802.3ck D2.1 Comment Resolution 120F, 163, 163A, 93A

Matt Brown, Huawei, P802.3ck Editor-In-Chief
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Comment summary

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Comment [117]: TF RLcc

CI **163**   SC **163.9.2.1.3**   P **201**   L **27**   # 117

Dawe, Piers   Nvidia

Comment Type **TR**   *Comment Status* **D**   *TF RLcc*

Test fixture common-mode to common-mode return loss should be way better than the worst module connector! And needs to be significantly better than the spec for the IC+TF.

SuggestedRemedy

Change 2 to something sensible

Proposed Response   *Response Status* **W**

PROPOSED 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.

This comment does not provide sufficient details for implementation.

TF spec under discussion

163.9.2.1.3 Test fixture common-mode to common-mode return loss

The common-mode to common-mode return loss shall be greater than or equal to 2 dB at all frequencies between 0.2 GHz and 40 GHz.

TX spec reference

Table 162–10—Summary of transmitter specifications at TP2

Parameter	Subclause reference	Value	Units
Signaling rate, each (nominal)		53.125 ± 50 ppm[a]	GBd
Differential pk-pk voltage with Tx disabled (max)[b]	93.8.1.3	30	mV
DC common-mode voltage (max)[b]	93.8.1.3	1.9	V
AC common-mode RMS voltage, v_{cm} (max)[b]	93.8.1.3	30	mV
Differential pk-pk voltage, v_{d} (max)[b]	93.8.1.3	1200	mV
Effective return loss, ERL (min)	162.9.3.5	7.3	dB
Common-mode to common-mode return loss (min)	162.9.3.6	2	dB
Common-mode to differential return loss (min)	162.9.3.7	See Equation (162–5)	dB

163A Language
91, 23

Comment 91

CI 163A	SC 163A.3.1.1	P 307	L 33	# 91

Wu, Mau-Lin   MediaTek Inc.

Comment Type **E**   Comment Status **D**   language

For the definition of N_v here, it would be better to change it from "represents the number of symbols to include in the steady-state voltage calculation" to "represents the number of symbols to be included in the steady-state voltage calculation".

SuggestedRemedy

Change from "represents the number of symbols to include in the steady-state voltage calculation" to "represents the number of symbols to be included the steady-state voltage calculation"

Proposed Response   Response Status **W**

PROPOSED REJECT.
The suggested remedy does not add clarity to the existing wording.

Comment 23

CI 163A	SC 163A.3.1.3	P 308	L 52	# 23

Hidaka, Yasuo   Credo Semiconductor, Inc.

Comment Type **T**   Comment Status **D**   language

There may be more than two sets of reference package parameters. Also, this should be taken from the transmitter package parameter.

SuggestedRemedy

Change "the longer package trace length" with "the longest transmitter package trace length".

Apply the same change to page 307 line 36.

Proposed Response   Response Status **W**

PROPOSED ACCEPT.

N_v represents the number of symbols to include in the steady-state voltage calculation

N_v represents the number of symbols to be included in the steady-state voltage calculation

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If the invoking clause lists more than one set of reference package parameters, the calculation in Equation (163A–5) is performed with the longer package trace length.

If the invoking clause lists more than one set of reference package parameters, the calculation in Equation (163A-5) is performed with the longest package trace length.

163A Language
41, 43

Cl **163A**   *SC* **163A.3.2**   *P* **309**   *L* **3**   # 41

Ran, Adee   Cisco systems

Comment Type   **ER**   *Comment Status* **D**   *language*

"In this subclause, difference parameters quantify the difference between measured values and reference values, and are used to determine whether a transmitter meets the pass/fail requirements for a given parameter"

This subclause _defines_ the difference parameters. The pass/fail requirements are not in this annex.

SuggestedRemedy

Change the subclause text to
"This subclause defines the parameters that quantify the difference between measured values and reference values".

Proposed Response   *Response Status* **W**

PROPOSED 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.

However, the proposed changes are an improvement to the draft.

In this subclause, difference parameters quantify the difference between measured values and reference values, ~~and are used to determine whether a transmitter meets the pass/fail requirements for a given parameter~~.

Cl **163A**   *SC* **163A.3.2.2**   *P* **309**   *L* **33**   # 43

Ran, Adee   Cisco systems

Comment Type   **E**   *Comment Status* **D**   *language*

"Measure the ERL using the method defined in 93A.5" is phrased as a test procedure. But this should be just a definition of the difference parameter.

The reference to 93A.5 should be in the definition of ERL(meas).

SuggestedRemedy

Delete the quoted sentence.

Change "ERL(meas) is the measured ERL" to "ERL(meas) is the ERL calculated from measurement as defined in 93A.5)".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

163A Pulse Response 40

CI **163A**   *SC* **163A.3.1.1**   *P* **307**   *L* **13**   *#* 40

Ran, Adee   Cisco systems

Comment Type **TR**   *Comment Status* **D**   *pulse response*

"Obtain the output pulse response, h(t), using Equation (93A–23) and Equation (93A–24) with H(0)(f) from Equation (163A–2), where At and Tb are specified by the clause that invokes this method"

Clause 163 and annex 120F which invoke this method do not specify At and Tb - the invoking text refers to the COM tables, which include the parameters Av and fb instead. The reader may be left wondering what At and Tb are.

This can be remedied by pointing to 93A.1.5 instead of equations (93A–23) and (93A–24). 93A.1.5 includes the equations and the definition of Tb based on fb, and At is defined as Av.

Also applies to 163A.3.1.3, P308 L23.

SuggestedRemedy

Change the quoted sentence to:

"Obtain the output pulse response, h(t), as defined in 93A.1.5, with H(0)(f) from Equation (163A–2), where Av and fb are specified by the clause that invokes this method."

Apply also in 163A.3.1.3.

Proposed Response   *Response Status* **W**

PROPOSED 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.

However, the proposed changes are an improvement to the draft.

Implement the suggested remedy.

Obtain the output pulse response, $h(t)$, using Equation (93A–23) and Equation (93A–24) with $H^{(0)}(f)$ from Equation (163A–2), where A_t and T_b are specified by the clause that invokes this method.

Obtain the output pulse response, h(t), as defined in 93A.1.5, with $H^{(0)}(f)$ from Equation (163A-2), where A_v and f_b are specified by the clause that invokes this method.

163A Vpeak/Vf
42

Comment Type **TR** Comment Status **D** vpeak/vf

This subclause points to 162.9.3.1.2 for the definition of v_f and to 162.9.3.1.1 for the procedure, but 162.9.3.1.2 does not define the method, it refers to 136.9.3.1.2 with exception parameters, and adds normative requirements which are irrelevant for 163A. The fact that v_f and v_peak are defined with PRESET0 is unclear (it is only part of the irrelevant normative statements) and the fact that measurements are at TP0v is not mentioned at all.

In addition, while v_peak definition refers to 162.9.3.1.1 (which itself refers to 85.8.3.3.4 and 85.8.3.3.5), the definition of v_f refers to 136.9.3.1.2 which then refers to 85.8.3.3 step 3, which does not point to the actual procedure (which is in 85.8.3.3.5). These are parallel and long paths of references with exceptions, which are very unfriendly to the reader.

Also, "Measure the transmitter output steady-state voltage… and the linear fit pulse response peak voltage…" is phrased as a test procedure. But this should be just a definition of the difference parameter.

The suggested remedy is a rewrite for clarity and for clarification that preset 0 is used and the measurement is at TP0v.

SuggestedRemedy

Change the first paragraph to the following:

The measured linear fit pulse peak v_peak(meas) and steady-state voltage v_f(meas) are calculated from a linear fit pulse response p(k) obtained from measurement at TP0v with the transmit equalizer set to preset 1 (no equalization) using the method defined in 162.9.3.1.1.

v_peak(meas) is the peak value of p(k). v_f(meas) is defined by equation (163A-x).

\Sigma{i=1}{M×Nv) p(i)/M
Where p(i) and M are defined in 162.9.3.1.1 and Nv is 200.

Proposed Response Response Status **W**

PROPOSED 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.

However, the proposed changes are an improvement to the draft.

Measure the transmitter output steady-state voltage, $v_f^{(meas)}$, and the linear fit pulse response peak voltage, $v_{peak}^{(meas)}$, using the method defined in 162.9.3.1.2.

The measured linear fit pulse peak v_peak(meas) and steady-state voltage v_f(meas) are calculated from a linear fit pulse response p(k) obtained from measurement at TP0v with the transmit equalizer set to preset 1 (no equalization) using the method defined in 162.9.3.1.1

163A Measurement Filter 21

CI **163A**	SC **163A.3.1.3**	P **308**	L **18**	# 21

Hidaka, Yasuo　　　　　　　　　　Credo Semiconductor, Inc.

Comment Type **TR**　　　Comment Status **D**　　　　　*measurement filter*

A measurement filter of BT filter is already included, because the step response is derived from the pulse response h(t) that uses the BT filter.

Figure 163A-3 is not correct, because the effect of BT filter is included.

SuggestedRemedy
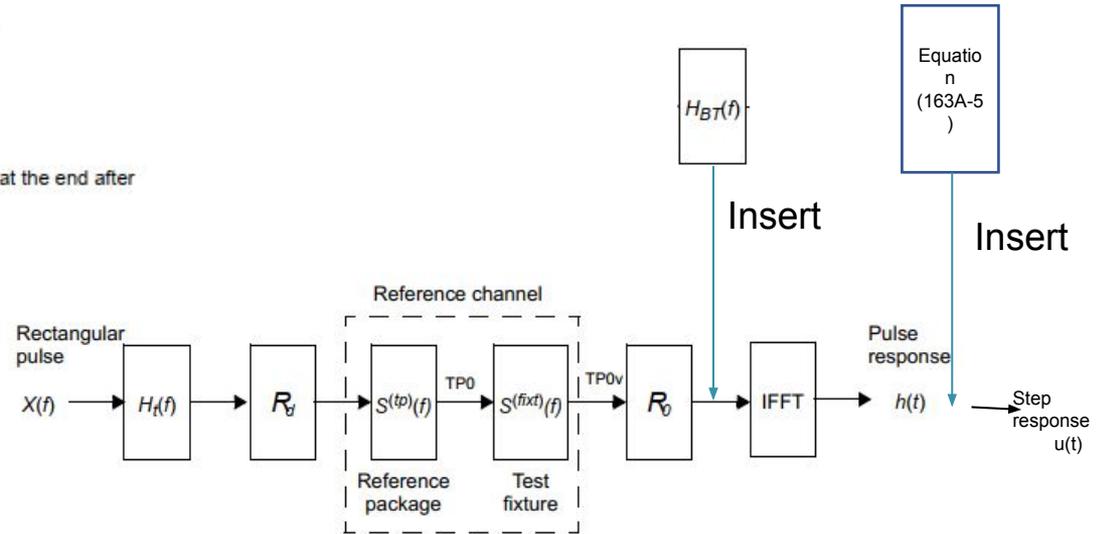
Remove Editor's note in page 308.

Change Figure 163A-3 as follows:
Add H_BT(f) in the same way as Figure 163A-2.
Append a block of "Equation (163A-5)" followed by "Stepresponse u(t)" at the end after "Pulse response h(t)".

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT.

$H_{BT}(f)$

Insert

Equation (163A-5)

Insert

Reference channel

Rectangular pulse

$X(f)$ → $H_t(f)$ → R_d → $S^{(tp)}(f)$ —TP0— $S^{(fixt)}(f)$ —TP0v— R_0 → IFFT → $h(t)$

Reference package　　　Test fixture

Pulse response

Step response u(t)

93A b(n) Equation 118

| CI 93A | SC 93A.1.6 | P 225 | L 15 | # 118 |

Dawe, Piers   Nvidia

Comment Type **E**   Comment Status **D**   b(n) equation

The equation for b(n) is clumsy and hard to follow

SuggestedRemedy

b(n) = min(max(h...., bbmin(n)), bbmax(n))

Proposed Response   Response Status **W**

PROPOSED REJECT.
The suggested remedy does not improve upon the clarity of the existing equation.

Existing equation (93A-26)

$$b(n) = \begin{cases} bb_{min}(n) & h^{(0)}(t_s + nT_b)/h^{(0)}(t_s) < bb_{min}(n) \\ bb_{max}(n) & h^{(0)}(t_s + nT_b)/h^{(0)}(t_s) > bb_{max}(n) \\ h^{(0)}(t_s + nT_b)/h^{(0)}(t_s) & \text{otherwise} \end{cases}$$