IEEE P802.3cw D1.1 400 Gb/s over DWDM systems 2nd Task Force review comments

**Comment ID 1**

Maniloff, Eric

Ciena

**Comment Type**: E

**Comment Status**: A

**Comment**: PHY shows 400GBASE-R PCS instead of 400GBASE-ZR PCS

**Suggested Remedy**: Replace 400GBASE-E with 400GBASE-ZR

**Response**: ACCEPT IN PRINCIPLE.

Location is page 64 not 63. Replace "400GBASE-R PCS" with "400GBASE-ZR PCS".

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**Comment ID 2**

Maniloff, Eric

Ciena

**Comment Type**: T

**Comment Status**: A

**Comment**: Comment on FLR references being processed by Clause 119 PCS, but should actually only reference the clause 155 PCS.

**Suggested Remedy**: Change "additionally processed by the FEC (Clause 155) and PCS (Clause 119)." to "processed by the Clause 155 400GBASE-ZR PCS".

**Response**: ACCEPT IN PRINCIPLE.

Remove RX sensitivity specification from Table 156-7 with editorial license.

Remove references to unamplified applications with editorial license.

---

**Comment ID 3**

Maniloff, Eric

Ciena

**Comment Type**: TR

**Comment Status**: A

**Comment**: Receiver Sensitivity for an unamplified link should not be part of the same PMD as receiver sensitivity for an amplified link. This is a distinct application, and a receiver should not be burdened with a requirement to support both applications. Although the sensitivity spec in Table 156-7 is informative, other aspects of this application are normative. If this is a required application it should be defined as a separate PMD.

**Suggested Remedy**: Remove sensitivity spec from Table 156-7, or modify to define a separate PMD supporting this.

**Response**: ACCEPT IN PRINCIPLE.

Remove RX sensitivity specification from Table 156-7 with editorial license.

Remove references to unamplified applications with editorial license.

---

**Comment ID 4**

Maniloff, Eric

Ciena

**Comment Type**: T

**Comment Status**: A

**Comment**: Optical path power penalty for OSNR at TP3 ≥ 34dB is a separate application, and should be removed or applied to a separate PMD.

**Suggested Remedy**: Remove power penalty from Table 156-8, or modify to indicate that this is applied to a separate PMD.

**Response**: ACCEPT IN PRINCIPLE.

Remove power penalty from Table 156-8.

Remove references to unamplified applications with editorial license.
IEEE P802.3cw D1.1 400 Gb/s over DWDM systems 2nd Task Force review comments

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**Comment ID 5**

*Huber, Tom  
Nokia*

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

Multiple definitions are being added, so the editing instruction should use plural forms.

**Suggested Remedy**

Change "definition" to "definitions"  
**Response**  
**Response Status** C  
**bucket**

**ACCEPT IN PRINCIPLE.**

Change "Insert the following new definition" to "Insert the following two new definitions"

---

**Comment ID 6**

*Huber, Tom  
Nokia*

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

Multiple definitions are being added, so the editing instruction should use plural forms.

**Suggested Remedy**

Change "abbreviation" to "abbreviations"  
**Response**  
**Response Status** C  
**bucket**

**ACCEPT.**

---

**Comment ID 7**

*Huber, Tom  
Nokia*

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

The phrase 'GMP mapped' is often used colloquially, but it would be more clear in the text to say 'mapped using GMP'

**Suggested Remedy**

Change "The transcoded blocks are then GMP mapped into a 400GBASE-ZR Frame" to  
"The transcoded blocks are then mapped into a 400GBASE-ZR frame using GMP"

**Response**  
**Response Status** C  
**bucket**

**ACCEPT.**

---

**Comment ID 8**

*Huber, Tom  
Nokia*

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

FEC is being used as both a noun and an adjective in the sentence describing CFEC. While the usage throughout 802.3 is not entirely consistent, within a single sentence we probably should be consistent.

**Suggested Remedy**

Change "The transmit data is encoded with a concatenated forward error correction (CFEC) consisting of an inner SC-FEC code and an outer Hamming code SD-FEC." to  
"The transmit data is encoded with a concatenated forward error correction (CFEC) code consisting of an inner SC-FEC code and an outer Hamming SD-FEC code."

**Response**  
**Response Status** C  
**bucket**

**ACCEPT.**

---

**Comment ID 9**

*Huber, Tom  
Nokia*

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

The description of the test pattern is grammatically awkward. The first sentence of the paragraph has already established that a test pattern is transmitted when the transmit channel is in test pattern mode. The second sentence is intended to indicate what the test pattern is.

**Suggested Remedy**

Change the second sentence: "The PCS shall provide transmit test-pattern mode for the scrambled idle pattern (see 119.2.4.9)." to  
"The transmitted test pattern shall be the scrambled idle pattern (see 119.2.4.9)."

**Response**  
**Response Status** C  
**bucket**

**ACCEPT.**

---

**Comment ID 10**

*Huber, Tom  
Nokia*

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

Multiplication should be indicated with a multiplication symbol rather than an x.

**Suggested Remedy**

Replace 510 x 512 with 510 × 512

**Response**  
**Response Status** C  
**bucket**

**ACCEPT.**
IEEE P802.3cw D1.1 400 Gb/s over DWDM systems 2nd Task Force review comments

Huber, Tom Nokia

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>155</td>
<td>155.2.2</td>
<td>37</td>
<td>50</td>
<td>11</td>
</tr>
</tbody>
</table>

**Response**

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

It would be more clear to describe demapping the MII explicitly rather than using vice versa.

**Suggested Remedy**

Change "The PCS maps the 400GMI signal into 66 bit blocks, and vice versa using a 64B/66B coding scheme." to "The PCS maps the 400GMI signal in 66b blocks, and demaps the 400GMI signal from 66b blocks, using a 64B/66B coding scheme.

**Response**  **Response Status** C

ACCEPT.

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<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>155</td>
<td>155.2.3</td>
<td>38</td>
<td>4</td>
<td>12</td>
</tr>
</tbody>
</table>

**Response**

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

It would be more clear to say "mapped into a 400GBASE-ZR frame using GMP" than "GMP mapped," the word 'payload' is missing from the description of the area of the frame into which the 257b blocks are mapped, and the multiplication symbol should be used rather than x to indicate multiplication.

**Suggested Remedy**

Change item 5 from:

The 64B/66B codestream is then transcoded into a 256B/257B stream, GMP mapped and FEC bits added in this PCS before transmission.

to

The 400GBASE-ZR PCS payload is mapped into the payload area of the 400GBASE-ZR frame, starting at column 5141 of row 0 and ending at column 10 280 of row 255, using GMP. The payload size is 10 220 × 257B.

**Response**  **Response Status** C

ACCEPT.

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<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>155</td>
<td>155.2.4.3</td>
<td>39</td>
<td>4</td>
<td>13</td>
</tr>
</tbody>
</table>

**Response**

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

It would be more clear to say "mapped into a 400GBASE-ZR frame using GMP" than "GMP mapped" "payload" is missing from the description of the area of the frame into which the 257b blocks are mapped, and the multiplication symbol should be used rather than x to indicate multiplication.

**Suggested Remedy**

Change item 5 from:

The 400GBASE-ZR PCS payload is GMP mapped into the area of the 400GBASE-ZR frame starting at column 5141 of row 0 and ending at column 10 280 of row 255. The payload size is 10 220 x 257B.

to

The 400GBASE-ZR PCS payload is mapped into the payload area of the 400GBASE-ZR frame, starting at column 5141 of row 0 and ending at column 10 280 of row 255, using GMP. The payload size is 10 220 × 257B.

**Response**  **Response Status** C

ACCEPT.

---

TYPE: TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general
COMMENT STATUS: D/dispatched  A/accepted  R/rejected  RESPONSE STATUS: O/open  W/written  C/closed  Z/withdrawn
SORT ORDER: Comment ID

Comment ID 13  Page 3 of 9
8/30/2021 9:26:06 AM
The AMs are used to locate the row that is the start of the frame, not the row number. There is also a stray comma before the parenthetical phrase.

**Suggested Remedy**

Change: AM alignment is processed post-FEC decode, after descrambling, to locate the row number corresponding to the start of the 400GBASE-ZR frame, (SC-FEC being already 10 970 bit row aligned).

To AM alignment is processed post-EC decode, after descrambling, to locate the row corresponding to the start of the 400GBASE ZR frame (SC-FEC being already 10 970 bit row aligned).

**Response**

Response Status C

ACCEPT IN PRINCIPLE. There are a couple of typos in the suggested remedy.

Change: AM alignment is processed post-FEC decode, after descrambling, to locate the row number corresponding to the start of the 400GBASE-ZR frame, (SC-FEC being already 10 970 bit row aligned).

To AM alignment is processed post-EC decode, after descrambling, to locate the row corresponding to the start of the 400GBASE-ZR frame (SC-FEC being already 10 970 bit row aligned).

**Comment Type T**

**Comment ID** 15

**Huber, Tom**

**Nokia**

**SC 155.2.4.4.1**

**P40**

**L 6**

**CI 155**

The reference to G.709.1 at the end of the paragraph should be preceded by ITU-T

**Suggested Remedy**

Insert "ITU-T" before "G.709.1".

**Response**

Response Status C

ACCEPT.
The last two paragraphs would be better combined, with the clause in the first sentence of the final paragraph concerning the location of the MBAS field removed (that information is already provided in the first sentence of the next-to-last paragraph).

**Suggested Remedy**

Replace the last two paragraphs with:

Following the CRC-32 a 6-bit MBAS is added. The MBAS is used by the SC-FEC encoder and decoder to synchronize the state of the error de-correlator controllers between the receiver and the transmitter. The staircase FEC implementation uses a 7-bit MBAS which provides a 128-block sequence. The six most significant bits of the 7-bit MBAS are transferred between source and sink in the 6-bit MBAS overhead. The numerical value represented in the six MBAS overhead bits is incremented every two SC-FEC blocks and provides a 128-block multi-block.

**Response**

**Comment Type** E  **Comment Status** A  **MBAS description**

Huber, Tom  
Nokia

**Suggested Remedy**

Replace the italicized x's in the formula with multiplication symbols.

**Response**

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

Huber, Tom  
Nokia

**Suggested Remedy**

Change "5 x SC-FEC blocks" to "five SC-FEC blocks"

**Response**

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

Huber, Tom  
Nokia

**Suggested Remedy**

Change: 
"which are added to the 400GBASE-ZR SC-FEC frame as illustrate in Figure 155-5." to "which are added to the 400GBASE-ZR SC-FEC frame as illustrated in Figure 155-5."

**Response**

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

Huber, Tom  
Nokia

**Suggested Remedy**


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**Comment ID 24**

Huber, Tom Nokia

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

Bits should be spelled out, and no need to describe the size of the padding again here since it is already clearly described in 155.2.4.7

**Suggested Remedy**

Change the first sentence from:

"The scrambled output from the SC-encoder plus 6x119b padding is organized as 10 976 rows of 119b."

To:

"The scrambled output from the SC-encoder plus padding is organized as 10 976 rows of 119 bits."

**Response**  **Response Status** C

ACCEPT.

**Comment ID 25**

Huber, Tom Nokia

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

Multiplication should be indicated with a multiplication symbol rather than an x.

**Suggested Remedy**

Replace the x's here and elsewhere on the page, including the end of 155.2.5.6 on the next page, with multiplication symbols.

**Response**  **Response Status** C

ACCEPT.

**Comment ID 26**

Huber, Tom Nokia

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

Multiplication should be indicated with a multiplication symbol rather than an x.

**Suggested Remedy**

Replace the x's in the first two paragraphs with multiplication symbols.

**Response**  **Response Status** C

ACCEPT.

**Comment ID 27**

Huber, Tom Nokia

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

The first sentence of the second paragraph is grammatically awkward

**Suggested Remedy**

Change "The beginning of each 400GBASE-ZR frame will have the AM and OH fields within the first 20 x 257B, and are repeated every 10 240 x 257B."

To:

"The beginning of each 400GBASE-ZR frame will have the AM and OH fields within the first 20 x 257B, and these fields are repeated every 10 240 x 257B."

**Response**  **Response Status** C

ACCEPT.

**Comment ID 28**

Huber, Tom Nokia

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

Multiplication should be indicated with a multiplication symbol rather than an x.

**Suggested Remedy**

Replace the x's in both formulas in the paragraph with multiplication symbols.

**Response**  **Response Status** C

ACCEPT.

**Comment ID 29**

Huber, Tom Nokia

**Comment Type** T  **Comment Status** R

Since the value of SIGNAL_DETECT is fixed to OK, and therefore not dependent on the amount of light being received, the NOTE needs to be revised.

**Suggested Remedy**

NOTE—SIGNAL_DETECT = OK does not guarantee that the rx_symbol parameters are known to be good. It is possible for a poor quality link to provide sufficient light for a SIGNAL_DETECT = OK indication and still not meet the BER defined in 156.1.1.

To:

NOTE - SIGNAL_DETECT = OK does not guarantee that the rx_symbol parameters are known to be good or that the BER defined in 156.1.1 will be met.

**Response**  **Response Status** C

REJECT.

Wording is identical to the wording in recently published 802.3ct.
Agreed upon language from 802.3ct, which is a ratified standard should be used in appropriate situations.

**Suggested Remedy**

Under Value in Table 156-4, the frequency in Table 156-4 corresponding to the variable Rx_optical_channel_index to the frequency in Table 156-4 where the channel index number equals the variable Rx_optical_channel_index.

**Response**

**Response Status:** C

**ACCEPT.**

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**Comment ID:** 31

**Cl:** 156A

**SC:** 156A.2

**P:** 89

**L:** 37

**#:** 51

D'Ambrosia, John

Futurewei, US Subsidiary of Huawei

**Comment Type:** TR

**Comment Status:** A

The stated average receive power (min) is incorrectly stated as -16 dBm, when it should be -12 dBm -

The operating ranges in Figure 156A–3 can be roughly divided into 2 areas, one where the OSNR is between TBD dB (12.5 GHz) and TBD dB (12.5 GHz) together with an average optical power at TP3 between 0 dBm and –16 dBm.

**Suggested Remedy**

Change the -16 dBm in the noted sentence to -12, and modify the TBD in Fig 156A-3 to reflect this change in value.

**Response**

**Response Status:** C

**ACCEPT IN PRINCIPLE.**

Make the modifications as proposed and modify figure 156A-3 to reflect the change from -16dBm to -12dBm.

---

**Comment ID:** 33

**Cl:** 116

**SC:** 116.1.4

**P:** 29

**L:** 38

**#:** 54

D'Ambrosia, John

Futurewei, US Subsidiary of Huawei

**Comment Type:** TR

**Comment Status:** A

Clause 119 and 120 are not mandatory for 400GBASE-ZR

**Suggested Remedy**

For 400GBASE-ZR - change Clause 119 and 120 from "M" to "O"

**Response**

**Response Status:** C

**ACCEPT.**
IEEE P802.3cw D1.1 400 Gb/s over DWDM systems 2nd Task Force review comments

Cl 156 SC 156.1 P63 L21 # 35
D'Ambrosia, John Futurewei, US Subsidiary of Huawei

Comment Type TR Comment Status A
400GBASE-R PCS (119) and 400GBASE-R PMA (120) are not noted

Suggested Remedy
update table to include clauses 119 and 120 as optional
Response Response Status C
ACCEPT.

Cl 156 SC 156.9.6 P78 L42 # 38
Issenhuth, Tom Huawei

Comment Type E Comment Status A
Figure 156-5 is incomplete.

Suggested Remedy
Complete figure 156-5 to be consistent with the figure in the published OIF 400ZR IA 13.1.210
Response Response Status C
ACCEPT.

Cl 156 SC 156.9.10 P79 L18 # 39
Issenhuth, Tom Huawei

Comment Type T Comment Status A
EVM definition in incomplete.

Suggested Remedy
Update EVM definition based on output from EVM ad hoc
Response Response Status C
ACCEPT IN PRINCIPLE.
Insert text from issenhuth_3cw_02_210824 to replace current text in 156.9.10 with editorial license.

Cl 156 SC 156.7.1 P71 L48 # 40
Issenhuth, Tom Huawei

Comment Type E Comment Status A
Sentence does not contain location of definitions.

Suggested Remedy
Add location of definitions.
Response Response Status C
ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID
Comment Type: E

Sentence does not contain location of definitions.

Suggested Remedy:
Add location of definitions.

Response: Response Status: C

ACCEPT.