

IEEE P802.3ck D1.1 100/200/400 Gb/s Electrical Interfaces Task Force 2nd Task Force review comments

Cl **120G** SC **120G.4.2** P**232** L**15** # **10158**

Dawe, Piers Mellanox

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

[Comment resubmitted from Draft 1.0. Subcl. 120G.4.2 - Pg 225 - In 40]

These look like the CTLE limits for TP1a and TP4 far end.

*SuggestedRemedy*

Where are the limits for TP4 near end?

Proposed Response Response Status **W**

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

It is assumed that the comment is referring to the continuous-time filter (CTF) parameters in Table 120G-9.

There is no issue stated in the comment nor any proposed changes in the suggested remedy.

The CTF parameters specified in this Table 120G-9 are for either case.

See comment #114.

Cl **120G** SC **120G.4.2** P**232** L**31** # **10145**

Dawe, Piers Mellanox

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

[Comment resubmitted from Draft 1.0. Subcl. 120G.4.2 - Pg 226 - In 10]

We need minimum limits for the C2M normalized DFE coefficient magnitudes. We saw for backplane that the minimum limits should be very different to the maximum limits.

*SuggestedRemedy*

Add bmin limits.

Proposed Response Response Status **W**

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The parameter b\_max(n) defines the "magnitude" of the coefficient and thus the minimum value is already specified has -b\_max(n). See Equation 93A-26.

The suggested remedy provides no recommendation for alternate bmin values.

Cl **120G** SC **120G.4.2** P**232** L**32** # **10155**

Dawe, Piers Mellanox

Comment Type **TR** Comment Status **D** RR noise (IR)

[Comment resubmitted from Draft 1.0. Subcl. 120G.4.2 - Pg 226 - In 11]

In the same way that COM has eta0, this measurement should have a standardised "added" noise to represent noise that a product might have but the measurement doesn't, so that the reference receiver is not better than a range of real receiver implementations. This can be a constant in mV or V^2/GHz.

Further, it needs a second noise term to account for reflections that a product might have but the measurement doesn't. This is proportional to the signal, so can be a set ratio to sum(AVupp + AVmid + AVlow).

*SuggestedRemedy*

Include two noise items in the measurement, one a constant in mV or V^2/GHz, the other a set ratio to sum(AVupp + AVmid + AVlow). To be RSSd with the measured, equalised signal. Allow RSSing out the scope noise (as done in TDECQ) if it's significant.

Proposed Response Response Status **W**

PROPOSED REJECT.

This appears to be overtaken by new comment #141.

See comment #141.

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CI 120G SC 120G.4.2 P 232 L 33 # 141

Dawe, Piers Mellanox

Comment Type TR Comment Status D (IR)

Need a way to account for the additional reflections that are plaguing our short-channel analyses, but trying to put capacitors on the software transmission line in the scope seems impractical.

*SuggestedRemedy*

Add a second noise items in the measurement, a set ratio to sum(AVupp + AVmid + AVlow). To be RSSd with the measured, equalised signal.

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The suggested remedy does not provide sufficient detail to implement.

CI 120G SC 120G.4.2 P 232 L 39 # 142

Dawe, Piers Mellanox

Comment Type TR Comment Status D (IR)

Should account for scope noise as TDECQ does.

*SuggestedRemedy*

Allow RSSing out the scope noise (as done in TDECQ) if it's significant.

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The TDECQ method inferred in the suggested remedy may be found in IEEE 802.3-2018 Section 8 121.8.5.3. The scope noise term  $\sigma_s$  is discussed at the top of pages 133 and 136. It is not clear how this would be incorporated into the eye opening measurement in 102G.4.2.

The suggested remedy does not provide sufficient detail to implement.

For task force discussion.

CI 162 SC 162.9.3 P 147 L 24 # 10252

Ran, Adeo Intel

Comment Type T Comment Status D (IR)

[Comment resubmitted from Draft 1.0. Subcl. 162.9.3 - Pg 140 - In 24]

Maximum for even-odd jitter is specified here. This is mainly required for transmitters which are driven by a half-rate clock.

For >53.1 GBd signaling, a >26.3 GHz clock is needed to drive the transmitter clock in half-rate. This is a high frequency for current CMOS processes and implementations with quarter-rate clocking (13.3 GHz clock) should be considered.

With quarter-rate signaling, even if the even-odd jitter (mismatches between phases 0:2 and between 1:3) is controlled to meet the specifications, the quadrature jitter (mismatches between phases 0:1 and between 2:3) can be large, and the current even-odd jitter measurements do not cover this impairment.

We need to limit quadrature jitter so a similar portion of the UI.

New specification for quadrature jitter will be provided in future contributions. I assume it will be similar to the EOJ measurement with slight modifications. For the time being the measurement method can be left as TBD.

*SuggestedRemedy*

Add a line for "Quadrature jitter, Pk-Pk", with subclause reference TBD, and value 0.019 UI.

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

Commenter proposes a new parameter that has not been discussed previously.

A test methodology for this new parameter has not been provided. The suggested remedy is therefore incomplete.

For task force discussion.

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Cl 162 SC 162.9.4.3 P152 L 38 # 37

Ben Artsi, Liav Marvell  
 Comment Type T Comment Status D CM noise tolerance (IR)

Receiver characteristics lacks the definition of capability to tolerate common mode noise at the receiver input

*SuggestedRemedy*

Add the required capability of Rx common mode broadband noise tolerance and set it at TBD at least for now

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The comment does not provide a justification for the proposed new parameter.

The suggested remedy does not provide a complete solution with test method and values.

For task force discussion.

Cl 162A SC 162A.5 P241 L 45 # 145

Dawe, Piers Mellanox  
 Comment Type T Comment Status D (IR)

I wonder if there is an inconsistency between the numbers in Table 162A-1 and those in Figure 162A-2. The 0.2 dB "MCB via allowance" could be the cause of the confusion.

*SuggestedRemedy*

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The suggested remedy provides no changes to the draft.

The following shows that there is no inconsistency:  
 ILCamax 19.75 dB (Table 162A-1) =11.55(cable and wire termination)+2\*2.3(MCB)+2\*1.6(connector)+2\*0.2(via)  
 ILCamin 11 dB (Table 162A-1) =2.8(cable and wire termination)+2\*2.3(MCB)+2\*1.6(connector)+2\*0.2(via)  
 ILChmax 28.5 dB (Table 162A-1) =19.75(CA)+2\*10.975(ILMaxHost Table 162A-1)-2\*6.6(ILMatedTF Table 162A-1)  
 ILChmin 19.75 dB (Table 162A-1) =11(CA)+2\*10.975(Host Table 162A-1) -2\*6.6(ILMatedTF Table 162A-1)

For task force discussion.

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Cl 163 SC 163.9.2 P178 L45 # 38

Ben Artsi, Liav Marvell  
Comment Type T Comment Status D CM noise tolerance (IR)

Receiver characteristics lacks the definition of capability to tolerate common mode noise at the receiver input

*Suggested Remedy*

Add the required capability of Rx common mode broadband noise tolerance and set it at TBD at least for now

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The comment does not provide a justification for the proposed new parameter.

The suggested remedy does not provide a complete solution with test method and values.

For task force discussion.

See comment #37.

Cl 163 SC 163.9.2.2 P179 L21 # 32

Ben Artsi, Liav Marvell  
Comment Type T Comment Status D (IR)

The Rx test fixture is embedded as part of the interconnect used for the interference tolerance test. Thus, there is no reason to limit the loss and behavior so tightly as done on line 21. Doing so will not enable connecting more than very few (if any!) Rx lanes to TP5a for testing.

*Suggested Remedy*

Recommend increasing loss limits to 4dB at 26.56GHz

Proposed Response Response Status W

PROPOSED REJECT.

[The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]

The suggested remedy does not provide a complete solution. For instance, a new insertion loss equation for Equation 163-1 is required.

For task force discussion.