

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

Cl 162 SC 162.9.4.5 P 157 L 11 # 11163

Palkert, Tom Molex
 Comment Type T Comment Status D ERL use

[Comment resubmitted from Draft 1.1. 162.9.4.5, P156, L14]

ERL measurement should not be required for high values of COM

SuggestedRemedy

Add sentence 'If COM is greater than 4 dB the ERL limit does not apply

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 162 SC 162.11 P 158 L 15 # 71

Haser, Alex Molex
 Comment Type T Comment Status R

Fill in TBD for differential to common-mode return loss

SuggestedRemedy

Presentation to follow

Response Response Status C

REJECT.

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 with comment 181, 147, and 74

There is no consensus to make changes to this specification at this time.

Cl 162 SC 162.11 P 158 L 18 # 73

Haser, Alex Molex
 Comment Type T Comment Status A

Fill in TBD for common-mode to common-mode return loss

SuggestedRemedy

Presentation to follow

Response Response Status C

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

Implement the proposal on slide 7 of diminico_3ck_02d_0720.

Cl 162 SC 162.11.3 P 158 L 52 # 45

Mellitz, Richard Samtec
 Comment Type TR Comment Status A

N = 7000 is requires a frequency step less than 10 Mhz. This is measurement burdon with no change over N=3500.

SuggestedRemedy

Set N=3500 as suggested in mellitz_3ck_adhoc_01_061020

Response Response Status C

ACCEPT IN PRINCIPLE.

The referenced presentation is located here:
[Http://www.ieee802.org/3/ck/public/adhoc/jun10_20/mellitz_3ck_adhoc_01a_061020.pdf](http://www.ieee802.org/3/ck/public/adhoc/jun10_20/mellitz_3ck_adhoc_01a_061020.pdf)

Adopt the values for Tr, Bx, Px, N, and Nbx in slide 6 of the following presentation:
http://www.ieee802.org/3/ck/public/20_07/kochuparambil_3ck_01a_0720.pdf

There was no consensus to adopt values for ERL (min).

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

CI 162 SC 162.11.5 P 159 L 10 # 148

Ran, Adeo Intel
 Comment Type T Comment Status R

Addressing D-C conversion (insertion) loss which is TBD.

In clause 92 the D-C conversion loss was specified relative to the differential insertion loss, with minimum of 10 dB flat from 10 MHz up to the Nyquist frequency, then decreasing linearly to 6.3 dB at 15.7 GHz, and a flat 6.3 dB up to 19 GHz (Equation 92-29).

Minimum mode conversion loss is important to control the differential noise into the receiver, with Tx allowed CM noise (up to 30 mV RMS) and possible additional noise from D-C return loss.

The difference from insertion loss is a good method assuming the common mode noise has a flat spectrum (similar to the victim signal). If the common mode noise is concentrated at low frequencies where the channel does not attenuate much, then it may only be reduced to 10 mV RMS, which is a large amount of noise. We don't have reason to assume that, but it may be worth tightening the specs (future work required).

It is suggested to use a specification similar to clause 92 scaled to the new Nyquist frequency, and modified to extend the slope to 1.25×26.5625 , where the equation creates a flat 10 dB line between 0.01-26.5625 GHz, a constant slope until 33.203125 GHz, and a flat 5.75 dB line between 33.203125-40 GHz.

If the numbers in the equation are not in consensus they can be replaced with TBDs.

SuggestedRemedy

Change the content of 162.11.5 to the following:

162.11.5 Cable assembly differential to common-mode conversion loss

Conversion between differential and common-mode signals can result in degradation of the signal at the receiver, and in introduction of differential noise into the receiver. To limit these effects, the differential to common-mode mode conversion loss, relative to the insertion loss, has to be limited.

The difference between the cable assembly differential to common-mode conversion loss and the cable assembly insertion loss shall meet Equation (162-new).

$$CDCL(f) - IL(f) \geq$$

$$10, 0.01 \leq f \leq f_N$$

$$27-17 \cdot f/f_N, f_N < f \leq 1.25 \cdot f_N$$

$$5.75, 1.25 \cdot f_N < f < 40$$

Where
 $f_N=26.5625$ is the Nyquist frequency in GHz
 f is the frequency in GHz

CDCL(f) is the common-mode to differential inversion loss in dB at frequency f

IL(f) is the differential insertion loss in dB at frequency f

Response Response Status C

REJECT.

See also 181, 71, and 74.

There is no consensus to address the TBD at this time.

CI 162 SC 162.11.7 P 159 L 20 # 149

Ran, Adeo Intel
 Comment Type T Comment Status A

(cross-clause)
 Addressing the value of T_r used in COM, which is currently TBD.

T_r is not measurable, but it implicitly affects the transmitter specification peak/Vf which is measurable, and is also TBD in 162, 163 and 120F.

The proposed value for T_r (as used in COM, prior to the device package model) is 7.5 ps. This value matches results of feasible transmitter devices and will enable reasonable values of peak/Vf.

Note that the value 6.16 ps has been used in prior analysis, but has never been adopted. This latter value is overly aggressive and does not enable feasible design of transmitters. The proposed value has only a mild effect on COM results in comparison.

A presentation supporting this value and possible values for peak/Vf at T_{p0} or T_{P0a} (possibly informative) will be provided.

SuggestedRemedy

Change TBD to 7.5 ps in 162.11.7, in 163.10, and in 120F.4.1.

Response Response Status C

ACCEPT IN PRINCIPLE.

A related presentation was not submitted.

Implement the suggested remedy.

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

Cl **162** SC **162.11.7** P **160** L **43** # **37**
 Ben Artsi, Liav Marvell Technology
 Comment Type **T** Comment Status **A** CA COM

Transmitter signal-to-noise ratio is TBD

SuggestedRemedy

In benartsi_3ck_01a_0919 it was shown that an optimized break-out section cross-talk degrades SNR by at least 0.5dB. This degradation is not represented in the "include PCB" section and should be accounted for in setting a proper value of SNR_Tx in section 162. In Table 163–10 SNR_Tx is specified to be 33dB and very likely same devices will be used for both sections. For comparison, in section 163 the break-out area crosstalk is included in the interconnect supplied to COM. According to all of the above, set 162 section's SNR_Tx COM value to be 32.5dB (to account for host board break-out section crosstalk which is not included in the "include PCB" specification). This value correlates to 163 section's SNR_Tx of 33dB and allows traces and conector crosstalk degradation of an additional 1dB up to TP2 resulting in the 31.5dB already specified in table 162–9 (SNDR = 31.5dB)

Response Response Status **C**
 ACCEPT IN PRINCIPLE.

The referenced presentation is here:
http://www.ieee802.org/3/ck/public/19_09/benartsi_3ck_01a_0919.pdf

Comments #70, #77, #152, #11162 also address SNR_TX.
 Set SNR_TX to 32.5 dB.

Cl **162A** SC **162A** P **243** L **34** # **182**
 DiMinico, Christopher MC Communications
 Comment Type **TR** Comment Status **A**

Proposals for 162A Annex 162A
 TP0 and TP5 test point parameters and channel characteristics TBDs

SuggestedRemedy

162A.4 recommended maximum and minimum printed circuit board trace insertion losses TBDs
 162A.5 Channel insertion loss
 ILMaxHost(f) TBD
 ILCamin(f) TBD
 See diminico_3ck_01_0720.pdf

Response Response Status **C**
 ACCEPT IN PRINCIPLE.

[Editor's note: changed clause from 162.]

The following was not reviewed. A later presentation (diminico_3ck_02d_0720) superceded it.

http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_01_0720.pdf

There is no consensus to adopt the proposed specification for maximum PCB insertion loss.

For the minimum PCB insertion loss, adopt the specification on slide 10 of diminico_3ck_02d_0720. Implement with editorial license.

Cl **162C** SC **162C.1** P **259** L **11** # **1**
 Lusted, Kent Intel Corporation
 Comment Type **TR** Comment Status **A** bucket4

The MDI connector contact mapping for the OSFP connector is incorrect. Many of the contact mappings have incorrect polarity and there are several GND mappings that were missed as well

SuggestedRemedy

Update Table 162C-3 with the correct contact mapping. See presentation submitted to Task Force.

Response Response Status **C**
 ACCEPT IN PRINCIPLE.

Implement the contact mapping per the following presentation:
http://www.ieee802.org/3/ck/public/20_07/lusted_3ck_01_0720.pdf