Cl **00** *SC* **0** *P* **13** *L* **36** # 1

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Missing period at the end of the second sentence.

SuggestedRemedy

Replace, "(Super-PON)" with, "(Super-PON)."

Proposed Response *Response Status* **O**

Cl **120A** *SC* **120A.6** *P* **105** *L* **28** # 18

Lewis, David — Lumentum

Comment Type **TR** *Comment Status* **X**

The 400GBASE-ZR PCS should be a separate MMD from the PMA and PMD. This allows for the re-use of already defined MDIO registers in clause 45.

SuggestedRemedy

In Figure 120A-9 change the curly bracket for MMD1 to start at the divider between PCS and PMA. Add the caption MMD3 next to the PCS.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.1.5** *P* **38** *L* **2** # 2

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Functional Block Diagram" with, "Functional block diagram"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.2** *P* **39** *L* **48** # 3

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Use of Blocks" with, "Use of blocks"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.3** *P* **40** *L* **28** # 5

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "GMP Mapper" with, "GMP mapper"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.4** *P* **41** *L* **45** # 4

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Alignment Marker (AM) and Pad insertion" with, "Alignment Marker (AM) and pad insertion"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.5** *P* **42** *L* **38** # 21

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

The details of the overhead are rather complicated, and the description may not be clear enough for a reader who is unfamiliar with the details of ITU-T FlexO technology on which all of this is based. The 400GBASE-ZR frame is based on a FlexO-4 frame, which is formed by interleaving four ~100G FlexO frame structures. The clauses about AM and Pad describe the fields after this interleaving is done, for simplicity. The overhead clause is sort of a hybrid of trying to describe the 1280-bit field that results from interleaving four 320-bit fields, but it gets complicated by the fact that all the overhead is in the first ~100G structure that uses a 4-frame multiframe. Since most readers probably are not familiar with the details of FlexO, it is probably better to introduce the overhead in terms of a 40-byte frame structure and 4-frame multiframe, and then have a separate subclause to explain how the overhead is mapped into the 400GBASE-ZR overhead field.

SuggestedRemedy

Change the title of 155.2.4.5 to "Overhead (OH)"

Add text before Figure 155-4 as follows:
The 400GBASE-ZR overhead is a 40-byte frame structure that uses a four-frame multiframe, as shown in Figure 155-4 and described in 155.2.4.5.1 through 155.2.4.5.3.

Change the text at the top of figure 155-4 from "bytes of the first 320-bit OH field" to "byte number"

Delete the paragraph after the figure and insert new subclause 155.2.4.5.4 as follows:
155.2.4.5.4 Mapping into the 400GBASE-ZR frame
The 400GBASE-ZR frame contains a 1280-bit overhead field. This field is logically composed of four 320-bit structures. The 40-byte overhead frame described in subclause 155.2.4.5 is the first such 320-bit structure. The second, third, and fourth 320-bit structures are all zeros. The four 320-bit structures are 10-bit interleaved to form the 1280-bit overhead field.

Assuming this general direction is agreeable, subsequent comments address additional changes to 155.2.4.5.x that would also be needed.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.5.1** *P* **42** *L* **46** # 22

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

It is better to describe the MFAS field independently of the 320-bit FlexO instances, as noted in an earlier comment.

SuggestedRemedy

Replace the text of 155.2.4.5.1 with:
The MFAS is in the first byte of the overhead frame. It is wrapping counter that is incremented each frame to provide a 256-frame multi-frame sequence as defined by ITU-T G.709.1 Clause 9.2.1.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.5.2** *P* **42** *L* **52** # 23

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

This subclause seems to be covering two separate concepts: the STAT field of the overhead, and behavior based on detecting link faults, which should be in the receiver clause rather than the transmitter.

SuggestedRemedy

Delete the first and last paragraphs (a subsequent comment will address re-inserting this information in the clause describing the receiver)

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.5.2** *P* **43** *L* **1** # 24

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

It is better to describe the STAT field independently of the 320-bit FlexO instances, as noted in an earlier comment.

SuggestedRemedy

Change the first sentence of the second paragraph of 155.2.4.5.2 from: The status overhead byte is present in every frame, but only carried in the first of the four 320-bit OH instances.
to:
The status overhead byte provides status information about the 400GBASE-ZR link.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.5.2** *P* **43** *L* **8** # 25

Huber, Tom — Nokia

Comment Type **T** *Comment Status* **X**

With the new version of Figure 155-4 that breaks out the individual bits of what was formerly shown as the 3-bit LDI field, it would be better to just refer to those bits explicitly in the text. Also note that something got lost in translation - the RD bit (identified in the text as LDI<1>) corresponds to tx_am_sf<2>, and the LD bit (identified as LDI<2>) corresponds to tx_am_sf<1>

SuggestedRemedy

Change the last sentence of the fourth paragraph to say:
The LD bit corresponds to tx_am_sf<1> in 118.2.2. The RD bit corresponds to tx_am_sf<2> in 118.2.2.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.5.2** *P* **43** *L* **10** # 19

Lewis, David — Lumentum

Comment Type **T** *Comment Status* **X**

There needs to be clarification of how the LDI fields translate to tx_am_sf<2:0> when there is an adjacent PHY 400GXS. The connection may be made via MDIO registers or in an integrated implementation as a direct hardware connection.

SuggestedRemedy

Add a paragraph: "If there is an adjacent PHY 400GXS sublayer, then the value of RD in STAT<7> is equal to the value of rx_am_sf<2> from the 400GXS sublayer, and LD in STAT<8> is equal to the value of rx_am_sf<1> from the 400GXS sublayer. If there is not a 400GXS sublayer adjacent, meaning that the 400GBASE-ZR PCS is connected to a MAC-RS, then the value of RD in STAT<7> is set to the value of LD in STAT<8> of the received status byte in the receive direction of the 400GBASE-ZR PCS, and the value of LD in STAT<8> in the transmit direction is set to 0.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.6** *P* **43** *L* **30** # 43

Issenhuth, Tom — Huawei

Comment Type **E** *Comment Status* **X**

Incorrect usage of CRC-32 as CRC32 is used through out the 802.3 revision D3.0 draft.

SuggestedRemedy

To keep alignment with the new 802.3 draft standard, change CRC-32 to CRC32 throughout the draft

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.7** *P* **43** *L* **49** # 6

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "400GBASE-ZR Frame to SC-FEC Adaptation" with, "400GBASE-ZR frame to SC-FEC adaptation"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.8** *P* **46** *L* **1** # 7

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Pad Insertion" with, "Pad insertion"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.4.9** *P* **46** *L* **7** # 8

Maguire, Valerie — The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Frame Synchronous Scrambler" with, "Frame synchronous scrambler"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P* **50** *L* **17** # 26

Huber, Tom — Nokia

Comment Type **T** *Comment Status* **X**

Assuming the earlier comment regarding the description of overhead is agreed, it would be beneficial to have some text explaining how the 40-byte overhead frame is recovered from the 1280-bit field (i.e. the inverse of proposed new clause 155.2.4.5.4)

SuggestedRemedy

Insert a new paragraph at the end of 155.2.5.7 as follows:
The 400GBASE-ZR overhead is recovered from the 1280-bit overhead field by 10-bit de-interleaving the four 320-bit structures. The 40-byte overhead frame is the first 320-bit structure.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7.1** *P* **50** *L* **28** # 28

Huber, Tom — Nokia

Comment Type **T** *Comment Status* **X**

Assuming the earlier comment regarding the description of the overhead is agreed, the text at the top of the figure should not refer to the 320-bit OH field.

SuggestedRemedy

Change text to say "byte numbers"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7.1** *P* **50** *L* **28** # 27

Huber, Tom — Nokia

Comment Type **T** *Comment Status* **X**

The byte numbering in figure 155-9 is different from that in figure 155-5. For consistency they should be the same.

SuggestedRemedy

Decide on either 0-based or 1-based byte numbering (based on whatever is most prevalent in the rest of 802.3) and change whichever figure needs to be changed.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7.2** *P* **50** *L* **42** # 29

Huber, Tom — Nokia

Comment Type **T** *Comment Status* **X**

Assuming the earlier comments regarding the description of the overhead is agreed, the introductory sentence should not mention the 320-bit field

SuggestedRemedy

Eliminate the second clause of the first sentence, so it reads: The status overhead byte is present in every 400GBASE-ZR frame.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7.2** *P* **50** *L* **50** # 20

Lewis, David — Lumentum

Comment Type **T** *Comment Status* **X**

There needs to be clarification of how the LDI fields translate to rx_am_sf<2:0> when there is an adjacent PHY 400GXS. The connection may be made via MDIO registers or in an integrated implementation as a direct hardware connection.

SuggestedRemedy

Add a paragraph: "If there is an adjacent PHY 400GXS sublayer, then the value of RD in the received STAT<7> is passed to tx_am_sf<2> in the transmit direction of the 400GXS sublayer, and LD in STAT<8> is passed to tx_am_sf<1> in the transmit direction of the 400GXS sublayer. If there is not a 400GXS sublayer adjacent, meaning that the 400GBASE-ZR PCS is connected to a MAC-RS, then the value of RD in STAT<7> is passed to the DTE management entity to indicate a remote degrade event, and LD in the received STAT<8> is passe to the RD bit in STAT<7> in the transmit direction is of the 400GBASE-ZR PCS.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7.2** *P* **51** *L* **5** # 30

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

Based on the comment to remove some receiver-specific text from the description of link status monitoring overhead in the transmitter, some additional text is needed here.

SuggestedRemedy

Add the following at the end of the subclause:
The 400GBASE-ZR PCS provides detection and signaling of link degrade for use by network equipment with re-route capabilities. Pre-FEC bit error ratio monitors within the SC-FEC decoder are used to detect and indicate link degrade at the 400GBASE-ZR optical link.
In the case of a DSP framing or 400GBASE-ZR frame or multi-frame loss, the PCS receive path inserts a stream of 257B blocks carrying LF ordered sets.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2.1** *P* **62** *L* **26** # 31

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

The variable pma_align_status appears to be Boolean, so it should be described as such.

SuggestedRemedy

Change "A variable…" to "A Boolean variable…"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2.1** *P* **62** *L* **34** # 32

Huber, Tom Nokia

Comment Type **E** *Comment Status* **X**

There is inconsistent sentence structure in the description of the variables - some begin with "A Boolean variable…", while others omit begin with "Boolean variable…". Those that describe non-Boolean variables all begin with "A variable…"

SuggestedRemedy

Change the sentences that begin with "Boolean variable…" to begin with "A Boolean variable …"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2.1** *P* **63** *L* **14** # 36

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

TBD not in magenta. There is one more case in 155.4.2.1, 3 cases in 155.6 and multiplecases in 156.10.1.

SuggestedRemedy

Change color of TBDs to magenta

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2.1** *P* **64** *L* **5** # 33

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

Since the description of the LDI field now identifies specirfic bit positions, it would be more clear to state that rx_local_degraded is true when the receiver detects the value 1 in the LD bit of the STAT field (which is actually LDI<2>, per figure 155-4)

SuggestedRemedy

Change the first two sentences from:
Boolean variable that is asserted true when the receiver detects LDI<1> in the STAT byte of two consecutive 400GBASE-ZR frames. It is deasserted when LDI<1> is deasserted for two
consecutive frame periods.
to:
A Boolean variable that is asserted true when the receiver detects the value 1 in the LD bit of the STAT byte of two consecutive 400GBASE-ZR frames. It is deasserted when the value 0 is detected in the LD bit for two consecutive frames.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2.1** *P* **64** *L* **10** # 34

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

Since the description of the LDI field now identifies specirfic bit positions, it would be more clear to state that rx_rm_degraded is true when the receiver detects the value 1 in the RD bit of the STAT field (which is actually LDI<1>, per figure 155-4)

SuggestedRemedy

Change the first two sentences from:
Boolean variable that is asserted true when the receiver detects LDI<2> in the STAT byte of two consecutive 400GBASE-ZR frames. It is deasserted when LDI<2> is deasserted for two
consecutive frame periods.
to:
A Boolean variable that is asserted true when the receiver detects the value 1 in the RD bit of the STAT byte of two consecutive 400GBASE-ZR frames. It is deasserted when the value 0 is detected in the RD bit for two consecutive frames.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2.4** *P* **68** *L* **4** # 35

Huber, Tom Nokia

Comment Type **T** *Comment Status* **X**

It seems like this process should be predicated on PMA alignment being achieved - there's no point in looking for the PCS AMs if the PMA is not aligned.

SuggestedRemedy

Modify the output of LOCK_INIT from UCT to pma_align_status, so that the process of aligning the PCS AMs doesn't start until the PMA alignment is complete.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.7.3** *P* **72** *L* **17** # 37

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

Incorrect use of C-FEC, should be CFEC as stated in 1.5

SuggestedRemedy

Change C-FEC to CFEC

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.5.1** *P* **79** *L* **6** # 38

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

Missing cross reference to 156.9

SuggestedRemedy

Add cross reference

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.5.1** *P* **79** *L* **8** # 39

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

Missing cross reference to 156.9

SuggestedRemedy

Add cross reference

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.6** *P* **81** *L* **26** # 40

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

OADM is shown as an abbreviation but is not included in 1.5 of this draft or the 802.3 D3.0 revision

SuggestedRemedy

Add abbreviation to 1.5 or remove usage of abbreviation

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P* **87** *L* **33** # 41

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

No OADM abbreviation

SuggestedRemedy

Add abbreviation to 1.5 or fully spell out abbreviation

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.23** *P* **93** *L* **36** # 42

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

3 uses of OADM abbreviation

SuggestedRemedy

Add abbreviation to 1.5 or fully spell out abbreviations

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10** *P* **93** *L* **41** # 9

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "EVM Conformance test setup and calculation" with, "EVM conformance test setup and calculation"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1** *P* **94** *L* **43** # 10

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "EVM Conformance test setup" with, "EVM conformance test setup"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.1** *P* **94** *L* **20** # 11

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Calibrated Coherent Receiver" with, "Calibrated coherent receiver"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2** *P* **95** *L* **2** # 12

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Offline Digital Signal Processing" with, "Offline digital signal processing"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.1** *P* **95** *L* **25** # 13

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Polarization Demux" with, "Polarization demux"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.2** *P* **95** *L* **31** # 14

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Clock and Frequency Offset Recovery" with, "Clock and frequency offset recovery"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.3** *P* **95** *L* **39** # 15

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Carrier Phase Recovery" with, "Carrier phase recovery"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.4** *P* **95** *L* **42** # 16

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Receive Filtering" with, "Receive filtering"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.5** *P* **95** *L* **48** # 17

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Follow style for clause headers

SuggestedRemedy

Replace, "Offset Compensation" with, "Offset compensation"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13.4.1** *P* **101** *L* **39** # 44

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

Value/Comment shown as "Meets BER specified in156.1.1"

SuggestedRemedy

Change"in156.1.1" to "in 156.1.1"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13.4.4** *P* **103** *L* **18** # 45

Issenhuth, Tom Huawei

Comment Type **E** *Comment Status* **X**

Missing subclause cross reference for OM1

SuggestedRemedy

Add cross reference

Proposed Response *Response Status* **O**