these error bin counter registers

SuggestedRemedy

51 registers are required so make the range 1.2600 through 1.2650. Add table to indicate how the 48-bit values map to three register locations

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.213n** *P* **107** *L* **25** # 196

Slavick, Jeff Broadcom

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

We want to avoid referencing clauses from Clause 45 just basic overview of the register but have a one way reference from those using the register storage location.

Also all the registers for a given lane should latch when bin 0 bits 15:0 are read.

SuggestedRemedy

Have the clause read as follows:

The PMA test block error bin counter registers provide emulation of FEC error statistics from a PRBS data stream. These registers are reset to all zeros when the register is read by the management function or upon reset, and held at all ones in the case of overflow. Three registers are used to read the value of each 48-bit counter, the values of all registers for a given PMAL are latched when the first register of bin 0 is read.

There are 17 bin counter registers for eight PMALs. The bin 1 register keeps a count of test blocks with 1 test symbol error, the bin 2 register keeps a count of test blocks with 2 test symbol errors, and so on up to 15 test symbol errors. The bin 16p register counts test blocks with 16 or more test symbol errors.

Proposed Response *Response Status* **W**

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

Cl **45** *SC* **45.2.1.213n** *P* **107** *L* **34** # 198

Slavick, Jeff Broadcom

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

Add Tables to show lane 0 bin 0 registers.

SuggestedRemedy

Add a Table that defines the 3 registers a given "Bin" counter is composed of.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.4** *P* **121** *L* **19** # 231

Ran, Adee Cisco

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

The term "link codeword" appears many times in the updated Clause 73 as an initial part of expressions like "link codeword Base page" here, and similar expressions "link codeword Message code" and "link codeword Unformatted".

The usual English word order suggests that "link codeword" is a compound adjective, making it a specific type of "Base page", specific type of "Message code", or specific type of "Unformatted"...

I think it is quite different: "Base Page" is one thing, "Next Page" is another thing; "Message code" is one kind of Next Page, and "Unformatted" is another kind of Next Page. These three can be referred to together as "link codeword".

The terminology in D1.4 makes the text difficult to follow, worse than what it was in the original Clause 73 (despite the good intent to clean it), and would make readers familiar with Clause 73 confused. It is especially difficult in constructs like "link codeword Message code Next Page" (which is a link codeword of type Next page of subtype message code).

SuggestedRemedy

Use the following terms:
"Base page link codeword" (one type of link codeword)
"Next page link codeword" (another type of link codeword; with two subtypes, Message code or Unformatted)
"Message code Next page link codeword" (a subtype of Next page link codeword)
"Unformatted Next Page link codeword" (a subtype of Next page link codeword)

In most cases, the terms "Base Page", "Next Page", "Message code Next page" and "Unformatted Next page" can be used without adding "link codeword".

Change across clause 73 and Annex 73A with editorial license.

Proposed Response *Response Status* **W**

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

Cl **73** *SC* **73.5.1** *P* **122** *L* **32** # 232

Ran, Adee Cisco

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

73.5 has been amended by 802.3ck. The editorial instruction should include this note.
Also applies to 73.6, 73.7, 73.8 which were amended by 802.3ck and/or 802.3df.
(Also 73.10, but it already includes the required note)

SuggestedRemedy

Insert "(as modified by IEEE Std 802.3ck-2022)" or "(as modified by IEEE Std 802.3ck-2022 and IEEE Std 802.3df-2024)" into the editorial instructions, as appropriate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.5.1** *P* **122** *L* **32** # 233

Ran, Adee Cisco

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

Editorial instructions should be within the subclause they address.
This applies to 73.5.1 and 73.6.

SuggestedRemedy

Move the editorial instruction into the subclauses.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.6.2.7** *P* **127** *L* **31** # 220

Dawe, Piers Nvidia

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

There is a "Remote Fault bit" with no clear indication of what it is for. It's not the real Remote Fault, because the MACs are not yet connected during AN. But it could be useful. It could be used by a transmitter whose receiver is not receiving anything (Vpkpk < 200 mV), or is receiving something that's not AN (such as a regular scrambled RF Ethernet signal, or a Fibre Channel signal), or a signal that's too loud to be understood adequately.

SuggestedRemedy

Add text detailing the use(s) of this bit.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Implementing the propose changes would be out of scope for the 802.3dj project since it would affect all PHYs that utilize auto-negoiation.

Cl **116** *SC* **116.2.9** *P* **147** *L* **39** # 41

Bruckman, Leon Nvidia

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

Text is hard to parse.

SuggestedRemedy

Change: "For each ISL, ILT provides a mechanism for a receiver to control transmitter states, such as equalization, modulation, and precoding states, on the peer transmitter," to: "For each ISL, ILT provides a mechanism for a receiver to control peer transmitter states, such as equalization, modulation, and precoding,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **116** *SC* **116.3.2** *P* **149** *L* **4** # 235

Ran, Adee Cisco

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

The editorial instruction says "Replace Figure 169–2 with the following figure:", which is Figure 116–2.

Similarly in several subsequent instructions (which should be to insert Figure 116-2a, replace Figure 116-3, etc.).

SuggestedRemedy

Change "169" to "116" in the all editorial instructions in clause 116.

Proposed Response *Response Status* **W**

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

Cl **116** *SC* **116.3.3.4** *P* **153** *L* **42** # 237

Ran, Adee Cisco

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

The description of IS_SIGNAL.REQUEST says:
"The IS_SIGNAL.request primitive is generated by the transmit process to propagate the detection of severe error conditions (e.g., no valid signal being received by the sublayer) to the next lower sublayer <…>"

The parenthetic phrase is misleading; it is naturally interpreted as if there is no signal in the receive direction. Indeed, the semantics of the IS_SIGNAL.indication primitive in 116.3.3.3 uses the exact same phrase.

In fact the "request" primitive is all about the transmit direction; it is used to indicate that no valid signal is transmitted by the sublayer.

SuggestedRemedy

Change to "(e.g., no valid signal is transmitted)".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
It is ambiguous as to where the "received" is pointing to. The suggested remedy changes the context as the intent is to point out a valid signal is not being received from the sublayer above.
Change "(e.g., no valid signal being received by the sublayer)"
To "(e.g., no valid signal being received by the sublayer on IS_UNITDATA.request in the transmit direction)"
Make a similar change in 116.3.3.3.

Cl **116** *SC* **116.3.3.4.1** *P* **154** *L* **5** # 238

Ran, Adee Cisco

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

In IS_SIGNAL.request, the SIGNAL_OK can take the value FAIL.
"A value of FAIL indicates the sublayer has not established communication with the next higher sublayer."
This value is also the appropriate value with the sublayer is not functional for some reason (e.g. it is reset). This is a possible situation even when IN_PROGRESS and READY are supported.

SuggestedRemedy

Change to "A value of FAIL indicates the sublayer is not functional or has not established communication with the next higher sublayer."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The proposed extra text, though not incorrect, is redundant, since if the sublayer is not functional, it clearly has not established communication with the next higher sublayer.

Cl **119** *SC* **119.3.4a** *P* **167** *L* **33** # 157

Opsasnick, Eugene Broadcom

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

119.3.4a and 119.3.4b add optional FEC counters, FEC_cw_counter and FEC_codeword_error_bin_i. In each subclause, the register definition is preceeded by a statement that the defined counter is optional for the 200G/lane PHY types. While it is intended to add these registers as optional for the new PHY types in 802.3dj, this seems to imply that these new registers are "required" for all other PHYs (for example, previously specified PHYs over 50G and 100G lanes). It was likely the intent to not add these registers (as either required or optional) for other, older PHY types. However, there should be nothing wrong with just adding these registers as "optional" for all 200GE/400GE PHYs -- being optional would not affect the conformance of any previous implementations. Suggest removing the woring about being optional for specific PHY types and just make them optional for any implementation of the 200G/400G PCS.

SuggestedRemedy

In 119.3.4a and 119.3.4b remove the text:
"The following counter(s) is(are) optional if the PCS is used in any of the following PHY types:
— 200GBASE-KR1
— 200GBASE-CR1
— 200GBASE-DR1
— 200GBASE-DR1-2
— 400GBASE-KR2
— 400GBASE-CR2
— 400GBASE-DR2
— 400GBASE-DR2-2".

and modify the register definitions to say they are optional. Something like:

In 119.3.4a, change: "A 48-bit counter that counts"
to: "An optional 48-bit counter that counts"

In 119.3.4b, change: "A set of fifteen 32-bit counters"
to "An optional set of fifteen 32-bit counters"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

It is out of scope to specify new (even optional) counters for existing 200G/400G PHYs not defined in 802.3dj. These optional counters should be defined only for use in the new PHYs specified in 802.3dj. However, the text needs to be updated to make this clear.

On page/line 167/33,
Change:
"The following counter is optional if the PCS is used in any of the following PHY types:"
To:
"The following optional counters may be implemented for these PHY types:"

On page/line 167/50,
Change:
"The following counters are optional if the PCS is used in any of the following PHY types:"
To:
"The following optional counters may be implemented for these PHY types:"

Implement with editorial license.

Cl **119** *SC* **119.3.4a** *P* **167** *L* **33** # 240

Ran, Adee Cisco

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

"The following counter is optional if the PCS is used in any of the following PHY types..."

What if it is used in other PHY types? is it not optional? or not allowed?

Although it is a new counter it should be optional for all PHY types. A PCS that operates in e.g. 400GBASE-DR4 and includes this counter should not be considered non-compliant.

Arguably, we could make it mandatory for the listed PHYs (it is mandatory in 175.2.5.3) and optional in all other cases. The suggested remedy does not take that path.

Also applies to the counters in 119.3.4b.

SuggestedRemedy

Delete the words "if the PCS is used in any of the following PHY types" and the lists of PHY types".
Implement in 119.3.4a and 119.3.4b with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #157.

Cl **119** *SC* **119.6** *P* **168** *L* **14** # 241

Ran, Adee Cisco

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

In the base standard, 119.6 lists the 200G/400G PMDs that need AN support from the PCS. The list should be expanded to include the new PMDs in this project.

SuggestedRemedy

Bring in subclause 119.6 (as modified by 802.3ck) and add 200GBASE-CR1, 200GBASE-KR1, 400GBASE-CR2, and 400GBASE-KR2, with editorial license.

Proposed Response *Response Status* **W**

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

Cl **169** *SC* **169.2.4b** *P* **179** *L* **11** # 158

Opsasnick, Eugene Broadcom

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

The line "For 800GBASE-LR1 the 800GBASE-LR1 Inner FEC is specified in Clause 184.", the repeating 800GBASE-LR1 is confusing.

SuggestedRemedy

Change "For 800GBASE-LR1 the 800GBASE-LR1 Inner FEC is specified in Clause 184."

to either:
"For the 800GBASE-LR1 PHY, the Inner FEC is specified in Clause 184."
or:
"The 800GBASE-LR1 Inner FEC is specified in Clause 184."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Though it is somewhat awkward, the wording is consistent with many other similar sentences in 169.2. This is just a rare case where the sublayer name has the same qualifier as the PHY type. The proposed change does not improve the clarity or accuracy of the draft.

Cl **169** *SC* **169.2.4c** *P* **179** *L* **15** # 119

Dudek, Mike Marvell

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

Poor English (missing object)

SuggestedRemedy

Change " and replaces with a
separate FEC " to "and replaces it with a separate FEC"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **169** *SC* **169.2.10** *P* **179** *L* **38** # 43

Bruckman, Leon Nvidia

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

Text is hard to parse.

SuggestedRemedy

Change: "For each ISL, ILT provides a mechanism for a receiver to control transmitter states, such as equalization, modulation, and precoding states, on the peer transmitter,"
to: "For each ISL, ILT provides a mechanism for a receiver to control peer transmitter states, such as equalization, modulation, and precoding,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **169** *SC* **169.2.10** *P* **179** *L* **42** # 161

Opsasnick, Eugene Broadcom

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

"and to coordinate transition to DATA mode" is missing a "the".

SuggestedRemedy

Change:
"and to coordinate transition to DATA mode"
To:
"and to coordinate the transition to DATA mode"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Similar text occurs in several other clauses.
Implement the suggested remedy with editorial license in 169.2.10 and other locations where similar text is used.

Cl **169** *SC* **169.3.2** *P* **180** *L* **27** # 242

Ran, Adee Cisco

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

Figure 169-2 and Figure 169-3 exist in this amendment.

SuggestedRemedy

Make the cross-references active.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **170** *SC* **170.1** *P* **190** *L* **34** # 162

Opsasnick, Eugene Broadcom

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

The two lists of features for 800GMII and 1.6TMII in lines 34-46 are so similar, they should be combined into a single list. This would match what is written in the based spec in 117.1 for 200GMII/400GMII.

SuggestedRemedy

Change:
"The 800GMII has the following characteristics:
— It supports a speed of 800 Gb/s.
— Data and delimiters are synchronous to a clock reference.
— It provides independent 64-bit wide transmit and receive data paths.
— It supports full duplex operation only.

The 1.6TMII has the following characteristics:
— It supports a speed of 1.6 Tb/s.
— Data and delimiters are synchronous to a clock reference.
— It provides independent 64-bit wide transmit and receive data paths.
— It supports full duplex operation only."

to:

The 800GMII/1.6TMII have the following characteristics:
— The 800GMII supports a speed of 800 Gb/s.
— The 1.6TMII supports a speed of 1.6 Tb/s.
— Data and delimiters are synchronous to a clock reference.
— They provide independent 64-bit wide transmit and receive data paths.
— They support full duplex operation only.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.1** *P* **197** *L* **17** # 120

Dudek, Mike Marvell

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

In table 171-1 Footnote c should have been changed to footnote d on clauses 120G, 176C and 176D as well as 120F

SuggestedRemedy

change footnote c to footnote d on these clauses

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.1** *P* **198** *L* **16** # 121

Dudek, Mike Marvell

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

In table 171-1a Footnote a should have been changed to footnote b on clauses 120G, 176C and 176D as well as 120F

SuggestedRemedy

change footnote a to footnote b on these clauses

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.2** *P* **200** *L* **24** # 243

Ran, Adee Cisco

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

Figure 172-2 exists in this amendment.

SuggestedRemedy

Make the cross-reference active.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **171** *SC* **171.8** *P* **209** *L* **4** # 244

Ran, Adee Cisco

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

Table 171-3 title and column heading mentions Clause 172.
Similarly Table 171-5a through 171-5c refer to Clause 175.

It is unclear why clause 171 should have tables of variables defined in other clauses. Assuming this is not an error, it should be clarified. The original text of 171.8 seemed to have some explanation, but the replacement text does not.

SuggestedRemedy

Add an explanation of the references to clauses 172 and 175, similar to what was included in the deleted text, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

Cl **171** *SC* **171.8** *P* **209** *L* **16** # 44

Bruckman, Leon Nvidia

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

In Tables 171-3, 171-5, 171.5b and 171-5d in the first column the names wrap around oddly

SuggestedRemedy

Fix the variable names in the first column of Tables 171-3, 171-5, 171-5b and 171-5d to be in one line

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

Cl **171** *SC* **171.8** *P* **209** *L* **20** # 245

Ran, Adee Cisco

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

"in subns" is not defined and is not helpful for the reader (what it means is anyone's guess). The register names in Clause 45 (added by 802.3cx) have "in sub-ns" instead, which is only slightly better.

Based on clause 30, these registers are in units of 2^-16 ns.

Multiple instances in the draft.

SuggestedRemedy

Change all instances of "in subns" preferably to "in units of 2^-16 ns", or if not within scope, to "in sub-ns".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
802.3cx-2023 uses the terms "sub-ns" as a quasi-unit of time and defines it in subclause 45.2.4.49 for use in the Table 45-314 register definitions as "units of 2^-16 ns", which these PHY XS register reference (registers 4.1809 to 4.1812). The TimeSync registers definitions in Table 171-3 of subclause 171.8 should be consistent with the register descriptions in Table 45-314 and use the "sub-ns" term as a unit of time.

In Table 171-3 on page 209, in the second column titled "PHY XS register name", change the units named "subns" to "sub-ns" in 4 places. Note "_subns_" is used in several variable names in the first and fourth columns of table 171-3 and should not be changed.

In addition, in 171.8, just prior to table 171-3 add the definiton of "sub-ns" as taken from 45.2.4.29:

"The maximum and minimum PHY XS transmit and receive path data delay values in table 171-3 are provided in two components. The first component (registers 4.1801 and 4.1802, 4.1803 and 4.1804, 4.1805 and 4.1806, 4.1807 and 4.1808) provides the integer nanoseconds portion of the PHY XS path data delays, in units of nanoseconds. The second component (registers 4.1809, 4.1810, 4.1811, and 4.1812) provides the fractional nanoseconds portion of the PHY XS path data delays, in units of 2^(–16) ns."

In addition, fix the typo in Table 171-3 in the line for MDIO status register PHY_XS_delay_ns_RX_min, in the third column, from "4.1807, 4.1809" to "4.1807, 4.1808".

Implement the above changes with editorial license.

Cl **172** *SC* **172.6** *P* **230** *L* **30** # 246

Ran, Adee Cisco

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

In the base standard, 172.6 lists the 800G PMDs that need AN support from the PCS. The list should be expanded to include the new PMDs in this project.

SuggestedRemedy

Bring in subclause 172.6 (added by 802.3df) and add 800GBASE-CR4 and 800GBASE-KR4, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

Cl **173** *SC* **173.4.2** *P* **231** *L* **45** # 98

Huber, Thomas Nokia

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

Since 800GBASE-ER1 is now described as a FEC sublayer, the interface below an 8:32 PMA can also be 800GBASE-ER1 FEC sublayer.

SuggestedRemedy

Change
"The interface below the PMA (32 lanes) connects with a PHY 800GXS or 800GBASE-LR1 Inner FEC."
to
"The interface below the PMA (32 lanes) connects with a PHY 800GXS, 800GBASE-ER1 FEC, or 800GBASE-LR1 Inner FEC.",
and update Figure 173-3 to include 800GBASE-ER1 as well.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174** *SC* **174.1.4** *P* **234** *L* **35** # 75

Huang, Kechao Huawei

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

In "Table 174–2 and Table 174–3 specifies
the correlation", the word "specifies" should be changed to "specify"

SuggestedRemedy

Change it as suggested

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **174** *SC* **174.2.12** *P* **237** *L* **39** # 45

Bruckman, Leon Nvidia

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

Text is hard to parse.

SuggestedRemedy

Change: "For each ISL, ILT provides a mechanism for a receiver to control transmitter states, such as equalization, modulation, and precoding states, on the peer transmitter," to: "For each ISL, ILT provides a mechanism for a receiver to control peer transmitter states, such as equalization, modulation, and precoding,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement with editorial license.

Cl **174** *SC* **174.3.3** *P* **242** *L* **4** # 247

Ran, Adee Cisco

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

174.3.3 says "The semantics of the inter-sublayer service interface primitives for the 800GBASE-R sublayers are described in 116.3.3.1 through 116.3.3.3".
This project adds 116.3.3.4 with the semantics of IS_SIGNAL.request.

The same sentence appears also in 169.3.3 (not currently included in the amendment) .

In both cases, the reference can be to the parent subclause which will cover everything.

SuggestedRemedy

Change "in 116.3.3.1 through 116.3.3.3" to "in 116.3.3".
Add 169.3.3 to the draft and apply the same change there.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement with editorial license.

Cl **174** *SC* **174.5** *P* **243** *L* **23** # 122

Dudek, Mike Marvell

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

Better wording

SuggestedRemedy

Change "No physically instantiated interfaces at SP2 and SP3 (PMD service interface) are specified " to "No physically instantiated interfaces are specified at SP2 and SP3 (PMD service interface) "

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The general wording change is a good suggestion. However, SP3 should be SP5.

Change:
"No physically instantiated interfaces at SP2 and SP3 (PMD service interface) are specified."
To:
"No physically instantiated interfaces are specified at SP2 and SP5 (PMD service interface)."

Cl **175** *SC* **175.2.4.7** *P* **258** *L* **5** # 249

Ran, Adee Cisco

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

"to form two 514 10-bit symbol FEC messages mA and mB from tx_scrambled_am_f0 in flow 0 and mC and mD from tx_scrambled_am_f1 in flow 1"

This is not quite clear...
"two 514 10-bit" has too many numbers in a row, and the initial "two" seems to refers to m_A and m_B - but then there are m_C and m_D, so should it be "four"?

SuggestedRemedy

Change to "to form two FEC messages, mA and mB, from tx_scrambled_am_f0, and two FEC messages, mC and mD, from tx_scrambled_am_f1, where each FEC message contains 514 10-bit symbols".

Or reword in some other way (175.2.4.8 seems to repeat the same statements in a different way).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Update the text based on the suggested remedy with editorial license.

Cl **175** *SC* **175.2.6.3** *P* **264** *L* **53** # 250

Ran, Adee Cisco

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

Here we have
"Note that EEE and low-power idle are not supported, and the optional states TX_LI and RX_LI are not used"
But in 175.2.4.1 and 175.2.5.9 there are references to the state-diagram encoder and decoder, respectively, without this note.

To avoid duplicity and apparent contradiction, this note should appear in the encoder and decoder definitions.

The "state diagram figures" subclause includes a lot of descriptive text and should perhaps be made shorter in other ways.

SuggestedRemedy

Delete the last paragraph of 175.2.6.2 (from "The transmit state diagram" to "172.2.4.1.2 and 172.2.5.9.2, respectively").
Add the required statements about EEE/LPI in 175.2.4.1 and 175.2.5.9 instead.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The suggested remedy metions to delete text from 176.2.6.2, but appears that this should be a reference to 176.2.6.3.

The text in 176.2.6.3 is an overview of what each state diagram is doing to aid the reader in understanding the diagrams. It describes how the state diagrams shown in CL 175 as well as the state diagrams borrowed/referenced from CL 119 implement the PCS functionality. The last paragraph of 175.2.6.2 should reamain for completeness of these descriptions and the purpose of this subclause.

Adding the statement about EEE/LPI to 175.2.4.1 and 175.2.6.9 is not necessary for the understanding of the functions since the referenced figures already contain a note that those states are only required to support EEE and it is already stated elsewhere in CL 175 that EEE is not supported. The note in 176.2.6.3 is just a simple reminder of that.

Cl **176** *SC* **176.1.5** *P* **278** *L* **25** # 192

Slavick, Jeff Broadcom

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

Are these foonotes really necessary? The only one that seems needed is footnote d.

SuggestedRemedy

Remove all footnotes from Table 176-1 and 176-2 except footnote d and remove the m:k and k:m before the BM-PMA. Remove all footnotes from Tables 176-3 and 176-4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The table footnotes clarify which PCS/FEC/PMD can be layered with each type of PMA since the PMAs are listed with generic parameters (m, n, k). Removing the footnotes would remove essential information.

Cl **176** *SC* **176.2** *P* **280** *L* **40** # 163

Opsasnick, Eugene Broadcom

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

It is strange that the same line "In addition to the primitives noted above, an associated clock is transferred from input to output along with
the IS_UNITDATA primitives in the transmit and receive direction." is repeated at the end of both subclause 176.2 and 176.3.

SuggestedRemedy

Both of these lines can probably be omitted since the same information is given at the end of the intro section 176.1.4.

Alternatively, it would make sense to modify each of these lines to be more specific to the generation of the interface signals at PMA service interface (176.2) and the service interface below the PMA. For example,
change the last sentense of 176.2 to be:
"In addition to the primitives noted above, an associated clock is transferred from input to output along with
the IS_UNITDATA primitives in the receive direction."

And change the last sentence of 176.3 to be:
"In addition to the primitives noted above, an associated clock is transferred from input to output along with
the IS_UNITDATA primitives in the transmit direction."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The sentence at the end of 176.1.4 states the following:
"The PMA transmit clock is passed from the interface above the PMA to the interface below in the transmit direction, and the PMA receive clock is passed from the interface below the PMA to the interface above in the receive direction.".

As the comment notes, this captures the same information that is in the last lines of 176.2 and 176.3. Additionally, the lines in 176.2 and 176.3 are redundant with each other.

Delete the last sentence in 176.2 and in 176.3.

Cl **176** *SC* **176.4.2.3.2** *P* **285** *L* **14** # 76

Huang, Kechao Huawei

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

"a 20-bit boundary (two RS-FEC symbols)" should be changed to "a 20-bit (two RS-FEC symbols) boundary";
also "a 40-bit boundary (4 RS-FEC symbols)" should be changed to "a 40-bit (4 RS-FEC symbols) boundary" in page 285 line 25

SuggestedRemedy

Change it as suggested

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The text is not incorrect as written. The suggested remedy does not improve clarity of the draft.

Cl **176** *SC* **176.4.2.4** *P* **285** *L* **41** # 164

Opsasnick, Eugene Broadcom

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

Cross-rreference to 176.4.3.4.1 should be 176.4.2.4.1.

SuggestedRemedy

Fix the cross reference and make it active.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4.2.4** *P* **285** *L* **43** # 165

Opsasnick, Eugene Broadcom

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

Cross-rreference to 176.4.3.4.2 should be 176.4.2.4.2.

SuggestedRemedy

Fix the cross reference and make it active.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4.3.2** *P* **292** *L* **14** # 166

Opsasnick, Eugene Broadcom

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

The symbol demultiplexing function must achieve symbol lock on all input PMALs.

SuggestedRemedy

Change this sentence:
"The symbol demultiplexing function locates the correct symbol demultiplex boundary and achieves symbol
lock on a given input lane."
To:
"The symbol demultiplexing function locates the correct symbol demultiplex boundary and achieves symbol
lock on each input PMAL."

Also on line 15, may want to change "After all input lanes" to be "After all input PMALs".
And on line 40 of the same page, maybe change "input. lane" to "PMAL" since most of the text is now using PMAL.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

Cl **176** *SC* **176.4.3.2.1** *P* **292** *L* **24** # 193

Slavick, Jeff Broadcom

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

and comprises of seems wrong.

SuggestedRemedy

Change "and comprises of" to "it is comprised of"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The convention in 802.3 is to use "is composed of" rather than "comprises". Also, the block diagram is not "composed of" anything, rather the "20-bit demultiplexing function" is.
Fix use of "comprise" and "comprises" here and elsewhere in the draft.
on page 292 line 24 change to "A functional block diagram of a 1:8 symbol-pair demultiplexer, which is composed of a 20-bit demultiplexing function and an alignment marker lock function (see 176.4.3.2.3), is shown in Figure 176–9."
on page 379 line 29 change "comprises" to "is composed of"
on page 433 line 34, page 457 line 3, page 483 line 34, page 508 line 1 change "comprised of" to "composed of"
on page 579 line 48, change "comprise" to "are composed of"
on page 773 line 44 (twice), change "is comprised of" to "is composed of"

Implement with editorial license.

[Editor's note: CC 179 180 181 182 183 186 178B]

Cl **176** *SC* **176.4.4.2.1** *P* **294** *L* **48** # 156

Opsasnick, Eugene Broadcom

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

It appears that a second variable was added to this list. The introductory sentence should be updated.

SuggestedRemedy

Change: "The following variable is common ..."
To: "The following variables are common ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.4.4.2.1** *P* **295** *L* **39** # 167

Opsasnick, Eugene Broadcom

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

The index variable "n" is used in the definition of several dumux variables. It does correspond to how "n" is is used in Figure 172-3, and the generic usage for "m:n PMA" as well as "n:m PMA" However I would still be usful to define "n" at the introduction to the demux variables in a simlar way that "x" is defined in 176.4.4.2.

SuggestedRemedy

Add a sentence at line 39 or page 295 something like: "The index variable n represents the number of PMAL input lanes."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **176** *SC* **176.4.4.3** *P* **297** *L* **9** # 168

Opsasnick, Eugene Broadcom

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

Fix singlular tense verb to plural for the subject containing two named variables in this sentence.

SuggestedRemedy

Change:
"When all_locked_demux and the pcs_lanes_identified_demux variable is true, then…"
To:
"When the all_locked_demux and pcs_lanes_identified_demux variables are both true, then…"
with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.7.4.1** *P* **304** *L* **6** # 195

Slavick, Jeff Broadcom

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

Is it "A" PMA or "The PMA". I think it should be the latter.

SuggestedRemedy

Change "A PMA" to "The PMA" in 176.4.1 through 176.4.6

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176** *SC* **176.7.4.7** *P* **304** *L* **31** # 197

Slavick, Jeff Broadcom

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

The 1.6TBASE-16 PMA does not require these registers as they're only associated with 200Gbps interfaces per 174A.7

SuggestedRemedy

Add "(except in a 1.6TBASE-16 PMA)" after "pattern checker".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The block error counters are defined only for PMALs.
PMAL is defined in 176.1.3 as "PMAL | This term refers to a PMA lane operating at 212.5 Gb/s."
1.6TBASE-R 16:16 PMA is already excluded.

Cl **176** *SC* **176.11** *P* **308** *L* **9** # 199

Slavick, Jeff Broadcom

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

To make the Clause 45 register expandable. Change the ordering of the register assignments to be bin then lane rather than lane then bin.

SuggestedRemedy

Change Table 176-9 to be:
test_block_error_bin_<0:7>_0 for 1.2600 to 12623
test_block_error_bin_<0:7>_1 for 1.2624 to 12647
test_block_error_bin_<0:7>_3 for 1.2648 to 12671
test_block_error_bin_<0:7>_3 for 1.2672 to 12695
test_block_error_bin_<0:7>_4 for 1.2696 to 12719
test_block_error_bin_<0:7>_5 for 1.2720 to 12743
test_block_error_bin_<0:7>_6 for 1.2744 to 12767
test_block_error_bin_<0:7>_7 for 1.2768 to 12791
test_block_error_bin_<0:7>_8 for 1.2792 to 12815
test_block_error_bin_<0:7>_9 for 1.2816 to 12839
test_block_error_bin_<0:7>_10 for 1.2840 to 12863
test_block_error_bin_<0:7>_11 for 1.2864 to 12887
test_block_error_bin_<0:7>_12 for 1.2888 to 12911
test_block_error_bin_<0:7>_13 for 1.2912 to 12935
test_block_error_bin_<0:7>_14 for 1.2936 to 12959
test_block_error_bin_<0:7>_15 for 1.2960 to 12983
test_block_error_bin_<0:7>_16p for 1.2984 to 12307

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The current allocation nicely groups sets of registers by lane. The changes proposed would mean that registers for a single lane would not be adjacent.

Cl **176B** *SC* **176B.6.1** *P* **694** *L* **39** # 31

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

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

800GAUI's are permissable within 800GBASE-LR1, 800GBASE-ER1 and 800GBASE-ER1-20 PHYS. The guidelines in 176B.6.1 do not reflect this.

SuggestedRemedy

Add sentence at end of last paragraph on 694:
These instantiations are also relevant to the 800GBASE-R PHY types listed in Table 169-4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add sentence at end of the first paragraph in 176B.6.1:
"These instantiations are also relevant to the 800GBASE-R PHY types listed in Table 169-4."
Also update diagrams and text to be inclusive of the 800GBASE-ER1/ER1-20 PHY types.
Implement with editorial license.

Cl **178B** *SC* **178B.4** *P* **769** *L* **50** # 127

Dudek, Mike — Marvell

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

The PMA adjacent to a PCS still has 2 interfaces, it is just that only one is exposed.

SuggestedRemedy

Change "one or two interfaces" to "one or two exposed interfaces." At the end of the paragraph add "Only exposed interfaces participate in ILT".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "Devices in a path may include one or two interfaces. An example of the former is a PMA adjacent to a PCS
or to a PHY XS with a single AUI-C2M (Annex 176D) or AUI-C2C (Annex 176C) interface (the interface
with the PCS or PHY XS is never exposed)."
To: "Devices in a path may include one or two physically-instrantiated interfaces, specifically PMD or AUI components. An example of the former is a PMA adjacent to a PCS or to a PHY XS with a single AUI-C2M (Annex 176D) or AUI-C2C (Annex 176C) interface (the interface with the PCS or PHY XS is never physically-instrantiated)."
At the beginning of the first paragraph in 178B.x add the following sentence:
"The ILT function is used by the AUI component or PMD at each end of a physically-instantiated interface."
Implement with editorial license.

Cl **176C** *SC* **176C.1** *P* **701** *L* **24** # 85

Huang, Kechao — Huawei

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

In "Physical layer partitioning options", the word "layer" should be changed to "Layer"

SuggestedRemedy

Change it as suggested, and make the same change in page 722 line 25, sub-clause 176D.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.2.1** *P* **702** *L* **6** # 267

Ran, Adee — Cisco

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

"Functional specification" is 176C.2.1, below 176C.2 which is "Error ratio allocation". This is not the correct place in the hierarchy (and it is different from 176D).

SuggestedRemedy

Promote "Functional specification" to become 176C.3, renumbering the subsequent subclauses.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176C** *SC* **176C.2.1** *P* **702** *L* **7** # 72

Bruckman, Leon — Nvidia

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

Not clear why is the Functional specification a sub-section of Error Ratio Allocation

SuggestedRemedy

Promote section "Functional specification" to 176C.3 to make it consistent with a similar section in Annex 176D

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #267.

Cl **176C** *SC* **176C.4.3** *P* **705** *L* **38** # 269

Ran, Adee Cisco

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

In Table 176C-2, Common-mode voltage has max and min in separate rows. In Annex 176D it is a range, which is more readable.
Also, the parameter should be called DC common-mode voltage, as in other clauses.

SuggestedRemedy

Change to "DC common-mode voltage", with range in a single row as in Table 176D-1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176D** *SC* **176D.7.2** *P* **730** *L* **51** # 180

Swenson, Norman Point2; Infinera

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

"The parameters in Table 176D-7" is ambiguous, because the table includes host and module parameters.

SuggestedRemedy

Change "The parameters in Table 176D-7" to "The host parameters in Table 176D-7"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
It is assumed that the comment refers to the third paragraph of 176D.7.2 (which points to Table 176D-6, rather than Table 176D-7).

Change "The parameters in Table 176D-6" to "The host parameters in Table 176D-6".

Cl **176D** *SC* **176D.7.2** *P* **731** *L* **18** # 181

Swenson, Norman Point2; Infinera

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

The terminology in the table should align with the terminology in 178A for clarity. Per 178A.1.4, the blocks comprising the Tx and Rx S-parameter model are: Device termination, Device Package and Partial host channel (optional).

SuggestedRemedy

Change "Device model" to "Device termination model for Host and Module"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In Table 176D-6, Change "Device model" to "Device termination model".
Implement similarly in Table 178-12, Table 179-16, and Table 176C-7.

Apply the corresponding changes in all references to these tables, with editorial license.
[CC 178, 179, 176C, 176D]

Cl **176D** *SC* **176D.7.2** *P* **731** *L* **25** # 182

Swenson, Norman Point2; Infinera

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

The terminology in the table should align with the terminology in 178A for clarity.

SuggestedRemedy

Change "Host package model" to "Device package model for Host"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The comment identifies an inconsistency that should be addressed.
Change all instances of "package" referring to the device package model in 178A.1.4, where necessary, to "device package".
Implement throughout the draft with editorial license.
[CC 178, 179, 176C, 176D, 178A, 179A]

Cl **176D** *SC* **176D.7.2** *P* **731** *L* **37** # 183

Swenson, Norman Point2; Infinera

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

The terminology in the table should align with the terminology in 178A for clarity.

SuggestedRemedy

Change "Module package model" to "Device package model for Module"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #182.

Cl **176D** *SC* **176D.7.2** *P* **731** *L* **46** # 184

Swenson, Norman Point2; Infinera

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

The terminology in the table should align with the terminology in 178A for clarity. Per subclause 178A.1.4 and 178A1.4.2, C_p is part of the Device package.

SuggestedRemedy

There should be two lines for C_p, one under Device package model for Host, and one under Device package model for Module

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Table 176D-6 has parameter for both host and module models. C_p is the same for both.

Cl **176D** *SC* **176D.7.2** *P* **731** *L* **51** # 151

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

The partial channel is only needed for cable assembly CR and not for C2M which has the complete S-Parameters

SuggestedRemedy

Partial channel not need for C2M COM and should be removed

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The host channel model is used in dSNDR (176D.8.7) and in host interference tolerance test calibration (176D.8.12.2). This channel includes the partial channel (subject of this comment) and a physical MCB (see, e.g., Figure 176D-7b).
The partial host channel constitutes most of the 32 dB IL which is the consenus IL budget for the C2M channel.

Cl **176D** *SC* **176D.8.12.2** *P* **740** *L* **41** # 274

Ran, Adee — Cisco

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

The noise calibration procedure in Annex 176D is not aligned with that of clause 179, both editorially and technically.
Specifically, item f) refers to calibrating the noise using SNR_TX, while the procedure in 179.9.5.3.3 uses a separate parameter sigma_ns, which is preferable.

Also, the equations and notes are identical to those in 179.9.5.3.3.

The procedure should be aligned to that of 179.9.5.3.3, with the additions required to address testing modules (items a and b). The equations there can be referenced.

SuggestedRemedy

Align items c through f with the corresponding items in 179.9.5.3.3, and replace duplicate equations with references.
Implement with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **176D** *SC* **176D.8.12.2** *P* **741** *L* **18** # 185

Swenson, Norman — Point2; Infinera

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

"approximated solution" is awkward or typo.

SuggestedRemedy

Change to "approximate solution"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
"approximated solution" appears 3 times in the draft, and is consistent with similar instances in existing 802.3 text, in 136.9.4.2.3, 162.9.5.3.3, and 163.9.3.5. The current text is not incorrect.

Cl **176D** *SC* **176D.8.12.2** *P* **741** *L* **19** # 186

Swenson, Norman — Point2; Infinera

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

"pose a negative discriminant" is obscure.

SuggestedRemedy

Change to "lead to a negative argument of the square root function"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
"pose a negative discriminant" appears 2 times in the draft, and is consistent with similar instances in existing 802.3 text, in 162.9.5.3.3 and 163.9.3.5. The current text It is not incorrect.

Cl **177** *SC* **177.4.1** *P* **316** *L* **30** # 189

Slavick, Jeff — Broadcom

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

Why do we call out that 200/400G don't alter the data stream? That is also possible for 800G/1.6T if no deskew of the data is needed.

SuggestedRemedy

Change ", the data stream is not altered" to "only the identification of the RS-symbol boundary is necessary.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
For 200G/400G, the data stream is not altered under any circumstances.

Cl **177** *SC* **177.4.1** *P* **316** *L* **35** # 172

Opsasnick, Eugene Broadcom

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

177.4.1 text refers to the figure 177-3 as an illustration and has a short introduction for the the first few blocks in theis figure but does not say anthing abou the "Symbol multiplexing" sub-bock.

SuggestedRemedy

Add a short description of the Symbol multiplexing block at the end of the last paragraph in 177.4.1. Something ilke: "After deskew, the PCS lanes are recombined by the symbol multiplexing function.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.1.4** *P* **317** *L* **53** # 174

Opsasnick, Eugene Broadcom

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

This NOTE is kind of true but not real reason the function is not required for 200G/400G -- the 800G and 1.6T PMAs above the Inner FEC also output lanes with 4-way interleaving. The real reason is that 200/400G PHYs do not require additional deskew between PCS lanes.

SuggestedRemedy

Remove this NOTE from 177.4.1.4 and add a NOTE to the end of 177.4.1.2 that mentions that dekew is not required for the 200/400GBASE-R PHYs because the SM-PMA above the Inner FEC already deskews the PCS lanes within PMA lane to a 4-codeword boundary.

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.2** *P* **318** *L* **6** # 78

Huang, Kechao Huawei

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

The title of subclause 177.4.1 has been changed to "Symbol demultiplexing and deskew"

SuggestedRemedy

Change "alignment lock and deskew process (see 177.4.1)" to "symbol demultiplexing and deskew process (see 177.4.1)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.2** *P* **318** *L* **7** # 203

Slavick, Jeff Broadcom

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

Add note that when PRBS31 payload mode is enabled the data boundary fed into the covolutioner interleaver is chosen by implementation

SuggestedRemedy

At the end of the first paragraph add "When using PRBS31 encoded by the Inner FEC test mode (see 177.4.9.1), the selection of the RS-FEC symbol-quartet boundary position is unspecified."

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.4.2** *P* **318** *L* **9** # 191

Slavick, Jeff Broadcom

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

The position of Q in the equation runs in to the RS-FEC symbols so it seems like we're talking about a Q RS-FEC potentially. Plus then it's the length "4 * Q" of the line times 2 or 1 or 0

SuggestedRemedy

Make Q the second operand in the equations so it's 4 x Q x 2 and 4 x Q x 1 RS-FEC symbols

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.4** *P* **319** *L* **4** # 79

Huang, Kechao Huawei

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

The word "Shift" should be changed to "shift"

SuggestedRemedy

Change it as suggested

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.4.7** *P* **321** *L* **29** # 48

Bruckman, Leon Nvidia

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

The sentence: "The first pad insertion will happen right at the beginning of Inner FEC codewords" is not clear, which "Inner FEC codewords" ? Which is "the first pad insertion" ?

SuggestedRemedy

Specify what "first pad insertion" means and which "Inner FEC codewords" you are referring to.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The referenced sentence is not necessary to accurately specify the behavior.
Delete the following sentence: "The first pad insertion will happen right at the beginning of Inner FEC codewords."

Cl **177** *SC* **177.4.7** *P* **321** *L* **32** # 252

Ran, Adee Cisco

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

The ratio listed here is between the line rate (including pad) and the nominal data rate after inner FEC encoding (excluding pad). The ratio holds not only for the nominal rates but also for the actual rate.

Comment #285 against D1.3 requested to add a ratio, but the intent was the ratio between bit rates at the input and output (in the transmit direction) of the inner FEC sublayer. This ratio has practical importance for implementations.

The inner FEC addition of parity bits results in a ratio of 128/120. The addition of pad bits multiplies this ratio by 1089/1088. The total ratio is the product of these ratios, which is 363/340.

SuggestedRemedy

Append the following sentence:
"The bit rate after pad insertion is 363/340 of the bit rate of the tx_symbol stream at the Inner FEC service interface."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The suggested remedy is an improvement. But the previous sentence should not refer to "nominal rate".

Change: "The ratio between the nominal rate before and after pad insertion is 1088/1089."
To: "The ratio between the rate before and after pad insertion is 1088/1089. The bit rate after pad insertion is 363/340 of the bit rate of the tx_symbol stream at the Inner FEC service interface."

Implement with editorial license.

Cl **177** *SC* **177.4.9.2** *P* **323** *L* **50** # 49

Bruckman, Leon Nvidia

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

Text shall indicate how the test pattern is enabled.

SuggestedRemedy

Add the following sentence to the end of the section: "If supported the PRBS13Q test pattern generator is enabled by the PRBS13Q_pattern_enable i control variable."
Add similar sentences to sections 177.4.9.3 to 177.4.9.5

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This is already covered in 120.5.11.2.1.

Cl **177** *SC* **177.5.3** *P* **325** *L* **35** # 50

Bruckman, Leon Nvidia

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

Wrong singular in sentence

SuggestedRemedy

Change: "The Inner FEC codeword boundaries found by synchronization is used"
To: "The Inner FEC codeword boundaries found by synchronization are used"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.5.6** *P* **326** *L* **34** # 125

Dudek, Mike Marvell

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

one bit errors" should be "one bit error"

SuggestedRemedy

Correct it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.5.6** *P* **327** *L* **6** # 51

Bruckman, Leon Nvidia

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

Bin counters are 0 to 3, not 1 to 3

SuggestedRemedy

Change: "(k = 1 to 3)" to: "(k = 0 to 3)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #24.

Cl **177** *SC* **177.5.6** *P* **327** *L* **7** # 24

Brown, Matt Alphawave Semi

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

A counter to count codewords with no corrected errors is required since there is no other way to derive this bin.

SuggestedRemedy

Change "k = 1 to 3" to "k = 0 to 3" and update Table 177-8 and Clause 45 accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Although bin 0 could be derived from the other bins and Inner_FEC_total_bits_counter, the suggested approach is cleaner.
Implement the suggested remedy.
Also, change "A set of three 32-bit counters" to "A set of four 32-bit counters" on line 5.

Cl **177** *SC* **177.5.6** *P* **327** *L* **9** # 25

Brown, Matt Alphawave Semi

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

For Inner_FEC_codeword_error_bin_k and Inner_FEC_uncorrected_cw_counter, to ensure that all codewords are accounted and only once each, add statement for each codeword processed exactly one of these bins is incremented.

SuggestedRemedy

Add a new sentence "For each codeword processed, exactly one counter in Inner_FEC_codeword_error_bin_k or Inner_FEC_uncorrected_cw_counter is incremented."
Add a similar statement in 184.5.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **177** *SC* **177.9** *P* **333** *L* **16** # 52

Bruckman, Leon Nvidia

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

Precoding control variables are missing from the MDIO tables

SuggestedRemedy

Add precoder_tx_out_enable_i to Table 177-7

Proposed Response *Response Status* **W**

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

Cl **177** *SC* **177.9** *P* **333** *L* **40** # 53

Bruckman, Leon Nvidia

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

In Table 177-8, there are 4 bin counters (0 to 3), last bin is missing. Also, it is hard to understand how the bin counters 0 to 3 are assigned.

SuggestedRemedy

Add reference to 1.2430 and 1.2431, update references for each of the other 7 lanes. Consider having a row for each bin counter, similar to the way they are refernces in Table 184-5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The suggested remedy is a good improvement. This also means that the MDIO register numbers for all FEC counters for lanes 1 to 7 in Table 177-8 are shifted/incorrect. Note that the MDIO register numbers for Inner_FEC_corrected_cw_counter (lane1) should be 1.2434 and 1.2435 (not 1.2430 and 1.2431).

Add reference to 1.2430 and 1.2431, update references for each of the other 7 lanes. Make a row for each bin counter, similar to the way they are references in Table 184-5.

Fix the register reference for Inner_FEC_corrected_cw_counter (lane1) and all following MDIO register numbers for Inner FEC counters for lanes 1 to 7 as appropriate.

Implement with editorial license.

Cl **178** *SC* **178.6** *P* **344** *L* **53** # 178

Swenson, Norman Point2; Infinera

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

Fix typo

SuggestedRemedy

Change 1.6TGBASE to 1.6TBASE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.8** *P* **347** *L* **29** # 175

Opsasnick, Eugene Broadcom

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

The PMD reset function subclause is missing from the 178.8 set of PMD funtions.

SuggestedRemedy

Subclause 178.8.10 "PMD reset function" should be added to describe the PMD reset functionality with same title and text as 179.8.10

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.8.2** *P* **346** *L* **44** # 187

Swenson, Norman Point2; Infinera

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

With the comma after MDI, this sentence reads like the electrical signals from the PMD transmit function of 179.8.2 are not delivered to the MDI. I believe the exception is that here they are delivered to the MDI according to the 178.9.2.7.

SuggestedRemedy

Remove the comma after MDI.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #255.

Cl **178** *SC* **178.8.2** *P* **346** *L* **44** # 255

Ran, Adee Cisco

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

In "are delivered to the MDI, according to the transmit electrical specifications in"
The comma is out of place. "according" is linked to "delivered".

Also in 178.8.3.

SuggestedRemedy

Delete the commas in both places.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.8.3** *P* **346** *L* **49** # 256

Ran, Adee Cisco

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

Incorrect reference to 178.9.2.7

SuggestedRemedy

Change to 178.9.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.9.2** *P* **348** *L* **9** # 225

Dawe, Piers Nvidia

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

Inconsistency

SuggestedRemedy

Change "Differential pk-pk voltage" to "Differential peak-to-peak voltage"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
There are 3 instances of "pk-pk" in the draft, but for clarity, it is preferable to use "peak-to-peak" consistently.
Change "pk-pk" to "peak-to-peak" in Table 178–6, Table 179–12, and Table 176D-11.
[CC 178, 179, 176D]

Cl **178** *SC* **178.9.2** *P* **348** *L* **13** # 257

Ran, Adee Cisco

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

In Table 178-6, DC common-mode voltage has max and min in separate rows. In Table 176D-1 it is a range, which is more readable.

SuggestedRemedy

Change to a range in a single row as in Table 176D-1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178** *SC* **178.9.2.7** *P* **351** *L* **12** # 152

Ghiasi, Ali Ghiasi Qunatum/Marvell

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

The reference pacakge A and B SDNR are known specific value

SuggestedRemedy

I belive these are the value in https://www.ieee802.org/3/dj/public/24_11/healey_3dj_01_2411.pdf page 5 at least for package A, for service to community reference SNDR should be provided

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The changes requested by the comment are examples of a fully specified calculation, and as such are not required for technical completeness.
Multiple values would be required, depending on package class and equalization setting.
The suggested remedy does not provide sufficient information for the editors to implement.

Cl **178** *SC* **178.9.3.4.3** *P* **354** *L* **25** # 54

Bruckman, Leon Nvidia

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

Missing space

SuggestedRemedy

Change: "174A.7.1or" to: "174A.7.1 or"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178A** *SC* **178A.1.7** *P* **758** *L* **24** # 179

Swenson, Norman Point2; Infinera

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

Formula for normalized frequency is wrong

SuggestedRemedy

Change \pi=f_b/2 to \theta=2\pi f/f_b

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "is normalized frequency in the range [-pi, pi) where pi = fb/2" to "is normalized frequency 2*pi*f/fb with range [-pi, pi)" with editorial license.
Note that the two definitions are functionally equivalent but this change is expected to more clearly show the relationship between normalized and absolute frequency.

Cl **178B** *SC* **178B** *P* **769** *L* **18** # 223

Dawe, Piers Nvidia

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

This annex does not mention Auto-Negotiation at all!

SuggestedRemedy

Explain the interaction between this annex and Clause 73 AN

Proposed Response *Response Status* **W**

PROPOSED REJECT.
There is no direct interaction between AN and ILT. AN determines which HCD PHY type to use then management configures the HCD PHY. If the PHY fails to achieve PCS_status = OK before the link_fail_inhibit_timer expires then then AN restarts the whole process. This is all captured in the AN arbitration state diagram Figure 73-11.

Cl **178B** *SC* **178B.5.2** *P* **772** *L* **24** # 74

Bruckman, Leon Nvidia

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

In Figure 178B-2 missing parenthesys closing in USE_TX_CLOCK(recovered

SuggestedRemedy

Change : "USE_TX_CLOCK(recovered" to: "USE_TX_CLOCK(recovered)" twice in Figure 178B-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178B** *SC* **178B.6.3.1** *P* **776** *L* **1** # 277

Ran, Adee Cisco

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

"The last two symbols of the training pattern are “0” symbols"

The length of the training pattern is not mentioned in this subclause (synchronous PRBS13 function), so "the last two symbols" are not defined properly (understanding it requires going back to the training frame structure).
A similar requirement is stated in the third paragraph of the parent subclause 178B.6.3. It is more detailed and well-defined, and it makes this statement redundant.

SuggestedRemedy

Delete the quoted sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178B** *SC* **178B.6.3.2** *P* **776** *L* **6** # 278

Ran, Adee Cisco

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

Comma before "during ILT" is not required.
Also, ILT is a function, not a period or a state. It could be "during training" or "during transmission of training frames".

SuggestedRemedy

Delete the comma, and change "during ILT" to "during training" or another appropriate term, with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete the comma, and change "during ILT" to "during training", with editorial license.

Cl **178B** *SC* **178B.7** *P* **778** *L* **27** # 275

Ran, Adee Cisco

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

Stray space in "free -running PRBS31"
4 instances

SuggestedRemedy

Change to "free-running PRBS31", 4 times

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "free -running PRBS31" to: "free-running PRBS31" in Tables 178B-2, 178B-3, 178B-4 and 178B-5.

Cl **178B** *SC* **178B.14.3** *P* **789** *L* **10** # 279

Ran, Adee Cisco

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

Missing period at the end of the last paragraph of the subclause (after "precoding").

SuggestedRemedy

Add a period.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **178B** *SC* **178B.14.3.1** *P* **789** *L* **53** # 280

Ran, Adee Cisco

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

local_rx_ready should be conditional on receiving a PAM4 signal (otherwise it can be set to true with the initial PAM2 modulated signal).
This is currently mentioned in 178B.6.3 but only in a NOTE (making it informative).

SuggestedRemedy

Change from
"when the receiver on a lane of the interface has determined that the ISL partner's transmitter is not disabled <...>"
to
"when the receiver on a lane of the interface has determined that the ISL partner's transmitter is transmitting a PAM4 signal <...>"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **178B** *SC* **178B.14.3.5** *P* **793** *L* **5** # 281

Ran, Adee Cisco

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

The text in 178B.6.3 (P774 L26) says:
"The training pattern selector is set to synchronous PRBS13 and the modulation to PAM2 upon entry to the QUIET state of the Training control state diagram (see Figure 178B–8)."
These settings have management variables associated with them, but assignments of these variables do not appear in the state diagram.
For completeness of the diagram, It is preferable to add them here too.

SuggestedRemedy

In the QUIET state of Figure 178B-8, add the assignments:
local_tp_mode <= synchronous PRBS13
local_mc_mode <= PAM2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **178B** *SC* **178B.15** *P* **796** *L* **26** # 9

Marris, Arthur Cadence Design Systems

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

Preset selction requires three bits

SuggestedRemedy

In Table 178B–6 for ic_req change "1.1120.13:12" to "1.1120.13:11"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179** *SC* **179.9.4.6.1** *P* **388** *L* **12** # 136

Calvin, John Keysight Technologies

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

The text at the end of this sentence "(e.g., it is preferable to measure jitter around points with high slope)." is missleading. The building of the jrms -vs- slewrate model depends on all edges to build an accurate model.

SuggestedRemedy

remove the example text "(e.g., it is preferable to measure jitter around points with high slope)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The comment states that the transitions selected should include multiple transitions; while the text that emphasizes the 03 and 30 transitions.
The suggested remedy addresses this claim only partly. The recommended choice of transitions should be changed.
The parenthesized text was meant to recommend that per transition, the threshold should be set to have the highest slope. However, this is not necessarily the right choice, and it was not included in the original proposal, so it should be removed.

Change from: "The set A should include multiple transitions from the symbol 0 to the symbol 3 and multiple transitions from the symbol 3 to the symbol 0. Other transitions may also be included"
To: "The set A should include multiple transitions between different PAM4 levels".

Delete "(e.g., it is preferable to measure jitter around points with high slope)".

Implement with editorial license.

Cl **179** *SC* **179.9.4.6.2** *P* **388** *L* **50** # 135

Calvin, John — Keysight Technologies

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

Equation 179-17 was intended to track the concensus reached with last sentence of page-5 of : https://www.ieee802.org/3/dj/public/25_01/calvin_3dj_01b_2501.pdf which cites the Root Mean Squared value would be used. We are missing the "Mean" from the equation 179-17. it needs to read Jnu03 = sqrt(1/2(jnu1^2 + jnu2^2).

SuggestedRemedy

edit the radicand to include a sqrt(1/2 (jnu1^2 + jnu2^2)) or alternatly remove the equation. The concept of RMS is broadly understood in the field of mathmatics and likely does not need an IEEE definition.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The equation is provided to prevent confusion between the RMS used here and JRMS. However, the comment identifies an error that needs to be be corrected.

Add the missing 1/2 factor inside the square root.

Cl **179** *SC* **179.9.5.3** *P* **392** *L* **40** # 264

Ran, Adee — Cisco

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

Footnote c of Table 179-11 states that
"The COM value is the target value for the SNRTX calibration defined in 179.9.5.3.3 item g). The SNRTX value
measured at the Tx test reference should be as close as practical to the value needed to produce the target COM." etc.
This statement is technically incorrect - the value measured is SNDR, and it is not changed to calibrate COM.
This footnote is only intended to state that passing the test with lower COM demonstrates margin.

SuggestedRemedy

Change the footnote text to:
"COM is calculated as defined in 179.9.5.3.3. Meeting the test requirements with a lower value of COM demonstrates margin to the specification but is not required for compliance."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The comment identifies an error that needs to be corrected.
Implement the suggested remedy with editorial license.

Cl **179** *SC* **179.11.2** *P* **398** *L* **52** # 226

Dawe, Piers — Nvidia

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

If Ildd > limit is unacceptable at 53.125 GHz it's even more unacceptable at 53 GHz. Usually we measure at 10 MHz steps; don't want to do another measurement just for this.

SuggestedRemedy

Change "at 53.125 GHz" to "from 50 GHz to 53.13 GHz". Make similar changes in other clauses.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The specification is consistent with several existing cable assembly and other IL specifications that are defined at the (possibly not fully accurate) Nyquist frequency.
As examples, the cable assembly ILdd is specified at 25.65 GHz in Table 162–18, at 1.5625 GHz in Table 54–6, at 12.8906 GHz in Table 92–10, and at 5.15625 GHz (5-digit decimal part) in Table 85–9.
The specified frequency was never an issue. Compliance testing may be performed in different ways, e.g., measurements at a 10 MHz frequency grid that includes the desired frequency.
The suggested change would not improve the quality of the draft.

[Editor's note: Changed page from 399 to 398]

Cl **179A** *SC* **179A.2** *P* **801** *L* **23** # 283

Ran, Adee — Cisco

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

Incorrect reference to 178.8.2

SuggestedRemedy

Change to 178.9.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179A** *SC* **179A.2** *P* **801** *L* **23** # 188

Swenson, Norman — Point2; Infinera

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

178.8.2 is, I believe, a typo. It should be 178.9.2.

SuggestedRemedy

Change 178.8.2 to 178.9.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179A** *SC* **179A.3** *P* **801** *L* **29** # 284

Ran, Adee Cisco

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

Incorrect reference to 178.8.3

SuggestedRemedy

Change to 178.9.3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179B** *SC* **179B.3.1** *P* **807** *L* **21** # 141

Sekel, Steve Wilder Technologies

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

Figure 179B-1 is labled "Test fixtures PCB reference insertion losses", however the text for the cable assemble test fixture (MCB) states that the loss include the PCB, connector and associated vias, so the "PCB" in the figure description caption is not valid

SuggestedRemedy

Delete the word "PCB" from Figure 179B-1 caption

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **179B** *SC* **179B.4.6** *P* **812** *L* **37** # 154

Ghiasi, Ali Ghiasi Qunatum/Marvell

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

Remove extra space after 58.x

SuggestedRemedy

Remove extra space after 58.x

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180** *SC* **180.4.2** *P* **419** *L* **40** # 55

Bruckman, Leon Nvidia

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

"Skew constraints for 200GBASE-DR1 and 400GBASE-DR2" seems to be the header of a section, but it is not formatted as that

SuggestedRemedy

Make: "Skew constraints for 200GBASE-DR1 and 400GBASE-DR2" a subsection of 180.4.2. Same for "Skew constraints for 800GBASE-DR4 and 1.6TBASE-DR8" in the next page line 6. Consistent with 182.4.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **180** *SC* **180.5.1** *P* **420** *L* **47** # 56

Bruckman, Leon Nvidia

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

Not clear why the reference is to ILT section 178B.14.2.1 that defines the state diagram variables.

SuggestedRemedy

Change the reference from: "178B.14.2.1" to: "Annex 178B".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **180** *SC* **180.9.1** *P* **431** *L* **34** # 96

Johnson, John Broadcom

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

Table 180-13 has an extra, empty line

SuggestedRemedy

Remove the extra line in Table 180-13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #22.

Cl **180** *SC* **180.9.1** *P* **431** *L* **34** # 57

Bruckman, Leon Nvidia

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

Empty row in table 180-13

SuggestedRemedy

Remove empty row from Table 180-13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #22.

Cl **180** *SC* **180.9.1** *P* **431** *L* **34** # 22

Brown, Matt Alphawave Semi

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

For Clause 182 and 183, pattern 7 is defined as valid xBASE-R signal with Inner FEC. A similar pattern should be defined for Clause 180 and 181, but without Inner FEC.

SuggestedRemedy

In Table 180-13 add new pattern 7 "Valid 200GBASE-R, 400GBASE-R, 800GBASE-R, or 1.6TBASE-R signal" and update Table 180-14 accordingly.
In Table 181-11, add new pattern 7 "Valid 800GBASE-R signal" and update Table 181-12 accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **180** *SC* **180.9.5.1** *P* **434** *L* **45** # 87

Johnson, John Broadcom

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

First word of Table 180-16, footnote (a), should be capitalized

SuggestedRemedy

Capitalize the first word of Table 180-16, footnote (a): "Dispersion …"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **180A** *SC* **180A** *P* **833** *L* # 19

Brown, Matt Alphawave Semi

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

The title of this annex is very long and not future-proof. Instead make title generic define the scope in a scope clause to limit to 3dj PHYs. Note that a similar approach is used in Annex 174A.

SuggestedRemedy

Change Annex title to: "MDIs for optical PHYs"
Change the title of 180A.1 to "Scope".
Add the following new subclause heading after the the first paragraph: "180A.2 Overview" encompassing the second paragraph and Table 180A-1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **180A** *SC* **180A.1** *P* **833** *L* **22** # 17

Brown, Matt Alphawave Semi

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

Big sentence. Break into two. Also, should be "Clause 180" and "Clause 182".

SuggestedRemedy

Change to: "The PMDs for 200GBASE-DR1, 400GBASE-DR2, 800GBASE-DR4, and 1.6TBASE-DR8 are specified in Clause 180. PMDs for 200GBASE-DR1-2, 400GBASE-DR2-2, 800GBASE-DR4-2, and 1.6TBASE-DR8-2 are specified in Clause 182."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **181** *SC* **181.1** *P* **442** *L* **13** # 34

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

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

As the 800GBASE-ER1/ER1-20 now uses the same PCS as other 800GBASE-R PHYs, it is inconsistent to call out the full name of the sublayer 800GBASE-R PCS

SuggestedRemedy

Replace "800GBASE-R PCS" with "PCS"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Clauses 181, 183, 184, 186, and 187 all specify sublayers that can only be used with the 800GBASE-R PCS. As such the existing "800GBASE-R PCS" label in these figures is not incorrect, and serves to remind the reader that the sublayer is specific to that rate based on the MII being specifically the 800GMII. This is consistent with other clauses (including 95, 119, 120A, 120F, 120G, 121, 123, 124, 150, 151, 154, 162, 163, 169, 172, 175) that similarly are limited to one specific rate. The generic "PCS" is only used when the generic xGMII is connected to the PCS, for example, in figures 1-1, 143-1, 176-1, 177-1, 178-1, 179-1 and 180-2. If a future task force extends any of these clauses to other rates, the figures can be made generic at that time.

Cl **181** *SC* **181.5.1** *P* **443** *L* **53** # 58

Bruckman, Leon — Nvidia

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

Not clear why the reference is to ILT section 178B.14.2.1 that defines the state diagram variables.

SuggestedRemedy

Change the reference from: "178B.14.2.1" to: "Annex 178B".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **181** *SC* **181.7.1** *P* **448** *L* **36** # 88

Johnson, John — Broadcom

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

RIN17.1OMA should have been changed to RINxxOMA per D1.3 comment #343 resolution.

SuggestedRemedy

Change "RIN17.1OMA" to "RINxxOMA" in Table 181-6.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **181** *SC* **181.9.1** *P* **455** *L* **42** # 265

Ran, Adee — Cisco

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

Table 181–12 has a row labeled "Over/under-shoot", which is a shorthand we should not use. The referenced subclause 181.9.7 is titled "Transmitter overshoot and undershoot" (and unfortunately has "over/under-shoot" in the text).
Also in the corresponding places in Clause 183.

Compare with Clause 180 which has "Transmitter overshoot and undershoot" consistently in the corresponding places.

SuggestedRemedy

Change "Over/under-shoot" to "Overshoot and undershoot" across the draft.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **181** *SC* **181.9.9** *P* **459** *L* **17** # 91

Johnson, John — Broadcom

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

A sentence should have been added to this sub-clause based on D1.3 comment #333 resolution.

SuggestedRemedy

Add the following sentence to the end of the paragraph:
"The extinction ratio is measured using waveforms captured at the output of the reference receiver defined in 181.9.5, before the reference equalizer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **181** *SC* **181.9.11** *P* **459** *L* **36** # 92

Johnson, John — Broadcom

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

Remove extra "the"

SuggestedRemedy

Change
"RINxxOMA of each lane, with “xx” referring to the 17.1, …"
to
"RINxxOMA of each lane, with “xx” referring to 17.1, …"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **182** *SC* **182.5.1** *P* **471** *L* **10** # 59

Bruckman, Leon — Nvidia

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

Not clear why the reference is to ILT section 178B.14.2.1 that defines the state diagram variables.

SuggestedRemedy

Change the reference from: "178B.14.2.1" to: "Annex 178B".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **182** *SC* **182.8** *P* **478** *L* **23** # 93

Johnson, John — Broadcom

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

The 182.8 sub-clause heading should be capitalized

SuggestedRemedy

Change "182.8 optical channel characteristics" to "182.8 Optical channel characteristics"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **182** *SC* **182.9.9** *P* **485** *L* **47** # 94

Johnson, John — Broadcom

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

A sentence should have been added to this sub-clause based on D1.3 comment #333 resolution.

SuggestedRemedy

Add the following sentence to the end of the paragraph:
"The extinction ratio is measured using waveforms captured at the output of the reference receiver defined in 182.9.5, before the reference equalizer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license

Cl **183** *SC* **183.1** *P* **492** *L* **13** # 35

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

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

As the 800GBASE-ER1/ER1-20 now uses the same PCS as other 800GBASE-R PHYs, it is inconsistent to call out the full name of the sublayer 800GBASE-R PCS

SuggestedRemedy

Replace "800GBASE-R PCS" with "PCS"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #34.

Cl **183** *SC* **183.5.1** *P* **494** *L* **5** # 60

Bruckman, Leon — Nvidia

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

Not clear why the reference is to ILT section 178B.14.2.1 that defines the state diagram variables.

SuggestedRemedy

Change the reference from: "178B.14.2.1" to: "Annex 178B".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change 178B.14.2.1 to 178B.4 in 180.5.1, 181.5.1, 182.5.1, and 183.5.1.

Cl **184** *SC* **184.1.2** *P* **516** *L* **30** # 36

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

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

As the 800GBASE-ER1/ER1-20 now uses the same PCS as other 800GBASE-R PHYs, it is inconsistent to call out the full name of the sublayer 800GBASE-R PCS

SuggestedRemedy

Replace "800GBASE-R PCS" with "PCS"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #34.

Cl **184** *SC* **184.2** *P* **518** *L* **3** # 99

Huber, Thomas — Nokia

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

The PHY 800GXS cannot be a client of the Inner FEC. By definition the PHY_XS goes all the way back to the MII, so it must connect to a PCS.

SuggestedRemedy

Remove "PHY 800GXS" from the block at the top of Figure 184-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **184** *SC* **184.3** *P* **519** *L* **24** # 100

Huber, Thomas — Nokia

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

The PHY 800GXS cannot be a client of the Inner FEC. By definition the PHY_XS goes all the way back to the MII, so it must connect to a PCS.

SuggestedRemedy

Remove "PHY 800GXS" from the first sentence of 184.3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **184** *SC* **184.3** *P* **519** *L* **25** # 176

Opsasnick, Eugene — Broadcom

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

The CL 184 Inner FEC requires 32 PCS lanes (for 800GE) as input at the Inner FEC service interface. Therefore the client sublayer above this Inner FEC cannot be a PHY 800GXS whose lower interface is an 800GMII.

SuggestedRemedy

Remove "PHY 800GXS" from this list of possible client sublayers. Also remove it from Figure 184-2 on page 518, line 3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **184** *SC* **184.3** *P* **519** *L* **38** # 101

Huber, Thomas — Nokia

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

It is not clear what is meant by the statements that FEC:IS_UNITDATA_i.request is the same as PMA:IS_UNITDATA_i.indication for the PMA 32:8, and FEC:IS_UNITDATA_i.indication is the same as PMA:IS_UNITDATA_i.request for the PMA 32:8. PMA:IS_UNITDATA_i.indication is a signal that comes from the sublayer below a PMA into the PMA, while FEC:IS_UNITDATA_i.request is a signal that the FEC sublayer sends to the sublayer below it. How can those be the same thing?

SuggestedRemedy

Rewrite these sentences to more clearly state what was intended.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: “FEC:IS_UNITDATA_i.request is the same as PMA:IS_UNITDATA_i.indication for the PMA 32:8 defined in 173.3.
FEC:IS_UNITDATA_i.indication is the same as PMA:IS_UNITDATA_i.request for the PMA 32:8 defined in 173.3.”

To: “FEC:IS_UNITDATA_i.request is the same as PMA:IS_UNITDATA_i.request for the PMA 32:8 defined in 173.2.
FEC:IS_UNITDATA_i.indication is the same as PMA:IS_UNITDATA_i.indication for the PMA 32:8 defined in 173.2.”

Cl **185** *SC* **185** *P* **544** *L* **10** # 21

Brown, Matt — Alphawave Semi

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

Figure 185-3 not needed for this PHY. This figure showing an xGMII Extender was included in 802.3cw and in Draft 1.3 Clause 187 because an xGMII extender was always needed to support an AUI. On the other hand, any 800GBASE-R PHYs may include a 800GMII extender. The 800GBASE-LR1 PHY uses a concatentated Inner FEC and supports one or two AUIs. Figure 185-2 should include one AUI to be complete.

SuggestedRemedy

Delete Figure 185-3 and in Figure 185-2 add one 800GAUI-n.

Proposed Response *Response Status* **W**

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

Cl **185** *SC* **185.3** *P* **544** *L* **20** # 266

Ran, Adee — Cisco

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

In Figure 185-3, the PMA above the PHY 800GXS does not have an incoming IS_SIGNAL.INDICATION primitive, which is required for the ILT function of the 800GAUI-n above it.

This primitive is defined implicitly for the PHY XS, through the IS_SIGNAL.request primitive of the PCS (which is defined in 116.3.3.3) and by the text of 171.3.

SuggestedRemedy

Add an upward arrow with label "PCS:IS_SIGNAL.indication" in Figure 185–3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #21.

Cl **185** *SC* **185.8.1** *P* **555** *L* **23** # 28

Issenhuth, Tom — Huawei

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

The parameters "Tx clock phase noise: total integrated random jitter" and "Tx clock phase noise: total periodic jitter" are in Table 185-5 and listed in 185.8 but are missing in Table 185-11.

SuggestedRemedy

Add the 2 parameters to Table 185-11 with a pattern of 5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.8.9** *P* **556** *L* **13** # 29

Issenhuth, Tom — Huawei

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

The parameter defintion includes "mean" in the subclause title and parameter description. Parameters definitions should not include mean/max/min. Multiple places in 185.8 and 187.8.

SuggestedRemedy

Remove all mean/max/min from the subclause titles and paramater descriptions in 185.8 and 187.8. With editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **185** *SC* **185.8.15** *P* **557** *L* **47** # 13

Brown, Matt — Alphawave Semi

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

Should refer to "block error ratio" rather than "codeword error ratio".

SuggestedRemedy

Change "codeword error ratio" to "block error ratio".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.1.1** *P* **564** *L* **10** # 61

Bruckman, Leon — Nvidia

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

800GBASE-ER1 is separated into two lines

SuggestedRemedy

Make the dash in "800GBASE-ER1" a non braking dash.
Apply the same for the whole clause

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.1.2** *P* **564** *L* **31** # 32

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

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

As the 800GBASE-ER1/ER1-20 now uses the same PCS as other 800GBASE-R PHYs, it is inconsistent to call out the full name of the sublayer 800GBASE-R PCS

SuggestedRemedy

Replace "800GBASE-R PCS" with "PCS"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #34.

Cl **186** *SC* **186.1.3** *P* **564** *L* **53** # 62

Bruckman, Leon — Nvidia

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

The term "ER1 FEC" is used only in thi paragraph and in one or two more places. Usually it is refered just as "FEC"

SuggestedRemedy

Make consistent use of "ER1 FEC" or just "FEC" throughout the clause

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
186.1.3 uses ER1 FEC to distingush from RS FEC.
Align later subclauses to this as appropriate.

Cl **186** *SC* **186.2.1** *P* **567** *L* **8** # 227

de Koos, Andras — Microchip Technology

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

Very minor! The rate of each PCS lane should be 26.5625 Gb/s, not 26.5624 Gb/s
25Gb/s *(257/256)*(544/514) = 26.5625 Gb/s
This seems to be a typo, since the correct value is used later on the same page in section 186.2.2

SuggestedRemedy

replace "26.5624 Gb/s" with "26.5625 Gb/s"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.1** *P* **567** *L* **15** # 63

Bruckman, Leon — Nvidia

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

Strange location of dot.

SuggestedRemedy

Remove the dot after "two flows"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.1** *P* **567** *L* **15** # 200

Slavick, Jeff — Broadcom

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

early . In the first sentence

SuggestedRemedy

Remove the . After flows

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.1** *P* **567** *L* **18** # 201

Slavick, Jeff — Broadcom

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

Extra sentence that is not needed as the previous sentence already states this.

SuggestedRemedy

Remove the "The two flows are then merged to form a single stream of 257b blocks."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.1** *P* **567** *L* **34** # 228

de Koos, Andras Microchip Technology

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

misplaced period in "The pad bits are removed and the CRC checking is performed. before the 257-bit blocks are distributed to eight lanes."

SuggestedRemedy

remove the period, or replace with a comma.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete the period

Cl **186** *SC* **186.2.1** *P* **567** *L* **34** # 205

Slavick, Jeff Broadcom

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

extranious .

SuggestedRemedy

Remove the . After "performed."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.1** *P* **567** *L* **36** # 206

Slavick, Jeff Broadcom

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

The , is really more than a comma

SuggestedRemedy

Change the "blocks, distributed" to "blocks and then distributed"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.3.1.1** *P* **568** *L* **16** # 207

Slavick, Jeff Broadcom

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

We've been using "identical to that specified" instead of "shall be as specified".

SuggestedRemedy

Change "shall be as specified" to "is identical to that specifid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall be as specified" to "is identical to that specified".

Cl **186** *SC* **186.2.3.1.2** *P* **568** *L* **20** # 208

Slavick, Jeff Broadcom

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

We've been using "identical to that specified" instead of "shall be as specified".

SuggestedRemedy

Change "shall be as specified" to "is identical to that specifid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall be as specified" to "is identical to that specified".

Cl **186** *SC* **186.2.3.1.3** *P* **568** *L* **24** # 209

Slavick, Jeff Broadcom

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

We've been using "identical to that specified" instead of "shall be as specified".

SuggestedRemedy

Change "shall be as specified" to "is identical to that specifid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall be as specified" to "is identical to that specified".

Cl **186** *SC* **186.2.3.1.4** *P* **568** *L* **28** # 210

Slavick, Jeff — Broadcom

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

We've been using "identical to that specified" instead of "shall be as specified".

SuggestedRemedy

Change "shall be as specified" to "is identical to that specifid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall be as specified" to "is identical to that specified".
Update wording to say some patterns are required and some are optional.

Cl **186** *SC* **186.2.3.1.5** *P* **568** *L* **32** # 211

Slavick, Jeff — Broadcom

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

We've been using "identical to that specified" instead of "shall be as specified".

SuggestedRemedy

Change "shall be as specified" to "is identical to that specifid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall be as specified" to "is identical to that specified".

Cl **186** *SC* **186.2.3.1.6** *P* **568** *L* **43** # 212

Slavick, Jeff — Broadcom

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

We've been using "identical to that specified" instead of "shall be as specified".

SuggestedRemedy

Change "shall be as specified" to "is identical to that specifid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.
Update wording to say some patterns are required and some are optional.

Cl **186** *SC* **186.2.3.5.5** *P* **573** *L* **10** # 103

Huber, Thomas — Nokia

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

The byte numbers for the MAP field are incorrect - per figure 186-6, MAP occupies bytes 6-9 rather than 7-10.

SuggestedRemedy

Correct the byte numbering.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.3.5.10** *P* **574** *L* **8** # 64

Bruckman, Leon — Nvidia

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

Missing "the"

SuggestedRemedy

Change: "were removed by Inverse RS FEC function"
To: "were removed by the Inverse RS FEC function"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "were removed by the Inverse RS FEC Tx function"

Cl **186** *SC* **186.2.3.5.10** *P* **574** *L* **8** # 65

Bruckman, Leon — Nvidia

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

257-bit breaks into two lines

SuggestedRemedy

Make the dash in "257-bit" a non braking dash. Same for section 186.2.4.6.5 first paragraph

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.3.5.10** *P* **574** *L* **18** # 214

Slavick, Jeff — Broadcom

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

The value corresponds to the block.

SuggestedRemedy

Change
"The value of this counter corresponding to the first non-stuff 257-bit block that is mapped into the payload area of the 800GBASE-ER1 tributary multi-frame is encoded into the AML field."

To:
"The AML field is encoded with the value of the counter for the first non-stuff 257-bit block that is mapped into the payload area of the 800GBASE-ER1 tributary multi-frame."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.2.3.5.10** *P* **575** *L* **47** # 213

Slavick, Jeff — Broadcom

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

When the feature is not supported or disabled the AML is 0.

SuggestedRemedy

Add "or not supported" after disabled.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "If the alignment marker location feature is disabled,"
To: "If the alignment marker location feature is not supported or not enabled,"

Cl **186** *SC* **186.2.3.5.11** *P* **576** *L* **1** # 229

de Koos, Andras — Microchip Technology

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

Is there a reason why the order of the am_sf<2:0> bits are not preserved into CSTAT<8:6>? Looks strange. Is the order intentional or is it an oversight?
Same comment for the receive direction in section 186.2.4.6.6

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The order is intentional, to align with the specifications in ITU-T G.709.1 and OIF 800ZR.

Cl **186** *SC* **186.2.3.8** *P* **577** *L* **10** # 104

Huber, Thomas — Nokia

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

Figure 186-9 is not as clear as it could be. The 1 182 480 bits are indicating the number of bits in the entire shaded area (minus the CRC32 and 64bit pad, i.e., 116x10280).

SuggestedRemedy

Shade the CRC32 and PAD areas differently from the main part of the frame. Make the 1 192 480 bits larger and put it on an angle so it is more clear that it refers to the entire shared area, not the block of 105 rows that are not shown. Add row numbers for the missing rows 5-8 and indicate the larger block in the middle as rows 9...113.

Proposed Response *Response Status* **W**

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

Cl **186** *SC* **186.2.4.6.5** *P* **581** *L* **26** # 215

Slavick, Jeff — Broadcom

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

When the feature is not supported or disabled the AML is ignored.

SuggestedRemedy

Add "or not supported" after disabled.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "When the alignment marker location feature is disabled,"
To: "When the alignment marker location feature is not supported or not enabled,"

[Editor's note: changed page/line from 575/47 to 581/26]

Cl **186** *SC* **186.3.1.3** *P* **583** *L* **18** # 80

Huang, Kechao — Huawei

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

In the transmit direction of 800GBASE-ER1 PMA functions, "interleaving" after Gray mapping is not required, as shown in Figure 186-12 (also see OIF 800ZR IA).

SuggestedRemedy

Change "Gray mapping, interleaving, and distribution of symbols for transmission" to "Gray mapping and distribution of symbols for transmission"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.3.1.3** *P* **583** *L* **39** # 81

Huang, Kechao Huawei

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

In the receive direction, symbol deinterleaving is not required.

SuggestedRemedy

Change "Polarization combining and symbol deinterleaving." to "Polarization combining."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.3.1.3** *P* **584** *L* **11** # 82

Huang, Kechao Huawei

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

In the receive direction of Figure 186-12, symbol deinterleaving is not required.

SuggestedRemedy

Change "Polarization combining and symbol deinterleaving" to "Polarization combining"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.3.3.1** *P* **586** *L* **39** # 83

Huang, Kechao Huawei

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

The gray mapping details are not the same as the adopted baseline, where even bits of each 8-bit block (c_8i,c_8i+1,c_8i+2,c_8i+3,c_8i+4,c_8i+5,c_8i+6,c_8i+7) should be mapped to X polarization and odd bits should be mapped to Y polarization, see page 16 of https://www.ieee802.org/3/dj/public/23_07/nicholl_3dj_02a_2307.pdf (also see OIF 800ZR IA)

SuggestedRemedy

Chang "(c_8i,c_8i+1)" to "(c_8i,c_8i+2)" in line 39;
chang "(c_8i+2,c_8i+3)" to "(c_8i+4,c_8i+6)" in line 40;
chang "(c_8i+4,c_8i+5)" to "(c_8i+1,c_8i+3)" in line 41;
chang "(c_8i+6,c_8i+7)" to "(c_8i+5,c_8i+7)" in line 42

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.3.3.1** *P* **587** *L* **7** # 84

Huang, Kechao Huawei

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

Even bits should be mapped to X polarization and odd bits should be mapped to Y polarization

SuggestedRemedy

Change "X: (c_8i,c_8i+1,c_8i+2,c_8i+3)" to "X: (c_8i,c_8i+2,c_8i+4,c_8i+6)" in line7, and change "Y: (c_8i+4,c_8i+5,c_8i+6,c_8i+7)" to "Y: (c_8i+1,c_8i+3,c_8i+5,c_8i+7)" in line8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.3.4.2** *P* **593** *L* **42** # 14

Brown, Matt Alphawave Semi

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

Should refer to "CRC error ratio" rather than "frame loss ratio".

SuggestedRemedy

Change "codeword error ratio" to "CRC error ratio".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.4.2.1** *P* **595** *L* **27** # 67

Bruckman, Leon Nvidia

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

Range of varaible usually indicated using "to" not a dash.

SuggestedRemedy

Change: "0-7" To: "0 to 7".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **186** *SC* **186.4.2.3** *P* **599** *L* **36** # 68

Bruckman, Leon Nvidia

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

In the definitions of raml_bad_cnt and zero_aml_cnt 800GBASE-ER1 includes an underscore instead of a dash

SuggestedRemedy

In the definitions of raml_bad_cnt and zero_aml_cnt change: "800GBASE_ER1" to: "800GBASE-ER1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **187** *SC* **187.1** *P* **615** *L* **20** # 30

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

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

In the ER / ER-1 PHYs the 800GBASE-R PCS is now used. This means that an AUI can be used optionally between the PCS and FEC sublayers. This is called out in this manner in Table 169-3a. Table 187-1 does not reflect this.

SuggestedRemedy

Add to Table 187-1
120F—800GAUI-8 C2C Optional (note c)
120G—800GAUI-8 C2M Optional (note c)
173—800GBASE-R BM-PMA Conditional (Note d)
176—800GBASE-R SM-PMA Conditional (Note d)
176C—800GAUI-4 C2C Optional (Note c)
176D—800GAUI-4 C2M Optional (Note c)

Note c - One or two 800GAUI-n may be instantiated within a 800GBASE-ER or 800GBASE-ER-1 PHY, as described in 176B.6.1.
Note d - If a 800GAUI-n is implemented in a PHY, additional 800GBASE-R BM-PMA or SM-PMA sublayers are required according to the guidelines in 176B.6.1.

Proposed Response *Response Status* **W**

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

Cl **187** *SC* **187.1** *P* **616** *L* **13** # 37

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

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

As the 800GBASE-ER1/ER1-20 now uses the same PCS as other 800GBASE-R PHYs, it is inconsistent to call out the full name of the sublayer 800GBASE-R PCS

SuggestedRemedy

Replace "800GBASE-R PCS" with "PCS"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #34.

Cl **187** *SC* **187.3** *P* **617** *L* **39** # 177

Opsasnick, Eugene Broadcom

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

PHY 800GXS can be removed from the legend in Figure 187-2 since that sublayer is not present in the diagram.

SuggestedRemedy

Remove the PHY 800GXS definiton from the figure legend, DTE and XS can also be removed since they also are not present in the diagram.

Proposed Response *Response Status* **W**

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

Cl **187** *SC* **187.6.1** *P* **623** *L* **51** # 71

Bruckman, Leon Nvidia

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

In Table 187-5 it is not clear which rows correspond to "Tx clock phase noise: phase noise mask frequency (max)"

SuggestedRemedy

Merge all the rows that correspond to "Tx clock phase noise: phase noise mask frequency (max)"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
There are 4 rows associated with "Tx clock phase noise: phase noise mask frequency (max)" and they all have different frequencies and associated values in dBc/Hz so they cannot be merged into a single row. The use of a single row in a Table with the parameter name and indented rows following with different values is consistent with similar Tables in 802.3-2022, see Table 121-7 and 140-7, and this draft, see Table 180-7.

Cl **187** *SC* **187.8.16** *P* **629** *L* **46** # 20

Brown, Matt
Alphawave Semi

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

In Draft 1.4 the 800GBASE-ER1 PCS was converted to a segmented FEC. There is now a possibility for AUIs within a PHY between the segmented FEC and the PCS. Also, a target CRC error ratio as measured at the receive decoder output, rather than frame loss ratio, may be used to define acceptable receiver performance.

SuggestedRemedy

Change "frame loss ratio requirement in 187.2" to "CRC error ratio in 187.2".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.