*Cl* **FM** *SC* **Front Matter** *P* **13** *L* **12** # 447

Dudek, Mike — Marvell

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

The clause # is not included.

*SuggestedRemedy*

Make it Clause 168.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **00** *SC* **0** *P* **0** *L* **0** # 63

Brown, Matt — Alphawave Semi

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

The PICS subclauses may not be in alignment with the specification in each clause. Grant editorial license to update as needed.

*SuggestedRemedy*

With editorial license, update the PICS subclause in each clause/annex as necessary to align with specifications within the clause/annex.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Note that comment #376 proposes to reduce the content in the PICS subclauses.
For any clauses with a PICS subclause, implement the suggested remedy with consideration of the adopted response to comment #376 with editorial license.
[Editor's note: CC: many clauses]

*Cl* **00** *SC* **0** *P* **8** *L* **34** # 67

Lusted, Kent — Synopsys

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

Missing the list of members in the balloting committee

*SuggestedRemedy*

Add the list of members in the balloting committee

*Response* *Response Status* **C**

ACCEPT.

*Cl* **1** *SC* **1.1.3.2** *P* **54** *L* **17** # 371

Ran, Adee — Cisco Systems

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

"The 1.6TMII is a logical interconnection intended for use as an intra-chip interface"
To me "interface" is formal and "interconnection" is practical/implementation.

(Other items that include this statement can be handled in maintenance)

*SuggestedRemedy*

Change to
"The 1.6TMII is a logical interface intended for intra-chip interconnection".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **1** *SC* **1.2.3** *P* **54** *L* **28** # 281

Huber, Thomas — Nokia

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

Since this amendment is introducing "1.6TBASE-R", clause 1.2.3 needs to be updated to include "T" meaning Tb/s.

*SuggestedRemedy*

Change the first sentence of the last paragraph of 1.2.3 from
The data rate, if only a number, is in Mb/s, and if suffixed by a “G”, is in Gb/s.
To
The data rate, if only a number, is in Mb/s, if suffixed by a "G", is in Gb/s, and if suffixed by a "T", is in Tb/s.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **1** *SC* **1.3** *P* **54** *L* **44** # 361

Kocsis, Sam — Amphenol

*Comment Type* **ER** *Comment Status* **A** *(bucket) (CG)*

Reference to OSFP is Revision 5.1, September 12, 2024 is outdated

*SuggestedRemedy*

Update reference to Revision 5.22, August 9, 2025

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **1** *SC* **1.3** *P* **54** *L* **51** # 362

Kocsis, Sam — Amphenol

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

The reference to REF-TA-1011 is normative, but the document iteself is informative. There are no direct references to REF-TA-1011 in 802.3dj, and any of the relevant information would be covered in SFF-8665 or SFF-TA-1027, or 1031.

*SuggestedRemedy*

Remove the reference to "REF-TA-1011 Rev 1.1.7, July 11, 2025, Cross Reference to Select SFF Connectors and Modules."

*Response* *Response Status* **C**

ACCEPT.

*Cl* **1** *SC* **1.4** *P* **59** *L* **19** # 68

Lusted, Kent — Synopsys

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

In the base specification IEEE Std. 802.3-2022 page 204, the definition of "Channel Operating Margin (COM)" points to Clause 93A.1). There needs to be a reference to the COM in Annex 178A

*SuggestedRemedy*

Bring 1.4.237 Channel Operating Margin (COM): into the draft and add a reference to Annex 178A

*Response* *Response Status* **C**

ACCEPT.

*Cl* **1** *SC* **1.4.24aa** *P* **55** *L* # 54

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

1.4.24aa is not the correct subclause number. Instead it should be immediately before 1.4.101a "200GBASE-CR2" as inserted by IEEE Std 802.3ck-2022.

*SuggestedRemedy*

Change the subclause number per comment with editorial license.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **1** *SC* **1.5** *P* **59** *L* **50** # 69

Lusted, Kent — Synopsys

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

SCMR is used 12 times throughout the draft as an abbreviation for Signal to AC common-mode noise ratio. It is not listed in the abbreviations in Cl 1.5

*SuggestedRemedy*

Add abbrevation for SCMR as follows:
SCMR Signal to AC common-mode noise ratio

*Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **30.5.1.1.2** *P* **64** *L* **48** # 490

Slavick, Jeff — Broadcom

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

Need to add new speeds into the Behavior description.

*SuggestedRemedy*

Add 800GBASE-R and 1.6.TBASE-R to the laundry list of enumerations used when PMD type is unkown in the last paragraph of BEHAVIOR DEFINED AS: for aMAUType

*Response* *Response Status* **W**

ACCEPT.

*Cl* **30** *SC* **30.5.1.1.4** *P* **64** *L* **0** # 460

Slavick, Jeff — Broadcom

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

The data rates 800G & 1.6T needs to be added to the behavior.

*SuggestedRemedy*

Add 800Gb/s and 1.6Tb/s to the seventh paragraph for the behavior of aMediaAvailable.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **30** *SC* **30.5.1.1.12** *P* **64** *L* **0** # 461

Slavick, Jeff — Broadcom

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

The data rates 800G & 1.6T needs to be added to the behavior.

*SuggestedRemedy*

Add 800Gb/s and 1.6Tb/s to the behavior of aLaneMapping

*Response* *Response Status* **W**

ACCEPT.

*Cl* **30** *SC* **30.5.1.1.17** *P* **64** *L* **0** # 462

Slavick, Jeff — Broadcom

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

The data rates 800G & 1.6T needs to be added to the behavior. Also to 30.5.1.1.18

*SuggestedRemedy*

Add 800Gb/s and 1.6Tb/s to the behavior of aFECCorrectedBlocks and aFECUncorrectedBlocks

In the SYNTAX sections the increment rate for 800Gb/s would be 160 000 000 and 320 000 000 for 1.6T/s
In the BEHAVIOR sections add 800 to list of xxxGBASE-R PHYs and in 1.6TBASER PHYs to the list as well.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **30** *SC* **30.6.1.1.7** *P* **65** *L* **0** # 489

Slavick, Jeff — Broadcom

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

Clause 73 uses more than just the base page to indicate which technologies are available.

*SuggestedRemedy*

aAutoNegReceivedTechnologyAbility behavior needs to update this sentence:
For Clause 73 Auto-Negotiation, this attribute maps to bits D10-D13 and D21-D47 of the last received link codeword Base Page (see 73.6).

To:

For Clause 73 Auto-Negotiation, this attribute maps to bits of the last received link codeword Base Page and/or Message code 2 Next Page (see 73.6).

*Response* *Response Status* **W**

ACCEPT.

*Cl* **45** *SC* **45** *P* **71** *L* # 372

Ran, Adee — Cisco Systems

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

The MDIO interface registers are practically irrelevant in implementations of the PHYs and sublayers defined in this amendment. Configuration is done using software management interfaces that do not necessarily use the same register addresses, and possibly do not use a register map at all.

The functionality required by management is defined by the management variable list in each clause; the mapping to register addresses in clause 45 has no added value.

Maintaining clause 45 is an extremely tedious task and is a waste of editors' and reviewers' time. Eventually, it is likely not read by any user of the standard.

*SuggestedRemedy*

Remove clause 45 and all references to it, including register addresses, from this amendment.

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **45** *SC* **45.2.1** *P* **71** *L* **48** # 457

Slavick, Jeff — Broadcom

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

Time Sync Inner FEC or ER1 is not the sub clause title

*SuggestedRemedy*

Remove "TimeSync Inner FEC or ER1" from the two rows in Table 45-3 at lines 48 and 49

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Replace "TimeSync Inner FEC or ER1 FEC" with "TimeSync FEC"

*Cl* **45** *SC* **45.2.1.8** *P* **77** *L* **6** # 339

Simms, William NVIDIA

*Comment Type* **E** *Comment Status* **R** *(bucket) (L)*

table 45-12 name vs section header inconsistent with table 45-14 and its section header

*SuggestedRemedy*

change table 45-12 title to Transmit disable register description location

*Response* *Response Status* **C**

REJECT.
The table title "Table 45–12—Transmit disable description location" matches what is in the base standard.

*Cl* **45** *SC* **45.2.1.10** *P* **77** *L* **34** # 340

Simms, William NVIDIA

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

title capitalization difference with table title

*SuggestedRemedy*

make 45.2.1.10 "PMA/PMD Extended Ability register" 'or' Table 45-14 "PMA/PMD extended ability register bit definitions"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change table title to be lower case "extended ability".

*Cl* **45** *SC* **45.2.1.175** *P* **97** *L* **42** # 458

Slavick, Jeff Broadcom

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

This clause now includes Inner FEC/ER1 FEC.

*SuggestedRemedy*

Update PMA/PMD be FEC/PMA/PMD in the sub-clause title and text and references to this sub-clause (e.g. Table 45-3)

*Response* *Response Status* **W**

ACCEPT.

*Cl* **45** *SC* **45.2.1.258** *P* **110** *L* **29** # 282

Huber, Thomas Nokia

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

The registers in this subclause are used by both the "Inner FEC" and the "ER1 FEC", but the Name field is "Inner FEC", and Description is "Inner_FEC_..." Since the ER1 FEC is not an "inner FEC", the description should be generalized. This issue exists in subclauses 45.2.1.259, 45.2.1.260, and 45.2.1.261 also.

*SuggestedRemedy*

Change the Name column from "Inner FEC…" to "Inner FEC or ER1 FEC…"
Change the Description column from "Inner_FEC_..." to "FEC_..."

*Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.272** *P* **118** *L* **15** # 491

Slavick, Jeff Broadcom

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

Title of this section does not need the word "duplication" as this is not a duplicate of another set of registers with the same information. It is a distinct set of registers that have the same function as other defined registers but for a different instance.

*SuggestedRemedy*

Remove "Duplication of" from the name of 45.2.1.272

*Response* *Response Status* **W**

ACCEPT.

*Cl* **45** *SC* **45.2.1.272** *P* **118** *L* **19** # 492

Slavick, Jeff — Broadcom

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

What registers are they duplicates of?

*SuggestedRemedy*

Update the range of the ILT register space copy to be the first 4000 registers and use a 4000 register area of the map.

Update the text of 45.2.1.272 from:
Inter sublayer training requires control registers for the upper and bottom AUI components. The upper AUI component has the same control functionality as the bottom AUI component so the relevant registers are duplicated with an address offset of 4000.

To:
Inter sublayer training requires control registers for the upper and bottom AUI components. Registers 1.4000 through 1.7999 have identical functionality to the register 1.0 through 1.3999 (address offset of 4000). The relevant registers from 1.0 through 1.3999 are used of control and status of the bottom AUI component. The relevant registers from 1.4000 through 1.7999 are used for control and status of the upper AUI component.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **73** *SC* **73** *P* **136** *L* **3** # 199

Bruckman, Leon — Nvidia

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

After adding the Host class to Autonegotiation, the base standard introduction to AN in 73.1 needs to be updated.

*SuggestedRemedy*

In 73.1
Change: "The Auto-Negotiation function allows an Ethernet device to advertise modes of operation it possesses to another device at the remote end of a Backplane Ethernet link and to detect corresponding operational modes the other device may be advertising."
To: "The Auto-Negotiation function allows an Ethernet device to advertise modes of operation it possesses and its characteristics to another device at the remote end of a Backplane Ethernet link and to detect corresponding operational modes and characteristics the other device may be advertising."

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change the text to:
"The Auto-Negotiation function allows an Ethernet device to advertise characteristics and modes of operation it possesses to another device at the remote end of a Backplane Ethernet link and to detect corresponding operational modes and characteristics that the other device may be advertising".

*Cl* **73** *SC* **73.6.1.1** *P* **139** *L* **2** # 373

Ran, Adee
Cisco Systems

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

The text of this clause includes "will" twice, and in both cases it seems like a normative requirement (so should be "shall").
There are several other instances of "will" in the document; they should be checked for compliance with the SA style manual ("will is only used in statements of fact") and changed if necessary. The suggested remedy lists some instances, and excludes instances for which I checked that "will" is appropriate.

*SuggestedRemedy*

Change "will" to "shall" twice in this subclause.
Check (and correct if necessary, e.g. to "is" or variants) other instances of "will" in clauses 73, and in 177.4.6, 177.5.2, 180.10.4, 184.4.9, 185.10.4, 186.2.3.3, 186.2.3.5.9, 186.2.3.8, 186.2.4.7.5, 187.10.4, 174A.10.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The style manual states the following: "The word will is deprecated and shall not be used when stating mandatory requirements; will is only used in statements of fact."
The two "will"s mentioned in 73.6.1.1 along with the one in 73.6.1.2 are in the base standard and so should be left as is.
The "will"s in 177.4.6, 177.5.2, 186.2.3.3 are statements of fact, so should remain.
The "will"s in 186.2.3.5.9 and 186.2.3.8 have been reviewed and are considered to be correct as written.
In 174A.10 the "will"s are consequences and should remain.
In 186.2.4.7.5 change "will need" to "are".
In 180.10.4, 185.10.4, and 187.10.4 change "will be met" to "are met".
The "will"s in in 184.4.9 delete the word "will".

*Cl* **73** *SC* **73.9.1.1** *P* **147** *L* **44** # 200

Bruckman, Leon
Nvidia

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

Missing word

*SuggestedRemedy*

Change: "one of values" to: "one of three values"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **73** *SC* **73.11.4.5** *P* **153** *L* **13** # 341

Simms, William
NVIDIA

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

just a sanity check on the wording in quotes in the Value/Comment field of the table

*SuggestedRemedy*

should the langauge in quotes be removed?

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove the text in quotes "Recognized as end of link partner's Next Pages"

*Cl* **73A** *SC* **73A.1a** *P* **696** *L* **36** # 194

Bruckman, Leon
Nvidia

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

Host class is not negotiated, but it is part of an autonegotiation page. This may create confusion

*SuggestedRemedy*

Add footnote to Table 73A-1b: Host class is only reported, no negotiation is required."

*Response* *Response Status* **C**

ACCEPT.

*Cl* **116** *SC* **116.3.3.3.1** *P* **171** *L* **18** # 334

Mascitto, Marco
Nokia

*Comment Type* **E** *Comment Status* **R** *anagement intervention (CG)*

A value of FAIL will require management intervention. Recommend stating this explicitly.

*SuggestedRemedy*

Add sentence, "Management intervention is required".

*Response* *Response Status* **C**

REJECT.
For this case, the value FAIL may not indicate the need for management intervention since for this case ILT as defined in Annex 178B is not supported. It would therefore not be generally correct. Also, the statement would in a small way affect legacy clauses.

*Cl* **116** *SC* **116.3.3.3.1** *P* **171** *L* **33** # 335

Mascitto, Marco Nokia

*Comment Type* **E** *Comment Status* **A** *anagement intervention (CG)*

A value of FAIL will require management intervention. Recommend stating this explicitly.

*SuggestedRemedy*

Add sentence, "Management intervention is required".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
In the instance, a value of FAIL is likely initiated by the ILT state diagram. Also, since it is stated for "IN_PROGRESS" and "TRAINING" it is stated "Management intervention is not required." It would to provide complementary guidance for the FAIL value. Also, there is the possibility in some implementations that management intervention is not required.
Add sentence:
"Management intervention might be required."

*Cl* **116** *SC* **116.3.3.3.1** *P* **171** *L* **34** # 201

Bruckman, Leon Nvidia

*Comment Type* **T** *Comment Status* **A** *anagement intervention (CG)*

For the values of SIGNAL_OK = READY or IN_PROGRESS, it is specified that "Management intervention is not required".
When SIGNAL_OK = FAIL, management intervention may be required, but this is not indicasted.

*SuggestedRemedy*

Add the following text to the end of definition of the FAIL value of SIGNAL_OK: "Management intervention may be required.".
Also in the second paragraph in page 172, at the end of the paragraph that starts: "A value of FAIL indicates…" add the following text: "and management intervention may be required."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the responses to comment #335 and #336.

*Cl* **116** *SC* **116.3.3.4.1** *P* **172** *L* **5** # 466

Slavick, Jeff Broadcom

*Comment Type* **T** *Comment Status* **A** *ucket) service interface (CG)*

FAIL status is the state presented if none of the other states apply. The text states that FAIL is when communication is not established. But the states of IN_PROGRESS and READY would meet that FAIL criteria too as they have yet to establish communication.

*SuggestedRemedy*

Change "or has not establisshed communication"
To "or is unable to establish communication"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
In contrary to the comment, "READY" is defined indicating "that communication with the next higher sublayer is established but communication with an upper ISL has not completed".
"IN_PROGRESS" is defined as indicating "that the sublayer is establishing communication with the next higher
sublayer" and thus communication is not established. So there is some ambiguity here.
The distinction is that the attempt to establish communication was unsuccessful.
On page 172 line 5...
Change "or has not established communication"
To "or is unable to establish communication"

*Cl* **116** *SC* **116.3.3.4.1** *P* **172** *L* **8** # 336

Mascitto, Marco Nokia

*Comment Type* **E** *Comment Status* **A** *anagement intervention (CG)*

A value of FAIL will require management intervention. Recommend stating this explicitly.

*SuggestedRemedy*

Add sentence, "Management intervention is required".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The addition statement applies on to the last sentence in this paragraph which implies that ILT is in use. Also, there is the possibility in some implementations that management intervention is not required.
Append the last sentence in the paragraph with "and management intervention might be required."

*Cl* **116** *SC* **116.5** *P* **177** *L* **11** # 493

Slavick, Jeff — Broadcom

*Comment Type* **TR** *Comment Status* **R** *(bucket) (CG)*

Can we move footnote d to the same place as foonote b?

*SuggestedRemedy*

In Table 116-8
Change "(UI)b" to "(UI)b,d"
Remove the words "at this Skew point" from the footnote d definition.

*Response* *Response Status* **W**

REJECT.
The footnote applies only to SP1 through SP6. It does not apply to "at PCS receive" since the extra delay due to the source PMA codeword interleaving has been removed by the destination PMA.

*Cl* **118** *SC* **118.1** *P* **179** *L* **40** # 342

Simms, William — NVIDIA

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

observation that associated clauses are not completely in increasing order

*SuggestedRemedy*

note that clause 78 is at bottom of list in table 118-a (and also table 118-b) rather than at top.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Clause 78 was placed at the bottom of Table 118-a and Table 118-b to be consistent with the approach taken in previous projects (Clauses 84, 85, 86, 87, 88, etc). However for the equivalent tables being added in this project, the clauses are now listed in numerical clause order (Clauses 179, 180, 181, 182, etc...) . For consistency it makes sense to reoder Tables 118-a and 118-b in numerical clause order, and do the same for Tables 171-1 and 171-1a.

Reorder Table 118-a and Table 118-b in numerical clause order.

Reorder Table 171-1 and Table 171-1a in numerical clause order.

*Cl* **119** *SC* **119.2.1** *P* **184** *L* **7** # 498

Opsasnick, Eugene — Broadcom

*Comment Type* **E** *Comment Status* **R** *(bucket) (L)*

The term "data units" should not be hyphenated unless it is functioning as a compound adjective directly before a noun.

Hyphanated example: "The network handles a high volume of data-unit transfers.".

Non-hyphenated example: "The network transmits many data units."

Although both forms, hyphenated and non-hyphenated, are used throughout the base standard, the new clauses in 802.3dj as well as updates to previous clauses should use the correct form. Note that "data units" is used 22 times throughout D2.1 of 802.3dj, and 119.2.1 contains the only two occurance of "data-units". In the base standard 802.3-2022, "data units" is used 51 times and "data-units" is used 34 times (which should also be fixed.). A maintenance request can be submitted to fix the base standard if this comment is accepted.

*SuggestedRemedy*

Change "data-units" to "data units" in the update to the fourth pargraph of 119.2.1. The first sentence should be changed
From:
"Transmit data-units are sent to the service interface via the PMA:IS_UNITDATA_i.request primitive."
To:
"Transmit data units are sent to the service interface via the PMA:IS_UNITDATA_i.request primitive."

The second sentence should be changed
From:
"The SIGNAL_OK parameter of the PMA:IS_SIGNAL.request primitive is set to OK when the transmit data-units are valid and is set to FAIL otherwise."
To:
"The SIGNAL_OK parameter of the PMA:IS_SIGNAL.request primitive is set to OK when the transmit data units are valid and is set to FAIL otherwise."

*Response* *Response Status* **C**

REJECT.

The comment correctly points out that in the context of 119.2.1 the correct term is "data units" and not "data-units". However, Clause 119 and the majoity of the legacy PCS clauses (49, 82, 97, 126 and 149) use the term "data-units". Note, this issue has been addressed in the recent PCS clauses , where Clauses 172 and 175 correctly use "data units".

However this project is only amendning 119.2.1 to add two sentences at the end of the fourth paragrpah. The term "data-units" was used for the new text being added for consistency with the other three occurances of "data-units" in 119.2.1 (in the first sentence

of the fourth paragraph, and in the fifth and sixth paragraphs). In addition it is noted that comment #675 against D2.0 (https://www.ieee802.org/3/dj/comments/D2p0/8023dj_D2p0_comments_final_id_v2.pdf) changed "data units" to "data-units" for the next text being added, for consistency with the other three occurances of 119.2.1 (that are not being amended).

The suggested remedy would change the first sentence of the fourth paragraph, which is technically out of scope. In addition to changing text that is technically out of scope, the suggested remedy would result in two occurances of "data units" and two occurances of "data-units" within 119.2.1, which is likely to attract additional comments (simlar to comment #675 against D2.0). It is preferrable to use "data-units" for the new sentence being added, for consistency with the three other occurances of "data-units" in 119.2.1. A maintenance request can be submitted to fix this issue globally for all applicable occurances of "data-units" in all of the impacted PCS clauses (including Clause 119).

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*Cl* **119** *SC* **119.2.5.3** *P* **185** *L* **11** # 455

Slavick, Jeff — Broadcom

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

Error marking needs to be more explicit about corrupting which 66b blocks following an uncorrected codeword are the ones from the same decoder. In 800G and 1.6T those could be later in the flow of 66-bit blocks at the MII interface and not the ones directly after 66-bit blocks from the uncorrectable block.

*SuggestedRemedy*

Change:
then the first four 66-bit blocks following the uncorrected codewords shall also be set to an error block.

To:
then the first four 66-bit blocks of the following set of two associated codewords processed by the Reed-Solomon decoder shall also be set to an error block.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change:
"... then the first four 66-bit blocks following the uncorrected codewords shall also be set to an error block."

To:
"... then the first four 66-bit blocks from the next two associated codewords processed by the Reed-Solomon decoder shall also be set to an error block to account for the possible error propagation by the descrambler."

Implement with editorial license.

---

*Cl* **119** *SC* **119.3.4a** *P* **187** *L* **4** # 374

Ran, Adee — Cisco Systems

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

The new counter is optional. The text says "The following optional counter may be implemented for these PHY types" followed by a list of PHYs - but obviously it is permitted ("may equals is permitted to") to implement the counter in any PCS; the same PCS can be part of different PHYs (e.g. depending on the module type). So the restricted list does not make sense.
Removing the restriction would make the counter simply optional. Adding an optional feature to an existing specification is not a violation of scope - it has been done before (e.g., EEE, TimeSync) and we are doing similar things in this project (e.g. adding optional stateless encoder and decoder).

Similarly for 119.3.4b FEC_codeword_error_bin_i

*SuggestedRemedy*

Change "The following optional counter may be implemented for these PHY types:" to "The following counter is optional".
Implement similar change in 119.3.4b.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **174** *SC* **174.2.5** *P* **263** *L* **32** # 500

Opsasnick, Eugene Broadcom

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

The term "1.6TAUI-n" is used to represent either a 1.6TAUI-8 or a 1.6TAUI-16. "1.6TAUI-n" is usually used a singular noun as in the first sentence of 174.2.5, line 31 that states "A 1.6 Tb/s Attachment Unit Interface (1.6TAUI-n) provides an electrical interface ....". However in the second sentence on line 32, the same term is used as a plural noun which sounds funny. The standard should stick to using "1.6TAUI-n" as a singular noun whenerver possible.

*SuggestedRemedy*

Change the second sentence of 174.2.5
From:
"1.6TAUI-n are defined for chip-to-chip (C2C) and chip-to-module (C2M) implementations."
To:
"Two widths, 8-lane and 16-lane, of 1.6TAUI-n are defined for chip-to-chip (C2C) and chip-to-module (C2M) implementations."

Change the last sentence of 174.4.5
From: "1.6TAUI-n are instantiated within a Physical Layer implementation as described in 176B.7"
To:
"Each 1.6TAUI-n is instantiated within a Physical Layer implementation as described in 176B.7".

Similar changes should be made to 169.2.4a for the updates to the summary of the 800GE architecture.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy, including the suggested changes to 169.2.4a, with editorial license.

*Cl* **174** *SC* **174.2.5** *P* **263** *L* **35** # 501

Opsasnick, Eugene Broadcom

*Comment Type* **E** *Comment Status* **R** *(bucket) (CG)*

The list of the 4 types of 1.6TAUI-n on lines 35-41 should be presented as a dashed list. This would be consistent with similar lists of AUIs in 118.1.3 , and 171.4.

The similar list of 800-GAUI-n in 169.2.4a should also be changed to a dashed list.

*SuggestedRemedy*

Change:
"The 1.6TAUI-16 C2C is specified in Annex 120F.

The 1.6TAUI-16 C2M is specified in Annex 176D.

The 1.6TAUI-8 C2C is specified in Annex 176C.

The 1.6TAUI-8 C2M is specified in Annex 176D."

To:
"
- The 1.6TAUI-16 C2C is specified in Annex 120F.
- The 1.6TAUI-16 C2M is specified in Annex 176D.
- The 1.6TAUI-8 C2C is specified in Annex 176C.
- The 1.6TAUI-8 C2M is specified in Annex 176D."

In 169.2.4a on page 199, starting on line 51, change the four separate paragraphs of 800GAUI-n types to a dashed list.
Change:
"The 800GAUI-8 C2C is specified in Annex 120F.

The 80GAUI-8 C2M is specified in Annex 120G.

The 800GAUI-4 C2C is specified in Annex 176C.

The 800GAUI-4 C2M is specified in Annex 176D"

To:
"
- The 800GAUI-8 C2C is specified in Annex 120F.
- The 80GAUI-8 C2M is specified in Annex 120G.
- The 800GAUI-4 C2C is specified in Annex 176C.
- The 800GAUI-4 C2M is specified in Annex 176D"

*Response* *Response Status* **C**

REJECT.
The proposed changes would make the formatting of 174.2.5 inconsistent with the other subclauses under 174.2. The proposed changes do not improve the clarity or accuracy of the draft.

*Cl* **174A** *SC* **174A.6** *P***717** *L***43** # 240

He, Xiang Huawei

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

Is it really necessary to specify CRC error ratio to three digits?

*SuggestedRemedy*

Consider to keep only two digits like all other error ratios.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The extra two digits will have insignificant impact on the the FLR which is specified with 2 significant figures.
Change "5.706E-11" to "5.7E-11".

---

*Cl* **174A** *SC* **174A.8.2** *P***720** *L***6** # 456

Slavick, Jeff Broadcom

*Comment Type* **TR** *Comment Status* **R** *(bucket) (CG)*

optical clauses are using block error ratio methods in the "recevier functional test". In 174A8.2 we talk about splitting the data based "p physical lanes". But for example in FR4 there's only one phyiscal lane (fiber) but you have the data flowing over mulitple lanes (wavelengths) in that single physical lane.

*SuggestedRemedy*

remove the word physical

change physical to input/output

*Response* *Response Status* **W**

REJECT.
For WDM duplex PMD types, each wavelength is a physical lane.
As an example, the overview in 183.1 says that for 800GBASE-FR4 and 800GBASE-LR4 "The PMDs provide point-to-point 800 Gb/s Ethernet links over four wavelength division multiplexing (WDM) lanes on single-mode fiber". It never refers to the fiber a being a lane.

---

*Cl* **174A** *SC* **174A.8.2** *P***720** *L***8** # 241

He, Xiang Huawei

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

The number of physical lanes is p, so the index i should be in the range" 0 through p-1", instead of "0 through p".

*SuggestedRemedy*

Change "p" to "p-1"

*Response* *Response Status* **W**

ACCEPT.

---

*Cl* **174A** *SC* **174A.8.2** *P***720** *L***9** # 242

He, Xiang Huawei

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

"test_block_error_bin_i_k" is used in other clause, instead of "test_block_error_count_i_k".
Change "count" to "bin".
Do the same for "test_block_error_count_i_16p".

*SuggestedRemedy*

Change "count" to "bin" for "test_block_error_bin_i_k" and "test_block_error_count_i_16p".

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change "test_block_error_count_i_k"
To "test_block_error_bin_i_k"
Change "test_block_error_count_i_16p"
To: "test_block_error_bin_i_16p"
Implement with editorial license.

---

*Cl* **174A** *SC* **174A.8.3** *P***720** *L***16** # 410

Ran, Adee Cisco Systems

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

174A includes many instances of "histogram". This term is potentially misleading for readers because its typical meaning uses counts, not probabilities.
To avoid going into more precise but less common mathematical terms, I suggest (based on https://www.itl.nist.gov/div898/handbook/eda/section3/histogra.htm) using the term "Relative histogram". To minimize disruption to the text, the existing term can be retained, but a clarification should be provided.

*SuggestedRemedy*

Add the following informative NOTE after the first paragraph of 174A.8.3:
NOTE--Within this annex, the term "histogram" denotes an array that holds values normalized such that the sum of the values is one. This is sometimes referred to as a relative histogram.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **174A** *SC* **174A.8.3** *P* **720** *L* **39** # 243

He, Xiang Huawei

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

In Equation 174A-1 and 174A-2, "test_block_error_count_i_k" should be "test_block_error_bin_i_k".

*SuggestedRemedy*

Change "test_block_error_count_i_k" to "test_block_error_bin_i_k" in Equation 174A-1 and 174A-2.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Note that comment #242 proposed to rename the counters where they are defined in 174A.8.2.
Implement the suggested remedy with editorial license.

*Cl* **174A** *SC* **174A.8.4** *P* **720** *L* **52** # 244

He, Xiang Huawei

*Comment Type* **TR** *Comment Status* **R** *(bucket) (CG)*

#Definition of k#
Are we defining the variables at the first appearance and use this definition across this Annex? Or the definition varies from subclause to subclause?
For example, if k is defined in 174A.8.2, where it says k is "in the range 0 through 15" (line 9) and again in 174A.8.3 as "k<16" (line 19), but in 174A.8.4 it has "k = 16" (line 52)? If this is a different k, we need to define it locally in this subclause (and in each subclause it is used). Otherwise we should stick to "0 through 15" as the range for "k".

*SuggestedRemedy*

Define the range of k clearly in the beginning, adding something like "k in the range 0 through 15 in Annex 174A", if this is the same k across this Annex. Do not redefine it, or at least use the same definition whenever it is used.

*Response* *Response Status* **W**

REJECT.
This location as well as page 720 line 19 are not defining k, but rather defining the counts or histograms differently for different subranges of k. The indexing of the counters is unfortunately complicate because we named the 17th counter differently then the rest so is not conveniently indexed (see page 720 line 9).
The definitions of k are otherwise consistent and correct. The proposed remedy does not improve the clarity.

*Cl* **174A** *SC* **174A.8.5** *P* **721** *L* **29** # 245

He, Xiang Huawei

*Comment Type* **TR** *Comment Status* **R** *(bucket) (CG)*

#Definition of k#
“for all k>0” meaning "0<k<16" or "0<k<n"? Is 16 included?

*SuggestedRemedy*

Define the range of k clearly in the beginning, adding something like "k in the range 0 through 15 in Annex 174A", if this is the same k across this Annex. Do not redefine it, or at least use the same definition whenever it is used.

*Response* *Response Status* **W**

REJECT.
Resolve using the response to comment #244.

*Cl* **174A** *SC* **174A.8.7** *P* **722** *L* **3** # 55

Brown, Matt Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

"AUI component" is a new term introduced in 802.3dj.

*SuggestedRemedy*

Add a nomenclature subclause in Annex 174A and provide a definition for AUI component using the definition from 178B.3. Implement with editorial license.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **174A** *SC* **174A.10.4** *P* **725** *L* **8** # 246

He, Xiang Huawei

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

The range for "i" is not clearly defined. While reading this I was confused whether this is only for the test channel or should this include the possible AUI's in the PHY receiver under test. If it is only PMD, then total lane number is p - we should clearly state that, and remove "or AUI component" in step b). If it includes the possible AUIs in the PHY receiver, the total number of lanes would be p + N*n, where N is the number of AUIs?

*SuggestedRemedy*

Specify the total number of lanes to be considered, i.e. range of "i" in this subclause.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
The method defined in 174A.10.4 is for the entire PHY receive path as measured at the PMD inputs and is not relevant to the AUI or AUI components.
Change "the PMD or AUI component" to "the PMD".
Change "For each lane i" to "For each PMD input lane i"

*Cl* **174A** *SC* **174A.12** *P* **726** *L* **4** # 211

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CG)*

In Figure 174A-6, the spans labelled "Physical Layer implementation" were meant to illustrate the portion of this block diagram that is within the Physical Layer, similar to the spans for PHY and xMII extender.

*SuggestedRemedy*

In Figure 174A-6, change "Physical Layer implementation" to "Physical Layer" in two places.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **174A** *SC* **174A.12** *P* **727** *L* **34** # 451

Dudek, Mike — Marvell

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

The PMD link BER is wrong in figures , 174A-9. and a74A-10. The BERs do not add correctly to the PCS-toPCS path allocation. It is stated correctly as 2.28e-4 in Table 174A-1.

*SuggestedRemedy*

Change "2.76e-4" to "2.24e-4" in these two figures.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Table 174A-1 specifies BER of 2.28E-4 for the PMD link.
In Figure 174A-9 and Figure 174A-10 change the PMD link BER allocation to 2.28E-4.
[Editor's note: Changed line from 14 to 34]

*Cl* **174A** *SC* **174A.12** *P* **729** *L* **30** # 279

Kutscher, Noam — Marvell

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

Line 30 & 33 are the same line –'xAUI-n C2Cb'

*SuggestedRemedy*

Delete one of them.

*Response* *Response Status* **C**

REJECT.
Each row in Table 174A-2 represents one ISL in a PCS-to-PCS path. There is one xAUI-n C2C link at one end, a PMD link in the middle, and another xAUI-n C2C link at the other end. The sum of allocations to these links is equal to the net allocation to the PCS-to-PCS path. The table is correct as is. A similar approach is taken in Table 174A-1.

*Cl* **174A** *SC* **174A.12** *P* **729** *L* **48** # 213

Brown, Matt — Alphawave Semi

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

BER for the XS-to-XS path is 2.21E-4. However, the total allocation to the two ISLs withing an XS-to-XS path (xMII extender) is 0.34. So there is significant margin. The allocation to the XS-to-XS path is based on the FLR allocated to the XS-to-XS path capability of the RS-FEC. The allocation to the xAUI-n is based on the specified limits for permitted xAUI-n, the sum of which is much lower than necessary to meet the FLR target. A note for the reader to explain this would be helpful as it is not obvious.

*SuggestedRemedy*

In Table 174A-3, add a table note related to the XS-to-XS path BER allocation as follows: "The BER allocation for the XS-to-XS path is based on the FLR target and the capability of the RS-FEC while the BER per ISL is based on the specified limits for permitted xAUI-n C2C and C2M, which were constrained by their respective specifications. This results in a significant BER margin for the XS-to-XS and PCS-to-FEC paths."

*Response* *Response Status* **C**

ACCEPT.

*Cl* **174A** *SC* **174A.12** *P* **729** *L* **48** # 212

Brown, Matt — Alphawave Semi

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

BER specified for xAUI-n C2C in Table 174A-3 (0.1E-4) is larger than that specified in the preceding tables for PHYs. For the latter, the numbers provided are the limits for the xAUI-n defined in Annex 176C and Annex 176D which were chosen to leave sufficient BER allocation for the PMD. For the the xMII Extender however there is room for excess BER on the C2C. The value 0.1E-4 is thus used allowing use of 50 Gb/s per lane (Annex 120D) and 100 Gb/s per lane xAUI-n (Annex 120F) xAUI-n C2C which are specified to 0.1E-4. A note for the reader to explain this would be helpful as it is not obvious.

*SuggestedRemedy*

In Table 174A-3, add a table note related to the C2C "A value of 0.1E-4 rather than 0.08E-4 is allocated to an xAUI-n C2C in an xMII Extender since there significant BER margin and this allows the use of an xAUI-n defined in Annex 120D or Annex 120F to be used without reducing the specified BER limit."

*Response* *Response Status* **C**

ACCEPT.

*Cl* **175** *SC* **175.2.4.7** *P* **285** *L* **5** # 343

Simms, William NVIDIA

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

"round robin" instead of "round-robin" used elsewhere in document

*SuggestedRemedy*

change "round robin" to "round-robin" also on line 8

*Response* *Response Status* **C**

ACCEPT.

*Cl* **175** *SC* **175.2.5.5** *P* **288** *L* **32** # 71

Wienckowski, Natalie IVN Solutions LLC

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

Boolean variables are not "deasserted", they are set to "false".

*SuggestedRemedy*

Change: It is deasserted when rx_am_sf<1> is deasserted
To: It is set to false when rx_am_sf<1> is deasserted

*Response* *Response Status* **C**

ACCEPT.

*Cl* **175** *SC* **175.2.5.5** *P* **288** *L* **37** # 72

Wienckowski, Natalie IVN Solutions LLC

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

Boolean variables are not "deasserted", they are set to "false".

*SuggestedRemedy*

Change: It is deasserted when rx_am_sf<2> is deasserted
To: It is set to false when rx_am_sf<2> is deasserted

*Response* *Response Status* **C**

ACCEPT.

*Cl* **175** *SC* **175.2.5.7** *P* **288** *L* **53** # 423

Nicholl, Shawn AMD

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

Currently, there is a note (in 175.2.4.3) for mapping to OTN. But no corresponding note for demapping from OTN.

*SuggestedRemedy*

At the end of "175.2.5.7 Block collection", add "Note -- The stream of 257-bit blocks generated by this process is used as the reference signal for de-mapping from OTN."

*Response* *Response Status* **C**

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

*Cl* **175** *SC* **175.2.6.2.2** *P* **290** *L* **8** # 73

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

In 175.2.5.7, add to the end of the definition of amps_lock<x>:
"The value of amps_lock<x> is set by the alignment marker lock state diagram (see Figure 119-12)."
Implement with editorial license.

*Cl* **175** *SC* **175.2.6.2.2** *P* **290** *L* **42** # 74

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Modify the definition of the reset variable by adding: ", and is false otherwise." to end of the last sentence.
Implement with editorial license.

*Cl* **175** *SC* **175.3** *P* **293** *L* **34** # 378

Ran, Adee — Cisco Systems

*Comment Type* **E** *Comment Status* **R** *(bucket) (L)*

FEC degrade is part of the PCS functionality. It should be under 175.2 PCS functions. Similarly for Loopback in 175.4.

*SuggestedRemedy*

Move 175.3 and 175.4 to become subclauses of 175.2.

*Response* *Response Status* **C**

REJECT.
The whole clause is the definition of the PCS functionality. Subclause 175.2 describes the PCS top-level interfaces and TX and RX data manipulations mainly for "normal flow" of data.". Loopback functionality does not fall into this category for 175.2 and should remain as a separate subclause at the same level as 175.2 (as is also done in other PCS clauses such as 119 and 172). FEC degrade has a portion that is performed in the TX path and a portion that is performed in the RX path, and these are described in 172.2.2 (TX functionality) and 172.2.3 (RX functionality). Subclause 175.3 is used at this level to tie the two parts of the FEC degrade feature together and act as an anchor for other clauses to reference.

*Cl* **175** *SC* **175.3** *P* **293** *L* **40** # 377

Ran, Adee — Cisco Systems

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

"FEC degrade detection is specified in 175.2.5.3. FEC degrade detection is optional." 175.2.5.3 does not specify FEC degrade detection; it only changes the definition of the counters (and thus modifies the criteria for detection). This subclause is the specification of the Reed-Solomon decoder, and it refers to the original specification in 119.2.5.3 - that is where FEC degrade is actually defined. A direct reference would be friendly for the reader.

*SuggestedRemedy*

Change to "FEC degrade detection is specified in 119.2.5.3 with the exception listed in 175.2.5.3. FEC degrade detection is optional."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

[Editor's note: changed page from 287 to 293]

*Cl* **175** *SC* **175.7** *P* **295** *L* **3** # 6

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

Editor's note expire's after Draft 2.1.

*SuggestedRemedy*

Delete editor's note.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **175** *SC* **175.8** *P* **295** *L* **17** # 59

Brown, Matt — Alphawave Semi

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

The MDIO interface and register addressing is obsolete. In devices of this complexity that structure does not suffice and proprietary register maps and APIs are provided. For new clauses in 802.3dj the various management variables are defined within the clause and listed in management variable tables. References to optional MDIO registers and references in Clause 45 are provided.

*SuggestedRemedy*

Delete all references to register mappings and descriptions in Clause 45 and, where necessary, include necessary heuristics in the clause that uses the management variables. Alternately, define a new management variable clause that defines the variable heuristics, e.g., number of bits, R/W, clear-on-read, without specific addressing or assumed register sizes (i.e., define by name, not address).
Applies to clauses 45, 178 through 183, and annexes 176C and 176D.

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **175** *SC* **175.9.4.2** *P* **299** *L* **11** # 8

Brown, Matt — Alphawave Semi

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

The PCS lane number is captured to a management variable, which would then be mapped to MDIO or alternate register as defined in 175.8.

*SuggestedRemedy*

For RF2, change the Feature to "PCS lane number is captured
to a management variable" and in the Status column change "MD:M" to "M".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **175** *SC* **175.9.4.4** *P* **300** *L* **31** # 7

Brown, Matt — Alphawave Semi

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

The management PICS do not align well with the specifications. The management variables are defined at the end of the clause. The subclause specifies management variables, not management objects. It specifies an "alternate" not "equivalent" mechanism if MDIO is not implemented. The "alternate" method is mandatory, not optional, if MDIO is not implemented.

*SuggestedRemedy*

Move 179.9.4.4 "Management", to the end of 179.9.4.
In M1, change feature to "Alternate access to PCS management variables is provided" and change status to "MD:M".
For Clause 176 through Clause 187, Annex 176C, and Annex 176D, align the PICS with the updated 179.9.4.4 and including *MD in the "Major capabilities/options" subclause.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Note that the suggested remedy refers to 179.9.4.4 and 179.9.4, but those references should be to 175.9.4.4 and 175.9.4.
Implement the suggested remedy with editorial license and with consideration of the resolution of comment #376 which suggests removing most of the PICS content.
[Editor's note: CC 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 176C, 176D]

*Cl* **176** *SC* **176.2** *P* **306** *L* **29** # 354

Swenson, Norman — Nokia, Point2

*Comment Type* **ER** *Comment Status* **A** *(bucket) (L)*

"When the client sublayer is an xAUI-n"… An AUI has never (to my knowledge) been defined as a sublayer, but rather a physical instantiation of a service interface. If we are going to treat it as a sublayer now, we need to formally state that.

*SuggestedRemedy*

Clarify whether we are treating xAUI-n as a sublayer.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
The comment correctly points out that the AUI is not defined as a sublayer.
Change from:
"When the client sublayer is an xAUI-n, each instance of tx_symbol and rx_symbol takes on one of four values... "
To:
"When there is an xAUI-n above the PMA, each instance of tx_symbol and rx_symbol takes on one of four values "

Additionally, there are other instances in Clause 176 where an AUI is referred to as a sublayer.
- 176.3, Page 307, Line 38
- Fig 176-2, footnotes c and d.

Make changes to all instances in Clause 176 where an AUI is referred to as a sublayer.
Implement with editorial license.

*Cl* **176** *SC* **176.4.2** *P* **311** *L* **10** # 283

Huber, Thomas — Nokia

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

The AMs provide both the RS FEC symbol boundary and the RS FEC codeword boundary

*SuggestedRemedy*

Change the beginning of the 3rd sentence from:
"This also identifies the RS-FEC symbol boundary and allows the PCSLs to then be deskewed and aligned to a multiple-symbol or codeword boundary…"
to
"This also identifies the RS-FEC symbol boundary and RS-FEC codeword boundary and allows the PCSLs to then be deskewed and aligned to a multiple-symbol or codeword boundary..."

*Response* *Response Status* **C**

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

*Cl* **176** *SC* **176.4.4.2.1** *P* **320** *L* **54** # 75

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of reset to keep it consistent with comments #74 - reset is a special case.
Modify the definition of the reset variable by adding: ", and is false otherwise." to end of the last sentence.
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **321** *L* **7** # 76

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of the align_status_mux variable from:
"Boolean variable that is set to true when PCS lane synchronization is complete. It indicates that all_locked_mux is true and deskew is complete."
To:
"Boolean variable that indicates the alignment marker lock and deskew processes are complete. Its value is set by the PMA multiplex synchronization state diagram (see Figure 176-10)."
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **321** *L* **21** # 77

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of the pcs_lanes_identified_mux variable from:
"Boolean variable that is set to true if each input lane is locked to a unique alignment marker sequence identified using the alignment markers in Table 119–1 for 200GBASE-R, Table 119–2 for 400GBASE-R, Table 172–2 and Table 172–3 for 800GBASE-R, or Table 175–2 for 1.6TBASE-R PMAs."
To:
"Boolean variable that is set to true if each input PCS lane is locked to a unique alignment marker sequence identified using the alignment markers in Table 119–1 for 200GBASE-R, Table 119–2 for 400GBASE-R, Table 172–2 and Table 172–3 for 800GBASE-R, or Table 175–2 for 1.6TBASE-R PMAs. It is set to false upon entering the LOSS_OF_ALIGNMENT state in the PMA multiplex synchronization state diagram (see Figure 176-10)."
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **321** *L* **42** # 78

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of all_locked_demux from:
"Boolean variable that is set to true when pmal_locked_demux<y> is true for all y. For y = 0 to (n–1)."
To:
"Boolean variable is set to true when pmal_locked_demux<y> is true for all y, where y = 0 to (n-1), which indicates all PCS lanes within all PMA lanes have achieved alignment marker lock. Otherwise, this variable is set to false."
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **321** *L* **48** # 79

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definitiion of pcs_lanes_identified_demux
From:
"Boolean variable that is set to true if all demultiplexed PCS lanes are locked to a unique alignment marker sequence identified using the alignment markers in Table 119–1 for 200GBASE-R, Table 119–2 for 400GBASE-R, Table 172–2 and Table 172–3 for 800GBASE-R, or Table 175–2 for 1.6TBASE-R PMAs."
To:
"Boolean variable that is set to true if all demultiplexed PCS lanes are locked to a unique alignment marker sequence identified using the alignment markers in Table 119–1 for 200GBASE-R, Table 119–2 for 400GBASE-R, Table 172–2 and Table 172–3 for 800GBASE-R, or Table 175–2 for 1.6TBASE-R PMAs. It is set to false upon entering the LOSS_OF_SYMBOL_LOCK state in the PMA demultiplex symbol lock state diagram (see Figure 176-11)."

*Cl* **176** *SC* **176.4.4.2.1** *P* **321** *L* **52** # 80

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definiintion of pmal_locked_demux<y>
From:
"Boolean variable that is set to true when amps_lock<x> is true, as defined in 119.2.6.2.2, for all PCSLs within the single input lane in the demultiplexing direction. For y = 0 to (n–1)"
To:
"Boolean variable that is set to true when amps_lock<x> is true, as defined in 119.2.6.2.2, for all PCSLs within the single input PMA lane y in the demultiplexing direction, and is set to false otherwise. For y = 0 to (n–1)."
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **322** *L* **5** # 81

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This variable definition actually explains how the restart_lock variable in Fig. 119-12 gets replaced by the restart_lock_demux<y> variable for use in the CL 176 data flow. This is already explained in 176.4.3.2.3.
Remove restart_lock from the state diagram variable definitions in 176.4.4.2.1.
Remove similar redundant definition of restart_lock in the multiplexing direction in 176.4.4.2.1 and add a description of restart_lock for the multiplexing direction in 176.4.2.2 similar to the description in 176.4.3.2.3.
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **322** *L* **10** # 82

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of restart_lock_demux<y>
From:
"Boolean variable that is set to true in the SYMBOL_LOCK_RESTART and SLIP_CONTROL states to restart the alignment marker lock processes for the PCSLs within a single input lane in the demultiplexing direction. For y = 0 to (n–1)."
To:
"Boolean variable that is used to restart the alignment marker lock processes for the PCSLs within the single input lane y in the demultiplexing direction, where y = 0 to (n–1). Its value is set by the PMA demultiplex symbol lock state diagram (see Figure 176-11)."
Implement with editorial license.

*Cl* **176** *SC* **176.4.4.2.1** *P* **322** *L* **17** # 83

Wienckowski, Natalie — IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description of the use.

*SuggestedRemedy*

Change: For y = 0 to (n–1).
To: It is set to true for y = 0 to (n–1). Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of symbol_lock_counter_demux<y>
From:
"Boolean variable that indicates that the symbol_lock_counter_demux<y> has reached its terminal count. For y = 0 to (n–1).",
To:
"Boolean variable that is set to true when the counter symbol_lock_counter_demux<y> has reached its terminal count, and is set to false when starting the counter (see figure 176-11). For y = 0 to (n–1)."

Implement with editorial license.

*Cl* **176** *SC* **176.12** *P* **337** *L* **3** # 64

Brown, Matt — Alphawave Semi

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

Per editor's note, the PICS is incomplete.

*SuggestedRemedy*

Complete the PICS with editorial license and delete editor's note.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with consideration of the resolution to comment #376 which suggests removing most of the PICS content.

*Cl* **176c** *SC* **176c.6.3.7** *P* **771** *L* **52** # 346

Simms, William — NVIDIA

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

RLcd is defined but RLdc is used for equation and plot

*SuggestedRemedy*

Change RLcd to RLdc in the definition

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #344

*Cl* **176C** *SC* **176C.6.4.6** *P* **776** *L* **33** # 306

Healey, Adam — Broadcom, Inc.

*Comment Type* **TR** *Comment Status* **A** *(bucket) RX JTOL (E)*

The jitter tolerance test procedure defined in Annex 176C is not consistent with the test procedure defined in Clause 178. There is no obvious reason why the test procedures should differ.

*SuggestedRemedy*

Align the jitter tolerance test procedure defined in 176C.6.4.6 with the jitter tolerance test procedure defined in 178.9.3.5.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
The addition of additive broad-band noise to calibrate COM in the jitter tolerance test (comment #496 against D2.0, see <https://www.ieee802.org/3/dj/comments/D2p0/8023dj_D2p0_comments_final_id.pdf#page=129>) was implemented in clause 178 but not in the other clasues, although that was obviously the intent.

Apply changes corresponding to the resolution of comment #496 in clause 179, annex 176C, and annex 176D.
Implement with editorial license.

*Cl* **176C** *SC* **176C.7** *P* **781** *L* **17** # 413

Ran, Adee — Cisco Systems

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

The references for RLcd and for maximum AC-coupling frequency point to 176C.7.4 and 176C.7.5, which in turn point to subclauses of clause 178 with no modification.
There are other references pointing directly to clause 178. The chain of references can be eliminated here too.
(ILdd and ERL are exceptions; these specifications have different values or parameters).

*SuggestedRemedy*

Replace the references in these rows to point directly at the specifications in clause 178, and delete the subclauses in this annex.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **176C** *SC* **176C.7.3** *P* **781** *L* **1** # 412

Ran, Adee
Cisco Systems

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

Stray space in "an d"

*SuggestedRemedy*

Change to "and".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **176D** *SC* **176D.6.4** *P* **790** *L* **47** # 3

Brown, Matt
Alphawave Semi

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

Editor's note expire's after Draft 2.1.

*SuggestedRemedy*

Delete editor's note.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **176D** *SC* **176D.6.4** *P* **791** *L* **39** # 4

Brown, Matt
Alphawave Semi

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

Editor's note expire's after Draft 2.1.

*SuggestedRemedy*

Delete editor's note.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **176D** *SC* **176D.6.5** *P* **792** *L* **5** # 5

Brown, Matt
Alphawave Semi

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

Editor's note expire's after Draft 2.1.

*SuggestedRemedy*

Delete editor's note.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **176D** *SC* **176D.7.1** *P* **794** *L* **21** # 310

Healey, Adam
Broadcom, Inc.

*Comment Type* **E** *Comment Status* **A** *(bucket) Figure labels (E)*

The term "die-to-die channels" is used but the term "die" is not in IEEE Std 802.3 (or in the IEEE P802.3dj draft). "Device" has been used instead e.g., in the Channel Operating Margin reference model.

*SuggestedRemedy*

Change "die-to-die channels" to "device-to-device channels". Make the same change in Figure 176D-6.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
"Device-to-Device channel" has not been used anywhere in 802.3 or in presentations. The editor suspects that this term would be more confusing that "die-to-die".
However, the terms "die-to-die" and "end-to-end" that appear in 176D.7 and subclause can be made more specific, using the named test points.

In the first sentence of 176D.7, change from "the channel between the C2M components is not specified from end to end" to "the channel between the C2M components is not specified".
In 176D.7.1, change "The insertion loss of the host, module, and die-to-die channels is not expected to be measurable" to "The insertion losses of the host channel, the module channel, and the TP0d-TP1d and TP4d-TP5d channels are not expected to be measurable".
In Figure 176D-6, change the label "Die-to-die" to "TP0d-TP1d and TP4d-TP5d".
Implement with editorial license.

*Cl* **176D** *SC* **176D.7.1** *P* **794** *L* **25** # 275

Kutscher, Noam
Marvell

*Comment Type* **T** *Comment Status* **R** *(bucket) Figure labels (E)*

The point in the center is not well defined. What is it? cage? HCB?

*SuggestedRemedy*

Add an explanation of the location to which the arrows point.

*Response* *Response Status* **C**

REJECT.
The NOTE at the bottom of the figure states "For loss budgeting purposes, the connector is considered part of the host". The arrows representing the channels indicate that; the connector (labeled) is within the host channel.
As noted in the subclause text, these losses are not expected to be measurable.
It is not clear whether additional explanation is necessary, and what it should be.
The suggested remedy does not provide sufficient detail to implement.

*Cl* **176D** *SC* **176D.8.13.2** *P* **805** *L* **23** # 307

Healey, Adam — Broadcom, Inc.

*Comment Type* **TR** *Comment Status* **A** *(bucket) ITOL/JTOL (E)*

The first sentence of the note below Table 176D-10 states the following. "For a module input test, ADD and sigmaRJ calculated from pattern generator measurements using Equation (179-14) and Equation (179-15) can be higher than the values in Table 176D-7. In this case, a suitable channel should be chosen in order to meet the COM requirement with these higher values." This suggests that a receiver is permitted to be tested with a transmitter that is far outside the limits imposed on compliant transmitters. It also relies on the Channel Operating Margin (COM) calculation being able to correctly evaluate the penalty caused by transmitters with high jitter. The COM calcuation uses a first-order approximation of the noise due to transmitter jitter and the accuracy of this approximation can be expected to degrade for higher levels of jitter. Therefore, it seems likely trade-offs between channel loss/noise and jitter may not a evaluated accurately. The test transmitter, including the added sinusoidal jitter, should be required to meet the JRMS and Jnu03 specifications or the degree to which the test transmitter is allowed to exceed the specifications should be limited.

*SuggestedRemedy*

Remove the first sentence of the note. The requirements of 176D.8.12.2 (referred to by 176D.8.13.2) item d) are then expected to apply.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #308.

*Cl* **177** *SC* **177.1.1** *P* **339** *L* **12** # 189

Bruckman, Leon — Nvidia

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

Text can be simplified. As an example see similar text in 176.1.1

*SuggestedRemedy*

Change: "When necessary for disambiguation, to differentiate the Inner FEC defined in this clause"
To: "When necessary to differentiate the Inner FEC defined in this clause"

*Response* *Response Status* **C**

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

*Cl* **177** *SC* **177.1.1** *P* **388** *L* **13** # 504

Opsasnick, Eugene — Broadcom

*Comment Type* **ER** *Comment Status* **A** *(bucket) (L)*

Redundant language should be simplified.

*SuggestedRemedy*

Change:
"When necessary for disambiguation, to differentiate the Inner FEC defined in this clause from the 800GBASE-LR1 Inner FEC defined in Clause 184, the terms ..."
To:
""When necessary to differentiate the Inner FEC defined in this clause from the 800GBASE-LR1 Inner FEC defined in Clause 184, the terms ..."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **177** *SC* **177.1.3** *P* **339** *L* **12** # 506

Opsasnick, Eugene — Broadcom

*Comment Type* **ER** *Comment Status* **A** *(bucket) (L)*

Missing comma and article

*SuggestedRemedy*

Change:
"Per Inner FEC flow binary(128,120) encoding and decoding"
To:
"Per Inner FEC flow, a binary(128,120) encoding and decoding"

*Response* *Response Status* **W**

ACCEPT.

*Cl* **177** *SC* **177.1.4** *P* **340** *L* **28** # 285

Huber, Thomas — Nokia

*Comment Type* **ER** *Comment Status* **A** *(bucket) (L)*

No need to describe the pad as "8x128b" in Figure 177-2. The details of how the pad is constructed are in 177.4.7, which is titled "Pad insertion and format".

*SuggestedRemedy*

Change the label from "8x128b pad insertion" to "Pad insertion" Make the same change in figure 177A-1.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **177** *SC* **177.2** *P* **341** *L* **24** # 508

Opsasnick, Eugene Broadcom

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

The cross-referece to Figure 177-2 in this paragraph is out of place, especially since the paragraph prior to it describes at the same client interface which are illustrated in the same figure without a cross-reference.

*SuggestedRemedy*

Remove "(see Figure 177-2)" from the line 24.

At line 4 of page 341, just prior to "The service interface primitives are summarized as follows:", add a single sentence paragraph that reads:
"The Inner FEC service interfaces is illustrated in Figure 177–2..

*Response* *Response Status* **C**

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

*Cl* **177** *SC* **177.4.5** *P* **346** *L* **32** # 495

Slavick, Jeff Broadcom

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

There are two instances of "dot" matrix. Lets make sure both a referred to.

*SuggestedRemedy*

Change "where the "*" denotes a matrix dot multiplicaiton."
To: "where the "*" denotes matrix dot multiplication in the preceding equation and in Eq 177-4"

*Response* *Response Status* **W**

ACCEPT.

*Cl* **177** *SC* **177.4.5** *P* **347** *L* **5** # 494

Slavick, Jeff Broadcom

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

I've not heard of an inversion operation for a matrix. I know what the inverse of a matrix is. Should also make sure this explanation is relevant just to Eq 177-5

*SuggestedRemedy*

Change “The superscript “-1” denotes a matrix inversion operation.”
To:
The superscript “-1” denotes the inverse of the matrix in Eq 177-5.
Or:
The superscript “-1” in Eq 177-5 is the notation for taking the inverse of the matrix.
Or:
delete this sentence entirely since superscript “-1” means “one over the thing” in math notation. So whether this is a number or a matrix it’s the same mathematical operation and how can it be mis-interpreted.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change “The superscript “-1” denotes a matrix inversion operation.”
To:
The superscript “-1” denotes the inverse of the matrix in Eq 177-5.

*Cl* **177** *SC* **177.4.7.1** *P* **348** *L* **41** # 496

Slavick, Jeff Broadcom

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

The description of the FAS could be improved.

*SuggestedRemedy*

Update the section to read as follows: "The Frame Alignment Sequence (FAS) is a fixed pattern that is the first 48-bits transmitted in each pad and enables the receiver to locate the pad. The fixed FAS pattern is as follows with the leftmost bit transmitted first:
01011001 01010010 01100100 10100110 10101101 10011011"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **177** *SC* **177.4.7.2** *P* **348** *L* **48** # 190

Bruckman, Leon Nvidia

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

It will be beneficial to refer to the PRBS13 pattern generator figure in the base standard.

*SuggestedRemedy*

Change: "using a self-synchronizing PRBS13 scrambler using the same polynomial as Equation (94–3)."
To: "using a self-synchronizing PRBS13 scrambler as shown in Figure 94-6 and using the polynomial defined in Equation (94–3)."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **177** *SC* **177.5.2** *P* **350** *L* **36** # 191

Bruckman, Leon Nvidia

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

Pad identification and removal is described in the next sectio. It will be useful to refer to it.

*SuggestedRemedy*

Change: "removed before the received data is processed further."
To: "removed before the received data is processed further (see 177.5.3)."

*Response* *Response Status* **C**

ACCEPT.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **9** # 84

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description of the use.

*SuggestedRemedy*

Change: Boolean variable that indicates that fas_cnt has reached its terminal count.
To: Boolean variable that is set to true when fas_cnt has reached its terminal count. Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of fas_cnt_done
From:
"Boolean variable that indicates that fas_cnt has reached its terminal count."
To:
"Boolean variable that is set to true when the counter fas_cnt has reached its terminal count and is set to false when starting the counter (see Figure 177-13)."
Implement with editorial license.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **13** # 85

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change definition of fas_lock
From:
"A Boolean variable that is set to true when the receiver has detected the location of the frame alignment sequence within the pad codewords."
To:
"A Boolean variable that indicates the receiver has detected the location of the frame alignment sequence within the pad codewords. Its value is set by the Inner FEC pad detection state diagram (see Figure 177-13)."
Implement with editorial license.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **20** # 86

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add to the end of definiton of fas_valid:
"Otherwise, this variable is set to false."
Implement with editorial license.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **29** # 87

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of reset to keep it consistent with comments #74 - reset is a special case.
Modify the definition of the reset variable by adding: ", and is false otherwise." to end of the last sentence.
Implement with editorial license.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **33** # 88

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description that says what processes set it.

*SuggestedRemedy*

Add a description of when it is set to true and when it is set to false. There isn't enough information in the spec to provide a suggestion.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the definition of restart_inner_fec_sync
From:
"A Boolean variable that is set by the Inner FEC synchronization process or the Inner FEC pad detection process."
To:
"A Boolean variable that is used to restart all eight self-synchronization processes as well as the pad detection process associated with an input lane in the receive direction. Its value can be set to true in the either the Inner FEC self-synchronization state diagram (see Figure 177-12) or the Inner FEC pad detection state diagram (see Figure 177-13). Its value is set to false upon entering the FAS_LOCK_INIT state of the Inner FEC pad detection state diagram."
Implement with editorial license.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **41** # 89

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of slip_done
From:
"A Boolean variable that is set to true when the SLIP requested by the Inner FEC synchronization state diagram has been completed indicating that the next candidate 128-bit block position can be tested."
To:
"A Boolean variable that indicates the next candidate 128-bit block position can be tested by the Inner FEC self-synchronization process. It is set to true when the SLIP function completes and is set to false upon entering the GET_BLOCK state of the Inner FEC self-synchronization state diagram (see Figure 177-12).
Implement with editorial license.

*Cl* **177** *SC* **177.7.2.1** *P* **355** *L* **45** # 90

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable sync_clow<x>
From:
"A Boolean variable that is set to true after the Inner FEC codeword boundary is found for an Inner FEC flow, where x = 0 to 7, and represents an Inner FEC flow ID before identifying the actual Inner FEC flow numbering."
To:
"A Boolean variable that indicates the Inner FEC codeword boundary is found for an Inner FEC flow, where x = 0 to 7, and x represents an Inner FEC flow ID before identifying the actual Inner FEC flow numbering. The value of sync_flow<x> is set by the Inner FEC self-synchronization state diagram (see Figure 177-12). "
Implement with editorial license.

*Cl* **177** *SC* **177.10** *P* **360** *L* **29** # 286

Huber, Thomas — Nokia

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

The variables for counting corrected codewords, uncorrected codewords, total bits, and corrected bits (rows 3-TBD) are shared with the ER1 FEC, so they should have more general names.

*SuggestedRemedy*

Change "Inner_FEC_..." to "FEC_..." (see related comment on 45.2.1.258)

*Response* *Response Status* **C**

ACCEPT.

*Cl* **177** *SC* **177.10** *P* **363** *L* **29** # 287

Huber, Thomas — Nokia

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

In table 177-8, all of the variables that start with "Inner_FEC_delay…" are not aligned with the description in clauses 45.2.1.177a and 45.2.1.177b (or 45.2.1.175 for the ability registers)

*SuggestedRemedy*

Change "Inner_FEC_delay…" to "FEC_delay…" in the last 12 rows of the table

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178** *SC* **178.1** *P* **367** *L* **15** # 58

Brown, Matt — Alphawave Semi

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

The word "device" has two meaning in Clause 178. On Page 367 line 15 "device" is packaged part (e.g., die plus the package). On the other hand, on page 373 line 41 the device is something that sits on the package (e.g., die) and the package is separate from the device. The term "device" in the latter context is well embedded so the former context should be given a different term. Subclause 179.11.7.1 uses the term "packaged device".

*SuggestedRemedy*

When referring to a packaged part, use the term "packaged device". Another unique term would be acceptable.
Update 179, 176C, 176D similarly, as necessary.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
In 178.1, change "Devices conform to" to "PMD transmitters and PMD receivers conform to".
Change "between two devices" to "between two PMDs" and similarly in the rest of the sentence.

Elsewhere, change "device" to "PMD" when it refers to a PMD rather than the die inside the package.
Implement with editorial license.

*Cl* **178** *SC* **178.1** *P* **384** *L* **47** # 251

Mellitz, Richard — Samtec

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

table 178–11 missing reference for SCMR_CH

*SuggestedRemedy*

Add 179.11.8 as the reference

*Response* *Response Status* **W**

ACCEPT.

*Cl* **178** *SC* **178.8.1** *P* **373** *L* **16** # 347

Swenson, Norman — Nokia, Point2

*Comment Type* **ER** *Comment Status* **A** *(bucket) (E)*

The first sentence starts with "The test points are illustrated…" This implies that these are the only test points. But additional test points are later defined for compliance testing. This can be confusing.

*SuggestedRemedy*

Change "The test points are illustrated…" to "Reference test points are illustrated…" Add a sentence after the first sentence that says "Additional test points for compliance measurement are defined in Section 178.9."

*Response* *Response Status* **W**

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

*Cl* **178** *SC* **178.8.1** *P* **373** *L* **33** # 379

Ran, Adee — Cisco Systems

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

"ILT" is a very general term. The block diagram in Figure 178-2 shows the ILT function, part of the PMD functional specification. It would better be labeled "ILT function", to match the other PMD blocks (receive and transmit).
Also in 179.8.1, Figure 179-2.

*SuggestedRemedy*

Change "ILT" to "ILT function", twice, in Figure 178-2 and Figure 179-2.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178** *SC* **178.8.9** *P* **374** *L* **35** # 333

Mascitto, Marco — Nokia

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

The statement is incomplete (cut-n-paste error).

*SuggestedRemedy*

Replace, "When the variable mr_training_enable is true, the ILT function is used to request changes to the peer transmitter state (modulation, training pattern, and precoder state), control the PMD transmitter output on each lane based on requests from the peer interface."

with

"When the variable mr_training_enable is true, the ILT function is used to request changes to the peer transmitter state (modulation, training pattern, and precoder state), control the PMD transmitter output on each lane based on requests from the peer, indicate the receiver state, and coordinate the transition of the PMD transmit function to DATA mode."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #502.

*Cl* **178** *SC* **178.8.9** *P* **374** *L* **37** # 502

Opsasnick, Eugene — Broadcom

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

The statement "When mr_training_enable is false and
tx_mode = local_pattern (see 178B.7.3.1), the PMD transmits PRBS31 encoded by Inner FEC (see
177.6.1.1)." is wrong since these -KR interfaces do not use an inner FEC. Subclause 178.8.9 describes the same functionality for a backplane connection as 179.8.9 does correctly for copper cable interfaces. Many of the 178.8.x subclauses currently refer to the definition of the same function in 179.8.x, This can also be done for 178.8.9

*SuggestedRemedy*

Replace all text in 178.8.9 with:
"The PMD inter-sublayer link training function specification is identical to that of 179.8.9."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **178** *SC* **178.9.2** *P* **375** *L* **15** # 381

Ran, Adee — Cisco Systems

*Comment Type* **T** *Comment Status* **A** *est equipment impedance (E)*

Slide 12 of https://www.ieee802.org/3/dj/public/25_07/ran_3dj_01c_2507.pdf (used for resolution of several comments against D2.0) says "Specify that transmitter time-domain measurements are made with a 50 Ω single-ended load".
This is not stated explicitly in Clause 178, nor in Annex 178C. It is especially important now that the reference impedance is changed.
The text about transmitter measurement should be unified.

*SuggestedRemedy*

In 178.9.2, change the second paragraph to
"Unless specified otherwise, transmitter signal measurements are made for each lane separately using a fourth-order Bessel-Thomson low-pass response with a 3 dB bandwidth of 60 GHz, with AC-coupled connection from TP0v to 50 Ω single-ended loads in the test equipment."

In 176C.6.3, replace the existing two paragraphs with the three paragraph in 178.9.2, including the change above.

*Response* *Response Status* **C**

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

*Cl* **178** *SC* **178.9.2** *P* **376** *L* **11** # 278

Kutscher, Noam — Marvell

*Comment Type* **T** *Comment Status* **R** *(bucket) TX jitter (E)*

A difference of 0.002 is not a resolution that the Scope can provide.

*SuggestedRemedy*

Change the Tx package Class A value to be '0.12' instead of '0.118'.

*Response* *Response Status* **C**

REJECT.
Jitter specifications to 3 significant digits is consistent with previous clauses (e.g. 162, 163) and with the other electrical clauses in this draft.
No evidence has been presented that scopes cannot provide this resolution.

*Cl* **178** *SC* **178.9.2.6** *P* **378** *L* **47** # 311

Levin, Itamar — Altera corp.

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

When changing from vpeak to Psignal in this formula going from D2.0 to D2.1, we now have a ratio of power to voltage within the log function, insetead of a "unit-less" ratio. Note that in eq 179-8 Psignal is a sum of squares of pulse shapes which is proportional to power indeed (like in its use in eq. 179-9). And yet we have 20log … If the formula originated from 10log(P/V^2) than that is still incorrect since this expression corrosponds to 20log(P^0.5/V)

*SuggestedRemedy*

If the intent here is to use Psignal, than in this formula we should take the root of this quantity in order to fix the ratio, or conversely - use 10log(Psignal/Vcm^2) in order for the quantity within the log function be unit-less.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #252.

[Editor's note: changed page/line from 415/14]

*Cl* **178** *SC* **178.9.2.6** *P* **378** *L* **47** # 252

Mellitz, Richard — Samtec

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

Comment 48 in
https://www.ieee802.org/3/dj/comments/D2p0/8023dj_D2p0_comments_final_clause.pdf
Not implemented.

*SuggestedRemedy*

Either change equation 178-1
To
SCMR= 10*log10(P_signal / VCM_FB^2)
Or
SCMR= 20*log10(sqrt(P_signal) / VCM_FB)

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change equation (178-1) to SCMR= 10*log10(P_signal / VCM_FB^2).

*Cl* **178** *SC* **178.9.2.6** *P* **378** *L* **52** # 312

Levin, Itamar — Altera corp.

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

The accurate clause is not 179.9.4.5 but subclause 179.9.4.5.1

*SuggestedRemedy*

change 179.9.4.5 to 179.9.4.5.1

*Response* *Response Status* **C**

REJECT.
179.9.4.5.1 was the subclause in D2.0 but its content was merged into 179.9.4.5.
[Editor's note: changed page/line from 415/19]

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*Cl* **178** *SC* **178.9.2.7** *P* **379** *L* **20** # 344

Simms, William — NVIDIA

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

RLcd is defined but RLdc is used for equation and plot

*SuggestedRemedy*

Change RLcd to RLdc in the definition

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "where RLcd is the differential-mode to common-mode" to "where RLdc is the common-mode to differential-mode"
Implement in 178.9.2.7 and in 176C.6.3.7, with editorial license.

---

*Cl* **178** *SC* **178.9.3.3** *P* **380** *L* **44** # 382

Ran, Adee — Cisco Systems

*Comment Type* **T** *Comment Status* **A** *t) RX amplitude tolerance (E)*

In D2.1 the receiver amplitude tolerance text has been expanded in clause 179, and now the text in clause 178 and Annex 176C does not match it.
The requirement is essentially the same so the text should be similar (with perhaps different references).

*SuggestedRemedy*

Change the text in 178.9.3.3 and in 176C.6.4.2 to match the text in 179.9.5.2.

*Response* *Response Status* **C**

ACCEPT.

---

*Cl* **178** *SC* **178.9.3.3** *P* **380** *L* **48** # 332

Mascitto, Marco — Nokia

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

The receiver's control of the transmitter's equalizer coefficients is an important function that helps that receiver to meet the block error ratio. Recommend making this normative.

*SuggestedRemedy*

Change "The receiver may control" to "The receiver should control".

*Response* *Response Status* **C**

REJECT.
Receiver control of the transmit equalizer coefficients is an implementation choice, and some implementations may not need it to meet the test requrements. It is therefore optional to use the transmitter control in this test.
Note that the ILT function is a normative requirement regardless of this test.

---

*Cl* **178** *SC* **178.9.3.4.2** *P* **381** *L* **52** # 383

Ran, Adee — Cisco Systems

*Comment Type* **E** *Comment Status* **A** *(bucket) ITOL (E)*

in "J4u03" the "u" should not be in subscript.

*SuggestedRemedy*

Change to normal text.

*Response* *Response Status* **C**

ACCEPT.

---

*Cl* **178** *SC* **178.10.** *P* **384** *L* **28** # 387

Ran, Adee — Cisco Systems

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

"the channel is bound by TP0 and TP5"
"bound" does not seem natural here.
Also in 176C.7.

*SuggestedRemedy*

Change to "The channel is defined between TP0 and TP5" or alternatively "The channel is delimited by TP0 and TP5".
Apply a similar change in 176C.7.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to "The channel is defined between TP0 and TP5".
Also, apply to 176C.7.

*Cl* **178** *SC* **178.10.** *P* **384** *L* **36** # 388

Ran, Adee
Cisco Systems

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

"Tp0d to Tp5d" - P should be uppercase

*SuggestedRemedy*

Change to "TP0d to TP5d"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178** *SC* **178.10.** *P* **384** *L* **45** # 389

Ran, Adee
Cisco Systems

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

In Table 178–11, maximum AC coupling frequency of 100 kHz does not match the value in referenced subclause, which was changed to 250 kHz.
In Table 176C-6, the value is 50 kHz, not matching the reference either.

*SuggestedRemedy*

Change to 250 kHz in Table 178–11 and in Table 176C–6.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **178** *SC* **178.10.** *P* **384** *L* **47** # 390

Ran, Adee
Cisco Systems

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

Missing reference for SCMR_CH.

*SuggestedRemedy*

Add a reference to 179.11.8 (or another place if the location of the definition changes).

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #251.

*Cl* **178** *SC* **178.10.1** *P* **386** *L* **6** # 391

Ran, Adee
Cisco Systems

*Comment Type* **TR** *Comment Status* **A** *:et) Reference Impedance (E)*

In Table 178-12, R0 should be 46.25 Ohm (Slide 12 of https://www.ieee802.org/3/dj/public/25_07/ran_3dj_01c_2507.pdf).
Also in Table 176C–7.

*SuggestedRemedy*

Change per comment (2 places).

*Response* *Response Status* **W**

ACCEPT.

*Cl* **178** *SC* **178.10.6** *P* **390** *L* **35** # 204

Brown, Matt
Alphawave Semi

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

The following paragraph is informative since it gives information that is not normative or building upon normative content.
"Systems with no AC-coupling within the channel are considered engineered links. It is the system integrator's responsibility to verify that the transmitter and the receiver are compatible with the common-mode voltage differences that may exist in this configuration."

*SuggestedRemedy*

Change the paragraph to an informative note, starting with "NOTE--"

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **178A** *SC* **178A.1.9.3** *P* **830** *L* **37** # 1

Shakiba, Hossein — Huawei Technologies Canada

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

Based on this paragraph, calculation of the noise PDF starts with a Dirac delta function and moves on to include the non-Gaussian crosstalk and dual-Dirac jitter noises in the following two paragraphs. Then, the third following paragraph adds the remaining Gaussian noise terms. However, this process of calculating noise PDF misses the ISI noise.

*SuggestedRemedy*

Add a description to include the ISI noise PDF and its calculation using reference to the procedure defined in 93A.1.7.3. This can be done by either adding another convolution step or starting with ISI noise PDF instead of a Dirac delta function.

*Response* *Response Status* **W**

REJECT.
The draft is correct as written.
The preceding paragraph states that "DELTA is defined in 178A.1.7.6 with the exception that the Gaussian approximation of the probability density function of the noise amplitude pga(y) is replaced with the probability density function of the noise amplitude pn(y) defined below." The definition of DELTA in 178A.1.7.6 is based on the convolution of the probability distribution function of the noiseless signal amplitude prior to quantization ps(n) and the Gaussian approximation of the probability density function of the noise amplitude prior to quantization pga(y). Substitution of pn(y) for pga(y) means that pn(y) will be convolved with ps(y) to generate the probability distribution function for signal and noise amplitude prior to quantiation psn(y) that is used to determine the quantization step DELTA. Since ps(y) is defined in 178A.1.7.6 to include the signal and inter-symbol interference, all of the appropriate terms are being included.

*Cl* **178B** *SC* **178B.1** *P* **835** *L* **12** # 196

Bruckman, Leon — Nvidia

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

This is an annex not a clause

*SuggestedRemedy*

Change: "This clause defines" to: "This annex defines"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.1** *P* **835** *L* **12** # 217

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

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Opening states - "This clause…"
this is an annex

*SuggestedRemedy*

Replace "clause" with "annex"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **22** # 414

Ran, Adee — Cisco Systems

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

"Through this communication, ILT creates a well-defined path start-up process for paths that include one or more ISLs"
The path start-up protocol in 178B.6 should be referenced.

*SuggestedRemedy*

Add "(see 176B.6)" in this sentence and reword if necessary with editorial license.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **23** # 464

Slavick, Jeff — Broadcom

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

When you use local pattern you don't enter "TRAINING mode".

*SuggestedRemedy*

Change "TRAINING mode," to "a tx mode (see 178B.5)"

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #320.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **23** # 320

Mascitto, Marco Nokia

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

In TRAINING mode, locally generated training frames are sent to the peer interface, not data.

*SuggestedRemedy*

Replace:
Initially all ISLs are in TRAINING mode, in which the data sent to the peer is generated locally by each interface.

With:
Initially all ISLs are in TRAINING mode, in which the training frames sent to the peer are generated locally by each interface.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "Initially all ISLs are in TRAINING mode, in which the data sent to the peer is generated locally by each interface."
To: "Initially all AUI components and PMDs that have ILT enabled are in TRAINING mode (tx_mode = training, see 178B.7.3.1), in which the training frames sent to the peer are generated locally by each interface."
In the following paragraph change: "ILT includes a training protocol, used in TRAINING mode,"
To: "ILT defines a training protocol, used in TRAINING mode (tx_mode = training, see 178B.7.3.1),"
Implement with editorial license.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **23** # 415

Ran, Adee Cisco Systems

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

"Initially all ISLs are in TRAINING mode"
It is the AUIs or AUI components that are in TRAINING mode.

*SuggestedRemedy*

Reword as necessary with editorial license.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #320.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **25** # 479

Slavick, Jeff Broadcom

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

The coordinated transition is the start-up protocol portion of ILT, give a reference from here to it.

*SuggestedRemedy*

Add "(see 178B.6)" after DATA mode

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change: "The ILT function provides coordinated transition of all ISLs to DATA mode,"
To: "The ILT function provides coordinated transition of all ISLs to DATA mode (tx_mode = data, see 178B.7.3.1),"
Implement with editorial license.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **27** # 465

Slavick, Jeff Broadcom

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

ILT defines the training protocol not really includes.

*SuggestedRemedy*

Change "includes" to "defines"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #320.

*Cl* **178B** *SC* **178B.2** *P* **835** *L* **30** # 321

Mascitto, Marco Nokia

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The last sentence of this paragraph is not clear and may lead to confusion.

*SuggestedRemedy*

Replace:
ILT can also establish communication between interfaces that do not use a training protocol.

With:
ILT ensures that any ISLs in the path that do not make use of the training protocol (e.g., ISLs using 100Gb/s lane technology) signal their readiness for DATA mode so that the end-to-end path start-up process can complete successfully.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "ILT can also establish communication between interfaces that do not use a training protocol."
To: "ILT allows ISLs in the path that do not make use of the training protocol to signal their readiness for DATA mode (tx_mode = data, see 178B.7.3.1) so that the end-to-end path start-up process can complete successfully."
Implement with editorial license.

*Cl* **178B** *SC* **178B.3** *P* **836** *L* **14** # 10

Brown, Matt Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The span labelled "Physical Layer implementation" is intended to convey simply that this portion of the diagram is representative of the entire Physical Layer not an implementation; otherwise PHY and xMII Extender should be labelled as implementations as well.

*SuggestedRemedy*

Change "Physical Layer implementation" to "Physical Layer".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.3** *P* **836** *L* **15** # 324

Mascitto, Marco Nokia

*Comment Type* **T** *Comment Status* **A** *Path (CI)*

Update the figure showing the path between RSs, per straw ballot results.

*SuggestedRemedy*

Update the figure showin the path between RSs, per straw ballot results.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #417.

*Cl* **178B** *SC* **178B.3** *P* **836** *L* **30** # 471

Slavick, Jeff Broadcom

*Comment Type* **TR** *Comment Status* **A** *Path (CI)*

Add "path" to the drawing, which per 1.4 is defined as "The sequence of segments and repeaters providing the connectivity between two DTEs in a
single collision domain. In CSMA/CD networks there is one and only one path between any two DTEs."

*SuggestedRemedy*

Insert a "| <---------> |" at the bottom of Figure 178B-1 which begins at the left edge of the DTE XS and ends at the right edge of the rightmost PCS box. With the word "path" below the line.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #417.

*Cl* **178B** *SC* **178B.3** *P* **856** *L* **12** # 51

Brown, Matt Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Add cross-reference to state diagram figure.

*SuggestedRemedy*

After "state diagram" insert "(see Figure 178B-12)"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.4** *P* **836** *L* **40** # 247

He, Xiang — Huawei

*Comment Type* **ER** *Comment Status* **R** *(bucket) (CI)*

The sentence "A physically instantiated interface is
either a PMD or an AUI component." is repeated too many times in this Annex.

*SuggestedRemedy*

Consider to define this once in front (in fact it has been defined in 178B.3 which is the perfect place), and remove all other repeatitions in the following text.

*Response* *Response Status* **W**

REJECT.
This wording is used only in this pararaph and it adds clarity to the text.

---

*Cl* **178B** *SC* **178B.4** *P* **836** *L* **42** # 11

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **R** *Interfaces (CI)*

Nomenclature is inconsistent. This is the only part of this Annex that uses "AUI-C2C" and "AUI-C2M". 178B.3 defines xAUI-n; this should be used instead. The references to Annex 176C and Annex 176D are limiting assuming future AUI also use Annex 178B; so these should be examples of references.

*SuggestedRemedy*

Change (twice in this paragraph) "AUI-C2M (Annex 176D)" to "xAUI-n C2M (e.g., see Annex 176D)"
Change (twice in this paragraph) "AUI-C2C (Annex 176C)" to "xAUI-n C2C (e.g., see Annex 176C )".

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

---

*Cl* **178B** *SC* **178B.4** *P* **836** *L* **47** # 325

Mascitto, Marco — Nokia

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Improve clarity.

*SuggestedRemedy*

Replace:
The ILT function in AUI components and PMDs is composed of one per-interface function and one per-lane function for each lane associated with the interface as shown in Figure 178B–2.

With:
The ILT function at an interface is composed as shown in Figure 178B-2, with:
- one per-interface function
- one per-lane function for each lane associated with the interface

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #12.

---

*Cl* **178B** *SC* **178B.4** *P* **836** *L* **48** # 12

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

It sounds like you have both a per-interface function and one per-lane function on each lane. Clarify text.

*SuggestedRemedy*

Change "is composed of one per-interface function and one per-lane
function for each lane associated with the interface"
Change "is composed of one per-interface function for the entire interface and one per-lane function for each lane associated with the interface"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.4** *P* **837** *L* **19** # 13

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

In Figure 178B-2, it would be helpful to point out that the DLi and SLi are attaching to the medium or AUI channel.

*SuggestedRemedy*

Add a label to the right "Medium or AUI Channel"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5** *P* **837** *L* **41** # 452

Slavick, Jeff — Broadcom

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

The bullets desribing the path start-up process is too wordy and confusing.

*SuggestedRemedy*

Update 178B.5.1 to read as follows:
ILT on each interface operates with the following behavior:
- Each lane of ISL begin in TRAINING mode or by sending a local data pattern (when TRAINING is not supported or disabled).
- Each lane of the ISL independently achieve local_rx_ready indicating that lane has completed its adaptation processes and is ready to move to DATA mode.
- Each ISL achieves local_rts indicating all lanes of the AUI/PMD are ready to move to DATA mode.
- Each ISL achieves remote_rts indicating adjacent AUI/PMDs are ready to move to DATA mode.
- When local_rts and remote_rts are both true it means all ISLs in the Path are ready to move to DATA mode.
- When all ISLs have switched to DATA mode then communication on the Path is established.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

It would be good to make this description more concise.

Update the description based on the suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5** *P* **837** *L* **47** # 14

Brown, Matt — Alphawave Semi

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

local_rts, remote_rts, and remote_rx_ready are defined as Boolean variable thus should be given values true and false, not 0 and 1.

*SuggestedRemedy*

Change "1" to "true" on ...
page 837 line 47
page 838 lines 7, 13, 16, 18
Change "0" to "false" on …
page 838 line 16
Apply similarly elsewhere as necessary.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5** *P* **837** *L* **47** # 327

Mascitto, Marco — Nokia

*Comment Type* **E** *Comment Status* **R** *(bucket) (CI)*

The "rts" in variables local_rts and remote_rts is misleading and caused confusion. When asserted, it means the interface is ready to send (RTS) and receive (CTS) data, not just send data.

*SuggestedRemedy*

Propose changing local_rts to local_ifready and remote_rts to remote_ifready.

*Response* *Response Status* **C**

REJECT.
The term RTS is well defined. Implementing the proposed change may create confusion with the rx_ready indication.

*Cl* **178B** *SC* **178B.5** *P* **849** *L* **28** # 24

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Paragraph begins with an incomplete sentence/thought. The same is conveyed more clearly in the first sentence of 178B.5.7 "Equalization control is only available for the E1 format."

*SuggestedRemedy*

Change "Only applies for E1 format" to "The initial condition request only applies for the E1 format."
Make similar updates in 178B.5.3.4, 178B.5.3.5, 178B.5.4.5, 178B.5.4.7, 178B.5.4.8.
Align text in 178B.5.7.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

---

*Cl* **178B** *SC* **178B.5.1.1** *P* **838** *L* **26** # 16

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Training frames are always based on a local clock regardless of the other interface state.

*SuggestedRemedy*

Delete "In this case".

*Response* *Response Status* **C**

ACCEPT.

---

*Cl* **178B** *SC* **178B.5.1.1** *P* **838** *L* **28** # 17

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

It would be good to be clear about where the recovered clock is coming from.

*SuggestedRemedy*

Change "recovered clock" to "recovered clock from the receiver on the other interface" or similar.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

---

*Cl* **178B** *SC* **178B.5.1.1** *P* **838** *L* **32** # 469

Slavick, Jeff — Broadcom

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

The transmit clock functional mode may not be based upon the PCS clock. It may based on DTE XS or PHY XS or not ever change.

*SuggestedRemedy*

Change:
As shown in the RTS control state diagram (Figure 178B–9) local_rts is set to true only after the transmit clock is derived from the PCS clock, such that the transition between clock sources occurs while sending local_rts = false.
To:
As shown in the RTS control state diagram (Figure 178B–9) local_rts is set to true only after the transmit clock is derived from its mission mode source (local_rts is false when a transition between clock sources occurs).

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change: "local_rts is set to true only after the transmit clock is derived from the PCS clock"
To: "local_rts is set to true only after the transmit clock is derived from the clock recovered by the other interface receiver"

---

*Cl* **178B** *SC* **178B.5.1.1** *P* **838** *L* **32** # 18

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Misused comma.

*SuggestedRemedy*

Delete comma between "PCS clock and such".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.5.1.2** *P* **839** *L* **38** # 417

Ran, Adee — Cisco Systems

*Comment Type* **TR** *Comment Status* **A** *Path (CI)*

Based on straw poll results and discussion in the Annex 178B ad hoc, there is consensus that the path start-up protocol should span the path that includes the two Physical Layer implementations (MAC to MAC), including extenders. For this purpose, the exchange of information (e.g., RTS) between PHY XS and the PCS across the xMII should be defined.

*SuggestedRemedy*

A presentation with a detailed proposal will be provided.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The following contribution was reviewed by the CRG:
https://www.ieee802.org/3/dj/public/25_09/ran_3dj_03_2509.pdf

Implement the proposal on slides 11 to 13 in ran_3dj_03_2509 with editorial license.

*Cl* **178B** *SC* **178B.5.1.2** *P* **839** *L* **38** # 470

Slavick, Jeff — Broadcom

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

Which same process? The Retimer process?

*SuggestedRemedy*

Remove 178B.5.1.2 there is no need to call out anything special here.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Remove the colon after "process" to make clear to whcih process the text refers.

*Cl* **178B** *SC* **178B.5.2.2** *P* **841** *L* **1** # 20

Brown, Matt — Alphawave Semi

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

The sentence "Each interface using ILT shall identify
which format is relevant for it." does not make sense. How is an interface to identify a preferred format. Perhaps that clause or annex that specifies the interface should identify the format, given that is the case.

*SuggestedRemedy*

Change sentence to "The training frame format is specified by the clause specifying the AUI component or PMD."

*Response* *Response Status* **C**

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

*Cl* **178B** *SC* **178B.5.2.2** *P* **841** *L* **1** # 472

Slavick, Jeff — Broadcom

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

Only interfaces that use training mode need to specify which training format they use.

*SuggestedRemedy*

Change:
Each interface using ILT shall identify which format is relevant for it.
To:
Each interface using ILT that supports TRAINING mode shall specify which format it uses.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #20.

*Cl* **178B** *SC* **178B.5.2.3** *P* **841** *L* **14** # 473

Slavick, Jeff — Broadcom

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

The "(see Figure 178B-5)" is not needed at the end of the 3rd paragraph

*SuggestedRemedy*

Remove "(see Figure 178B-5)" from the end of the 3rd paragraph

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.5.2.3** *P* **841** *L* **17** # 21

Brown, Matt — Alphawave Semi

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

The setting to one value or another is mandatory, not just permitted.

*SuggestedRemedy*

Change "precoding may be enabled or disabled" to "precoding is either enabled or disabled".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.5.2.3** *P* **841** *L* **28** # 22

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **R** *(bucket) (CI)*

In Figure 178B-5, what does the box "x3" do?

*SuggestedRemedy*

Provide description of the "x3" block.

*Response* *Response Status* **C**

REJECT.
This function is described in 178B.5.2.4 second paragraph.

*Cl* **178B** *SC* **178B.5.3** *P* **845** *L* **26** # 23

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The Figure title should like be a level 4 Annex sublclause heading, 178B.5.3.1.

*SuggestedRemedy*

Change heading paragraph appropriately.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5.3** *P* **845** *L* **26** # 236

Mi, Guangcan — Huawei Technologies Co., Ltd

*Comment Type* **ER** *Comment Status* **A** *(bucket) (CI)*

the caption of the figure,"Figure 178B–7—Initial condition request", is misplaced or the figure is missing.

*SuggestedRemedy*

Delete the caption, or add the figure.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #23.

*Cl* **178B** *SC* **178B.5.3** *P* **845** *L* **28** # 474

Slavick, Jeff — Broadcom

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

Lost the heading for "Initidal condition request".

*SuggestedRemedy*

Restore the heading for "Initial condition request". It's been converted to a Figure title.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #23.

*Cl* **178B** *SC* **178B.5.3.5** *P* **846** *L* **4** # 25

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

This paragraph defines how a coefficient not just give permission to do so.

*SuggestedRemedy*

Change "may be changed" to "is changed".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5.4** *P* **846** *L* **53** # 26

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

In Table 178B-4 footnote a three values are described as being undefined. Why are they not just listed along with the others and mark as either "undefined" or "reserved" as is done for other fields.

*SuggestedRemedy*

For coefficient select echo add values "010, 011, and 100 and indicate they are "= reserved" or "= undefined".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
For coefficient select echo add values "010, 011, and 100 and indicate they are "= undefined". Remove footnote "a".

*Cl* **178B** *SC* **178B.5.4.2** *P* **847** *L* **38** # 30

Brown, Matt — Alphawave Semi

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

The sentence is rather ambiguous; not clear if the variable reflect the state of the status bits or vice versa. Since local_tp_mode is set by the state machine it seems the status bits are set based on local_tp_mode.

*SuggestedRemedy*

Change "The training pattern status bits encode the value of local_tp_mode." to "The training status bits are encoded to convey the value of local_tp_mode."
Update 178B.5.4.3 similarly.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

---

*Cl* **178B** *SC* **178B.5.4.2** *P* **847** *L* **39** # 27

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The variable local_tp_mode is used in state diagram in Figure 178B-10 so should be defined in 178B.7.3.1

*SuggestedRemedy*

Move definition to 178B.7.3.1.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #475.

---

*Cl* **178B** *SC* **178B.5.4.2** *P* **847** *L* **40** # 475

Slavick, Jeff — Broadcom

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

local_tp_mode was moved from the State variables definition even though it's used in Figure 178B-8. But others that are also encoded in the status frame did not have their variable definitions move the status frame bit descriptions (like cf_sts or coef_sel).

*SuggestedRemedy*

Move the definitions of local_tp_mode and local_mc_mode back to 178B.7.3.1 and add "(see 178B.7.3.1)" to the end of the sentence in 178B.5.4.2 and 178B.5.4.3

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

---

*Cl* **178B** *SC* **178B.5.4.2** *P* **847** *L* **42** # 31

Brown, Matt — Alphawave Semi

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

It is required not just permitted to set the variable to one of the listed values.

*SuggestedRemedy*

Change "may be assigned" to "is assigned".
Update 178B.5.4.3 similarly.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

---

*Cl* **178B** *SC* **178B.5.4.2** *P* **847** *L* **43** # 29

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

This variable is set by state diagram which take precedence. It would be helpful to state explicit that the action is handled by the state diagram as is done for training_failure.

*SuggestedRemedy*

For the definitions for local_tp_mode, local_mc_mode, tx_disable, tx_mode, lane_training_status, training, and training_failure add the following sentence "The value of <variable name>
is set by the state diagram in Figure 178B–10."
For the definitions for tf_offset, local_tf_lock, new_marker, and slip_done add the following sentence "The value of <variable name>
is set by the state diagram in Figure 178B–11."
For the definitions for coef_sts, ic_req, ic_sts, and k add the following sentence "The value of <variable name> is set by the state diagram in Figure 178B–12."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy for: local_tp_mode, local_mc_mode, lane_training_status and training.
The definitions of tx_disable, tx_mode and training_failure already include the proposed reference to the state diagram.
Implement suggested remedy for: tf_offset, local_tf_lock and new_marker.
The definition of slip_done already includes the proposed reference to the state diagram.
Implement suggested remedy for: ic_req, ic_sts, and k
The definition of coef_sts already includes the proposed reference to the state diagram.
Implement with editorial license.

*Cl* **178B** *SC* **178B.5.4.3** *P* **847** *L* **39** # 28

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The variable local_mc_mode is used in state diagram in Figure 178B-10 so should be defined in 178B.7.3.1

*SuggestedRemedy*

Move definition to 178B.7.3.1.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #475.

*Cl* **178B** *SC* **178B.5.4.4** *P* **848** *L* **4** # 32

Brown, Matt — Alphawave Semi

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

Typically, lock is defined by identifying the mark position not the infinite set of equally spaced positions. Is there some special meaning to this?

*SuggestedRemedy*

Change "positions" to "position".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "When the receiver frame lock bit is set to 1, the receiver is indicating that it has identified training frame marker positions"
To: "The receiver frame lock bit is set to 1 when the receiver has identified the training frame marker position"
Implement with editorial license.

*Cl* **178B** *SC* **178B.5.4.4** *P* **848** *L* **4** # 33

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The first sentence describes the bit as a status bit to be read while the second sentence describes it as a status bit to be a set to one value or another. The second sentence is correct.

*SuggestedRemedy*

Change "When the receiver frame lock bit is set to 1, the receiver is indicating that it has identified"
To "The receiver frame lock bit is set to 1 when the receiver has identified"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #32.

*Cl* **178B** *SC* **178B.5.4.7** *P* **848** *L* **25** # 476

Slavick, Jeff — Broadcom

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

Add a reference to coef_sel in the coef_select_echo description.

*SuggestedRemedy*

Add this sentence to end of 178B.5.4.7 "The coefficient select echo bits reflect the value of the k variable generated by the coefficient update state diagram (Figure 178B–12)."

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5.5** *P* **848** *L* **37** # 34

Brown, Matt — Alphawave Semi

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

Training frame lock is not achiebed by "looking" but rather by "detecting".

*SuggestedRemedy*

Change "by looking for the frame marker or the inverted frame marker in" to "by detecting either the frame marker or the inverted frame marker in".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.5.7.1** *P* **849** *L* **28** # 477

Slavick, Jeff — Broadcom

*Comment Type* **TR** *Comment Status* **R** *(bucket) (CI)*

There are two possible coef status values for a ic_req.

*SuggestedRemedy*

Add the following to the end of step b)
or "coefficient not supported"

*Response* *Response Status* **W**

REJECT.
Coefficient is not being selected at this stage, so it can not be unsupported.

*Cl* **178B** *SC* **178B.5.7.4** *P* **851** *L* **19** # 35

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The defining for variable ck_stp could be improved. The decription implies that the variable is something that can be set or queried. But rather the variable is representative of the step size used by the implementation but is nevertheless within the specified bounds.

*SuggestedRemedy*

Change the definition to "Variable that represents the magnitude of the change in c(k) for one step up or one step down from its current value. The value is implementation dependent but within the range specified by the clause or annex that defines the PMD or AUI component.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5.7.4** *P* **851** *L* **22** # 36

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The set of indices are not defined by the AUI component or PMD but rather by the clause or annex that specifies them.

*SuggestedRemedy*

Change "defined by" to "specified for".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.5.9** *P* **851** *L* **44** # 37

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Although the changes are permitted to occur during this time span they are to not occur outside of this time span.

*SuggestedRemedy*

Change "training pattern may occur at" to "training pattern occurs at" or "training pattern shall occur at".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "training pattern may occur at any"
To: "training pattern occurs at any"
Implement with editorial license.

*Cl* **178B** *SC* **178B.6** *P* **852** *L* **27** # 38

Brown, Matt — Alphawave Semi

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

The word "can" is deprecated in the sense of giving permission. It is not clear if this is giving permission or stating the possibility of occurrence.

*SuggestedRemedy*

Assuming the intent is to give permission, change the sentence to "The path may include ISLs that do not use a training protocol."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "The path can include ISLs that do not use a training protocol."
To: "The path may include ISLs that do not use a training protocol."
Also change: "that can include AUI components and PMDs"" in the previous sentence to: "that may include AUI components and PMDs"
Implement with editorial license.

*Cl* **178B** *SC* **178B.6** *P* **852** *L* **34** # 328

Mascitto, Marco — Nokia

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

This statement conflicts with the variable definition in 178B.7.2.1. local_rts asserted means that the training of the local interface has completed successfully. The training of the remote interface is still undetermined, so we are not yet in the ISL_READY state.

*SuggestedRemedy*

Delete:
(it reached the ISL_Ready state in Figure 178B-10)

*Response* *Response Status* **C**

REJECT.
local_rts is set only if isl_ready is set, and that indicates that both sides have completed training.

*Cl* **178B** *SC* **178B.6** *P* **852** *L* **37** # 39

Brown, Matt — Alphawave Semi

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

What is meant by "a remote AUI component or PMD"? Is this the peer interface as defined for this annex?

*SuggestedRemedy*

Change "a remote AUI component or PMD" to "the peer interface".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement suggested remedy with editorial license.

*Cl* **178B** *SC* **178B.6** *P* **852** *L* **41** # 248

He, Xiang — Huawei

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The sentence does not read right with the first "both" because it says "an AUI component *or* PMD" before it.

*SuggestedRemedy*

Remove the first "both" in the sentence.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.6** *P* **852** *L* **51** # 40

Brown, Matt — Alphawave Semi

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

Behaviors defined in the second bullet are loosely defined as being included in the ILT umbrella, not outside. Each of the descriptions should have a qualifier as to when they apply, not delegate that to an informational note; language from 178B.5.1 can be leveraged. These bullets are not methods but rather they are means. Finally, the second bullet is insufficiently defined; should it not also include the sending of local pattern?

*SuggestedRemedy*

Change the opening sentence and two dashed bullets to the following:
Ready to send (RTS) propagates over ISLs using one of the following means:
-- If training is enabled, the continue training bit in the control field of the training frames (see 178B.5.3.1)
-- If training is disabled or not supported, the transmit disable function to send and signal detect function to detect

*Response* *Response Status* **W**

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

*Cl* **178B** *SC* **178B.7.2.1** *P* **853** *L* **53** # 42

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

Use of word may with means "is permitted to". Desribing a possible occurrence here not giving permission to "not work".

*SuggestedRemedy*

Change "may" to "might".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.7.2.1** *P* **854** *L* **12** # 44

Brown, Matt — Alphawave Semi

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

The variable is required, not just permitted, to be set to one these values.

*SuggestedRemedy*

Change "This variable may be assigned one of the following values:"
To "This variable may is assigned one of the following values:"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "This variable may be assigned one of the following values"
To: "This variable is assigned one of the following values"

*Cl* **178B** *SC* **178B.7.2.1** *P* **854** *L* **23** # 46

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

It would be helpful to direct the reader to some background on the use of recovered clock.

*SuggestedRemedy*

Change "a clock recovered by another interface"
To "a clock recovered by another interface (see 178B.5.1.1)"

*Response* *Response Status* **C**

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

*Cl* **178B** *SC* **178B.7.2.1** *P* **854** *L* **23** # 482

Slavick, Jeff — Broadcom

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

We've often used "DATA mode" to indicate state rather than tx_mode = data, which is only used as an assignement in the state machine.

*SuggestedRemedy*

Change "tx_mode = data" to "DATA mode" in the definition of uses_recovered_clock

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "to drive its output when tx_mode = data."
To: "to drive its output in DATA mode (tx_mode = data, see 178B.7.3.1)."
Implement with editorial license.

*Cl* **178B** *SC* **178B.7.2.4** *P* **855** *L* **18** # 47

Brown, Matt — Alphawave Semi

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

The inclusion of adjacent_remote_rts in the transition is redundant or uncecessary since if it is false then the state would transition to the "START" state.

*SuggestedRemedy*

In the transition from "WAIT_ADJACENT" to "SWITCH_CLOCK" delete "* adjacent_remote_rts"

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.7.3** *P* **855** *L* **50** # 483

Slavick, Jeff — Broadcom

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

When we enter PATH_READY the state of local_mc_mode should apply to the given interface that it's set on, not any other interface. As we sometimes use adjacent to mean "the other PMA" versus the PMA that is providing the data for this interface.

*SuggestedRemedy*

Remove the word adjacent from the 2nd and 3rd paragraphs in four places.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #60.

*Cl* **178B** *SC* **178B.7.3** *P* **855** *L* **51** # 60

Brown, Matt — Alphawave Semi

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

For PMD types defined in Clause 182 and Clause 183, the adjacent sublayer that provides or reverses precoding is the Inner FEC defined in Clause 177 rather than a PMA as defined in Clause 176.

*SuggestedRemedy*

Change "the AUI component or PMD shall cause the adjacent PMA to transmit all subsequent data on the corresponding lane with precoding (see 176.7.1.2) and otherwise cause the adjacent PMA to transmit all subsequent data on the corresponding lane without precoding."
To: "the AUI component or PMD shall cause the adjacent PMA or Inner FEC to transmit all subsequent data on the corresponding lane with precoding (see 176.7.1.2) and otherwise cause the adjacent PMA or Inner FEC to transmit all subsequent data on the corresponding lane without precoding."
Change: "the AUI component or PMD shall inform the adjacent PMA that all subsequently received data on the corresponding lane includes precoding (see 176.7.1.2) and otherwise inform the adjacent PMA that all subsequently received data on the corresponding lane does not include precoding."
To: "the AUI component or PMD shall inform the adjacent PMA or Inner FEC that all subsequently received data on the corresponding lane includes precoding (see 176.7.1.2) and otherwise inform the adjacent PMA or Inner FEC that all subsequently received data on the corresponding lane does not include precoding."

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change: "the AUI component or PMD shall cause the adjacent PMA to transmit all subsequent data on the corresponding lane with precoding (see 176.7.1.2) and otherwise cause the adjacent PMA to transmit all subsequent data on the corresponding lane without precoding."
To: "the AUI component or PMD shall cause the PMA or Inner FEC to transmit all subsequent data on the corresponding lane with precoding (see 176.7.1.2) and otherwise cause the PMA or Inner FEC to transmit all subsequent data on the corresponding lane without precoding."
Change: "the AUI component or PMD shall inform the adjacent PMA that all subsequently received data on the corresponding lane includes precoding (see 176.7.1.2) and otherwise inform the adjacent PMA that all subsequently received data on the corresponding lane does not include precoding."
To: "the AUI component or PMD shall inform the PMA or Inner FEC that all subsequently received data on the corresponding lane includes precoding (see 176.7.1.2) and otherwise inform the PMA or Inner FEC that all subsequently received data on the corresponding lane does not include precoding."

*Cl* **178B** *SC* **178B.7.3** *P* **856** *L* **5** # 50

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The definition of remote_mc_mode is not introduced. It is also only used here and could be replaced with a reference to the received status.

*SuggestedRemedy*

Add the following to the end of the paragraph: "The variable remote_mc_mode is defined as follows:"
Also, consider deleting this variable and instead of pointing to the state of the received status "Modulation and precoding status" field.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: "is entered with remote_mc_mode set to “PAM4 with precoding”"
To: "is entered with the modulation and coding status of the status field of the received training frames set to “PAM4 with precoding”"
Delete the remote_mc_mode variable and its definition. Remove the remote_mc_mode row from Table 178B-7.
Implement with editorial license.

*Cl* **178B** *SC* **178B.7.3** *P* **856** *L* **8** # 48

Brown, Matt — Alphawave Semi

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

Use of word may with means "is permitted to". In this case, assignment to one of these is mandatory.

*SuggestedRemedy*

Change "may be" to "is".

*Response* *Response Status* **C**

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

*Cl* **178B** *SC* **178B.7.3** *P* **856** *L* **11** # 484

Slavick, Jeff — Broadcom

*Comment Type* **E** *Comment Status* **R** *(bucket) (CI)*

The last paragraph of 178B.7.3 is describing which state machines are used which is related to the first paragraph of this section. The paragaphs between the first and last describe some specific cases related to precoding operations. So it'd be better if the first and last were next to each other.

*SuggestedRemedy*

Move the last paragraph that begins with "Interfaces using the E1 format" to be the second paragraph of this sub-clause.

*Response* *Response Status* **C**

REJECT.
This paragraph moved to this location according to the resolution of comment #499 against D2.0

*Cl* **178B** *SC* **178B.7.3** *P* **856** *L* **19** # 49

Brown, Matt — Alphawave Semi

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

Use of word may with means "is permitted to". In this case, assignment to one of these is mandatory.

*SuggestedRemedy*

Change "may be" to "is assigned".
Update the definitions for coef_sts, ic_req, ic_sel, ic_sts, lane_training_status, remote_tp_mode, similarly.

*Response* *Response Status* **C**

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

*Cl* **178B** *SC* **178B.7.3.1** *P* **857** *L* **38** # 52

Brown, Matt — Alphawave Semi

*Comment Type* **E** *Comment Status* **A** *(bucket) (CI)*

The variable remote_tp_mode is never used by or set by any state diagram and is never referenced elsewhere.

*SuggestedRemedy*

Delete the entry for remote_tp_mode.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **178B** *SC* **178B.7.3.1** *P* **858** *L* **12** # 488

Slavick, Jeff — Broadcom

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

Training frames could use a reference

*SuggestedRemedy*

Add "(see 178B.5.2)" to the end of the definition of the training enumeration.

*Response* *Response Status* **C**

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

---

*Cl* **178B** *SC* **178B.7.3.1** *P* **858** *L* **15** # 487

Slavick, Jeff — Broadcom

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

In Data mode we're transmitting the data from the other sub-layer, not really the AUI component or PMD those have digitized the data, but it's then processed by a PMA/PCS/XS/Inner FEC before being transmitted again.

*SuggestedRemedy*

Change the definintion of data to be "transmit data from the PMA"

*Response* *Response Status* **W**

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

---

*Cl* **178B** *SC* **178B.7.3.5** *P* **860** *L* **45** # 53

Brown, Matt — Alphawave Semi

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

In Figure 178B-10 operator symbol "#" is used but likely it was intended to be no-equal-to symbol.

*SuggestedRemedy*

Change "#" to not-equal-to symbol.

*Response* *Response Status* **C**

ACCEPT.

---

*Cl* **178B** *SC* **178B.7.3.5** *P* **860** *L* **45** # 249

He, Xiang — Huawei

*Comment Type* **ER** *Comment Status* **A** *(bucket) (CI)*

the "not equals" sign should be "≠" instead of "#".

*SuggestedRemedy*

Change "#" to "≠"

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
According to Table 21–1—State diagram operators, not equal sign is ≠. Replace # with ≠.

---

*Cl* **178B** *SC* **178B.7.3.5** *P* **860** *L* **52** # 231

Mi, Guangcan — Huawei Technologies Co., Ltd

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

there is a variable isl_ready and a state ISL_READY. The variable isl_ready is used in the RTS state diagram. But not appearing in the control state diagram. By definition

*SuggestedRemedy*

change the local_rx_ready and remote_rx_ready after the ISL_READY state to isl_ready

*Response* *Response Status* **C**

ACCEPT.

---

*Cl* **178B** *SC* **178B.8** *P* **863** *L* **16** # 197

Bruckman, Leon — Nvidia

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

Wrong reference for mr_restart, mr_training_enable and training_status

*SuggestedRemedy*

In Table 178B-6 change the references of mr_restart, mr_training_enable and training_status to point to clause 45 and not clause 42.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **179** *SC* **179.1** *P* **397** *L* **15** # 370

Kocsis, Sam — Amphenol

*Comment Type* **E** *Comment Status* **A** *(bucket) Wording (E)*

The sentence "Annex 179B specifies test fixtures" implies that the normative annex contains normative requirements for the test fixtures. However, the normative requirements are for the mated test fixtures only, not independent requirements.

*SuggestedRemedy*

Update the sentence to say "Annex 179B specifes the normative requirements for mated test fixtures."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
179B.1 states that the test fixture are specified, and the parameters measured in mated state create implied specifications for each fixture.
Change "Annex 179B specifies test fixtures" to "Annex 179B includes specifications and reference insertion loss for test fixtures".

*Cl* **179** *SC* **179.8.1** *P* **404** *L* **23** # 309

Healey, Adam — Broadcom, Inc.

*Comment Type* **E** *Comment Status* **A** *(bucket) Test points (E)*

In Table 179.8.1 the term "die bump" is used in the definition of TP0d and Tp5d but it is not defined in IEEE Std 802.3 (or in the IEEE P802.3dj draft). Since TP0d and TP5d are also defined in Clause 178 and Annex 176C, use of similar language seems appropriate. Refer to Figure 178-2 for an example.

*SuggestedRemedy*

Replace "die bump" with "device-to-package interface" in the definitions of TP0d and TP5d.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **179** *SC* **179.8.1** *P* **405** *L* **21** # 394

Ran, Adee — Cisco Systems

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

In Figure 179-2, the demarcation lines of PMD, Cable assembly, and PMD should be at the bottom of the diagram (below the newly-introduced "ILT" blocks).

*SuggestedRemedy*

Change the diagram per the comment.

*Response* *Response Status* **C**

ACCEPT.

*Cl* **179** *SC* **179.8.9** *P* **407** *L* **9** # 503

Opsasnick, Eugene — Broadcom

*Comment Type* **ER** *Comment Status* **A** *(bucket) (E)*

The first sentence of 179.8.9 states "A PMD shall provide …", but this subclause is specifing the behavior of a specific PMD, not all PMDs.

*SuggestedRemedy*

Change "A PMD shall provide … " to "The PMD shall provide …"
This matches the style of the other 179..8.x function definitions.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **179** *SC* **179.9.4** *P* **408** *L* **8** # 395

Ran, Adee — Cisco Systems

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

Article mismatch in "to a 50 Ω single-ended loads".

*SuggestedRemedy*

Delete "a".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **179** *SC* **179.9.4.1.2** *P* **411** *L* **32** # 205

Brown, Matt — Alphawave Semi

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

The following paragraph is informative since it gives information that is not normative or building upon normative content. In fact, it is talking about a system that violates the normative specifications in this clause.
"Systems with transmitters having steady-state voltage higher than the maximum specified in Table 179–7 are considered engineered links. It is the system integrator's responsibility to verify that the transmitter, receiver, and channel are compatible."
Note that this text was correctly implemented per the adopted response to Draft 2.1 comment #668.

*SuggestedRemedy*

Change the paragraph to an informative note, starting with "NOTE--"

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **179** *SC* **179.9.4.1.5** *P* **413** *L* **1** # 206

Brown, Matt — Alphawave Semi

*Comment Type* **T** *Comment Status* **A** *cket) Standards language (E)*

A note (preceded with "NOTE--") is an informative statement. The word "may" is normative interpreted as "is permitted to" per the style guide. If this is intended to describe the possibility given the normative specifications, then we can change "may" to "can" (interpreted as "is able to"). If we want to give permission, then it should not be an informative note. The style manual helps us with the latter suggest that the sentence be prefixed with "Note that".

*SuggestedRemedy*

Two solutions are suggested:
#1 Change "may" to "can". (preferred)
#2 Change "Note--Any" to "Note that any"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "may" to "can".

---

*Cl* **179** *SC* **179.9.4.6** *P* **414** *L* **40** # 207

Brown, Matt — Alphawave Semi

*Comment Type* **T** *Comment Status* **A** *cket) Standards language (E)*

The second sentence of the informative note is making a recommendation, which is normative, not informative, as it could mean the test is not properly done otherwise. The style manual helps us out suggesting that instead we use "Note that" if it is normative.

*SuggestedRemedy*

Change "NOTE--Outputs" to "Note that outputs".

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The recommendation in the second sentence ("Other circuitry in lanes not under test should be kept active during the measurement") can affect the measurement result and is not just explanatory.

Move the second sentence from the NOTE to the paragraph above it, with editorial license.

---

*Cl* **179** *SC* **179.9.5.2** *P* **419** *L* **11** # 208

Brown, Matt — Alphawave Semi

*Comment Type* **T** *Comment Status* **R** *(withdrawn) (bucketp)*

Two concerns with this note. First, the statements are extra information relating to the normative requirements and is worded somewhat normatively; so this should not be an informative note. Secondly, the first sentence is ambiguous as it is the measurement of steady-state voltage as specified in 179.9.4.1.2 that is defined with the transmitter set to preset 1.

*SuggestedRemedy*

Change "NOTE—Steady-state voltage is defined with preset 1. It is not initially generated by a transmitter, due to the initialize setting in Table 179–8."
To "Note that the measurement of steady-state voltage as defined in 179.9.4.1.2 with transmit equalizer set to preset 1 (no equalization), which is not initially generated by a transmitter per initialize setting in Table 179–8 ."

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

---

*Cl* **179** *SC* **179.9.5.3.4** *P* **421** *L* **30** # 209

Brown, Matt — Alphawave Semi

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

This informative note is providing clarification of a normative specification and thus is not really informative.

*SuggestedRemedy*

Change "Note--The" to "Note that the".

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **179** *SC* **179.9.5.4.2** *P* **423** *L* **23** # 308

Healey, Adam — Broadcom, Inc.

*Comment Type* **TR** *Comment Status* **A** *(bucket) ITOL/JTOL (E)*

The note below Table 179-13 states the following. "The ADD (Equation (179-14)) and sigmaRJ (Equation (179-15)) calculated from transmitter measurements in this test may be higher than the values in Table 179-19. A suitable channel should be chosen in order to meet the COM requirement with these values." This suggests that a receiver is permitted to be tested with a transmitter that is far outside the limits imposed on compliant transmitters. It also relies on the Channel Operating Margin (COM) calculation being able to correctly evaluate the penalty caused by transmitters with high jitter. The COM calcuation uses a first-order approximation of the noise due to transmitter jitter and the accuracy of this approximation can be expected to degrade for higher levels of jitter. Therefore, it seems likely trade-offs between channel loss/noise and jitter may not a evaluated accurately. The test transmitter, including the added sinusoidal jitter, should be required to meet the JRMS and Jnu03 specifications or the degree to which the test transmitter is allowed to exceed the specifications should be limited.

*SuggestedRemedy*

Remove the note. The requrements of 179.9.5.3.3 (referred to by 179.9.5.4.2) item c) are then expected to apply.

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
The measured parameters of the pattern generator, J4u_03 and J_RMS, need to be within the limits in Table 179-7.

Add a statement in 179.9.5.4.1 that the pattern generator with SJ insjection complies with EOJ03, J4u03, and JRMS in Table 179-7.
Apply similar changes in the JTOL subclauses in Clause 178, Annex 176C, and Annex 176D.
Implement with editorial license.

*Cl* **179** *SC* **179.11.8** *P* **433** *L* **40** # 396

Ran, Adee — Cisco Systems

*Comment Type* **E** *Comment Status* **A** *ıcket) Document structure (E)*

The new SCMR_CH specification is relevant for all electrical channels, not just to cable assemblies. Its location under 179.11 is not ideal, and it is possible that other electrical channel specifications will also include this parameters.
Annex 178A, titled "Specification methods for 200 Gb/s per lane electrical channels", is a more appropriate place.

*SuggestedRemedy*

Move the content of 179.11.8 to a new subclause 178A.2.
Update the existing reference in Table 179–14 accordingly.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

*Cl* **179B** *SC* **179B.3.1** *P* **874** *L* **15** # 443

Dudek, Mike — Marvell

*Comment Type* **TR** *Comment Status* **A** *ket) Test fixture reference (E)*

Equation 179B-2 leads to -34.26dB at 53GHz. An obvious problem as the value per figure 179A-1 should be 5.95dB

*SuggestedRemedy*

Change the 0.841f to 0.0841f

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
The comment identifies an editorial error in translating the equation for D2P1. There are technical implications wiht the error, but the suggested remedy provides the right corrective action.
Implement the suggested remedy.

*Cl* **179B** *SC* **179B.3.1** *P* **874** *L* **19** # 442

Dudek, Mike — Marvell

*Comment Type* **T** *Comment Status* **A** *(bucket) Test points (E)*

The cable assembly test fixture includes the connector, vias, etc.

*SuggestedRemedy*

Delete "PCB" from "test fixture PCB reference"

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The comment identifies an inconsistency in the nomenclature.
However, the text fixture should be referenced correctly.

Change "test fixture PCB reference" to "cable assembly test fixture reference".
Update the details of the structures included in the cable assembly test fixture in the text of 179B.3.1.
Implement with editorial license.

*Cl* **179B** *SC* **179B.4.2** *P* **875** *L* **33** # 366

Kocsis, Sam — Amphenol

*Comment Type* **E** *Comment Status* **A** *ket) Test fixture reference (E)*

Equation 179B-5, as plotted in Figure 179B-2 provides a reference insertion loss for the mated test fixture, without any context.

*SuggestedRemedy*

Add text, or a note that specifies that Equation 179B-5 is the sum of Equations 179B-1 and 179B-2.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following NOTE after the parameter list that follows equation 179B-5:
NOTE---ILDD_MTFref is equal to the sum of ILdd_tref in Equation (179B-1) and ILdd_catref in Equation (179B-2).

*Cl* **180** *SC* **180.1** *P* **443** *L* **38** # 433

Nicholl, Gary — Cisco Systems

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

In Table180-1, footnote c also applies to 200GAUI-2 C2C and 200GAUI-2 C2M. When implemented in a 200GBASE-DR1 PHY the signalling rate of these AUIs must also be constrained as defined in 120.1.4 (i.e. to 50ppm).

Same comment for Table 180-2..

*SuggestedRemedy*

Update Table 180-1 and Table 180-2 , to add footnote c to 200GAUI-2 C2C and 200GAUI-2 C2M (Table 180-1) and 400GAUI-4 C2C and 400GAUI-4 C2M (Tabe 180-2).

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.

*Cl* **180** *SC* **180.5.2** *P* **450** *L* **48** # 435

Nicholl, Gary — Cisco Systems

*Comment Type* **T** *Comment Status* **A** *ILT (CI)*

With respect to the sentence "When operating in TRAINING mode, the PAM4 symbol stream on each lane is taken from the output of the training pattern generator in the PMD control function (see Figure 178B.4)" It is not clear what "lane" is referring to in this sentence . Is it the .PMD:IS_UNITDATA_i.request input lane from the service interface , or does it mean the SLi lane at the outout of the PMD transmit funciton ? Also the sentence refers to a "training pattern generator in the PMD control function (See Figure 178B.4) " . There is no "PMD control function" shown in either Figure 180-2 or in Figure 178B-2 ? The term "PMD control function" does appear anywhere else in clause 180 or in 178B. Is the "training pattern generator" assumed to part of the "PMD transmit Function" block in Figure 180-2 or the "per-lane ILT function block" in Figure 178B-2

It sounds like in training mode a PAM4 signal from a traning pattern generator (located somehwere) is converted to an optical signal and delivered to the MDI ?

*SuggestedRemedy*

Change from:
"When operating in TRAINING mode, the PAM4 symbol stream on each lane is taken from the output of the training pattern generator in the PMD control function (see Figure 178B.4)."
to:
"When operating in TRAINING mode, each source lane of the MDI (SLi) is replaced with a PAM4 optical symbol stream derived from a training pattern generator (add a reference here) "

An alternative approach would be to simplfy both paragraphs along the lines of:
"When operating in DATA mode, the PMD Transmit Function converts a symbol stream from PMD:IS_UNITDATA_i to a correpsonding optical signal on source lane SLi on the MDI.

When operating in TRAINING mode, the PMD Transmit Function converts a PAM4 symbol stream from a training pattern generator (add reference here) to a coresponding optical signal on each source lane SLi on the MDI"

Make similar and appropriate changes to 181.5.2, 182-2.5.2, 183.5.2.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "PMD control function" to "ISL training function" to match the subclause title (178B.5).

Update the reference from "Figure 178B.4" to "(see 178B.5 and Figure 178B-5)".

Apply in other PMD and AUI clauses where appropriate.

Implement with editorial license.

---

*Cl* **180** *SC* **180.6** *P* **452** *L* **43** # 436

Nicholl, Gary — Cisco Systems

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

This is more of a question for clarification. I wanted to clarify that this subclause is only assigning optical lanes at the MDI. It is not attempting to place any restriction on the mapping between eleectrical lanes (on the AUI-n) and optical lanes at the MDI ?

The whole point of the MLD based PCS is to allow both host and module implementors flexibility in the routing and mapping of both electrical and optical lanes.

*SuggestedRemedy*

Clarify that we are not placing any restrictions on the mapping between electrical lanes from the AUI-n to optical lanes on the MDI.

*Response* *Response Status* **C**

REJECT.
There could be a gearbox between the AUI and the optical PMD, therefore, it is not necessarily a one-to-one relation. However, the suggested remedy does not provide sufficient detail to implement.

---

*Cl* **180** *SC* **180.7.1** *P* **453** *L* **31** # 399

Ran, Adee — Cisco Systems

*Comment Type* **TR** *Comment Status* **A** *itter for optical interface (CO)*

Clock jitter, especially at low frequencies, is not captured adequately by existing optical PMD transmitter specifications, and should be limited by separate specifications to avoid correlated errors in receivers that would degrade link performance.

Methods for jitter measurements are available in oscilloscopes and are used successfully in electrical transmitters. The same methods can be used for optical transmitters.

Note that jitter measurement is faster than a "functional receiver" test, and is more reliable, because the CRU bandwidth in oscilloscopes scope is tightly controlled.

A presentation with measured data in a controlled experiment, demonstrating that high jitter levels significantly degrade FEC performance while having an insignificant effect on TDECQ, will be provided.

This specification should apply to transmitters in all IM-DD PMDs.

*SuggestedRemedy*

In Table 180-7, add an "Output jitter" row with parameters and units as in Table 176D-3 (module output specifications at TP4). For maximum values, use the values in 176D-3 except that J4u03 is increased by 10% (relaxed) to account for higher measurement noise.

In Table 180-14, add a new test pattern 8, PRBS9Q, defined in 176.7.4.4.
In Table 180-14, add an "Output jitter" row with pattern 4, 6, or 8, and reference to 180.9.14 (new subclause).
Add a new subclause 180.9.14 for Output jitter. The content is to be taken from 176D.8.9, with additional exceptions:
- transmit equalizer is fixed
- when the PHY includes an xAUI-n, the clock source for the test pattern is derived from the clock recovered from the xAUI-n input signal.

Implement similarly in clauses 181, 182, and 183, as appropriate.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The following contribution was reviewed by the task force:
https://www.ieee802.org/3/dj/public/25_09/ran_3dj_04_2509.pdf

Based on the results of straw poll TF-2 there is sufficient consensus make the proposed changes.

Implement the suggested remedy with editorial license.

Straw poll TF-1 (directional)
I support adopting the suggested remedy in comment #399.

Yes: 22
No: 6
NMI: 14
Abstain: 19

Straw poll TF-2 (decision)
I support closing comment #399 adopting the suggested remedy in comment #399.
Yes: 22
No: 17
Abstain: 20

---

*Cl* **180** *SC* **180.7.1** *P* **453** *L* **47** # 157

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. If TDECQ/TECQ are kept at 3.4 dB given the new TDECQ equalizer will add 1+ dB of penalty to the receiver.

*SuggestedRemedy*

Propose to split the gain from 1T DFE between TX and RX PMDs:
- Reduce TDECQ from 3.4 dB to 3.0
- Reduce TECQ from 3.4 dB to 3.0
- Reduce |TDECQ-TECQ| from 2.5 dB to 2.2 dB
- Reduce TDECQ range from 3.4 dB to 3.0 under Outer OMA parameter
Based on the resolution also adjust Figure 180-3, SECQ in table 180-8, Figure 180-4, and Figure 180-5,
see ghiasi_3dj_01_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

---

*Cl* **180** *SC* **180.7.1** *P* **454** *L* **26** # 124

Landry, Gary — Texas Instruments

*Comment Type* **E** *Comment Status* **R** *(bucket) (O)*

The text was changed from referencing "Table 180-8" to "180-9." This sentence refers to the Tx specs and should have remained "Table 180-8"

*SuggestedRemedy*

Change reference back to Table 180-8

*Response* *Response Status* **C**

REJECT.
The D2.1 clean version correctly has the cross reference as Table 180-8

---

*Cl* **180** *SC* **180.7.3** *P* **456** *L* **35** # 166

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. Given the TDECQ reduction, assuming 3.0 dB is the value WG accepts then power budget can be adjusted down.

*SuggestedRemedy*

In Table 180-9 make following changes
- Power budget (for Max TDECQ) reduced from 6.7 to 6.3 dB
- Allocation for penalties (for Max TDECQ) reduced from 3.7 to 3.3 dB
see ghiasi_3dj_02_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

---

*Cl* **180** *SC* **180.7.3** *P* **456** *L* **35** # 133

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. Given the TDECQ reduction, assuming 3.0 dB is the value WG accepts then power budget can be adjusted down.

*SuggestedRemedy*

In Table 180-9 make following changes
- Power budget (for Max TDECQ) reduced from 6.7 to 6.3 dB
- Allocation for penalties (for Max TDECQ) reduced from 3.7 to 3.3 dB
see ghiasi_3dj_02_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **180** *SC* **180.7.3** *P* **456** *L* **35** # 136

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. Given the TDECQ reduction, assuming 3.0 dB is the value WG accepts then power budget is reduced by 0.4 dB.

*SuggestedRemedy*

Given the 0.4 dB power budget reduction in Table 180-9 suggest to split the difference between TX and RX PMDs, and make following adjustments to the OMA:
- Table 180-7 Outer OMA change 4.2 to 4.0 dBm
-Table 180-8 Receiver Power Outer OMA (max) change 4.2 to 4.0 dBm
see ghiasi_3dj_02_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **180** *SC* **180.9.4** *P* **461** *L* **33** # 316

Rodes, Roberto — Coherent

*Comment Type* **E** *Comment Status* **A** *(bucket) TDECQ method (O)*

The definitions of OMA, overshoot, transmitter power excursion, extinction ratio, and transition time are misleading. These tests are measured using waveforms at the output of the reference receiver defined in 180.9.5. This wording could give the impression that the same waveform used in 180.9.5 is applied to the test, which is not the case.

*SuggestedRemedy*

Move the definition of the reference receiver from the TDECQ to the TECQ subclause, and specify TDECQ by referencing TECQ with the addition of the fiber, instead of the other way around as it is currently written in the document.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

*Cl* **180** *SC* **180.9.5** *P* **447** *L* **1** # 179

El-Chayeb, Ahmad — Keysight Technologies (ahmad.el-chayeb@keysight.c

*Comment Type* **TR** *Comment Status* **A** *TDECQ (CO)*

The current TDECQ calculated at a pre-FEC target SER is intended to correlate to receiver sensitivity, not link performance

*SuggestedRemedy*

Add a new CER TDECQ metric that esitimates the power penalty at a target CER (codeword error ratio) to have better correlation with link performance. The definition for this CER TDECQ and suggested wording will be provided in a supporting presentation.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The following contribution was reviewed by the CRG:
https://www.ieee802.org/3/dj/public/25_09/chayeb_3dj_01b_2509.pdf

According straw poll TF-3 there is sufficient consensus for the proposal in chayeb_3dj_01b_2509.

Implement the proposal on slides 12 to 19 of chayeb_3dj_01b_2509 in Clause 180, 181, 182, and 183.

Clarify on slide 15 that "center of the target histogram" refers to the horizontal center.

Straw poll TF-3 (directional)
I support adopting the proposal on slides 12 to 19 of
https://www.ieee802.org/3/dj/public/25_09/chayeb_3dj_01b_2509.pdf
Yes: 22
No: 10
NMI: 8
Abstain: 12

*Cl* **180** *SC* **180.9.5** *P* **462** *L* **8** # 144

Ghiasi, Ali — Ghiasi Qunatum/Marvell

*Comment Type* **TR** *Comment Status* **R** *TDECQ method (CO)*

TDECQ mission mode test definition should be made more clear

*SuggestedRemedy*

Propsoed text
TDECQ is defined with all receive xAUI-n lanes when instantiated in operation using test pattern 3 or 5 (see Table 180–13). xAUI-n lanes operate with receiver jitter tolerance condition defined by applicable instantiated xAUI-n.
The received test patterns shall be asynchronous to the pattern used to test the transmitter, and shall
have power levels as specified in Table 180–8 for the aggressor lanes in the stressed receiver
sensitivity test.

*Response* *Response Status* **U**

REJECT.

There was not sufficient consensus to adopt the proposed changes.

Straw poll TF-4 (directional)
I support adopting the suggested remedy with or without some caveats for clauses 180 through 183.
Yes: 10
No: 11
NMI: 3
Abstain: 13

*Cl* **180** *SC* **180.9.7** *P* **464** *L* **31** # 449

Dudek, Mike — Marvell

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

Confusion between codeword and test block. The test is performed with PRBS31Q so codeword is not appropriate.

*SuggestedRemedy*

Change "single codeword" to "single test block".

*Response* *Response Status* **C**

ACCEPT.

*Cl* **180** *SC* **180.9.7** *P* **464** *L* **31** # 233

Mi, Guangcan — Huawei Technologies Co., Ltd

*Comment Type* **E** *Comment Status* **A** *(bucket) (O)*

p=1, where p should be italian

*SuggestedRemedy*

make p italian

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the format of p into italics.

*Cl* **180** *SC* **180.9.13** *P* **467** *L* **29** # 319

Johnson, John — Broadcom

*Comment Type* **E** *Comment Status* **A** *(bucket) (O)*

The Note about the use of linear extrapolation, while syntactically correct, is challenging to parse.

*SuggestedRemedy*

Change From: "NOTE - To reduce test time, a means to provide statistical projection of the measured histograms (see 174A.8.3), if the statistical projection is modeled accurately by a linear fit extrapolation, follows."

To: "NOTE - If the statistical projection is modeled accurately by a linear fit extrapolation, a means to provide statistical projection of the measured histograms (see 174A.8.3) in order to reduce test time follows."

The same remedy can be applied to the Notes in clauses 180.9.14, 181.9.13, 181.9.14, 182.9.13, 182.9.14, 183.9.13 and 183.9.14, with editorial license.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

[Editor's note: changed page/line from 496/35]

*Cl* **180A** *SC* **180A.4.2** *P* **905** *L* **34** # 218

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

*Comment Type* **ER** *Comment Status* **A** *(bucket) (O)*

There are two instances of 1.6TBASE-DR8 in the note.

*SuggestedRemedy*

The second instance of 1.6TBASE-DR8 should be replaced with "1.6TBASE-DR8-2.

*Response* *Response Status* **W**

ACCEPT.

*Cl* **181** *SC* **181.7.1** *P* **484** *L* **21** # 125

Landry, Gary — Texas Instruments

*Comment Type* **E** *Comment Status* **R** *(bucket) (O)*

The variable OMAouter (min) is now shown as "max(TECQ, TDECQ)." While strictly correct, it would be better to explictly show the offset for parallelism to other clauses

*SuggestedRemedy*

Change "max(TECQ, TDECQ)" to
"0 + max(TECQ, TDECQ)"

*Response* *Response Status* **C**

REJECT.
While the intention of the comment is understandable, it is unnecessary to add 0 when the value has an explicit expression, i.e., max(TECQ, TDECQ).

*Cl* **181** *SC* **181.7.1** *P* **484** *L* **24** # 158

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. If TDECQ/TECQ are kept at 3.4 dB given the new TDECQ equalizer will add 1+ dB of penalty to the receiver.

*SuggestedRemedy*

Propose to split the gain from 1T DFE between TX and RX PMDs:
- Reduce TDECQ from 3.4 dB to 3.0
- Reduce TECQ from 3.4 dB to 3.0
- Reduce |TDECQ-TECQ| from 2.5 dB to 2.2 dB
- Reduce TDECQ range from 3.4 dB to 3.0 under Outer OMA parameter
Based on the resolution also adjust Figure 180-3, SECQ in table 180-8, Figure 180-4, and Figure 180-5,
see ghiasi_3dj_01_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **181** *SC* **181.7.3** *P* **487** *L* **35** # 167

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. Given the TDECQ reduction, assuming 3.0 dB is the value WG accepts then power budget can be adjusted down.

*SuggestedRemedy*

In Table 181-9 make following changes
- Power budget (for Max TDECQ) reduced from 7.5 to 7.1 dB
- Allocation for penalties (for Max TDECQ) reduced from 4.0 to 3.6 dB
see ghiasi_3dj_02_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **181** *SC* **181.7.3** *P* **487** *L* **35** # 137

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

In D2.0 1T DFE was added to the TDECQ equalizer which reduces TDECQ by 0.5-1.0 dB. Given the TDECQ reduction, assuming 3.0 dB is the value WG accepts then power budget is reduced by 0.4 dB.

*SuggestedRemedy*

Given the 0.4 dB power budget reduction in Table 181-7 suggest to split the difference between TX and RX PMDs, and make following adjustments to the OMA:
-Table 181-5 Outer OMA change 4.8 to 4.6 dBm
- Table 181-6 Receiver Power Outer OMA (max) change 4.8 to 4.6 dBm
see ghiasi_3dj_02_2509

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **182** *SC* **182.1** *P* **505** *L* **39** # 434

Nicholl, Gary — Cisco Systems

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

In Table 182-1, footnote c also applies to 200GAUI-2 C2C and 200GAUI-2 C2M. When implemented in a 200GBASE-DR1-2 PHY the signalling rate of these AUIs must also be constrained as defined in 120.1.4 (i.e. to 50ppm).

Same comment for Table 182-2.

*SuggestedRemedy*

Update Table 182-1 and Table 182-2 , to add footnote c to 200GAUI-2 C2C and 200GAUI-2 C2M (Table 182-1) and 400GAUI-4 C2C and 400GAUI-4 C2M (Tabe 182-2).

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #433.

*Cl* **184** *SC* **184.1.1** *P* **568** *L* **11** # 505

Opsasnick, Eugene — Broadcom

*Comment Type* **ER** *Comment Status* **A** *(bucket) (L)*

Redundant language should be simplified.

*SuggestedRemedy*

Change:
"When necessary for disambiguation, to differentiate the Inner FEC defined in this clause from the 800GBASE-R Inner FEC defined in Clause 177, the term 800GBASE-LR1 Inner FEC is used."
To:
"When necessary to differentiate the Inner FEC defined in this clause from the 800GBASE-R Inner FEC defined in Clause 177, the term 800GBASE-LR1 Inner FEC is used."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **184** *SC* **184.1.2** *P* **568** *L* **31** # 403

Ran, Adee — Cisco Systems

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

Figure 184–1 shows the Inner FEC sublayer directly below the PCS. However, Figure 184–2 indicates that the sublayer above can also be a PMA (two specific types).
While theoretically the PCS can be connected directly, as in Figure 184–1, it is likely not the implementation most people have in mind.

*SuggestedRemedy*

In Figure 184–1 add a box for the PMA, with a footnote that it is optional and limited to the 800GBASE-R 8:32 PMA or 800GBASE-R 4:32 PMA (to match Figure 184–2).

*Response* *Response Status* **C**

REJECT.
The only time a PMA is above the Inner FEC is when an AUI C2M is present. That will probably be the case for most implementations of 800GBASE-LR1. But it's the same case for all implementations of IMDD PHYs, and we have historically not included AUIs in these introductory figures. This figure is consistent with similar PHY types defined in the base standard.

*Cl* **184** *SC* **184.1.3** *P* **569** *L* **11** # 404

Ran, Adee — Cisco Systems

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

Following up on comments #418 and #419 againt D2.0.

The inner FEC sublayer should have a way to relay the "RTS" status from the PMA above it to the link partner and vice versa. This could be achieved by enabling/disabling the coherent transmitter output, but alternative methods that keep the transmitter active may be preferable.

*SuggestedRemedy*

A presentation with a detailed proposal will be provided.

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **184** *SC* **184.2** *P* **570** *L* **6** # 405

Ran, Adee Cisco Systems

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

The service interface in Figure 184–2 does not include an IS_SIGNAL.request primitive, although the PCS and PMA can generate this primitive to the service interface below them. This primitive is required if ILT is to be included; until then, it can be included with a statement that it has no effect.

*SuggestedRemedy*

Add a FEC:IS_SIGNAL.request primitive in Figure 184–2 and add text as necessary in 184.2 and 184.3 (examples can be taken from clause 177).
Implement with editorial license.

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

*Cl* **184** *SC* **184.4.7** *P* **575** *L* **45** # 239

He, Xiang Huawei

*Comment Type* **ER** *Comment Status* **A** *(bucket) (L)*

The terminology "DP-QAM16" is not used in the standard. Instead, "DP-16QAM" is used.

*SuggestedRemedy*

Change "DP-QAM16" to "DP-16QAM"

*Response* *Response Status* **W**

ACCEPT.

*Cl* **184** *SC* **184.7.2.2** *P* **584** *L* **33** # 91

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of dsp_lock<x>
From:
"A Boolean variable that is set to true when the receiver has detected the location of the PS for a given polarization symbol stream on the 800GBASE-LR1 PMD service interface, where x = 0:1."
To:
"A Boolean variable that indicates the receiver has detected the location of the PS for a given polarization symbol stream on the 800GBASE-LR1 PMD service interface, where x = 0 or 1. Its value is set by the DSP lock state diagram (see Figure 184–9)."
Implement with editorial license.

*Cl* **184** *SC* **184.7.2.2** *P* **584** *L* **42** # 92

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of reset to keep it consistent with comments #74 - reset is a special case.
Modify the defintion of the reset variable by adding: ", and is false otherwise." to end of the last sentence.
Implement with editorial license.

*Cl* **184** *SC* **184.7.2.2** *P* **584** *L* **47** # 93

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable restart_lock
From:
"A Boolean variable that is set by the DSP frame lock process to reset the synchronization process on each polarization symbol stream. It is set to true when M PS symbols in a row fail to match (M_BAD state) on a given polarization symbol stream."
To:
"A Boolean variable that is used to restart the synchronization process for both polarization symbol streams when M PS symbols in a row fail to match within either polarization symbol stream. Its value is set by the DSP lock state diagram (see Figure 184-9).
Implement with editorial license.

*Cl* **184** *SC* **184.7.2.2** *P* **584** *L* **54** # 94

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description of the use.

*SuggestedRemedy*

Change: Boolean variable that indicates that sym_counter has reached its terminal count.
To: Boolean variable that is set to true when sym_counter has reached its terminal count. Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable sym_counter_done
From:
"A Boolean variable that indicates that sym_counter has reached its terminal count."
To:
"A Boolean variable that is set to true when the counter sym_counter has reached its terminal count. It is set to false when the counter is started (see figure 184-9).
Implement with editorial license.

*Cl* **184** *SC* **184.7.2.2** *P* **585** *L* **3** # 95

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable sym_slip_done
From:
"A Boolean variable that is set to true when the SYM_SLIP requested by the DSP frame lock state diagram has been completed indicating that the next candidate PS position is available for testing."
To:
"A Boolean variable that indicates the next candidate PS position is available for testing. Is it set to true when the SYM_SLIP function completes and is set to false upon entering the GET_SYMBOL state of the DSP lock state diagram (see Figure 184-9)."

Implement with editorial license.

*Cl* **184** *SC* **184.7.2.2** *P* **585** *L* **7** # 96

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of sym_valid
From:
"A Boolean variable that is set to true if the received symbol is a valid PS symbol according to the state of the pilot sequences generator (see 184.4.9) for the value of the current_ps_id variable."
To:
"A Boolean variable that is set to true if the received symbol is a valid PS symbol according to the state of the pilot sequences generator (see 184.4.9) for the value of the current_ps_id variable. Otherwise, this variable is set to false."

Implement with editorial license.

*Cl* **185** *SC* **185.12.4.1** *P* **614** *L* **32** # 288

Huber, Thomas — Nokia

*Comment Type* **ER** *Comment Status* **A** *(bucket) (O)*

Item F1 refers to an 800GBASE-LR1 PCS and PMA, but there are no such sublayers. Since LR1 requires an inner FEC it should be included in the PICS.

*SuggestedRemedy*

Change the feature column of item F1 to say "Compatible with 800GBASE-R PCS and PMA and 800GBASE-LR1 Inner FEC"

*Response* *Response Status* **W**

ACCEPT.

*Cl* **185A** *SC* **185A.2.4.1** *P* **914** *L* **50** # 129

Zimmerman, George — ADI,APLgp,Cisco,Marvell,OnSemi,Sony

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

while the final ENOB number is the average of "the individual points" - what are the points being averaged - are they "effective bits", are they "SNR" in dB (both log scales, so this is a geometric mean), or are they a linear average of signal power and noise power from which effective bits is then computed (more accurate). The text doesn't say. I have an old version of IEEE Std 1241 (2011), but I believe you want to average the NAD term, according to equation 67 there (COherent sampling test method for SINAD in the frequency domain).

*SuggestedRemedy*

Change "The final ENOB number is then the average of the individual points." to "The final ENOB number is computed from the linearly averaging the noise and distortion terms and then computing ENOB of that average according to IEEE Std 1241-2023."

*Response* *Response Status* **W**

ACCEPT IN PRINCIPLE.
In 185A.2.4.1 replace "The final ENOB number is then the average of the individual points." with "The final ENOB number is computed from linearly averaging the noise and distortion terms and then computing ENOB of that average according to IEEE Std 1241-2023."

*Cl* **185A** *SC* **185A.2.5** *P* **916** *L* **2** # 296

Huber, Thomas — Nokia

*Comment Type* **ER** *Comment Status* **A** *(bucket) (O)*

The text here was not updated to reflect the change in modeling of 800GBASE-ER1 as a FEC sublayer rather than a standalone PCS.

*SuggestedRemedy*

Change "… the input to the PCS for 800GBASE-ER1 and 800GBASE-ER1-20." to "… the input to the ER1 FEC for 800GBASE-ER1 and 800GBASE-ER1-20."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **185A** *SC* **185A.2.5.3** *P* **917** *L* **35** # 130

Zimmerman, George — ADI,APLgp,Cisco,Marvell,OnSemi,Sony

*Comment Type* **T** *Comment Status* **R** *(bucket) shall statements (O)*

I think this is the key requirement for ETCC - the stepwise calculation. Unfortunately, you can't actually specify the steps - that's a requirement on the user - but you can specify the steps or their equivalent.

*SuggestedRemedy*

Replace "ETCC is calculated using the following steps." with "ETCC shall be calculated using the following steps, or methods which produce the same result."

*Response* *Response Status* **C**

REJECT.
The normative statement is in clauses 185 and 187 that use the annex. In both clauses the parameter definition is "The ETCC shall be within the limit given in Table 185–5 if measured using the methods specified in 185.9" where 185.9 points to the annex and provides the specific parameter values to use the annex.
To meet ETCC requirement the value must be measured per the steps in the annex, adding "or methods which produce the same result" removes this requirement.

*Cl* **186** *SC* **186,2,1** *P* **619** *L* **4** # 406

Ran, Adee — Cisco Systems

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

The service interface in Figure 186–3 does not include an IS_SIGNAL.request primitive, although the PCS and PMA above the FEC can generate this primitive to the service interface below them.
This primitive is required if ILT is to be included; until then, it can be included with a statement that it has no effect.

*SuggestedRemedy*

Add a FEC:IS_SIGNAL.request primitive in Figure 186–3 and add text as necessary in 186.2.2 (examples can be taken from clause 177).
Implement with editorial license.

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

---

*Cl* **186** *SC* **186.1.2** *P* **617** *L* **31** # 408

Ran, Adee — Cisco Systems

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

Figure 186–1 shows the FEC sublayer directly below the PCS. However, Figure 186–2 and Figure 186–3 indicate that the sublayer above can also be a PMA (two specific types). While theoretically the PCS can be connected directly, as in Figure 186–1, it is likely not the implementation most people have in mind.

*SuggestedRemedy*

Figure 186–1 add a box for the PMA, with a footnote that it is optional and limited to the 800GBASE-R 8:32 PMA or 800GBASE-R 4:32 PMA (to match Figure 186–2).

*Response* *Response Status* **C**

REJECT.

The only time a PMA is above the Inner FEC is when an AUI C2M is present. That will probably be the case for most implementations of 800GBASE-ER1 and 800GBASE-ER1-20. But it's the same case for all implementations of IMDD PHYs, and we have historically not included AUIs in these introductory figures. This figure is consistent with similar PHY types defined in the base standard.

---

*Cl* **186** *SC* **186.2.1** *P* **618** *L* **48** # 409

Ran, Adee — Cisco Systems

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

The 800GBASE-ER1 FEC sublayer should have a way to relay the "RTS" status from the PCS/PMA above it to the link partner and vice versa. This could be achieved by enabling/disabling the coherent transmitter output, but alternative methods that keep the transmitter active may be preferable.

*SuggestedRemedy*

A presentation with a detailed proposal will be provided.

*Response* *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

---

*Cl* **186** *SC* **186.2.1** *P* **619** *L* **30** # 289

Huber, Thomas — Nokia

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

The location of the test pattern insertion points should be shown in the overview figure

*SuggestedRemedy*

Add an arrow indicating PRBS31 insertion occurs above the GMP mapping function.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Modify figure 186-3 as proposed.

---

*Cl* **186** *SC* **186.2.1** *P* **620** *L* **8** # 192

Bruckman, Leon — Nvidia

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

The indicated rate is nominal. See page 620 line 53.

*SuggestedRemedy*

Change: "a rate of 26.5625 Gb/s." To: "a nominal rate of 26.5625 Gb/s."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **186** *SC* **186.2.2** *P* **621** *L* **6** # 193

Bruckman, Leon Nvidia

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

According to Figure 186-3, FEC:IS_SIGNAL.indication is also influences by PMA:IS_SIGNAL.indication from the PMA.

*SuggestedRemedy*

Change: "The SIGNAL_OK parameter is set to OK when fec_all_mfas_locked (see 186.4.2.1) is true and is set to FAIL when fec_all_mfas_locked is false."
To: "The SIGNAL_OK parameter is set to OK when fec_all_mfas_locked (see 186.4.2.1) is true and the PMA:IS_SIGNAL.indication(SIGNAL_OK) is set to OK, and is set to FAIL otherwise."

*Response* *Response Status* **W**

ACCEPT.

*Cl* **186** *SC* **186.2.3.5.9** *P* **626** *L* **52** # 290

Huber, Thomas Nokia

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

The sum of C(sub)nD is encoded in bits D1-D5 rather than D1-D7.

*SuggestedRemedy*

Change "…is encoded in bits D1-D7 of JC4 and JC5…" to "…is encoded in bits D1-D5 of JC4 and JC5…

*Response* *Response Status* **W**

ACCEPT.

*Cl* **186** *SC* **186.2.3.5.10** *P* **627** *L* **7** # 497

Slavick, Jeff Broadcom

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

First sentence is very long.

*SuggestedRemedy*

From:
The three bytes of the AML field are used to encode information about the location of 800GBASE-R PCS alignment markers that were removed by the Inverse RS-FEC transmit function (see 186.2.3.1) within the stream of 257-bit blocks that are mapped into the 800GBASE-ER1 tributary multi-frame payload area, such that the 800GBASE-R PCS alignment markers can be re-inserted in the same location by the 800GBASE-ER1 FEC sublayer receive function.

To:
The three bytes of the AML field encodes the location within the stream of 257-bit blocks that the 800GBASE-R PCS alignment markers were removed by the Inverse RS-FEC transmit function (see 186.2.3.1). The AML field is mapped into the 800GBASE-ER1 tributary multi-frame payload area so that the 800GBASE-R PCS alignment markers can be re-inserted in the same location by the 800GBASE-ER1 FEC sublayer receive function.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The first sentence is indeed too long and complex, but the suggested remedy is not accurately capturing the meaning.

Replace the first paragraph of 186.2.3.5.10 with this text:
"The three bytes of the AML field (row 3, octets 2 and 3, and row 4, octet 3) in each mult-frame form a single 24-bit field, as shown in FIgure 186-6. This field is used to encode information about the location of 800GBASE-R PCS alignment markers that were removed by the Inverse RS-FEC transmit function (see 186.2.3.1). The field encodes the position of the first non-stuff block that is mapped into the payload area relative to the location of the 800GBASE-R PCS alignment markers that were removed. This information allows the 800GBASE-R PCS alignment markers to be re-inserted in the same location by the 800GBASE-ER1 FEC sublayer receive function."

Implement with licence.

*Cl* **186** *SC* **186.2.3.12** *P* **631** *L* **33** # 291

Huber, Thomas Nokia

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

The text regarding where the test pattern is inserted should be more clear.

*SuggestedRemedy*

Change "… is generated by the 800GBASE-ER1 FEC sublayer into each of the eight 800GBASE-ER1 tributary frames…" to "… is generated by the 800GBASE-ER1 FEB sublayer into each of the eight 800GBASE-ER1 tributary frames, before the GMP mapping process (see Figure 186-3)..."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "… is generated by the 800GBASE-ER1 FEC sublayer into each of the eight 800GBASE-ER1 tributary frames…" to "… is generated by the 800GBASE-ER1 FEC sublayer into each of the eight 800GBASE-ER1 tributary frames, before the GMP mapping process (see Figure 186-3)..."

*Cl* **186** *SC* **186.4.2.1** *P* **648** *L* **40** # 97

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The intent is that this variable is set to false when the next state is entered (in thia case, RAML_CNT_0 or RAML_CNT_INC), but the asssignmnet to false is missing.

Change the definition of the block_rx variable
From:
"Boolean variable that is set to true when the next non-stuff 257b block is demapped by the GMP demapper function."
To:
"Boolean variable that is set to true when the next non-stuff 257b block is demapped by the GMP demapper function. It is set to false upon entering the RAML_CNT_0 or RAML_CNT_INC states in the 800GBASE-ER1 FEC sublayer alignment marker location state diagram (see Figure 186-21)."

Update figure 186-21 to assign the value false to variable block_rx in states RAML_CNT_0 and RAML_CNT_INC.

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **11** # 98

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description of the use.

*SuggestedRemedy*

Change: Boolean variable that indicates that amp_counter has reached its terminal count.
To: Boolean variable that is set to true when amp_counter has reached its terminal count. Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

In addition to not defining the true/false conditions, the text also refers to "amp_counter" rather than "fam_counter".

Change the definition of the variable fam_counter_done
From:
"A Boolean variable that indicates that amp_counter has reached its terminal count."
To:
"A Boolean variable that is set to true when the counter fam_counter has reached its terminal count. It is set to false when the counter is started (see figure 186-19).
Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **14** # 104

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. It just says it holds the output of the function FAW_COMPARE.

*SuggestedRemedy*

Add a description of when it is set to true and when it is set to false. There isn't enough information in the spec to provide a suggestion.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The variable faw_match holds the result of the FAW_COMPARE function. The definition of the function indicates what it returns, and there is no value in repeating that information in the definition of the variable. The specification methodology is consistent with clause 119 and 172. However, in 186.4.2.2, the FAW_COMPARE function does not specify when it is set to false.

Add to the end of the defintion of function FAW_COMPARE in 186.4.2.2: ", otherwise it is set to false."

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **14** # 99

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. It just says it holds the output of the function FAM_COMPARE.

*SuggestedRemedy*

Add a description of when it is set to true and when it is set to false. There isn't enough information in the spec to provide a suggestion.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The variable fam_compare holds the result of the FAM_COMPARE function. The definition of the function indicates what it returns, and there is no value in repeating that information in the definition of the variable. The specification methodology is consistent with clause 119 and 172. However, in 186.4.2.2, the FAM_COMPARE function does not specify when it is set to false.

Add to the end of the defintion of function FAM_COMPARE in 186.4.2.2: ", otherwise it is set to false."

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **18** # 100

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable fam_slip_done
From:
"A Boolean variable that is set to true when the FAM_SLIP requested by the FAM field lock state diagram has been completed and the next candidate 480-bit block position is available to be tested."
To:
"A Boolean variable that indicates the next candidate 480-bit block position is available to be tested. Is it set to true when the FAM_SLIP function completes and is set to false upon entering the GET_BLOCK state of the 800GBASE-ER1 FEC sublayer FAM field lock state diagram (see Figure 186-19)."".

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **23** # 101

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy to update the fam_valid definition with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **28** # 102

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the definition of the variable fam_lock<x>
From:
"A Boolean variable that is set to true when the receiver has detected the location of the FAM field among the stream of 257-bit blocks on an 800GBASE-ER1 FEC sublayer tributary FEC flow, where x = 0 to 7."
To:
"A Boolean variable that indicates the receiver has detected the location of the FAM field among the stream of 257-bit blocks on an 800GBASE-ER1 FEC sublayer tributary FEC flow,
where x = 0 to 7. The value of fam_lock<x> is set by the 800GBASE-ER1 FEC sublayer FAM field lock state diagram (see Figure 186-19)."
Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **30** # 103

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description of the use.

*SuggestedRemedy*

Change: Boolean variable that indicates that faw_counter has reached its terminal count.
To: Boolean variable that is set to true when faw_counter has reached its terminal count. Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable faw_counter_done
From:
"A Boolean variable that indicates that faw_counter has reached its terminal count."
To:
"A Boolean variable that is set to true when the counter faw_counter has reached its terminal count. It is set to false when the counter is started (see figure 186-17).
Implement with editorial license.

[Editor's note: changed line from 11]

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **45** # 105

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy to update the faw_valid definition with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **649** *L* **50** # 106

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable faws_lock<x>
From:
"A Boolean variable that is set to true when the receiver has detected the location of the FAW field for a given polarization symbol stream on the 800GBASE-ER1 PMD service interface, where x = 0:1."
To:
"A Boolean variable that indicates the receiver has detected the location of the FAW field for a given polarization symbol stream on the 800GBASE-ER1 PMD service interface, where x = 0 or 1. The value of faws_lock<x> is set by the 800GBASE-ER1 PMA FAW field lock state diagram (see Figure 186-17)."

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **650** *L* **25** # 107

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable mfas_lock<x>
From:
"A Boolean variable that is set to true when the receiver has detected a valid MFAS sequence on an 800GBASE-ER1 FEC sublayer tributary FEC flow, where x = 0 to 7."
To:
"A Boolean variable that indicates the receiver has detected a valid MFAS sequence on an 800GBASE-ER1 FEC sublayer tributary FEC flow, where x = 0 to 7. The value of mfas_lock<x> is set by the 800GBASE-ER1 FEC sublayer multi-frame alignment state diagram (see FIgure 186-20)."

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **650** *L* **29** # 108

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy to update the mfas_valid definition with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **650** *L* **40** # 109

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable fec_restart_lock
From:
"A Boolean variable that is set by the FAM field lock process to reset the synchronization process. It is set to true when 5 consecutive FEC frame alignment mechanism patterns fail to match (5_BAD state) on a given 800GBASE-ER1 tributary FEC flow."
To:
"Boolean variable that is used to restart the FAM field lock process when 5 consecutive FEC frame alignment patterns fail to match on a given tributary FEC flow. The value of fec_restart_lock is set by the 800GBASE-ER1 FEC sublayer FAM field lock state diagram (see Figure 186-19)."
Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **650** *L* **45** # 110

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable fec_mfas_restart_lock
From:
"A Boolean variable that is set by the MFAS field lock process to reset the synchronization process. It is set to true when 5 consecutive MFAS values do not match the expected value (5_BAD state) on a given 800GBASE-ER1 FEC sublayer tributary FEC flow."
To:
"A Boolean variable that is used to restart the MFAS field lock process when 5 consecutive MFAS values do not match the expected value on a given FEC sublayer tributary FEC flow. The value of fec_mfas_restart_lock is set by the 800GBASE-ER1 FEC sublayer multi-frame alignment state diagram (see FIgure 186-20).

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **651** *L* **26** # 111

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable pma_restart_lock
From:
"A Boolean variable that is set by the FAW field lock process to reset the synchronization process on 800GBASE-ER1 PMA polarization symbol streams. It is set to true when 15 consecutive frame alignment word sequences to match (15_BAD state) on a given 800GBASE-ER1 PMA polarization symbol stream."
To:
"A Boolean variable that is used to restart the FAW field lock process on both PMA polarization symbol streams when 15 consecutive frame alignment word sequences fail to match on either PMA polarization symbol stream. The value of pma_restart_lock is set by the 800GBASE-ER1 PMA FAW field lock state diagram (see Figure 186-17)."

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **651** *L* **37** # 112

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the definition of the variable raml_align
From:
"Boolean variable that is set to true if the raml_counter needs to be aligned to a new value"
To:
"Boolean variable that indicates when the 800GBASE-R PCS alignment markers insertion location needs to be aligned to the received AML overhead. The value of raml_align is set by the 800GBASE-ER1 FEC sublayer alignment marker location state diagram (see Figure 186-21)."
Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **651** *L* **42** # 113

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to true or false. There is just a description of the use.

*SuggestedRemedy*

Change: Boolean variable that indicates if the received information in the AML field is valid..
To: Boolean variable that is set to true if the received information in the AML field is valid. Otherwise, this variable is set to false.

*Response* *Response Status* **C**

REJECT.
The variable raml_valid is set based on the results of the RAML_CHECK function. The definition of that function indicates how the variable is set.

*Cl* **186** *SC* **186.4.2.1** *P* **651** *L* **47** # 114

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of reset_fec to keep it consistent with comment #74 - reset is a special case.
Modify the definition of the reset_fec variable by adding: ", and is false otherwise." to end of the last sentence.
Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **651** *L* **50** # 115

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the definition of reset_pma to keep it consistent with comment #74 - reset is a special case.
Modify the definition of the reset_pma variable by adding: ", and is false otherwise." to end of the last sentence.
Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **652** *L* **11** # 116

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The rx_local_degraded variable is not used (or set) in any state diagram and therefore does not belong in the state machine variable definitions list.

Delete the variable definition of rx_local_degraded.

Implement with editorial license.

*Cl* **186** *SC* **186.4.2.1** *P* **652** *L* **17** # 117

Wienckowski, Natalie IVN Solutions LLC

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

This Boolean variable is never set to false.

*SuggestedRemedy*

Add at the end of the description: Otherwise, this variable is set to false.

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The rx_rm_degraded variable is not used (or set) in any state diagram and therefore does not belong in the state machine variable definitions list.

Delete the variable definition of rx_rm_degraded.

Implement with editorial license.

*Cl* **186** *SC* **186.7.2** *P* **662** *L* **6** # 292

Huber, Thomas Nokia

*Comment Type* **E** *Comment Status* **A** *(bucket) (L)*

The first 4 rows in the table are sharing registers with the clause 177 inner FEC, but they have different names than what is used in clause 177 and in clause 45

*SuggestedRemedy*

Change "FEC_erc1fec_..." to "FEC_..."

*Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

*Cl* **187** *SC* **187.6.1** *P* **677** *L* **34** # 293

Huber, Thomas Nokia

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

The ETCC row doesn't indicate min or max, which implies that the specified value of 2.5 is required. However, this is a maximum value.

*SuggestedRemedy*

Change the Description from "ETCC" to "ETCC (max)"

*Response* *Response Status* **W**

ACCEPT.

*Cl* **187** *SC* **187.12.4.1** *P* **689** *L* **32** # 295

Huber, Thomas Nokia

*Comment Type* **ER** *Comment Status* **A** *(bucket) (O)*

Item F1 in the PICS refers to the 800GBASE-ER1 PCS. With the change to a FEC sublayer, this should refer to 800GBASE-R PCS, 800GBASE-ER1 FEC, and 800GBASE-ER1 PMA

*SuggestedRemedy*

Change the feature column of item F1 to say "Compatible with 800GBASE-R PCS, 800GBASE-ER1 FEC, and 800GBASE-ER1 PMA.

*Response* *Response Status* **W**

ACCEPT.