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</table>

**Comment Type**: T  | **Comment Status**: D

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.

**Proposed Response**

PROPOSED ACCEPT.

---

**Comment Type**: T  | **Comment Status**: D

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 + )

**Suggested Remedy**

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.

For variables not defined in Cl 45 use index of 500-999

For variables defined in Cl 45 MMD 12 use register address + 100. 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.

**Proposed Response**

PROPOSED ACCEPT.
Comment Type: T  Comment Status: D
No such variable as NxtCNU_ID. Shouldn't ref Cl 45 as normative.

Suggested Remedy:
- 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_I
  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 in 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_I 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 101.4.2.3.5."

Proposed Response: PROPOSED ACCEPT.

Comment Type: E  Comment Status: D
Align capitalization:
- Coax Cable Distribution Network
- coax cable distribution network

Proposed Response: PROPOSED ACCEPT.

Comment Type: E  Comment Status: D
Align capitalization:
- Cyclic Prefix
- cyclic prefix

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

Proposed Responses

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</table>

Comment Type: E  Comment Status: D
Align capitalization
Modulation Error Ratio or modulation error ratio?
Also we should not define the abbreviation in the Definitions clause

Suggested Remedy
Use modulation error ratio exclusively.
Change
1.4.258a Modulation Error Ratio (MER): to
1.4.258a modulation error ratio:

Add to 1.5 Abbreviations
MER modulation error ratio

Proposed Response: PROPOSED ACCEPT.

<table>
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Comment Type: E  Comment Status: D
Variables listed in Table 102-13 needs to be aligned with those named in Table 102-1 (and CI 100 & 101).

Suggested Remedy
See remain_3bn_16_0315.pdf for update to Table 102-13.

Add to Tables 101-1 & 102-1

Proposed Response: PROPOSED ACCEPT.

<table>
<thead>
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</table>

Comment Type: T  Comment Status: D
Review
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 & 1914

Suggested Remedy
Remove PHY Discovery control register from CI 45 (mark Register 1913 & 1914 as reserved in Table 45-3 and remove 45.2.1.116)
Remove PHY Discovery start and DiscStrt from Table 102-3 pg 210 ln 7-11 and Table 102-13 pg 244 ln 38

Proposed Response: PROPOSED REJECT.
On second thought I'm no longer sure how the unranged CNU knows when to begin transmitting the PHY Discovery Response and this register/variable might become a required message along with an EPCH that opens the PHY Discovery window.

<table>
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<tr>
<th>Cl</th>
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</table>

Comment Type: E  Comment Status: D
Inconsistent register name
pg 31 In 14 10GPASS-XR FEC success counter
pg 48 In 47 10GPASS-XR FEC codeword success counter
pg 48 In 49 10GPASS-XR FEC codeword counter success
pg 49 In 5 10GPASS-XR FEC codeword counter
and in table 101-1 (3x)
pg 113 In 20 10GPASS-XR FEC success count & 10GPASS-XR FEC codeword success counter

Likewise in 45.2.1.127
pg 31 In 16 10GPASS-XR FEC fail counter
pg 49 In 16 10GPASS-XR FEC codeword fail counter
pg 49 In 18 10GPASS-XR FEC codeword counter fail
pg 49 In 27 10GPASS-XR FEC codeword counter fail
and in table 101-1
pg 113 In 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

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

Proposed Responses

3261

Comment Type: ER  Comment Status: D

18 instances of "Editor's Note"

Suggested Remedy

Change to "EDITORS NOTE"

PROPOSED ACCEPT.

Remein, Duane
Huawei Technologies

Comment Type: T  Comment Status: D

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

Suggested Remedy

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)

PROPOSED ACCEPT.

Remein, Duane
Huawei Technologies

Comment Type: T  Comment Status: D

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.

PROPOSED REJECT.

Laubach, Mark
Broadcom

Comment Type: T  Comment Status: D

The tx_enable in Cl 76 ( & Tx_Enable elsewhere in Section 5) has a subtle difference in meaning. In previous PON clauses this is used to turn on the Laser during US transmission.

In our case we are using TXEnable to allow transmission in both the CNU and the CLT. In the CNU case it is a confirmation that all the variables list in Table 102-13 needed for PHY Discovery have been received. Similarly in the CLT there are a number of variable that need provisioning prior to going live on the network.

We can consider a new name in our clauses but should distinguish it from that in Cl 75/76.
### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

<table>
<thead>
<tr>
<th>CI</th>
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<th>#</th>
<th>Proposed Responses</th>
</tr>
</thead>
</table>
| 00 | 101.3.2.5.5 | 132 | 51 | 3302 | **Comment Type** T **Comment Status** D **Review**

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.

**Suggested Remedy**
- 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.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

**Response Status** W

Laubach, Mark

Broadcom

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<table>
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<tr>
<th>CI</th>
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</table>
| 100 | 100 | 74 | 1 | 5297 | **Comment Type** ER **Comment Status** D **Review**

All tables, make sure that table footnotes are FM footnotes.

**Suggested Remedy**

As per comment.

**Proposed Response**

PROPOSED ACCEPT.

Laubach, Mark

Broadcom

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<table>
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<tr>
<th>CI</th>
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<th>Proposed Responses</th>
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| 100 | 100.1.1 | 74 | 15 | 5290 | **Comment Type** T **Comment Status** D **Review**

Figure 67-2a does not exist. Remove cross reference until such a time the TF approves a new figure for Clause 67..

**Suggested Remedy**

Delete ", as shown in Figure 67-2a".

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Discuss need for figure.

Laubach, Mark

Broadcom

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<table>
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<tr>
<th>CI</th>
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<th>P</th>
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| 100 | 100.1.2 | 74 | 15 | 5201 | **Comment Type** ER **Comment Status** D **Review**

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

**Suggested Remedy**

Correct all cross references styles.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

Remein, Duane

Huawei Technologies

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<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
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<th>#</th>
<th>Proposed Responses</th>
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</table>
| 01 | 1 | 24 | 5 | 3234 | **Comment Type** ER **Comment Status** D **Review**

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

**Proposed Response**

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

**Draft 1.3**

**Proposed Responses**

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**Comment Type E**  **Comment Status D**

This editor's note has served its purpose:

"EDITORS NOTE (to be removed prior to publication): US Block diagram needs to reflect symbol duplication for PHY Link Discovery Response message."

Suggested Remedy: remove

**Proposed Response**

PROPOSED ACCEPT.

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**Comment Type T**  **Comment Status D**

In Fig 100-2 & 100-3 we illustrate a "RATE ADAPTATION" functional block. In CI 101.3.2 (pg 120 In 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 In 4

Suggested Remedy:

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

**Proposed Response**

PROPOSED ACCEPT.

See Related cmt #3256

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<td>100.1.5</td>
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<td>3279</td>
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</table>

**Comment Type T**  **Comment Status D**

Problems in Table 100-1. Register numbers to index numbers wrong in new table "1024+100" should be 1124, not 2124, etc.

Suggested Remedy:

Editor's discretion to verify and update all index numbers in the table. Change color all magenta text to black text in Table 100-1.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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*.

**Index**

Laubach, Mark

**Proposed Response**

PROPOSED ACCEPT.

See Related cmt #3256

**Comment Type**  **Comment Status**

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: Clause, Subclause, page, line

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3/4/2015 5:04:37 PM
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<td>Use of appropriately is inappropriate. &quot;... the appropriately formatted stream of I / Q value pairs ...&quot; The appropriate format is clearly stated in the previous para (32-bit signed int). The same issue exists in 100.2.1.3, 100.2.2, &amp; 100.2.3. 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>&quot;Table 7-12&quot; need to be updated to correct table cross reference.</td>
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**Comment Type**: T, **Comment Status**: D
**Comment Type**: E, **Comment Status**: D
**Comment Type**: T, **Comment Status**: D
**Comment Type**: E, **Comment Status**: D

**Proposed Response**: PROPOSED ACCEPT.
**Comment: Cl 100 SC 100.2.6.1 P 84 L 53 # 3208**

**Comment Type:** ER  **Comment Status:** D

Remein, Duane  
Huawei Technologies

**Comment:** 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 45.2.7a.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 101.4.2.11.1."

**Proposed Response:** PROPOSED ACCEPT.

---

**Comment: Cl 100 SC 100.2.6.1 P 85 L 18 # 3207**

**Comment Type:** T  **Comment Status:** D

Remein, Duane  
Huawei Technologies

**Comment:** We shouldn’t ref Cl 45 but rather the definition of the variable set DS_ModTypeSC(n).  
"Note in Table 45-191b that the DS Modulation Type values binary 0011 (3 decimal) through 1110 (14 decimal) directly represent data bits per active subcarrier"

**Suggested Remedy:**
Change to read:
"Note that in the definition of DS_ModTypeSC(n) the values binary 0011 (3 decimal) through 1110 (14 decimal) directly represent the number of data bits per active subcarrier (see 101.4.2.3.5)."

**Proposed Response:** PROPOSED ACCEPT IN PRINCIPLE.

---

**Comment: Cl 100 SC 100.2.6.2 P 84 L 53 # 3227**

**Comment Type:** T  **Comment Status:** D

Remein, Duane  
Huawei Technologies

**Comment:** 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 45.2.7a.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."

**Proposed Response:** PROPOSED ACCEPT IN PRINCIPLE.

---

**Comment: Cl 100 SC 100.2.6.2 P 85 L 32 # 3209**

**Comment Type:** ER  **Comment Status:** D

Remein, Duane  
Huawei Technologies

**Comment:** Fix upstream frame data load equation to move "RE" to italics.  
Look at other italics stuff.

**Suggested Remedy:**
As commented. Editor to review FM equations and text for consistent use of italics.

**Proposed Response:** PROPOSED ACCEPT.
There is a variable for “Cycle Prefix Time” used here in the Cycle Prefix Time equation. Same issues exists for US at line 43

**Suggested Remedy**

Change Equations to read:
- DS_Frame_Length = 128 x DS_Extended_OFDM_Symbol (usec) (ln 7)
- DS_Extended_OFDM_Symbol = 20 + DS_Ncp (usec) (ln 9)
- US_Frame_Length = (256 + 6) x US_Extended_OFDM_Symbol (usec) (ln 41)
- US_Extended_OFDM_Symbol = 20 + US_Ncp (usec) (no subscripts, ln 43)

Ln 5 replace “Extended_OFDM_Symbol” with “DS_Extended_OFDM_Symbol” and “Cycle Prefix size” with “downstream cyclic prefix size DS_Ncp”

Ln 38 replace “Extended_OFDM_Symbol” with “US_Extended_OFDM_Symbol” and “Cycle Prefix size” with “upstream cyclic prefix size US_Ncp”

be sure to use italics for all variable names.

**PROPOSED ACCEPT.**

---

We shouldn’t ref Cl 45 but rather the definition of the variable set DS_ModTypeSC(n).

"Note in Table 45-191d that the US Modulation Type values binary 0011 (3 decimal) through 1110 (14 decimal) directly represent data bits per active subcarrier."

**Suggested Remedy**

Change to read:
- "Note that in the definition of US_ModTypeSC(n) the values binary 0011 (3 decimal) through 1110 (14 decimal) directly represent the number of data bits per active subcarrier (see 101.4.3.4.4)."

At pg 85 line 46 replace
- "the value is the US Modulation Type value minus" with
- "the value is the US_ModTypeSC(n) value minus"

**PROPOSED ACCEPT.**

---

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

**PROPOSED ACCEPT IN PRINCIPLE.**

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

Proposed Responses

**Comment Type** ER  **Comment Status** D

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

**Suggested Remedy**

For all tables 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.

**Proposed Response**

PROPOSED ACCEPT.

---

**Comment Type** T  **Comment Status** D

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"

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

---

**Comment Type** T  **Comment Status** D

Unique instances of DS_Ncp and DS_Nrp.

**Suggested Remedy**

change to DSNcp and DSNrp respectively.

**Proposed Response**

PROPOSED ACCEPT.

---

**Comment Type** T  **Comment Status** D

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

**Suggested Remedy**

per comment

**Proposed Response**

PROPOSED ACCEPT.
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<td>40</td>
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<td>D</td>
<td>the &quot;where;&quot; at line 40 applies to Eq 100-16 and 100-17 and should be split.</td>
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**Proposed Response**

Response Status: W

PROPOSED ACCEPT.

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<td>New upstream table, fix &quot;see subclause 10.2.7.2&quot;.</td>
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**Proposed Response**

Response Status: W

PROPOSED ACCEPT.

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<td>100.3.3</td>
<td>108</td>
<td>52</td>
<td>325</td>
<td>T</td>
<td>D</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Proposed Response**

Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

May want to review wording so we have a starting point. For 3) add Editor's note following comment.
Comment Type: T  Comment Status: D

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 CNU and CLT receive Pilot Processing, Equalization, and FFT functions in the PMA. 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.

Proposed Response: Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

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 some 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 | Reg/bit | 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)

What is meant by "For now, all functional processing implementations should adhere to the same combined delay variation as 10GEPON (Section 76.1.2.)."?

Proposed Response: Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.
**Cl 101 SC 101.1.3**  **P 112 L 26**  # 3252
Remien, Duane  Huawei Technologies

**Comment Type**  **T**  **Comment Status**  **D**
Probe Duration (and therefore PrbDur) are no longer used.

**Suggested Remedy**
Remove row from Table 101-3

**Proposed Response**  **Response Status**  **W**
PROPOSED ACCEPT.

---

**Cl 101 SC 101.1.3**  **P 113 L 13**  # 3218
Laubach, Mark  Broadcom

**Comment Type**  **T**  **Comment Status**  **D**
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).

**Suggested Remedy**
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.

**Proposed Response**  **Response Status**  **W**
PROPOSED 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.

---

**Cl 101 SC 101.2.4.2**  **P 117 L 10**  # 3282
Laubach, Mark  Broadcom

**Comment Type**  **T**  **Comment Status**  **D**
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.

**Proposed Response**  **Response Status**  **W**
PROPOSED ACCEPT.

---

**Cl 101 SC 101.3**  **P 119 L 29**  # 3266
Remien, Duane  Huawei Technologies

**Comment Type**  **T**  **Comment Status**  **D**
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.

**Suggested Remedy**
Recommend new outline as illustrated in remein_3bn_13_0315.pdf

**Proposed Response**  **Response Status**  **W**
PROPOSED ACCEPT.
Need to rationalize this with any contributions in this area.

---

**Cl 101 SC 101.3.1**  **P 119 L 40**  # 3331
Zhang, Jin  Marvell Semiconductor

**Comment Type**  **E**  **Comment Status**  **D**
"...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"

**Proposed Response**  **Response Status**  **W**
PROPOSED ACCEPT IN PRINCIPLE.
Change to:
"...that the target mean time to false packet acceptance, of 4.4x10^17 second, is met"
**Comment Type E  Comment Status D**

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"

**Proposed Response**
**Response Status W**
Released cmt #3255

**Comment Type T  Comment Status D**

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)"

**Proposed Response**
**Response Status W**

**Comment Type T  Comment Status D**

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"

**Proposed Response**
**Response Status W**

**Proposed Responses**

---

**Draft 1.3**

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

---

**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:** Clause, Subclause, page, line
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<td>121</td>
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Remein, Duane | Huawei Technologies |

**Comment Type** | **Comment Status** | **Proposed Responses**
---|---|---
T | D | countVector defined twice, here and in 101.3.3.3.2 with different definitions. 101.3.2.1.2

**Comment Status** | **Response Status** | **Review**
---|---|---
D | W | Suggested Remedy

**Proposed Response**

PROPOSED ACCEPT.

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<td>121</td>
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<td>3334</td>
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</table>
Zhang, Jin | Marvell Semiconductor |

**Comment Type** | **Comment Status** | **Proposed Responses**
---|---|---
T | D | The purpose of delayBound is not to stabilize the receiver, but to absorb certain jitters caused by insertion of burst markers, pilots, etc.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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<tr>
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</table>
Zhang, Jin | Marvell Semiconductor |

**Comment Type** | **Comment Status** | **Proposed Responses**
---|---|---
T | D | The equation 101-1 is an approximation of the PCS_Rate in 101-2. There is a small gap between the two values.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Remove Eq 101-1

(PCS_Rate = XGMII_Rate x (PHY_Dsize/(PHY_Dsize + PHY_Osize)))
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<td>15</td>
<td>#3283</td>
<td>Laubach, Mark</td>
<td>Broadcom</td>
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<td>Comment Type</td>
<td>T</td>
<td>Comment Status</td>
<td>D</td>
<td>Comment: Consider replacing with DS_DataRate. Do sanity check on OFDM symbol rate, etc. Why is PLC separated out in this?</td>
<td></td>
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<td>Suggested Remedy</td>
<td>Replace PMD_Rate lines 16 through 22 with DS_DataRate variable definition with cross reference to 100.2.6.1 as appropriate.</td>
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<tr>
<td>Per suggestion but also replace &quot;PMD_Rate&quot; at pg 121 ln 39 (in Eq 101-2)</td>
<td></td>
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<td>Remove Ed Note ln 23</td>
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<td>Cmt #3336 is related.</td>
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<td>Marvell Semiconductor</td>
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<td>Comment Type</td>
<td>T</td>
<td>Comment Status</td>
<td>D</td>
<td>Review: 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</td>
<td></td>
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<tr>
<td>Suggested Remedy</td>
<td>Remove the equation of PMD_Rate or put a note saying the equation will be relocated to PMA. Modify the text as &quot;The transmission rate of PMD data. It is a rate determined by the bit loading profile, pilot overhead, band plans, Cycle Prefix, Windowing.&quot;</td>
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<td>PROPOSED ACCEPT IN PRINCIPLE.</td>
<td></td>
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<td>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.</td>
<td></td>
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<tr>
<td>Replace all instances of PMD_Rate with DS_DataRate in CL 102.</td>
<td></td>
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</table>
| 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 publicaiton) 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

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<td>Huawei Technologies</td>
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<tr>
<td>Comment Type</td>
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<td>Comment Status</td>
<td>D</td>
<td>Comment: Ref (see 101.4.1.2.1) should be associated with PMA_UNITDATA.request not DS_DataRate</td>
<td></td>
<td></td>
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<tr>
<td>Suggested Remedy</td>
<td>move to just after PMA_UNITDATA.request</td>
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<tr>
<td>Also add Ref after DS_DataRate to 100.2.6.1.</td>
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<td></td>
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</table>
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 process of padding FEC codewords and appending FEC parity octets in the 10GPASS-XR CLT PCS transmit path is illustrated in Figure 101–6. First the FEC encoder accumulates BQ 65-bit blocks (see Table 101–2) to form the payload portion of the FEC codeword. Next, the FEC encoder calculates the CRC40 (see 101.3.3) over the aggregated BQ 65-bit blocks, placing the resulting 40 bits of CRC40 code immediately after the BQ 65-bit blocks, forming 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)."

PROPOSED ACCEPT IN PRINCIPLE.

See related comment #3263
<table>
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<th>Comment Status</th>
<th>Proposed Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR</td>
<td>D</td>
<td>Review</td>
</tr>
</tbody>
</table>
| *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 "LDPC encode process within CLT (downstream)" it is clear. Figure 101-6 should match it's descriptive text.*  

**SuggestedRemedy**  
Replace with illustration in remein_3bn_12_0315.pdf and remein_3bn_14_0315.pdf respectively (available in visio)  
**PROPOSED ACCEPT.** |

<table>
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<th>Comment Status</th>
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<tbody>
<tr>
<td>E</td>
<td>D</td>
<td>Remove section heading and Editor's Note.</td>
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</table>

**SuggestedRemedy**  
Remove "Annex 101B gives an example of LDPC (FC, FP) FEC decoding." sentence.  
**PROPOSED ACCEPT.** |

<table>
<thead>
<tr>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Proposed Responses</th>
</tr>
</thead>
</table>
| T            | D              | Figure 101-13, "CTC" to "CRC"  

**SuggestedRemedy**  
As per comment.  
**PROPOSED ACCEPT.** |
The reference to Cl 49.2.11 64B/66B decoding function needs some clarification as there are some differences 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."

PROPOSED ACCEPT IN PRINCIPLE.

See comment related comment #3264

"The EPoC PHY utilizes a 64B/66B decoder 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)

"composed of a single FEC codeword where in the CNU upstream, the burst may comprise of one or more concatenated FEC codewords (see 101.3.2.5.7)."

PROPOSED ACCEPT.

Fix reference to 100.x.x.x.

Suggested Remedy
Cross reference to 100.2.6.2.

PROPOSED ACCEPT.

Why was upstream statement removed from the paragraph?

Suggested Remedy
Consider returning last sentence of paragraph from previous Draft (modified): "In the upstream direction, the burst received by the CLT is variable in size and if comprised of one or more concatenated FEC codewords (see see 101.3.2.5.7)."

PROPOSED REJECT.

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.

May want to remove the last sentence in this para.
Draft 1.3  IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Proposed Responses

<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
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</thead>
<tbody>
<tr>
<td>101</td>
<td>101.4.2.1</td>
<td>155</td>
<td>42</td>
<td>3211</td>
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<tr>
<td>Reimein, Duane</td>
<td>Huawei Technologies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Comment Type**: TR  - **Comment Status**: D
- **Comment**: This statement in CI 100 pg. 108 ln. 26
  "Channel loading consists of a single OFDM channel with no other signals" conflicts with the following requirement in CI 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)."

- **Proposed Response**: PROPOSED ACCEPT IN PRINCIPLE.

<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
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<tr>
<td>101</td>
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<td>175</td>
<td>31</td>
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<tr>
<td>Laubach, Mark</td>
<td>Broadcom</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Comment Type**: E  - **Comment Status**: D
- **Comment**: Double check downstream DSNcp, DSNrp, USNcp, and USNrp and avoid subscription or underscores in this clause.

  Line 45, change "CP" to "DSNcp".  - can't find this is D1.3 clean text.

- **Suggested Remedy**: Editor's discretion to correct in Clause 101.

- **Proposed Response**: PROPOSED REJECT. It is not clear to the Editor what the issue is nor what the correction should be.
  Note there is a comment (#3253) to align variable naming to be DSNcp, DSNrp, USNcp & USNrp.

<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
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<tbody>
<tr>
<td>101</td>
<td>101.4.2.11</td>
<td>178</td>
<td>52</td>
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</tr>
<tr>
<td>Laubach, Mark</td>
<td>Broadcom</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Comment Type**: T  - **Comment Status**: D
- **Comment**: 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.

- **Proposed Response**: PROPOSED 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**: Clause, Subclause, page, line

---

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

**Draft 1.3**

### 101.4.2.5.4

**Proposed Responses**

**Comment Type** T  **Comment Status** D  
**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 ln 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 ln 12)

**SuggestedRemedy**

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

**Proposed Response** PROPOSED ACCEPT.

**Comment Status** D  
**Response Status** W

**Laubach, Mark**

**Broadcom**

**Proposed Response** PROPOSED ACCEPT IN PRINCIPLE.

---

**Comment Type** T  **Comment Status** D

- 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?

**SuggestedRemedy**

- 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.

**Proposed Response** PROPOSED ACCEPT IN PRINCIPLE.

**Comment Status** D  
**Response Status** W

**Laubach, Mark**

**Broadcom**

---

**Comment Type** T  **Comment Status** D

- Eq 101-24 and the subsequent para (below) are a bit confusing. How does $C_k(i)$ and $A_k(i)$ relate to $EQ\_Coef R(k)$ and $EQ\_Coef I(k)$?
  - "where $C_k(i)$ is the pre-equalizer coefficient of the $k$-th subcarrier as used in the last probe transmission, $C_k(i+1)$ is the updated pre-equalizer coefficient of the $k$-th subcarrier and $A_k(i)$ is the coefficient information received via the PHY Link update. "$\times" indicates a complex multiplication. The variables $EQ\_Coef R(k)$ and $EQ\_Coef I(k)$ 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)."

**SuggestedRemedy**

- change to read:
  - "... and $A_k(i)$ is the coefficient update, variables $EQ\_Coef R(i)$ and $EQ\_Coef I(i)$ (see 101.4.3.13.2), received via the PHY Link. The symbol "$\times" indicates a complex multiplication."

- Note the removed info on update variables is in the subclause referenced.

**Proposed Response** PROPOSED ACCEPT.
Comment Type: E  Comment Status: D
Table 101-17 and 101-18 are using different fonts for table column headers.

Suggested Remedy
As per comment, editor's discretion to remedy font issues.

Proposed Response  Response Status: W
PROPOSED ACCEPT.
Font in Table 101-18 is to large.

Comment Type: T  Comment Status: D
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."

Suggested Remedy
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."

Proposed Response  Response Status: W
PROPOSED ACCEPT.
See related comment #3307.

Add an Editors note @@ Where? @@:
EDITORS NOTE (to be removed prior to publication): We should create a normative list of variables that cause a network restart when changed.
Comment Type | Comment Status | Proposed Responses
---|---|---
Cl 101 SC 101.4.3.4 | P 182 L 29 | # 3308
Laubach, Mark | Broadcom

**Comment Type**
Table 101-13.

Line 26: Upstream does not have exclusion band or contiguous group requirements. OFDM channel bandwidth is specified as minimum 10 MHz in Table 100-11, so "40" subcarriers here creates confusion.

Line 29: What is value for TBD? Note no corresponding percentage requirement in D3.1 upstream. CLT will control percentage needed for proper upstream receiver operation.

Page 157: Also need to look at Table 101-8 want to borrow some terminology from D3.1 and update the table. Page 157, Line 5, we don't define "group" anywhere. Also need minimum size exclusion band.

**Suggested Remedy**
Page 182:

- Line 26: remove "Minimum number of active subcarriers in a contiguous group" row from table.
- Line 29: remove "Maximum excluded spectrum in the encompassed spectrum" row from table.

Page 157:

- Line 5: change "group" to "modulation band"
- Line 5: Add new table row: Parameter: "Minimum number of subcarriers in an exclusion band" Limit: "20" Unit: <blank> or write in "subcarriers" where appropriate.

Page 156, Line 49. Insert "Exclusion bands separate contiguous modulation bands." before the last sentence.

**Proposed Response**

- Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
We need at least 128 contiguous subcarriers for US Discovery Response. (see pg 232 In 35)
Change 40 to 128 at row "Minimum number of active subcarriers ..."
Remove row "Maximum excluded spectrum..." at line 29 per comment.

See Cmt #3330

---

**Comment Type**
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.

**Proposed Response**

- Response Status W

PROPOSED REJECT.
The proposal has several issues (see remei_3bn_22_0315.pdf, a marked-up version of laubach_3bn_10_0315.pdf)

**Proposed Response**

- Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
The start burst marker 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.
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.

Proposed Response Response Status W
PROPOSED ACCEPT.

Variables need to be added for FEC decode counters. There is no subclause for PHY Link FEC decoder.

Suggested Remedy
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.

Proposed Response Response Status W
PROPOSED 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

Laubach, Mark
Proposed Response Response Status W
PROPOSED REJECT.
Update "[ref]" to a cross reference to any new CL 101 subclause on upstream timestamp insertion that may be adopted by the TF.
Comment Type: T  Comment Status: D  Review

Need to provide a variable and register to indicate the time required for CNU to respond to the DS PHY link.

Suggested Remedy

NOT FINAL

May not submit

Proposed Response  Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

Change TBD to 5.1 ms
This value is derived from the length of one superframe minus 16 symbols (Max RB size) and the 6 Probe symbols. TBD = (262-6-16)*20us = 4.8 ms
This will ensure that the CLT can designate an US response window within the size limit of Response Frame ID (RF_ID), which is 8 bits.
If this minimum time is deemed to be too short for the CNU PHY then we will need to take steps to allow US responses that take more than one Superframe. This will impact RF_ID field, EPCH message, and require creation of an US Superframe counter.

We might want to consider creating a variable that the CNU can pass to the CLT to indicate what it's min response time is if it can be shorter than this.

Comment Type: T  Comment Status: D

Remove these textless subclauses if no text is provided in another comment.

Proposed Response  Response Status: W

PROPOSED ACCEPT.
<table>
<thead>
<tr>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Proposed Response</th>
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<td>D</td>
<td>Proposed Accept in Principle.</td>
</tr>
<tr>
<td>T</td>
<td>D</td>
<td>Add to Table 102-3.</td>
</tr>
<tr>
<td>T</td>
<td>D</td>
<td>In Figure 102–23 replace &quot;TBD&quot; with &quot;Rnd&quot;.</td>
</tr>
<tr>
<td>T</td>
<td>D</td>
<td>Add to Table 102-3.</td>
</tr>
<tr>
<td>T</td>
<td>D</td>
<td>In Figure 102–23 replace &quot;TBD&quot; with &quot;Rnd&quot;.</td>
</tr>
<tr>
<td>T</td>
<td>D</td>
<td>Proposed Accept.</td>
</tr>
</tbody>
</table>
Comment Type: T  Comment Status: D
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.

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

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

<table>
<thead>
<tr>
<th>Pg</th>
<th>Ln</th>
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</tr>
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<tr>
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<td>PMD -&gt; PHY</td>
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<tr>
<td>266</td>
<td>10</td>
<td>PMD_Overhead -&gt; PHY_Overhead (global)</td>
</tr>
<tr>
<td>266</td>
<td>14</td>
<td>none</td>
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<td>302</td>
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<tr>
<td>308</td>
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</table>

Fig 103-2 no change
Editors notes no change

---

Comment Type: T  Comment Status: D
Two definitions for FEC CW size which are nearly identical. These need to be more clearly differentiated.

FEC_CODEWORD_SIZE
TYPE: integer
This constant represents the size of FEC codeword in octets (FEC_PAYLOAD_SIZE + FEC_PARITY_SIZE).
Value: 1987

FEC_CODEWORD_SIZE_FRAC
TYPE: real number
This constant represents the exact size of the FEC codeword in octets.
Value: 1760+2944/13
This is confusing.

Suggested Remedy:
NOT FINAL
Change definitions as show below
FEC_CODEWORD_SIZE
TYPE: integer
This constant represents the approximate size of the downstream FEC codeword in whole octets (FEC_PAYLOAD_SIZE + FEC_PARITY_SIZE).
Value: 1987

FEC_CODEWORD_SIZE_FRAC
TYPE: real number
This constant represents the exact size of the FEC codeword in whole and fractional octets.
Value: 1760+2944/13 (1760 + (1840*64/65)/8)

Proposed Response: PROPOSED ACCEPT.
Comment Type: T
Comment Status: D

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

Suggested Remedy:

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)

Proposed Response: PROPOSED ACCEPT.

Comment Type: T
Comment Status: D

FEC_CODEWORD_SIZE, FEC_PARITY_SIZE and FEC_PAYLOAD_SIZE are only constants in the DS direction. In the US these will vary depending on OctetsRemaining.

Suggested Remedy:

For DS change existing constant names, via global search & replace to:

DS_FEC_CW_Sz
DS_FEC_PrtySz
DS_FEC_PldSz

Change the definition of each of these constants by replacing "the size of FEC codeword" with "the size of the downstream FEC codeword"

Add new functions:

US_FEC_CW_Sz(OctetsRemaining)
This function returns an integer that represents the size of upstream FEC codeword in octets (FEC_PAYLOAD_SIZE + FEC_PARITY_SIZE) depending on the size of OctetsRemaining.

{ If OctetsRemaining > 0 and OctetsRemaining < 192 then US_FEC_CW_Sz = 1120/8 ElseIf OctetsRemaining > 193 and OctetsRemaining < 800 then US_FEC_CW_Sz = floor(5940/8) Else US_FEC_CW_Sz = 16200/8 }

US_FEC_PrtySz(OctetsRemaining)
TYPE: integer
This function returns an integer that represents the size of upstream FEC codeword parity field in octets depending on the size of OctetsRemaining.

{ If OctetsRemaining > 0 and OctetsRemaining < 192 then US_FEC_PrtySz = 280/8 ElseIf OctetsRemaining > 193 and OctetsRemaining < 800 then US_FEC_PrtySz = ceiling(900/8) Else US_FEC_PrtySz = 1800/8 }

US_FEC_PldSz(OctetsRemaining)
TYPE: integer
This function returns an integer that represents the size of upstream FEC codeword payload in octets depending on the size of OctetsRemaining.

{ If OctetsRemaining > 0 and OctetsRemaining < 192 then US_FEC_PldSz = (840-40)/8 ElseIf OctetsRemaining > 193 and OctetsRemaining < 800 then US_FEC_PldSz = (5040-40)/8 Else US_FEC_PldSz = (14400-40)/8 }
PROPOSED ACCEPT IN PRINCIPLE.
As proposed for DS constants.
Functions to be addressed with US Idle deletion definition (volunteer needed!).

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"

PROPOSED ACCEPT.
Comment Type: E  Comment Status: D
In the box "B-1" should be "beta-1"

Suggested Remedy
Replace B to beta (greek letter)

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: T  Comment Status: D
Review
P802.3bx is modifying Cl 77. We should rationalized these changes complementary changes to Cl 103.

Suggested Remedy
In Figure 77-14 (Eq to Fig 103–14)
IdleCount is changed to IdleGapCount (In 5, 11 & 16)

Added to 77.2.2.3 (eq to 103.2.2.4)
IdleGapCount
TYPE: 32-bit unsigned
This variable represents length of gap between subsequent frames, expressed in the unit of octet time. This variable advances by 1 after every 8-bit times.

ResetBound
TYPE: 32-bit unsigned
This variable represents the value of DelayBound (see 76.3.1.2) expressed in units of octet time (i.e., ResetBound = 8 * DelayBound).

In Figure 77-29 in PARSE GATE added "then" (this has already been done in Figure 103-29).

Proposed Response  Response Status: W
PROPOSED ACCEPT.
Comment Type: ER  Comment Status: D  Cl 45 Renum
Align Cl 45 numbering with 802.3bx draft.

Suggested Remedy
Change 45.2.1.13b to 45.2.1.14a & renumber subsequent sections
Change Table 45-15b to 17a
Change Table 45-78a to 45-98a & renumber subsequent sections
(as shown in reimein_3bn_17_0315/pdf)

Proposed Response  Response Status: W
PROPOSED ACCEPT.
See topic Cl 45 Renum

Comment Type: E  Comment Status: D
DS PHY data rate Register naming is inconsistent:
Table 45–3 pg 31 In 8 DS PHY data Rate
4.5.2.1.123 pg 47 In 20, 22 & 29 DS data rate (Also in Table 45-78a)
Table 100-1 Pg 81 In 8.11.13 DS PHY data rate & DS data rate
Table 101-1 Pg 112 Ln 47, 50, 52 DS PHY data rate & DS data rate
Likewise US PHY data rate
Table 45–3 pg 31 In 10 US Phy data Rate
4.5.2.1.124 pg 47 In 49 US PHY data rate
4.5.2.1.124 pg 47 In 51 & pg 48 In 1, 5 US data rate (also in Table 45-78r)
Table 100-1 Pg 81 In 15,18,20 US PHY data rate & US data rate
Table 101-1 Pg 113 Ln 7, 9, 12 US PHY data rate & US data rate

Suggested Remedy
Consistently use
US PHY data rate &
DS PHY data rate

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: E  Comment Status: D
Ref to 101.4.3.8 incorrect
change to 101.4.2.5.4

Suggested Remedy
PROPOSED ACCEPT IN PRINCIPLE.
Use 101.4.2.5.5 (where param CntPltSF is defined)
See topic VarXRef

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: E  Comment Status: D
this statement is slightly misguided
"Sets the CLT output port to a muted state for text purposes"

Suggested Remedy
change text to test

Proposed Response  Response Status: W
PROPOSED ACCEPT.
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 In 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."

PROPOSED ACCEPT.

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

Suggested Remedy

change 31 to 15

PROPOSED ACCEPT.

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

Suggested Remedy

change 31 to 15

PROPOSED ACCEPT.

Register 1.1921.15 through 1.1921.0 represent the DS PHY Link frame count

Suggested Remedy

"Register 1.1921 is the DS PHY Link frame counter"

and

"The assignment of bits in the DS PHY Link frame counter bit definition is shown in Table 45–78m"

Suggested Remedy

"Register 1.1921 is the DS PHY Link frame counter"

and

"The assignment of bits in the DS PHY Link frame counter register is shown in Table 45–78m"

PROPOSED ACCEPT.

Registers 1.1923 through 1.1922 form ...

Suggested Remedy

change to:

"Registers 1.1923 and 1.1922 form ...

PROPOSED ACCEPT.

Comment Type: T/technical  ER/editorial  GR/general

SORT ORDER: Clause, Subclause, page, line
Proposed Responses

Cl 45  SC 45.2.1.120  P 46  L 27  # 3278
Laubach, Mark  Broadcom

Comment Type  T  Comment Status  D
Remove "bit definitions" from title.

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

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 45  SC 45.2.1.121  P 46  L 47  # 3231
Remen, Duane  Huawei Technologies

Comment Type  E  Comment Status  D
Table title inconsistent with text.

Suggested Remedy

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 45  SC 45.2.1.122  P 47  L 5  # 3224
Remen, Duane  Huawei Technologies

Comment Type  E  Comment Status  D
Remmein, Duane  Huawei Technologies

Comment Type  E  Comment Status  D
There is no Xref for:

This is used to provision a delay in the ranging response in the event there is an analogue optical segment between the CLT and the CNUs as described in [ref].

Suggested Remedy

Add

"EDITORIAL NOTE (to be removed prior to publication): the care and feeding of this register and its associated variable is not defined anywhere in the draft."

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

Add to 102.4.1.7.2 RngOffset

TYPE: 32-bit integer

This variable is used to provision a delay in the ranging response in the event there is an analogue optical segment between the CLT and the CNUs as described in 102.4.1.4.

Add to 102.4.1.4 at pg 232 ln 41

"In the event there is an analog fiber segment between the CLT and CNU the CLT can delay the PHY Discovery Response by the amount of time specified in RngOffset."

Cl 45  SC 45.2.1.125  P 48  L 26  # 3223
Remen, Duane  Huawei Technologies

Comment Type  E  Comment Status  D
VarXRef

Suggested Remedy

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

See topic VarXRef

See Response to comment #3316

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: Clause, Subclause, page, line
Proposed Responses

#3316
Cl 45 SC 45.2.1.125 P 48 L 27 # 3316
Laubach, Mark Broadcom

Comment Type: E  Comment Status: D
Line 27 and 50 "{ref}" needs to be defined.

Page 46, Line 19. same comment.

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED 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."

#3226
Cl 45 SC 45.2.1.127 P 48 L 20 # 3226
Remein, Duane Huawei Technologies

Comment Type: E  Comment Status: D
Xref update for:
See {ref} for a definition of this register.

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.
See topic VarXRef
See Response to comment #3316

#3215
Cl 45 SC 45.2.1.126 P 48 L 50 # 3215
Remein, Duane Huawei Technologies

Comment Type: T
This statement could be clearer:
"Each number is a 16-bit signed fractional two's complement number."

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED ACCEPT.

#3292
Cl 45 SC 45.2.7a.3 P 53 L 20 # 3292
Laubach, Mark Broadcom

Comment Type: E  Comment Status: D
"the" is spelled wrong in second line of second description in table.

Register numbering should start in 45.2.7a.4.1 "12.10240" not "12.240" Is correct in descriptions.

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED ACCEPT.

#3226
Cl 45 SC 45.2.1.127 P 48 L 20 # 3226
Remein, Duane Huawei Technologies

Comment Type: E  Comment Status: D
Xref update for:
See {ref} for a definition of this register.

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.
See topic VarXRef
See Response to comment #3316

#3215
Cl 45 SC 45.2.1.126 P 48 L 50 # 3215
Remein, Duane Huawei Technologies

Comment Type: T
This statement could be clearer:
"Each number is a 16-bit signed fractional number conforming to the Q2.14 format."

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED ACCEPT.

#3292
Cl 45 SC 45.2.7a.3 P 53 L 20 # 3292
Laubach, Mark Broadcom

Comment Type: E  Comment Status: D
"the" is spelled wrong in second line of second description in table.

Register numbering should start in 45.2.7a.4.1 "12.10240" not "12.240" Is correct in descriptions.

Suggested Remedy

Proposed Response:  Response Status: W
PROPOSED ACCEPT.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 3rd Task Force review comments

Draft 1.3

Proposed Responses

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</table>

Remein, Duane
Huawei Technologies

Laubach, Mark
Broadcom

Comment Type T Comment Status D
The referenced register should be 12.10241.
"same bit structure as that of register 12.10242."

Suggested Remedy
change The remaining registers
12.10242 to 12.10241

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Change the end of the sentence from
"of register 12.10242" to
"of register 12.10241"

Comment Type T Comment Status D
Need to resolve TBD's or not modify Clause 67. Nominal reach is first defined in
amendments to Table 56-1, page 63 as "2.9 km" with table footnote of "Maximal
differential distance between CNUs. Reach may vary depending on the CCDN."

Note that Table 67.1 has not been updated with other EPON PHY standards that increase
split ratio beyond 1:16, e.g. 1:32, 1:64. Since EPoC does not specify the maximum
number of CNUs, the number of PHYs = CLT PHY + N * CNU PHYs is not readily
quantifiable into this table format.

Suggested Remedy
Consider 1 of 2 choices:
Choice 1: do not modify Clause 67 and remove from our draft.
Choice 2: try to fill in the TBD's with something that makes some sense:
Page 67, Lines 27 and 28, replace nominal reach TBDs with "2.9 km" and add a table footnote
same as "i" from Table 56-1. Note now that this is duplicative of the changes to Table 56-1.
Page 67, Lines 27 and 28, replace number of PHYs TBD with "variable" and a new table
footnote "Based on cable operator's CCDN configuration, the number of PHYs will be the
CLT PHY plus each CNU PHY," or similar.

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
TF needs to decide on CL 67 Table 67-1. Also consider removing changes to 67.3.

Comment Type E Comment Status D
Unlinked ref to 103.3.3.2

Suggested Remedy
make it a live link (103.3.3.2 is correct).

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
It is a live link when tested to 103.3.3.2. Need to change color from magenta to black.

Comment Type E Comment Status D
Fix master page copyright from 2013 to 2015.

Suggested Remedy
As commented.

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment Type E Comment Status D
Change "Ammendment X:" to "Ammendment:" per latest template

Suggested Remedy
per comment

Proposed Response Response Status W
PROPOSED ACCEPT.