IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

**Comment ID** 3197

**Cl 45 SC 45.2.1.107.1 P 36 L 24 # 3197
Remain, Duane Huawei Technologies**

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

Ref to 101.4.3.8 incorrect

**SuggestedRemedy**

to change to 101.4.2.5.4

**Response**

Response Status C

ACCEPT IN PRINCIPLE.
Use 101.4.2.5.5 (where param CntPitSF is defined)
See topic VarXRef

**Comment ID** 3198

**Cl 45 SC 45.2.1.108 P 37 L 12 # 3198
Remain, Duane Huawei Technologies**

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

this statement is slightly misguided
"Sets the CLT output port to a muted state for text purposes"

**SuggestedRemedy**

to change text to test

**Response**

Response Status C

ACCEPT.

**Comment ID** 3199

**Cl 45 SC 45.2.7a.5 P 54 L 48 # 3199
Remain, Duane Huawei Technologies**

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

The referenced register should be 12.10241.
"same bit structure as that of register 12.10242."

**SuggestedRemedy**

to change The remaining registers
12.10242 to 12.10241

**Response**

Response Status C

ACCEPT IN PRINCIPLE.
Change the end of the sentence from
"of register 12.10242" to
"of register 12.10241"

**Comment ID** 3200

**Cl 76 SC 67.6.3 P 69 L 21 # 3200
Remain, Duane Huawei Technologies**

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

Unlinked ref to 103.3.3.2

**SuggestedRemedy**

make it a live link (103.3.3.2 is correct).

**Response**

Response Status C

ACCEPT IN PRINCIPLE.
It is a live link when tested to 103.3.3.2. Need to change color from magenta to black.

**Comment ID** 3201

**Cl 100 SC 100.1.2 P 74 L 15 # 3201
Remain, Duane Huawei Technologies**

**Comment Type** ER **Comment Status** A

Cross references to the amendment, such as "Figure 67-2a" should be live using cross-reference formal Clause, section, Figure #, Equation # or Table #. Those to objects in the standard and not included in the amendment should be in character style "External"

**SuggestedRemedy**

Correct all cross references styles.

**Response**

Response Status C

ACCEPT IN PRINCIPLE.
Figure 67-2a does not exist.
Otherwise, will check for conformance.

**Comment ID** 3202

**Cl 100 SC 100.1.3 P 76 L 50 # 3202
Remain, Duane Huawei Technologies**

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

This editors note has served it's purpose:
"EDITORS NOTE (to be removed prior to publication): US Block diagram needs to reflect symbol duplication for PHY Link Discovery Response message."

**SuggestedRemedy**

remove

**Response**

Response Status C

ACCEPT.
### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

#### Approved Responses

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<thead>
<tr>
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<td>Text to address Editors note:</td>
<td>Editors NOTE (to be removed prior to publication): need to evaluate adding data rate for OFDM/A (reference point MDI) as part of the definition.</td>
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<tr>
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<td></td>
<td></td>
<td>&quot;The 10GPASS-XR-D and 10GPASS-XR-U PMDs both have a variable rate that is determined when configured. See Equation (100-1) and Equation (100-2) for additional information on the 10GPASS-XR-D and 10GPASS-XR-U data rates respectively.&quot;</td>
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<td>Page 2 of 35</td>
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<td>12</td>
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<td>Use of appropriate(ly) is inappropriate.</td>
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<td></td>
<td>&quot;... the appropriately formatted stream of I / Q value pairs ...&quot;</td>
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<td></td>
<td></td>
<td></td>
<td>The appropriate format is clearly stated in the previous para (32-bit signed int).</td>
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<td>The same issue exists in 100.2.1.3, 100.2.2. &amp; 100.2.3.</td>
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<td></td>
<td>Note that this interface is not exposed and therefore is not normative, rather this is properly stated as a behavior.</td>
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<td><strong>SuggestedRemedy</strong></td>
<td>strike &quot; appropriately formatted&quot; (5x).</td>
<td></td>
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<td><strong>Response</strong></td>
<td><strong>Response Status</strong></td>
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<td>42</td>
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<td></td>
<td><strong>Comment Type</strong></td>
<td>This points to 102.2.1.2 &amp; 102.3.1.2 which points here, very circular.</td>
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<tr>
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<td></td>
<td>&quot;Modulation format for PHY Link is specified in 102.2.1.2 and 102.3.1.2.&quot;</td>
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<td></td>
<td><strong>SuggestedRemedy</strong></td>
<td>Change to read:</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>&quot;See 102.2.1.2 and 102.3.1.2 for a description of downstream and upstream PHY Link modulation respectively.&quot;</td>
<td></td>
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<td><strong>Response</strong></td>
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**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
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

### Approved Responses

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<tr>
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</tr>
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<td>3211</td>
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<td>ACCEPT.</td>
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</table>

**Comment 3208**

Cl 100 SC 100.2.6.1

Remain, Duane

Huawei Technologies

**Comment Type**: ER

**Comment Status**: A

**Response**: ACCEPT.

Eradicate Cl 45 ref.

"The CLT calculates the downstream PMA data rate after any configuration update that changes the downstream profile descriptor for any channel or the Cyclic Prefix size. See 45.2.7.a.1 and Table 45-191c."

**Suggested Remedy**

Change to:

"The CLT calculates the downstream PMA data rate after any configuration update that changes the downstream profile descriptor variables DS_ModTypeSC(n) or for any change to the cyclic prefix size DS_Ncp. See 101.4.2.3.5 and 101.4.2.11.1."

**Response**: ACCEPT.

**Comment 3209**

Cl 100 SC 100.2.6.2

Remain, Duane

Huawei Technologies

**Comment Type**: ER

**Comment Status**: A

**Response**: ACCEPT.

Eradicate Cl 45 ref.

"The CLT calculates the upstream PMA data rate after any configuration update that changes the upstream profile descriptor for the channel or the Cyclic Prefix size. See 45.2.7.a.2 and Table 45-191c."

**Suggested Remedy**

Change to:

"The CLT calculates the upstream PMA data rate after any configuration update that changes the upstream profile descriptor variables US_ModTypeSC(n) or for any change to the cyclic prefix size US_Ncp. See 101.4.2.3.5 and 101.4.2.11.1."

**Response**: ACCEPT.

**Comment 3210**

Cl 101 SC 101.4.2.1

Remain, Duane

Huawei Technologies

**Comment Type**: TR

**Comment Status**: A

**Response**: ACCEPT IN PRINCIPLE.

"Channel loading consists of a single OFDM channel with no other signals" conflicts with the following requirement in Cl 101:

"OFDM channel 1 shall always be enabled."

**Suggested Remedy**

Change requirement to read:

"OFDM channel 1 shall always be enabled except during RxMER testing (see 100.3.2)."

**Response**: ACCEPT IN PRINCIPLE.

"OFDM channel 1 shall always be enabled but is muted during RxMER testing (see 100.3.2)."
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Draft 1.3

Comment ID 3212

Cl 00 SC 0 P 175 L 27 # 3212

Remein, Duane
Huawei Technologies

Comment Type T Comment Status A

EDITORS NOTE (to be removed prior to publication): the above variable definition of DS_FreqCh(n), taken from 45.2.1.109 should be moved to Cl 100 and referenced in the above para. The details in Cl 45 should be removed to avoid duplicate definitions and a cross reference to the location in Cl 100 provided. A complementary definition for the US OFDMA channel center frequency is also needed in Cl 100.

Suggested Remedy

Move DS_FreqCh(n) definition to 100.2.7.1.
Change definition in 101.4.2.10.1 to read: "See 100.2.7.1."

Change text of 45.2.1.109.1 from
"Register bits 1.1902.15:0 specify the center frequency, in steps of 50 kHz, of subcarrier 0 for the first OFDM channel. Subcarriers are numbered from 0 to 4095 with subcarrier 0 at the lowest frequency. This definition equates to a subcarrier 0 center frequency of from 54.0 to 3,276.75 MHz in 50 kHz steps. The minimum value for this register is 1080. See 101.4.2.12 for additional details."
To:
"Register 1.1902 specifies the center frequency for the first OFDM channel. This register is a reflection of the DS_FreqCh(1) defined in 100.2.7.1."

Similarly change 45.2.1.109.2 thru 45.2.1.109.5 to read:
"Register 1.190x specifies the center frequency for the second OFDM channel. This register is a reflection of the DS_FreqCh(x) defined in 100.2.7.1." Replacing x and second with the appropriate numbering.

Response
ACCEPT.

Comment ID 3213

Cl 45 SC 45.2.1.110.1 P 40 L 41 # 3213

Remein, Duane
Huawei Technologies

Comment Type T Comment Status A

Duplicate definitions
Register bit 1.1907:7 indicates the number of OFDM symbols in a Resource Block in the upstream direction. When this bit is set to a zero there are 8 symbols per Resource Block. When this bit is set to a one there are 16 symbols per Resource Block.

101.4.4.3.3 pg 182 ln 1
RBsize
TYPE: boolean
This variable determines the size of the upstream Resource Blocks. When RBsize is TRUE then Resource Block size is 16 symbols, When RBsize is FALSE then Resource Block size is 8 symbols.

EDITORS NOTE (to be removed prior to publication): This definition duplicates that in Cl 45.2.1.110. Only one should be kept.

Suggested Remedy

change 45.2.1.110.1 to read:
Register bit 1.1907:7 indicates the number of OFDM symbols in a Resource Block in the upstream direction. This bit is a reflection of RBsize defined in 101.4.4.3.3."

Response
ACCEPT.

Comment ID 3214

Cl 45 SC 45.2.1.112.4 P 42 L 14 # 3214

Remein, Duane
Huawei Technologies

Comment Type T Comment Status A

Type 1 Start is between 0 and 15 not 0 and 31

Suggested Remedy

change 31 to 15

Response
ACCEPT.
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<th>Comment ID</th>
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<th>P</th>
<th>L</th>
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<th>Response</th>
<th>Response Status</th>
<th>Proposed Response</th>
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<td>45</td>
<td>53</td>
<td>20</td>
<td>Cl 45 SC 45.2.7a.3</td>
<td>T</td>
<td>A</td>
<td>This statement could be clearer: “Each number is a 16-bit signed fractional two's complement number.”</td>
<td></td>
<td></td>
<td>Change to “Each number is a 16-bit signed fractional number conforming to the Q2.14 format.”</td>
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<tr>
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<td>101</td>
<td>179</td>
<td>47</td>
<td>Cl 101 SC 101.4.3.3</td>
<td>T</td>
<td>A</td>
<td>The following statement needs to be updated now that we have no time interleaver: “Each Resource Block is composed of one subcarrier and has a duration identical to the time interleaver period as set using the RBsize variable, of either 8 or 16 symbols. See RB size parameter in the 10GPASS-XR US OFDM control register 45.2.1.110.1. Changing the Resource Block duration results in a network restart.”</td>
<td></td>
<td></td>
<td>Change to: “Each Resource Block is composed of one subcarrier and has a duration of either 8 or 16 symbols and is set using the RBsize variable. Changing the Resource Block duration results in a network restart.”</td>
</tr>
<tr>
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<td>00</td>
<td>44</td>
<td>16</td>
<td>Cl 00 SC 0</td>
<td>T</td>
<td>D</td>
<td>PHY Discovery is now included in the EPoC Probe Control Header message. Therefore we don't need the PHY Discovery start variable to CL 45 Register 1913 &amp; 1914</td>
<td>Review</td>
<td></td>
<td>Remove PHY Discovery control register from Cl 45 (mark Register 1913 &amp; 1914 as reserved in Table 45-3 and remove 45.2.1.116)</td>
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<td>02</td>
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<td>16</td>
<td>Cl 102 SC 102.4.3</td>
<td>T</td>
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<td>Are the following variables needed at the CNU for Link-up declaration? Type2_Repeat Type2_Start Type1_Repeat Type1_Start</td>
<td></td>
<td></td>
<td>Add to Table 102-13 mark both PHY Discovery and Link-Up as “Y”</td>
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<tr>
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<td>In table 102-13 US_BlockTypeSC(0) through US_BlockTypeSC(TBD) are not used in draft.</td>
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<tr>
<td>3220</td>
<td>T</td>
<td>A</td>
<td>Is DS &amp; US data rate calculated at CNU or configured? If configured then add to Table 102-13 and 102-1. If calculated then this should be specified in Cl 100.</td>
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<td>Need to provide a variable and register to indicate the time required for CNU to respond to the DS PHY Link</td>
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<tr>
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<td>For variables defined in Cl 45 MMD 1 use register address minus 1900 per current rule. This will result in indices of 0 - 38 for currently defined registers.</td>
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**Response**

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</tr>
<tr>
<td>3222</td>
<td></td>
<td>C</td>
<td>ACCEPT.</td>
</tr>
</tbody>
</table>

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**EDITORS NOTE (to be removed prior to publication):** not all variables need to be included in Cl 45. We need to determine how to index variables that need to be communicated over the PHY Link that are not included in Cl 45. Current "rule" is:

- If 1.1900 <= RegAdd <= 1.1999 Then Index = (RegAdd - 1.1900)*1000 (i.e., 0-99)
- As of Draft 1.3 38 indexes in this range were in use.
- If 12.0000 <= RegAdd Then Index = (RegAdd - 12.0000)*1000 + 100 (i.e., 100+)

For variables defined in Cl 45 MMD 12 use register address + 1000. Thus registers 12,0000 to 12,10241 will use indices 1000 to 11241. Update Tables 100-1, 101-1, 102-3 and 102-13. Remove editors note.

**Response**

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<tbody>
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<td>ACCEPT.</td>
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</table>
Comment Type: E  Comment Status: A  VarXRef
Xref update for:
See [ref] for a definition of this register

SuggestedRemedy
Change [ref] to "variable FecCodeWordCount in 101.3.3.1.5 and Table 101-1"

Response
Response Status: C
ACCEPT IN PRINCIPLE.
See topic VarXRef
See Response to comment #3316
Another pesky Cl 45 ref.
"The CLT calculates the downstream PMA data rate after any configuration update that changes the downstream profile descriptor for any channel or the Cyclic Prefix size. See 45.2.7a.1 and Table 45-191c."

Strike:
"or the Cyclic Prefix size. See 45.2.7a.1 and Table 45-191c."

Note that changing the CP (or window size) causes a network restart and this will presumably cause a recalculation of data rate.

**Response**

**Response Status:** AC

**Comment Status:** A

Per comment
Check if there exists a list of items that result in a nework restart. If exists ensure CP in included if not create.

Footnotes do not appear to be connected to the Table but appear as separate text.

**Response**

**Response Status:** AC

**Comment Status:** A

For all table in this clause ensure the table footnotes are part of the table and not separate text of style "footnote". Footnotes not called out in individual table cells can be attached to the table title or column heading as appropriate.

"Ncp" should be USNcp at Cl 100 pg 94 In 12,

**Response**

**Response Status:** AC

**Comment Status:** A

"Ncp" should be USNcp at Cl 100 pg 94 In 12,
<table>
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<th>Comment ID</th>
<th>Page 9 of 35</th>
</tr>
</thead>
<tbody>
<tr>
<td>#3232</td>
<td></td>
<td>#3233</td>
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</tr>
</tbody>
</table>

**Comment Type E**

Inconsistent register name
- pg 31 ln 14 10GPASS-XR FEC success counter
- pg 48 ln 47 10GPASS-XR FEC codeword success counter
- pg 48 ln 49 10GPASS-XR FEC codeword counter success
- pg 49 ln 5 10GPASS-XR FEC codeword counter
- and in table 101-1 (3x)
- pg 113 ln 20 10GPASS-XR FEC success count & 10GPASS-XR FEC codeword success counter

Likewise in 45.2.1.127
- pg 31 ln 16 10GPASS-XR FEC fail counter
- pg 49 ln 16 10GPASS-XR FEC codeword fail counter
- pg 49 ln 18 10GPASS-XR FEC codeword counter fail
- pg 49 ln 27 10GPASS-XR FEC codeword counter fail
- and in table 101-1
- pg 113 ln 24 10GPASS-XR FEC fail count, 10GPASS-XR FEC codeword fail counter & Fec codeword fail count

**Suggested Remedy**

Consistently use
10GPASS-XR FEC codeword success counter
10GPASS-XR FEC codeword fail counter

**Response**

ACCEPT.

---

**Comment Status A**

**Response Status C**

Remein, Duane
Huawei Technologies

---

**Comment Type ER**

After consulting with the WG Secretary I believe that 802.3bx is sufficiently stable that we can make this change now so as to catch any editorial errors before WG ballot.

EDITORS NOTE (to be removed prior to publication): Paragraph and register numbering will need to be reviewed and updated after release of 802.3 2015.

**Suggested Remedy**

Renumber Cl 45 as follows
- 45.2.1.13a -> 45.2.1.14a
- Table 45-15b -> 45.17a
- 45.2.1.107 -> 45.2.1.131 renumber subsequent subclauses as appropriate
- Table 45–78a -> Table 45–98a renumber subsequent Tables as appropriate

Update Editorial notes as appropriate

**Response**

ACCEPT.

See topic Cl 45 Renum

---

**Comment Type ER**

Renumber Clause per 802.3bx D2.1 plus editorial updates see related comments on 1.4.135a through 1.4.258a

**Suggested Remedy**

See remein_3bn_15_0315 and remein_3bn_15_0315CMP

**Response**

ACCEPT.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Draft 1.3

Comment ID 3235

Cl 00 SC 0 P 235 L 19 # 3235

Remen, Duane Huawei Technologies

Comment Type T Comment Status A

No such variable as NxtCNU_ID, Shouldn’t ref Cl 45 as normative.

SuggestedRemedy

Change 3 instances of NxtCNU_ID to AllwdCNU_ID.
Strike references to Cl 45 in this para: "(see 45.2.1.117)", "(see 45.2.1.120)" and "(see 45.2.1.121)"
Add "variables" to very end of para so it reads: "... write the CNU PHYTimingOffset and PHYPowerOffset variables."

Add the following definitions to 102.4.1.7.2
AllwdCNU_ID
TYPE: 15-bit integer
This variable is used to indicate to the 10GPASS-XR PHY a valid CNU_ID value. The value may be assigned to a new CNU when the associated CNU_ID assigned flag is set to zero, when the flag is set to one it is an indication that this value has already been assigned to a CNU and it should not be use for another CNU.

DS_OFDM_ID
TYPE: 3-bit integer
This variable is a pointer to one of the five possible OFDM channels in the downstream EPoC network. Thus when DS_OFDM_ID is set to a value of one variables DS_ModTypeSC(n) reflect the OFDM descriptor for OFDM channel one. When DS_OFDM_ID is set to a value of two variables DS_ModTypeSC(n) reflect the OFDM descriptor for OFDM channel two, etc.

In 45.2.1.117.2 pg 45 ln 13 change:
"See 102.4.1.6 for additional details on the use of these bits."

to:
"These bits are a reflection of the AllwdCNU_ID variable defined in 102.4.1.7.2."

In 45.2.7a.1 pg 49 ln 51 add the following:
"These bits are a reflection of the DS_OFDM_ID variable defined in 102.4.2.3.5.

Response Response Status C

ACCEPT.

Comment ID 3236

Cl 100 SC 100.2.8 P 86 L 31 # 3236

Remen, Duane Huawei Technologies

Comment Type T Comment Status A

Add definition of DS_ChCnt to Cl 100 and in tables 100-1

SuggestedRemedy

Add section 100.2.8.6 Variables
DS_ChCnt
TYPE: 3-bit integer
This variable indicates the number of downstream OFDM channels in use. The value of DS_ChCnt is between 1 and 5.

Response Response Status C

ACCEPT IN PRINCIPLE.

Need to be included with changes in laubach_3bn_05a_0315.pdf accepted in motion #5

Comment ID 3237

Cl 103 SC 103.2.2.1 P 262 L 2 # 3237

Remen, Duane Huawei Technologies

Comment Type T Comment Status A

derivation of values for FEC_PARITY_SIZE and FEC_PAYLOAD_SIZE can be less obfuscated.

SuggestedRemedy

NOT FINAL

Change value for
FEC_PARITY_SIZE from
"227" to

and for FEC_PAYLOAD_SIZE from
"1760" to "1760 (220 block of 64-bits as seen from the MAC Table 101-2)

Response Response Status C

ACCEPT.
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</table>
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Draft 1.3

Response

Response Status: C

ACCEPT IN PRINCIPLE.
As proposed for DS constants.
Use DS_FEC_CW_Sz
DS_FEC_Prty_Sz
DS_FEC_PldSz

Functions to be addressed with US Idle deletion definition (volunteer needed!).

Comment ID: 3244
Page 12 of 35
3/12/2015 6:48:58 AM

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: 3245**

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

"If CRC40ErrCtrl is set to enable and the calculated value*  
We typically use TRUE or FALSE

**Suggested Remedy:**  
change "enable" to "TRUE"

**Response:**  
ACCEPT.  
(TRUE & FALSE are also used in the def. pg 144)

---

**Comment ID: 3246**

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

The following can be worded better:  
"Downstream pilots are comprised of subcarriers modulated with a predefined pattern  
known to all CNUs. The pilot information is conveyed via the Pilot Insertion function (see  
Figure 100–2)."

The term pattern when associated with pilots typically refers to the order of the Pilots in the  
frame. It is not clear what pilot information is in this context.

**Suggested Remedy:**  
Change to read:  
"Downstream pilots are comprised of subcarriers modulated with a predefined data  
sequence known to all CNUs. The pilot data sequence is conveyed via the Pilot Insertion  
function (see Figure 100–2)."

**Response:**  
ACCEPT IN PRINCIPLE.  
Add ref to 101.4.2.9 along with Figure 100-2

---

**Comment ID: 3247**

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

Duplicate requirements:  
"The CLT shall define a set of continuous pilots distributed as uniformly as possible (see  
below) over the entire OFDM spectrum in addition to the predefined continuous pilots  
described in 101.4.3.5.3.* (Pg 162 In 3)
and  
"The CLT shall place continuous pilots (excluding the eight continuous pilots around the  
PHY Link) per the 8 Steps below after calculating a value for NCP using Equation (101–6)."  
(pg 162 In 12)

**Suggested Remedy:**  
Keep the latter and change the former to read:  
"The CLT defines a set of continuous pilots ..."

**Response:**  
ACCEPT.  
Related comment #3276

---

**Comment ID: 3248**

**Comment Type:** T  **Comment Status:** A  
Review MinUS_SC

Check that we specify min/max active subcarriers (was Table 101-12 in D1.2)  
Pg 157 In 1  DS Min in Table 101-8 (40 SC)  
Pg 87 In 43  DS Max as encompassed spectrum in Table 100-3  
pg 182 In 23 US min - Table 101-13 (40 SC)  
US Max - as max encompassed in Table 101-13

**Suggested Remedy:**  
Impacts Cl 101 & possibly 100  
Rationalize Tables 101-8 with Table 100-3 and Table 101-13 with expected new table in  
100 addressing CNU RF output requirements

**Response:**  
ACCEPT IN PRINCIPLE.  
Change Units in 1st row to "subcarriers"  
For US table 101-13 see comment #3330
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**Comment 3249**

**Comment Type**: T  
**Comment Status**: A  
**Response**: C  
**Comment**: These two sentences say the same thing in differing detail.  
"Low Density Pilots contain data but at a bit loading lower than what the resource element would normally use. The Low Density Pilot resource element is modulated using the higher modulation order of either BPSK or 4 bits lower than the bit loading specified in the ModTypeSC(n) variable for that subcarrier."

**Suggested Remedy**: Keep the last sentence and strike the first.

**Response**: ACCEPT.

---

**Comment 3250**

**Comment Type**: T  
**Comment Status**: A  
**Comment**: Eq 101-24 and the subsequent para (below) are a bit confusing. How does Ck(i) and Ak(i) relate to EQ_CoefR(k) and EQ_CoefI(k)?

"where Ck(i) is the pre-equalizer coefficient of the k-th subcarrier as used in the last probe transmission, Ck(i+1) is the updated pre-equalizer coefficient of the k-th subcarrier and Ak(i) is the coefficient information received via the PHY Link update. "×" indicates a complex multiplication. The variables EQ_CoefR(k) and EQ_CoefI(k) are updates to the real and imaginary (respectively) coefficient values in the form of I+jQ where I and Q are both using 16-bit fractional two's complement notation (Q2.14 format)."

**Suggested Remedy**: change to read:  
"... and Ak(i) is the coefficient update, variables EQ_CoefR(i) and EQ_CoefI(i) (see 101.4.3.13.2), received via the PHY Link. The symbol "×" indicates a complex multiplication."  
Note the removed info on update variables is in the subclause referenced.

**Response**: C  
**Response Status**: ACCEPT IN PRINCIPLE  
**Change to Equation**: change equation to assinment:  
C(k) <= C(k) x A(k)

change sentence following eq to read:  
"where C(k) is the pre-equalizer coefficient of the k-th subcarrier as used in the last probe transmission, and A(k) is the coefficient update in variables EQ_CoefR(k) and EQ_CoefI(k) (see 101.4.3.13.2), received via the PHY Link. The symbol "×" indicates a complex multiplication."
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Response #3253

**Cl 00 SC 0 P 80 L 53 # 3253**

Remein, Duane
Huawei Technologies

**Comment Type** T  **Comment Status** A  **Nrp/Ncp**

Two names for US cp and windowing (US_Nrp => USNrp). Names can be aligned with DS (Cl 45, 101, 102 and possibly others)

**SuggestedRemedy**

Change all instance of “US_Nrp” to “USNrp” (4x; Cl 100 pg 80 ln 53, Cl 101 pg 112 ln 29, Cl 102 pg 233 ln 29 & Fig 102-29 pg 234 ln 16)

and

“US_Ncp” to “USNcp” (8x; Cl 100 pg 81 ln 6, Fig 100-6 pg 94 ln 24, Cl 101 pg 112 ln 30, Cl 102 pg 233 ln 28, Fig 102-21 pg 234 ln 15, 16, 17, 22)

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

ACCEPT.

Response #3254

**Cl 100 SC 100.1.3 P 76 L 9 # 3255**

Remein, Duane
Huawei Technologies

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

In Fig 100-2 & 100-3 we illustrate a “RATE ADAPTATION” functional block. In Cl 101.3.2 (pg 120 ln 4) this is referred to as “an Idle control character deletion function performing the function of data rate adaptation”. In section 5 of the standard (76.3.2 Fig 76-7 & 76-8) this is referred to as “Idle Deletion”. We should be consistent with the standard.

See related comment against 101.3.2 pg 120 ln 4

**SuggestedRemedy**

Change “RATE ADAPTATION” to “IDLE DELETION” in Figure 100-2 & 100-3 and to “IDLE INSERTION” in Figure 100-4 & 100-5

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

ACCEPT.

See Related cmt #3256

Response #3255

**Cl 00 SC 0 P 244 L 7 # 3254**

Remein, Duane
Huawei Technologies

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

Variables listed in Table 102-13 needs to be aligned with those named in Table 102-1 (and Cl 100 & 101).

**SuggestedRemedy**

See remein_3bn_16_0315.pdf for update to Table 102-13.

Add to Tables 101-1 & 102-1

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

ACCEPT.

Response #3256

**Cl 101 SC 101.3.2 P 120 L 4 # 3256**

Remein, Duane
Huawei Technologies

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

This statement can be better worded:

"the EPoC PCS includes an Idle control character deletion function performing the function of data rate adaptation and a FEC overhead compensation followed by a 64B/66B encoder, and a mandatory FEC encoder."

(also see related comment against 100.1.3, pg 76 ln 9)

**SuggestedRemedy**

Change to read:

"the EPoC PCS includes an Idle Deletion function that performs data rate adaptation and FEC overhead compensation, followed by a 64B/66B Encoder, and a FEC Encoder / Data Detector."

In Cl 101 replace:

15 instances of "Idle control character deletion process" with "Idle Deletion process"

14 instances of "FEC encoder" with "FEC Encoder"

12 instances of "64B/66B encoder" with "64B/66B Encoder"

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

ACCEPT.

Released cmt #3256
Response #3257
Cl 101 SC 101.3.2.1 P 120 L 18 # 3257
Remain, Duane Huawei Technologies

Comment Type T Comment Status A
This statement is self contradictory:
"to decrease the data rate between the MAC and PHY, while maintaining the effective data rate unchanged (data rate adaptation sub-process)"

SuggestedRemedy
Change to read:
"to decrease the data rate between the MAC and PHY (data rate adaptation sub-process)"

Response Response Status C
ACCEPT IN PRINCIPLE.
"to decrease the effective data rate between the MAC and PHY (data rate adaptation sub-process)"

Response #3258
Cl 101 SC 101.3.2.1 P 120 L 35 # 3258
Remain, Duane Huawei Technologies

Comment Type E Comment Status A
This statement is conflicts with the preceding sentence which states that, once Idle Deletion is complete no excess Idles remain in the data stream:
"sufficient number of excess Idle control characters are present in the data stream, so that the minimum IPG between two adjacent frames is preserved once all excess Idle control characters are removed"

SuggestedRemedy
Strike first "excess" so the statement reads:
"sufficient number of Idle control characters are present in the data stream, so that the minimum IPG between two adjacent frames is preserved once all excess Idle control characters are removed"

Response Response Status C
ACCEPT.

Response #3259
Cl 101 SC 101.3.2.1 P 111 L 25 # 3259
Remain, Duane Huawei Technologies

Comment Type E Comment Status A
Cl 101 also uses the floor function symbols (see Eq 101-3)

SuggestedRemedy
Add definition of floor symbol (copy from Cl 100.1.1 pg 74 in 25)

Response Response Status C
ACCEPT.

Response #3260
Cl 101 SC 101.3.2.1.2 P 121 L 17 # 3260
Remain, Duane Huawei Technologies

Comment Type T Comment Status A
countVector defined twice, here and in 101.3.3.2 with different definitions
101.3.2.1.2
TYPE: 16-bit unsigned integer
Counts the number of 72-bit vectors transmitted after the removal of Idle characters as part of data rate adaptation and FEC overhead compensation.
101.3.3.2
TYPE: 16-bit unsigned integer
This variable represents the number of 72-bit vectors stored in the FIFO_II at the given moment of time.

SuggestedRemedy
Change variable name in 101.3.2.1.2 to countVectorT and in Fig 101-2 (4x)

Response Response Status C
ACCEPT.

Response #3261
Cl 00 SC 0 P 68 L 24 # 3261
Remain, Duane Huawei Technologies

Comment Type ER Comment Status A
18 instances of "Editor’s Note"

SuggestedRemedy
Change to "EDITORS NOTE"

Response Response Status C
ACCEPT.

Response #3262
Cl 101 SC 101.3.2.5.4 P 132 L 46 # 3262
Remain, Duane Huawei Technologies

Comment Type E Comment Status A
This empty section is a duplicate heading with 101.3.2.5.6 (which has details)

SuggestedRemedy
Remove section heading and Editor’s Note.

Response Response Status C
ACCEPT.

Changed from Cl 100 to 101
Ensure this is aligned with any contributions in this area.
The para beginning "The 64B/66B encoder produces a stream of 66-bit blocks as shown in Figure 101–6 ..." does not describe the LDPC encoding process.

Suggested Remedy

Remove the para and reword this section to read:

"The 64B/66B encoder produces a stream of 66-bit blocks as shown in Figure 101–6 (see 49.2.4.3 for more details); each 66-bit block is composed of 2 bits of sync header and 64 bits of data. These 66-bit blocks are converted to 65-bit blocks by removing the redundant first bit (i.e., sync header bit <0>) in each 66-bit block received from the 64B/66B encoder and are then delivered to the FEC encoder and Data Detector input process. The FEC encoder accumulates BQ (see Table 101–2) of these 65-bit blocks to form the payload portion of the FEC codeword. Finally, the FEC encoder appends BP (see Table 101–2) padding bits (with the binary value of "0") to the payload of the FEC codeword as shown in Figure 101–6. The resulting FP bits are then passed to the LDPC-encoder. The LDPC-encoder generates FR bits of parity. After encoding, the encoder deletes the BP bits of padding and constructs the output codeword with a length of (FP - BP) + FR bits; i.e., (14400 - 60 ) + 1800 = 16140 bits. For transmit processing in the downstream direction, the codeword size is a constant and is represented by constant FEC_DS_CodeWordSize (see 101.3.2.5.2).

REJECT.

This comment was WITHDRAWN by the commenter.

See related comment #3264
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<td>It is not clear from Fig 101-6 and Fig 101-11 which sync header bits are added to the data stream. In Figure 76-12 and from the text in 2nd para of 101.3.2.5.2 &quot;LDPC encode process within CLT (downstream)&quot; it is clear. Figure 101-6 should match it's descriptive text.</td>
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**SuggestedRemedy**

Replace with illustration in remein_3bn_12_0315.pdf and remein_3bn_14_0315.pdf respectively (available in visio)

**Response**

ACCEPT IN PRINCIPLE.

Figure as proposed but change Fig 101-6 "Aggregate BQ 65B blocks & Calculate CRC40" to "Data detector, Aggregate BQ 65B blocks & Calculate CRC40"

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<td>The PCS section has gotten a bit disjointed and is poorly organized, with duplicate sections. Recommend reordering section. Made technical due to extent of change.</td>
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**SuggestedRemedy**

Recommend new outline as illustrated in remein_3bn_13_0315.pdf

**Proposed Response**

REJECT.

This comment was WITHDRAWN by the commenter.

Need to rationalize this with any contributions in this area.

---

**Comment ID** 3267
The reference to Cl 49.2.11 64B/66B decoding function needs some clarification as there are some difference in EPoC encoding (notably the lack of scrambling and single sync header bit).

**Suggested Remedy**

Change 101.3.2.2 to read:

"The EPoC PHY utilizes a 64B/66B encoder based on that described in 49.2.11 with several important differences. The EPoC 64B/66B decoder does not include a descrambler function as described in 49.2.10 and the input is a 65B block with a single sync header bit. The state diagram found in Figure 49-17 is followed after the addition of sync header bit <0> as illustrated in Figure 101–11."

Need to make similar changes in 101.3.2.2 pg 127 ln 47 (remove scrambler)

See comment related changes in #3264

**Suggested Remedy**

Consistently use US PHY data rate & DS PHY data rate

**Response**

ACCEPT.
Approved Responses

**Comment ID 3273**

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Remain, Duane
Huawei Technologies

**Comment**
Two tables labeled "CLT RF output requirements"; Table 100-3 & 100-5

**Suggested Remedy**
Change title for 100-5 to "CLT RF output power requirements"

**Response**
ACCEPT.

**Comment ID 3274**

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</table>

Remain, Duane
Huawei Technologies

**Comment**
Unique instances of DS_Ncp and DS_Nrp.

**Suggested Remedy**
change to DSNcp and DSNrp respectively.

**Response**
ACCEPT.

**Comment ID 3275**

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Remain, Duane
Huawei Technologies

**Comment**
This sub clause is duplicative of 101.4.3.8

**Suggested Remedy**
Remove blank subclause 101.4.3.10.

**Response**
ACCEPT.

**Comment ID 3276**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>A</td>
<td>C</td>
</tr>
</tbody>
</table>

Laubach, Mark
Broadcom

**Comment**
There are a number of "shall"s in this subclause, but the continuous pilot placement is normative in its entirety. Maybe one "shall" at the top?

**Suggested Remedy**
Consider placing a single statement at the start of this subclause. Suggestion of adding a first sentence: "The CLT shall follow continuous pilot placement requirements and procedures as defined in this subclause in their entirety." If yes, then consider replacing the occurrences of "shall"s in the subclause with active replacements; e.g. "shall follow" to "follows" or equivalent at editor's discretion.

**Response**
ACCEPT IN PRINCIPLE.

See comment #3247

**Comment ID 3277**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>T</td>
<td>A</td>
<td>C</td>
</tr>
</tbody>
</table>

Laubach, Mark
Broadcom

**Comment**
This sub clause is duplicative of 101.4.3.8

**Suggested Remedy**
Remove blank subclause 101.4.3.10.

**Response**
ACCEPT.
Comment Type: T  Comment Status: A

Response

ACCEPT.

This comment was captured during Clause 45 walking through on the socialization conference calls. I neglected to get more detail. So am unsure of the remedy, other than a suggestion to remove "bit definitions" from figure titles?

Suggested Remedy

Remove "bit definitions" from title.

---

Comment Type: T  Comment Status: A

Response

ACCEPT.

Change "45.2.1.119 DS PHY Link frame counter bit definitions (Register 1.1921)" to "45.2.1.119 DS PHY Link frame counter (Register 1.1921)"

---

Comment Type: T  Comment Status: A

Response

ACCEPT.

Change cross reference to "100.2.7.2".

---

Comment Type: T  Comment Status: A

Response

ACCEPT.

This will change with global renumbering comment. Editor discretion will need to validate numbers after this renumbering takes place. See Comment #3222.

Expect lines 24-31 "100" to go to "101", line 33, "101" to "102", etc. Also, lines 37-44, "2124" to "1124".

---

Comment Type: T  Comment Status: A

Response

ACCEPT.

Consider changing TxEnable to tx_enable, aligns variable with similar clauses that use an underscore, e.g. Clause 76. There are differences in settings from clause 75 "enable" and "disable" to clause 76 using "on" and "off".

Suggested Remedy

Change "TxEnable" to "Tx_Enable" where applicable in clauses. Change values from "ENABLE" and "DISABLE" to "ON" and "OFF" respectively to match use in Clause 76.

---

Comment Type: T  Comment Status: A

Response

ACCEPT IN PRINCIPLE.

Add Editors note to Cl 45 that we need to rationalize Tx Enable in Register 1.1900.0 with TxEnable as used in PON (laser on/off in 10G EPON).

---

Comment Type: T  Comment Status: A

Response

ACCEPT IN PRINCIPLE.

New upstream table, fix "see subclause 10.2.7.2".

Suggested Remedy

Change cross reference to "100.2.7.2".

---

Comment Type: T  Comment Status: A

Response

ACCEPT.

Expect lines 24-31 "100" to go to "101", line 33, "101" to "102", etc. Also, lines 37-44, "2124" to "1124".

---

Comment Type: T  Comment Status: A

Response

ACCEPT.

Consider taking out all RS text as EPoC does not modify the RS. Clause 101.2.4.2, keep title and first sentence and references. Do for Tx and Rx.

Suggested Remedy

Page 117, Line 10 Clause 101.2.4.2, keep title and first sentence and references. Remove subclauses 101.2.4.2.1 through 101.2.4.2.3.

Page 117, Line 46, keep title and add new first paragraph "The receive function of the EPoC RS is described in <green>65.1.3.3</green> with the exceptions as noted in <green>76.2.6.1.3</green>. The XGMII receive function is described in <green>46.3.2</green>." Remove remainder of text in this subclause, and subclauses 101.2.4.3.1 through 101.2.4.3.3.

---

Comment Type: T  Comment Status: A

Response

ACCEPT.
<table>
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<tr>
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<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response Status</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>3283</td>
<td>T</td>
<td>A</td>
<td>Consider replacing with DS_DataRate. Do sanity check on OFDM symbol rate, etc. Why is PLC separated out in this?</td>
<td>C</td>
<td>Accept in principle. Per suggestion but also replace &quot;PMD_Rate&quot; at pg 121 ln 39 (in Eq 101-2) Remove Ed Note In 23 Cmt #3336 is related.</td>
</tr>
<tr>
<td>3284</td>
<td>T</td>
<td>D</td>
<td>We removed the legacy TDD CLT Tx data detection from figure in earlier comment rounds. This subclause is not needed.</td>
<td>Z</td>
<td>Proposed reject. Remove subclause 101.3.2.5.1. This comment was WITHDRAWN by the commenter.</td>
</tr>
<tr>
<td>3285</td>
<td>T</td>
<td>A</td>
<td>Modify start burst marker 0xFFFF and 0xFFFFF encoding to indicate first bit of first RE, all other values reserved.</td>
<td>C</td>
<td>Accept in principle. Add new paragraph &quot;The setting of 0xFF and 0xFFF respectively in the two start burst markers designates that the first bit of data for the burst starts in the MSB bit of the first usable data resource element in the resource block immediately following the start burst marker. All other values and designations are reserved.&quot;</td>
</tr>
<tr>
<td>3286</td>
<td>T</td>
<td>A</td>
<td>Remove the &quot;all&quot; context from the table footnote to avoid confusion with the rest of the use of ceiling in this Clause, except where indicated. Format all table footnotes in Clause 100 to use Framemaker footnotes (to tables).</td>
<td>C</td>
<td>Accept in principle. Check this when reviewing downstream electrical sanity check presentation.</td>
</tr>
<tr>
<td>3287</td>
<td>T</td>
<td>A</td>
<td>Remove &quot;Annex 101B gives an example of LDPC (FC, FP) FEC decoding.&quot; sentence.</td>
<td>C</td>
<td>Accept.</td>
</tr>
<tr>
<td>3288</td>
<td>T</td>
<td>A</td>
<td>Modify start burst marker 0xFFFF and 0xFFFFF encoding to indicate first bit of first RE, all other values reserved.</td>
<td>C</td>
<td>Accept in principle. Add new paragraph &quot;The setting of 0xFF and 0xFFF respectively in the two start burst markers designates that the first bit of data for the burst starts in the MSB bit of the first usable data resource element in the resource block immediately following the start burst marker. All other values and designations are reserved.&quot;</td>
</tr>
</tbody>
</table>

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
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<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>A</td>
<td>For 3, the relationship in the equation should be greater than.</td>
<td>Change &quot;P1.6r &lt;LT&gt; P1.6Min&quot; to &quot;P1.6r &lt;GT&gt; P1.6Min&quot;; i.e. change less-than symbol to greater-than symbol.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>A</td>
<td>Figure 67-2a does not exist. Remove cross reference until such a time the TF approves a new figure for Clause 67.</td>
<td>Delete &quot;, as shown in Figure 67-2a&quot;.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>What is all the yellow highlight text mean?</td>
<td>Suggestion: Describe why text is highlighted in the editors note on Line 49, or remove highlight.</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>Double check downstream DSNcp, DSNrp, USNcp, and USNrp and avoid subscription or underscores in this clause.</td>
<td>Editor’s discretion to correct in Clause 101.</td>
<td>REJECT.</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>Table 101-17 and 101-18 are using different fonts for table column headers.</td>
<td>As per comment, editor’s discretion to remedy font issues.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
</tbody>
</table>

**Comment ID: 3294**

**Page 23 of 35**

**3/12/2015 6:48:59 AM**

**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**
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<th>Comment Status</th>
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<th>Response</th>
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<tr>
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<td>76</td>
<td>72</td>
<td>54</td>
<td>3295</td>
<td>ER</td>
<td>A</td>
<td>Fix master page copyright from 2013 to 2015.</td>
<td>ACCEPT.</td>
<td></td>
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<tr>
<td>100</td>
<td>100.2.6.2</td>
<td>85</td>
<td>50</td>
<td>3296</td>
<td>ER</td>
<td>A</td>
<td>Fix upstream frame data load equation to move &quot;RE&quot; to italics. Look at other italics stuff.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
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<tr>
<td>100</td>
<td>100</td>
<td>74</td>
<td>1</td>
<td>3297</td>
<td>ER</td>
<td>A</td>
<td>All tables, make sure that table footnotes are FM footnotes.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>101.4.2.5.4</td>
<td>162</td>
<td>17</td>
<td>3298</td>
<td>ER</td>
<td>A</td>
<td>Investigate equation numbering mis-restart and correct.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>101.4.1.2.3</td>
<td>154</td>
<td>35</td>
<td>3299</td>
<td>T</td>
<td>A</td>
<td>Fix reference to 100.x.x.x. Cross reference to 100.2.6.2.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
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<tr>
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<td>101.4.1.3.1</td>
<td>155</td>
<td>7</td>
<td>3300</td>
<td>T</td>
<td>A</td>
<td>Why was upstream statement removed from the paragraph?</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Laubach, Mark Broadcom

Review

The statement was removed by Cmt #2792

While the statement is true I don't see what it adds to the definition of PMA_UNITDATA.indication.

Remove the last sentence in this para.
Comment Type: T  Comment Status: A

"Table 7-12" need to be updated to correct table cross reference.

SuggestedRemedy
- Change both Table refs from "7-12" to "100-12".

Response  Response Status: C
- ACCEPT IN PRINCIPLE.
  Just one ref needs to be updated.

Comment Type: T  Comment Status: A

Need to change as the generation of the PMD_SIGNAL.request() was moved into the CNU PMA Pilot Insertion function (the reference point in the processing where it is known if an RB is going to be used (turned on with energy in a subcarrier) in an RB Frame prior to passing to IDFT.

SuggestedRemedy
- Remove subclause 101.3.2.5.5.
- Page 135, line 12 remove "and Data Detector input".
- Page 137, line 45 change "Data Detector" to "PMA Client function".
- Page 138, line 38 remove the redundant ", FEC encode and Data Detector output process," from CLT paragraph.
- Page 138, line 42 remove "and Data Detector" from CNU paragraph.
- Page 77, line 14, move "DATA DETECTOR" Pilot Insertion box, line 31.

Note that this comment will likely overlap with other CNU transmit changes entered by comment or by presentation.

Response  Response Status: C
- ACCEPT IN PRINCIPLE.
  This will be fixed in laubach_3bn_03_0315.pdf passed in motion #3.

Changed to Cl 00 (effects CL 101 & 100)
**Cl 101 SC 101.4.2.11**

Laubach, Mark

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

Add a note to Figure 101-25 that Cyclic prefix and windowing: US is created in same fashion using USNcp and USNrp.

**Suggested Remedy**
As per comment.

**Response**
ACCEPT.

**Response Status** C

---

**Cl 101 SC 101.4.3.3**

Laubach, Mark

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

Change references or remove where pointing to Clause 45. Maybe point to Table 101-3 or do away with the reference entirely.

**Suggested Remedy**
Suggest doing away with the reference to Clause 45.

**Response**
ACCEPT.

**Response Status** C

See response to Comment #3216
<table>
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<th>P</th>
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<th>Action</th>
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<td>100.2.8.4</td>
<td><strong>T</strong></td>
<td>90</td>
<td>2</td>
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<td>A</td>
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<td>Comment Status</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td><em>OFCM</em> is incorrect. This will be caught in the Downstream Electrical sanity check, but wanted to make sure it is attended to.</td>
<td></td>
<td></td>
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<tr>
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<td>SuggestedRemedy</td>
<td></td>
<td></td>
<td>Change to &quot;OFDM&quot;.</td>
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<td>Response</td>
<td></td>
<td></td>
<td>Response Status</td>
<td>C</td>
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<tr>
<td>102</td>
<td>102.2.3.1</td>
<td><strong>T</strong></td>
<td>216</td>
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<td>A</td>
<td>REVIEW</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Need to update &quot;[ref]&quot;.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>SuggestedRemedy</td>
<td></td>
<td></td>
<td>Update &quot;[ref]&quot; to a cross reference to any new CL 101 subclause on upstream timestamp insertion that may be adopted by the TF.</td>
<td></td>
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<td></td>
<td></td>
<td>Response Status</td>
<td>C</td>
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<tr>
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<td>Ref 101.3.3.1.3 from laubach_3bn_03_0315.pdf passed in motion #3</td>
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<td>103</td>
<td>103.2.2.4</td>
<td><strong>T</strong></td>
<td>265</td>
<td>27</td>
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<tr>
<td></td>
<td></td>
<td>Is CheckGrantSize(length) being used.</td>
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<td>SuggestedRemedy</td>
<td></td>
<td></td>
<td>Removed if not being used.</td>
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<td>Used in Figure 103–14</td>
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</table>
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Laubach, Mark

Comment ID 3313

Cl 103 SC 103.0.0.0 P 251 L 1 # 3313

Laubach, Mark

Comment Type T Comment Status A

Rate calculations that were added were based on 10GEPON sub layer definitions, in EPoC, much of what was in the PMD is in our PMA.

SuggestedRemedy

Change "PMD" to "PMA" where appropriate to reflect correct sublayer for overheads, calculations, etc. Editor's discretion.

Response Response Status C

ACCEPT IN PRINCIPLE.

Pg Ln Action
263 20 PMD -> PHY
266 10 PMD_Overhead -> PHY_Overhead (global)
266 14 none
267 5 none
279 31 none
279 38 none
280 11 none
280 15 none
280 16 none
302 53 none
308 2 none
Fig 103-2 no change

Editors notes no change

Laubach, Mark

Comment ID 3314

Cl 100A SC 100A.0.0.0 P 323 L 1 # 3314

Laubach, Mark

Comment Type T Comment Status A

Fix all table footnotes to normative alpha format and use FM table footnote indenting.

SuggestedRemedy

Editor's discretion to fix Tables as per comment.

Response Response Status C

ACCEPT IN PRINCIPLE.

Note 1 - apply to Frequency range
Make all notes informative
Add editors note that the contents of the table need close review given the changes to the draft that have accumulated over the last year and a half.
Comment Type E  Comment Status A
Line 27 and 50 "[ref]" needs to be defined.
Page 46, Line 19, same comment.

SuggestedRemedy

Laubach, Mark

Response # 3316

Accept in principle.
Changed to Pg 48 (was 2748) 2nd ref should be pg 49 ln 19
See topic VarXRef

Pg 48 Ln 27 change
"See [ref] for a definition of this register."
to
"These registers are a reflection of the variable FecCodeWordCount defined in 101.3.3.1.5."

Pg 48 Ln 50 change
"See [ref] for a definition of this register."
to
"These registers are a reflection of the variable FecCodeWordSuccess defined in 101.3.3.1.5."

Pg 49 Ln 19 change
"See [ref] for a definition of this register."
to
"These registers are a reflection of the variable FecCodeWordFail defined in 101.3.3.1.5."

Comment Status A
Response Status C

Comment ID 3317
Page 29 of 35
3/12/2015  6:48:59 AM

Laubach, Mark

Comment Type T  Comment Status R
Lines 13 through 28. We need a set of counters for the DS (CNU receiver) and a set of counters for the US (CLT receiver).

SuggestedRemedy

Add a second set of counters and distinguish US and DS. Variable names Page 145 Line 27 through 36 should be updated for DS as well as names in state diagram on Page 148, lines 6-8, 31, and 34.

Response Response Status C

REJECT.
These counter are always from the perspective of the receiver; US counters will reside in CLT, DS counters will reside in CNU. There is no need to differentiate US & DS in the variable name.

Comment Status R
Response Status C

Comment ID 3318
Page 29 of 35
3/12/2015  6:48:59 AM

Laubach, Mark

Comment Type T  Comment Status A
Variables need to be added for FEC decode counters. There is no subclause for PHY Link FEC decoder.

SuggestedRemedy

Suggest adding: DSPL and USPL prefix for FecCodeWordCount, FecCodeWordSuccess, FecCodeWordFail, similar to Clause 101 names. Create a new subclause for PHY Link FEC decoder. Editor to create appropriate text (only, no SD required) that describes the above counter operation in CLT and CNU receivers.

Response Response Status C

ACCEPT IN PRINCIPLE.
The PHY Link does not have a CRC associated with each FEC codeword as in the data path but rather has CRC’s associated with each message type. Define message and CRC error counters and add 8 new registers in Cl 45 as shown in remein_3bn_21_0315.pdf.

Comment ID 3319
Page 29 of 35
3/12/2015  6:48:59 AM

Laubach, Mark

Comment Type T  Comment Status A
Update to place stake in ground. I’ve heard from implementers that PMD jitter should be negligible. These values are the same at for 10GEpon.

SuggestedRemedy

1) Change subclause text to: "The PMD shall introduce a transmit delay variation of no more than 0.5 time_quanta, and a receive delay variation of no more than 0.5 time_quanta. A description for the time_quantum can be found in 77.2.2.1."
2) Remove editor’s note.

Response Response Status C

Accept.

Laubach, Mark

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: T  Comment Status: A

The MER variables here are not reflected in any clause variable table (that I can find). MER values will be calculated as part of the GNU and CLT receive Pilot Processing, Equalization, and FFT functions in the FMA. Note to us that we may need to add some extra words into the FFT subclause to require MER calculation.

Suggested Remedy

Suggest adding MER variables into Table 101-1, page 112-114. Editor’s discretion on naming and placement.

Response

ACCEPT IN PRINCIPLE.

Changed fm Cl 45 to Cl 100
MER defined in: 100.2.9.6.1 pg 101 & 100.2.12.3
Rqmt to make meas. In 100.2.12.3 pg 106 In 42

Add formal definitions in 100.2.12.3.1 as 100.2.12.3.1 Variables
RxMER(n)
  TYPE: array of 8-bit integer (???)
  This set of variables reflect the MER measured on the OFDM subcarriers for the OFDM channel indicated by the RxMERchID. The measurements are only valid when RxMERvalid is TRUE.
  **** WHAT IS THE UNIT OF THIS VALUE? ****

RxMERchID
  Type: integer
  This variable indicate which of the 5 possible OFDM channels the values in RxMER(n) represent.

RxMERvalid
  TYPE: boolean
  When TRUE this variable indicates that the values in RxMER(n) variables are valid for the channel indicated by RxMERchID. When FALSE this variable indicates the same values in the RxMER(n) variables may be invalid for the channel indicated by RxMERchID.

Add each of the above defined variables to Table 100-1

MDIO Param | MDIO reg | VarName | Index | Bits
MER measurement valid | 10GPASS-XR receive MER control | 12.10240.3 | RxMERvalid
Receive MER Channel ID | 10GPASS-XR receive MER control | 12.10240.0.2 | RxMERchID
10GPASS-XR receive MER measurement | 10GPASS-XR receive MER measurement | 12.10241-10.12287 | RxMER(n)
Comment ID 3323

Laubach, Mark
Broadcom

Comment Type T
Comment Status A

The second and third paragraph here detail how the CNU does new profile activation, yet the subclause title doesn’t reflect this.

Suggested Remedy
Suggest changing title “DS EPoC PHY Frame Header” to “DS EPoC PHY frame header and CNU new profile activation”

Response Response Status C

ACCEPT IN PRINCIPLE.
We also describe RF_ID, DA & Timestamp fields in this section.
Add L5 headers
pg 216 ln 32:
102.2.3.1.1 Configuration ID and profile activation.
Pg 217 In 30
102.2.3.1.2 Response Frame ID
pg 217 In 34
102.2.3.1.3 PHY Link DA
102.2.3.1.4 PHY Timestamp

Comment ID 3324

Laubach, Mark
Broadcom

Comment Type T
Comment Status A

laubach_3bn_10_0315.pdf (laubach_3bn_10_0315.fm) contains the upstream symbol mapper draft text as per TQ #148.

Suggested Remedy
Insert the upstream symbol mapper draft text from laubach_3bn_10_0315.pdf for subclause 101.4.3.6.

Response Response Status C

ACCEPT IN PRINCIPLE.
Use laubach_3bn_10a_0315.pdf
Pg 75 ln 30 change 32 to 8
Alphabetize variables, remove hyphen on FIR-STRB pg 78 ln 42
Pg 82 ln 10 change Eq to be
RB_time_quanta = Rblen x Highestbitload / US_DataRate / time_quantum
Placement of new 101.4.3.6.4 is at editors description. Editor to ensure all variables in this section are formaly defined.

Comment ID 3325

Laubach, Mark
Broadcom

Comment Type T
Comment Status A

1) Subclauses through 100.3.3 to 100.6 have no text. If no text is provided by end of this March meeting, remove these subclauses.

2) Subclause 100.7 is “EEE capability” and needs text.

3) Consider removing subclauase or adding an editor’s note to remove subclase “100.8 Timesync capability” if no text is provided by the May meeting; i.e. in general, any empty subclauses with no text at the close of the May meeting should be removed.

Suggested Remedy
1) as per comment.
2) Add the following text: "For the 10GPASS-XR-U PHY the CNU shall enable Energy-Efficient Ethernet (EEE) capability to conserve energy by deactivating power-consuming PMD Functions (e.g. RF power amplifier) between bursts using PMD_SIGNAL.request()" (see 100.2.1.4).”

Page 82, Line 30. Add sentence to paragraph: “PMD functions are implementation dependent and include digital-to-analog conversion, analog-to-digital conversion, interpolation, analog filtering, frequency conversion, and/or RF power amplification.”

For 3) as per what TF decides.

Response Response Status C

ACCEPT IN PRINCIPLE.
Remove sections 100.3.3 - 100.3.13, 100.5 & 100.6

For 100.4 Editor to adapt from 75.8
### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

#### Draft 1.3

### Approved Responses

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Laubach, Mark

**Comment Type:** T

**Comment Status:** A

Review MiniUS_SC

Need to add minimum number of pilots for use by upstream Probe into Table 101-13.

**Suggested Remedy**

Add a new row to Table 101-13: "Minimum number of combined active and unused subcarriers for Probe", "180", "<blank>" or "subcarriers".

**Response**

ACCEPT IN PRINCIPLE.

See Cmt #3308

Remove Row "Minimum number of active subcarriers in a contiguous group" row from table.

Add row to table 101-13

"Minimum number of combined active and nulled subcarriers for Probe", "180", "subcarriers".

Change last cell 1st row from "SC" to "subcarriers"

Remove row "Maximum excluded spectrum in the encompassed spectrum"

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Zhang, Jin

**Comment Type:** E

**Comment Status:** A

"...that mean time to false frame acceptance is met". It would be better to specify the exact value of the mean time to false frame acceptance.

**Suggested Remedy**

Modified as "...that the target mean time to false packet acceptance (MTTFPA), or 4.4x10^17 second, is met"

**Response**

ACCEPT IN PRINCIPLE.

Change to:

"...that the target mean time to false packet acceptance, of 4.4x10^17 second, is met"

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Zhang, Jin

**Comment Type:** E

**Comment Status:** A

In the box "B-1" should be "beta-1".

**Suggested Remedy**

Replace B to beta (greek letter)

**Response**

ACCEPT.

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Zhang, Jin

**Comment Type:** T

**Comment Status:** A

**REVISIT**

The purpose of delayBound is not to stabilize the receiver, but to absorb certain jitters caused by insertion of burst markers, pilots, etc.

**Suggested Remedy**

This value represents the delay sufficient to initiate the transmitter at the CNU and to accomodate timing jitters caused by PMA overhead, such as burst markers, and pilots, (i.e., the maximum FIFO size expressed in units of 66-bit blocks). The value of delayBound includes TBD. This variable is used only by the CNU.

**Response**

ACCEPT IN PRINCIPLE.

Covered in laubach_3bn_03_0315.pdf passed in motion #3

Use

"This value represents the delay sufficient to initiate the transmitter at the CNU and to accomodate timing jitter caused by PMA overhead, such as burst markers, and pilots." in place of the 2nd & 3rd sentence of laubach_3bn_03_0315.pdf

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Zhang, Jin

**Comment Type:** T

**Comment Status:** A

The equation 101-1 is an approximation of the PCS_Rate in 101-2. There is a small gap between the two values.

**Suggested Remedy**

Use 101-2 as the definition for PCS_Rate because it is further used in other equations. We can rename the PCS_Rate as PCS_Rate_Nominal, showing this is a normal rate.

**Response**

ACCEPT IN PRINCIPLE.

Remove Eq 101-1

(PCS_Rate = XGMII_Rate x (PHY_Dsize/(PHY_Dsize + PHY_Osize)))
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Comment: PMD_Rate is a referenced variable, its definition should be found in the PMA section, so are PLCTotalBits and PLCTotalCycles, or similar variables with other names. The equation of PMD_Rate can be relocated to the appropriate section in PMA

Suggested Remedy:
Remove the equation of PMD_Rate or put a note saying the equation will be relocated to PMA. Modify the text as: "The transmission rate of PMD data. It is a rate determined by the bit loading profile, pilot overhead, band plans, Cycle Prefix, Windowing."

Response: ACCEPT IN PRINCIPLE.
I believe PMD_Rate in the context of Cl 103 DS (as used here) is equivalent to DS_DataRate as defined in Eq 100-1.

Replace all instances of PMD_Rate with DS_DataRate in Cl 102.

Remove the definition of PMD_Rate here and add:
"DS_DataRate
See 100.2.6.1."

At 101.3.2.1 pg 120 ln 8 Add "EDITORS NOTE (to be removed prior to publication) the TF need to do a thorough review of Idle control character deletion process as it is currently written to be applicable to both US & DS and these processes will be very different in EPoC where US/DS rates are different and US has multiple FEC's."

Cmt #3283 is related
Conditions for action A & B are the same:
"If CRC40ErrCtrl is enabled and the calculated value of CRC40 does not match the value of CRC40 retrieved" then do action A
"If CRC40ErrCtrl is set to enable and the calculated value of CRC40 does not match the value of CRC40 retrieved" then do action B

Suggested Remedy
Change the second condition from
"If CRC40ErrCtrl is set to enable and ..."
to
"If CRC40ErrCtrl is disabled and ..."

ACCEPT IN PRINCIPLE.
See para as proposed in laubach_3bn_03_0315 passed in motion #3

Comment ID 3343
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3/12/2015  6:48:59 AM

Suggested Remedy

Add the term XGMII_Rate is used here and in Cl 103 but is not defined anywhere.

Suggested Remedy
Add to 101.3.2.1.1 Constants
XGMII_Rate
TYPE: Integer
The data transfer rate of teh XGMII interface.
Value: 10 Gb/s

Add to 103.2.2.1 Constants
XGMII_Rate
See 101.3.2.1.1

ACCEPT.
Several errors in this definition:
*A variable that advances by one after every octet time. After reaching the value of FEC_CODEWORD_SIZE, this variable is held for a period of time for PMD derating and then reset to zero. A state diagram of fecOffset behavior is illustrated in Figure 103–9. In the CLT, this variable is initialized to 0 at system initialization. In the CNU, this variable [fecOffset] is assigned in the GATE Processing CNU Activation state diagram (see Figure 103–30).”*

We have added Figure 103–9—fecOffset state diagram which sets this variable for the CLT.

For CNU the Title and Ref are both incorrect. fecOffset is not mentioned in Figure 103–30. In P802.3bx D2.1 the title is used but the figure reference is to Fig 77-14 (our Fig 103-14).

For Ref here is the definition from 802.3bx D1.2
*A variable that advances by 1 after every 8 bit times. After reaching the value of FEC_CODEWORD_SIZE, this variable is reset to zero. In the OLT, this variable is initialized to 0 at system initialization. In the ONU, this variable is assigned in the GATE Processing ONU Activation state diagram (see Figure 77–14).”*

SuggestedRemedy
Change to read:
*A variable that advances by one after every octet time. In the CLT, after reaching the value of FEC_CODEWORD_SIZE, this variable is held for a period of time for PMD derating and then reset to zero as illustrated in Figure 103–9. In the CNU, this variable is assigned in Figure 103-14 CNU Control Multiplexer state diagram (use full ref in FrameMaker).*

Change title of Figure 103-9 from “fecOffset state diagram” to: “CLT fecOffset state diagram”

Response
ACCEPT.