

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

Cl 83 SC 83.1.1 P 85 L 16 # 216

Dudek, Mike Marvell.  
 Comment Type T Comment Status D bucket8

According to table 80-3a a number of PHYs (e.g. 100GBASE-KR1 can optionally use the Clause 83 PMA. However this revised scope statement does not include that table.

*SuggestedRemedy*

Add an extra sentence. The 100GBASE-R PMA may also be used with those Phys indicated in Table 10-3a.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Add an extra sentence:

"The 100GBASE-R PMA may also be used with some PMDs in Table 80-3a."

Cl 91 SC 91.6.2f P 88 L 7 # 4

Marris, Arthur Cadence Design Systems  
 Comment Type T Comment Status D bucket8 FEC

100G RS-FEC should be enabled by setting the variable to one (not zero)

*SuggestedRemedy*

Change text to: "When 100G\_RS\_FEC\_Enable variable is set to one, the RS-FEC sublayer performs the transmit function as specified in 91.5.2 and the receive function as specified in 91.5.3. When the variable is set to zero, the transmit and receive functions are disabled,"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 93A SC 93A.5 P 195 L 1 # 43

Mellitz, Richard Samtec  
 Comment Type TR Comment Status D bucket8 ERL

Creating a TDR (or PTDR) from return loss data may result in factious noise in the TDR response. The reason is high frequency data may not be well behaved enough to perform a reliable Inverse Fourier Transform. Instrument manufacturers may employ proprietary windowing when determining TDR from frequency domain data. A Tukey window (non-proprietary) is a cosine window which will give good consistent results between implementation of the inverse Fourier Transform. See [https://en.wikipedia.org/wiki/Window\\_function#Tukey\\_window](https://en.wikipedia.org/wiki/Window_function#Tukey_window)

*SuggestedRemedy*

Add term H\_tw to 93A-58. I.e.  $H_{ii}(f)=H_t(f) \cdot s_{ii}(f) \cdot H_r(f) \cdot H_{Tw}(f)$

Define  $f_{tw\_period}=2 \cdot (f_b - f_b \cdot (1 - f_r))$ ;  
 Define: H\_tw  
 When  $f < f_r$ , H\_tw=1  
 When  $f > f_r \leq f_b$ ,  $H_{tw}=0.5 \cdot \cos(2 \cdot \pi \cdot (f - f_r) / f_{tw\_period} - \pi) + 0.5$   
 When  $f > f_b$ , H\_tw=0

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

!!! Editor's note (to be removed prior to closing this comment): During review of this comment on July 29 there was consensus to accept this comment pending appropriate corrections to the equations. !!!

Update Equation 93A-58 according to slide 2 of the following presentation:  
[http://www.ieee802.org/3/ck/public/20\\_07/heck\\_3ck\\_05\\_0720.pdf](http://www.ieee802.org/3/ck/public/20_07/heck_3ck_05_0720.pdf)

Implement editorial license.

Cl 120F SC 120F.3.1 P 205 L 16 # 41

Brown, Matt Huawei Technologies Canada  
 Comment Type E Comment Status D bucket8 RL

Naming of return loss parameters is not consistent.

*SuggestedRemedy*

In Table 120F-1 (P205, L16) and in 120F.3.1.2 (206/L3) change "Common-mode output return loss" to "Common-mode return loss"  
 In Table 120F-3 (P207/L46) and 120F.3.2.2 (P208/L9) change "Differential to common mode input return loss" to "Differential to common-mode return loss".

Proposed Response Response Status W

PROPOSED ACCEPT.

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

Cl **120G** SC **120G.3.1.3** P **222** L **36** # **19**

Wu, Mau-Lin

Mediatek

Comment Type **T** Comment Status **D** bucket8 ERL

The table to be referred for calculation of host output ERL at TP1a is 'TBD' now. Propose to refer to values in Table 120G-9 as the similar method as Clauses 162, 163, & 120F.

Please refer to details in wu\_3ck\_adhoc\_01\_061020.pdf

*SuggestedRemedy*

Change TBD to 120G-9

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment refers to the following presentation:

[http://www.ieee802.org/3/ck/public/adhoc/jun10\\_20/wu\\_3ck\\_adhoc\\_01\\_061020.pdf](http://www.ieee802.org/3/ck/public/adhoc/jun10_20/wu_3ck_adhoc_01_061020.pdf)

Resolve using the response to comment #51.

Cl **120G** SC **120G.3.1.3** P **222** L **38** # **110**

Hidaka, Yasuo

Credo Semiconductor

Comment Type **T** Comment Status **D** bucket8 ERL

"The beginning of the host connector" is not clear.

*SuggestedRemedy*

Change "the beginning of the host connector" to "the mating interface of the connector between HCB and host under test".

Proposed Response Response Status **W**

PROPOSED REJECT.

It is not clear that the proposed modification improves the specification.

See also comments 112, 111, and 113.

Cl **120G** SC **120G.3.2.2** P **226** L **31** # **21**

Wu, Mau-Lin

Mediatek

Comment Type **T** Comment Status **D** bucket8 ERL

The table to be referred for calculation of module output ERL at TP4 is 'TBD' now. Propose to refer to values in Table 120G-9 as the similar method as Clauses 162, 163, & 120F.

Please refer to details in wu\_3ck\_adhoc\_01\_061020.pdf

*SuggestedRemedy*

Change TBD to 120G-9

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment refers to the following presentation:

[http://www.ieee802.org/3/ck/public/adhoc/jun10\\_20/wu\\_3ck\\_adhoc\\_01\\_061020.pdf](http://www.ieee802.org/3/ck/public/adhoc/jun10_20/wu_3ck_adhoc_01_061020.pdf)

Resolve using the response to comment #51.

Cl **120G** SC **120G.3.2.2** P **226** L **31** # **50**

Mellitz, Richard

Samtec

Comment Type **TR** Comment Status **D** bucket8 ERL

There doesn't see to be a need for table TBD

*SuggestedRemedy*

Remove sentence: "  
Parameters that do not appear in Table 120G-2 take values from Table TBD "  
Add to prior sentence "except the value of N is 400"

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comments #45 and #51.

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Cl **120G** SC **120G.3.2.2** P **226** L **32** # **111**

Hidaka, Yasuo Credo Semiconductor  
 Comment Type **T** Comment Status **D** bucket8 ERL

"The beginning of the MCB connector" is not clear.

*SuggestedRemedy*

Change "the beginning of the MCB connector" to "the mating interface of the connector between MCB and module under test".

Proposed Response Response Status **W**

PROPOSED REJECT.

It is not clear that the proposed modification improves the specification.

See also comments 111, 112, and 113.

Cl **120G** SC **120G.3.3.1** P **227** L **30** # **24**

Wu, Mau-Lin Mediatek  
 Comment Type **T** Comment Status **D** bucket8 ERL

The table to be referred for calculation of host input ERL at TP4a is 'TBD' now. Propose to refer to values in Table 120G-9 as the similar method as Clauses 162, 163, & 120F.

Please refer to details in wu\_3ck\_adhoc\_01\_061020.pdf

*SuggestedRemedy*

Change TBD to 120G-9

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment refers to the following presentation:  
[http://www.ieee802.org/3/ck/public/adhoc/jun10\\_20/wu\\_3ck\\_adhoc\\_01\\_061020.pdf](http://www.ieee802.org/3/ck/public/adhoc/jun10_20/wu_3ck_adhoc_01_061020.pdf)

Resolve using the response to comment #51.

Cl **120G** SC **120G.3.3.1** P **227** L **30** # **51**

Mellitz, Richard Samtec  
 Comment Type **T** Comment Status **D** bucket8 ERL

There doesn't see to be a need for table TBD

*SuggestedRemedy*

Remove sentence: "  
 Parameters that do not appear in Table 120G-2 take values from Table TBD "

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy and apply similar fix with editorial license to 120G.3.1.3 (Host output), 120G.3.2.2 (Module output), & 120G.3.4.2 (Module input).

Cl **120G** SC **120G.3.3.1** P **227** L **31** # **112**

Hidaka, Yasuo Credo Semiconductor  
 Comment Type **T** Comment Status **D** bucket8 ERL

"The beginning of the host connector" is not clear.

*SuggestedRemedy*

Change "the beginning of the host connector" to "the mating interface of the connector between HCB and host under test".

Proposed Response Response Status **W**

PROPOSED REJECT.

It is not clear that the proposed modification improves the specification.

See also comments 110, 111, and 113.

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CI 120G SC 120G.3.4.2 P 232 L 46 # 26

Wu, Mau-Lin Mediatek  
 Comment Type T Comment Status D bucket8 ERL

The table to be referred for calculation of module input ERL is 'TBD' now. Propose to refer to values in Table 120G-9 as the similar method as Clauses 162, 163, & 120F.

Please refer to details in wu\_3ck\_adhoc\_01\_061020.pdf

*SuggestedRemedy*

Change TBD to 120G-9

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment refers to the following presentation:  
[http://www.ieee802.org/3/ck/public/adhoc/jun10\\_20/wu\\_3ck\\_adhoc\\_01\\_061020.pdf](http://www.ieee802.org/3/ck/public/adhoc/jun10_20/wu_3ck_adhoc_01_061020.pdf)

Resolve using the response to comment #51.

CI 120G SC 120G.3.4.2 P 232 L 46 # 52

Mellitz, Richard Samtec  
 Comment Type TR Comment Status D bucket8 ERL

There doesn't see to be a need for table TBD

*SuggestedRemedy*

Remove sentence: "  
 Parameters that do not appear in Table 120G-2 take values from Table TBD "  
 Add to prior sentence "except the value of N is 400"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #45 and #51.

CI 120G SC 120G.3.4.2 P 232 L 47 # 113

Hidaka, Yasuo Credence Semiconductor  
 Comment Type T Comment Status D bucket8 ERL

"The beginning of the MCB connector" is not clear.

*SuggestedRemedy*

Change "the beginning of the MCB connector" to "the mating interface of the connector between MCB and module under test".

Proposed Response Response Status W

PROPOSED REJECT.

It is not clear that the proposed modification improves the specification.

See also comments 110, 111, and 112.

CI 120G SC 120G.4.1 P 233 L 34 # 239

Dawe, Piers Nvidia  
 Comment Type T Comment Status D bucket8 channel

Is it really necessary that the response should be above -42 dB at 51 GHz?

*SuggestedRemedy*

Add an  $f^2$  term in the second part of Eq. 120G-2, reduce the other terms so that the gradient is the same at Nyquist.

Proposed Response Response Status W

PROPOSED REJECT.

The comment does not provide any justification for the proposed change nor does the suggested remedy provide a complete solution to implement.

CI 152 SC 152.6.2a P 115 L 32 # 3

Marris, Arthur Cadence Design Systems  
 Comment Type T Comment Status D bucket8 FEC

IFEC should be enabled by setting the variable to one (not zero)

*SuggestedRemedy*

Change text to "When the IFEC\_Enable variable is set to one, the Inverse RS-FEC sublayer performs the transmit function as specified in 152.5.2 and the receive function as specified in 152.5.3. When the variable is set to a zero, the transmit and receive functions are disabled, and the Inverse RS-FEC sublayer is bypassed,"

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 162 SC 162.11.7 P 159 L 34 # 204

Ghiasi, Ali Ghiasi Quantum/Inphi  
 Comment Type TR Comment Status D bucket8 COM

COM receiver reference model does not excite common mode and model is fully symmetrical between P/N. Unless COM reference model has common mode excitation only differential aspect of the S4P exercised.

*SuggestedRemedy*

Non-idealities in COM can be introduced by following:

- Termination mismatch P/N 3%
  - Package P +/- 10%
  - Package N +/- 10%
- But the total RLM should still be 95%.

Proposed Response Response Status W

PROPOSED REJECT.

!!! Editor's note (to be removed prior to closing comment). Similar comment #206 against Clause 163 was closed with the following resolution. !!!

COM mode impairment is indeed not fully considered in COM. However the suggested remedy does not provide clear information to implement.

There is no consensus to implement the suggested remedy at this time. More empirical evidence and consensus building is required.

See also comment #206.

Cl 162 SC 162.11.7 P 161 L 4 # 248

Dawe, Piers Nvidia  
 Comment Type TR Comment Status D bucket8 CA COM

The analysis that led to the equalizer length choice needs to be revisited with the new COM.

*SuggestedRemedy*

If there is a significant improvement with the latest COM, remove positions 25-40 and define positions 13-24 as the tail, with 2 or 3 floating groups of 3 taps and an RSS limit.

Proposed Response Response Status W

PROPOSED REJECT.

!!! Editor's note (to be removed prior to closing comment). Similar comment #262 against Clause 163 was closed with the following resolution. !!!

This comment does not provide sufficient evidence the suggested remedy will not disqualify channels the task force has agreed to pass.

Cl 162 SC 162.11.7 P 161 L 6 # 249

Dawe, Piers Nvidia  
 Comment Type TR Comment Status D bucket8 CA COM

The spec allows a channel to have its COM calculated with 9 taps in the range 13 to 24 clipped at +/-0.05 - which means that the channel's pulse response could be a little worse than +/-0.05 for these taps. That's a very bad channel! We don't need to provide all the receiver power and complexity to cope with it.

*SuggestedRemedy*

Use another DFE root-sum-of-squares limit for positions 13-24.

Proposed Response Response Status W

PROPOSED REJECT.

!!! Editor's note (to be removed prior to closing comment). Similar comment #263 against Clause 163 was closed with the following resolution. !!!

The suggested remedy does not provide clear information to implement. Sufficient evidence has not been provided to justify the proposed change. More empirical evidence and consensus building is required.

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Cl 162 SC 162.11.7 P 185 L 36 # 250

Dawe, Piers Nvidia  
Comment Type TR Comment Status D bucket8 CA COM

As the effect of exceeding the DFE floating tap tail root-sum-of-squares limit increases parabolically as the channel exceeds the limit, the limit must be set a little lower than the worst channel we wish to allow to have an effect at the right point. OAch4 with COM 2.75 gave an unconstrained RSS\_tail of 0.022, but CR channels should be smoother than OAch4. Setting the limit 0.01 lower than that might affect its COM by 0.1 dB (vs. no limit) which seems like a gentle effect. However, it seems that the latest COM gives a more optimistic result anyway; this channel may not need the tail taps at all.

*SuggestedRemedy*

If there is no improvement with the latest COM AND the via capacitances in 162.11.7.1.1 fully represent the tail pulse response of the hosts, change the DFE floating tap tail root-sum-of-squares limit to 0.012.  
If the tail pulse response of the hosts is not all in this COM calculation, the COM equalizer should differ to the KR one, for the same silicon.  
If there is a small improvement with the latest COM or the tail pulse response of the hosts is not all in this COM calculation, further reduce the limit accordingly.  
If there is a significant improvement, remove taps 25-40 and apply a tail tap RSS limit to positions 13-24.

Proposed Response Response Status W

PROPOSED REJECT.

!!! Editor's note (to be removed prior to closing comment). Similar comment #264 against Clause 163 was closed with the following resolution. !!!

The simulations to make the determinations in the suggested remedy are not available.

There is no consensus to implement the suggested remedy at this time. More empirical evidence and consensus building is required.