

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

CI 120F SC 120F.3.1 P 205 L 14 # 10
 Wu, Mau-Lin Mediatek
 Comment Type T Comment Status D bucket5 ERL
 ERL value is TBD in Table 120F-1
 SuggestedRemedy
 Change ERL value from TBD to 11
 Proposed Response Response Status W
 PROPOSED REJECT.
 There is no consensus to make the proposed change. See the response to comment #45.

CI 120F SC 120F.3.1.1 P 205 L 47 # 14
 Wu, Mau-Lin Mediatek
 Comment Type T Comment Status D bucket5 ERL
 The value of T_r in Table 120F-2 is TBD.
 SuggestedRemedy
 Change TBD to 0.01
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #45.

CI 120F SC 120F.3.1.1 P 205 L 52 # 48
 Mellitz, Richard Samtec
 Comment Type TR Comment Status D bucket5 ERL
 Assign N_bx to recommendation in mellitz_3ck_adhoc_01_061020
 SuggestedRemedy
 Change TBD for N_bx to 6
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #45.

CI 120F SC 120F.3.1.1 P 205 L 53 # 15
 Wu, Mau-Lin Mediatek
 Comment Type T Comment Status D bucket5 ERL
 The value of N_bx in Table 120F-2 is TBD.
 In order to reflect the capability referenced receiver of C2C, N_bx shall align with the N_b value in Table 120F-6, which is 6.
 SuggestedRemedy
 Change TBD to 6
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #45.

CI 120F SC 120F.3.2 P 207 L 44 # 16
 Wu, Mau-Lin Mediatek
 Comment Type T Comment Status D bucket5 ERL
 The value of ERL is TBD in Table 120F-3
 SuggestedRemedy
 Change TBD to 11
 Proposed Response Response Status W
 PROPOSED REJECT.
 There is no consensus to make the proposed change. See the response to comment #45.

CI 120F SC 120F.4.3 P 213 L 42 # 49
 Mellitz, Richard Samtec
 Comment Type TR Comment Status D bucket5 ERL
 Assign N_bx to recommendation in mellitz_3ck_adhoc_01_061020
 SuggestedRemedy
 Change TBD for N_bx to 6
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 The referenced presentation is here:
http://www.ieee802.org/3/ck/public/adhoc/jun10_20/mellitz_3ck_adhoc_01a_061020.pdf
 Resolve using the response to comment #45.

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Cl 120G SC 120G.3.1 P 221 L 23 # 18
 Wu, Mau-Lin Mediatek
Comment Type T Comment Status D bucket5 ERL
 The value of ERL (min) in Table 120G-1 is TBD
SuggestedRemedy
 Change TBD to 9.5
Proposed Response Response Status W
 PROPOSED REJECT.
 There is no consensus to make the proposed change. See the response to comment #45.

Cl 120G SC 120G.3.3 P 227 L 15 # 23
 Wu, Mau-Lin Mediatek
Comment Type T Comment Status D bucket5 ERL
 The value of ERL (min) in Table 120G-4 is TBD
SuggestedRemedy
 Change TBD to 9.5
Proposed Response Response Status W
 PROPOSED REJECT.
 There is no consensus to make the proposed change. See the response to comment #45.

Cl 162 SC 162.11 P 157 L 24 # 181
 DiMinico, Christopher MC Communications
Comment Type TR Comment Status D bucket5 CA
 Proposals for 162.11 cable assembly specification TBDs
SuggestedRemedy
 162.11.2 Cable assembly insertion loss
 The measured insertion loss of a cable assembly shall be greater than or equal to the minimum cable assembly insertion loss given in TBD and illustrated in TBD.
 162.11.3 Cable assembly ERL
 Transition time associated with a pulse T_r TBD
 Cable assembly ERL at TP1 and at TP4 shall be greater than or equal to TBD dB for cable assemblies that have a COM less than 4 dB.
 162.11.4 Differential to common-mode return loss TBD
 162.11.5 Differential to common-mode conversion loss TBD
 162.11.6 Common-mode to common-mode return loss TBD
 162.11.7 Cable assembly Channel Operating Margin
 T_r is TBD ps
 Transmitter signal-to-noise ratio SNRTX TBD
 See diminico_3ck_01_0720.pdf
Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

Implement the CA insertion loss proposed on slide 4 of the following presentation
http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_02d_0720.pdf.

Resolve for cable assembly ERL, RL_CD, IL_CD, RL_CC, COM T_r , and COM SNR_TX using the responses to comments 71, 148, 73, 149, 37, and 45.

Cl 162 SC 162.11.3 P 158 L 48 # 44
 Mellitz, Richard Samtec
Comment Type TR Comment Status D bucket5 ERL
 Align T_r with Host T_r in table 11.33
SuggestedRemedy
 set T_r to 0.01 ns in table 162.15
Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #45.

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Cl 162 SC 162.11.3 P 159 L 1 # 68
 Champion, Bruce TE Connectivity
 Comment Type T Comment Status D bucket5 ERL
 Cable Assembly ERL listed as TBD
 SuggestedRemedy
 TBD to be changed to 8 dB. See presentation
 Proposed Response Response Status W
 PROPOSED REJECT.
 The following presentation was reviewed by the task force:
http://www.ieee802.org/3/ck/public/20_07/champion_3ck_01_0720.pdf
 There is no consensus to make the proposed change. See the response to comment #45.

Cl 162 SC 162.11.4 P 159 L 6 # 74
 Haser, Alex Molex
 Comment Type T Comment Status D bucket5 CA
 Fill in TBD for differential to common-mode return loss
 SuggestedRemedy
 Presentation to follow
 Proposed Response Response Status W
 PROPOSED REJECT.
 The task force review the following presentation at a previous ad hoc meeting:
http://www.ieee802.org/3/ck/public/adhoc/jun17_20/haser_3ck_adhoc_02_061720.pdf
 Resolve using the response to comment #71.

Cl 162 SC 162.11.4 P 159 L 6 # 147
 Ran, Adeo Intel
 Comment Type T Comment Status D bucket5 CA
 Addressing D-C return loss of the cable assembly, which is TBD.
 In clause 92 the D-C return loss was specified for PMD Tx (92.8.3.3), Rx (92.8.4.3), and for the cable assembly (92.10.4) with identical equations. These specifications were all carried into clause 110 and clause 136 with no change.
 Specification for the PMD Tx/Rx are suggested in other comments (note: two possible remedies).
 Specifications for the CA may be identical to those of the PMD, or different. If they are different, the suggested remedy includes a limit equation based on 92.10.4, with scaled frequencies.

If the numbers in the equation are not in consensus they can be replaced with TBDs.
 SuggestedRemedy
 If the specifications for the PMD (subject of other comments) can be used for the CA, use references to the PMD specs here instead of repeating the equations. In that case, 162.11.6 can be deleted.
 If the specifications for the CA are different from those of the PMDs, then change 162.11.6 content as follows:
 162.11.6 Cable assembly Common-mode to differential return loss
 Common-mode signal can be generated in the transmitter or as signal reflected from the receiver. Common-mode signal propagating into the channel can be converted back to a differential signal and result in differential noise propagating toward the receiver. To limit this effect, a minimum common-mode to common-mode return loss is required.
 The common-mode to differential mode return loss of the cable assembly shall meet Equation (162–new).

$$CDRL(f) \geq \begin{cases} 22-10*f/f_N, & 0.01 \leq f \leq f_N \\ 15-3*f/f_N, & f_N < f < 40 \end{cases}$$

Where
 $f_N=26.5625$ is the Nyquist frequency in GHz
 f is the frequency in GHz
 CDRL(f) is the common-mode to differential return loss in dB at frequency f

Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #71.

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Cl 162 SC 162.11.6 P 159 L 14 # 76
 Haser, Alex Molex
 Comment Type T Comment Status D bucket5 CA
 Fill in TBD for common-mode to common-mode return loss
 SuggestedRemedy
 Presentation to follow
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 The following presentation was reviewed at a previous ad hoc meeting:
http://www.ieee802.org/3/ck/public/adhoc/jun17_20/haser_3ck_adhoc_02_061720.pdf
 Resolve using the response to comment #73.

Cl 162 SC 162.11.7 P 160 L 42 # 11162
 Palkert, Tom Molex
 Comment Type T Comment Status D bucket5 CA
 [Comment resubmitted from Draft 1.1. 162.11.7, P160, L6]
 Need value for SNRtx
 SuggestedRemedy
 Make SNRtx = 33dB (See supporting presentation)
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #37.

Cl 162 SC 162.11.7 P 160 L 42 # 77
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 CA
 Fill in TBD for SNR_Tx
 SuggestedRemedy
 Set SNR_Tx to 32.52 dB. All lanes of cables must pass COM; need a higher SNR_Tx
 valule to do so given shared data (see champion_3ck_adhoc_01_031120)
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 The referenced presentation is here:
http://www.ieee802.org/3/ck/public/adhoc/mar11_20/champion_3ck_adhoc_01_031120.pdf
 Resolve using the response to comment #37.

Cl 162 SC 162.11.7 P 160 L 42 # 70
 Champion, Bruce TE Connectivity
 Comment Type T Comment Status D bucket5 CA
 SNR_Tx listed at TBD
 SuggestedRemedy
 Change TBD to 32.5 as described in champion_3ck_adhoc_01_031120.pdf. See
 presentation
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 The referenced ad hoc presentation is here:
http://www.ieee802.org/3/ck/public/adhoc/mar11_20/champion_3ck_adhoc_01_031120.pdf
 The following presentation was reviewed by the task force:
http://www.ieee802.org/3/ck/public/20_07/champion_3ck_02_0720.pdf
 Resolve using response to comment #37.

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Cl 162 SC 162.11.7 P 160 L 43 # 152

Ran, Adeel Intel
 Comment Type T Comment Status D bucket5 CA

SNR_TX of the CR PHY needs to be somewhat lower than the corresponding CK PHY COM value (33 dB), to account for crosstalk that is introduced by practical host board routing. The mathematical host board model that is used in COM does not introduce any crosstalk.

Proposed value is 32.5 dB.

SuggestedRemedy

Change TBD to 32.5 dB.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using response to comment #37.

Cl 162 SC 162.11.7 P 161 L 14 # 11161

Palkert, Tom Molex
 Comment Type T Comment Status D bucket5 eta0

[Comment resubmitted from Draft 1.1. 162.11.7, P160, L27]

One sided noise spectral density for passive copper cables was changed from 8.2x10-9 to 1x10-8. This went too far causing adverse impacts on COM results.

SuggestedRemedy

Change One-sided noise spectral density from to 1x10-8 to 1x10-9. (Supporting presentation)

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #69.

Cl 162 SC 162.11.7 P 161 L 14 # 78

Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 eta0

Current eta_0 value causes contributed cable data sets to fail 3 dB COM

SuggestedRemedy

Change eta_0 back to 8.37e-9 (see champion_3ck_adhoc_01_031120)

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The referenced presentation is here:

http://www.ieee802.org/3/ck/public/adhoc/mar11_20/champion_3ck_adhoc_01_031120.pdf

Resolve using the response to comment #69.

Cl 162B SC 162B.1.1.1 P 247 L 39 # 79

Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range

Frequency range is not practical for measured data

SuggestedRemedy

Change to 0.05 GHz ≤ f ≤ 40 GHz (see haser_3ck_adhoc_01b_061020) & update Figure 162B-1

Proposed Response Response Status W

PROPOSED REJECT.

Resolve using the response to comment #91.

Cl 162B SC 162B.1.2.1 P 248 L 40 # 80

Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range

Frequency range is not practical for measured data

SuggestedRemedy

Change to 0.05 GHz ≤ f ≤ 40 GHz (see haser_3ck_adhoc_01b_061020) & update Figure 162B-2

Proposed Response Response Status W

PROPOSED REJECT.

Resolve using the response to comment #91.

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Cl 162B SC 162B.1.3.1 P 249 L 37 # 81
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range
 Frequency range is not practical for measured data
 SuggestedRemedy
 Change to 0.05 GHz ≤ f ≤ 40 GHz (see haser_3ck_adhoc_01b_061020) & update Figure 162B-3
 Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #91.

Cl 162B SC 162B.1.3.1 P 250 L 25 # 84
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range
 F_min is not practical for measured data
 SuggestedRemedy
 Change to f_min to 0.05 GHz (see haser_3ck_adhoc_01b_061020)
 Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #91.

Cl 162B SC 162B.1.3.1 P 250 L 33 # 85
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range
 Frequency range is not practical for measured data
 SuggestedRemedy
 Change to 0.05 GHz ≤ f ≤ 40 GHz (see haser_3ck_adhoc_01b_061020)
 Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #91.

Cl 162B SC 162B.1.3.2 P 250 L 47 # 87
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range
 Frequency range is not practical for measured data
 SuggestedRemedy
 Change to 0.05 GHz ≤ f ≤ 40 GHz (see haser_3ck_adhoc_01b_061020)
 Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #91.

Cl 162B SC 162B.1.3.4 P 251 L 46 # 89
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range
 Frequency range is not practical for measured data
 SuggestedRemedy
 See haser_3ck_adhoc_01b_061020 & update Figure 162B-6
 Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #91.

Cl 162B SC 162B.1.3.5 P 252 L 33 # 90
 Haser, Alex Molex
 Comment Type TR Comment Status D bucket5 range
 Frequency range is not practical for measured data
 SuggestedRemedy
 See haser_3ck_adhoc_01b_061020 & update Figure 162B-7
 Proposed Response Response Status W
 PROPOSED REJECT.
 Resolve using the response to comment #91.

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Cl 163 SC 163.9.1 P 177 L 40 # 5 [REDACTED]
Wu, Mau-Lin Mediatek
Comment Type T Comment Status D bucket5 ERL
ERL value is TBD in Table 163-5
SuggestedRemedy
Change ERL value from TBD to 13
Proposed Response Response Status W
PROPOSED REJECT.
There is no consensus to make the proposed change. See the response to comment #45.

Cl 163 SC 163.9.1.1 P 178 L 41 # 46 [REDACTED]
Mellitz, Richard Samtec
Comment Type TR Comment Status D bucket5 ERL
Assign N_bx to recommendation in mellitz_3ck_adhoc_01_061020
SuggestedRemedy
Set N_bx to 21
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
This comment refers to the following presentation:
http://www.ieee802.org/3/ck/public/adhoc/jun10_20/mellitz_3ck_adhoc_01a_061020.pdf
Resolve using the response to comment #45.

Cl 163 SC 163.9.1.1 P 178 L 42 # 6 [REDACTED]
Wu, Mau-Lin Mediatek
Comment Type T Comment Status D bucket5 ERL
N_bx value is TBD in Table 163-6
The purpose of N_bx is to reflect the effect of DFE taps in referenced receiver. Based on that, we shall consider N_bx >= 21. Please refer to wu_3ck_02a_1119.pdf & wu_3ck_adhoc_01_010820.pdf for more details.
SuggestedRemedy
Change TBD of "N_bx" to 21.
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #45.

Cl 163 SC 163.9.1.2 P 178 L 52 # 31 [REDACTED]
Wu, Mau-Lin Mediatek
Comment Type T Comment Status D bucket5 TP0a
The insertion loss of TP0a test fixture is still keep as between 1.2 dB and 1.6 dB at 26.56 GHz. It may be critical for the state-of-art PCB technology to achieve this small IL value.
SuggestedRemedy
Propose to change '1.2 dB and 1.6 dB at 26.56 GHz' to '2.4 dB and 3.2 dB at 26.56 GHz'.
Proposed Response Response Status W
PROPOSED REJECT.
A new methodology using TP0v as adopted in the response of comment #33 replaces TP0a as a normative test point for TX measurements. The TP0 to TP0a insertion loss remains unchanged.
See the responses to comments #33 and #153.

Cl 163 SC 163.9.2 P 180 L 46 # 8 [REDACTED]
Wu, Mau-Lin Mediatek
Comment Type T Comment Status D bucket5 ERL
ERL value is TBD in Table 163-7
SuggestedRemedy
Change ERL value from TBD to 13
Proposed Response Response Status W
PROPOSED REJECT.
There is no consensus to make the proposed change. See the response to comment #45.

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Cl 163 SC 163.10 P 185 L 27 # 261

Dawe, Piers Nvidia
 Comment Type TR Comment Status D bucket5 dfe

It isn't reasonable to expect a real receiver to provide a DFE tap strength of -0.85. Therefore, the channel should not be specified as if the receiver can do that. Further, there is an advantage in knowing that the sign of a tap can't change. kasapi_3ck_01_1119 slide 7 shows the first DFE tap >0.42 for the critical channels. Another analysis showed the same for 27 backplane channels. Slide 6 of heck_3ck_01_0919 (107 channels) shows that the DFE taps are 2 and 3 are always strongly positive, and no taps <-0.045, yet the draft would allow such untypical/hypothetical channels. We wanted to check that low loss channels would not do something surprising before adopting sensible limits that don't burden real channels: see new Heck presentation. Remember that channels that go a little outside a tap weight pay a very small increase in COM for the excess ISI noise that they cause (see another comment), so the limits for the smaller taps should be set a bit tighter than the worst channel we want to pass.

SuggestedRemedy

Add minimum tap weight limits:
 Tap 1: min +0.3
 Tap 2: min +0.05
 All other taps: min -0.03 (looser than for CR).
 Turn the existing "Normalized DFE coefficient magnitude limit"s into "Normalized DFE coefficient limit"s.
 Update definition of COM in 93A.1.

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

An analysis has been presented in ad hoc:
http://www.ieee802.org/3/ck/public/adhoc/jun17_20/heck_3ck_adhoc_01_061720.pdf

Note that comment #247 against Clause 162 with a similar comment text and suggested remedy was accepted and closed.

Implement the suggested remedy with editorial license.

Cl 163 SC 163.10.2 P 186 L 49 # 47

Mellitz, Richard Samtec
 Comment Type TR Comment Status D bucket5 ERL

Assign N_bx to recommendation in mellitz_3ck_adhoc_01_061020

SuggestedRemedy

Set N_bx to 21

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #45.