

302.3ck D2.1 100/200/400 Gb/s Electrical Interfaces Task Force 1st Working Group recirculation ballot co

Cl 120 SC 120.5.1 P107 L54 # 16

Sun, Junqing Credo Semiconductor  
 Comment Type TR Comment Status D withdrawn

SSPRQ usually causes confusion in the field to be used as receive pattern. A note in the spec will help to clarify.

*SuggestedRemedy*

Add "and SSPRQ" after "square wave" in the second paragraph of 120.5.1. This paragraph will be "Test patterns that are intended for transmitter testing, such as square wave for SSPRQ, may not be correctly recovered by an adjacent PMA."

Proposed Response Response Status Z

REJECT.  
 This comment was WITHDRAWN by the commenter.  
 [Editor's note: changed page/line from 108/46]

Cl 163 SC 163.9.3.5 P204 L51 # 35

Ran, Adeo Cisco systems  
 Comment Type E Comment Status A RIT TX off

"with the transmitter equalizer turned off" - preferably be consistent with most other places in this draft which use the wording "set to preset 1 (no equalization)".

Also is 162.9.4.3.3 with a variation on the wording - preferably change that one too.

*SuggestedRemedy*

Use the term "preset 1 (no equalization)" in all places.

Response Response Status C

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

In 162.9.4.3.3, 162.9.4.3.5, and 163.9.3.5, and elsewhere if appropriate, change the text to the following:

"with transmitter equalization off by setting coefficients to preset 1 values (see 162.9.3.1.3)"

Implement with editorial license.

Cl 120G SC 120G.3.1 P250 L12 # 46

Ran, Adeo Cisco systems  
 Comment Type TR Comment Status A AC CM noise

"AC common-mode RMS output voltage (max)" specification of 17.5 mV is not feasible for high-volume, multi-port products. The common-mode output may include a component correlated to the differential output, e.g. from mode conversion on the host channel. A module receiver is expected to be quite tolerant to a correlated common-mode signal.

As suggested in ran\_3ck\_adhoc\_20210630, there are two reasonable alternatives:

- a) increase the allowed RMS voltage to 30 mV (as is allowed for the CR transmitter measured on an HCB - likely the same point - and where the common-mode concern is greater due to conversion in the cable assembly).
- b) Keep the 17.5 mV specification but only for the component uncorrelated to the differential signal; use the linear fitted pulse response method (which is already referred to in 120G.5.2) to calculate the linear fitted pulse response characteristics of the common-mode output, and define the AC common-mode noise as the RSS of sigma\_n and sigma\_v.

Note: This comment is only about the host output; module output is more controlled and modules can be designed to have low mode conversion so the correlated component is expected to be small. Modules should not be allowed to generate 30 mV RMS, so if option a is chosen, the module output specification should not be changed.

*SuggestedRemedy*

Preferably implement option a in the comment.

Response Response Status U

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.1 and D2.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

Comment 121 proposes to increase the value to 25 mV.

This comment proposes to either:

- (a) change the value to 30 mV
  - (b) change the parameter to relate to only the uncorrelated noise
- There is not sufficient evidence that the correlated noise is indeed tolerable by the receiver (e.g., conversion from CM to DM in receiver might be non-linear or CM might have much larger channel transit time than DM)

The resolution to comment #123 indicates there is not consensus to make the change proposed in option (b), above.

Following straw polls #3 and #4, there was consensus to close this comment changing the value to 25 mV.

Change the AC common-mode RMS output voltage (max) for module output and host

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output to 25 mV.

Straw poll #3, pick one (direction)  
 Straw poll #4, Chicago rules (direction)  
 To address comments #46 and #121, for the module output and host output AC CM noise (max) I would support:  
 A: no change  
 B: change to 25 mV  
 C: change to 30 mV  
 Straw poll #3  
 A: 12 B: 13 C: 9  
 Straw poll #4  
 A: 15 B: 25 C: 21

Cl 162 SC 162.11.7 P183 L39 # 95  
 Dawe, Piers Nvidia  
 Comment Type TR Comment Status R COM bbgmax

The normalized DFE coefficient minimum limit bbgmin for taps 3 to 12 is -0.03. It doesn't make sense that taps 13 to 40 could be worse, -0.05. If I have understood the data correctly, the example channels we have don't need 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.)

*SuggestedRemedy*

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

Response Response Status U  
 REJECT.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.1 and D2.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

The following presentation showed that some backplane channels had floating tap coefficient values of <-0.03.

[https://www.ieee802.org/3/ck/public/19\\_09/heck\\_3ck\\_01\\_0919.pdf](https://www.ieee802.org/3/ck/public/19_09/heck_3ck_01_0919.pdf)

The comment does not provide an assessment of the impact to those channels.

[Editor's note: CC: 162, 163]

Cl 120G SC 120G.3.1 P250 L12 # 121  
 Dawe, Piers Nvidia  
 Comment Type TR Comment Status A AC CM noise

As discussed, AC common-mode output voltage (max) 17.5 mV isn't reasonable at double the signalling rate of 120E with the same connectors and layout skew.

*SuggestedRemedy*

Increase to 25 mV, both host and module output.

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.1 and D2.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

Resolve using the response to comment #46.

Cl 162 SC 162.9.3 P163 L10 # 123

Mellitz, Richard

Samtec

Comment Type **TR** Comment Status **R** AC CM noise

Table 162-10 specifies AC common-mode RMS voltage, vcmi (max) note b just changes to a PRBS13Q with method described in 93.8.1.3. The problem is that coherent CM signal are included in differential measurements like SNDR, Jitter, and Linear fit pulse peak ratio. That means it is the coherent part if AC CM is double counted.

*SuggestedRemedy*

Add note to line 10 (vcmi) indicating that the CM mode measurement is only for the non-coherent CM part of the measurement.

This applies to Tables 163-5, 120F-1, 120G-1, and 120G-3

Response Response Status **U**

REJECT.

[Editor's note: Changed clause/subclause from 163/163.9.3.]

This comment does not apply to the substantive changes between IEEE P802.3ck D2.1 and D2.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

The following presentation was reviewed by the task force:  
[https://www.ieee802.org/3/ck/public/21\\_07/mellitz\\_3ck\\_01a\\_0721.pdf](https://www.ieee802.org/3/ck/public/21_07/mellitz_3ck_01a_0721.pdf).  
 Resolve in conjunction with comment #46.

Based on straw poll #2, there is not sufficient consensus to implement the proposed changes.

Straw poll #1 (direction)

I would support the AC CM voltage test methodology in Comment #123 and the related presentation mellitz\_3ck\_01\_0721.

Yes: 18

No: 6

Need more information: 13

Abstain: 3

Straw poll #2 (decision)

For the resolution of comment #123, I support adopting the AC CM voltage test methodology in Comment #123 and the related presentation mellitz\_3ck\_01a\_0721.

Yes: 15

No: 16

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