Cl **120F** *SC* **120F.3.1.2** *P* **214** *L* **34** # 108

Hidaka, Yasuo — Credo Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *TX EQ (bucket3)*

C(-3) has been discussed and the editor's note should have been removed long time ago.

SuggestedRemedy

Remove editor's note on the pre-cursor tap c(-3).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #134.

Cl **120F** *SC* **120F.3.1.2** *P* **214** *L* **35** # 28

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *TX EQ (bucket3)*

The editor's note written in D1.0 indicates that the transmitter c(-3) tap should be removed if it is shown to have no value. There have been no proposals accepted to remove the tap.

SuggestedRemedy

Remove the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #134.

Cl **120F** *SC* **120F.3.2.3** *P* **218** *L* **44** # 29

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *RIT IL (bucket3)*

The editor's note written in D1.0 indicates that the IL for stressed input test 2 (high loss) requires no confirmation. No proposals to change the specified values have been submitted.

SuggestedRemedy

Remove the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #135.

Cl **120F** *SC* **120F.4.2** *P* **222** *L* **4** # 30

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *channel IL (bucket3)*

The editor's note written in D1.0 indicates that the channel maximum insertion loss requires further investigation. No proposals to change the specification have been submitted.

SuggestedRemedy

Remove the editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #135.

Cl **120F** *SC* **120F.4.3** *P* **223** *L* **5** # 31

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *channel ERL (bucket3)*

The specified value for channel ERL is TBD.

SuggestedRemedy

Provide a value and update PICS.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #123.

Cl **120G** *SC* **120G.3.1** *P* **231** *L* **17** # 80

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

Eye height need to be adjusted to account for the 50 mUI rectangular window

SuggestedRemedy

See ghiasi_3ck_01_0121 and reduce eye height window from 15 mV to 9.5 mV

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.1** *P* **231** *L* **17** # 5

Mellitz, Richard — Samtec

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

EH and VEC need be to computed for the histogram window.

SuggestedRemedy

Change Eye height, differential (min) to 10 mV
Change Vertical eye closure (max) to 13 dB
Presentation available

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.1** *P* **231** *L* **17** # 61

Wu, Mau-Lin — MediaTek

Comment Type **T** *Comment Status* **D** *EH/VEC (bucket3)*

Due to we adopted the new EH & VEC test methods in D1p4, the specifications of EH & VEC for "Table 120G-1 - Host output characteristics at TP1a" and "Table 120G-10 - Module stressed input parameters" shall be updated to reflect the impact by new method.

SuggestedRemedy

Propose to change EH from 15 mV to 8 mV in Table 120G-1 & 120G-10.
Propose to change VEC from 9.0 dB to 12.0 dB in Table 120G-1.
Propose to change VEC (max) from 9.5 dB to 12.5 dB in Table 120G-10.
Propose to change VEC (min) from 9.0 dB to 12.0 dB in Table 120G-10.
Detailed analysis is included in wu_3ck_01_0121.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.1** *P* **231** *L* **18** # 72

Healey, Adam — Broadcom Inc.

Comment Type **T** *Comment Status* **D** *EH/VEC (bucket3)*

The eye height and vertical eye closure limits were based on (simulated) measurements of a vertical slice of the eye at the nominal sampling time. The measurement method for eye height and vertical eye closure in 120G.5.2 has been modified to use a vertical slice of the eye spanning -50 to +50 mUI around the nominal sampling time. Comparison of measurement results implies that the change in the measurement method results in up to a 3 dB increase in vertical eye closure and a similar decrease in eye height.

SuggestedRemedy

In Table 120G-1, change "Eye height, differential (min)" to 10 mV and "Vertical eye closure (max)" to 12 dB.
In Table 120G-3, change "Near-end eye height, differential (min)" and "Far-end eye height, differential (min)" to 17 mV and "Near-end vertical eye closure (max)" and "Far-end vertical eye closure (max)" to 10.5 dB.
In Table 120G-7, change "Near-end eye height" and "Far-end eye height" to 17 mV and "Near-end vertical eye closure" and "Far-end vertical eye closure" to 10.5 dB.
In Table 120G-10, change "Eye height" to 10 mV, "VEC (max)" to 12.5 dB, and "VEC (min)" to 12 dB.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.1** *P* **231** *L* **19** # 81

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

VEC need to be adjusted to account for the 50 mUI rectangular window

SuggestedRemedy

See ghiasi_3ck_01_0121 and reduce eye height window from 7.5 dB to 14 dB

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.1.5** *P* **233** *L* **17** # 62

Wu, Mau-Lin MediaTek

Comment Type **T** *Comment Status* **D** :H/VEC EO XTALK (bucket3)

There are some TBDs for crosstalk calibration specs for Host Output test.
According to the analysis explored in wu_3ck_adhoc_02_010621.pdf, the target swing at TP4 shall be aligned with that of Module output spec, which is 900 mV. Similarly, the output voltage swing at TP1a, which is 870 mV now, shall be aligned among Host output, Module output, Host input, & Module input specs.

SuggestedRemedy

Propose the following paragraph to replace the original one
Host output: 120G.3.1.4 (Page 233, L17)
"… with target differential peak-to-peak amplitude of 900 mV and slew time of 12 ps between -2.7 V and +2.7 V."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.1.5** *P* **233** *L* **17** # 124

Ran, Adee Intel

Comment Type **TR** *Comment Status* **D** :H/VEC EO XTALK (bucket3)

"The crosstalk generator is calibrated at TP4 (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and slew time of TBD ps between –TBD V and +TBD V"

This is the host output test; the crosstalk generator represents the module output. We specify the PtP amplitude and transition time for modules at TP4 in Table 120G–3. The calibration should use the maximum amplitude and minimum transition time values from that table.

SuggestedRemedy

Change the quoted sentence to:

"The crosstalk generator is calibrated at TP4 (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-3".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.1.5** *P* **233** *L* **17** # 33

Brown, Matt Huawei

Comment Type **T** *Comment Status* **D** :H/VEC EO XTALK (bucket3)

The specified values for the host output EH/VEC crosstalk parameters (4x) are TBD.

SuggestedRemedy

Provide values.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.1.5** *P* **233** *L* **17** # 84

Ghiasi, Ali Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** :H/VEC EO XTALK (bucket3)

Addressing the TBD in the paragraph

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 24 ps for the slew from -400 mV to + 400 mV and with amplitude of 800 mV, the reason amplitude is reduced is due assumption that signal will have pre-emphasis on for this measurement otherwise one could go with 900 mV amplitude I don't believe that is reasonable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.1.5** *P* **233** *L* **17** # 68

Healey, Adam — Broadcom Inc.

Comment Type **T** *Comment Status* **D** *:H/VEC EO XTALK (bucket3)*

The target differential peak-to-peak amplitude and slew time of the crosstalk generator, as observed at TP4, are TBD.

SuggestedRemedy

Since the crosstalk generator is used to represent near-end aggression from the the module transmitter outputs, the largest amplitude and smallest transition time allowed for a module output (as observed at TP4) should be used to represent worst-case aggression.
Change:
"The crosstalk generator is calibrated at TP4 (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and slew time of TBD ps between -TBD V and +TBD V."
To:
"The crosstalk generator is calibrated so that the differential peak-to-peak output voltage and transition time, as measured at TP4, are as close to the limits in Table 120G-3 as practical."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **10** # 145

Dawe, Piers — Nvidia

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

For a reasonably clean module (or test equipment in a host stressed eye test), the driver swing has to be aggressively reduced to deliver only 24 mV at near end, short setting. 120E has 70 mV.

SuggestedRemedy

Eye height limits should be set sensibly for short and long modes, near and far - not all the same.
Change the NEEH from 24 mV to 40 mV.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **11** # 77

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **ER** *Comment Status* **D** *EH/VEC (bucket3)*

Given that now we have AUI-S/L near end VEC need to be defined

SuggestedRemedy

The eye opening with 50 mUI rectangular window for AUI-S is VEC=12.5 dB, see ghiasi_3ck_01_0121

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **11** # 75

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

Given that now we have AUI-S/L near end eye would be AUI-S min eye opening

SuggestedRemedy

The eye opening with 50 mUI rectangular window for AUI-S is VEO=20 mV, see ghiasi_3ck_01_0121

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **13** # 76

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

Given that now we have AUI-S/L far end eye would be AUI-S min eye opening

SuggestedRemedy

The eye opening with 50 mUI rectangular window for AUI-L is VEO=11 mV, see ghiasi_3ck_01_0121

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **14** # 78

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

Given that now we have AUI-S/L far end VEC need to be defined

SuggestedRemedy

The eye opening with 50 mUI rectangular window for AUI-L is VEC=14.5 dB, see ghiasi_3ck_01_0121

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **17** # 34

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *TP4 ERL (bucket3)*

In Table 120G-3, the specified value for ERL at module output (TP4) is TBD.

SuggestedRemedy

Provide a value and update PICS.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #125.

Cl **120G** *SC* **120G.3.2** *P* **234** *L* **17** # 79

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *TP4 ERL (bucket3)*

ERL is TBD

SuggestedRemedy

Replace TBD with 8.5 dB and see ghiasi_3ck_01_0121

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #125.

Cl **120G** *SC* **120G.3.2.2** *P* **235** *L* **33** # 36

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *TP4 EO XTALK (bucket3)*

The specified values for the module output EH/VEC crosstalk parameters (2x) are TBD.

SuggestedRemedy

Provide values.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.2.2** *P* **235** *L* **33** # 69

Healey, Adam — Broadcom Inc.

Comment Type **T** *Comment Status* **D** *TP4 EO XTALK (bucket3)*

The target differential peak-to-peak amplitude and transition time, as observed at TP1a, are TBD.

SuggestedRemedy

Since the crosstalk generator is used to represent near-end aggression from the the host transmitter outputs, the largest amplitude and smallest transition time allowed for a host output (as observed at TP1a) should be used to represent worst-case aggression.
Change:
"The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and target transition time of TBD ps."
To:
"The crosstalk generator is calibrated so that the differential peak-to-peak output voltage and transition time, as measured at TP1a, are a close to the limits in Table 120G-1 as practical."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.2.2** *P* **235** *L* **33** # 63

Wu, Mau-Lin MediaTek

Comment Type **T** *Comment Status* **D** *TP4 EO XTALK (bucket3)*

There are some TBDs for crosstalk calibration specs for Host Output test.
According to the analysis explored in wu_3ck_adhoc_02_010621.pdf, the target swing at TP4 shall be aligned with that of Module output spec, which is 900 mV. Similarly, the output voltage swing at TP1a, which is 870 mV now, shall be aligned among Host output, Module output, Host input, & Module input specs.

SuggestedRemedy

Propose the following paragraph to replace the original one
Module output: 120G.3.2.2 (Page 235, L33)
"… with target differential peak-to-peak amplitude of 870 mV and target transition time of 19 ps."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.2.2** *P* **235** *L* **34** # 127

Ran, Adee Intel

Comment Type **TR** *Comment Status* **D** *TP4 EO XTALK (bucket3)*

(addressing TBD)
"The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and target transition time of TBD ps"

This is the module output test; the crosstalk generator represents the host output. We specify the PtP amplitude and transition time for hosts at TP1a in Table 120G–1. The calibration should use the maximum amplitude and minimum transition time values from that table.

SuggestedRemedy

Change the quoted sentence to:

"The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-1".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.2.2** *P* **235** *L* **34** # 86

Ghiasi, Ali Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *TP4 EO XTALK (bucket3)*

Addressing the TBD in the paragraph

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, the full swing is about 2x. But given that module PCB may have lower than HCB loss, then I suggest 20 ps for the slew from -350 mV to + 350 mV and with amplitude of 700 mV, the reason amplitude is reduced is due assumption that signal will have pre-emphasis on for this measurement otherwise one could go with 900 mV amplitude I don't believe that is reasonable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.3.2.1** *P* **238** *L* **54** # 64

Wu, Mau-Lin MediaTek

Comment Type **T** *Comment Status* **D** *TP4a SIT XTALK (bucket3)*

There are some TBDs for crosstalk calibration specs for Host Output test.
According to the analysis explored in wu_3ck_adhoc_02_010621.pdf, the target swing at TP4 shall be aligned with that of Module output spec, which is 900 mV. Similarly, the output voltage swing at TP1a, which is 870 mV now, shall be aligned among Host output, Module output, Host input, & Module input specs.

SuggestedRemedy

Propose the following paragraph to replace the original one
Host input: 120G.3.3.2.1 (Page 238, L54))
"... with target amplitude of 870 mV peak-to-peak differential and 20% to 80% target transition time of 19 ps as measured at TP1a ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.3.2.1** *P* **238** *L* **54** # 37

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *TP4a SIT XTALK (bucket3)*

The specified values for the host stressed input crosstalk parameters (2x) are TBD.

SuggestedRemedy

Provide values.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.3.2.1** *P* **238** *L* **54** # 87

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *TP4a SIT XTALK (bucket3)*

Addressing the TBD in the paragraph

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 rise time and possibly as fast as 10 ps but would be difficult to generate such fast rise time through mated board. Given that the signal will have pre-emphasis enabled getting more than 800 mV could be difficult. I suggest to go with 800 mV

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.3.2.1** *P* **238** *L* **54** # 19

Dudek, Mike — Marvell

Comment Type **TR** *Comment Status* **D** *TP4a SIT XTALK (bucket3)*

The crosstalk used in the calibration of the host stressed signal should match thecrosstalk used for the test for the module output

SuggestedRemedy

Change "The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and 20% to 80% target transition time of TBD ps." to "The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target differential peak-to-peak amplitude of 870 mV and target transition time of 7.5 ps for the near end calibration and target transition time of 15 ps for the far-end calibration"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.3.2.1** *P* **238** *L* **54** # 128

Ran, Adee — Intel

Comment Type **TR** *Comment Status* **D** *TP4a SIT XTALK (bucket3)*

(addressing TBD)
"The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and 20% to 80% target transition time of TBD ps"

This is the host stressed input test; the actual counter-propagating signals are from the host's own transmitter. For calibration purposes we can assume that the host uses the maximum amplitude and minimum transition time. If the host does not reach the limits, then it may benefit from less crosstalk during the actual test - but as long as it meets the host output specifications, it is acceptable.

We specify the PtP amplitude and transition time for hosts at TP1a in Table 120G–1. The calibration should use the maximum amplitude and minimum transition time values from that table.

SuggestedRemedy

Change the quoted sentence to:

"The counter-propagating crosstalk signals are asynchronous with respect to the input signal and are calibrated at TP1a (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-1".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.3.2.1** *P* **238** *L* **54** # 70

Healey, Adam — Broadcom Inc.

Comment Type **T** *Comment Status* **D** *TP4a SIT XTALK (bucket3)*

The target differential peak-to-peak amplitude and transition time, as observed at TP1a, are TBD.

SuggestedRemedy

Since the crosstalk generator is used as a proxy for the host transmitter(s) during stressed input signal calibration, the amplitude and transition times should be set to agree with the values measured at the output of the host under test (TP1a).
Change:
"The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and 20% to 80% target transition time of TBD ps as measured at TP1a (without the use of a reference receiver)."
To:
"The counter propagating crosstalk signals are asynchronous during calibration of the stressed signal. The crosstalk generator is calibrated so that the differential peak-to-peak output voltage and transition time, as measured at TP1a, are as close as practical to the values measured at the output of the host under test (at TP1a) without the use of a reference receiver."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #17.

Cl **120G** *SC* **120G.3.4** *P* **240** *L* **17** # 38

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *TP1 ERL (bucket3)*

In table 120G-9, the specified value for module input ERL (min) is TBD.

SuggestedRemedy

Provide a value.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #125.

Cl **120G** *SC* **120G.3.4.1** *P* **240** *L* **46** # 88

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *EH/VEC (bucket3)*

Table 120G-10 needs to be updated now that measurements are with 50 mUI window

SuggestedRemedy

See ghiasi_3ck_01_0121 and reduce eye height window from 15 mV to 9.5 mV
See ghiasi_3ck_01_0121 and reduce eye height window from 7.5 dB to 14+/- 0.5 dB

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #146 and #40.

Cl **120G** *SC* **120G.3.4.1.1** *P* **242** *L* **2** # 20

Dudek, Mike — Marvell

Comment Type **TR** *Comment Status* **D** *P1 EH/VEC XTALK (bucket3)*

The crosstalk used in the calibration of the module stressed signal should match the crosstalk used for the test for the host output

SuggestedRemedy

Change to "a target amplitude of 900mV differential peak-to-peak and target slew time between -270mV and +270mV of 7.5ps"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.4.1.1** *P* **242** *L* **2** # 65

Wu, Mau-Lin — MediaTek

Comment Type **T** *Comment Status* **D** *P1 EH/VEC XTALK (bucket3)*

There are some TBDs for crosstalk calibration specs for Host Output test.
According to the analysis explored in wu_3ck_adhoc_02_010621.pdf, the target swing at TP4 shall be aligned with that of Module output spec, which is 900 mV. Similarly, the output voltage swing at TP1a, which is 870 mV now, shall be aligned among Host output, Module output, Host input, & Module input specs.

SuggestedRemedy

Propose the following paragraph to replace the original one
Module input: 120G.3.4.1.1 (Page 242, L2)
"... with target amplitude of 900 mV peak-to-peak differential and target slew time between -2.7 V and +2.7 V of 12 ps as measured at TP4 ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.4.1.1** *P* **242** *L* **2** # 71

Healey, Adam — Broadcom Inc.

Comment Type **T** *Comment Status* **D** *PAM2 EH/VEC XTALK (bucket3)*

The target differential peak-to-peak amplitude and slew time of the crosstalk generator, as observed at TP4, are TBD.

SuggestedRemedy

Since the crosstalk generator is used as a proxy for the module transmitter(s) during stressed input signal calibration, the amplitude and transition times should be set to agree with the values measured at the output of the module under test (TP4).
Change:
"The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and target slew time between -TBD mV and TBD mV of TBD ps as measured at TP4 (without the use of a reference equalizer)."
To:
"The counter propagating crosstalk signals are asynchronous during calibration of the stressed signal. The crosstalk generator is calibrated so that the differential peak-to-peak output voltage and transition time, as measured at TP4, are as close as practical to the values measured at the output of the module under test (at TP4) without the use of a reference receiver."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.4.1.1** *P* **242** *L* **2** # 129

Ran, Adee — Intel

Comment Type **TR** *Comment Status* **D** *PAM2 EH/VEC XTALK (bucket3)*

(addressing TBD)
"The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and target slew time between –TBD mV and TBD mV of TBD ps as measured at TP4"

This is the module stressed input test; the actual counter-propagating signals are from the module's own transmitter. For calibration purposes we can assume that the module uses the maximum amplitude and minimum transition time. If the module does not reach the limits, then it may benefit from less crosstalk during the actual test - but as long as it meets the module output specifications, it is acceptable.

We specify the PtP amplitude and transition time for modules at TP4 in Table 120G–3. The calibration should use the maximum amplitude and minimum transition time values from that table.

SuggestedRemedy

Change the quoted sentence to:

"The counter-propagating crosstalk signals are asynchronous with respect to the input signal and are calibrated at TP4 (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-3".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.4.1.1** *P* **242** *L* **2** # 39

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *PAM2 EH/VEC XTALK (bucket3)*

The specified values for the module stressed input crosstalk parameters (4x) are TBD.

SuggestedRemedy

Provide values.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **120G** *SC* **120G.3.4.1.1** *P* **242** *L* **3** # 89

Ghiasi, Ali — Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *P1 EH/VEC XTALK (bucket3)*

Addressing the TBD in the paragraph

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, the full swing is about 2x. But given that module PCB may have lower than HCB loss, then I suggest 20 ps for the slew from -350 mV to + 350 mV and with amplitude of 700 mV, the reason amplitude is reduced is due assumption that signal will have pre-emphasis on for this measurement otherwise one could go with 900 mV amplitude I don't believe that is reasonable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #14.

Cl **162B** *SC* **162B.1.3.1** *P* **262** *L* **36** # 104

Champion, Bruce — TE Connectivity

Comment Type **T** *Comment Status* **D** *MTF FOMILD (bucket3)*

FOM_ILD is listed at TBD.

SuggestedRemedy

TBD to be changed to 0.18 dB

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using comment #111.

Cl **162B** *SC* **162B.1.3.1** *P* **262** *L* **36** # 41

Brown, Matt — Huawei

Comment Type **T** *Comment Status* **D** *MTF FOMILD (bucket3)*

The specified value for MTF FOM_ILD upper limit is TBD.

SuggestedRemedy

Provide a value.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #111.

Cl **162B** *SC* **162B.1.3.1** *P* **262** *L* **36** # 130

Ran, Adee — Intel

Comment Type **TR** *Comment Status* **D** *MTF FOMILD (bucket3)*

(addressing TBD)
"FOMILD shall be less than (TBD) dB"

The importance of this parameter for quality of test fixtures in the context of this project has not been presented. ERL likely covers what FOMILD originally intended to cover.

The specification should be deleted without loss of technical completeness.

SuggestedRemedy

Delete the quoted sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #111.

Cl **162B** *SC* **162B.1.3.1** *P* **262** *L* **36** # 107

DiMinico, Christopher — MC Communications

Comment Type **TR** *Comment Status* **D** *MTF FOMILD (bucket3)*

Provide value for mated test fixture FOMILD TBD.

SuggestedRemedy

See diminico_3ck_adhoc_01a_121620
Update PICS

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #111.

Cl **162B** *SC* **162B.1.3.1** *P* **262** *L* **36** # 97

Haser, Alex — Molex

Comment Type **TR** *Comment Status* **D** *MTF FOMILD (bucket3)*

Fill in TBD for MTF FOM_ILD limit

SuggestedRemedy

Fill in a value of 0.18 dBrms based on haser_3ck_adhoc_01c_062420.pdf slide 7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #111.

Cl **163B** *SC* **163B.2** *P* **290** *L* **23** # 82

Ghiasi, Ali
Ghiasi Quantum/Inphi

Comment Type **TR** *Comment Status* **D** *'P0v/TP5v example (bucket3)*

Example TP0V should be better defined

SuggestedRemedy

See ghiasi_3ck_02_0121
The DUT trace is constructed from 2 mm section of PCB trace with 102 Ohms (via model), followed by 66.8 mm 92.5 Ohms strip line, followed by 2 mm section of PCB trace with 102 ohms (via model) the total loss of this model at 26.55 GHz is 2.8 dB. The PCB model is per table 93-12. The equation for the loss =0.006+0.25*SQRT(f)+0.057*f, where f is in GHz.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Resolve using the response to comment #132.

Cl **163B** *SC* **163B.2** *P* **291** *L* **18** # 44

Brown, Matt
Huawei

Comment Type **T** *Comment Status* **D** *'P0v/TP5v example (bucket3)*

For the example test fixture, the reference value in Table 163B-1 for transmitter steady-state voltage is TBD.

SuggestedRemedy

Provide a value.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #132.

Cl **163B** *SC* **163B.2** *P* **291** *L* **20** # 45

Brown, Matt
Huawei

Comment Type **T** *Comment Status* **D** *'P0v/TP5v example (bucket3)*

For the example test fixture, the reference value for transmitter linear fit pulse peak voltage is TBD.

SuggestedRemedy

Provide a value.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve using the response to comment #132.