Cl **185A** *SC* **185A** *P* **910** *L* **4** # 126

Zimmerman, George ADI,APLgp,Cisco,Marvell,OnSemi,Sony

Comment Type **TR** *Comment Status* **A** *shall statements (O)*

Annex 185A is considered normative, but in the entire clause I cannot find a single requirement statement ("shall" does NOT appear). As such, the entire clause is currently tutorial. Curiously there is a "may" which would normally be considered "is permitted", but that is meaningless in the absence of even a basic requirement. Without identifying requirements, it is impossible for the user of the methodologies to determine what is required and what is simply tutorial. I had considered a remedy of something like, ETCC shall be computed according to the method in steps... but there is too much. I have, in other comments attempted to identify some requirements - however, I suspect the experts defining this method may have more. As a result, while I have offered some possible requirements below, I have not marked those as required comments.

SuggestedRemedy

Identify the subset of statements in Annex 185A that are mandatory requirements and list them with shall statements, or, alternatively, label Annex 185A as informative.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

In 185A.2 change the last sentence from

"The ETCC parameter is defined in this annex"
To
"The ETCC parameter shall be calculated using the method described in this annex."

Cl **182** *SC* **182.7.3** *P* **518** *L* **44** # 132

Ghiasi, Ali Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 182-9 make following changes
- Power budget (for Max TDECQ) reduced from 7.7 to 7.3 dB
- Allocation for penalties (for Max TDECQ) reduced from 3.7 to 3.3 dB
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

Cl **183** *SC* **183.7.3** *P* **548** *L* **35** # 134

Ghiasi, Ali Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 183-8 make following changes for 800GBASE-FR4
- Power budget (for Max TDECQ) reduced from 7.9 to 7.5 dB
- Allocation for penalties (for Max TDECQ) reduced from 3.9 to 3.5 dB
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

[Editor's note: changed clause/subclause from 180/180.7.3]

Cl **183** *SC* **183.7.3** *P* **548** *L* **35** # 135

Ghiasi, Ali Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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

In Table 183-8 make following changes for 800GBASE-LR4
- Power budget (for Max TDECQ) reduced from 11.3 to 10.9 dB
- Allocation for penalties (for Max TDECQ) reduced from 5 to 4.6 dB
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

[Editor's note: changed clause/subclause from 180/180.7.3]

Cl **182** *SC* **182.7.3** *P* **518** *L* **44** # 138

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 182-9 suggest to split the difference between TX and RX PMDs, and make following adjustments to the OMA:
- Table 182-7 Outer OMA change 4.2 to 4.0 dBm
-Table 182-8 Receiver Power Outer OMA (max) change 4.2 to 4.0 dBm
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

Cl **183** *SC* **183.7.3** *P* **547** *L* **27** # 139

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 183-8 suggest to split the difference between TX and RX PMDs, and make following adjustments to the OMA:
- Table 183-6 Outer OMA change equation 1 from -0.1+max(TECQ,TDECQ) to -0.3+max(TECQ,TDECQ)
-Table 183-7 Receiver Power Outer OMA (max) change 4.8 to 4.6 dBm
-Table 183-7 Receive sensitivity OMA change -4.6+TECQ
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

[Editor's note: changed clause/subclause/page/line from 182/182.7.3/518/44]

Cl **183** *SC* **183.7.3** *P* **548** *L* **36** # 140

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 183-8 suggest to split the difference between TX and RX PMDs, and make following adjustments to the OMA:
- Table 183-6 Outer OMA change from 4.8 to 4.6 dBm
-Table 183-7 Receiver Power Outer OMA (max) change 4.8 to 4.6 dBm
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

Cl **183** *SC* **183.7.3** *P* **548** *L* **36** # 141

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 183-8 suggest to split the difference between TX and RX PMDs, and make following adjustments to the OMA:
- Table 183-6 Outer OMA change equation 1 change from 5.7 to 5.5 dBm
-Table 183-7-8 Receive Outter OMA change 5.7 dBm to 5.5 dBm
see ghiasi_3dj_02_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

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* **180.9.7.1** *P* **465** *L* **25** # 145

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **A** *TX FRX (O)*

Unless xAUI-n interface operate with condition of jitter tolerance FRx will not catch anything

SuggestedRemedy

Add: AUI lanes operate with receiver jitter tolerance condition defined by applicable instantiated xAUI-n.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #510.

Cl **181** *SC* **181.9.5** *P* **492** *L* **44** # 146

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *)ECQ method (CO) (bucket2)*

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.
Resolve using the response to comment #144.

Cl **181** *SC* **181.9.5** *P* **492** *L* **44** # 147

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *)ECQ method (CO) (bucket2)*

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.

Resolve using the response to comment #144.

Cl **182** *SC* **182.9.5** *P* **524** *L* **27** # 148

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *)ECQ method (CO) (bucket2)*

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.
Resolve using the response to comment #144.

Cl **183** *SC* **183.9.5** *P* **555** *L* **32** # 149

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *)ECQ method (CO) (bucket2)*

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.
Resolve using the response to comment #144.

Cl **176D** *SC* **176D.6.1** *P* **790** *L* **11** # 150

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(bucketp) Figure labels (E)*

Lable for the DC blocks are missing

SuggestedRemedy

Add capacitor or DC blocks on the figrue 176D-5

Response *Response Status* **U**

REJECT.
The purpose of the figure is to illustrate the test points. Unnecessary details would reduce the clarity of the figure.
Similar figures exist in previous AUI-C2M annexes (see Figure 83E-2 as an initial example, which many similar figures are based on, and the more recent Figure 120G-2 and Figure 120G-4), and do not include labels for the capacitors.
It is assumed that readers are familiar with the symbolic representation of a capacitor, so adding labels as suggested would not improve the clarity of the document.

Cl **176D** *SC* **176D.6.5** *P* **791** *L* **32** # 151

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *Tx specifications (E)*

SNDR min for Preset 2 is 27.5 dB, how can SNR_ISI be 26 dB

SuggestedRemedy

If we just want to have single SNR_ISI, seems 27.5 dB would be a better choice

Response *Response Status* **U**

REJECT.
SNDR and SNR_ISI are different specifications and their values are not dependent. The effects measured by SNR_ISI (ISI) are especially excluded from the SNDR measurement.

Cl **176D** *SC* **176D.8.12** *P* **801** *L* **10** # 152

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

Interference tolerance is missing Sinusoidal Jiter SJ

SuggestedRemedy

Include table 176D-10 in this section and following text to 176D.8.12.2 after C) before D)
Adjust pattern genrator Sinusoidal jitter based on amplitude in table 176D-10.

Response *Response Status* **U**

REJECT.
The SJ in Table 176D-10 is included in the jitter tolerance test (176D.8.13).
In the interference tolerance test it is recommended to have jitter that matches the specification limits (see item d in 176D.8.12.2)
Receivers are required to pass both tests.

Note that the JTOL includes additional noise (calibrated using COM), added in Annex 176D by comment #306.
Adding SJ to the ITOL would create duplicate tests.

Cl **176D** *SC* **176D.8.12.2** *P* **803** *L* **51** # 153

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

SJ not mentioned in item d)

SuggestedRemedy

Add following sentence to d):
Pattern generator jitter may need to be reduced to accommodate 0.05 UI Sinusoidal Jitter (SJ). With SJ at maximum limit J4u03 and JRMS are adjusted as close as practical to their limit.

Response *Response Status* **U**

REJECT.
The comment is about interference tolerance test (ITOL).
The combination of jitter sources that achieves the J4u03 and JRMS values, as recommended in item d, is not prescribed in the CR ITOL methodology used here (nor in several other test methods). Test implementers have been capable of finding such combination in past generations.
The suggested remedy refers to "SJ at maximum limit" but there is no such definition.
Note that SJ with specified values is used in the JTOL test.
See also the response to comment #152.

Cl **176D** *SC* **176D.8.13.2** *P* **805** *L* **8** # 154

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

Jitter tolerance test must be performed at max PPM offset

SuggestedRemedy

Add followig sentence:
JTOL generator must be at +/-50 PPM from the receiver under test.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Any requirement should be in terms of offset from the nominal frequency rather than the frequency of the receiver under test (which is not defined; the receiver has to track the frequency of its input).

The requirement to meet jitter tolerance at the frequency range is implied by the "Signaling rate (range)" row of Tables 176D-4 and 176D-5. However, it would be better to make these requirements more explicit.

Add a "Receiver signaling rate" subclause under 176D.8, with content based on 178.9.3.2.
Add references to this new sucblause in Tables 176D-4 and 176D-5.

Implement with editorial license.

Cl **176C** *SC* **176C.6.4.6** *P* **776** *L* **40** # 156

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *RX JTOL PPM (E)*

Jitter tolerance test must be performed at max PPM offset

SuggestedRemedy

Add followig sentence:
JTOL generator must be at +/-50 PPM from the receiver under test.

Response *Response Status* **U**

REJECT.
The requirement to meet jitter tolerance (and other receiver specifications) across the specified frequency range is stated in 176C.6.4.1.

Cl **182** *SC* **182.7.1** *P* **516** *L* **18** # 159

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

Cl **183** *SC* **183.7.1** *P* **545** *L* **47** # 160

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 800GBASE-FR4 PMDs as following:
- 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* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

Cl **183** *SC* **183.7.1** *P* **545** *L* **47** # 161

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TDECQ limits (O)*

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 800GBASE-LR44 PMDs as following:
- Reduce TDECQ from 3.9 dB to 3.5
- Reduce TECQ from 3.2 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 and 3.9 dB to 3.5 dB 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* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_02a_2509.pdf

The CRG did not change the TDECQ limit so this suggested change is not necessary.

Cl **180** *SC* **180.7.1** *P* **454** *L* **7** # 162

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TX overshoot (O)*

In D2.0 1T DFE was added to the TDECQ equalizer where DFE is suprior to improve TDECQ for bandlimited transmitters over using large overshoot/undershoot which can have 1-2 dB of SNR penalty given TDECQ doesn't incorporate peak-to-average penlaty. Large overshoot/undershoot can also result in clipping which can have much higher penalty than peak-to-average penalty. Another penalty of using overshoot/undershoot is reduction of OMA.

SuggestedRemedy

Given that TDECQ equalizer now has 1T DFE reduce overshoot from 22% to 12%
see ghiasi_3dj_01_2509

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/ghiasi_3dj_01a_2509.pdf

The comment does not provide sufficient justification to support the suggested remedy. Further data is encouraged to bring to the task force for consideration.

Cl **181** *SC* **181.7.1** *P* **484** *L* **30** # 163

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TX overshoot (O)*

In D2.0 1T DFE was added to the TDECQ equalizer where DFE is suprior to improve TDECQ for bandlimited transmitters over using large overshoot/undershoot which can have 1-2 dB of SNR penalty given TDECQ doesn't incorporate peak-to-average penlaty. Large overshoot/undershoot can also result in clipping which can have much higher penalty than peak-to-average penalty. Another penalty of using overshoot/undershoot is reduction of OMA.

SuggestedRemedy

Given that TDECQ equalizer now has 1T DFE reduce overshoot from 22% to 12%
see ghiasi_3dj_01_2509

Response *Response Status* **U**

REJECT.

Resolve using the response to comment #162.

Cl **182** *SC* **182.7.1** *P* **516** *L* **24** # 164

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TX overshoot (O)*

In D2.0 1T DFE was added to the TDECQ equalizer where DFE is suprior to improve TDECQ for bandlimited transmitters over using large overshoot/undershoot which can have 1-2 dB of SNR penalty given TDECQ doesn't incorporate peak-to-average penlaty. Large overshoot/undershoot can also result in clipping which can have much higher penalty than peak-to-average penalty. Another penalty of using overshoot/undershoot is reduction of OMA.

SuggestedRemedy

Given that TDECQ equalizer now has 1T DFE reduce overshoot from 22% to 12%
see ghiasi_3dj_01_2509

Response *Response Status* **U**

REJECT.

Resolve using the response to comment #162.

Cl **183** *SC* **183.7.1** *P* **545** *L* **42** # 165

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *TX overshoot (O)*

In D2.0 1T DFE was added to the TDECQ equalizer where DFE is suprior to improve TDECQ for bandlimited transmitters over using large overshoot/undershoot which can have 1-2 dB of SNR penalty given TDECQ doesn't incorporate peak-to-average penlaty. Large overshoot/undershoot can also result in clipping which can have much higher penalty than peak-to-average penalty. Another penalty of using overshoot/undershoot is reduction of OMA.

SuggestedRemedy

Given that TDECQ equalizer now has 1T DFE reduce overshoot from 22% to 12%
see ghiasi_3dj_01_2509

Response *Response Status* **U**

REJECT.

Resolve using the response to comment #162.

Cl **179** *SC* **179.9.5.4.2** *P* **423** *L* **8** # 168

Ghiasi, Ali — Ghiasi Qunatum/Marvell

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

Jitter tolerance test must be performed at max PPM offset

SuggestedRemedy

Add followig sentence:
JTOL generator must be at +/-50 PPM from the receiver under test.

Response *Response Status* **U**

REJECT.
The requirement to meet jitter tolerance (and other receiver specifications) across the specified frequency range is stated in 179.9.5.1.

[Editor's note: changed page number from 383]

Cl **120** *SC* **120.1.4** *P* **194** *L* **15** # 188

Ofelt, David — Juniper Networks / HPE

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

We have changed the ppm tolerance of the 200Gb/s SERDES to be 50ppm in all cases. This leads to interoperability issues when plugging an older PMD (generated with 25Gb/s or 50Gb/s SERDES) into a new 200Gb/s SERDES-based receiver or when a new 802.3dj PMD is plugged into an older box using 25Gb/s or 50Gb/s SERDES due to the fact one end of those links generates data at 100ppm and the receive side can only handle 50ppm. The solution is to insert an XS to do rate matching. At the moment, I believe this interop issue is not called out anywhere in the draft nor is the fact that adding the required XS will also cause the PTP accuracy to suffer. Note that this was not an issue in the 100Gb/s SERDES because they were specified to tolerate 100pm at the receiver, so there were no multi-generational interop issues. This is also not a problem when 100Gb/s source and 200Gb/s sourced PMDs are connected because the 100Gb/s SERDES are specified to have transmitters that are 50ppm.

The set of footnotes in this subclause attempt to provide the full set of rules for managing ppm, but the details are incomplete for the cases mentioned here.

As it stands, the spec is not broken, but this is a subtle interoperability issue of a sort that we've never introduced previously, therefore a helpful note seems appropriate.

SuggestedRemedy

Add some additional informative information to the ppm guideline footnotes in 120.1.4 to clarify the subtle 100/50ppm intereop cases that need an XS as well as a comment that this will degrade PTP accuracy.

A supportning presentation will be forthcoming.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

The CRG reviewed the following presentation:
https://www.ieee802.org/3/dj/public/25_09/nicholl_3dj_02_2509.pdf.

The 802.3dj draft does allow interoperability between older generation components operating at 100ppm and new components that operate at 50ppm, but there are some subtle requirements that are not explicitly stated.

Update the text of guideline 7) in 120.1.4 as follows:
"For a PHY that includes a 200GAUI-1 interface or a 200GBASE-KR1, 200GBASE-CR1, 200GBASE-DR1, or 200GBASE-DR1-2 PMD, the signaling rate range for a 200GAUI-8, 200GAUI-4, or 200GAUI-2 PMA output that is in the same package as the PCS shall be limited to +/- 50ppm, instead of +/-100ppm. Alternatively, a 200GAUI-8, 200GAUI-4, or 200GAUI-2 PMA output running with +/-100ppm shall be implemented within a 200GMII Extender with clock rate adaptation."

Make a similar update to the text of guideline 9) in 120.1.4

Implement with editorial license.

Cl **176C** *SC* **176C.6.4** *P* **773** *L* **1** # 195

Bruckman, Leon — Nvidia

Comment Type **TR** *Comment Status* **R** *Signal Detect (E)*

Annex 178B section 178B.6 refers to a signal detect function in AUI components. This function is missing from Annex 176C and Annex 176D.

SuggestedRemedy

Add a SIGNAL DETECT function to Annex 176C and 176D or define that ILT is supported for 200G based AUIs only.

Response *Response Status* **U**

REJECT.
176C.3 states that a C2C component is functionally equivalent to a corresponding PMD specified in 178 with explicit reference to 178.8, which includes the signal detect function (178.8.4). Additionally NOTE 1 in 176C.3 emphasizes that C2C components include the ILT function for a type E1 interface with explicit reference to Annex 178B.

There is no consensus to make the suggested change.

Cl **178** *SC* **178.9.2** *P* **375** *L* **36** # 253

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *mode conversion (E)*

There appears to be little connection between the
Common-mode to common-mode return loss, RLcc (min) mask
and link performance, as small excursions beyond the mask may show negligible impact.
See: Table 178-6

SuggestedRemedy

Add an appendix titled "Modal ERL and Modal Return Loss" to provide a performance-based alternative to frequency-domain masks.
Modal Return Losses from Single-Ended S-Parameters:
Modal return losses can be derived from a 2-port single-ended S-parameter measurement taken at a test point. The modal components are calculated using the following formulas:
Differential-to-Differential (DD): SDD_11 = RL_DD = (S11 - S12 - S21 + S22) / 2
Common-to-Common (CC): SCC_11 = RL_CC = (S11 + S12 + S21 + S22) / 2
Common-to-Differential (CD): SCD_11 = RL_CD = (S11 - S12 + S21 - S22) / 2
Differential-to-Common (DC): SDC_11 = RL_DC = (S11 + S12 - S21 - S22) / 2
Modal ERL Computation:
The modal Effective Return Loss values-ERL_CC, ERL_CD, and ERL_DC-measured at the test point are computed using the procedure described in IEEE 802.3 Clause 93A.5. The following substitutions and parameters apply:
Replace the scalar return loss term S_ii with the respective modal return loss (RL_CC, RL_CD, RL_DC).
* Use the single-ended reference impedance specified in the referring section or annex (typically 46.25 ohms).
* Set the fixture delay (Tfx) equal to twice the delay from TP0 to TP0v.
* For further details and derivations, refer to the presentation:
https://www.ieee802.org/3/dj/public/adhoc/electrical/25_0828/mellitz_3dj_01_adhoc_250828.pdf
---
Remove row for "Common-mode to common-mode return loss, RLcc (min)" and remove section: 178.9.2.7 Transmitter common-mode to differential-mode return loss
Add 3 rows to Table 178-6
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
There are similar comments suggesting multiple changes in the draft.
The suggested specifications were mentioned in the ad hoc presentation <https://www.ieee802.org/3/dj/public/adhoc/electrical/25_0828/mellitz_3dj_adhoc_01a_250828.pdf> but a proposal for their definitions was not included. The suggested remedy includes some additional details, but is not sufficient to implement.

The following straw poll was taken.

Straw poll #E-1 (direction):
I would support the direction of modal ERL and modal RL as in the suggested remedy and the referenced presentation.
Y: 15 N: 4 NMI: 15 A: 8

Based on the straw poll there is interest in exploring the proposed method. However, there is no consensus to implement the proposed changes at this time.
Further contributions including a detailed proposal of the intended implementation and consensus building are encouraged.

Cl **178** *SC* **178.9.3** *P* **380** *L* **13** # 254

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 178-9

SuggestedRemedy

Remove row for "Differential-mode to common-mode return loss, RLcd" and remove section: 178.9.3.7 Receiver differential-mode to common-mode return loss
Add 3 rows to Table 178-9
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **178** *SC* **178.10** *P* **384** *L* **42** # 255

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **A** *mode conversion (E)*

In Table 178-11, the rows labeled:
Differential-mode to common-mode insertion loss (ILcd) and
Common-mode to differential-mode insertion loss (ILdc)
appear to describe a impairments already captured by the SCMR_CH metric. Both are like SNR as the delta is like an SNR.
In addition, there appears to be little connection between the ILcd and ILdc masks and link performance, as small excursions beyond the mask may show negligible impact.

SuggestedRemedy

Remove the following rows from Table 178-11:
Differential-mode to common-mode insertion loss (ILcd)
Common-mode to differential-mode insertion loss (ILdc)
Add SCMR_DC_CH to Clause 179.11.8 "Channel signal to common-mode ratio"
Replace references to CD with DC to align with the updated SCMR terminology and COM implementation.
Add the following row to Table 178-11:
SCMR_DC_CH (min) = 20 dB
Reference Supporting Material:
See presentation: mellitz_COM_01_250819.pdf
This document outlines the COM implementation updates for SCMR_DC and SCMR_CD, including frequency-domain and time-domain computations, and supports the proposed simplification and consolidation of mode conversion metrics.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #260.

Cl **178** *SC* **178.10** *P* **384** *L* **40** # 256

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 178-11

SuggestedRemedy

Remove row for "Differential-mode to common-mode return loss, RLcd" and remove section: 178.10.5 Channel mode conversion insertion loss
Add 3 rows to Table 178-9
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **179** *SC* **179.9.4** *P* **408** *L* **31** # 257

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
Common-mode to common-mode return loss, RLcc(min)" and "Common-mode to differential-mode return loss, RLdc (min) masks
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 179-7

SuggestedRemedy

Remove rows for
Common-mode to common-mode return loss, RLcc(min)
Common-mode to differential-mode return loss, RLdc (min)
Remove sections
179.9.4.8 Common-mode to common-mode return loss
179.9.4.9 Common-mode to differential-mode return loss
Add 3 rows to Table 179-7
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **179** *SC* **179.9.5** *P* **418** *L* **44** # 258

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 179-11

SuggestedRemedy

Remove row for
" Differential-mode to common-mode return loss, RLcd (min)
Remove section
179.9.5.6 Receiver differential-mode to common-mode return loss
Add 3 rows to Table 179-11
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **179** *SC* **179.11** *P* **425** *L* **32** # 259

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
" Differential-mode to common-mode return loss, RLcd (min)" and "Common-mode to common-mode return loss, RLcc" masks
to performance in Table 179-14.and link performance, as small excursions beyond the mask may show negligible impact.

SuggestedRemedy

Remove rows for
'Differential-mode to common-mode return loss, RLcd (min)"
"Common-mode to common-mode return loss, RLcc" (min)"
Remove sections
179.11.4 Differential-mode to common-mode return loss
179.11.6 Common-mode to common-mode return loss
Add 3 rows to Table 179-14
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176C** *SC* **176C.6.3** *P* **770** *L* **31** # 261

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *mode conversion (E)*

There appears to be little connection between the
Common-mode to differential-mode return loss, RLdc mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176C-2

SuggestedRemedy

Remove row for
Common-mode to differential-mode return loss, RLdc (min)
Remove sections
176C.6.3.7 Transmitter common-mode to differential-mode return loss
Add 3 rows to Table 176C-2
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176C** *SC* **176C.6.4** *P* **773** *L* **13** # 262

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176C-4

SuggestedRemedy

Remove row for in table 176C-4: "Differential-mode to common-mode return loss, RLcd"
and remove section: 176C.6.4.4 Receiver differential-mode to common-mode return loss
Add 3 rows to Table 176C-4
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176C** *SC* **176C.7** *P* **777** *L* **17** # 264

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176C-6

SuggestedRemedy

In table 176C-6 Remove row for "Differential-mode to common-mode return loss, RLcd"
and remove section: 176C.7.4 Channel differential-mode to common-mode return loss
Add 3 rows to Table 176C-6
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176D** *SC* **176D.6.4** *P* **791** *L* **12** # 265

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
Common-mode to common-mode return loss, RLcc(min)" and "Common-mode to
differential-mode return loss, RLdc (min) masks
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176D-2

SuggestedRemedy

Remove rows for
Common-mode to common-mode return loss, RLcc(min)
Common-mode to differential-mode return loss, RLdc (min)
Remove section
176D.8.3 Return loss specifications
Add 3 rows to 176D-2
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176D** *SC* **176D.6.5** *P* **792** *L* **25** # 266

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
Common-mode to common-mode return loss, RLcc(min)" and "Common-mode to differential-mode return loss, RLdc (min) masks
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176D-3

SuggestedRemedy

Common-mode to common-mode return loss, RLcc(min)
Common-mode to differential-mode return loss, RLdc (min)
Remove section
176D.8.3 Return loss specifications
Add 3 rows to 176D-3
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176D** *SC* **176D.6.6** *P* **793** *L* **16** # 267

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176D-4

SuggestedRemedy

Remove row for
" Differential-mode to common-mode return loss, RLcd (min)
Remove section
176D.8.3 Return loss specifications
Add 3 rows to Table 176D-4
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **176D** *SC* **176D.6.7** *P* **793** *L* **47** # 268

Mellitz, Richard Samtec

Comment Type **TR** *Comment Status* **R** *Mode conversion (E)*

There appears to be little connection between the
Differential-mode to common-mode return loss, RLcd mask
and link performance, as small excursions beyond the mask may show negligible impact.
See Table 176D-5

SuggestedRemedy

Remove row for
" Differential-mode to common-mode return loss, RLcd (min)
Remove section
176D.8.3 Return loss specifications
Add 3 rows to Table 176D-5
ERL_CC(min) = 5 dB
ERL_CD(min) = 20 dB
ERL_DC(min) = 20 dB
Reference: " Modal ERL and modal Return Loss" appendix

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #253.

Cl **179** *SC* **179.8.1** *P* **404** *L* **10** # 348

Swenson, Norman Nokia, Point2

Comment Type **ER** *Comment Status* **R** *Test points (E)*

We fixed one issue in 2.1 by saying that the test points where the PMD is "standardized" is at the input and output of test fixtures. But we created another problem because these are not the test points "illustrated in Figure 179-2". I believe the problem is that we are referring to test points (the ones in Figure 179-2) that are not normally accessible, but we are specifying that compliance be measured at test points on test fixtures -- however, we are using the same names for both sets of test points.

SuggestedRemedy

We should follow the example in Clause 178; we can have reference test points that are shown in the Figure 179-2, but we should acknowledge that a different set ot test points (with distinct names) are test points at which compliance is measured. For example, TP1v can be the input to a cable assembly test fixture (instead of TP1), TP2v can be the output of a TP2 or TP3 test fixure, etc. Then we can revert to the definitions we had in Table 179-6 that we had in 2.0, but we should not say that these are the test points at which the "PMD sublayer is standardized" (line 10), as that implies that this is where compliance is measured.

Response *Response Status* **U**

REJECT.
The test points listed (and described) in Table 179-6 are the same as those illustrated in Figure 179-2.
The naming convention used in KR and C2C clauses, with TP0v and TP5v, is based on the loosely-defined test fixtures. This is different from the CR clauses in which the compliance points are well-defined.

There was agreement that the descriptions in Table 179-6 are correct, but the reference to Figure 179-2 could be improved.

The suggested remedy does not provide a detailed change to the reference to Figure 179-2 that can be implemented.

Cl **179** *SC* **179.8.1** *P* **404** *L* **39** # 350

Swenson, Norman Nokia, Point2

Comment Type **ER** *Comment Status* **R** *(bucketp) (E)*

Notes 3 and 4 define how testing is to be done by pointing to an annex that is informative, not normative. This needs to be in a normative annex or clause.

SuggestedRemedy

Describe the test fixtures and compliance test points in a normative clause or annex.

Response *Response Status* **U**

REJECT.
The commenter has indicated that subject of the comment should be notes 2 and 3 of Table 179-6. These notes refer to Annex 179A, which is informative.

However, these notes refer to illustrations, which are indeed informative.

There was no consensus to make the suggested change.

Cl **180** *SC* **180.9.5** *P* **462** *L* **3** # 351

Swenson, Norman Nokia, Point2

Comment Type **TR** *Comment Status* **R** *TDECQ method (CO)*

TDECQ appears to have two errors on its estimation of symbol error rate. It tripple counts errors because if computes the probability of crossing each of three thresholds separately and adds those probabilities together, whereas any given symbol can only make one symbol error. It underestimates the probability of error because it ignores the tail of the Gaussian noise beyond the magnitude of the furthest y value from the threshold of interest.

SuggestedRemedy

Use a modified TDECQ where the symbol error probability is estimated as the more usual \sum_y{p(y) (prob(n>T_1-y)+prob(n<T_2-y))} for Gaussian noise n, T_1 is the threshold above y, and T_2 is the threshold below y. If y is above the top threshold (or below the bottom threshold) drop the T_1 (or T_2) term. A presentation will explain this.

Response *Response Status* **U**

REJECT.

The following presentation was reviewed
https://www.ieee802.org/3/dj/public/25_09/swenson_3dj_01a_2509.pdf

After CGR discussion there was no consensus to make a change at this time. We encourage further work on this subject.

Cl **176D** *SC* **176D.7.1** *P* **794** *L* **26** # 353

Swenson, Norman Nokia, Point2

Comment Type **TR** *Comment Status* **R** *ILdd budget (E)*

As shown, the Figure 176D-6 is inconsistent with Figure 179A-1, which shows 3.8dB for the HCB from a point just past the mated connector to the RF connector. But Figure 176D-6 shows 3.8dB just past an unmated host connector. In fact the mating part of the connector is not shown, which does not make sense, since you need two parts for the connector. If the intent is to include the module part of the connector in the 3.8dBm, then draw that and change Figure 179A-1. Otherwise, show that the host channel loss includes the mated connector as in the Host Channel shown in Figure 179A-1.

SuggestedRemedy

Show that the host channel loss includes the mated connector as in the Host Channel shown in Figure 179A-1.

Response *Response Status* **U**

REJECT.
The NOTE at the bottom of Figure 176D-6 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.
In Figure 176D-6 the module channel is allocated 3.8 dB. Figure 179A-1 does not show a module, but it includes an HCB which happens to have the same allocation as a module. The module and the HCB are "edge connectors" (plugs) and the "module part of the connector" is unseparable from the module; the 3.8 dB includes the "edge connector pad" (see 179B.2.1).
Figure 176D-6 is indeed diffferent from Figure 179A-1 (which shows a two-piece connector) but it is intended to show the insertion loss budget, not to illustrate a mechanical structure. It may be possible to improve the diagram, but the suggested remedy is somewhat vague. A detailed proposal that could be reviewed by the CRG is encouraged.

Cl **176C** *SC* **176C.4** *P* **768** *L* **1** # 355

Swenson, Norman Nokia, Point2

Comment Type **ER** *Comment Status* **R** *Service interfaces (E)*

"The service interface above and below the 200 Gb/s per lane AUI-C2C is the PMA service interface as specified in 176.2." How can there be a PMA service interface above the AUI, which connect to the bottom of a PMA sublayer? The PMA service interface is at the top of the PMA sublayer, not the bottom of it. Is the PMA sublayer a client of the AUI?

SuggestedRemedy

Please clarify.

Response *Response Status* **U**

REJECT.
The AUI-C2C link serves as a physical instantiation of the PMA service interface. The PMA service interface is an instance of the inter-sublayer service interface, and the interface above the PMA and below the PMA are the same. See, for example, 176.2.

The comment does not provide an actionable suggested remedy.

Cl **179A** *SC* **179A.5** *P* **870** *L* **40** # 356

Swenson, Norman Nokia, Point2

Comment Type **ER** *Comment Status* **A** *Test points (E)*

"The MCB and HCB ILdd allocations include the RF connector (up to the RF connector reference plane)." The RF connector is not well defined and is not identified in the figure. Elsewhere it is referred to as "coaxial connector" (e.g., 179.9.4.7, p. 416, line 9; p.423, line 31; p.426, line 13, etc). I cannot find a desciption of test board in any normative part of the document.

SuggestedRemedy

Add a label (or labels) pointing to the RF connector(s) in Figure 179A-1. Put a decription of the test boards in a normative part of the document. Name these RF ports consistently (e.g., either coaxial connector or RF connector or something else).

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
The suggested remedy asks for a description of the test boards, but details of the requested description are not provided. A description of the test boards is already provided in Annex 179B, which is normative.
However, the connector labeling should be made consistent.

In Figure 179A-1 change "RF connector" to "coaxial connector".
In 179B.2.1 change "RF test connector" to "coaxial connector".

Cl **179A** *SC* **179A.5** *P* **870** *L* **38** # 357

Heck, Howard — TE Connectivity

Comment Type **TR** *Comment Status* **R** *Test fixture reference (E)*

Comment #140 against D1.4 resulted in a change to Figure 179A-1 that resulted in the loss of the MCB PCB and the via+connector being lumped into a single value. This has the unintended consequence of requiring adjustment to the MCB PCB design to compensate for any difference in via+connector insertion loss from the amount allocated to it prior to D1.5, which can increase the amount of MCB trace loss included in a TP1-TP4 cable assembly measurement.

Specifics: The MTF loss specified in the lower left of Figure 179A-1 specifies values for TP1-TP2 (9.75 dB), the HCB from TP2 to the via+connector (3.8 dB), and the MCB from TP1 (5.95 dB) to the far side of the via+connector (the same point as for the HCB). The MCB loss specification therefore includes PCB, PCB via and the via+connector. Up through D1.4, the MCB loss was specified as PCB only with a value of 2.7 dB, effectively allocating 3.25 dB for the via+connector. Existing MCB designs with which all cable assemblies have been measured were designed to the 2.7 dB trace insertion loss. Hardware measurements are showing 1 dB or more lower loss for the via+connector. Since the MCB loss includes the via+connector, the MCB traces now require 1 dB additional loss to compensate for the lower via+connector loss. This additional MCB loss increases the MCB loss in a TP1-TP4 cable assembly measurement by 2 dB, effectively reducing cable assembly portion of the loss by 2 dB (2 MCBs in a measurement), compromising the ability to meet the existing TP1-TP4 insertion loss specs.

SuggestedRemedy

Change Figure 179A-1 by either 1) reverting to the version that was in D1.4 (as proposed in D2.0 Comment #289) or 2) increasing TP2-to-connector to 4.8 dB and reducing TP1-to-connector 'far side' to 4.95 dB. Note that neither option proposed affects the insertion loss allocation for cable assembly or hosts.
A supporting contribution is planned for the September interim meeting.

Response *Response Status* **U**

REJECT.

The CRG has reviewed the contribution <https://www.ieee802.org/3/dj/public/25_09/heck_3dj_01b_2509.pdf>.

The following straw poll was taken:
Straw poll #E-2 (directional) (choose one)
I support the general direction of changing the loss allocations e.g. as in option 2 in heck_3dj_01b_2509.
Y: 22 N: 20 A: 10

The CRG discussion indicated some support for the direction proposed in heck_3dj_01b_2509, but a more complete proposal (e.g. with the necessary changes in the normative Annex 179B and Clause 179) is required.
Continued work and consensus building is encouraged.

There is no consensus to make the proposed changes at this time.

Cl **179** *SC* **179.11** *P* **425** *L* **25** # 358

Heck, Howard — TE Connectivity

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

Cable assembly TP1-TP4 insertion loss specifications are proving challenging to meet when accounting for all sources of variation, specifically for the CA-A and CA-B cable assembly classes. A more manufacturable specification needs an additional 1 dB insertion loss to be allocated to the cable assembly for CA-A and CA-B.

SuggestedRemedy

Summary: Reduce the insertion loss allocation for all three host classes (HL/HN/HH) by 0.5 dB (Table 179A-1). Increase the TP1-TP4 cable assembly insertion loss (Table 179-14) for CA-A from 19 dB to 20 dB, and for CA-B from 24 dB to 25 dB. Change the partial host PCB trace lengths in Table 179-19 to provide the host loss reduction. A contribution to support the comment and proposed change that includes all specific proposed changes is planned for the September interim meeting.

Response *Response Status* **U**

REJECT.
The CRG has reviewed the contribution <https://www.ieee802.org/3/dj/public/25_09/heck_3dj_02a_2509.pdf>.

The discussion indicated that the proposed changes in this comment, combined with those of comment #357, would affect the PMD specifications, and may make host compliance more challenging.

There was no consensus to implement the susggested changes at this time. Further contributions with consensus building are encouraged.

See also the response to the related comment #357.

Cl **179B** *SC* **179B.4.1** *P* **825** *L* **11** # 359

Noujeim, Leesa — Google

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

The 5dB difference between ILddMTF_min and _max results in unreasonably high uncertainty in cable assembly IL at fNyquist

SuggestedRemedy

Tighten the spread to ~2dB.

Response *Response Status* **U**

REJECT.
The comment identifies an area for potential improvement in the current draft. However, the suggested remedy does not provide sufficient detail to implement.
A contribution with a detailed proposal would be helpful for the CRG to drive consensus on a specific change.

Cl **180** *SC* **180.9.12** *P* **467** *L* **3** # 401

Ran, Adee
Cisco Systems

Comment Type **TR** *Comment Status* **A** *RINxxOMA (O)*

The equation of RINxxOMA has B, a frequency in Hz units, at the denominator, while the N^2 and OMA_outer^2 terms are assumed to have the same units and cancel out, so the argument of the log10 has a dimension of time (in seconds). This does not make sense - log can only applied to a pure number.

Most of the units are not specified in this equation; OMA_outer is specified in Table 180-7 in dBm, but apparently here it should be in linear power units (it is inside the log10).

SuggestedRemedy

Correct the equation as necessary to have an dimensionless argument of the log10.
State the units of each term in the "where" list.
Consider changing OMA_outer to 10^(OMA_outer/10) in the equation, to convert it from dBm to mW.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add a new where statement to equation 180-3
"OMAouter is the optical modulation amplitude in linear units."

For equation 180-3 change the 4th where statement to

"N0 and N3 are to be measured in linear units on a region in a place in the pattern that is selected to minimize the measurement error"

With editorial license.

Cl **180A** *SC* **180A.2** *P* **901** *L* **29** # 419

Ran, Adee
Cisco Systems

Comment Type **TR** *Comment Status* **R** *MDI breakout (O)*

Table 180A-1 (and this whole Annex) are based on the idea that DR modules can be used in a breakout configuration or with multiple PMDs per connector. But this concept is not mentioned.
The sentence "Table 180A-1 shows the number of PMDs supported by each MDI type" is odd - typically an MDI is the interface of a single PMD to its medium, and the term "MDI type" (which is apparently something else) is only used here and has never been defined.
The reader should be informed that having multiple PMDs that share one connector requires proper configuration of the host to match the PMDs with their respective link partners.

SuggestedRemedy

Add a paragraph that describes the concept of an MDI connector (which can include multiple MDIs, depending on the PHY type). This paragraph should not include a requitement from a host to support any possible combination of MDIs.

Change "MDI type" to "MDI connector" (or "MDI receptacle" if it's more suitable) in the text and in the table.

Add cross-references in the first column to 180A.3.1 and 180A.3.2.

Add an informative NOTE about the need to configure the host when multiple PMDs share a connector.

Implement with editorial license.

Response *Response Status* **U**

REJECT.

The suggested remedy does not provide sufficient detail to implement. Significant changes have been agreed for the annex and the commentor is encouraged to review the updated draft.

Cl **179B** *SC* **179B.3.1** *P* **874** *L* # 424

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Test fixture reference (E)*

The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

In Figure 179B-1, rescale ILddtfref to intersect at 53.125 GHz from 3.8 dB to 4.8 dB

Response *Response Status* **U**

REJECT.
The comment is related to comment #357 and similar to other comments.
Note that even if the other comments are accepted, the suggested remedy for this comment does not provide enough detail to implement an equation. A contribution with more detail would be welcome.
Resolve using the response to comment #357.

Cl **179A** *SC* **179A** *P* **870** *L* **20** # 425

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Test fixture reference (E)*

(Note: this same comment changes several values in three figures. A sepeaate entry for each page and line number requiring change is entered. The comment text will be duplicated on each line number requiriring change.)
The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

change the loss from TP1/TP4 to the Paddle / Wire Termination from 5.95 dB to 4.95 dB.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #357.

Cl **179A** *SC* **179A** *P* **870** *L* **28** # 426

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Host classes (E)*

The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

change the Host Channel loss values from 13.95 dB to 12.95 dB, and the HCB TP2/TP3 loss values from 3.8 dB to 4.8 dB.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #357.

Cl **179A** *SC* **179A** *P* **870** *L* **38** # 427

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Test fixture reference (E)*

The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

change MCB + connector loss (TP1 side) from 5.95 dB to 4.95 dB. Change the TP2 to HCB loss from 3.8 dB to 4.8 dB.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #357.

Cl **179A** *SC* **179A** *P* **871** *L* **11** # 428

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Host classes (E)*

The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

change the TP0d/TP5d Host Channel loss from 13.95 dB to 12.95 dB.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #357.

Cl **179A** *SC* **179A** *P* **871** *L* **14** # 429

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Host classes (E)*

The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

Change "Channel Max (TP0d-TP5d) ILdd = 40 dB @ 53.12 GHz = (2 * 13.95) + 12.1"
to "Channel Max (TP0d-TP5d) ILdd = 40 dB @ 53.12 GHz = (2 * 12.95) + 14.1"

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #357.

Cl **179B** *SC* **179B.3.1** *P* **874** *L* # 430

Sekel, Steve Wilder Technologies

Comment Type **TR** *Comment Status* **R** *Test fixture reference (E)*

The ILdd allocated to the module connector in Figure 179A-1 Host-Nominal to Host-Nominal, Cable Assembly, and test fixture insertion loss @ 53.125 GHz is excessive. Test fixtures built with second generation OSFP connectors from multiple vendors show the connector loss allocation to be approximately 1.4 dB less than as illustrated. To allow loss budget allocation for other form factors, the recommended correction is 1.0 dB.
Note that because the host allocation is the sum of the trace loss and the connector loss, and only the connector value is changing, this will not change the maximum host channel reach.

SuggestedRemedy

In Figure 179B-1, rescale ILddcatfref to intersect at 53.125 GHz from 5.95 dB to 4.95 dB

Response *Response Status* **U**

REJECT.
The comment is related to comment #357 and similar to other comments.
Note that even if the other comments are accepted, the suggested remedy for this comment does not provide enough detail to implement an equation. A contribution with more detail would be welcome.
Resolve using the response to comment #357.

Cl **120** *SC* **120.1.4** *P* **194** *L* **10** # 432

Nicholl, Gary — Cisco Systems

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

List items (7) and (9) essentially mean that the only way to support a 200G/400G PHY which includes 200G/lane technology in a legacy host with AUIs running at 100ppm is to use an Extender. The Extender would convert beteen the two ppm rates, allowing the existing AUIs to continue to run at 100ppm and the new 200G/400G PHY to run at 50 ppm.

But the consequence of this is that two types of optical module are required, a simple one which can be used in hosts with AUIs that are running at 50ppm and a more complex one (which includes a PHY XS and PCS) which can be used in legacy hosts where the AUIs are running at 100ppm.

But the question is how does an end user know what rate (50ppm or 100ppm) the AUIs on his host are running at, and therefore which version (simple or complex) of optical module is required ?

List items 7 and 9 essentially create two different versions of 200G/400G AUIs (one running at 50ppm and one running at 100ppm), with no obvious way to identify the different versions.

SuggestedRemedy

A presentation will be provided to further discuss the issue and provide some possible solutions.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #188.

Cl **172** *SC* **172.2.5.3** *P* **253** *L* **43** # 459

Slavick, Jeff — Broadcom

Comment Type **TR** *Comment Status* **R** *error marking (L)*

The error marking of extra blocks needs to apply to both the 119 stateless decoder usage and the 172.2.5.9 version.

SuggestedRemedy

Add an extra exception to 172.2.5.3.
"The error marking of the additional four 66-bit blocks when using stateless decoder define in Clause 119 should be done when using the stateless decoder define in 172.2.5.9.2 as well."

Add PICS item to indicate if error marking of extra four 66-bit blocks is done.

Response *Response Status* **U**

REJECT.

The comment is correct that the error marking issue is the same for both decoders. However, the original CL 172 stateless decoder was not modified because it is out of scope.

If an implemention uses the stateless decoder defined in 172.2.5.9.2 of 802.3df, then there is no additional error marking, but it is still standard compliant. New implementations are strongly recommended to use the stateless decoder defined in 119.2.5.8.2 which uses the improved error marking, making changes to the 172.2.5.9.2 unnecessary.

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* **U**

REJECT.
Coefficient is not being selected at this stage, so it can not be unsupported.

Cl **116** *SC* **116.3.3.3.1** *P* **161** *L* **4** # 20165

Huber, Thomas Nokia

Comment Type **ER** *Comment Status* **A** *(bucket) ILT service interface*

The text regarding the values of the SIGNAL_OK parameter is not sufficiently clear in a number of aspects. As the first paragraph states, IN_PROGRESS and READY are only supported if ILT is supported. The paragraphs about the OK and FAIL values refer to "if the service interface supports the values IN_PROGRESS and READY", which is needlessly complex wording; the condition is more succinctly expresed as "if ILT is supported", rather than if the states that ILT uses are supported. Further, since the meanings of OK and FAIL are different depending on whether ILT is used, instead of saying 'here are four values of SIGNAL_OK', and embedding in those definitions the details of whether ILT is used or not, it would be more clear to say 'SIGNAL_OK has these values if ILT is used, and these values if ILT is not used'.

SuggestedRemedy

Replace the second through fifth paragraphs with this text (text spills beyond the bottom of the cell):
If ILT is not used:
A value of OK indicates that communication with the next lower sublayer is established (but does not guarantee that valid data is being presented to the next higher sublayer).
A value of FAIL indicates that the sublayer has not established commuication to the next lower sublayer, and data is not being presented to the next higher sublayer (the rx_symbol parameters are undefined).
If ILT is used:
A value of OK indicates that valid data is being presented by the sublayer to the next higher sublayer in the rx_symbol parameters.
A value of READY indicates that commuication is established with the next lower sublayer, but communication with the peer interface is not fully established yet. The rx_symbol parameters presented to the next higher sublayer do not respresent traffic data and might be invalid. Management intervention is not required.
A value of IN_PROGRESS indicates that the sublayer is establishing communication with the next lower subalyer. Data is not being presented by the sublayer to the next higher sublayer (the rx_symbol parameters are unspecified). Management intervention.is not required.
A value of FAIL indicates that an attempt to communicate with the next lower sublayer has failed. Data is not being presented to the next higher sublayer (rx_symbol parameters are unspecified)

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Note that this comment is proposing to rearrange the text so that it is easier to parse. The proposed changes are an improvement to the clarity of the draft.

Some of the details, such as the context of ILT, might be affected by resolution of other D2.0 comments.

Implement the suggested remedy with editorial license with consideration of other related comments.

Cl **179A** *SC* **179A.5** *P* **820** *L* **39** # 20289

Heck, Howard TE Connectivity

Comment Type **TR** *Comment Status* **R** *(Electrical) CR test fixture*

MCB loss specified in the lower left of Figure 179A-1 is not directly measurable as it is currently specified. Indirect measurement methods do not provide the necessary accuracy. The version of the figure in D1.4 was measureable and reverting back to it will resolve the problem. Equation 179B-2 requires modification to make it accurately represent the MCB insertion loss measured with the 2Xthru method

SuggestedRemedy

Change Figure 179A-1 back to the version that was in D1.4 in which the MCB loss was specified as 2.7dB to the MCB via. Change Equation 179B-2 to IL_catref = -0.0067*f^1.5+0.0309*f-0.2523*sqrt(f)+0.0868. Change the Ildd_catf curve in Figure179B-1 to match the updated equation. A supporting contribution is planned for presentation at the June 26 electrical ad hoc meeting.

Response *Response Status* **U**

REJECT.
A presentation related to the comment was reviewed in the P802.3dj ad hoc meeting: <https://www.ieee802.org/3/dj/public/adhoc/optics/0625_OPTX/ellison_3dj_adhoc_01_250626.pdf>
The presentation noted that the MCB cannot be verified directly against the current specifications (which include the connector) and that this can also lead to mated pairs with non-compliant HCBs.
The proposed change is to move the demarcation line of the MCB loss in Figure 179A-1 to exclude the MCB via and the connector (implicitly leaving 3.25 dB for the MCB via and connector) and change Equation 179B-2 to represent only the MCB transmission line. The changes are shown on slide 5 of ellison_3dj_adhoc_01_250626 (items 1 and 2, and the figure).

The discussion indicated a concern that this proposal would leave the receptacle (part of the MCB) unspecified and unverifiable, and would contradict the text in 179B.3.1 referring to Equation 179B-2 as "The insertion loss of the cable assembly test fixture PCB, test point, connector and any associated vias".

Additionally, the proposal is based on an assumption that the connector+via is always the same (e.g. 3.25 dB at 53.125 GHz), but this may vary between form factors and receptacle designs.

The following straw poll was taken
Straw poll #E-2 (directional)
I support the direction of the proposal in ellison_3dj_adhoc_01_250626 slide 5.
Y: 10 N: 17 NMI: 12

there was no consensus for making the proposed changes. Further contributions in this area would be welcome.

Cl **176D** *SC* **176D.6.3** *P* **745** *L* **38** # 20352

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) VEC*

We currenlty have no effective output compliance test method for C2M or input caliburtion of stressor. We replaced VEC with with JRMS, EOJ, and J4U back in Sept 2024 and it has been more than 9 months without any proof that using jitter alone is sufficent for receive compliance.

SuggestedRemedy

TDECQ/EECQ already captrues the jitter as shown in ghiasi_3dj_01a_2409 but also captures amplitude penalty and the effect of PM to AM conversion in thre same way as receiver will observe the penalty. In COM we use reference equalizer to determine compliance, in 802.3ck we used VEC/VEO with a reference equalizer and in OIF Linear and RTLR we use EECQ with reference equalizer for compliance. We have not proven that discrete jitter measurements without a referecne equalizer is sufficent for C2M compliance. Task force need to investigate either show that current methdology works otherwise replace it with CKmethod or OIF EECQ before going to SA ballot.

Response *Response Status* **U**

REJECT.

It should be noted that the CRG has previously considered similar comments, the recent one being comment #261 against D1.3 (see <https://www.ieee802.org/3/dj/comments/D1p3/8023dj_D1p3_comments_final_clause.pdf#page=35>). As noted in the response to that comment, there was no support for the suggested changes. This by itself is not a reason to reject this comment, but it is relevant information on this topic.

The response also noted that TDECQ is not a specification of AUI-C2M, but of optical transmitters. Although TDECQ is irrelevant for AUI-C2M, it should be noted that the claims made in previous comments and repeated here (in the suggested remedy) have been refuted; there is no consensus that TDECQ of optical transmitters captures the effect of jitter (the referenced presentation was about EECQ, defined outside of 802.3 for linear optical modules, and used with a high-loss host channel; the resulting signal does not represent the output of optical PMDs defined in P802.3dj, nor the module output in C2M).

The C2M methodology of previous 802.3 projects, mentioned in the suggested remedy ("VEC/VEO"), assumes a transmitter with fixed equalization. The AUI-C2M specified in Annex 176D includes Tx equalization that is adjustable by the peer (host or module) receiver using ILT. Thus, a single "stressed eye" test signal calibrated with VEC/EH is irrelevant. The introduction of adjustable Tx equalization required a change in specification methodology; the well-established CR compliance methodology was adopted by comments #186-#189 against D1.0 (see <https://www.ieee802.org/3/dj/comments/D1p0/8023dj_D1p0_comments_final_id.pdf#page=42>).

Note that the EECQ method mentioned in the suggested remedy is not suitable for adjustable Tx equalization and is thus irrelevant for this project.

Tx jitter measurements and Rx jitter tolerance are part of the CR compliance methodology. Discrete jitter frequencies are used in jitter tolerance testing, to create a verifiable set of requirements, in several previous clauses.

The comment claims that "We currenlty have no effective output compliance test method for C2M or input caliburtion of stressor". These claims are counterfactual; output compliance is defined by Table 176D-2 and Table 176D-3, and input compliance is defined by Table 176D-4 and Table 176D-5. For both input and output, all parameters are testable using the methodology in 176D.8. Specifically, "stress" for input interference tolerance is calibrated using COM as specified in 176D.8.12.

This methodology of transmitter and receiver specifications has been shown to work by successful deployment of multiple generations of CR, KR, and C2C devices and links up to at 100 Gb/s with demonstrated interoperability across multiple products. The EECQ alternative mentioned in the suggested remedy has been used only for LPO, as defined by OIF, and was only recently ratified.

The comment does not provide any data to show that there is a problem that needs solving.

Cl **176D** *SC* **176D.6.4** *P* **746** *L* **38** # 20353

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) VEC*

We currenlty have no effective output compliance test method for C2M or input caliburtion of stressor. We replaced VEC with with JRMS, EOJ, and J4U back in Sept 2024 and it has been more than 9 months without any proof that using jitter alone is sufficent for receive compliance.

SuggestedRemedy

TDECQ/EECQ already captrues the jitter as shown in ghiasi_3dj_01a_2409 but also captures amplitude penalty and the effect of PM to AM conversion in thre same way as receiver will observe the penalty. In COM we use reference equalizer to determine compliance, in 802.3ck we used VEC/VEO with a reference equalizer and in OIF Linear and RTLR we use EECQ with reference equalizer for compliance. We have not proven that discrete jitter measurements without a referecne equalizer is sufficent for C2M compliance. Task force need to investigate either show that current methdology works otherwise replace it with CKmethod or OIF EECQ before going to SA ballot.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #352.

Cl **176C** *SC* **176C.6.4.4** *P* **727** *L* **33** # 20365

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) RLdc and RLcd*

The more critical return loss is common mode to differential, but for some reason in clause 176C instead RLcd is defined

SuggestedRemedy

Change RLcd to RLdc (common mode to differential)

Response *Response Status* **U**

REJECT.

Receiver differential-to-common mode return loss specified for KR and AUI C2C is consistent with prior specifications in the 802.3ck standard.
The comment states that RLdc is more critical, but does not explain why.
The comment does not provide sufficient justification to support the proposed change.
There is no consensus to implement the change suggested.

Cl **179** *SC* **179.9.5.6** *P* **410** *L* **44** # 20368

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) RLdc and RLcd*

The more critical return loss is common mode to differential, but for some reason in clause 179 instead RLcd is defined

SuggestedRemedy

Change RLcd to RLdc (common mode to differential)

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #365.

Cl **179** *SC* **179.11.7.1** *P* **417** *L* **8** # 20373

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) CR host classes*

Table 179-17 provide partial channel for different host classes, it would be helpful to also include the losses for the 3 partial channels

SuggestedRemedy

Host Partial HL Class loss = 1.72 dB
Host partial NL Class loss = 9.4 dB
Host partial HH Class loss = 14.35 dB
If one adds the MCB loss of 3.2 dB to the above value then that would give host channel see below and similar to Table 179A-1
Host HL Class loss = 4.9 dB
Host NL Class loss = 9.4 dB
Host HH Class loss = 14.35 dB
The above losses are the not max or min losses, some explanation why value in table 179-17 are chossen would be helpfull.
For the HH case if we go with Zp=140 mm will result in loss of 18.3 dB when MCB is included which inline to max loss in table 179A-1.

Response *Response Status* **U**

REJECT.

Slide 37 in the following contribution was reviewed by the CRG:
https://www.ieee802.org/3/dj/public/25_07/ran_3dj_01b_2507.pdf

The comment suggests adding the ILdd values corresponding to the partial host channel of each host class. That could be done by adding another row in Table 179-17.
However, the ILdd value is just a result of the existing information in the table, and is not a specification by itself. Thus, this row would only be informative. Moreover, it would not represent the whole host channel and thus would not be helpful for implementers (and might cause confusion).
The NOTE below the table includes references to the informative annexes where the recommended host channel ILdd values are listed.

Some further information might be helpful. However, detailed proposal is required.

Cl **178B** *SC* **178B.5.3** *P* **789** *L* **24** # 20376

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Common) ILT retimer*

Figure can improve for better representation

SuggestedRemedy

Suggest the folloiwng:
- CDR ouput add mux (Training/mission modes)
- Connect Training frame decode to training frame encode
- You can also create a new block called "Training State Machine" then connect training decode and encode to it.

Response *Response Status* **U**

REJECT.
Figure 178B-2 is a reference model meant specifically for illustrating the operation of a retimer, not a full functional diagram. Adding too much detail to this diagram will make it unreadable. This "state machine" would need to be connected to tx_mode and the USE_TX_CLOCK signals as well as the training frames.

The commenter is encouraged to provide a detailed proposal with illustration.

Cl **178B** *SC* **178B.7** *P* **796** *L* **5** # 20377

Ghiasi, Ali — Ghiasi Qunatum/Marvell

Comment Type **TR** *Comment Status* **R** *(Optical) ILT frames*

https://www.ieee802.org/3/dj/public/24_05/ghiasi_3dj_01a_2405.pdf looked at number of options for OLT such as Presets, FFE adjustment, OMA control, chirp, inner-outer eye adjustments, but at the time the Task Force decdied to just enable the basic OLT with pre-coder control. A vendor selected Preset can provide set of Presets optimized for example shorter/longer reacehs, lower OMA more linear or higher OMA less linear, higher peaking or less peaking

SuggestedRemedy

The enhancement to OLT issomehting that Task Force should consider specially that MMF will require enabling Presets. Just like E1 O1 should have 6 Presets, with default Preset 1 only meeting TDECQ, Presets 2-6 may have +1 dB TDECQ penalty.
Clasue 183 800GBASE-LR4 and possibly 800GBASE-FR4 are good candiate to have several presets to better mitigate dispersion penalties
See ghiasi_3dj_01_2507

Response *Response Status* **U**

REJECT.

The following contribution was reviewed by the CRG:
https://www.ieee802.org/3/dj/public/25_07/ghiasi_3dj_01a_2507.pdf

There is no consensus to make the proposed changes.

Cl **185** *SC* **185.6.1** *P* **564** *L* **50** # 20398

Mi, Guangcan — Huawei Technologies Co., Ltd

Comment Type **TR** *Comment Status* **R** *(Optical) slew rate*

The Tx laser frequency slew rate is required to be measured at the stages of pre-acquisition and post acquisition and satisify the value defined in Table 185-5, however there is no definition of the term of acquisition in the draft. Though "acquisition" is a widely used term for coherent experts, it appears out of context in this draft. It may be able to relate to some of the Inner FEC behaviour or PMA behaviour, but it could use some explanation.

SuggestedRemedy

add definition of acquisition in the text where Tx laser frequency slew rate is defined. Looking for help from Coherent experts here.

Response *Response Status* **U**

REJECT.

The suggested remedy does not provide sufficient detail to implement. See also the response to comment #389.

Cl **185** *SC* **185.1** *P* **556** *L* **40** # 20418

Ran, Adee Cisco Systems

Comment Type **TR** *Comment Status* **R** *(Common) ILT coherent*

In order to bring up a link that includes multiple ISLs, the functionality of ILT as specified by Annex 178B (specifically Figure 178B-7 and Figure 178B-8) is required across ISLs. This is true regardless of the PMD type, and even if the PMD does not use a training protocol, such as 800GBASE-LR1.

In PMDs that don't have a training protocol, the "quiet" and "local pattern" modes are the method of communicating the RTS to the peer. However, the local pattern is currently not defined.

SuggestedRemedy

Add 178B-ILT, Required as row in Table 185-1 (as in other PMD clauses)..

Add a subclauase under 185 defining the ILT functionality; it is as specified in Annex 178B, with mr_training_enable always set to false (since 800GBASE-LR1 doesn't have a training protocol). Specify that Inner FEC encoded PRBS31 test pattern defined in 184.6.1 (which may be generated by the inner FEC sublayer) is the pattern used when tx_mode has the value local_pattern (see 178B.14.3.1).

Response *Response Status* **U**

REJECT.

The following contributions were reviewed by the CRG:
https://www.ieee802.org/3/dj/public/25_07/ran_3dj_03a_2507.pdf
https://www.ieee802.org/3/dj/public/25_07/mi_3dj_01a_2507.pdf

Per straw poll TF-3 there is significant support for providing support for end-to-end path start-up in 802.3dj coherent PMDs.

Also, straw poll TF-4 indicates support in the direction in ran_3dj_03a_2507, but more details and consensus building required.

There is no consensus to implement the proposed changes at this time.

Straw poll TF-3 (directional):
I support adding support for end-to-end path start-up in 802.3dj coherent PMDs.
Yes: 33
No: 1
Abstain: 12

Straw poll TF-4 (directional):
I support the the direction of supporting end-to-end path start-up in 802.3dj coherent PMDs proposed in ran_3dj_03a_2507.
Yes: 22
No: 2
NMI: 16
Abstain: 10

Cl **187** *SC* **187.1** *P* **630** *L* **44** # 20419

Ran, Adee Cisco Systems

Comment Type **TR** *Comment Status* **R** *mon) ILT coherent (bucket2p)*

In order to bring up a link that includes multiple ISLs, the functionality of ILT as specified by Annex 178B (specifically Figure 178B-7 and Figure 178B-8) is required across ISLs. This is true regardless of the PMD type, and even if the PMD does not use a training protocol, such as 800GBASE-ER1 and 800GBASE-ER1-20.

In PMDs that don't have a training protocol, the "quiet" and "local pattern" modes are the method of communicating the RTS to the peer. However, the local pattern is currently not defined.

SuggestedRemedy

Add 178B-ILT, Required as row in Table 187-1 (as in other PMD clauses)..

Add a subclauase under 187 defining the ILT functionality; it is as specified in Annex 178B, with mr_training_enable always set to false (since 800GBASE-ER1/ER1-20 don't have a training protocol). Specify that the 800GBASE-ER1 FEC encoded PRBS31 test pattern defined in 186.2.3.12 (which may be generated by the 800GBASE-ER1 FEC sublayer) is the pattern used when tx_mode has the value local_pattern (see 178B.14.3.1).

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #418.

Cl **175** *SC* **175.2.4.6** *P* **265** *L* **17** # 20454

He, Xiang — Huawei

Comment Type **TR** *Comment Status* **A** *(Logic) AM padding*

The term "free running" is not defined clearly in the standard. One interpretation is that it is "continuously-running" whenever there is a clock (two adjacent pads are not continuous); another interpretation based on the context is that if we extract all the pads and concatenate them you will get a "continuously-running" PRBS9 sequence; and finally there is also an interpretation of the word "free" to be each PRBS9 segment could have its own random seed.
I understand this language was used in previous standards, and the pad is discarded on receive side, but there are testers out there testing these pad and warning bit slips if the don't match how the testers were designed. Explaning this to end users is very difficult especially to the non-English speaking regions. It would be a nice thing to define this clearly or define in a way that showing we really don't care.

SuggestedRemedy

Change "The initial value of the PRBS9 pattern generators may be any pattern other than all zeros." to "The initial value of the PRBS9 pattern generators in each pad may be any pattern other than all zeros."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

The second paragraph of 175.2.4.6 does not make clear what is meant by a "free-running PRBS pattern" for the padding added to the alignment markers and what is acceptable if there is actually more than one interpretation. The current draft also states "The initial value of the PRBS9 pattern generators may be any pattern other than all zeros", which should be interpreted as the the state of the PRBS9 generators out of reset, not the initial state for each alignment marker, but is also somewhat ambiguous.

As currently written, it would be acceptable to allow the "free running pattern" to be continously updated in every clock cycle of an implementation or to allow a concatination of pad values to be a continuous PRBS9 pattern. However, it would not be a correct (or desirable) interpretation that every pad be allowed to have the same 133-bit pattern, which would be allowed with the change proposed in the suggested remedy since it would allow the pad of each alignment marker to have the same initial value.

In addition, the term "free running" should be hyphenated.

The CRG reviewed slides #28-33 of the editorial presentation at:
https://www.ieee802.org/3/dj/public/25_07/nicholl_3dj_01_2507.pdf

The consensus is to update 175.2.4.6 with option 3 as shown on slide #33 of nicholl_3dj_01_2507.

Cl **178B** *SC* **178B.14.3.4** *P* **809** *L* **4** # 20460

Slavick, Jeff — Broadcom

Comment Type **TR** *Comment Status* **R** *(Common) ILT timers*

The duration of the quiet_timer breaks the time alloted during AN to begin sending negotiated rate data stream per 73.4.3.

SuggestedRemedy

Presentation of options to be supplied.

Response *Response Status* **U**

REJECT.

The following contribution was reviewed by the CRG:
https://www.ieee802.org/3/dj/public/25_07/slavick_3dj_01_2507.pdf

There is some agreement that further clarification and perhaps updates to the specifications are needed. However, further details and consensus building is required.

There is no consensus to make the proposed changes at this time.

Cl **180** *SC* **180.7.1** *P* **438** *L* **44** # 20488

Kimber, Mark — Semtech

Comment Type **TR** *Comment Status* **R** *(Optical) Ceq*

Over equalizing transmitters can cause BER floor issues as shown in kimber_3dj_01a_2505. Keeping Ceq > 1 (0dB) helps to prevent Tx peaking.

SuggestedRemedy

Add additional specification line after TECQ specification.
Noise Enhancement Factor, Ceq (min) 1

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #491.

Cl **181** *SC* **181.7.1** *P* **462** *L* **26** # 20489

Kimber, Mark Semtech

Comment Type **TR** *Comment Status* **R** *(Optical) Ceq*

Over equalizing transmitters can cause BER floor issues as shown in kimber_3dj_01a_2505. Keeping Ceq > 1 (0dB) helps to prevent Tx peaking.

SuggestedRemedy

Add additional specification line after TECQ specification.
Noise Enhancement Factor, Ceq (min) 1

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #491.

Cl **182** *SC* **182.7.1** *P* **487** *L* **9** # 20490

Kimber, Mark Semtech

Comment Type **TR** *Comment Status* **R** *(Optical) Ceq*

Over equalizing transmitters can cause BER floor issues as shown in kimber_3dj_01a_2505. Keeping Ceq > 1 (0dB) helps to prevent Tx peaking.

SuggestedRemedy

Add additional specification line after TECQ specification.
Noise Enhancement Factor, Ceq (min) 1

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #491.

Cl **183** *SC* **183.7.1** *P* **512** *L* **37** # 20491

Kimber, Mark Semtech

Comment Type **TR** *Comment Status* **R** *(Optical) Ceq*

Over equalizing transmitters can cause BER floor issues as shown in kimber_3dj_01a_2505. Keeping Ceq > 1 (0dB) helps to prevent Tx peaking.

SuggestedRemedy

Add additional specification line after TECQ specification.
Noise Enhancement Factor, Ceq (min) 1

Response *Response Status* **U**

REJECT.

Given the changes to the reference equalizer as noted in comment #384 , there is no consensus to make a change at this time. There is more than one candidate method to address the comment.

Further work using the new reference receiver is encouraged.

Cl **178** *SC* **178.9.2** *P* **362** *L* **36** # 20495

Dudek, Mike Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) TX SNR_ISI*

The signal-to-residual-intersymbol-interference ratio is an additional effective transmitter noise source which is not included in the COM analysis beyond what is created with the reference package.

SuggestedRemedy

Change the specification to a difference signal-to-residual-intersymbol-interference with a value of 0 dB where the reference is the value of signal-to-residual-intersymbol-interference for the package claimed. Make the same change for C2C, C2M and CR where the reference is the COM module appropriate to the specification. (Or better complete the calculations and put in the value that matches).

Response *Response Status* **U**

REJECT.
The comment does not indicate a problem that needs to be solved. There is a minimum SNR_ISI specification for the purpose mentioned in the comment.
The suggested remedy is a new idea (difference SNR_ISI) that deviates from existing specifications, e.g. clauses 162 and 163, and would result in a lot of changes in the draft. It has insufficient justification for such changes and insufficiant details to implement.

The limit value of SNR_ISI may be worth additional examination to align it with the reference package. A contribition with explanation of the problem, and with a detailed proposal for changes, is encouraged.

Cl **179B** *SC* **179B.2.1** *P* **823** *L* **34** # 20513

Dudek, Mike Marvell

Comment Type **TR** *Comment Status* **R** *(Electrical) CR test fixture*

The loss needs to be better defined to be less ambiguous.

SuggestedRemedy

Insert the sentence "The cable assembly tested fixture loss is equal to the loss of the mated test fixture minus the loss of the specific TP2 or TP3 test fixture printed circuit board loss used when measuring the mated text fixture loss." between the 1st and 2nd sentences.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #289.
[Editor's note: Changed Page from 823 to 824]

Cl **179A** *SC* **179A.5** *P* **819** *L* **38** # 20594

Kocsis, Sam — Amphenol

Comment Type **TR** *Comment Status* **R** *(Electrical) CR test fixture*

The MTF illustration in Figure 179A-1 allocates an informative reference of the MCB that is hard to validate.

SuggestedRemedy

Move the allocation marker to cover TP1-MCB Via, and align the allocation with the equations in 179B.3

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #289.

Cl **179B** *SC* **179B.3.1** *P* **824** *L* **33** # 20601

Kocsis, Sam — Amphenol

Comment Type **TR** *Comment Status* **R** *(Electrical) CR test fixture*

Text says "cable assembly test fixture PCB, test point, ocnnector and any associated vias" has proven to be difficult to validate. Since the effects of the differences between an actual test fixture and the reference insertion loss are to be accounted for, the reference definition should be more tangible.

SuggestedRemedy

Replace "cable assembly test fixture PCB, test point, ocnnector and any associated vias" with "cable assembly test fixture, from the RF connector refrence plane to the MDI transition". Update Equation 179B-1 appropriately, and remove "PCB" from the other (2) instance in this section.

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #289.

Cl **178** *SC* **178.8.1** *P* **360** *L* **15** # 20640

Swenson, Norman — Nokia, Point2

Comment Type **ER** *Comment Status* **A** *(Electrical) link diagram*

The test points in the figure are not the test points at which the OMD is spoecified. The PMD is specified at TP0v, which is not shown in the figure. The first sentence starting with "The test points" implies that these are the only test points.

SuggestedRemedy

Change the title of the section from "Specified Test Points" to "Referenced Test Points". Delete the word "The" at the beginning of the first sentence. Add a sentence after the first sentence that reads: "The PMD is specified at test points TP0v and TP5v (see 178.9.2.1 and 178.9.3.1)."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #92.

Cl **176D** *SC* **176D.7.1** *P* **748** *L* **25** # 20654

Swenson, Norman Nokia, Point2

Comment Type **ER** *Comment Status* **A** *(Electrical) Host connector*

Figure 176D-6 includes a connector, which is actually a mated connector, though that is not clear.

SuggestedRemedy

Draw a vertical line down the center of the rectangle labeled connector to indicate that both parts of the mated connector are included in the 28.2dB Host channel loss. Compare with figures 176D-4 and 176D-5. Change "Connector" to "Mated Connector" in the figure so it is clear that the loss of the mated connector is included on the Host channel loss.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
The current figure, which has no vertical line, results from the resolution of comment #115 against D1.1 (see <https://www.ieee802.org/3/dj/comments/D1p1/8023dj_D1p1_comments_final_clause.pdf#page=43>) and can be found in the related presentation <https://www.ieee802.org/3/dj/public/24_09/ran_3dj_03a_2409.pdf>.
The box in the figure is not a mated connector pair but only the connector in the host, which is part of the host channel for loss budgeting purposes, as indicated by the arrow at the top of the figure. Therefore, the vertical middle line, which existed in previous drafts, has been removed.
This figure matches the architectural diagram in Figure 176D-2.
However, the intent of the figure can be clarified in the text.

Add the following informative NOTE after Figure 176D-6:
NOTE---For loss budgeting purposes, the connector is considered part of the host.
Implement with editorial license.

Further contributions to improve clarity are encouraged.

Cl **179A** *SC* **179A.5** *P* **821** *L* **4** # 20658

Swenson, Norman Nokia, Point2

Comment Type **TR** *Comment Status* **R** *:al) CR test fixture (bucket2p)*

What is the extra rectangle labeled Paddle/Wire Termination shown in Fig. 179A-2 that is not shown in the mated test fixtures in Fig 179A-1? It is not explained in the text.

SuggestedRemedy

Clarify

Response *Response Status* **U**

REJECT.
The rectangle and labels "Paddle/Wire Termination" serve as demarcation of the cable assembly and the host channel, in Figures 179A-1, 2, and 3. The "Paddle" and "Wire Termination" are structures associated with the cable assembly, and are not necessarily present in an HCB (or Mated Test Fixture). The labels are used to identify specific structures that are not documented elsewhere in the figure.

These figures provide illustration as appropriate within an informative Annex. Similar figures with the same features are included in in Annex 162A, added by IEEE Std 802.3ck.

The suggested remedy does not contain sufficient detail for the CRG to discuss a specific change. A detailed proposed change and consensus building are encouraged.

Cl **170** *SC* **170.4.3** *P* **207** *L* **7** # 20684

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Logic) (bucket2p)*

There should be major options for MAC rate, as in 81.5.2.3 and 171.9.3

SuggestedRemedy

Split this item into two

Response *Response Status* **U**

REJECT.
The current approach in 170.4.3 (800GbE and 1.6TbE) is consistent with subclause 117.5.3 (200GbE and 400GbE). The comment points out that 81.5.2.3 also defines two major options for the different MAC rates (40GbE and 100GbE) in a slightly different format, but an updated format was used for Clause 117 which is now being carried forward for PICS in 170.4.3.

Cl **171** *SC* **171.9.5.1** *P* **231** *L* **47** # 20688

Dawe, Piers Nvidia

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

For the PHY XS, this may be a misuse of "Transmit"

SuggestedRemedy

Use separate items for PHY XS and DTE XS

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

For the table in 171.9.5.1 change the text in the feature column for PICS items TF1 and TF2 from "Transmit 64B/66B encoder .." to "64B/66B encoder .."

For the table in 171.9.5.2 change the text in the feature column for PICS items RF13 and RF14 from "Receive 64B/66B decoder .." to "64B/66B decoder .."

Cl **175** *SC* **175.2.4.6.1** *P* **266** *L* **10** # 20694

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Logic)*

This is a specification, not a school lecture. am_x is not an example, we are defining its name here. 179 linear fit has "define", which is better although we don't usually write in the imperative.

SuggestedRemedy

Change
Let am_x<119:0> be the alignment marker for PCS lane x, x=0 to 15, where bit 0 is the first bit transmitted.
to
The alignment marker for PCS lane x, where x=0 to 15, is defined as am_x<119:0>. Bit 0 is the first bit transmitted.
Make similar changes elsewhere.

Response *Response Status* **U**

REJECT.

This wording is identical to wording in other PCS subclauses describing AM insertion such as 91.5.2.6, 119.2.4.4.1, 119.2.4.4.2, 134.5.2.6, 152.5.3.6, and 161.5.2.6.1. There are many examples of the phrasing "Let <some variable> be or represent or equal something" throughout the base standard and amendments.

Cl **177** *SC* **177.4.5** *P* **333** *L* **20** # 20699

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Logic)*

x

SuggestedRemedy

Define

Response *Response Status* **U**

REJECT.
X, when used as the variable in a polynomial, is not defined in other clauses. This is common knowledge to implementers.

Cl **177** *SC* **177.4.5** *P* **333** *L* **25** # 20701

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Logic) (bucket2p)*

MSB

SuggestedRemedy

Define

Response *Response Status* **U**

REJECT.

MSB is defined in 1.5 and is used across the document. Although Galois field arithmetic has no mathematical MSB or LSB, they must be defined to ensure a correct implementation. For example, the order of the bits (MSB first or LSB first) impacts the syndrome calculation when implemeted as a shift register.

Cl **177** *SC* **177.4.5** *P* **333** *L* **30** # 20702

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **A** *(Logic) matrix math*

big dot

SuggestedRemedy

Define

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add definition for bit dot : "big dot" denotes matrix dot product. Make sure all "big dot"s are the same size.

Implement with editorial license.

Cl **177** *SC* **177.4.5** *P* **333** *L* **50** # 20703

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **A** *(Logic) matrix math*

big dot

SuggestedRemedy

Define

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #702.

Cl **177** *SC* **177.4.5** *P* **334** *L* **1** # 20704

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **A** *(Logic) matrix math*

^-1

SuggestedRemedy

Define

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add definition for "^-1" as: "the superscript "-1" denotes a matrix inversion operator."

Each element is 1x8 with 8 elements that results in a square matrix. So an inverse operation is appropiate.

Implement with editorial license.

Cl **178** *SC* **178.9** *P* **361** *L* **40** # 20707

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *ical) (bucketp) characteristics*

characteristics

SuggestedRemedy

specifications

Response *Response Status* **U**

REJECT.
The language in the header is consistent with prior electrical PMD clauses and with other subclauses in this draft.
There is no consensus to implement the change.

Cl **178** *SC* **178.9.2** *P* **361** *L* **47** # 20708

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *ical) (bucketp) characteristics*

characteristics

SuggestedRemedy

specifications

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #707.

Cl **178** *SC* **178.9.2** *P* **361** *L* **53** # 20709

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *cketp) TX measurement filter*

fourth-order vs. 5th order BT4. And why 60 GHz?

SuggestedRemedy

Change to 5th order, 53.125 GHz

Response *Response Status* **U**

REJECT.
The comment lacks justification to support the suggested remedy.

Cl **178** *SC* **178.9.2.4** *P* **364** *L* **34** # 20710

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) Tx N_v*

Nv = 400 ! That's ludicrously rare, 4^400 is 7e240. 100 is enough

SuggestedRemedy

Change Nv to 100 wherever it is 400 in this draft

Response *Response Status* **U**

REJECT.
The pulse response length is intended to measure the steady-state voltage, which may have a long settling time. Limiting the measurement length does not serve any purpose and may cause test fixture dependence.
The probability argument in the comment is irrelevant since in practice the transmit equalizer will likely not be in preset 1 anyway, and in that case v_f will never be encountered.
The comment lacks justification to support the suggested remedy.

Cl **178** *SC* **178.10.1** *P* **371** *L* **15** # 20712

Dawe, Piers Nvidia

Comment Type **ER** *Comment Status* **R** *I) (bucketp) COM parameters*

Indices that look like exponents, should be subscripts

SuggestedRemedy

Change C_d^(1) to C_d1 or Cd1, and so on

Response *Response Status* **U**

REJECT.

Resolve using the response to comment #378.

Cl **178** *SC* **178.10.1** *P* **371** *L* **25** # 20713

Dawe, Piers Nvidia

Comment Type **ER** *Comment Status* **R** *(Electrical) (bucketp) COM*

Confusion between z and Z

SuggestedRemedy

As Z for impedance is very strongly established, use something other than z for length, such as L

Response *Response Status* **U**

REJECT.

Lowercase z is the symbol that is used to represent package trace lengths for several generations (e.g. Clauses 93, 137, 163).
L is commonly used to denote inductance, so it may also be considered confusing.

The proposed change would cause inconsistency with previous clauses and may cause confusion.

There is no consensus to make the suggested change.

Cl **178** *SC* **178.10.1** *P* **372** *L* **46** # 20714

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) Jitter*

With a new COM, we can break away from old mistakes from the 8B/10B days. OIF did this years ago.

SuggestedRemedy

Change "Random jitter" to "Gaussian jitter", and sigma_RJ to sigma_GJ

Response *Response Status* **U**

REJECT.
"Gaussian jitter" appears in only 3 places in 802.3 and is never defined. The first instance is in 48B.1.2 which is titled "Random Jitter".
The suggested remedy deviates from established 802.3 terminology and would cause confusion, since the parameter sigma_RJ is used in multiple previous clauses.

There is no consensus to make the suggested change.

Cl **178** *SC* **178.10.1** *P* **372** *L* **46** # 20715

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) Jitter*

Unrealistic jitter values

SuggestedRemedy

"RJ" should be increased and D-D jitter should be reduced

Response *Response Status* **U**

REJECT.

The suggested remedy provided in the comment lacks specific values to implement them.

Cl **179** *SC* **179.1** *P* **384** *L* **35** # 20718

Dawe, Piers Nvidia

Comment Type **ER** *Comment Status* **R** *(Electrical) (bucketp)*

Tables 1 and 2, and 3 and 4, can be combined

SuggestedRemedy

Combine them into two, as Table 167-2, here and in other clauses

Response *Response Status* **U**

REJECT.
The associated clauses are significantly different between 200G/400G, 800G, and 1.6T, and therefore combination of the tables as suggested would make them less readable.

The tables are consistent with other PMD clauses in most previous PMD clauses.

There is no consensus to make the suggested change.

Cl **179** *SC* **179.9** *P* **393** *L* **19** # 20719

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *ical) (bucketp) characteristics*

PMD electrical characteristics

SuggestedRemedy

PMD electrical specifications

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #708.

Cl **179** *SC* **179.11.7** *P* **415** *L* **11** # 20720

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) CR host classes*

Add 4th host class:

SuggestedRemedy

CA-A	HL	HL, HN, HH or HH2 4
	HN	HL, HN, or HH 3
	HH	HL or HN 2
	HH2	HL 1

Response *Response Status* **U**

REJECT.
There is no definition of HH2.

The comment does not indicate a problem that needs to be solved.
The comment does not provide sufficient justification to support the suggested remedy.
The proposed change does not contain sufficient detail to implement.

Cl **180** *SC* **180.9.5** *P* **447** *L* **24** # 20721

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Common) ser*

4.56 x 10^-4 and the related Q t value (see 121.8.5.3) is 3.428
-> Qt = 3.846, 1 dBe better "SNR" (but doesn't change xECQ by that much). (implied 9e-5 but that doesn't matter). do this less for SRS and URS. 10*log10(3.846/3.428) = 0.5

SuggestedRemedy

Change Qt to 3.846, 1 dBe better "SNR" (but doesn't change xECQ by that much). (implied 9e-5 but that doesn't matter). Don't change Qt for for SRS and URS. FYI 10*log10(3.846/3.428) = 0.5

Response *Response Status* **U**

REJECT.

There is some agreement that further work is needed.

There is no consensus to make the proposed changes.

Cl **116** *SC* **116.2.9** *P* **155** *L* **35** # 20731

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Common) (bucket2)*

If IS stands for inter-sublayer (116.3) and and ISL for inter-sublayer link (178B), this would be ISLT. However, the "IS_" in the primitives has outlived its usefulness and should be removed, and optical PHYs do not have what one would recognise as training, even if there is a start-up protocol that uses training frames.

SuggestedRemedy

Find a better name for this, such as ISS (inter-sublayer startup), or remove 178B.

Response *Response Status* **U**

REJECT.

The acronyms ISL and ILT were chosen based a great deal of task force discussion and compromise. However, recent discussions have indicated some concern with the clarity of the naming and descriptions. Further work on this is necessary.

ILT is a mandatory feature for many PMD types so removing Annex 178B would not be an appropriate way to resolve the concern expressed in the comment regarding naming.

There is no consensus to make the proposed change at this time.

Cl **179** *SC* **179.9.4** *P* **393** *L* **43** # 20734

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *ical) (bucketp) characteristics*

Transmitter characteristics

SuggestedRemedy

Transmitter specifications

Response *Response Status* **U**

REJECT.
Resolve using the response to comment #708.

Cl **179** *SC* **179.9.4** *P* **394** *L* **25** # 20735

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) CR host classes*

Bad names HL HN HH because H and L are ambiguous: loss or performance or length? Which loss?

SuggestedRemedy

Change to A B C, with A for best

Response *Response Status* **U**

REJECT.
The current names were included in the baseline proposal for passive copper cables, <https://www.ieee802.org/3/dj/public/23_11/tracy_3dj_01a_2311.pdf>. The proposal, excluding nomenclature, was adopted by motion #11 in the November 2023 meeting, see <https://www.ieee802.org/3/dj/public/23_11/minutes_3cwdfdj_2311_approved.pdf#page=26>.
The host class names from the baseline proposal were subsequently adopted by the response to comment #191 against D1.1. See <https://www.ieee802.org/3/dj/comments/D1p1/8023dj_D1p1_comments_final_clause.pdf#page=82>. They appear in multiple places in the draft and in several presentations.
Changing the naming scheme at this point would be disruptive.
The existing names are indicative of insertion loss (Low, Nominal, High).

There is no consensus to make the proposed changes.

Cl **179** *SC* **179.9.4.6.1** *P* **402** *L* **1** # 20738

Dawe, Piers Nvidia

Comment Type **ER** *Comment Status* **R** *(Electrical) (bucketp) jitter*

The standard should be written in English. The three-pronged magnet is pretentious, unfamiliar and unnecessary.

SuggestedRemedy

Change to: For each transition I in the set A:

Response *Response Status* **U**

REJECT.
The comment refers to the mathematical symbol ?.
This symbol appears 77 times in IEEE Std 802.3-2022, with instances spanning clause 21 to clause 144. Readers are assumed to be familiar with it. In case of doubt, It is defined in Table 21-1 as "Indicates membership".

There is no consensus to make the change.

Cl **179** *SC* **179.9.4.6.2** *P* **402** *L* **18** # 20739

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) jitter*

J4u03 can't be measured for CR because of the losses in the host

SuggestedRemedy

Delete, combine with other impairments into EECQ

Response *Response Status* **U**

REJECT.

The suggested remedy does not provide sufficient detail to implement.

Cl **179** *SC* **179.9.4.6** *P* **401** *L* **28** # 20741

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) Jitter*

Dud jitter method. Turning off aggressor lanes is desperate

SuggestedRemedy

Don't attempt to isolate jitter

Response *Response Status* **U**

REJECT.

The suggested remedy does not provide sufficient detail to implement.

Cl **179** *SC* **179.9.4.6.3** *P* **402** *L* **43** # 20742

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) jitter*

EOJ03 should be included in SNDR or EECQ. It's not clear that we need a separate spec for it

SuggestedRemedy

Ensure that SNDR or EECQ include it (by telling the scope that the pattern is twice as long as it is), and delete

Response *Response Status* **U**

REJECT.
Even-odd jitter is a specification parameter for multiple generations of electrical transmitter specifications.
The comment does not indicate a problem that needs to be solved.
The comment does not provide sufficient justification to support the suggested remedy.
The suggested remedy does not provide sufficient detail to implement.

Cl **179** *SC* **179.9.4.7** *P* **403** *L* **5** # 20743

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *(Electrical) (bucketp) ERL*

mating interface discontinuity - ambiguous and not defined.

SuggestedRemedy

Clarify what this means

Response *Response Status* **U**

REJECT.
The existing text exists since D1.2 and originates from the response to comment #199 against D1.1. This response was a result of discussion in the CRG with consensus on the wording "excluding the mating interface discontinuity". See <https://www.ieee802.org/3/dj/comments/D1p1/8023dj_D1p1_comments_final_clause.pdf#page=77>.

There may be room for improvement of the wording, but the suggested remedy does not provide sufficient detail to implement. Additional work on this topic is encouraged.