Cl **162A** *SC* **162A.4** *P* **287** *L* **45** # 18

Wu, Mau-Lin MediaTek Inc.

Comment Type **TR** *Comment Status* **A** *Host PCB ILdd*

The recommended maximum IL for TX or RX PCB is 6.875 dB at 26.56 GHz, which is defined in (162A-1). However, the equation of (162A-1) is not correct. By quick check of the equation, ILdd_PCBmax(26.56) ~= 6.6 dB, which is NOT 6.875 dB. According to the closed response of comment #18 in https://www.ieee802.org/3/ck/comments/draft1p3/8023ck_D1p3_final_closedcomments.pdf, the equation of (162A-1) shall be modified as "0.9809*(0.471*SQRT(f)+0.1194*f+0.002*(f^2))" . However, the equation of "0.9809*(0.417*SQRT(f)+0.1194*f+0.002*(f^2))" was adopted, instead, which is wrong.

SuggestedRemedy

Change (162A-1) from "0.9809*(0.417*SQRT(f)+0.1194*f+0.002*(f^2))" to "0.9809*(0.471*SQRT(f)+0.1194*f+0.002*(f^2))". Redraw Figure 162A-1 accordingly if necessary.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change (162A-1) from "0.9809*(0.417*SQRT(f)+0.1194*f+0.002*(f^2))"
to "0.9809*(0.471*SQRT(f)+0.1194*f+0.002*(f^2))".
Figure 162A-1 uses correct equation.

Cl **162A** *SC* **162A.4** *P* **289** *L* **1** # 19

Wu, Mau-Lin MediaTek Inc.

Comment Type **TR** *Comment Status* **A** *Host PCB ILdd*

The recommended maximum IL from TP0 to TP2 is 10.975 dB at 26.56 GHz, which is defined in (162A-3). However, the equation of (162A-3) is not correct. By quick check of the equation, ILdd_HostMax(26.56) ~= 10.54 dB, which is NOT 10.975 dB. According to the closed response of comment #19 in https://www.ieee802.org/3/ck/comments/draft1p3/8023ck_D1p3_final_closedcomments.pdf, the equation of (162A-3) shall be modified as "1.5658*(0.471*SQRT(f)+0.1194*f+0.002*(f^2))" . However, the equation of "1.5658*(0.417*SQRT(f)+0.1194*f+0.002*(f^2))" was adopted, instead, which is wrong.

SuggestedRemedy

Change (162A-3) from "1.5658*(0.417*SQRT(f)+0.1194*f+0.002*(f^2))" to "1.5658*(0.471*SQRT(f)+0.1194*f+0.002*(f^2))". Redraw Figure 162A-2 accordingly if necessary.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change (162A-3)
from "1.5658*(0.417*SQRT(f)+0.1194*f+0.002*(f^2))"
to "1.5658*(0.471*SQRT(f)+0.1194*f+0.002*(f^2))".
Figure 162A-2 uses correct equation.

Cl **120F** *SC* **120F.3.2.4** *P* **246** *L* **51** # 36

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **R** *withdrawn*

Item e in the list describes transmitter parameters used for calculation of COM. The transmitter device and package model options in 163.9.3.5 seem to be relevant here too, but there is no discussion or reference.

SuggestedRemedy

Add an item to the lettered list, between items d and e, preferably pointing to item e in 163.9.3.5, or alternatively copy the same content.

Response *Response Status* **W**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **162** *SC* **162.9.3.1.1** *P* **172** *L* **8** # 50

Ran, Adee Cisco

Comment Type **TR** *Comment Status* **A** *TX Np*

Following up on unsatisfied comment #29 against D2.1:

The linear fit procedure is defined with Np=29, so the pulse response length is 29. Nv, the number of UIs that are considered for v_f calculation, cannot be higher than Np. In the multiple places that Nv is used, it needs an exception to use Np=200. This does not make sense.

As an example, in 163A.3.2.1 we have "where p(i) and M are defined in 162.9.3.1.1 and Nv is 200". This does not make sense if Np=29.

If 162.9.3.1.1 uses Np=200, this will be the default value, and there will be one exception in the case of SNDR where it should be set to 29. This would result in fewer exceptions.

SuggestedRemedy

1. In 162.9.3.1.1, change Np from 29 to 200.
2. In 162.9.3.3 (Output SNDR), change "with the exceptions that a test system with response as specified in 162.9.3 and the linear fit procedure in 162.9.3.1.1 are used" to "with the exceptions that the test system response is specified in 162.9.3, and the linear fit procedure in 162.9.3.1.1 with Np=29 is used".
3. In 162.9.3.1.2 (Steady-state voltage and linear fit pulse peak) change "The steady-state voltage v_f is defined in 136.9.3.1.2, and is determined from the linear fit pulse calculated by the procedure in 162.9.3.1.1 with the exception that Np and Nv are equal to 200" to "The steady-state voltage v_f is calculated as defined in 136.9.3.1.2 with the exception that Nv=200, and is determined from the linear fit pulse calculated by the procedure in 162.9.3.1.1".
4. In 163A.3.2.1 change "Nv is 200" to "Nv is set by the clause that invokes this method". (it is currently invoked only by 163.9.2.4 (Difference steady state voltage) which states "with Nv = 200").

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: CC: 163, 162, 163A]

Based on straw polls #1, #2, and #3, there is consensus to use the value 200 for Np and Nv for the subclauses under discussion.

Implement the suggested remedy for 162.9.3.1.1, 162.9.3.3, and 163A.3.2.1 using the value 200 for Np.

For 162.9.3.1.2, change the first paragraph to the following:
"The steady-state voltage vf is defined as the sum of the linear fit pulse p(1) through p(M×Nv) divided by M, measured with transmit equalizer set to preset 1 (no equalization). Nv is set equal to 200. The linear fit procedure for obtaining p and the values of M and Np are defined in 162.9.3.1.1."

Implement with editorial license.

Straw poll #1 (choose 1)
For CR TX SNDR, I support Np value of:
A: 29
B: 200
A: 6 B: 21

Straw poll #2 (choose 1)
For KR TX SNDR, I support Np value of:
A: 29
B: 200
A: 5 B: 22

Straw poll #3 (choose 1)
For CR TX steady state voltage and pulse peak, I support Nv value of:
A: 29
B: 200
A: 10 B: 17

Cl **163** *SC* **163.10.1** *P* **215** *L* **9** # 57

Mellitz, Richardd Samtec

Comment Type **TR** *Comment Status* **R** *Channel ERL (CC)*

Table 162-7 has a note for ERL “Cable assemblies with a COM greater than 4 dB are not required to meet minimum ERL”. The same should apply to Table 163-10 channels for the same reason it was include included in table 162-2

SuggestedRemedy

For the entry “minimum channel ERL” add a note: “Channels with a COM greater than 4 dB are not required to meet minimum ER.”

Response *Response Status* **C**

REJECT.
Comment #58 requests a similar change for the C2C channel characteristics.
The comment likely was intending to refer to Table 162-17 rather than Table 162-7.
The footnote a in Table 162-17 was inherited from Clause 136 in 802.3cd-2018. The footnote in Table 136-16 was added in 802.3cd Draft 3.3 per Draft 3.2 comment #r02-23.
https://www.ieee802.org/3/cd/comments/8023cd_D32_comment_received_by_clause.pdf
The comment does not provide sufficient evidence to make the proposed change.
There was no consensus to make the proposed change.
[CC: 163, 120F]

Cl **120f** *SC* **120f.4** *P* **249** *L* **15** # 58

Mellitz, Richardd Samtec

Comment Type **TR** *Comment Status* **R** *Channel ERL (CC)*

Table 162-7 has a note for ERL “Cable assemblies with a COM greater than 4 dB are not required to meet minimum ERL”. The same should apply to Table 120F-7 channels for the same reason it was include included in table 162-2

SuggestedRemedy

For the entry “minimum ERL” add a note: “Channels with a COM greater than 4 dB are not required to meet minimum ER.”

Response *Response Status* **C**

REJECT.
This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.
Resolve using the response to comment #57.

Cl **93A** *SC* **93A** *P* **237** *L* **44** # 59

Mellitz, Richardd Samtec

Comment Type **TR** *Comment Status* **A** *HO AC CM voltage (CC)*

Common mode measurements are not well enough defined to precisely specify CM voltage at TP0v, TP1a, TP4 and TP2. In addition, all aspects of a common mode voltage may not be detrimental as illustrated in mellitz_3ck_adhoc_01_090821.

SuggestedRemedy

Add section "93A.6 Common Mode measurements". See presentation

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The proposed solution was discussed in
https://www.ieee802.org/3/ck/public/adhoc/sept08_21/mellitz_3ck_adhoc_01_090821.pdf.

The task force reviewed the following presentation:
https://www.ieee802.org/3/ck/public/21_09/mellitz_3ck_01a_0921.pdf

There is no consensus to implement in D2.3 the decomposed common-mode parameters as proposed in mellitz_3ck_01a. However, there was concern that some improvement in measurements at TP0v for KR and C2C are necessary.

Change the AC common-mode voltage specification for KR and C2C to be the ratio of common-mode peak-to-peak at 1E-4 probability to the differential mode pmax value. The ratio limit is -16 dB. Add editor's note indicating the the value needs further consideration. Implement with editorial license.

Straw poll #4 (direction)
I support replacing or supplementing the "composite" AC common-mode parameter with new separate parameters for correlated and uncorrelated portions for one or more interfaces.
A: Yes
B: No
C: Need more information or more work needed.
A: 10, B: 8, C: 11

Straw poll #5 (decision)
In Draft 2.3, I support replacing or supplementing the "composite" AC common-mode parameter with new separate parameters for correlated and uncorrelated portions for one or more interfaces.
A: Yes
B: No
A: 16 B: 18

Cl **162** *SC* **162.9.3** *P* **170** *L* **46** # 65

Mellitz, Richardd — Samtec

Comment Type **TR** *Comment Status* **R** *TX jitter*

Since the jitter at TP2 may be viewed though a channel with a loss of approximately 17 dB (package, host interconnect, HCB) there will likely be measurements error from the phase modulation of the voltage time quantization. The consequence is the measured jitter will be larger than in table 162-10

SuggestedRemedy

Increase J_RMS, J3u, Even-odd jitter, pk-pk to [#,#, #] respectively. As consequence the jitter specified in the receiver interference tolerance (162.9.4.2) step d needs to change since it measured near the beginning of the channel. Change the reference on page 179 step d form table 162-10 to table 163-5

Response *Response Status* **C**

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Per Figure 162A-3 the insertion loss from TP0 to TP2 is 10.975 dB and there is an additional loss of around 4 dB due to the transmit function package for a total of around 15 dB. This is lower insertion loss than considered in the comment.

Increasing the specified jitter values is not a good solution since it could allow higher jitter when the measurement is accurate.

The following related presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/adhoc/sept22_21/calvin_3ck_adhoc_01_092221.pdf

During the presentation, the presenter recognized that the insertion loss assumptions were incorrect and subsequently withdrew his related comments #85 and #86.

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

Cl **163** *SC* **163.9.2.1.2** *P* **209** *L* **15** # 70

Healey, Adam — Broadcom Inc.

Comment Type **T** *Comment Status* **A** *ERL parameter*

In Table 163-6, N is set to 20 UI but this seems to be too small given the 5 dB insertion loss allowance for the test fixture given in 163.9.2.1.1. Using the transmission line parameters in Table 162-20, a transmission line with 5 dB loss at 26.6 GHz can have a propagation delay almost twice N (and therefore a round-trip delay almost four times N). The significance of the N value is that reflections with delay larger than N are not considered in the ERL value. The N value should be extended so that all reflections added by the longest test fixtures allowed by the standard are counted in the ERL value. There is no obvious downside to increasing this value.

SuggestedRemedy

Change the "length of the reflection signal" N to 200.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.
However, the proposed change is an improvement to the draft.
Implement the suggested remedy.

Cl **120G** *SC* **120G.5.2** *P* **278** *L* **11** # 84

Calvin, John — Keysight Technologies

Comment Type **TR** *Comment Status* **D** *EO RR bbmax*

The bbmax(1) is limited to .4. Reference contribution "DFE-TP1a-coefficient_limits_Calvin". In summary TP1a needs to support an 18.2dB channel, and the bbmax(1) hits the .4 limit at just 16.4dB in both emperical test setups and in COM.

SuggestedRemedy

Increase bbmax(1) to a maximum value of .55 or reduce the maximum channel for TP1a to 16.4dB.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **162A** *SC* **162A.4** *P* **288** *L* **42** # 85

Calvin, John — Keysight Technologies

Comment Type **T** *Comment Status* **D** *Host PCB ILdd*

The text of "Note that the recommended maximum differential-mode to differential-mode insertion loss from TP0 to TP2 or from TP3 to TP5 is 10.975 dB at 26.56 GHz." represents the sum of the minimum mated test fixture insertion loss (4.1dB) + the host channel loss (6.875) which adds up to 10.975dB. In light of there not being an existance proof of a 4.1dB matted test fixture, and that the nominal matted test fixture loss is 7dB and a max of 8.4dB. We should have a higher recomended value to reflect actuall test systems.

SuggestedRemedy

Revise the "maximum TP0-TP2 to a nominal value of 7dB (typical MTF performance) + host channel loss (6.875dB) = 13.875dB.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **162** *SC* **162.9.3** *P* **170** *L* **47** # 86

Calvin, John — Keysight Technologies

Comment Type **T** *Comment Status* **D** *withdrawn*

Table 162.10 suggests a TP2 Jrms value of 23mUI and a J3u of 115mUI. The best possible case channel between TP0 and TP2 is 10.975dB which will support these Jitter numbers. The problem is nobody comes close to 10.975dB and most systems operate typically at 15.27dB which requires a higher value of J3u and Jrms.

SuggestedRemedy

The principal of conducting a precison jitter measurment at the end of a 10.975 or a 15.27dB channel should be re-visted. The loss driven slew rate limitations of the signal at say 15.27dB results in a higher AM to jitter conversion factor. This measurment should either be removed, or increased to J3u < 160mUI to allow for channel induced jitter amplification.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **162** *SC* **162.9.3** *P* **170** *L* **32** # 87

Dawe, Piers — Nvidia

Comment Type **TR** *Comment Status* **R** *CR loss budget*

The draft CR loss budget wastes over 3 dB in nearly every case. The relative range of host losses, 6.875/2.3 = 3:1, is too small for switch layout yet not needed for NICs.
The recommendation for the host traces plus BGA footprint and host connector footprint, 6.875 dB, compares very poorly with C2M's host insertion loss up to 11.9 dB, making passive copper to this draft expensive and unattractive for a switch, yet a full range of NICs can be made with only 3.75 dB. Server-switch links are asymmetric in form factor (e.g. QSFP-DD to 2 x QSFP) and will get made with an asymmetric loss budget, so it would be better for the standard to regularise what will happen anyway. C2M already has short and long ports.
This change would also benefit CR switch-switch links because the shortest ports would get credit for their low loss.
The symmetric budget is used for some designs under way and may be useful in future for LOM, so it is kept here, and the better way added.

SuggestedRemedy

As in dawe_3ck_01a_0721.pdf:
3 classes of CR ports, host loss allocations of A 10, B 6.875, C 3.75 dB. B is as D2.1.
A connects to C, B to B or C, C to A, B or C.
Use 2 bits in the training control field to advertise A, B or C to the other end.
In Table 162-10, add limits A and C for linear fit pulse peak ratio (min). Change text in 162.9.3.1.2 to refer to the table.
In Table 162-14, add columns for Test 2 (high loss), A and C, with test channel insertion loss: A: 6.875-3.75 = 3.125 dB lower (20.5 dB to 21.5 dB), and C: 9.5-6.875 = 2.625 dB higher (26.25 dB to 27.25 dB). No change needed for Test 1.
In 162A.4, add equations for IL_PCBmax and ILHostMax A and B and show them in Fig 162A-1 and 2. In 162A.5, add Value columns A, C in Table 162A-1 (ILChmin and ILMaxHost differ). Adjust figures 162A-3 and 4.
Add MDIO registers to report local and remote host ability to station management, for inventory and diagnostics.

Response *Response Status* **U**

REJECT.
This comment is a restatement of comment #92 against D2.1, which was rejected by the task force. This new comment provides only minor changes to the suggested remedy. A related straw poll (#10) indicated strong opposition to adopting this proposal therefore there was no consensus to make the proposed changes.
July 2021 Straw Poll #10 is reproduced here for reference…
Strawpoll #10 (direction)
I support P802.3ck specifying multiple CR host types such as in dawe_3ck_01_0721.
Y: 7 N: 24 A: 8

Cl **162** *SC* **162.11** *P* **184** *L* **29** # 88

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **R** *CA IL budget*

The poor max cable loss makes CR unattractive, while all NICs and some ports on any switch have host loss going to waste. Enabling longer cables on a minority of links is needed.
In the remedy, each host knows the other host's loss class through the training protocol and the cable's loss class from its I2C compliance code, so no extra management features needed in the spec for the long cable class.

SuggestedRemedy

2 classes of cable, which could be called "short" (19.75 dB, as today) and "long", 19.75+2*(6.875-3.75) = 19.75+6.25 - 0.5 = 25.5 dB max (achievable cable length 3 m).
Long cables connect port types C (see another comment) at both ends, short cables connect a valid combination of A, B, C.
In 162.11.2, cable assembly insertion loss, change text to refer to Table 162-17.
In 162.11.7.1.1, add zp = 30.7 mm for the "short" cable.
In Table 162A-1, add a column for the A-short-A scenario (ILCamax differs).
Illustrate in figures 162A-3 and 162A-4.

Response *Response Status* **C**

REJECT.
This comment is a restatement of D2.1 comment #93 which was rejected as there were no changes to the host port types.
The suggested remedy is predicated on the adoption of Comment #87, Comment #87 was rejected.
No changes to the draft.

Cl **162** *SC* **162.11.6** *P* **189** *L* **38** # 89

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *CA RLcc*

As in previous comments: this common mode return loss spec RLcc becomes useless at the frequency when the MCB loss is 1.8/2 dB, which is only 8.5 GHz. We need a common mode return loss spec to stop large common-mode voltages building up through multiple low-loss reflections. The revised proposed remedy for D2.1 comment 79 seems OK: 1.8 dB 0.5<= f <= 4 GHz, 1.4+0.1*f dB 4< f <= 30 GHz. The 30 GHz fmax allows margin for real-world coax-PCB transitions (although the mated compliance boards are specified >=3 dB to 50 GHz); the cable itself should pass this comfortably because it is insulated from the test by the MCB loss.

SuggestedRemedy

Use a frequency-dependent mask 1.8 dB 0.5<= f <= 4 GHz, 1.4+0.1*f dB 4< f <= 30 GHz. f is in GHz. Similarly for Tx, Table 162-11, 162.9.3.6.

Response *Response Status* **U**

REJECT.
This comment is a restatement of D2.1 comment #79.
The suggested remedy does not provide sufficient additional justification to support the change to the draft.

Per straw poll #6, there was no consensus to make the proposed changes.

However, there was concern that the limits should be tightened. Further work and consensus is required.

Straw poll #6 (decision)
I support adopting the changes in comment #89 suggested remedy.
Yes: 11
No: 19

Cl **162** *SC* **162.11.7** *P* **191** *L* **39** # 90

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *COM DFE bgmax/min (CC)*

The normalized DFE coefficient minimum limit bbmin for taps 3 to 12 is -0.03. It doesn't make sense that taps 13 to 40 could be worse, -0.05. I know of only example channel with a tap like this. Remember, these are reference receiver limits not hard cable or channel limits anyway; a cable or channel can go beyond a tap limit if it makes up the COM another way, e.g. with acceptable crosstalk. In the case of Bch2_b2p5_7_t, reducing |bmaxg| from 0.05 to 0.03 increases COM by less than 0.1 dB, and the channel still passes comfortably. In this example, there were no taps that would be affected by reducing +ve bgmax from 0.05 to 0.03; one -ve tap was limited.

SuggestedRemedy

Change bgmax 0.05 to bbgmax 0.05, bbgmin -0.03. Also in 163.

Response *Response Status* **W**

REJECT.
This is a restatement of comment #95 against D2.1 which was rejected by the task force due to insufficient supporting evidence. Some new information on the analysis of one channel is provided, but this is insufficient evidence to support the proposed changes.
[Editor's note: CC: 162, 163]

Cl **162** *SC* **162.11.7** *P* **191** *L* **38** # 91

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *COM DFE RSS (CC)*

The spec allows a cable 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 worse than +/-0.05 for all these 9 taps. That's a very bad cable! and not likely to get made: there won't be that many reflections in the same area. (Remember, these are reference receiver limits not hard cable limits anyway; a cable can go beyond a tap limit if it makes up the COM another way, e.g. with acceptable crosstalk.)
We don't need to provide all the receiver power and complexity to cope with unreasonably bad cables.

SuggestedRemedy

Use another DFE root-sum-of-squares limit for positions 13-24. A limit of 0.045 works well with Bch2_b2p5_7_t. Similarly in 163.

Response *Response Status* **W**

REJECT.
This is a restatement of comment #96 against D2.1 which was rejected by the task force due to incomplete remedy and insufficient analysis. This new comment provides some new, but unsubtantiated information.
[Editor's note: CC: 162,163]

Cl **162** *SC* **162.8.1** *P* **165** *L* **48** # 92

Dawe, Piers Nvidia

Comment Type **E** *Comment Status* **R** *IL terminology (CC)*

"differential-mode to differential-mode insertion loss" is unnecessarily wordy; everyone understands just "insertion loss" to mean differential-mode to differential-mode if they know it's a system or component that uses differential signalling, which is made plain above. Similarly for return loss. It would be disruptive and unnecessary to go through the many clauses in the base document for this, although the terminology and notation for mixed-mode and common-mode losses may be worth retrofitting.

SuggestedRemedy

Change "differential-mode to differential-mode insertion loss" to "insertion loss", change "differential-mode to differential-mode return loss" to "return loss" throughout the document.

Response *Response Status* **C**

REJECT.
The changes were made after task force discussion acceptance of D2.1 Comment #13.
The resolution was to:
"Implement the parameter names and variables names provided in slide 15 of the following presentation:
https://www.ieee802.org/3/ck/public/21_07/brown_3ck_01a_0721.pdf"
Resolution to comments against the new revision (802.3dc) has resulted in terminology different to what was recently adopted in 802.3ck D2.2. To minimize churn in 802.3ck, it would be best to defer this topic until after the next draft of 802.3dc is published.
No changes to the draft.
[Editor's note: CC: many]

Cl **162** *SC* **162.9.3.4** *P* **174** *L* **47** # 102

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *TX EOJ*

Having alternative normative patterns to measure one thing when the choice makes a difference, adds cost because the test has to be done both ways (if one way passes and the other fails). Also, the spec limit was relaxed from 0.019 UI to 0.025 to allow for PRBS13. We understand that the result would look better with PRBS9. There is no requirement to generate PRBS9.

SuggestedRemedy

Make PRBS13 normative, as usual. Use a different set of PRBS13Q pattern symbols used for jitter measurement vs. Table 120D-4 to reduce the pattern dependency issue.

Response *Response Status* **W**

REJECT.
This is a restatement of comment #109 against D2.1 which was rejected by the task force (insufficient remedy and lack of consensus to make the change). The comment does not provide new data or analysis to support it.

Cl **162** *SC* **162.9.3.4** *P* **174** *L* **49** # 103

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R** *TX EOJ*

We know that CRU corner frequency makes a difference to EOJ measurement. Allowing an unbounded "4 MHz or anything you like that's lower" is very bad: how many attempts must the tester try before he can fail a bad part?

SuggestedRemedy

Pick a single definitive CRU corner, e.g. 1 MHz or 2 MHz. Add informative NOTE saying that we expect that if it passes with the usual 4 MHz, it would also pass with the lower corner frequency.

Response *Response Status* **W**

REJECT.
This is a restatement of comment #109 against D2.1 which was rejected by the task force (insufficient remedy and lack of consensus to make the change). The comment does not provide new data or analysis to support it.

Cl **162** *SC* **162.9.4.3.3** *P* **180** *L* **34** # 107

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **R** *RITT cal*

Help the reader understand what is going on

SuggestedRemedy

Please add the plot of Hhp to Figure 162-5, NSD(f) constraints

Response *Response Status* **C**

REJECT.
The referenced equation is a simple first order high-pass filter with 6 GHz corner frequency. Plotting this simple, well understood response is unnecessary. Adding to the current plot would detract from the intent of the plot.
[Editor's note: Changed page from 179 to 180.]

Cl **93A** *SC* **93A.1.6** *P* **235** *L* **15** # 113

Dawe, Piers Nvidia

Comment Type **E** *Comment Status* **R** *b(n) eqn*

The equation for b(n) is clumsy and hard to understand. When you study it enough, you can see that it is repetitive.

SuggestedRemedy

Make a substitution: s(n) = h(0)(ts + n.Tb)
Then the equation becomes

$$b(n) = \begin{cases} bbmin(n) & s(n)/s(0) < bbmin(n) \\ bbmax(n) & s(n)/s(0) > bbmin(n) \\ s(n)/s(0) & \text{otherwise} \end{cases}$$

Similarly for Eq 93A-27.

Response *Response Status* **C**

REJECT.
This is a restatement of D2.1 comment #118 which was rejected by the task force due to lack of consensus. The new comment provides a new equation form to consider. The proposed solution does not improve upon the accuracy or clarity of the existing equation.

Cl **162B** *SC* **162B.1.3.4** *P* **298** *L* **30** # 136

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **A** *MTF RLcc*

Just as for the cable RLcc spec: this 3 dB becomes useless when the MCB trace loss is half of 3 = 1.5 dB (16 GHz).

SuggestedRemedy

As for the cable RLcc spec but 1 dB lower to 30 GHz, easing up to 50 GHz: 12 -9f dB 0.01 <= f <1, 3 dB 0.5<= f <= 4 GHz, 2.6+0.1*f dB 4< f <= 30 GHz, 9.5-1.3*f dB 30< f <= 50 GHz. f is in GHz.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Per straw poll #7 there is sufficient consensus to make the proposed changes in the suggested remedy.

Implement the suggested remedy with editorial license.

Straw poll #7 (decision)
I support adopting the suggested remedy in comment #136.
Yes: 12
No: 10

Cl **162B** *SC* **162B.1.3.3** *P* **297** *L* **36** # 138

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **A** *MTF ILdc/ILdc*

If common-mode to differential-mode insertion loss is what we want to control, that's ILdc. However, we want to control both ILdc and Ilcd, as we have both RLcd and RLdc specs in 120G. There is an argument that they are the related, and specifying one is enough, but I'm not sure it always holds.

SuggestedRemedy

Specify both ILcd and ILdc. It may be possible to specify one in one direction and the other in the other: Scd21 and Sdc12, or Sdc21 and Scd12, where 1 is an input (instrument connector that would be connected to a pattern generator) and 2 is an output. I haven't thought through which we need, or maybe we need all four. It is simpler to require all four.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.
However, the proposed change is an improvement to the draft.
As pointed out by the comment both Ilcd and Ildc of the MTF must be similarly constrained. Since ILcd12 and ILdc21 are reciprocal and ILcd21 and ILdc12 reciprocal, the insertion loss mode conversion can be constrained by measuring either Ilcd (or Ildc) in both directions. The text as written was intended to require this but the wording could be improved.
Also, the variable "Ilcd" should be "Ildc" to correctly reflect the subclause title and text.
Change: "measured at either test fixture test interface"
To "measured in both directions"
and
Change variable name "Ilcd" to "Ildc".

Cl **162D** *SC* **162D.1.1** *P* **317** *L* **6** # 140

Dawe, Piers Nvidia

Comment Type **E** *Comment Status* **R** *CA types*

In table headers:
"supportable PMDs
Number"

SuggestedRemedy

Change to: Maximum number of PMDs (merge two cells vertically). Similarly in the following tables.
If changing to "maximum", change "supportable" to "maximum" in the text and table captions too, and in 162C.1.

Response *Response Status* **C**

REJECT.
This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.
The suggested change is not necessary.

Cl **162** *SC* **162.9.3.5** *P* **176** *L* **11** # 149

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **R** *Tr*

Transition time is defined by the referenced 93A.5 which refers to 93A.2 which refers to 86A.5.3.3 which says "for electrical signals, the waveform is observed through a 12 GHz low-pass filter response (such as a Bessel-Thomson response)", and it's dependent on state of emphasis.

SuggestedRemedy

Change "Transition time" to "Rise time". Explain that that is 20-80%, unfiltered, as if at neutral emphasis. Coordinate with the maintenance project.

Response *Response Status* **C**

REJECT.
The terminology is consistent with 93A.5 in both 802.3cd-2018 and the latest 802.3dc draft. Any related changes in the new revision (802.3dc) can be considered once they are incorporated in the next draft.

Cl **162C** *SC* **162C.1** *P* **306** *L* **10** # 157

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **R** *MDI pins table*

Per unsatisfied comment from D2.2.
Table 162C-3 needs to be better organized

SuggestedRemedy

An improved and beter organized table will be submited as ghiasi_3ck_01_0921.pdf

Response *Response Status* **U**

REJECT.

The following related presentation was considered by the task force:
https://www.ieee802.org/3/ck/public/21_09/ghiasi_3ck_01_0921.pdf

There is no consensus to make the proposed change.

Cl **1** *SC* **1.3** *P* **32** *L* **53** # 161

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **ER** *Comment Status* **A** *MDI reference*

Per unsatisfied comment from D2.2 QSFP-DD800 reference should be updated. The reference for QSFP-DD800 now obsolute

SuggestedRemedy

New reference: QSFP-DD/QSFP-DD800/QSFP112 Hardware Specifications are avilable from (http://www.qsfp-dd.com)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Resolve using the response to comment #162.

Cl **1** *SC* **1.3** *P* **32** *L* **53** # 162

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **A** *MDI reference*

Per unsatisfied comment from D2.2 QSFP112 reference should be updated. The reference for QSFP112 missing

SuggestedRemedy

New reference: QSFP-DD/QSFP-DD800/QSFP112 Hardware Specifications are avilable from (http://www.qsfp-dd.com)

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change:
"QSFP-DD800 MSA QSFP-DD Specification for 800G operation, Rev 1.0, March 6, 2020"
To:
"QSFP-DD/QSFP-DD800/QSFP112 Hardware Specification – Rev 6.01 May 20,2021"

Add the following footnote:
"QSFP-DD, QSFP-DD800, and QSFP112 specifications are available from QSFP-DD MSA (http://www.qsfp-dd.com)"

Given the reference change above change "QSFP+" to "QSFP112".

Implement with editorial license.