Cl **FM** *SC* **FM** *P* **1** *L* **4** # 1
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

"IEEE Std 802.3bu™-20xx" should be "IEEE Std 802.3bu™-2016"

SuggestedRemedy

Change "IEEE Std 802.3bu™-20xx" to "IEEE Std 802.3bu™-2016"

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **35** # 2
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

This is not the first recirculation.

SuggestedRemedy

Change "prepared for the first Working Group recirculation ballot." to "prepared for Working Group ballot recirculation."

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **19** *L* **1** # 35
Smith, Daniel Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing in ToC item

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.4.74a1** *P* **28** *L* **29** # 36
Smith, Daniel Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing at end of sentence.

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.3.2.1.2** *P* **31** *L* **20** # 3
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

"Clause 2.5 Gb/s 8B/10B" should be "Clause 127 2.5 Gb/s 8B/10B"
Same issue on line 32 and Page 32 line 18.

SuggestedRemedy

Change "Clause" to "Clause 127" on:
Page 31 line 20 and line 32
Page 32 line 18

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.5.1.1.2** *P* **32** *L* **12** # 4
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

"as specified Clause 128" should be "as specified in Clause 128"
Same issue on lines 18, 23, and 25

SuggestedRemedy

Change "as specified" to "as specified in" on lines 12, 18, 23, and 25 (4 instances)

Response *Response Status* **C**

ACCEPT.

Cl **31B** *SC* **31B.4.6** *P* **160** *L* **28** # 33
Smith, Daniel Seagate Technology

Comment Type **E** *Comment Status* **A**

Subclause missing in 3rd column.

SuggestedRemedy

TIM4aa and TIM4a1 should have 31B.3.7 in the Subclause column.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.6** *P* **33** *L* **48** # 5

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

This is a "Change" editing instruction, but does not show the lines as being modified from the base standard as modified by the noted amendments.

SuggestedRemedy

Change the two table rows from:
<u>0 1 1 1 1 0 0 = 5GBASE-KR PMA/PMD</u>
<u>0 1 1 1 0 1 1 = 2.5GBASE-KX PMA/PMD</u>
to:
0 1 1 1 1 0 0 = <u>5GBASE-KR PMA/PMD</u><s>reserved</s>
0 1 1 1 0 1 1 = <u>2.5GBASE-KX PMA/PMD</u><s>reserved</s>

Where <u> and </u> are the start and end of underlining and <s> and </s> are the start and end of strikethrough.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.7.4** *P* **34** *L* **5** # 6

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

A "Change" editing instruction is not appropriate when none of the existing table rows is being changes and only new rows are being inserted.
Same issue for Tables 45-10 and 45-12

SuggestedRemedy

Make the editing instruction for Table 45-9:
"Insert a new row for 2.5GBASE-KX in Table 45-9 before the row for 2.5GBASE-T, 5GBASE-T (added by IEEE Std 802.3bz-2016) and a new row for 5GBASE-KR after it as follows (unchanged rows not shown):"

Remove the underlining from Table 45-9 (underline is not associated with an Insert editing instruction).

Make the editing instruction for Table 45-10:
"Insert a new row for 2.5GBASE-KX in Table 45-10 before the row for 2.5GBASE-T, 5GBASE-T (added by IEEE Std 802.3bz-2016) and a new row for 5GBASE-KR after it as follows (unchanged rows not shown):"

Remove the underlining from Table 45-10

Make the editing instruction for Table 45-12:
"Insert a new row for 2.5GBASE-KX in Table 45-12 before the row for 2.5GBASE-T and 5GBASE-T (added by IEEE Std 802.3bz-2016) and a new row for 5GBASE-KR after it as follows (unchanged rows not shown):"

Remove the underlining from Table 45-12

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.14c** *P* **35** *L* **3** # 7

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

The editing instruction says "Change Table 45-17c …" but only part of the table is shown.

SuggestedRemedy

Change "Change Table 45-17c …" to "Change the reserved row in Table 45-17c …"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.88** *P* **35** *L* **36** # 8

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

"Change the sentence" is not an appropriate editing instruction.

SuggestedRemedy

Change the editing instruction to: "Change the text of 45.2.1.88 as follows:"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.89** *P* **36** *L* **5** # 9

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

In the text "in the 1000BASE-KX/2.5GBASE-KX status" the word "status" is part of the base text, so it should not be underlined.

SuggestedRemedy

Remove the underline from "status"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.89.6** *P* **36** *L* **15** # 10

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

The text of the first sentence from the base standard is "The PMD signal detect function is optional see 70.6.4."
Consequently, the added brackets around "see 70.6.4" should be underlined.

SuggestedRemedy

Underline " (" and ") ".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3** *P* **36** *L* **20** # 11

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

IEEE Std 802.3by-2016 did not insert these rows, it changed them.

SuggestedRemedy

Change "as inserted by IEEE Std 802.3by-2016" to "as modified by IEEE Std 802.3by-2016"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.1.2** *P* **36** *L* **39** # 12

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

45.2.3.1.2 has been modified by IEEE Std 802.3bw-2015, IEEE Std 802.3bq-2016, and IEEE Std 802.3bz-2016.
Unfortunately, IEEE Std 802.3bq-2016 and IEEE Std 802.3bz-2016 did not correctly reflect the changes made by previous amendments in their base text.
The text in the P802.3cb draft is only the first paragraph of 45.2.3.1.2.

SuggestedRemedy

Change the editing instruction to "Change the first paragraph of 45.2.3.1.2 (as modified by IEEE Std 802.3bw-2015, IEEE Std 802.3bq-2016, and IEEE Std 802.3bz-2016) as follows:"

Change the text to:
"When the 100BASE-T1, any MultiGBASE-T, or the <u>5/</u>10GBASE-R mode of operation is selected for the PCS using the PCS type selection field (3.7.3:0), the PCS shall be placed in a loopback mode of operation when bit 3.0.14 is set to a one. When bit 3.0.14 is set to a one, the 100BASE-T1, <u>5/</u>10GBASE-R, or any PCS in the MultiGBASE-T set shall accept data on the transmit path and return it on the receive path. The speed of the loopback is selected by the PCS control 1 (Register 3.0) defined in 45.2.3.1. The specific behavior of the 100BASE-T1 PCS during loopback is specified in 96.3.5. The specific behavior of the <u>5/</u>10GBASE-R PCS during loopback is specified in 49.2. The specific behavior for the 10GBASE-T PCS during loopback is specified in 55.3.6.3. The specific behavior for the 25GBASE-T and 40GBASE-T PCS during loopback is specified in 113.3.7.3. The specific behavior for the 2.5GBASE-T or 5GBASE-T PCS during loopback is specified in 126.3.7.3.For all other port types, the PCS loopback functionality is not applicable and writes to this bit shall be ignored and reads from this bit shall return a value of zero."

Where <u> and </u> are the start and end of underlining.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.6** *P* **37** *L* **5** # 13

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

Table 45-123 has text that is underlined but is not being inserted by the P802.3cb draft

SuggestedRemedy

In Table 45-123, remove the underline from:
"3.7.15:4", "Reserved", "Value always 0", "RO"
"3.7.3:0", "PCS type selection", the "0" in "3 2 1 0", "R/W"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.14.3** *P* **40** *L* **7** # 14

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

45.2.3.14.3 was modified by IEEE Std 802.3by-2016, IEEE Std 802.3bq-2016, and IEEE Std 802.3bz-2016.
Unfortunately, IEEE Std 802.3bz-2016 did not correctly reflect the changes made by IEEE Std 802.3bq-2016.

SuggestedRemedy

Change "and defined by the counter lfer_count" to "and defined by counter lfer_count".
Change "and 5GBASET, in 55.3.6.2" to "and 5GBASET, 55.3.6.2".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.14.4** *P* **40** *L* **15** # 15

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

The text in strikethrough font does not reflect the text of 45.2.3.14.4 as modified by the noted amendments.
The only change being made by the P802.3cb amendment is the addition of "5/", so showing the whole sentence as being deleted and then re-inserted is not reasonable.

SuggestedRemedy

Delete the sentence in strikethrough font.
Remove the underline from the second sentence with the exception of "5/".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.15** *P* **40** *L* **28** # 16

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

The comma after "10GBASE-R" has been added by the P802.3cb draft, so should be underlined.
In 45.2.3.16, the comma has not been inserted (as it should be according to IEEE style rules).

SuggestedRemedy

In 45.2.3.15, underline the comma after "10GBASE-R".
In 45.2.3.16, add an underlined comma after "10GBASE-R".

Response *Response Status* **C**

ACCEPT.

Cl **69** *SC* **69.1.1** *P* **45** *L* **7** # 17

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A**

Space missing in "69.1.1(as"

SuggestedRemedy

Add the space

Response *Response Status* **C**

ACCEPT.

Cl **69** *SC* **69.2.3** *P* **46** *L* **53** # 37

Smith, Daniel Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing in second to last sentence.

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.5** *P* **49** *L* **20** # 18

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **A**

Incorrect register name for register 1.160 in Table 70-2 and for register 1.161 in Table 70-3

SuggestedRemedy

Change "/2500BASE-KX" to "/2.5GBASE-KX" in 1 instance in Table 70-2 and 6 instances in Table 70-3.

Response *Response Status* **C**

ACCEPT.

Cl **125** *SC* **125.1.3** *P* **59** *L* **52** # 38

Smith, Daniel — Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing in second to last sentence.

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.7** *P* **98** *L* **42** # 39

Smith, Daniel — Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing at end of line.

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.7.1** *P* **98** *L* **48** # 31

Smith, Daniel — Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing in middle of sentence.

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.7.2.2** *P* **99** *L* **27** # 32

Smith, Daniel — Seagate Technology

Comment Type **E** *Comment Status* **A**

Clause number missing in right column

SuggestedRemedy

Change 'Clause' to 'Clause 127'.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.7.1.4** *P* **111** *L* **50** # 19

Dudek, Mike — Cavium

Comment Type **T** *Comment Status* **A**

There aren't any transmitter output waveform requirements sspecified in 128.7.2. That is the receiver specifications. At the moment the transmitter is controlled by jitter specifications, the 101010 pattern amplitude and the SNDR specification with Np=3. I think this is adequate specification because the SNDR with Np=3 will ensure that there isn't too much ISI.

SuggestedRemedy

Delete the sentence.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.7.1.4** *P* **112** *L* **1** # 25

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

There is a conflict between the example and the text. If the test pattern consists of no fewer than eight symbols of alternating polarity it should be 01010101. Note that per the text in the previous sentence

SuggestedRemedy

Change "0x1111111100000000" to "10101010".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change wording at 128.7.1.4 from:
"For a 1010 pattern, the peak-to-peak differential output voltage shall be as specified in Table 128–4. The differential output voltage test pattern shall consist of no fewer than eight symbols of alternating
polarity (i.e., 1111111100000000...)."
to:
"The peak-to-peak differential output voltage shall be as specified in Table 128–4. The maximum differential output voltage test pattern is the square wave test pattern defined in 52.9.1.2, with a run of at least eight consecutive ones followed by at least eight consecutive zeros (i.e., 1111111100000000...). The minimum differential output voltage test pattern shall consist of no fewer than eight symbols of alternating polarity (i.e., 10101010...)."

Add 128.7.1.4 subclause reference to Table 128-4 for Differential Output Voltage Minimum. Change parameter name to "Peak-to-peak differential output voltage (max) with TX disabled" and add 128.6.5 subclause reference to Table 128-4.

Change PICS to add new item for Diff Output Voltage Min below TC3.
Remove TC5 for Tx differential output voltage test pattern.
Change test pattern for TC3 to 1111111100000000… .

Cl **128** *SC* **128.7.1.4** *P* **112** *L* **25** # 26

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

5s seems a long time for the Tx to be compliant. Clause 71 and clause 130 have 5us for the equivalent time.

SuggestedRemedy

Change 5s to 5us.

Response *Response Status* **C**

ACCEPT.

Cl **128A** *SC* **128A.1** *P* **168** *L* **43** # 27

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

The losses can't be at 2.578125GHz (in the title to Figure 128A-2) for a 2.5G system particularly as they would violate equation 128A-1 . I assume this is intended to be at the Nyquist frequency.

SuggestedRemedy

Change 2.578125 to 1.5625

Response *Response Status* **C**

ACCEPT.

Cl **128A** *SC* **128A.2** *P* **170** *L* **39** # 30

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

There is incorrect labelling of host where it should say drive.

SuggestedRemedy

Change:
"The output of the Drive Compliance Board (DCB) is used to verify the host electrical output signal at TP2D-H (see Figure 128A–5). Similarly, the input of the DCB at TP3H-D (see Figure 128A–5) is used to verify thehost input compliance."
to:
"The output of the Drive Compliance Board (DCB) is used to verify the Drive electrical output signal at TP2D-H (see Figure 128A–5). Similarly, the input of the DCB at TP3H-D (see Figure 128A–5) is used to verify the drive input compliance."

Response *Response Status* **C**

ACCEPT.

Cl **128C** *SC* **128C.1.2** *P* **199** *L* **48** # 20

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

The Test fixture insertion loss appears to be too high. Each individual compliance board has the loss given by equation 128C-1 (approx 2.5dB at 2.5GHz, but the mated text fixture insertion loss with two compliance boards plus a connector only has approx 3.5dB loss max at 2.5GHz. (Note that the loss of the individual boards should be specified not the combined loss to improve test repeatability so that there isn't a lot of difference in loss between drive compliance board (and host compliance board) used by different test houses.

SuggestedRemedy

Divide the two co-efficents in equation 128C-1 by 2. (or maybe just reduce the square route f term as this doesn't look like the shape of typical PCB loss at this frequency.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change equation 128C-1 root f term from
1.3134 to 0.44. This will reduce the fixture loss to approximately 1.25 dB.
Modify Figure 128C-2 with new values.

Cl **130** *SC* **130.7.1.4** *P* **145** *L* **1** # 28

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

There is a conflict between the example and the text. If the test pattern consists of no fewer than eight symbols of alternating polarity it should be 01010101. Note that per the text in the previous sentence it is the 01 pattern that is being measured.

SuggestedRemedy

Change "0x1111111100000000" to "10101010".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change wording at 130.7.1.4 from:
"For a 1010 pattern, the peak-to-peak differential output voltage shall be as specified in Table 130–4. The differential output voltage test pattern shall consist of no fewer than eight symbols of alternating
polarity (i.e., 0x1111111100000000...)."
to:
"The peak-to-peak differential output voltage shall be as specified in Table 130–4. The maximum differential output voltage test pattern is the square wave test pattern defined in 52.9.1.2, with a run of at least eight consecutive ones followed by at least eight consecutive zeros (i.e., 1111111100000000...). The minimum differential output voltage test pattern is no fewer than eight symbols of alternating polarity (i.e., 10101010...)."

Add 130.7.1.4 subclause reference to Table 130-4 for Differential Output Voltage Minimum.

Change PICS to add new item for Diff Output Voltage Min below TC4.
Remove TC6 for Tx differential output voltage test pattern.
Change test pattern for TC4 to 1111111100000000… .

Cl **130A** *SC* **130A.3.1** *P* **212** *L* **29** # 21

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

It is surprising that the required host pre-cursor ratio is required to be more than 1.2. This is after the longest part of the channel and the Host Compliance board (with only approx 0.8dB more loss to complete the channel). If the Tx function has this amount of pre-cursor it will be smaller at this measurement point on long channels.

SuggestedRemedy

Change the pre-cursor specification to 1.15+/-0.15

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change precursor specification to 0.65 +/- 0.65. This allows a maximum of 1.3 and a minimum of zero at TP4H-D.

Cl **130A** *SC* **130A.3.6** *P* **216** *L* **14** # 22

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

These receiver equalizer parameters will place the gain peak at approx fb/4 which will make it difficult to achieve the SNDR requirement. It would be better to have the gain peak closer to fb/2

SuggestedRemedy

Change fb/4 to fb/2 in two places here and 2 places in table 130A-8.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.4.2** *P* **216** *L* **47** # 23

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

The reference to figure 130A-4 isn't helpful because it doesn't show TP2.

SuggestedRemedy

Change the reference to Figure 130A-5.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Figure 130A-9 is the intended figure with TP2D-H being the correct test point in the calibration procedure.

Cl **130A** *SC* **130A.4.2** *P* **217** *L* **9** # 29

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

The Drive is required to have a pre-cursor of 1.25+/-0.5 presumably to make it easier for the host receiver. The interference tolerance test is intended to mimic the worst case drive output.

SuggestedRemedy

Consider whether a pre-cursor ratio of 1.2 should be added to tables 130A-4 and 130A-5 and change step C on pages 217 and 218 to "The required linear fit pulse peak and pre-cursor ratio values."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a pre-cursor ratio line with value of 1.2 to Table 130A-4 and 130A-5.

Change 130A.4.2 and 130A.4.3, step C) to:
"Adjust pattern generator output and ISI channel to meet the required linear fit pulse peak and pre-cursor ratio values."

Replace "mV" from the Pre-cursor ratio line of Table 130A-7 with a dash, as shown in Table 130A-1.

Cl **130A** *SC* **130A.6.2** *P* **223** *L* **27** # 24

Dudek, Mike Cavium

Comment Type **T** *Comment Status* **A**

The calibration test point is wrong. (TP2 is for the host input.)

SuggestedRemedy

Change "TP2D-H" to TP4H-D also for jitter calibration page 224 line 53. Also in Figure 130A-12 by the scope it should be TP4H-D not TP4D-H (it is correct in figure 130A-11).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Also, in Figure 130A-11 change on line 33, from TP4D-H to TP2D-H. Also check other calibration Figures for correct TP labels and correct as necessary.

Cl **130A** *SC* **130A.6.3** *P* **225** *L* **10** # 34

Smith, Daniel Seagate Technology

Comment Type **E** *Comment Status* **A**

Bullet item b) has too much information. This is already understood to be a 5G calibratrion procedure.

SuggestedRemedy

Change "Tt set to 55 ps for 2.5G or 42 ps for 5G," to:
"Tt set to 42 ps".
Also remove extra space between the words "Tt" and "Set".

Response *Response Status* **C**

ACCEPT.