

IEEE P802.3ck D1.4 100/200/400 Gb/s Electrical Interfaces Task Force 5th Task Force review comments

Cl 162B SC 162B.1 P 259 L 17 # 6
 Dudek, Mike Marvell
 Comment Type TR Comment Status A test fixture (bucket1)
 The measurements at TP1 or TP4 etc. are made with the Cable Assembly Test fixture (162B.1.2) not the mated test fixture (162B.1.3)
 SuggestedRemedy
 On line 18 change 162B.1.3 to 162B.1.2
 Response Response Status C
 ACCEPT.

Cl 162B SC 162B.1.3.2 P 262 L 41 # 7
 Dudek, Mike Marvell
 Comment Type T Comment Status A VTF ERL reference (bucket1)
 Table 162B-2 is related to crosstalk parameters not ERL
 SuggestedRemedy
 Change 162B-2 to 162B-1 (two places)
 Response Response Status C
 ACCEPT.

Cl 162D SC 162D.1.1 P 283 L 31 # 9
 Dudek, Mike Marvell
 Comment Type T Comment Status A editorial (bucket1)
 The 100GBASE-CR2 in the Title of Table 162D-3 should be 200GBASE-CR2.
 SuggestedRemedy
 Change it
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Change Title of Table 162D-3 to "200GBASE-CR2".

Cl 162D SC 162D.1.1 P 283 L 50 # 10
 Dudek, Mike Marvell
 Comment Type E Comment Status D withdrawn
 There is an unfortunate page break in the middle of Table 162D-3
 SuggestedRemedy
 Adjust formatting so that this table is all on one page
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 163A SC 163A.4.1.2 P 289 L 46 # 11
 Dudek, Mike Marvell
 Comment Type E Comment Status A editorial (bucket1)
 missing space between "in" and "93A.5"
 SuggestedRemedy
 fix it
 Response Response Status C
 ACCEPT.

Cl 163B SC 163B.2 P 291 L 9 # 12
 Dudek, Mike Marvell
 Comment Type TR Comment Status A P0v/TP5v example (bucket1)
 With this example test fixture moved to an Annex it is necessary to refer to the relevant clause that provides the package parameters etc.
 SuggestedRemedy
 Change "For this test fixture, the reference values determined according to the methodology in 163A.3 are listed in Table 163B-1" to "For this test fixture, the reference values determined according to the methodology in 163A.3 using the parameters supplied in Clause 163 are listed in Table 163B-1"
 Response Response Status C
 ACCEPT.

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Cl 120G SC 120G.3.2 P 234 L 10 # 13

Dudek, Mike Marvell
 Comment Type T Comment Status A editorial (bucket1)

The references for both near and far eye measurements in table 120G-3 are to the host output. They should be to the module output

SuggestedRemedy

Change the reference from 120G.3.1.5 to 120G.3.2.2

Response Response Status C

ACCEPT IN PRINCIPLE.
 In Table 120G-3, for rows for NE EH, NE VEC, FE EH, and FE VEC change the reference from "120G.3.1.5" to "120G.3.2.2".

Cl 120G SC 120G.1 P 229 L 3 # 15

Dudek, Mike Marvell
 Comment Type E Comment Status A editorial (bucket1)

Clause 116.1.4 is included in the draft and should be a hot link

SuggestedRemedy

Make this a hot link.

Response Response Status C

ACCEPT.

Cl 120G SC 120G.3.3.2 P 238 L 6 # 18

Dudek, Mike Marvell
 Comment Type T Comment Status A TP4a SIT

The host only needs to meet either the near-end or far-end parameters. This should be clear in this "shall" statement.

SuggestedRemedy

Change " The input shall satisfy the input tolerance with the parameters in Table 120G-7" to " The input shall satisfy the input tolerance with either the near-end or the far-end parameters in Table 120G-7"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment proposes a technical change to the draft that does not address technical completeness.

A statement later in the subclause indicates that the host input need only meet one of the two stressors. See page 239 line 38.

However, it would be helpful to point out the same in this normative statement as well to avoid confusion.

Implement the suggested remedy with editorial license.

Cl 120G SC 120G.1 P 229 L 5 # 21

Dudek, Mike Marvell
 Comment Type E Comment Status A editorial (bucket1)

Annex 135A and 120A are part of this draft.

SuggestedRemedy

Make these references hot links.

Response Response Status C

ACCEPT.

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CI 162 SC 162.9.3 P 152 L 30 # 23

Brown, Matt Huawei
 Comment Type T Comment Status A TX RLCD

In Table 162-10, the specified value for transmitter common-mode to differential mode return loss is TBD.

SuggestedRemedy
 Provide a value or equation and update PICS.

Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #118.

CI 162 SC 162.9.4 P 158 L 16 # 24

Brown, Matt Huawei
 Comment Type T Comment Status A RX RLCD

In Table 162-13, the specified value for receiver differential to common-mode return loss is TBD

SuggestedRemedy
 Provide a value or equation and update PICS.

Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #119.

CI 163 SC 163.9.3 P 187 L 41 # 26

Brown, Matt Huawei
 Comment Type T Comment Status A RX RLCD

In Table 163-8, the specified value for receiver differential to common-mode return loss is TBD

SuggestedRemedy
 Provide a value or equation and update PICS.

Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using response to comment #121

CI 163 SC 163.10.4 P 192 L 44 # 27

Brown, Matt Huawei
 Comment Type T Comment Status A channel ILDC

The specified value for channel differential to common-mode conversion loss is TBD.

SuggestedRemedy
 Provide a value or equation and update PICS.

Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #122

CI 120G SC 120G.3.1 P 231 L 33 # 32

Brown, Matt Huawei
 Comment Type T Comment Status A CM noise, PP voltage, RLCC

The editor's note written in D1.0 indicates that the specified values for host output AC CM noise, PP output voltage, and RLCC require confirmation. No proposals to change the specified values have been submitted.

SuggestedRemedy
 Remove the editor's note.

Response Response Status C
 ACCEPT.

CI 120G SC 120G.3.2 P 234 L 32 # 35

Brown, Matt Huawei
 Comment Type T Comment Status A TP4 AC CM noise

The editor's note indicates that the value specified for the module output AC CM noise requires confirmation. No proposals to change the specified values have been accepted. However, it should be noted that there is ongoing discussion on this topic.

SuggestedRemedy
 Remove the editor's note.

Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #126.

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CI 162 SC 162.9.4.1 P 158 L 23 # 46
 Brown, Matt Huawei
 Comment Type T Comment Status A rate tolerance (bucket1)
 The list of related subclauses should include 162.9.4.2.
 SuggestedRemedy
 Change "162.9.4.3 and 162.9.4.4" to "162.9.4.2, 162.9.4.3, and 162.9.4.4".
 Response Response Status C
 ACCEPT.

CI 136 SC 136.8.11.7.1 P 114 L 37 # 48
 Lusted, Kent Intel Corporation
 Comment Type TR Comment Status A training (bucket1)
 Based on the link training change proposed in https://www.ieee802.org/3/ck/public/20_10/lusted_3ck_02_1020.pdf, a new variable "use_quiet_in_training" was defined in Clause 136.8.11.7.1. This variable has an explicit setting of FALSE for 50 Gb/s per lane PHYs. However, no specific mention of the variable value is made for 100 Gb/s per lane PHYs. This could lead to confusion in the industry as some vendors may interpret the "use_quiet_in_training" capability as optional to implement, while it was intended to be mandatory for 100 Gb/s per lane PHYs.
 SuggestedRemedy
 In CI 162.8.11, add a new entry to the list as follows:
 h) the variable "use_quiet_in_training" (see 136.8.11.7.1) is always set to TRUE for 100 Gb/s per lane PHYs."
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #53.

CI 162 SC 162.8.11 P 150 L 34 # 49
 Lusted, Kent Intel Corporation
 Comment Type TR Comment Status A training (bucket1)
 The requirement to "assert local_tf_lock ... provided that there is a compliant signal containing training frames at the PMD input" is insufficiently detailed. It is unclear if a receiver should react to a signal that is compliant with respect to amplitude, jitter, etc but does not have a valid training frame format. It is possible that a few of the first training frames during startup are malformed logically yet meet the electrical compliance requirements.

SuggestedRemedy
 Change item g) to be "... provided that there is a compliant signal containing valid training frames at the PMD input."
 Response Response Status C
 ACCEPT.

CI 1 SC 1.3 P 32 L 14 # 50
 Lusted, Kent Intel Corporation
 Comment Type E Comment Status A editorial (bucket1)
 The publication date for the SFP-DD MSA v4.2 was August 17, 2020, not August 10, 2020 as shown in the draft. See <http://sfp-dd.com/wp-content/uploads/2020/08/SFP-DDrev4.2.pdf>
 SuggestedRemedy
 Change the date to August 17, 2020
 Response Response Status C
 ACCEPT.

CI 136 SC 136.8.11.7.1 P 114 L 39 # 53
 Slavick, Jeff Broadcom
 Comment Type TR Comment Status A training (bucket1)
 The intent of the new QUIET state is to make it so all newly developed PHYs will use this features to avoid the deadlock situation. So the QUIET state should mandatory except for 50G PHY types.
 SuggestedRemedy
 Change the last sentence of the use_quiet_in_training definition to read as "This variable is always set to FALSE for 50 Gb/s per lane PHYs, otherwise it's set to TRUE..
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Change the last sentence of the use_quiet_in_training definition to read as "This variable is always set to FALSE for 50 Gb/s per lane PHYs, otherwise it is set to TRUE."

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Cl 120 SC 120.5.7.2 P 102 L 30 # 55
 Slavick, Jeff Broadcom
 Comment Type TR Comment Status A editorial (bucket1)
 In the change to the first paragraph it has removed the requirement of this paragraph for 50G copper PMDs.
 SuggestedRemedy
 Add 200GBASE-KR4/CR4 to the list in both the first and second sentences.
 Response Response Status C
 ACCEPT.

Cl 120 SC 120.5.7.2 P 102 L 44 # 56
 Slavick, Jeff Broadcom
 Comment Type TR Comment Status A editorial (bucket1)
 In the change to the fourth paragraph it has removed the requirement of this paragraph for 50G copper PMDs.
 SuggestedRemedy
 Add 200GBASE-KR4/CR4 to the list in the first sentence.
 Response Response Status C
 ACCEPT.
 [Editor's note: Changed page from 103.]

Cl 162A SC 162A.2 P 253 L 24 # 57
 Wu, Mau-Lin MediaTek
 Comment Type T Comment Status A editorial (bucket1)
 TP0a had been replaced by TP0v in Clause 163.9.2.
 SuggestedRemedy
 Change "The recommended transmitter characteristics at TP0 as measured at TP0a are described in 163.9.2." shall be changed to "The recommended transmitter characteristics at TP0 as measured at TP0v are described in 163.9.2."
 Response Response Status C
 ACCEPT.

Cl 162A SC 162A.3 P 253 L 29 # 58
 Wu, Mau-Lin MediaTek
 Comment Type T Comment Status A editorial (bucket1)
 TP5a had been replaced by TP5v in Clause 163.9.3.
 SuggestedRemedy
 Change "The recommended receiver characteristics at TP5 as measured at TP5a are described in 163.9.3." shall be changed to "The recommended receiver characteristics at TP5 as measured at TP5v are described in 163.9.3."
 Response Response Status C
 ACCEPT.

Cl 162 SC 162.9.3.1.4 P 155 L 46 # 59
 Wu, Mau-Lin MediaTek
 Comment Type T Comment Status A TX EQ (bucket1)
 The step size of TX EQ coefficient had been changed from 2% to 2.5%. The "coefficient step size" shall be modified from 0.02 to 0.025.
 SuggestedRemedy
 Change <... to a request to "increment" shall be between 0.005 and 0.02, ...> to <... to a request to "increment" shall be between 0.005 and 0.025, ...>.
 Response Response Status C
 ACCEPT.

Cl 162 SC 162.9.3.1.4 P 155 L 47 # 60
 Wu, Mau-Lin MediaTek
 Comment Type T Comment Status A TX EQ (bucket1)
 The step size of TX EQ coefficient had been changed from 2% to 2.5%. The "coefficient step size" shall be modified from -0.02 to -0.025.
 SuggestedRemedy
 Change <... to a request to "decrement" shall be between -0.02 and -0.005.> to <... to a request to "decrement" shall be between -0.025 and -0.005.>.
 Response Response Status C
 ACCEPT.

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Cl 163 SC 163.9.2.3 P 187 L 16 # 66
 Healey, Adam Broadcom Inc.
 Comment Type E Comment Status A (bucket1)
 Subclause title is incorrect.
 SuggestedRemedy
 Change subclause title to "Difference steady-state voltage".
 Response Response Status C
 ACCEPT.

Cl 120G SC 120G.3.1 P 231 L 25 # 83
 Ghiasi, Ali Ghiasi Quantum/Inphi
 Comment Type TR Comment Status A TP1a transition time
 At TP1a it is no possible to get 7.5 ps, please put something reasonable
 SuggestedRemedy
 A fast ASIC with 7.6 ps output rise time when passes through a mated board with just 5 dB loss produces 12 ps 20-80% rise time. I suggest 12 ps but no less than 10 ps.
 Response Response Status C
 ACCEPT IN PRINCIPLE.

This comment proposes a technical change to the draft that does not address technical completeness. However, there are proposals to other comments relating to technical completeness that include changes to the transition time.

The following presentations were review by the task force:
https://www.ieee802.org/3/ck/public/21_01/dudek_3ck_01_0121.pdf
https://www.ieee802.org/3/ck/public/adhoc/jan13_21/ghiasi_3ck_adhoc_01_011321.pdf

Change the host output transition time to 10 ps.

Straw poll #10 (pick one) and #11 (chicago)
 I support changing the value of host output transition time (min) to:
 A: 7.5 ps (current value)
 B: 9.5 ps
 C: 10 ps
 #10 A: 7 B: 12 C: 14
 #11 A: 6 B: 23 C: 25

Cl 120G SC 120G.3.2 P 234 L 20 # 85
 Ghiasi, Ali Ghiasi Quantum/Inphi
 Comment Type T Comment Status A TP4 transition time
 At TP4 it is no possible to get 7.5 ps, please put something reasonable
 SuggestedRemedy
 A fast ASIC with 7.6 ps output rise time when passes through a mated board with just 5 dB loss produces 12 ps 20-80% rise time, given that real module may have less than min HCB loss then 10 ps would be reasonable rise time.
 Response Response Status C

ACCEPT IN PRINCIPLE.
 [Editor's note: subclause, page, and line changed from 120G.3.1, 231, and 25.]

This comment proposes a technical change to the draft that does not address technical completeness. However, there are proposals to other comments relating to technical completeness that include changes to the transition time.

The following presentations were review by the task force:
https://www.ieee802.org/3/ck/public/21_01/dudek_3ck_01_0121.pdf
https://www.ieee802.org/3/ck/public/adhoc/jan13_21/ghiasi_3ck_adhoc_01_011321.pdf

Change the module output transition time (min) to 8.5 ps.

Cl 162 SC 162.11 P 162 L 36 # 91
 Haser, Alex Molex
 Comment Type E Comment Status D withdrawn
 "Cable assembly supports... achievable cable length of at least 2 m"; spec is written around a 1.75 m cable
 SuggestedRemedy
 Change text to "...achievable cable length of at least 1.75 m"
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

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Cl 162 SC 162.11 P 162 L 38 # 92
 Haser, Alex Molex
 Comment Type E Comment Status D withdrawn
 "Cable assembly supports... achievable cable length of at least 2 m"; spec is written around a 1.75 m cable
 SuggestedRemedy
 Change text to "...achievable cable length of at least 1.75 m"
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 162 SC 162.11 P 162 L 40 # 93
 Haser, Alex Molex
 Comment Type E Comment Status D withdrawn
 "Cable assembly supports... achievable cable length of at least 2 m"; spec is written around a 1.75 m cable
 SuggestedRemedy
 Change text to "...achievable cable length of at least 1.75 m"
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 162 SC 162.11.7.2 P 171 L 1 # 95
 Haser, Alex Molex
 Comment Type E Comment Status A COM XTALK (bucket1)
 "The crosstalk paths for each MDI type are given in Table..."; the table specifies the number of crosstalk paths, not the paths themselves
 SuggestedRemedy
 Change text to "The number of crosstalk paths of each MDI..."
 Response Response Status C
 ACCEPT.

Cl 162B SC 162B.1 P 259 L 20 # 96
 Haser, Alex Molex
 Comment Type T Comment Status D MTF IL
 The reference MTF IL at 26.56 GHz is 6.66 dB
 SuggestedRemedy
 Change text from 6.6 dB to 6.7 dB to capture rounding correctly
 Proposed Response Response Status Z
 REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 162 SC 162.11.4 P 165 L 8 # 101
 Champion, Bruce TE Connectivity
 Comment Type T Comment Status R CA RLCD
 Cable Assembly Diff-to-Common Mode Return loss is too tight for high volume production testing at the higher frequencies. Failures are occurring because of testing artifacts and not because of poor cable assemblies. A slight relaxation of the limit is requested to account for this.
 SuggestedRemedy
 It is recommended to use the following equation for this limit:

$$\text{Return Loss}(f) \geq 22 - 10(f/26.56) \text{ for } 0.05 \leq f < 26.56$$

$$\text{Return Loss}(f) \geq 19 - 7(f/26.56) \text{ for } 26.56 \leq f \leq 40 \text{ GHz}$$
 See presentation
 Response Response Status C
 REJECT.
 This comment proposes a technical change to the draft that does not address technical completeness.
 The following presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/21_01/champion_3ck_02a_0121.pdf
 There was no consensus on a single remedy. The commenter is encouraged to provide further evidence how system performance is impacted.

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Cl 162 SC 162.11.6 P 166 L 37 # 102

Champion, Bruce

TE Connectivity

Comment Type T Comment Status A CA RLCC

There is a discrepancy between what is specified for the MTF CM-to-CM RL and the cable assembly CM-to-CM RL.

The MTF CM-to-CM RL limit is set to -3 dB. When MTFs designed close to this limit are used in cable assembly Tp1-Tp4 channels, the Tp1-Tp4 CM-to-CM RL will fail the -2 dB limit.

SuggestedRemedy

It is recommended to use the following equation to take into account the worst case MTF design.

$$\text{Return Loss}(f) \geq 1.8 \text{ for } 0.05 \leq f \leq 40$$

Response Response Status C

ACCEPT IN PRINCIPLE.

The following presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/21_01/champion_3ck_01a_0121.pdf

Implement suggested remedy.

Cl 162 SC 162.11 P 163 L 18 # 103

Champion, Bruce

TE Connectivity

Comment Type T Comment Status A CA ERL

Cable Assembly ERL listed as TBD in Table 162-16

SuggestedRemedy

TBD to be changed to 7.4 dB. See champion_3ck_02_1020.pdf

Response Response Status C

ACCEPT IN PRINCIPLE.

The task force reviewed the following presentation:
https://www.ieee802.org/3/ck/public/21_01/champion_3ck_03_0121.pdf

Straw poll #5 indicated no clear consensus on a value.
 Commenters agreed to settle on middle value of 8.25 dB as compromise.

Set the value of cable assembly ERL to 8.25 dB.

Straw Poll #5

I support the following value for the cable assembly ERL.

A: 7.4 dB

B: 8.0 dB

C: 8.5 dB

D: 9 dB

A: 15 B: 14 C: 15 D: 15

Chicago rules

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Cl 162B SC 162B.1.3.2 P 262 L 43 # 112

Kocsis, Sam Amphenol

Comment Type TR Comment Status A MTF ERL

MTF ERL requirement is TBD (also in PICS TF2)

SuggestedRemedy

Replace TBD with 10dB

Response Response Status C

ACCEPT IN PRINCIPLE.

Adopt the value of 10.3 dB using the and the ERL parameters on slide 5 of the following presentation:

https://www.ieee802.org/3/ck/public/21_01/diminico_3ck_01a_0121.pdf

Implement with editorial license.

Straw poll #4

I support using the following value for the MTF ERL.

A: 9 dB

B: 10.3 dB

A: 6 B: 26

Choose one.

Cl 162B SC 162B.1.3.3 P 263 L 34 # 114

Kocsis, Sam Amphenol

Comment Type TR Comment Status A MTF RL mask

Recommended MTF RL mask does not provide useful information to the reader

SuggestedRemedy

Remove the mask from the spec

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete subclause 162B.1.3.3 Mated test fixtures differential return loss.

Cl 162 SC 162.9.3 P 152 L 30 # 118

Ran, Adeo Intel

Comment Type TR Comment Status A TX RLCD

(addressing TBD)

Tx CM to differential return loss refers to 92.8.3.3 with equation TBD.

In clause 92 the RLCD of Tx and Rx have the same specifications - eq (92-2) in 92.8.3.3 and eq (92-21) in 92.8.4.3, respectively, which are identical; and there is no RLCD for cable assembly.

The conversion loss specifications may need more work, but for the purpose of technical completeness, it is suggested to use the same equation used for the cable assembly, since in both cases the measurement involves mated connectors and results should be comparable.

SuggestedRemedy

Add a subclause for Tx differential to common mode return loss, with equation identical to equation (162-9), or point to (162-9).

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a subclause for Tx common-mode to differential return loss, with equation identical to equation (162-9).

Implement with editorial license.

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Cl 162 SC 162.9.4 P 158 L 16 # 119

Ran, Adeo Intel

Comment Type TR Comment Status A RX RLCD

(addressing TBD)
Rx differential to common-mode (conversion) input return loss refers to 92.8.4.3 with value TBD.

In clause 92 the RLCD of Tx and Rx have the same specifications - eq (92-2) in 92.8.3.3 and eq (92-21) in 92.8.4.3, respectively, which are identical; and there is no RLCD for cable assembly.

The conversion loss specifications may need more work, but for the purpose of technical completeness, it is suggested to use the same equation used for the cable assembly, since in both cases the measurement involves mated connectors and results should be comparable.

As an alternative consider removing this specification (the Rx owns its performance).

SuggestedRemedy

Add a subclause for Rx differential to common mode return loss, with equation identical to equation (162-9), or point to (162-9).

Response Response Status C

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial license.
Also, add "(min)" to the end of the parameter name.

Cl 163 SC 163.9.3 P 187 L 41 # 121

Ran, Adeo Intel

Comment Type TR Comment Status A RX RLCD

(addressing TBD)
Rx Differential to common-mode (conversion) input return loss refers to 93.8.1.4 with value TBD. This subclause uses equation (93-5) to define the limit.

The conversion loss specifications may need more work, but for the purpose of technical completeness, it is suggested to use a piecewise-linear equation similar to (93-5). Boundary lines are suggested to match the ones used in OIF CEI-112G-LR for the 53.125 GHz signaling frequency.

As an alternative consider removing this specification (the Rx owns its performance).

SuggestedRemedy

Add a new subclause for Rx differential to common mode return loss with the equation:

$$RL_{dc}(f) \geq 25-20*(f/f_b) \text{ for } 0.05 \leq f \leq f_b/2$$

$$RL_{dc}(f) \geq 15 \text{ for } f_b/2 < f \leq 40$$

where f is the frequency in GHz and $f_b=53.125$.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a new subclause for RLCD

$$RL_{cd}(f) = 25-20*(f/f_b) \text{ for } 0.05 \leq f \leq f_b/2$$

$$RL_{cd}(f) = 15 \text{ for } f_b/2 < f \leq 40$$

where f is the frequency in GHz and $f_b=53.125$.

Update PICS

Implement with editorial license.

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Cl 163 SC 163.10.4 P 192 L 44 # 122

Ran, Adeo Intel
 Comment Type **TR** Comment Status **A** channel ILDC

(addressing TBD)
 For the KR PHY, the channel "differential to common-mode conversion loss of TP0 and TP5" is TBD.

For the CR PHY this parameter is specified in 162.11.5 as "The difference between the cable assembly differential to common-mode conversion loss and the cable assembly insertion loss" with equation (162-10).

For the purpose of technical completeness, a similar equation can be used for KR.

SuggestedRemedy

Rewrite this subclause based on 162.11.5, substituting "TP0 to TP5 channel" for "cable assembly" with editorial license.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Specify both ILDC and ILCD based on 162.11.5, substituting "TP0 to TP5 channel" for "cable assembly". Implement with editorial license.

Cl 120G SC 120G.3.2 P 234 L 30 # 126

Ran, Adeo Intel
 Comment Type **ER** Comment Status **A** TP4 AC CM noise

(Addressing editor's note requiring confirmation)
 Editor's note indicates that AC common-mode specification needs confirmation. It has not been confirmed that the existing limit of 17.5 mV RMS is obtainable, but there is no consensus on another value.

Work is planned to refine the measurement method to allow separation of different sources of common mode signal and fine-tuned specification, but it will likely continue into later phases of P802.3ck.

This should not preclude progressing to WGB with the current method and limit.

SuggestedRemedy

Delete the editor's note.

Response Response Status **C**

ACCEPT.

Cl 163 SC 163.9.2 P 185 L 28 # 133

Ran, Adeo Intel
 Comment Type **E** Comment Status **D** withdrawn

The editor's note states that "In Table 163-5, common-mode to common-mode return loss reference is not appropriate". But it is appropriate; comment #228 against D1.3 was referring to the frequency range of the test fixture's specification and did not request any change to this reference (the problem is in the response).

SuggestedRemedy

Delete the editor's note, without any change to the table.

Proposed Response Response Status **Z**

PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 163 SC 163.10.1 P 190 L 26 # 137

Ran, Adeo Intel
 Comment Type **E** Comment Status **A** editorial (bucket1)

This subclause is titled "Channel Operating margin" so it should only discuss COM, not recommended IL limits and ERL requirements.

There are additional requirements not listed here (e.g. mode conversion loss, 163.10.4)

SuggestedRemedy

Move the second paragraph (which points to 163.10.2 and 163.10.3) to the parent subclause 163.10.

Consider adding a summary table in 163.10 as in the Tx and Rx characteristics.

Response Response Status **C**

ACCEPT IN PRINCIPLE.
 Move the second paragraph (which points to 163.10.2 and 163.10.3) to the parent subclause 163.10. Implement with editorial license.
 Adding a summary table may be an improvement to the draft, but is not necessary for technical completeness.

IEEE P802.3ck D1.4 100/200/400 Gb/s Electrical Interfaces Task Force 5th Task Force review comments

CI 120G SC 120G.3.3 P 237 L 37 # 138

Ran, Adee Intel
 Comment Type T Comment Status A TP4a/TPRLCD

For module output (120G.3.2, table 120G-3), host input (120G.3.3, table 120G-6), and module input (120G.3.4, table 120G-9), the reference subclause for "Common-mode to differential return loss (min)" is incorrect - 120G.3.1.2 discusses ERL.

There is one subclause that discusses RLCD, 120G.3.1.1, but it is currently specific to host output.

SuggestedRemedy

Change reference from 120G.3.1.2 to 120G.3.1.1 in the 3 tables.

Rephrase the text in 120G.3.1.1 to refer to both host and module, output and input.

Response Response Status C

ACCEPT IN PRINCIPLE.

The reference to 120G.3.1.2 is incorrect and should be 120G.3.1.1.

By convention, it is common to refer to specifications for different test points without changing the text in the referenced subclause.

However the specification for module input and host input should be differential to common-mode (RLCD).

Also, the variable in 120G.3.1.1 should be RLDC, not RLCD).

For common-mode to differential return loss in Table 120G-3, change the reference to 120G.3.1.1.

In 120G.3.1.1, change RLCD to RLDC.

For Host Input and Module input change the parameter to differential to common-mode return loss and specify based on 120G.3.1.1.

Implement with editorial license.

CI 163 SC 163.10 P 190 L 28 # 139

Ran, Adee Intel
 Comment Type T Comment Status A channel RLCD (CC)

There is no specification for RLDC for the KR channel.

Without such specification, a channel can cause a strong common mode reflection signal that will be fed into the Tx - and since Tx RLCD/RLCC are not defined either, a differential or common mode signal can be reflected back without control.

The conversion loss specifications may need more work, but for the purpose of technical completeness, the channel RLDC from 162.11.4 can be used.

Also in missing 120F.

SuggestedRemedy

Add a new subclause for channel differential to common mode return loss, based on 162.11.4 with the same limits, with editorial license.

Apply similarly in 120F.

Response Response Status C

ACCEPT.

[Editor's note: CC 163, 120F]

CI 162 SC 162.9.3.3 P 156 L 31 # 142

Dawe, Piers Nvidia
 Comment Type T Comment Status A TX SNDR (bucket1)

The transmitter SNDR measurement uses the method described in

SuggestedRemedy

Transmitter SNDR is defined by the [measurement] method {of | described in}

Response Response Status C

ACCEPT IN PRINCIPLE.

Change:

"The transmitter SNDR measurement uses the method described in 120D.3.1.6 with the exception that the linear fit procedure in 162.9.3.1.1 is used."

To:

"The transmitter SNDR is defined by the the measurement method described in 120D.3.1.6 with the exception that the linear fit procedure in 162.9.3.1.1 is used."

IEEE P802.3ck D1.4 100/200/400 Gb/s Electrical Interfaces Task Force 5th Task Force review comments

Cl 120G SC 120G.5.2 P 246 L 23 # 154

Dawe, Piers

Nvidia

Comment Type TR Comment Status R EO method

Of all the options in daw_3ck_01a_1020, this draft has the most primitive (rectangular eye mask) although it is described as a histogram. It's an inefficient/inaccurate way of measuring a signal and provides weak and uncertain protection against too much jitter. This will get worse if we relax the VEC limits, and is a particular concern for very short host channels (see Mike Dudek's work).

SuggestedRemedy

Change from a 4-cornered mask with corners at $t = ts \pm 0.05$, $V = \pm H_{min}/2$ to a 10-cornered mask with corners at $t = ts \pm 0.05$, $ts \pm 0.07$, $ts \pm 0.1$, $V = \pm H_{min}/2$, $\pm H_{min} * 0.4$, ± 0 .

(In case it's not clear, H_{min} , already specified, is the greater of EH and Eye Amplitude - VEC. There will be discussion about changing those limits from other comments, but this is a simple scalable method that can remain as the EH and VEC limits are revised.)

Response Response Status C

REJECT.

This comment proposes a technical change to the draft that does not address technical completeness.

The following presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/21_01/dawe_3ck_01_0121.pdf

Also, the slide 3 of the following presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/21_01/brown_3ck_04_0121.pdf

The currently methodology was chosen over an eye mask method like that being proposed in this comment.

The comment does not provide sufficient evidence to support the proposed changes.

There was no concensus to make the proposed change.