### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

<table>
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<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
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<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
</tr>
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<tbody>
<tr>
<td>i-1</td>
<td>1.4.277a</td>
<td>28</td>
<td>47</td>
<td>1</td>
<td>E</td>
<td>E</td>
<td>EZ</td>
<td>The P802.3bq amendment is expected to be approved before 802.3bn. The P802.3bq draft is inserting a new definition for &quot;MultiGBASE-T&quot; which should be 1.4.277a. P802.3bq D3.0 has this as 1.4.277b, but a comment will be submitted to correct this.</td>
<td>Change the editing instruction to: &quot;Insert the following definition after 1.4.277 &quot;mixing segment&quot; and before 1.4.277a (as inserted by IEEE Std 802.3bq-201x) as follows:&quot; Change the definition to be 1.4.277aa</td>
<td>ACCEPT.</td>
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<td>i-2</td>
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<td>2</td>
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<td>EZ</td>
<td>&quot;optical distribution network (ODN)&quot; should be after 1.4.296 &quot;Operations, Administration, and Maintenance (OAM)&quot;</td>
<td>Renumber 1.4.294b to 1.4.296a and add appropriate editing instruction</td>
<td>ACCEPT.</td>
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<tr>
<td>i-3</td>
<td>30.3.5.1.3</td>
<td>32</td>
<td>11</td>
<td>3</td>
<td>T</td>
<td>T</td>
<td>EZ</td>
<td>Text has been added to say &quot;When this attribute has the enumeration &quot;CLT&quot;, the interface acts as a CLT. When this attribute has the enumeration &quot;CNU&quot;, the interface acts as a CNU.&quot; However, the APPROPRIATE SYNTAX section of 30.3.5.1.3 only has enumerations of &quot;OLT&quot; and &quot;ONU&quot;</td>
<td>Add enumerations of &quot;CLT&quot; and &quot;CNU&quot; to the APPROPRIATE SYNTAX section of 30.3.5.1.3</td>
<td>ACCEPT.</td>
<td></td>
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### Final Responses

<table>
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<th>SC</th>
<th>P</th>
<th>L</th>
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<td>45.2.1.14aa</td>
<td>38</td>
<td>17</td>
<td>4</td>
<td>E</td>
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<td>EZ</td>
<td>In &quot;Insert 45.2.1.14aa and Table 45-17aa after 45.2.1.14a as inserted by IEEE Std 802.3by-201x as follows:&quot; , &quot;after&quot; should be &quot;before&quot;.</td>
<td>Change &quot;after&quot; to &quot;before&quot;.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
</tbody>
</table>

**Based on IEEE P802.3by entering sponsor ballot in November 2015, IEEE P802.3bq and IEEE P802.3bp entering sponsor ballot in December 2015, the published timeline for IEEE P802.3bq showing approval in June 2016, and the published timeline for IEEE P802.3bp showing approval in August 2016, it seems likely that that IEEE P802.3by will be the second amendment, IEEE P802.3bq will be the third amendment, and IEEE P802.3bn will be the fifth or sixth amendment to IEEE Std 802.3-2015.**

**Please change 'Amendment of IEEE Std 802.3(TM)-2015' to read 'Amendment of IEEE Std 802.3(TM)-2015 as amended by IEEE Std 802.3bw(TM)-2015, IEEE Std 802.3by(TM)-201X, IEEE Std 802.3bq(TM)-201X, IEEE Std 802.3bp(TM)-201X'**

Keep the list updated as project status changes.

**ACCEPT.**

**ACCEPT.**
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0 Final Responses

Hajduczenia, Marek Bright House Network

Comment Type: E, Comment Status: A

Suggest that this text be updated based on: (a) the approval of IEEE Std 802.3bw-2015, the likelihood that IEEE P802.3by will be the second amendment, IEEE P802.3bq will be the third amendment, and IEEE P802.3bp will be the fourth amendment to IEEE Std 802.3-2015; (b) use of the (TM) symbol only on the first instance; and (c) alignment of IEEE P802.3bn description with other amendment descriptions

Suggested Remedy

1. The following text should be inserted prior to the existing text 'IEEE Std 802.3bn(TM)-201x':

IEEE Std 802.3bw-201x
Amendment 1--This amendment includes changes to IEEE Std 802.3-2015 and adds Clause 96. This amendment adds 100 Mb/s Physical Layer (PHY) specifications and management parameters for operation on a single balanced twisted-pair copper cable.

IEEE Std 802.3by-201x

IEEE Std 802.3bq-201x
Amendment 3--This amendment includes changes to IEEE Std 802.3-2015 and adds Clause 113 and Annex 113A. This amendment adds new Physical Layers for 25 Gb/s and 40 Gb/s operation over balanced twisted-pair structured cabling systems.

IEEE Std 802.3bp-201x
Amendment 4--This amendment includes changes to IEEE Std 802.3-2015 and adds Clause 97 and 98. This amendment adds point-to-point 1 Gb/s Physical Layer (PHY) specifications and management parameters for operation on a single balanced twisted-pair copper cable in automotive and other applications not utilizing the structured wiring plant.

2. Insert "Amendment 5--" before the current descriptive text for IEEE Std 802.3bn(TM)-201x

Response: ACCEPT IN PRINCIPLE.

ML/GK

Comment Type: TR, Comment Status: R

Strike statement: "Frames transit the network between the central station and the end stations and do not transit directly from end station to end station." - we do not restrict ONU/CNU to ONU/CNU communication, if one desired to deploy links between them - these are outside of the scope of our definitions.

Suggested Remedy per comment

REJECT.

ONU/CNU to ONU/CNU communication is not supported on any P2MP PHY and such communication is done through a bridge above 802.3.

Response: REJECT.

ML/GK

Comment Type: E, Comment Status: A

Suggest the editing instructions be updated listing the expected approval order for any objects modifying selected attributes. This helps the reader understand that this object is being modified by multiple projects, and also help staff editorial combine individual amendments into a single base document down the road.

This applies to aPhyType, aPhyTypeList, aMAUType

Suggested Remedy

For example, aPhyType is being modified by all 5 amendments (this one and 4 previous ones):

Change "Insert in alphanumeric order a single line for "10GPASS-XR" type into the APPROPRIATE SYNTAX list of 30.3.2.1.2 aPhyType as shown below." to Insert in alphanumeric order a single line for "10GPASS-XR" type into the APPROPRIATE SYNTAX list of 30.3.2.1.2 aPhyType (as modified by IEEE Std 802.3bw-2015, IEEE Std 802.3by-201X, IEEE Std 802.3bq-201X, and IEEE Std 802.3bp-201X) as shown below.

Response: ACCEPT IN PRINCIPLE.

Note this is the syntax agreed with IEEE staff editors.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Cl 45 SC 45.2 L 6 # i-9
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A EZ

No need to show unchanged rows.

SuggestedRemedy

Change editorial instructions to read: “Change reserved row 12 through 28 as shown below (unchanged rows are not shown)”

Strike rows 0 through 11, 29 through 31

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.131 L 1 # i-10
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status A +REV+ DR Sed CIAS renum

Registers 45.2.1.133 through 45.2.1.137 are already allocated by P802.3bw, which will likely be published before .3bn

SuggestedRemedy

move registers 45.2.1.131 - 165 to 45.2.1.138 - 172 and renumber accordingly

Renumber also Tables to make sure there is no conflict with projects in Sponsor Ballot or approved.

Response Response Status W

ACCEPT IN PRINCIPLE.

REVISED

Coordinate with other clause 45 editors and change clause numbering as agreed, register numbering remains as is. Tables will be renumbered per comment i-371 (resolution copied below)

Editors to consult with WG Secretary and IEEE staff editors for preferred resolution.

Cl 45 SC 45.2.1.144 L 32 # i-11
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A EZ

You might likely want to list full register number: *Registers 1.1923 and 1.1922 form an offset*

SuggestedRemedy

Change to “Registers 1.1923 and 1.1922 form an offset”

Response Response Status C

ACCEPT.

Cl 00 SC 45.2.1.147 L 1 # i-12
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

It is not clear why DS PMA/PMD data rate is chopped up in such an unreadable format:

bits 15:0 first, followed by bits 2:0, followed by bits 31:16, followed by Reserved space and followed by bits 36:32

The same applies to Table 45-98r

SuggestedRemedy

Suggest the following order:

1.1927:15:0 -> bits 36:21 (call it fixed, upper)
1.1926:15:0 -> bits 20:5 (call it fixed, middle)
1.1925:15:14 -> bits 4:3 (call it fixed, bottom)
1.1925:13:11 -> bits 2:0 (call it fraction)
1.1925:10:0 -> Reserved

Similar changes for Table 45-98r

Response Response Status W

ACCEPT IN PRINCIPLE.

REVISED

Changed to Cl 00

The mapping assigns the least significant bit to the lowest numbered register/bits and the highest significant numbers to the most significant bits.

Reserved bits are at the logical top of the structure. This is a logical order from a machine readable point of view.

Change the note accompanying tables 100-1, 101-1 & 102-3 regarding MSB/LSB to:

“The least significant bit in each variable is mapped to the lowest numbered bit in the lowest numbered register for Clause 45 registers.”

Cl 45 SC 45.2.1.149 L 1 # i-13
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status R +REV+

Table footnote got separated from table

SuggestedRemedy

Please make sure there are no runaway footnotes to tables

Response Response Status C

REJECT.

Standards are professionally edited by IEEE editors prior to publication
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment 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  U/unsatisfied  Z/withdrawn
SORT ORDER: Comment ID

---

Cl. 45 SC 45.2.7a.4 P 64 L 18 # i-14
Hajduczenia, Marek Bright House Network

Comment Type: TR  Comment Status: R  +REV+
Table 45-98q and Table 45-98r specify order of mapping of fixed and fractional elements of a floating point number. Why is the same not done in Table 45-211e and other table defining pre-equalizer coefficients? Is the mapping intended to start with fixed or fractional part?

Suggested Remedy
Consider adding details from Table 45-98q/r to make sure that it is clear where fractional and fixed elements of the floating point numbers would be located

Response  Response Status: W
REJECT.
This 16-bit number wholly maps into a single MDIO register whereas the numbers in Table 45-98q/r require 3 registers with some spare register bits requiring enumeration of used and spare bits.

---

Cl. 56 SC 56.1 P 69 L 31 # i-15
Hajduczenia, Marek Bright House Network

Comment Type: E  Comment Status: A  EZ
The list of Clauses for 10G-EPON lists PHY and PMD only, while EPoC also lists MPCP for some reason

Suggested Remedy
Change "Clause 101, Clause 102, and Clause 103" to "Clause 101 and Clause 102"

Response  Response Status: C
ACCEPT.

---

Cl. 56 SC 56.1.3 P 72 L 10 # i-16
Hajduczenia, Marek Bright House Network

Comment Type: E  Comment Status: A  EZ
Some spurious "\" in Rate column

Suggested Remedy
Change "(tx)\h" to "(tx)\" with proper footnote reference format

Response  Response Status: C
ACCEPT.
<table>
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<tr>
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<td>Bright House Network</td>
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</table>

**Comment Type**: TR  **Comment Status**: A  
+REV+

Text does not match primitive: "PMD_UNITDATA.request(I_value, Q_value, ChNum)" versus "The data conveyed by PMD_UNITDATA.request is a continuous stream of I/Q value pairs." - it is not just I/Q pairs that are being transmitted, but also channel number.

**Suggested Remedy**

Change "The data conveyed by PMD_UNITDATA.request is a continuous stream of I/Q value pairs and target OFDM channel."

Change "The Clause 101 PMA continuously sends the stream of I/Q value pairs to the Clause 100 PMD for transmission on the medium, at the nominal rate of 204.8 million samples per second (Mps)." to "The Clause 101 PMA continuously sends the stream of I/Q value pairs and OFDM channel number to the Clause 100 PMD for transmission on the medium, at the nominal rate of 204.8 million samples per second (Mps)."

See Figure 101-1 for reference on what is sent to PMD via PMD_UNITDATA primitive. Similar changes needed to 100.2.1.3, where PMD_UNITDATA.indication is defined only in terms of I/Q pairs, omitting OFDM channel information altogether.

**Response**  **Response Status**: W  
ACCEPT IN PRINCIPLE.

REVISED

Change "The data conveyed by PMD_UNITDATA.request is a continuous stream of I/Q value pairs." to "The data conveyed by PMD_UNITDATA.request is a continuous stream of I/Q value pairs and target OFDM channel."

Change "The Clause 101 PMA continuously sends the stream of I/Q value pairs to the Clause 100 PMD for transmission on the medium, at the nominal rate of 204.8 million samples per second (Mps)." to "The Clause 101 PMA continuously sends the stream of I/Q value pairs and OFDM channel number to the Clause 100 PMD for transmission on the medium, at the nominal rate of 204.8 million samples per second (Mps)."

In 100.2.1.3 PMD_UNITDATA.indication
Add "and received OFDM channel" to end of sentence on line 33/34.
Add "and OFDM channel number" just after "I/Q value pairs" at line 37.

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<td>Bright House Network</td>
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**Comment Type**: TR  **Comment Status**: A  
+REV+

Text "The PMD Receive function conveys the bits received from the MDI to the PMD service interface using the message PMD_UNITDATA.indication(I_value, Q_value), creating appropriately formatted stream of I/Q value pairs." does not match Figure 101-3, where PMD_UNITDATA.indication(I_value, Q_value, ChNum) is shown.

**Suggested Remedy**

Change text to read "The PMD Receive function conveys the bits received from the MDI to the PMD service interface using the message PMD_UNITDATA.indication(I_value, Q_value, ChNum), creating appropriately formatted stream of I/Q value pairs and OFDM channel information."

**Response**  **Response Status**: W  
ACCEPT.

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

Unclear what "this" is in the statement; "this is not defined for the CLT."

**Suggested Remedy**

Change to "PMD_SIGNAL.request(Tx_Enable) message is not defined for the CLT."

**Response**  **Response Status**: C  
ACCEPT.

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<td>Bright House Network</td>
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**Comment Type**: T  **Comment Status**: R  
+REV+

Figure 100A-1 is intended (I believe) to be an example, rather than a normative representation of EPoC network topology.

**Suggested Remedy**

Change "Figure 100A-1--EPoC network topology" to "Figure 100A-1--EPoC network topology (example)"

**Response**  **Response Status**: C  
REJECT.

First paragraph explains it. The channel model is based on that topology model.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CI</th>
<th>SC</th>
<th>P</th>
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</table>

**Comment:** Reference in lines 49-53 should be converted into entries in Annex A, and then referenced via [XX] references - these are non-normative reference

**Suggested Remedy:**
- Per comment
  - Change "NOTE - Additional information on cable coaxial network topology can be found in:" to "NOTE - Additional information on cable coaxial network topology can be found in [A] and [B]." update the proper letters, when references are inserted.
  - Also, apply proper FM style to NOTE - it is in T-Text right now

**Response:**
- ACCEPT.

---

**Comment:** PSD is used in 8 locations, but never really defined / expanded

**Suggested Remedy:**
- Please provide expansion on first use and consider adding to list of acronyms in Clause 1

**Response:**
- REJECT.
  - See definition in Clause 1.

---

**Comment:** Seems that "Node" is more common. Change all "HFC Node" to "Node"
- Also, consider adding definition of what a "Node" is, since it is used under assumption that it is a commonly known definition, which is not the case in 802.3

**Response:**
- ACCEPT IN PRINCIPLE. REVISED
  - In Fig 100A-1 expand "NODE" to "HFC NODE"
  - On Pg 350 line 13 change "the EPoC RF coupled after Node" to "the EPoC RF coupled after HFC Node"
  - Note that an HFC Node is a specific type of node which is well known in the cable industry. Other uses of the word node in the standard is consistent with the definitions of CCDN, ODN, etc.

**Response:**
- ACCEPT IN PRINCIPLE. REVISED
  - First use of SCN is already expanded in Table 100A-1. Will add first-use expansions for first use of acronyms for CTB, CSO, SCN. Note that SCN, CTB, and CSO well known in the cable RF industry.
Comment Type: ER
Comment Status: R

Suggested Remedy:

Apply proper FM style - right now these are simple T,Text style text. Also, is the intent to use informative or normative notes here? There is a difference and it seems that you're after footnotes, and not notes to table. If that is the case, use footnotes, and not notes. The same observation applies to Table 100A-2.

Response: REJECT.

These are Table Notes and informative (see 14.4 in the Style Manual). IEEE Staff Editors approved the current format and paragraph tag.

Comment ID: i-28
Page 7 of 83

Response:

ACCEPT IN PRINCIPLE.
REVISED
Strike "TOTO" requirement and 100A.4.4 header.

At pg 349 line 4 strike the statement "Devices designed to the EPoC PHY standard shall meet or exceed normative performance when operated in any network which meets or exceeds the parameters given in Table 100A-1 and Table 100A-2 regardless of the network topology."

Add at pg 350 line 3 as the 1st sentence of the para:
"Devices designed to the EPoC PHY standard shall meet or exceed normative performance when operated in any network which meets or exceeds the parameters given in Table 100A-1 regardless of the network topology."

Add at pg 352 line 30 as 1st sentence of the para:
"Devices designed to the EPoC PHY standard shall meet or exceed normative performance when operated in any network which meets or exceeds the parameters given in Table 100A-2 regardless of the network topology."

Update PICS PERF1 & PERF2
Comment Type: T  Comment Status: A  EZ

"This establishes nominal data rate for CLT PMA_UNITDATA.request() service interface." - unclear what "This" means in this sentence. Is this reference to equation 100-1 or DS-DataRate? Please clarify.

Also, "CLT PMA_UNITDATA.request()" should be "CLT PMA_UNITDATA.request", since we do not list all primitive parameters. Same on page 88, line 1

SuggestedRemedy
Per comment

Response
Response Status: C

ACCEPT IN PRINCIPLE.
REVISED
Change "This" to "Equation 100-1" cross ref. Do the other two changes.

Comment Type: T  Comment Status: A  EZ

Odd unit: "(upstream) (us))"

SuggestedRemedy
Change to "(us)"
It is not clear what the implication of "(upstream)" is here

Response
Response Status: C

ACCEPT IN PRINCIPLE.
REVISED
Remove "(upstream)".

Comment Type: T  Comment Status: A  EZ

There is no reason to keep DS_ChCnt variable in bit-format - it should be specified as unsigned integer and how it is mapped into register(s) is quite straightforward, considering the value range: 1- 5.

Similar comment on DS_PowerCh(n) in 100.3.4.2.1

SuggestedRemedy
Per comment

Response
Response Status: C

ACCEPT IN PRINCIPLE.
REVISED
Change "3-bit integer" to "3-bit unsigned integer"
<table>
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<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response Status</th>
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<th>Line</th>
<th>Revised</th>
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<tr>
<td>i-34</td>
<td>TR</td>
<td>A</td>
<td>Text does not match the equation 100-4. &quot;Occupied spectrum (Occupied spectrum) ... is the sum of ...&quot;</td>
<td>ACCEPT.</td>
<td>89</td>
<td>43</td>
<td>34</td>
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<tr>
<td>i-35</td>
<td>T</td>
<td>A</td>
<td>Change to &quot;Occupied spectrum (Occupiedspectrum) as shown in Equation (100-4) is the product of ...&quot;</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>90</td>
<td>13</td>
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<td>i-36</td>
<td>ER</td>
<td>A</td>
<td>&quot;[ISO/IEC-61169-24] or [SCTE 02]&quot; are not in the list of references right now ...</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>92</td>
<td>16</td>
<td>36</td>
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<tr>
<td>i-37</td>
<td>T</td>
<td>A</td>
<td>Seems like definition of MER should be moved to a normative part of the text, where other definitions are also detailed: 100.3.4.1 OFDM channel power definitions</td>
<td>REJECT.</td>
<td>92</td>
<td>21</td>
<td>37</td>
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<tr>
<td>i-38</td>
<td>T</td>
<td>A</td>
<td>The modulated spectrum at the MDI (&quot;RF port&quot;) is&quot; - MDI is defined already before</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>92</td>
<td>14</td>
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<td>i-39</td>
<td>ER</td>
<td>A</td>
<td>Minimum function is typically surrounded by () and not by []</td>
<td>REJECT.</td>
<td>92</td>
<td>16</td>
<td>39</td>
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</table>
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Comment ID: i-40

Comment Type: T
Comment Status: A
Cl: 100 SC 100.3.4.4 P 93 L 34 # i-40

Hajduczenia, Marek
Bright House Network

"NOTE-- With N* = bottom term in Equation (100-6)" - this is unnecessary, you already provide condition, i.e., Neqport' >= Neqport

Suggested Remedy:
Strike "NOTE-- With N* = bottom term in Equation (100-6)"
Strike "NOTE-- With N* = top term in Equation (100-6)"

Response: ACCEPT.

Response Status: C

Comment ID: i-41

Comment Type: E
Comment Status: R
Cl: 100 SC 100.3.4.4 P 94 L 1 # i-41

Hajduczenia, Marek
Bright House Network

Notes separated from table

Suggested Remedy:
Please make sure that footnotes are not separated from the table

Response: REJECT.

Response Status: C

Staff editors say that standards are professionally edited by IEEE editors prior to publication.

Comment ID: i-42

Comment Type: ER
Comment Status: A
Cl: 100 SC 100.3.4.4 P 94 L 7 # i-42

Hajduczenia, Marek
Bright House Network

Notation for ceiling not consistent with 100.1.1, where specific symbols are introduced

Suggested Remedy:
Please align the use of "ceiling" function in footnote d) with symbols defined in 100.1.1
The same applies to floor function.

Multiple locations in the draft

Response: REJECT.

Response Status: C

REVISED

Move footnote d to the closing ceiling bracket on line 31 and copy footnote d to line 36.
Change text of footnote d from:
"All equations are Ceiling(Power, 0.5) dBc. Use "Ceiling(2^Power) / 2" to get 0.5 steps from ceiling functions that return only integer values. For example Ceiling(-63.9, 0.5) = -63.5 dBc."
to
"Ceiling function rounds to the nearest 0.5."

In Figure 101-6 SD change the two instaces of "floor(..)" into floor bracket symbols.

Response: ACCEPT IN PRINCIPLE.

Response Status: W

REVISED

Move footnote d to the closing ceiling bracket on line 31 and copy footnote d to line 36.
Change text of footnote d from:
"All equations are Ceiling(Power, 0.5) dBc. Use "Ceiling(2^Power) / 2" to get 0.5 steps from ceiling functions that return only integer values. For example Ceiling(-63.9, 0.5) = -63.5 dBc."
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In Figure 101-6 SD change the two instaces of "floor(..)" into floor bracket symbols.

Response: ACCEPT IN PRINCIPLE.

Response Status: W

REVISED

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Response: ACCEPT IN PRINCIPLE.

Response Status: W

REVISED

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In Figure 101-6 SD change the two instaces of "floor(..)" into floor bracket symbols.

Response: ACCEPT IN PRINCIPLE.

Response Status: W

REVISED

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to
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In Figure 101-6 SD change the two instaces of "floor(..)" into floor bracket symbols.

Response: ACCEPT IN PRINCIPLE.

Response Status: W

REVISED

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to
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In Figure 101-6 SD change the two instaces of "floor(..)" into floor bracket symbols.

Response: ACCEPT IN PRINCIPLE.

Response Status: W

REVISED

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to
"Ceiling function rounds to the nearest 0.5."

In Figure 101-6 SD change the two instaces of "floor(..)" into floor bracket symbols.

Response: ACCEPT IN PRINCIPLE.
<table>
<thead>
<tr>
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<td>Hajduczenia, Marek</td>
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<td>Comment Type</td>
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<td>Comment Status</td>
<td>A</td>
<td>+REV+</td>
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<tr>
<td>&quot;The CLT modulator shall satisfy ...&quot; - it is hardly a requirement for the modulator itself that we write. It is the CLT PMD that we're writing requirements against.</td>
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<td>Suggested Remedy</td>
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<tr>
<td>Change all requirements towards the &quot;CLT modulator&quot; to &quot;10GBASE-XR-D PMD&quot;, which is what we need. This is as specific as we need to get here IMO</td>
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<td>Multiple locations are affected.</td>
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<tr>
<td>No need to break out Neqi definition into a separate line and merge with text from line 12</td>
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<td>Suggested Remedy</td>
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<tr>
<td>Change text 8-10: &quot;each contiguous sub-block is denoted as (&lt;b&gt;Neqi&lt;/b&gt;) for (&lt;b&gt;i&lt;/b&gt; = 1 to (&lt;b&gt;K&lt;/b&gt;), where (&lt;b&gt;K&lt;/b&gt;) is the number of contiguous blocks. Therefore;&quot;</td>
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<td>+REV+ Sed</td>
<td></td>
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<tr>
<td>Text in Requirement column for some of rows is very, very small. Suggest to either break the text down into multiple lines per entry, or alternatively create external equation, and just reference in the table. The way it is right now it is only readable when zoomed in to 400%</td>
<td></td>
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<tr>
<td>Suggested Remedy</td>
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<tr>
<td>Per comment - this applies to items 1, 2, 6. Other items could be also more readable as external equations</td>
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<td>ACCEPT IN PRINCIPLE.</td>
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<tr>
<td>&quot;The CLT shall provide for ...&quot; - CLT as a system? This is the PMD clause</td>
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<tr>
<td>Suggested Remedy</td>
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<tr>
<td>Consider rewriting it to a CLT PMD requirement, e.g., &quot;The 10GPASS-XR-D PMD shall support ...&quot;</td>
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<tr>
<td>Update PICS. There are multiple entries in Clause 100 where similar generic requirement is stated</td>
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<tr>
<td>There are also similar generic statements for a CNU, without indicating which layer is responsible for the function</td>
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<td>REJECT.</td>
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<tr>
<td>The construct of &quot;CLT shall&quot; is consistent with usage in IEEE STD 802.3 2015 clauses 64 . 77 that use &quot;OLT shall&quot;</td>
<td></td>
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<tr>
<td>The commenter is invited to submit a maintenance request if this remains a blocking issue.</td>
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<td>EZ</td>
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<tr>
<td>RB Superframe or RB superframe?</td>
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<td>Suggested Remedy</td>
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<tr>
<td>Pick one, use consistently</td>
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<td>Response</td>
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<td>ACCEPT IN PRINCIPLE.</td>
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<tr>
<td>REVISED</td>
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<tr>
<td>It is &quot;RB Superframe&quot; everywhere except in the title for Figure 100-2. Consider capitalizing it there.</td>
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<td>Hajduczenia, Marek</td>
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<td>EZ</td>
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<tr>
<td>Is the ending dot in Eq 100-9 associated with any specific meaning?</td>
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<tr>
<td>Suggested Remedy</td>
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<tr>
<td>Remove the dot in Eq 100-9</td>
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<tr>
<td>Response</td>
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<td>ACCEPT.</td>
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</table>
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Comment Type: T
Comment Status: A

Units in the wrong location: "53.2 dBmV+ (PMax - 65)"

Suggested Remedy
Change to "53.2 + (PMax - 65) dBmV"

Response: Response Status: C
ACCEPT.

Comment Type: E
Comment Status: A

Unnecessary equation

Suggested Remedy
Change "power P1.6t, as follows:
P1.6r = reported power level (dBmV) of CNU for the channel."
to
power P1.6t, i.e., the reported power level (dBmV) of CNU for the channel."

Response: Response Status: C
ACCEPT.

Comment Type: E
Comment Status: A

Unnecessary equation

Suggested Remedy
Remove "Hold" from this variable name in the four places from Line 6 to 13 on Page 100.

Response: Response Status: C
ACCEPT IN PRINCIPLE.

Comment Type: E
Comment Status: A

It is odd to see units of MHz stuck in the middle of the equation, especially when it is not clear what the end unit should be in this case

Suggested Remedy
Consider moving MHz out of the equation and putting "(MHz)" outside of equation, to indicate what units are used. There are several equations in Clause 100 with the same problems.

Response: Response Status: W
ACCEPT IN PRINCIPLE.

Final Responses

Comment ID: i-55
Page 12 of 83
3/17/2016 1:26:41 AM
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Comment ID** i-56

**Cl 100 SC 100.3.5.4.2 P 103 L 1**

Hajduczenia, Marek  
Bright House Network

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

**Odd dot in the top left hand corner**

**SuggestedRemedy**

Please remove. There are multiple pages in the draft where such standalone dots are visible.

**Response**

**Response Status** C

ACCEPT IN PRINCIPLE.

REVISED

1) Reattach the period to the preceding sentence on Page 102.

2) Please state the other pages.

**Comment ID** i-57

**Cl 100 SC 100.3.5.4.2 P 103 L 6**

Hajduczenia, Marek  
Bright House Network

**Comment Type** ER  
**Comment Status** A  
EX+

In Table 100-8, some numbers and text is added in [], which is neither explained nor justified

**SuggestedRemedy**

Either explain what this designation means, or removed altogether. The same applies to Table 100-9

**Response**

**Response Status** W

ACCEPT IN PRINCIPLE.

REVISED

Page 103 Line 28,
Add a single Table Note (informative style) to Table 100-8 with the text "NOTE 1-- Each row of bracketed values represent a set of calculated examples. The value in the first column is an example value for 100% Grant Spectrum (MHz). The remaining columns are the result of the calculations for that column."

Page 105, Line 27, do the same for Table 100-9.

On the 4th row of Table 100-8 adjust spacing so that the rows of bracketted numbers are aligned.

**Comment ID** i-59

**Cl 100 SC 100.3.5.4.3 P 103 L 6**

Hajduczenia, Marek  
Bright House Network

**Comment Type** ER  
**Comment Status** A  
EX+

"provides specification "dBc" only" - what does it mean that Table provides such specification? The term "dBc" is not explained, and it is not clear what "specification dBc really is"

**SuggestedRemedy**

Please clarify - no clue what it is supposed to be

**Response**

**Response Status** W

ACCEPT IN PRINCIPLE.

REVISED

Add footnote to Table 100-7 "dBc" at line 18 & line 19 to read "The signal reference power, 0 dBc, is the total transmit power defined in 100.3.5.4.1."

In Table 100-8 add the a footnote with same text as above to "dBc" at line 9 (2x).

In Table 100-9 add the a footnote with same text as above to "dBc" at line 9 (2x).
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Comment ID: i-60

Cl 100 SC 100.3.5.4.3 P 104 L 10 # i-60

Hajduczenia, Marek
Bright House Network

Comment Type: T

Comment Status: A

Suggested Remedy

Rather odd equation with "The" in the middle: "Modulated Subcarriers - The Under-grant Hold Bandwidth"

"for a grant equal to \(<b>Modulated Subcarriers</b>\) - \(<i>Under-grant Hold Bandwidth</i>\)."

Response

ACCEPT IN PRINCIPLE.

REVISED

See i-340. Copy of Response:

1) Change Page 104, line 1, "with the number of Modulated Subcarriers" to "with the Grant Spectrum".

2) Change, page 104, line 3, in the denominator of the equation, "Modulated Subcarriers" should be replaced with "Grant Spectrum", with the latter in italics as on page 102.

3) On page 104, line 10, the italicized words "Modulated Subcarriers" in the equation should be replaced with the italicized words "Grant Spectrum". Remove the "The"

4) On page 104, line 18, in the equation, the italicized words "Modulated Subcarriers" should be replaced with the italicized words "Grant Spectrum".

5) Page 100, line 1, "simultaneous" is misspelled.

6) Page 103, line 39, first sentence of Section 100.3.5.4.3, the use of "Table 100-8" should be "Table 100-9".

7) Page 103, line 48, second word of third sentence of paragraph, the use of "Table 100-8" should be "Table 100-9". (The use of "Table 100-8" later in the sentence, on line 49, is CORRECT and should not be changed.

8) Page 104, line 7, the use of "Table 100-8" should be "Table 100-9".

9) Page 104, line 8, the use of "Table 100-7" should be "Table 100-8".

10) Page 104, lines 12 through 16 are CORRECT, FYI.

11) Page 104, line 19, the use of "Table 100-7" should be "Table 100-8".

12) Page 104, line 21, the use of "Table 100-8" should be "Table 100-9".

13) Page 104, line 22, the use of "Table 100-7" should be "Table 100-8".

14) Page 104, line 26, the use of "Table 100-9" is CORRECT, FYI.

Comment ID: i-61

Cl 100 SC 100.3.5.4.3 P 104 L 10 # i-61

Hajduczenia, Marek
Bright House Network

Comment Type: ER

Comment Status: R

Suggested Remedy

Round function has been used before, but explained only here.

Response

REJECT.

The Round() function is used only twice and explained immediately after each use.

Comment ID: i-62

Cl 100 SC 100.3.5.4.4 P 105 L 10 # i-62

Hajduczenia, Marek
Bright House Network

Comment Type: TR

Comment Status: A

+REV+

Requirement broken into two sentences: "The CNU’s voltage step shall be dissipated no faster than 4 us of constant slewing. This requirement applies when the CNU is transmitting at +55 dBmV or more."

Suggested Remedy

Change to "The CNU’s voltage step shall be dissipated no faster than 4 us of constant slewing when the CNU is transmitting at +55 dBmV or more."

Update PICS

Response

ACCEPT.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Comment ID** i-63

**Comment Type** TR

**Comment Status** A

**Response**

要求被分成两句话："At backed-off transmit levels, the CNU's maximum change in voltage shall decrease by a factor of 2 for each 6 dB decrease of power level, from +55 dBmV down to a maximum change of 3.5 mV at 31 dBmV and below. The transient response requirement does not apply to CNU power-on and power-off transients."

**Suggested Remedy**

将"At backed-off transmit levels, the CNU's maximum change in voltage shall decrease by a factor of 2 for each 6 dB decrease of power level, from +55 dBmV down to a maximum change of 3.5 mV at 31 dBmV and below, excluding the CNU power-on and power-off transients."改写为"At transmit levels below +55 dBmV, the CNU's maximum change in voltage shall decrease by a factor of 2 for each 6 dB decrease of power level, from +55 dBmV down to a maximum change of 3.5 mV at 31 dBmV and below."}

**Response Status** W

**Response**

ACCEPT IN PRINCIPLE.

**Revision**

行42，从"The transient response requirement does not apply to CNU power-on and power-off transients"改为"The amplifier turn on and turn off transients of this subclause (100.3.5.4.4) are not applicable when the entire CNU is being powered on or off."

**Comment ID** i-64

**Comment Type** E

**Comment Status** A

**Response**

似乎方程的顶部被截断了

**Suggested Remedy**

请移动方程的顶部，并展示缺失的圆括号元素（我假设）

**Response Status** C

**Response**

ACCEPT.

**Comment ID** i-65

**Comment Type** TR

**Comment Status** A

**Suggested Remedy**

将"The summation symbol in Eq 100-20 used "j" index, which is NOT used then in RBMER"改写为"The summation symbol in Eq 100-20 used "j" index, which is NOT used then in RB<sub>MER</sub> (j) in the summation"

**Response**

ACCEPT IN PRINCIPLE.

**Revision**

添加"j"到RB<sub>MER</sub>。
Comment Type TR

Comment Status A

"The following flat channel measurements with no tilt are made ..." - but there are NO following measurements.

SuggestedRemedy

What is the purpose of this statement? Is this a reference to Table 100-10? Either remove the word "following" (which is confusing right now in the context) or provide the said "following flat channel measurements"

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED
Change first sentence on line 10 from "The following flat channel measurements with no tilt (Table 100-10) are made after the pre-equalizer coefficients have been set to their optimum values." to "The measurements indicated in Table 100-10 are made with flat channel (as nearly flat as practical in a lab test environment), after the pre-equalization coefficients have been set to their optimum values."

Update the value in the row for 5% grant, from 44 to 50

Comment Type E

Comment Status A

"characteristics delineated in Table 100-11" - this is a new word ;)

SuggestedRemedy

Change to "characteristics defined in Table 100-11"

Response Response Status C

ACCEPT IN PRINCIPLE.
REVISED
See http://www.merriam-webster.com/dictionary/delineate

Comment Type T

Comment Status A

"7.4 to at least 204" - to avoid interpretation issues, please indicate if 204 is included or not

SuggestedRemedy

Change to "7.4 to >=204"

Response Response Status C

ACCEPT.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID: i-73

Cl 100 SC 100.3.5.7 P 108 L 21 # i-73

Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A EZ

TPMA is mentioned, but not really defined. TPMA = The delay time through the EPoC PMA???

SuggestedRemedy
Please define the acronym, it is used 6 times in the document altogether

Response Response Status C

ACCEPT IN PRINCIPLE.
REVISED
It is defined as "the delay time through the EPoC PMA" on first use. Change the six occurrences of "TPMA" to "T<sub>PMA</sub>">

Comment ID: i-74

Cl 100 SC 100.3.6.1 P 109 L 28 # i-74

Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

"The CLT should be configured according to Table 100-12" - and what if it is not? Seems like an important requirement to be mandatory, unless power normalization does not really matter.

Later on the very same table is referenced in a normative requirement in line 35

SuggestedRemedy
Consider making it a normative requirement (if received power normalization is really needed - seems like it for sure) or changing into informative text, if there is no need for it.

Optional requirements are odd

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED
Change "should" to "shall".
Update PICS as needed.

Comment ID: i-75

Cl 100 SC 100.3.6.1 P 109 L 30 # i-75

Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status A

A variable intermixed with text?

SuggestedRemedy
Please move into a separate subclause, like done in other locations

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED
Create "100.3.6.1.1 PHY Link Managed Variables" and move it into there.

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 U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID

3/17/2016 1:26:41 AM
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID i-79

IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Response

# i-79

Cl SC 100.3.6.2 P 110 L 37 # i-79

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status A

"CLT is allowed to construct Grants according to its own scheduler implementation." -
given that scheduler is NOT defined in Clause 103, it is an unnecessary statement, which
brings questions on where such a scheduler be specified.

SuggestedRemedy

Strike

Response

ACCEPT IN PRINCIPLE.

REVISED

As per suggested remedy. Note: This was DOCSIS'ism carried over. Agree that the DBA
is outside the spec.

Comment ID i-80

Cl SC 100.3.6.3 P 111 L 23 # i-80

Hajduczenia, Marek
Bright House Network

Comment Type E Comment Status A

"This item provides measurements" - rather, "subclause"

SuggestedRemedy

Change to "This subclause provides measurements"

Response

ACCEPT.

Comment ID i-81

Cl SC 100.3.6.3 P 111 L 30 # i-81

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status A

Meaningless optional requirement: "A sufficient number of upstream probe symbols should
be used for a reliable estimate of RxMER." - how would it be expected to be tested?

SuggestedRemedy

Change to "The OLT uses a sufficient number of upstream probe symbols for a reliable
estimate of RxMER."

Response

ACCEPT IN PRINCIPLE.

REVISED

Update PICS if required.

Comment ID i-82

Cl SC 100.3.6.3 P 111 L 30 # i-82

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status A +EX+

Since M is not defined, the statement is meaningless: "An ensemble of M frequency-
averaged
RxMER measurements (M large enough for reliable statistics, i.e. such that the result lies
within a desired
confidence interval) would be sufficient for a given level of confidence in the estimate."

SuggestedRemedy

Strike it

Response

ACCEPT.

Comment ID i-83

Cl SC 100.3.6.3.1 P 112 L 5 # i-83

Hajduczenia, Marek
Bright House Network

Comment Type TR Comment Status A +REV+

Incomplete statement: "When TRUE this variable indicates that the values RxMER_SC(n)
for the CNU indicated by RxMER_CNU_ID or the OFDM channel indicated by
RxMER_ChID," - what happens / is wrong with the values "indicated by RxMER_CNU_ID
or the OFDM channel indicated by RxMER_ChID" ???

SuggestedRemedy

Please finish the statement

Response

ACCEPT IN PRINCIPLE.

REVISED

Insert "are valid" at end of first sentence.
Hajduczenia, Marek
Bright House Network

Comment Type: TR  Comment Status: A

Way too many requirements for the same thing: "The CNU shall meet...", "The CNU receiver shall meet...", and "The OFDM signals and CNU interfaces shall have..."
First, we cannot make requirements towards "OFDM signals", given that it is what the channel model is supposed to define, and these have been covered before, I believe. Strike the statement: "The OFDM signals and CNU interfaces shall have the characteristics and limitations defined in Table 100-14."
Second, requirements towards CNU and CNU receiver and overlapping - without clear delineation, it is a single shall test point anyway, given that it points to a single table.
Change: "The CNU shall meet all performance specification when receiving a signal conformant to the parameters shown in Table 100-14. The CNU receiver shall meet electrical parameters per Table 100-14."
Update respective PICS.
Remove any requirements for OFDM "signal" itself, and put these into the channel model. that is where they should be located, not in the receiver requirements

Suggested Remedy
Per comment

Response  Response Status: W
ACCEPT IN PRINCIPLE.
REVISED
Replace the para with
"The CNU shall meet electrical parameters and all performance specifications when receiving a signal conformant to the parameters shown in Table 100-14."
Update PICS as needed.

Hajduczenia, Marek
Bright House Network

Comment Type: ER  Comment Status: A

"Maximum average power per MHz input to the CNU from 54 MHz to 1.794 GHz" - equation is defined in table, which is hard to read and interpret

Suggested Remedy
Move the equation outside the table and reference it inside of the table per "see Equation 100-XXX"

Response  Response Status: W
ACCEPT IN PRINCIPLE.
Change the 3rd & 4th rows in Table 100-14 as shown in 802.3bn_3d0_comment85.pdf

Hajduczenia, Marek
Bright House Network

Comment Type: TR  Comment Status: A

Conflicting definitions
Page 114, line 8: "RxMER is defined as the ratio of the average power of the ideal QAM constellation to the average error-vector power"
Page 111, line 23: "RxMER is defined as the ratio of the average power of the ideal BPSK constellation to the average error-vector power"
Which is it then?

Suggested Remedy
Rationalize - either it is one and the same (then which one is correct??) or expand the acronym to reflect that one is for QAM and another for BPSK constellation

Response  Response Status: W
REJECT.
One (pg 111) is for the CLT: "For the purposes of RxMER measurement at the CLT, ...
The other (pg 114) is for the CNU: "For the purposes of RxMER measurement at the CNU..."
And yes these are different.
Repeated (though rephrased) requirement:
Page 114, line 3: "The CNU receiver shall provide measurements of the downstream receive modulation error ratio (RxMER) for each subcarrier in all enabled OFDM channels."
Page 114, line 38: "The CNU shall be capable of providing measurements of RxMER for all active subcarrier locations for each OFDM downstream channel, using pilots and PHY Link preamble symbols."
I suggest these be combined into a single statement, since they are almost identical anyway

Suggested Remedy
Strike text on Page 114, line 38
Change text on Page 114, line 38 to read "The CNU provides measurements of downstream receive modulation error ratio (RxMER) for all active subcarrier locations for each OFDM downstream channel, using pilots and PHY Link preamble symbols."

Accept in principle.

Figure 100-4 seems to be artificially broken across the Error Vector [e]
Suggested Remedy
Suggest that the line from top of the figure (Error vector e) be continued to input of Error vector e in the lower part of the figure, showing continuity in terms of electrical signal
Now the continuity is only logical (same value?)

Response
Accept in principle.

The text in Figure 100-4, box: 10xlog10 does not need to be broken into two lines
Suggested Remedy
Make sure text is not broken into two lines - there is enough space to make box wider and make sure it is not broken across lines
Similarly, box with "Mag Squared" - should be changed to "Magnitude Squared" ???
Response
Accept in principle.

The encompassed spectrum of each 192 MHz downstream OFDM channel cannot exceed 190 MHz and cannot exceed 3800 active subcarriers (see Table 100-3).*

- the only thing that the OLT can do is use up to 192 MHz of spectrum and up to 3800 active subcarriers, but apart from that, I am not clear what else the OLT can ensure. This statement and the whole subclause 100.3.8 seems to be a restatement of existing requirements scattered through the rest of Clause 100.

Suggested Remedy
It would make sense to include some of these requirements in PMD specification tables instead, and make them normative. The current informative text is kind of in the middle - it provides some information, but it is not normative anyway.

Response
Accept in principle.

Remove the phrase at line 32.
Remove the phrase at line 38 and change "does not" to "cannot" so the sentence reads: "The encompassed spectrum of each 192 MHz downstream OFDM channel cannot exceed 190 MHz and does not exceed 3800 active subcarriers (see Table 100-3)."
Remove the phrase at line 42.
Remove the phrase at pg 116 line 24 and change "does not" to "cannot" 2x so the sentence reads: "the encompassed spectrum of the upstream OFDMA channel cannot exceed 190 MHz and cannot exceed 3800 active subcarriers (see Table 100-11)."
Comment Type  T  Comment Status  A  Comment ID  i-92

Confusing text of the note: "within the entirety of the downstream spectrum on a coax cable distribution network, EPoC will be operating concurrently with other cable operator services: e.g. video channel, etc. Collectively, these are referred to as non-OFDM channels in the context of these downstream channel bandwidth rules.

SuggestedRemedy
Simplify to read: "The term "non-OFDM channels" describes other applications using downstream spectrum concurrently with EPoC, per channel model in Annex 100A." - there si no need to create examples, when theya re already included in Annex 100A describin teh channel model

Response  
ACCEPT IN PRINCIPLE.
REVISED
Strike the note
And see resolution to comment i-93

Comment Type  T  Comment Status  A  Comment ID  i-93

"The CLT and CNU are not expected to meet performance and fidelity requirements when the system configuration does not comply with the downstream exclusion band rules listed below. These rules apply to each OFDM channel and also to the composite downstream inclusive of OFDM and non-OFDM channels." - really? We usually state conditions under which PMD pair can operate, and anythign outside of these boundries is no-mans' land. No need to state this explicitly

SuggestedRemedy
Change to read: "The downstream exclusion band rules listed below apply to each OFDM channel."

Response  
ACCEPT IN PRINCIPLE.
REVISED
Change Paragraph located Line 51 to 54 to:
"The downstream exclusion band rules listed below apply to each OFDM channel and the composite downstream channel inclusive of OFDM and other signals using downstream spectrum concurrently with EPoC, e.g., video channels. The CLT and CNU are not expected to meet performance and fidelity requirements when the system configuration does not comply with the downstream exclusion band rules listed below."

Comment Type  E  Comment Status  A  Comment ID  i-94

CFR 76 is not defined anywhere

SuggestedRemedy
Add to list of references, if needed

Response  
Response Status  W
REJECT.
See editor instructions to change in 1.3 Normative references.

Comment Type  E  Comment Status  A  Comment ID  i-95

"The ONLY exception" - why is ONLY capitalized?

SuggestedRemedy
We do not use capitalization as emphasis in standard. If something is very important, it becomes a requirement of a sort. Drop case down

Response  
Response Status  C
ACCEPT.
<table>
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</tbody>
</table>
An odd way to define a requirement - "When this variable is set to TRUE the CLT shall set the RF output power = 73 dBc" - this should be part of Table 100-3 (similar to power output in OFF state for optical Tx in EPON), while it is not there.

Suggested Remedy:
Move the requirement to Table 100-3. Change the definition of "CLT_TxMute" to read as follows: "When this variable is set to TRUE the CLT sets the RF output power = 73 dBc (see Table 100-3) below the operationally configured aggregate power of the RF modulated signal, in every 6 MHz channel from 258 MHz to 1218 MHz."

Remove any associated PICS

Response
ACCEPT.

"A minimum warm-up time of 30 minutes occurs before measurements are made." - if the measurements are time correlated in any way, measurements should be performed in discrete intervals, e.g., every 5 minutes for a specific number, and then mean and deviation should be presented. Otherwise, it is hardly a measurement at all - you pick one point of time, at an arbitrary distance (30 minutes) from start-up time and treat that as a true value.

Suggested Remedy:
Add information that RxMER is a mean value for X number of measurements, starting from 30 minutes, occurring every X minutes for Y total measurement time
The last bullet kind of goes in that direction, but M remains undefined, measurement frequency is also undefined ("are taken in succession (e.g., over a period of up to 10 minutes) at both CNR values" - does not provide for repeatability of measurements across vendors
Mean and deviation are not provided as normative parameters today, just the mean, which is kind of meaningless, given the variability expected in this parameter over the range of measurements

Response
REJECT.
The TF believes requiring a warm-up time is reasonable and appropriate.

"The CLT shall provide upstream power measurements with a standard deviation of 0.33 dB or better under the following test conditions" - this should go into 100.3.6 where CLT Rx requirements are listed, and text in 100.4.3 should be made informative, as far as measurement conditions are concerned

Suggested Remedy:
Add information that RxMER is a mean value for X number of measurements, starting from 30 minutes, occurring every X minutes for Y total measurement time

Response
ACCEPT IN PRINCIPLE.

The CLT shall provide upstream power measurements with a standard deviation of 0.33 dB or better under the following test conditions - this should go into 100.3.6 where CLT Rx requirements are listed, and text in 100.4.3 should be made informative, as far as measurement conditions are concerned

Suggested Remedy:
Per comment + update PICS accordingly

Response
ACCEPT IN PRINCIPLE.

Change line 45 to read: "The CLT provides upstream power measurements with a standard deviation of 0.33 dB or better under the following test conditions"

At the end of 100.3.6.1 add: "The CLT shall provide upstream power measurements with a standard deviation of 0.33 dB or better under the test conditions given in 100.4.3."

Update PICS as needed.
<table>
<thead>
<tr>
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<th>SC</th>
<th>P</th>
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<th>Response</th>
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<td>117</td>
<td>41</td>
<td>i-105</td>
<td>Hajduczenia, Marek</td>
<td>Bright House Network</td>
<td>TR</td>
<td>A</td>
<td>Seems like product requirements: &quot;The CLT should provide an estimate of total received power in a specified OFDMA channel at the TP1 reference input point, for a single specified upstream user. The CLT should provide configurable averaging over a range at least including 1 to 32 probes.&quot;</td>
<td></td>
<td>EZ</td>
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<td>29</td>
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<td>Hajduczenia, Marek</td>
<td>Bright House Network</td>
<td>T</td>
<td>R</td>
<td>Definition of CW signal is hidden in a footnote on page 99 ... odd</td>
<td></td>
<td>EZ</td>
</tr>
<tr>
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<td>100.4.4</td>
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<td>i-108</td>
<td>Hajduczenia, Marek</td>
<td>Bright House Network</td>
<td>E</td>
<td>A</td>
<td>It seems like specific test modes are defined in here and in line 52, and they are &quot;hidden&quot; in the text itself.</td>
<td></td>
<td>EZ</td>
</tr>
<tr>
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<td>120</td>
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<td>i-109</td>
<td>Hajduczenia, Marek</td>
<td>Bright House Network</td>
<td>E</td>
<td>R</td>
<td>&quot;It is recommended that manufacturers indicate in the literature associated with the PHY&quot; - we do not prescribe where it needs to be indicated. Technical notes, summary notes, etc. are also allowed. Poems might be a tad too much</td>
<td></td>
<td>EZ</td>
</tr>
</tbody>
</table>
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Cl 100 SC 100.6 P 120 L 42 # i-110
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R

Untestable requirement: "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)."

SuggestedRemedy
The very nature of EPoC (like EPON) implies that transmit path is disabled in between bursts.

Change the text to read: "In order to support EEE-like power saving, the 10GPASS-XR PHYs may deactivate some PHY functional blocks, e.g., RF power amplifier, between individual data bursts (in case of 10GPAS-XR-U PHY), disable some of OFDM channels (in case of 10GPAS-XR-D PHY) when traffic load is low, or use other vendor-specific mechanisms to lower the overall PHY consumption without affecting the latency and BER on the EPoC link." - this is as good as we can do here without specific hooks for EEE at the PHY layer

Response Response Status W
REJECT.
There is no support in this standard to "disable some of OFDM channels (in case of 10GPAS-XR-D PHY) when traffic load is low", "other vendor-specific mechanisms " are outside the scope of the standard.

Cl 103 SC 103.1 P 299 L 8 # i-111
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A
"in which passive and usually active elements" - sounds like these "usually active" elements can be also passive at times.

SuggestedRemedy
Change to "in which both passive and active elements"

Response Response Status C
ACCEPT.

Cl 103 SC 103.1 P 299 L 23 # i-112
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R +REV+

Comment bait: "Topics dealt with in this clause include allocation of upstream transmission resources to different CNUs, discovery and registration of CNUs into the network, and reporting of congestion to higher layers to allow for dynamic bandwidth allocation schemes and statistical multiplexing across the CCDN. This clause does not deal with topics including bandwidth allocation strategies, authentication of end devices, quality-of-service definition, provisioning, or management." - line 30 already states what is being specified in this clause, and everything else is NOT specified. Period

SuggestedRemedy
Strike text "Topics dealt with in this clause include allocation of upstream transmission resources to different CNUs, discovery and registration of CNUs into the network, and reporting of congestion to higher layers to allow for dynamic bandwidth allocation schemes and statistical multiplexing across the CCDN. This clause does not deal with topics including bandwidth allocation strategies, authentication of end devices, quality-of-service definition, provisioning, or management."

Response Response Status W
REJECT.
For consistency reasons the Staff editors would prefer if we included this given that it already appears in Cl 64 and 77.

If this wording is objectionable, the commenter is invited to submit a maintainance request on the similar text in Cl 64 and 77

Cl 103 SC 103.1 P 300 L 1 # i-113
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A remein_02

Even at high level, Figure 103-1 does not resemble Figure 100A-1, which shows amplifiers (not feeder) and contains mor details - there are taps, and splitter are only at home/

SuggestedRemedy
Either replace everything between CLT and CNUs with cloud and name it CCDN (that is the level needed for Clause 103) or reproduce Figure 100A-1 in here

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED
See 3bn_remein_02_1602.pdf
These are not PRIOR versions, just versions. EPoC MPCP cannot be executed on EPON, just like EPON MPCP cannot be executed on EPoC without changes.

Suggested Remedy:

Change: "The EPoC Multipoint MAC Control shares much in common with prior versions of the Multipoint MAC Control protocol defined in Clause 64 and Clause 77." to "The EPoC Multipoint MAC Control shares operating principles with the Multipoint MAC Control protocol defined in Clause 64 and Clause 77."

Response:

ACCEPT IN PRINCIPLE.

REVISED

The EPoC Multipoint MAC Control shares much in common with the Multipoint MAC Control protocol defined in Clause 64 and Clause 77.

There does not seem to be anything different in 103.2.2 when compared with 77.2.2, apart from CLT and CNU labels - does that require importing all figures into the new Clause?

Suggested Remedy:

In other locations 802.3, there are cases where text was marked as applicable, with some listed changes. Here, change "The purpose and high level functionality of multipoint transmission control is similar to those described in 77.2.2 for EPON," to "The purpose and high level functionality of multipoint transmission control is similar to those described in 77.2.2 for EPON, including Figure 77-6 through Figure 77-9, where the term "ONU" is replaced with "CNU" and the term "OLT" is replaced with "CLT"." Strike Figure 103-4 through Figure 103-7.

Response:

REJECT.

The TF feels that including these figures is beneficial to the readability of the standard.

There are cases where text was marked as applicable, with some listed changes. Here, change "The purpose and high level functionality of multipoint transmission control is similar to those described in 77.2.2 for EPON," to "The purpose and high level functionality of multipoint transmission control is similar to those described in 77.2.2 for EPON, including Figure 77-6 through Figure 77-9, where the term "ONU" is replaced with "CNU" and the term "OLT" is replaced with "CLT"." Strike Figure 103-4 through Figure 103-7.

Response:

REJECT.

The TF feels that including these figures is beneficial to the readability of the standard.

 Too many brackets: ceil((XGMII_Rate/PCS_Rate-1) * DS_FEC_CW_Sz_FRAC)) - 2 were open, three were closed

Suggested Remedy:

Change to: ceil((XGMII_Rate/PCS_Rate-1) * DS_FEC_CW_Sz_FRAC)

ACCEPT.

The issue with these equations is the use of very long and wordy names of functions and parameters: Derating_Overhead, DS_FEC_CW_Sz_Frac, etc. The names are meaningless anyway, and could be easily replaced with simpler and shorter versions, e.g., DS_FEC_CW_Sz_FRAC with DS_FEC_Frac, Derating_Overhead with DerateO, FEC_Overhead with FecO, etc. - allowing equations to actually fit into a single line to improve readability.

Suggested Remedy:

Per comment

Response:

REJECT.

The TF feels that these variable names are preferred and will be clearer to the reader.

Figure 103-9 is no different than Figure 77-10

Suggested Remedy:

Remove Figure 103-9 and replace all references with Figure 77-10

Response:

REJECT.

The staff editors indicate that in such cases it is preferred to include the similar figure in the new Clause. It was also pointed out that the titles do not match.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID: i-119

Cl 103 SC 103.2.2.7 P 315 L 1

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

DR Sed

Figure 103-10 is no different than Figure 77-11, excluding guardThresholdCLT which is guardThresholdOLT in Figure 77-11 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-10 and replace all references with Figure 77-11

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard and leave a hanging PICS without a reference. Including the SD here does no harm and is much more convenient for the reader. The variable guardThresholdCLT is used in several SDs and should be kept.

Comment ID: i-120

Cl 103 SC 103.2.2.7 P 316 L 1

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

+REV+ Sed

Figure 103-11 is no different than Figure 77-12, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-12 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-11 and replace all references with Figure 77-12

REJECT.
The staff editors indicate that in such cases it is preferred to include the similar figure in the new Clause. It was also pointed out that the titles do not match.

Comment ID: i-121

Cl 103 SC 103.2.2.7 P 316 L 24

Hajduczenia, Marek
Bright House Network

Comment Type: E
Comment Status: A

EZ

Name of state in PARSE OPCODE state overlaps with top border of the state

Suggested Remedy
Please move the text a bit down, so that it does not overlap with the top edge of the state box

Response
Response Status: C

ACCEPT IN PRINCIPLE.

REvised

per comment which I suspect the comment is about pg 317.

Comment ID: i-122

Cl 103 SC 103.3.2.2 P 319 L 23

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: A

Reference to 77.3.2.2 is sufficient - it already contains reference to 76.2.6.1.3.2

Suggested Remedy
Change text in lines 23-24 to read: "Optional Shared LAN emulation for EPoC is the same as described in 77.3.2.2."

Response
Response Status: W

ACCEPT.

Comment ID: i-123

Cl 103 SC 103.3.2.3 P 319 L 23

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: A

Reference to 77.3.2.3 is sufficient - it already contains reference to 76.2.6.1.3.2

Suggested Remedy
Change text in lines 28-30 to read: "Multicast and single copy broadcast support in EPoC is the same as described in 77.3.2.3."

Response
Response Status: W

ACCEPT.

Comment ID: i-124

Cl 103 SC 103.3.3 P 320 L 1

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-14/15/16 is no different from Figure 77-16/17/18, apart from the statement already included in the draft: "The laserOnTime and laserOffTime parameters in 77.3.3 are replaced in EPoC with rfOnTime and rfOffTime, respectively."

Suggested Remedy
Strike Figure 103-14/15/16

Response
Response Status: W

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the diagram here does no harm and is much more convenient for the reader.

Comment ID: i-125

Cl 103 SC 103.3.5 P 321 L 1

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-17 is no different from Figure 77-19, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-19 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-17 and replace all references with Figure 77-19

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the SD here does no harm and is much more convenient for the reader.

Comment ID: i-126

Cl 103 SC 103.3.5 P 321 L 24

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-18 is no different from Figure 77-20, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-20 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-18 and replace all references with Figure 77-20

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the SD here does no harm and is much more convenient for the reader.

Comment ID: i-127

Cl 103 SC 103.3.6 P 321 L 24

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-19 is no different from Figure 77-21, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-21 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-19 and replace all references with Figure 77-21

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the SD here does no harm and is much more convenient for the reader.

Comment ID: i-128

Cl 103 SC 103.3.7 P 322 L 1

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-20 is no different from Figure 77-22, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-22 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-20 and replace all references with Figure 77-22

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the SD here does no harm and is much more convenient for the reader.

Comment ID: i-129

Cl 103 SC 103.3.7 P 322 L 24

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-21 is no different from Figure 77-23, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-23 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-21 and replace all references with Figure 77-23

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the SD here does no harm and is much more convenient for the reader.

Comment ID: i-130

Cl 103 SC 103.3.8 P 322 L 24

Hajduczenia, Marek
Bright House Network

Comment Type: TR
Comment Status: R
Response Status: W

Figure 103-22 is no different from Figure 77-24, excluding guardThresholdCNU which is guardThresholdONU in Figure 77-24 - a change that can be described in words.

Suggested Remedy
Remove Figure 103-22 and replace all references with Figure 77-24

REJECT.
The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the SD here does no harm and is much more convenient for the reader.
### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

#### Draft 3.0

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-125</td>
<td>TR</td>
<td>R</td>
<td>28</td>
</tr>
<tr>
<td>i-126</td>
<td>E</td>
<td>A</td>
<td>18</td>
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<td>52</td>
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<td>TR</td>
<td>R</td>
<td>31</td>
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**Hajduczenia, Marek**

**Response**

1. **Comment Type**: TR
   **Comment Status**: R

   This is the strangest definition yet: This variable holds the time required to terminate the RF and is included for consistency with Clause 77. It is defined but has the value of zero. The same applies to rfOnTime.

   **Suggested Remedy**
   
   A cleaner approach would be remove them altogether, given that they are not used for anything. If you want to keep them, change definition of rfOffTime to "PlaceholderOff: This variable replaces laserOffTime in Clause 77." and rfOnTime to read: "PlaceholderOn: This variable replaces laserOnTime in Clause 77." - since these do not hold really any meaning, do not pretend they have some meaning.

   Similar observation applies to syncTime on page 322, line 18, which is only present for "compatibility" purposes.

   **Response**
   **Response Status**: W

   The change would result in unnecessary work (rfOffTime appears 25x in the draft and rfOnTime 26x) and would change several technical figures and requirements. The risk of introducing technical problems into the draft outweighs the personal preference of the commenter.

2. **Comment Type**: TR
   **Comment Status**: A

   Is there any special reason why rfOnTime and rfOffTime are in italics, when most other parameters are not?

   **Suggested Remedy**

   Either use italics for all parameters, or do not - right now it is almost half/half for no special reason.

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

   ACCEPT IN PRINCIPLE.

   **REVISED**

   Italicise rfOnTime, rfOffTime on pg 339 line 42 (remove line break also). All other instances are already in italic, in SD (which use a different font) are targeted to be removed per commentes from the commenter.

3. **Comment Type**: TR
   **Comment Status**: R

   Figure 103-17 was modified from Figure 77-19 by removing the discoveryInformation parameter. This begs a question - instead of trying to maintain "compatibility" with existing Clause 77 MPCP, wouldn't it be clearer to remove rfOnTime, rfOffTime, and sync_time parameters everywhere, and just make Clause 103 cleaner in this way?

   **Suggested Remedy**

   Per comment

   **Response**
   **Response Status**: W

   REJECT.

   The suggested change would result in unnecessary work (rfOffTime appears 25x in the draft and rfOnTime 26x, sync_time 5x) and would change several technical figures and requirements. The risk of introducing technical problems into the draft outweighs the personal preference of the commenter. Removal of sync_time parameter has never been raised or discussed with the TF before.

4. **Comment Type**: TR
   **Comment Status**: R

   Figure 103-22 does not seem to be any different from Figure 77-27.

   **Suggested Remedy**

   Remove 103-22 and replace all references to 77-27, which is functionally the same.

   **Response**
   **Response Status**: W

   REJECT.

   The suggested change would create an unnecessary reference to a clause in another section of the standard. Including the diagram here does no harm and is much more convenient for the reader.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

<table>
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<th>P</th>
<th>L</th>
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<td>330</td>
<td>46</td>
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<td>Bright House Network</td>
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Comment Type TR  Comment Status A  +REV+ What is the unit for min_processing_time? Please clarify what 1024 really means (us, TQ, something else?)

SuggestedRemedy
In 77.3.5.1, it is defined as: VALUE: 0x00000400 (16.384 us)

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISI
Change link to 77.3.5.1
Replace 1024 with 0x00000400 (16.384 us)

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<th>P</th>
<th>L</th>
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<td>Bright House Network</td>
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Comment Type TR  Comment Status A  2 IDLES
I was looking for justification of the "two leading IDLE vectors of the payload" - there was a purpose for them in 10G-EPON, but it is not clear what they are used for in EPoC.

SuggestedRemedy
The pointer to 101.3.2.5.7 does not help

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISI
Change to "This variable represents the burst overhead and equals BurstTimeHeader() (see 101.3.2.5.7)"

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<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment ID</th>
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<td>335</td>
<td>36</td>
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<td>Bright House Network</td>
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Comment Type TR  Comment Status R  +REV+ Sed
Figure 103-23 is the same as Figure 77-28

SuggestedRemedy
Remove 103-23 and replace all reference with Figure 77-28

Response Response Status W

REJECT.
The staff editors indicate that in such cases it is preferred to include the similar figure in the new Clause. It was also pointed out that the titles do not match.
Comment Type TR Comment Status R
Why not set rfOnTime, rfOffTime, and sync-time, together with discoveryInformation to zeros, and skip changing Clause 77 where not needed?

SuggestedRemedy
Change "In EPoC rfOnTime and rfOffTime replace laserOnTime and laserOffTime, respectively. The Sync Time and Discovery Information fields described in 77.3.6.1 are not used in EPoC and shall be set to zero on transmit and ignored on reception." to "In EPoC laserOnTime, laserOffTime, Sync Time, and Discovery Information fields described in 77.3.6.1 are not used and shall be set to zero on transmit and ignored on reception."
Update PICS accordingly
Similar change in 103.3.6.3, where REGISTER_REQ is being defined. Then Figure 103-26 can be removed altogether (not needed anymore, would be exactly the same as in 10G-EPON)
In 103.3.6.4, given that laserOnTime and laserOffTime in EPoC would be sent as zeros, the SyncTime can be then calculated using rules for 10G-EPON, and still arrived to the same target value (zero). Then replace text in 103.3.6.4 with "The REGISTER MPCPDU used in EPoC is the same as that described in 77.3.6.4." and remove Figure 103-27.

Response Response Status W
REJECT.
The change would result in unnecessary work (rfOffTime appears 25x in the draft and rfOnTime 26x, sync_time 5x) and would change several technical figures and requirements. The risk of introducing technical problems into the draft outweighs the personal preference of the commenter. Removal of sync_time parameter has never been raised or discussed with the TF before.

Comment Type E Comment Status A
Double reference without any need: in 77.3.6.2 (see 64.3.6.1).

SuggestedRemedy
Change to "in 77.3.6.2"

Response Response Status C
ACCEPT.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Cl 101 SC 101.1.4 P 132 L 1 # i-139
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A
"Clause 103 replicates functions of Clause 77 Multipoint MAC Control Protocol (MPCP) with updates necessary for EPoC operation" - this sounds a bit odd

SuggestedRemedy
Change to "Clause 103 defines Multipoint MAC Control Protocol (MPCP) for operation in EPoC, extending Clause 77 model as necessary."

Response Response Status C
ACCEPT.

Cl 101 SC 101.1.4 P 132 L 19 # i-140
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A
REVISED
The relationship between SCRAMBLER and FCP GENERATION is not clear. It seems that data is inserted into SCRAMBLER but there is also FCP GENERATION operating at the same level, feeding PHY Link

SuggestedRemedy
Given that the FCP provides codeword pointer for FEC encoded data, it would seem more reasonable to show FCP to generated by FEC Encoder, and not SCRAMBLER.

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED
FCP is actually generated by the Symbol Mapper (see 101.4.3.8).
Change the two lines separating the SCRAMBLER, the FCP GENERATION and the SYMBOL MAPPERS into dotted lines as the Scrambler and the FCP GENERATION are sub-functions of the SYMBOL MAPPERS.
Note that the FEC ENCODER is not superframe timing aware.

Cl 101 SC 101.3.2.1.1 P 138 L 42 # i-141
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A
REVISED
Off formatting for DS_PHY_Dsize - "DS_" is not italicized, while the rest of the term is. Why?

SuggestedRemedy
Italicize the term for consistency with other terms shown in italics. Multiple instances

Response Response Status C
ACCEPT.

Cl 101 SC 101.3.2.1.1 P 139 L 15 # i-142
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A
Given that there is only one xMII used by this standard, there is no need to create a constant for XGMII data rate. Originally, the standard was supposed to use 1G and 10G MII, at which time a variable / constant made sense.

SuggestedRemedy
Remove XGMII_Rate and replace with a fixed constant value of 10 in all equations

Response Response Status C
REJECT.
The term is used in SD Figure 103-8. Introducing some "magic number" would not make the standard easier on reader but would further complicate it.

Cl 101 SC 101.3.2.1.2 P 139 L 50 # i-143
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A
Given the equation 101-02, it seems that PCS_Rate is really a downstream only PCS data rate

SuggestedRemedy
Rename to PCS_DS_Rate if you stick with the current naming convention

Response Response Status C
ACCEPT.

Cl 101 SC 101.3.2.1.5 P 141 L 1 # i-144
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A
REVISED
Figure 101-6 use think line boxes for states, while most of other data diagrams use thick boxes for states. See Figure 103-8 for an example

SuggestedRemedy
Consider aligning format of state diagrams for consistency

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Staff editors prefer lines of 0.5 pt.
Changes to Cl 00

---

Comment ID: i-144
Page 31 of 83
3/17/2016 1:26:41 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 U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status R
Note that += and -= operators were defined, but are not used in the UPDATE_COUNTERS state

SuggestedRemedy
Change
accResidue = accResidue + PHY_OSizeFrac
countDelete = countDelete + (DS_PHY_OSize + floor(accResidue))
accResidue = accResidue - floor(accResidue)
to
accResidue += PHY_OSizeFrac
countDelete += (DS_PHY_OSize + floor(accResidue))
accResidue -= floor(accResidue)
REJECT.

These operators were removed in a previous draft due to font difficulties with -=. The definitions are being removed from the draft. See Accepted comment i-353 copied below

The notations "-=", and "+=" do not appear elsewhere in the draft and these descriptions could be removed.

Suggested Remedy: "per comment."

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status R
Unnecessary details: "The EPoC PHY utilizes a 64B/66B Encoder based on that described in 49.2.5 with several important differences. The EPoC 64B/66B Encoder does not include a scrambler function as described in 49.2.6 and the output is a 65B block with a single synch header bit."

SuggestedRemedy
Change to "The EPoC PHY utilizes a 64B/66B Encoder per 49.2.5." - unless you reference Scrambler, it is not used. Period

REJECT.

Cl 49.2.5 includes the following "The contents of each block are contained in a vector tx_coded<65:0>, which is passed to the scrambler."

EPoC does not include the refereced scrambler and passes the data instead to the FEC Encoder/DD.

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status A
Definition of the FIFO_FEC_TX is already present in 101.3.2.5.6, where it should be.

SuggestedRemedy
Remove lines 1-7

ACCEPT.

Hajduczenia, Marek
Bright House Network

Comment Type E Comment Status A
Unit of size missing in "a single FEC LDPC codeword size of 16200 indicated by "DS""

SuggestedRemedy
Change to "a single FEC LDPC codeword size of 16200 bits indicated by "DS""

There are other locations in this subclause where the size of parity and payload is expressed in numeric value without any units

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Change in 3x

Hajduczenia, Marek
Bright House Network

Comment Type T Comment Status A
Definition of the FIFO_FEC_TX is already present in 101.3.2.5.6, where it should be.

SuggestedRemedy
Remove lines 1-7

ACCEPT.

Hajduczenia, Marek
Bright House Network

Comment Type E Comment Status A
Unit of size missing in "a single FEC LDPC codeword size of 16200 indicated by "DS""

SuggestedRemedy
Change to "a single FEC LDPC codeword size of 16200 bits indicated by "DS""

There are other locations in this subclause where the size of parity and payload is expressed in numeric value without any units

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Change in 3x
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID  i-150

Hajduczenia, Marek
Bright House Network

Comment Type  TR  Comment Status  A  +REV+

What does "specify" mean in this statement: "The resulting FP bits of data are then passed to the LDPC Encoder specifying a payload length of FP - BP bits."

Suggested Remedy

??? Seems like a logical change would be to modify text to "The resulting FP bits of data are then passed to the LDPC Encoder operating on a payload of FP - BP bits."

Response  Response Status  W

ACCEPT.

Comment ID  i-151

Hajduczenia, Marek
Bright House Network

Comment Type  TR  Comment Status  A  2 IDLES

"two 65-bit Idle blocks" are shown in Figure 101-10 but never mentioned in text. Given the lack of self-synchronous scrambler, their purpose is questionable

Suggested Remedy

Remove "two 65-bit Idle blocks" from Figure 101-10

Response  Response Status  W

ACCEPT IN PRINCIPLE.

REVISED

The two CTRL blocks should satisfy the minimum IPG requirement between two adjacent packets.

Change Figure 101-11:
1) Remove "sizeFifo > 2" from the state traversal from RECEIVE_CTRL_BLOCK to REMOVE_FIFO_HEAD. (This causes a transition REMOVE_FIFO_HEAD whenever the CNU is not transmitting.)
2) Remove the entire loopback transition (line, arrow, and text) for "sizeFifo > 2" that returned to REMOVE_FIFO_HEAD.
3) Change the "ELSE" transition from REMOVE_FIFO_HEAD to ADD_65BIT_BLOCK_TO_FIFO to "UCT".

The above changes will remove CTRL blocks from the fifo whenever the CNU not transmitting. Any between packet CTRL (during transmitting) will remain as is.

Change Figure 101-10:
1) Remove the two blocks, label, and arrow for "two 65-bit Idle blocks" from the beginning (left most) beginning of the burst (i.e., the two after Burst Time Header).

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 U/unsatisfied Z/withdrawn

SORT ORDER: Comment ID

3/17/2016  1:26:41 AM

Page 33 of 83
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Comment ID** i-153

<table>
<thead>
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<th>CI 101 SC 101.3.2.5.6</th>
<th>P 150</th>
<th>L 46</th>
<th># i-153</th>
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**Comment Type** E  **Comment Status** A  **EZ**

"This variable represents the number of either 65-bit blocks input to the FEC Encoder." - the use of "either" implies an "on/or" to complete the sentence, yet it is not present

**Suggested Remedy**

Change to "This variable represents the number of 65-bit blocks input to the FEC Encoder."?

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

ACCEPT.

**Comment ID** i-154

<table>
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<th>CI 101 SC 101.3.2.5.6</th>
<th>P 151</th>
<th>L 10</th>
<th># i-154</th>
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**Comment Type** E  **Comment Status** A  **EZ**

Variables seem to be ordered alphabetically apart from xfrSize, which is stuck now in between burstEnd and burstStart for some reason

**Suggested Remedy**

Move xfrSize to proper location in the list

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

ACCEPT.

**Comment ID** i-155

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<th>P 153</th>
<th>L 3</th>
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**Comment Type** E  **Comment Status** A  **EZ**

Unclear designation: "dataPayload<> and tx_coded_out<> to add CRC40 and appropriate LDPC parity. The tx_coded_out<>" - given the the size of arrays is not given, skip "<>" - they do not add anything and individual arrays are already defined separately and clearly.

**Suggested Remedy**

Per comment

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

ACCEPT.

**Comment ID** i-156

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<th>P 153</th>
<th>L 7</th>
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</table>

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

Unclear what "global: " statement is. It does not follow any "C" language syntax, which is used as reference for pseudo-code in the introduction to Clause 101

**Suggested Remedy**

Remove lines 7-8 - all variables are accessible as globals within the SD, no need to emphasize it over and over again.

Apply to all pseudocode in Clause 101

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

ACCEPT IN PRINCIPLE.

REVISED

Remove "Global: loc, blockCount, dataPayload, firstcodeword, lastcodeword;"

"Global: loc, blockCount, dataPayload, tx_coded_out, firstcodeword, lastcodeword;"

**Comment ID** i-157

<table>
<thead>
<tr>
<th>CI 101 SC 101.3.2.5.7</th>
<th>P 153</th>
<th>L 27</th>
<th># i-157</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hajduczenia, Marek</td>
<td></td>
<td></td>
<td>Bright House Network</td>
</tr>
</tbody>
</table>

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

Unclear what "global: " statement is. It does not follow any "C" language syntax, which is used as reference for pseudo-code in the introduction to Clause 101

**Suggested Remedy**

Remove lines 7-8 - all variables are accessible as globals within the SD, no need to emphasize it over and over again.

Apply to all pseudocode in Clause 101

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

ACCEPT IN PRINCIPLE.

REVISED

Remove "Global: loc, blockCount, dataPayload, tx_coded_out, firstcodeword, lastcodeword;"

"Global: loc, blockCount, dataPayload, tx_coded_out, firstcodeword, lastcodeword;"

**Comment ID** i-158

<table>
<thead>
<tr>
<th>CI 101 SC 101.3.2.5.7</th>
<th>P 153</th>
<th>L 46</th>
<th># i-158</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hajduczenia, Marek</td>
<td></td>
<td></td>
<td>Bright House Network</td>
</tr>
</tbody>
</table>

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

Code snippet for Check_dataPayload uses smaller font than Calculate_CRC40_and_3Parity (which I find more readable)

**Suggested Remedy**

Align the use of font size for code snippets

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

ACCEPT IN PRINCIPLE.

REVISED

Should be 9 pt Courier New using new style defined for code.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Hajduczenia, Marek</th>
<th>Bright House Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-159</td>
<td>101</td>
<td>101.3.2.5.7</td>
<td>153</td>
<td>10</td>
<td># i-159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type:** TR  
**Comment Status:** A  
**Suggested Remedy:**  
Logical comparison operator (==) and assignment operator (=) are the same. Compare line 10 and 17, for example.

**Response:**  
Use "==" as logical comparison for IF statements  
Applies to all code snippets (except page 155, lines 3-13, which seems to be using proper C++ syntax already)

**Comment Status:** A  
**Response Status:** W  
**Hajduczenia, Marek**  
**Bright House Network**

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Hajduczenia, Marek</th>
<th>Bright House Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-160</td>
<td>101</td>
<td>101.3.2.5.7</td>
<td>153</td>
<td>51</td>
<td># i-160</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type:** T  
**Comment Status:** R  
**Suggested Remedy:**  
The code would be simpler to read if IF / ELSE was not used unless strictly necessary

**Response**  
Change to read:  
IF (lastblock = FALSE AND blockCount = 220 )  
<tab>Calculate_CRC40_and_3Parity(LONG);  
IF (lastblock = TRUE)  
<tab>IF (blockCount < 200 AND blockCount >= 101)  
<tab><tab>Calculate_CRC40_and_3Parity(LONG);

**Response Status:** C  
**Hajduczenia, Marek**  
**Bright House Network**

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Hajduczenia, Marek</th>
<th>Bright House Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-162</td>
<td>101</td>
<td>101.3.2.5.7</td>
<td>154</td>
<td>23</td>
<td># i-162</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type:** ER  
**Comment Status:** A  
**Suggested Remedy:**  
Seems like formatting gone wrong

**Response**  
Format text in lines 23/25 with T,Text and not as code snippet

**Response Status:** W  
**Hajduczenia, Marek**  
**Bright House Network**
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Response Status</th>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-163</td>
<td>ER</td>
<td>A</td>
<td>W</td>
<td>Inconsistent line delimiters - previous two code snippets used &quot;;&quot; as line delimiter. This code snippet does not use any</td>
<td>Accept In Principle.</td>
</tr>
<tr>
<td>i-164</td>
<td>E</td>
<td>A</td>
<td>W</td>
<td>Inconsistent logical AND operator. Most locations use AND and here we have &amp;&amp;</td>
<td>Accept.</td>
</tr>
<tr>
<td>i-165</td>
<td>E</td>
<td>A</td>
<td>C</td>
<td>The way the NOTE is placed, it seems to apply to all functions in 101.3.2.5.7 and not just the last function</td>
<td>Accept In Principle.</td>
</tr>
<tr>
<td>i-166</td>
<td>T</td>
<td>A</td>
<td>C</td>
<td>Unnecessary operation in state diagram: tx_coded_out<a href="">FR+40-1:40</a></td>
<td>Accept.</td>
</tr>
</tbody>
</table>
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

**Comment ID: i-167**

**Comment ID:** i-167
**Type:** ER
**Comment Status:** A
**Response Status:** W
**Note:** Persistent use of "will" in multiple locations in the draft outside of FM. "the CLT will remove"

**Suggested Remedy:**
Please convert all cases of "will" to Present Simple statement (here: "the CLT removes"), unless the very specific use case of "will" is met, per Style Manual

**Response:**

**Comment Type:** ER
**Comment ID:** i-168
**Type:** TR
**Comment Status:** A
**Response Status:** W

"The FEC Decoder in the CNU shall provide" - what happened with this function in the CLT, where it is more needed due to bursty feature of upstream channel?

**Suggested Remedy:**
Please consider adding support for signalling uncorrectable FEC codewords to CLT, where it is more useful and does not lead to additional new requirements (CRC40 is calculated in upstream anyway)

**Response:**

**Comment ID:** i-169
**Type:** E
**Comment Status:** A
**Response Status:** C

Missing closing bracket in dataIn<(dataInSize-1:0>

**Suggested Remedy:**
Change to dataIn<dataInSize-1:0>

**Response:**

**Comment ID:** i-170
**Type:** E
**Comment Status:** R
**Response Status:** C
Text in line 12 is 1 pt smaller than in remaining text.

**Suggested Remedy:**
Please apply T, Text and remove any overrides in this line

**Response:**

**Comment ID:** i-171
**Type:** E
**Comment Status:** EZ
**Response Status:** C

Text on line 12 is Times New Roman 10 pt per template.

---

**Comment ID:** i-171
**Type:** TR
**Comment Status:** A
**Response Status:** W

The description of CRC40ErrCtrl variable is not correct - it implies right now that CRC40 is calculated for individual 66B vectors, and that is not the case - there is a single CRC40 per FEC codeword.

**Suggested Remedy:**
Change definition of CRC40ErrCtrl to read: This variable controls the processing of 66B blocks recovered from FEC codewords that fail the CRC40 checksum test. When CRC40ErrCtrl is set to TRUE, all 66B blocks recovered from a FEC codeword that fail the CRC40 checksum test are flagged as errored. When CRC40ErrCtrl is set to FALSE, all 66B blocks recovered from a FEC codeword that fail the CRC40 checksum test are not marked in any way.

**Response:**

**Comment ID:** i-172
**Type:** E
**Comment Status:** A
**Response Status:** C

Text in line 12 is 1 pt smaller than in remaining text.

**Suggested Remedy:**
Please apply T, Text and remove any overrides in this line

**Response:**

**Comment ID:** i-173
**Type:** E
**Comment Status:** EZ
**Response Status:** C

Text on line 12 is Times New Roman 10 pt per template.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Comment ID:** i-172

**Comment Type:** E

**Comment Status:** R

**Hajduczenia, Marek**

**Bright House Network**

**SC 101.3.3.1.8**

**P 164**

**L 18**

**Notation(++)**

I believe `+=` and `-=` operands are defined.

**Suggested Remedy**

- Change `loc = loc + 65 to loc += 65` (twice on page 164)
- Change `loc = loc + (40 + BP)` to `loc += (40 + BP)`

**Response**

**Response Status:** C

**Notation(+=)**

**Notation(+-)**

**Notation(=)**

REJECT.

These operator were removed in a previous draft due to font difficulties with `-=`. The definitions are being removed from the draft. See Accepted comment i-353 copied below

The notations "- =", and "+=" do not appear elsewhere in the draft and these descriptions could be removed.

**Suggested Remedy:** "per comment."

**Comment ID:** i-173

**Comment Type:** E

**Comment Status:** A

**Hajduczenia, Marek**

**Bright House Network**

**SC 101.3.3.1.8**

**P 164**

**L 26**

"CLK" is written in different font than the rest of the SD. There are also scattered characters which look to be using different font, e.g., "d" in tx_code<1> dataOut<loc> (line 40, state DECODE_FAIL)

**Suggested Remedy**

Please make sure that consistent fonts are used in the SDs!

**Response**

**Response Status:** C

**ACCEPT IN PRINCIPLE.**

**REVISED**

The two instances noted will be corrected.

**Comment ID:** i-174

**Comment Type:** TR

**Comment Status:** A

**Hajduczenia, Marek**

**Bright House Network**

**SC 101.4.1**

**P 169**

**L 5**

"a stream of IQ data pairs" is not correct, since it is a stream of I/Q pairs with channel number information

**Suggested Remedy**

- Change "a stream of IQ data pairs" to "a stream of I/Q data pairs and channel number"
- Also, globally align the use of "I/Q pair" and "I/Q pair" - I believe these are intended to be the same

**Response**

**Response Status:** W

**ACCEPT IN PRINCIPLE.**

**REVISED**

**CHANGE 2x from "I/Q data pairs" to "I/Q value pair and channel number"**

**Comment ID:** i-175

**Comment Type:** E

**Comment Status:** A

**Hajduczenia, Marek**

**Bright House Network**

**SC 101.4.1.1**

**P 169**

**L 20**

Something went wrong with the variable definitions: "DS_PrflCpy, DS_CpyCh, and US_PrflCpy variables"

**Suggested Remedy**

- Change to "DS_PrflCpy, DS_CpyCh, and US_PrflCpy variables" and make sure DS_CpyCh is written in italics

**Response**

**Response Status:** C

**ACCEPT.**

**Comment ID:** i-176

**Comment Type:** TR

**Comment Status:** A

**Hajduczenia, Marek**

**Bright House Network**

**SC 101.4.1.1**

**P 169**

**L 19**

The mechanics of profile change belong to Clause 102, and not Clause 101.

**Suggested Remedy**

- Move text from lines 19-30 to Clause 102 into proper location

**Response**

**Response Status:** W

**ACCEPT IN PRINCIPLE.**

**REVISED**

- Retitle 102.4 to PHY Link applications
- Move 101.4.1.1 to 102.4.5 and renumber.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID i-177

Cl 101 SC 101.4.2 P 170 L 22 # i-177
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

Definition of PMA primitives is not consistent between 101.4.2 and Figures 101-1/2/3/4

SuggestedRemedy

Update Figures 101-1/2/3/4 to match PMA_UNITDATA primitive syntax

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED

In figures change to:
"PMA_UNITDATA.request(…)"
"PMA_UNITDATA.indication(…)"

Note this is consistent with style use in Fig 77-4

Comment ID i-178

Cl 101 SC 101.4.2.1.2 P 170 L 48 # i-178
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A EZ

When multiple NOTEs are added one after another, they should be numbered

SuggestedRemedy

Please add numbers to NOTEs

Response Response Status C

ACCEPT.

Comment ID i-179

Cl 101 SC 101.4.3.2 P 172 L 39 # i-179
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R +REV+

There is requirement for downstream clock synchronization: "CLT transmitters and CNU receivers shall conform to the requirements given in Table 101-7." - what about upstream direction? The CLT and CNU clocks are not synchronized?

SuggestedRemedy

Please add either a requirement for upstream or informative text explaining why there is no requirement for upstream (perhaps it is not needed)

Response Response Status W

REJECT.

The CLT is the only master clock in the network. This is the same time synchronization architecture as EPON or DOCSIS and should not be confused with burst mode clock recovery.

Comment ID i-180

Cl 101 SC 101.4.3.3 P 173 L 36 # i-180
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

Odd equation 101-6: ((2(10))/4096) - what is the operand between 2 and 10?

SuggestedRemedy

Please clarify what operand is expected between 2 and 10

Response Response Status W

ACCEPT.

Comment ID i-181

Cl 101 SC 101.4.3.3 P 174 L 6 # i-181
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R +REV+

Equation 101-8 is not the final form

Change to: "6.4 x DSNcp", which is simpler and avoids unnecessary multiplications and exponents

Response Response Status W

REJECT.

While this is true it would leave the reader with no hint as to how we arrived at this magic number of 6.4. It is informative to the reader to know how the formula was arrive at in this case; 128 and 50,000 should be well known to the reader at this point.

Comment ID i-182

Cl 101 SC 101.4.3.6.1 P 177 L 13 # i-182
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

The figure is hardly sufficiently detailed for a normative reference.

SuggestedRemedy

Change The scattered pilot pattern shall be synchronized to the PHY Link as illustrated in Figure 101-20." to "The scattered pilot pattern are synchronized to the PHY Link as illustrated in Figure 101-20." The requirement on page 178 is sufficient, where a mathematical formula is used

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED

Per comment except use proper verb tense ("is" instead or "are"). Remove PICS PI2 and renumber.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Comment ID i-183

Cl 101 SC 101.4.3.6.3 P 179 L 20 # i-183
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A

Is there any difference between "spectral band", "spectral region", and "spectrum"?

SuggestedRemedy
Right now it seems to me that we are using three different terms to define the same concept, i.e., a contiguous amount of RF spectrum
Please consider consolidating terms

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Change spectral band to spectral region at pg 181 line 12 (only occurrence).
Use of the term spectrum 204x is not synonymous with spectral region.

Comment ID i-184

Cl 101 SC 101.4.3.6.4 P 180 L 15 # i-184
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+
Not sure what "190e6" in Eq 101-9 is expected to mean. Is "6" supposed to be the exponent?

SuggestedRemedy
Please fix the equation

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED
I believe this should be equivalent to 190 x 10^6

Comment ID i-185

Cl 101 SC 101.4.3.6.4 P 180 L 25 # i-185
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A

"The typical value proposed for CntPltSF is 48." - is this expected to be a default value? If so, it should be marked accordingly. If not, remove the statement, it means nothing

SuggestedRemedy
Per comment

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Convert the statement to a note.

Comment ID i-186

Cl 101 SC 101.4.3.7 P 182 L 22 # i-186
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A

This seems like a set of requirements you'd want to be mandatory: "The CLT initializes the scrambler at the first codeword of the downstream frame. The CNU initializes the scrambler with the hexadecimal value at the beginning of each grant."

SuggestedRemedy
Convert into "shall" statements + add PICS for them.

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Change to: "The CLT shall initialize the scrambler at the first codeword of the downstream frame. The CNU shall initialize the scrambler at the beginning of each grant."
Add PICS:
EN2 | CLT scrambler initialization| 101.4.3.7 | at the first codeword of the downstream frame | CLT:M | Yes [ ] No [ ] N/A [ ]
EN6 | CNU scrambler initialization| 101.4.3.7 | at the beginning of each grant | CNU:M | Yes [ ] No [ ] N/A [ ]
Renumber PICS Table.

Comment ID i-187

Cl 101 SC 101.4.3.8.1 P 182 L 31 # i-187
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A EZ
It is not clear what "begins by" is supposed to imply - it initializes scrambler and other functions. Period

SuggestedRemedy
Change to "Initializes (resetting) the scrambler function (see 101.4.3.7), sets an FCPbitCnt to 1 (see 101.4.3.8.7), and initializes the mapping function with the lowest numbered active subcarrier."

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Per comment but use "(resets)" instead of "(resetting)"
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Page 41 of 83</th>
</tr>
</thead>
</table>

**Comment 1**:
- **Comment ID**: i-188
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: Put burstStart and burstEnd in italics, if that is the prevailing formatting style you're using. There are more instances of such inconsistent formatting in the draft.

**Suggested Remedy**: Put burstStart and burstEnd in italics, if that is the prevailing formatting style you're using.

**Comment Status**: A

**Response Status**: C

**Response**: ACCEPT.

**Comment 2**:  
- **Comment ID**: i-189
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: The term "symbol" is used and abused across different functions without any formal definition. As is, it just means "some amount of data" but it is not really clear what the difference between symbol in PCS and in PMA is.

**Suggested Remedy**: Please clarify the use of the word "symbol" in the draft, if needed creating definitions of "symbol" within each function, if they are different. There are symbols in PCS, in PMA, at PHY layer, etc.

**Comment Status**: R

**Response Status**: W

**Response**: REJECT.

**Comment 3**:  
- **Comment ID**: i-190
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: These are "up to" five channels, with one being mandatory and remaining 4 optional.

**Suggested Remedy**: Change "As five OFDM channels are accommodated" to "As up to five OFDM channels are accommodated".

**Response Status**: C

**Response**: ACCEPT IN PRINCIPLE.

**Comment 4**:  
- **Comment ID**: i-191
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: The symbol mapping function therefore shall process all active subcarriers per symbol across all OFDM channels.

**Suggested Remedy**: Convert into a statement. Remove PICS.

**Comment Status**: R

**Response Status**: W

**Response**: REJECT.

**Comment 5**:  
- **Comment ID**: i-192
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: There are multiple lists of steps in the draft. Some are numbered as the one starting in line 6. Some include explicit reference to "Step X" instead. Others use a combination of both styles.

**Suggested Remedy**: Please use one style for description of steps, preferably the one page 185, line 6.

**Response Status**: W

**Response**: ACCEPT IN PRINCIPLE.

**Comment 6**:  
- **Comment ID**: i-193
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: Note that the list of steps starting on pg 180 line 29 and extending to page 181 line 35 does not lend itself to this format and will not be changed.

**Response Status**: C

**Response**: REVISED

**Comment 7**:  
- **Comment ID**: i-194
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: These are "up to" five channels, with one being mandatory and remaining 4 optional.

**Suggested Remedy**: Change "As five OFDM channels are accommodated" to "As up to five OFDM channels are accommodated".

**Response Status**: C

**Response**: ACCEPT IN PRINCIPLE.

**Comment 8**:  
- **Comment ID**: i-195
- **Commenter**: Hajduczenia, Marek
- **Comment Text**: Note that the list of steps starting on pg 180 line 29 and extending to page 181 line 35 does not lend itself to this format and will not be changed.

**Response Status**: C

**Response**: REVISED
IEEE 802.3bn EPON Protocol over Coax (EPOC) TF Initial Sponsor ballot comments

Final Responses

Cl 00 SC 101.4.3.8.4 P 186 L 6 # i-193

Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

"downstream frame" - another one of ambiguous terms. The only definition I can find is in 101.4.3.5, and it is unclear, since it references symbols, which are not defined by themselves.

SuggestedRemedy

Please provide clear definition of "downstream frame" and "upstream frame". I would also suggest that these be renamed to "PHY frames" or something similar, emphasizing the fact that we do not mean MAC frames by any chances

Response Response Status W

ACCEPT IN PRINCIPLE.

REVISED

Changed to CL 00

"downstream frame" to "downstream OFDM frame"

at (pg/line): 171/7, 176/10, 176/12, 182/23, 185/50, 186/5, 186/6, 186/9, 186/24, 188/4

Change "upstream frame" to "upstream OFDM superframe"

in Cl 100 pg 87 line 31

Change "upstream frame" to "upstream PHY Link frame"

in Cl 102 (pg/line): 258/6, 258/28, 258/48, 256/26 (102.3.2)

On pg 262 Cl 102.2.7.3 Line 48

Change "EPOC frame" to "PHY Link frame"

Cl 101 SC 101.4.3.8.5 P 186 L 11 # i-194

Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status A

Given that there is no state diagram to follow, what is the purpose of separating variables, constant, counters and functions in 101.4.3.8.5/6/7/8? They could be aggregated into a single subclause, at best left in 101.4.3.8.4 if they are really needed. This also avoid the problem of them being used to describe content of 101.4.3.8.4 and being at the same heading level :)

SuggestedRemedy

Per comment

Response Response Status W

ACCEPT IN PRINCIPLE.

REVISED

remove 101.4.3.8.5, 101.4.3.8.6 & 101.4.3.8.8 Pull the text of 101.4.3.8.7 into a "where" statement following Eq101-17 and strike the clause number.

Cl 101 SC 101.4.3.9.2 P 186 L 43 # i-195

Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+

We have a requirement to perform time interleaving and when it is done (lines 43/44) but no requirement that I can find to follow the specific methodology described in this draft

SuggestedRemedy

Please add a requirement to perform time interleaving per method described in this subclause. Add PICS.

Response Response Status W

ACCEPT IN PRINCIPLE.

REVISED

At the end of the first sentence of 101.4.3.9.2 add "as described in this subclause.*

change Value/Comment of EN3 from:

"Time interleaving meets the requirement of 101.4.3.9.2" to

"Time interleaving as described in 101.4.3.9.2"
Comment 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  U/unsatisfied  Z/withdrawn
SORT ORDER: Comment ID

---

**Comment**

Comment ID: i-196

**CI:** 101  **SC:** 101.4.3.9.2  **P:** 187  **L:** 21  **# i-196**

Hajduczenia, Marek  Bright House Network

Comment Type: TR  Comment Status: +REV+

Clearly untestable: The CLT shall support values of DS_TmIntrlv from 1 to 32 (see 101.4.3.9.5).

SuggestedRemedy

Convert into statement. Update PICS

Response  Response Status: W

REJECT.

This is testable at the MDI connector using an NSA that looks at OFDM symbols.

---

**Comment**

Comment ID: i-197

**CI:** 101  **SC:** 101.4.3.9.3  **P:** 187  **L:** 43  **# i-197**

Hajduczenia, Marek  Bright House Network

Comment Type: TR  Comment Status: +REV+

We have a requirement to perform time interleaving and when it is done (lines 52/53) but no requirement that I can find to follow the specific methodology described in this draft.

SuggestedRemedy

Please add a requirement to perform time interleave per method described in this subclause. On pages 190/191 there are reference implementations for specific functions for frequency interleaver, which I would expect to be functionally normative, as we always do, ie., require the implementation produce the same result.

Add PICS.

Response  Response Status: W

ACCEPT IN PRINCIPLE.

REVISED

See comment i-195

Response copied below:

At the end of the first sentence of 101.4.3.9.2 add "as described in this subclause."

change Value/Comment of EN3 from:

"Time interleaving meets the requirement of 101.4.3.9.2" to

"Time interleaving as described in 101.4.3.9.2"
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Response #i-201**

**Comment**

Rather than add notes to Table 101-10/11, add “[OFDM Clock period (1/204.8 MHz)] under DSNcp and DSNrp.

**Suggested Remedy**

Per comment

**Response**

ACCEPT.

**Comment #i-202**

**Comment**

Given that we have apparently a separate subclause for upstream windowing, the note is not needed

**Suggested Remedy**

Remove the note

**Response**

REJECT.

The figure is to be used as a reference for both US & DS (note that 101.4.4.10 references 101.4.3.12) and it may be useful to the reader to clarify which variables to us for US & DS. The note certainly does not create any confusion.

**Comment #i-203**

**Comment**

Given the number of instances of OFDM Clock period term in the draft, would it make sense to define this as unit up front in each clause and not have to carry it onwards everywhere?

**Suggested Remedy**

Per comment

**Response**

REJECT.

This would only serve to introduce more change in the draft and serve no useful purpose.

**Comment #i-204**

**Comment**

These seem like downstream OFDM channel requirements, not just any requirements

**Suggested Remedy**

Change "The 10GPASS-PX PHY shall comply" to "The 10GPASS-PX-D PHY shall comply" since we are placing requirements on Tx side only

Update PICS

**Response**

ACCEPT IN PRINCIPLE.

REVISED

Per comment, no change to PICS required.

**Comment #i-205**

**Comment**

"based on downstream tracking" - likely, "based on tracking downstream channel"

**Suggested Remedy**

Per comment

**Response**

ACCEPT IN PRINCIPLE.

REVISED

change to:

"based on downstream channel tracking"
### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Comment ID:** i-206

**Comment:** Unnecessary separate requirements

**Suggested Remedy:**

Change to: "The CNU shall lock the frequency of the upstream Subcarrier Clock (50 kHz) and subcarrier frequency to the 10.24 MHz Master Clock derived from the downstream OFDM signal."

**Update PICS**

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

**Comment ID:** i-207

**Comment:** Unnecessary requirement - it is not testable anyway: The upstream Superframe shall be composed of the Probe Period followed by 256 OFDMA symbols.

**Suggested Remedy:**

Change into informative text instead. Remove PICS

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

See comment i-193 Response copied below

**Comment ID:** i-208

**Comment:** what is the difference between "upstream frame" and "upstream superframe"? Both are used, with no clear definitions

**Suggested Remedy:**

Please clarify whether these are the same. In downstream, we only use "downstream frame"

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

See comment i-193 Response copied below

**Comment ID:** i-209

**Comment:** Unnecessary separate requirements

**Suggested Remedy:**

Change to: "The CNU shall lock the frequency of the upstream Subcarrier Clock (50 kHz) and subcarrier frequency to the 10.24 MHz Master Clock derived from the downstream OFDM signal."

**Update PICS**

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

See comment i-193 Response copied below

Change "downstream frame" to "downstream OFDM frame" at (pg/line): 171/7, 176/10, 176/12, 182/23, 185/50, 186/5, 186/6, 186/9, 186/24, 188/4

Change "upstream frame" to "upstream OFDM superframe"

in Cl 100 pg 87 line 31

Change "upstream frame" to "upstream PHY Link frame"

in Cl 102 (pg/line): 258/6, 258/28, 258/48, 256/26 (102.3.2)

On pg 262 Cl 102.2.7.3 Line 48

Change "EPoC frame" to "PHY Link frame"
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<td>101</td>
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<td>101.4.4.3.2</td>
<td>P 201</td>
<td>L 35</td>
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<td></td>
<td>W</td>
<td>No DUT. Rewrite to &quot;The 10GPASS-XR-U shall start the transmission of the upstream (super)frame with ...&quot;</td>
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<td>+REV+</td>
<td>Per comment. Update PICS The same issue in 101.4.4.3.4</td>
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<td>#209</td>
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<td>W</td>
<td>Change from &quot;An OFDMA transmission shall start …&quot; to &quot;A CNU OFDMA transmission shall start …&quot;</td>
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<tr>
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<td>W</td>
<td>Change TX4 from &quot;Burst begins with&quot; to &quot;CNU Burst begins with&quot;</td>
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<td>Unnecessarily circular definition. Rather than make TBsize a Boolean that points to specific RB size, just make it an unsigned integer which holds the size of RB. Then Rblen function is not needed at all and could be removed</td>
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<td>Odd statement: &quot;This clear on read Boolean&quot;</td>
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<td>W</td>
<td>Change to &quot;This variable&quot; (type is already defined) Add a statement at the end &quot;This variable is cleared on read.&quot;</td>
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<td>No need to repeat variable type when it is explicitly defined using TYPE field: &quot;This Boolean variable ... &quot;</td>
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<td>Change type to &quot;unsigned integer&quot;</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  U/unsatisfied  Z/withdrawn

**SORT ORDER:** Comment ID

---

Comment ID i-213  
Page 46 of 83  3/17/2016 1:26:41 AM
Comment Type: E  Comment Status: A  EZ

"SYMcount = SYMcount + 1" uses different font than rest of the SD

SuggestedRemedy
Align font use

Response  Response Status: C
ACCEPT.

Comment Type: T  Comment Status: A
We have ++ and -- operators defined

SuggestedRemedy
Change "SYMcount = SYMcount + 1" to "SYMcount ++"

Response  Response Status: C
ACCEPT IN PRINCIPLE.
Change in two places in Figure 101–31

Comment Type: TR  Comment Status: A
Undefined DUT: "EPoC devices ..."

SuggestedRemedy
rewrite the requirement to include actual DUT (CLT/CNU). Update PICS

Response  Response Status: W
ACCEPT IN PRINCIPLE.
REVISED
Change "EPoC devices" to "CNUs"
At pg 175 line 2 change "An EPoC Phy" to "CLTs"
Change Status of PICS TX1 to CLT:M, add "N/A[]" to support col.

Comment Type: E  Comment Status: R
Really inconsistent variable naming - in this subclause, it seems that the majority of the variables are all upper caps, which makes Figure 101-32 look just odd

SuggestedRemedy
Consider using some consistent naming scheme, at least within the draft.

Response  Response Status: C
REJECT.
This change would not improve readability.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Response #i-220**

*Hajduczenia, Marek*  
*Bright House Network*

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

Extra " after Boolean

**Suggested Remedy:** Strike *

**Response:**  
**Response Status:** C  
**Accept.**

---

**Response #i-221**

*Hajduczenia, Marek*  
*Bright House Network*

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

The range of this variable implies it should be unsigned integer

**Suggested Remedy:**  
Per comment. Also, the grand majority of the variables defined in this subclause should be integers, since they are always positive. IRB is the only exception I can see, which needs to support negative values.

**Response:**  
**Response Status:** C  
**Reject.**  
Should the implementor choose to use a signed integer it will not impact interoperability in any way. This is purely a matter of personal preference.

---

**Response #i-222**

*Hajduczenia, Marek*  
*Bright House Network*

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

Can BITPOS be negative?

**Suggested Remedy:**  
Change "BITPOS <=0" with "ELSE"

**Response:**  
**Response Status:** C  
**Reject.**  
The SD is not in error and the meaning is clear.

---

**Response #i-223**

*Hajduczenia, Marek*  
*Bright House Network*

**Comment Type:** TR  
**Comment Status:** R

It seems like there should be a requirement about this somewhere: “The CLT ensures a minimum gap time between bursts ...” to make sure that the CLT receiver can operate correctly, but I could not locate such a requirement anywhere

**Suggested Remedy:**  
Consider converting this statement into a requirement either in here, or adding a new one where the CLT transmitter is defined (likely in Clause 103, since that is what drives upstream scheduling)

**Response:**  
**Response Status:** W  
**Reject.**  
See CC5 in 103.4

---

**Response #i-224**

*Hajduczenia, Marek*  
*Bright House Network*

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

Some odd strikethrough in the word "time_quantum"

**Suggested Remedy:**  
Remove "a" in this word. Also, remove italics from this word - it is not variable.

**Response:**  
**Response Status:** C  
**Accept in principle.**  
**Revised**  
Remove "a", (note time_quantum is used in Eq 101-33 at line 12 and so should be considered a variable)  
**Good catch.**

---

**Response #i-225**

*Hajduczenia, Marek*  
*Bright House Network*

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

Seems like there is space missing between "TYPE:" and following variable definition

**Suggested Remedy:**  
Scrub the draft, make sure there is space after "TYPE:" definition

**Response:**  
**Response Status:** C  
**Accept in principle.**  
**Revised**  
Pg/line: 161/20, 181/39, 213/51, 214/2, 214/5, 263/7
Cl 101 SC 101.4.4.7.1 P 214 L 15 # i-226
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A
Incomplete variable formatting for "RB_Frame"

SuggestedRemedy
Make sure "R" is italicized

Response Response Status C
ACCEPT.

Cl 101 SC 101.4.4.8.1 P 214 L 53 # i-227
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status A
Missing space between numeric value and units in "3dB"

SuggestedRemedy
Per comment

Response Response Status C
ACCEPT.

Cl 101 SC 101.4.4.8.2 P 215 L 5 # i-228
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R +REV+
It seems that both statements in lines 5 and 6 should be converted into requirements - I do not see any other requirements for burst marker structure anywhere

SuggestedRemedy
Per comment + add PICS

Response Response Status W
REJECT.
See TX4 & TX5 and states PLACE_START_MARKER and PLACE_END_MARKER in SD Figure 101–33

Cl 101 SC 101.4.4.9.1 P 220 L 25 # i-229
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R +REV+
Is this externally observable: "The CNU shall normalize the newly calculated coefficients?"

SuggestedRemedy
If so, leave it as is. If not, convert into a statement instead and remove associated PICS

Response Response Status W
REJECT.
This is observable by the CLT and NSAs. It is the only way the CLT can update the coefficients to observe the CLT's output and set what they need to be. The CNU must update upon receiving from the CLT. As this is essentially a CLT/CNU feedback loop.

Cl 101 SC 101.4.4.9.1 P 220 L 35 # i-230
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R +REV+
This requirement seems more like a product spec than anything that we need for Tx/Rx definitions.

SuggestedRemedy
Convert into informative text instead and remove any associated PICS

Response Response Status W
REJECT.
This must be a CLT requirement in order to meet interoperability.

Cl 101 SC 101.4.4.9.2 P 220 L 41 # i-231
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A +REV+
All testing modes and testign procedures should be moved to 101.4.6 which already defines PMA testing

SuggestedRemedy
Per comment

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED
Move to 101.4.6.1 & renumber
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**CL 101 SC 101.4.5 P 223 L 5 # i-232**

Hajduczenia, Marek
Bright House Network

*Comment Type*: TR
*Comment Status*: A

Comment:  
no DUT in requirement: the output bit stream of the scrambler shall be mapped to QAM symbols such that first bit is the least-significant bit of the first QAM subcarrier constellation m-tuple, see Figure 101-39

*Suggested Remedy*:  
Please add DUT for this requirement and then update PICS

*Response*:  
Response Status: W

ACCEPT IN PRINCIPLE.
REVISED
Change:
"output bit stream of the scrambler" to "output bit stream of the CLT and CNU Symbol Mapper"
No change to PICS needed.

---

**CL 101 SC 101.4.5.3 P 224 L 20 # i-233**

Hajduczenia, Marek
Bright House Network

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

Comment:  
More tiny equations

*Suggested Remedy*:  
Please fix equation size to match T.Text definition

*Response*:  
Response Status: C

ACCEPT.

---

**CL 101 SC 101.4.5.4 P 225 L 4 # i-234**

Hajduczenia, Marek
Bright House Network

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

Comment:  
Incorrect multiplication operator

*Suggested Remedy*:  
Please use "x" instead - multiple instances in draft

*Response*:  
Response Status: C

ACCEPT IN PRINCIPLE.
REVISED
Instructions on how to: In Eq Editor; cut term(s) to right of offensive dot, select multi operator, paste cut term(s)
Locations noted (pg/in); 225/24, 226/20-25

---

**CL 101 SC 101.5.1 P 228 L 37 # i-235**

Hajduczenia, Marek
Bright House Network

*Comment Type*: TR
*Comment Status*: A

Comment:  
No DUT in "Both real and imaginary axes of a QAM constellation shall be scaled..."

*Suggested Remedy*:  
Please add DUT for this requirement and then update PICS

*Response*:  
Response Status: W

ACCEPT IN PRINCIPLE.
REVISED
Change:
"shall be scaled using" to "shall be scaled by the CLT or CNU transmitter using"

Not change to PICS required.

---

**CL 101 SC 101.5.1 P 228 L 41 # i-236**

Hajduczenia, Marek
Bright House Network

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

Comment:  
Formatting mess

*Suggested Remedy*:  
Change "In 13.1.4 of IEEE STD 802.1AS 2011 "Time synchronization in EPON"," to "In IEEE Std 802.1AS, 13.1.4,"

*Response*:  
Response Status: C

ACCEPT.

---

**CL 101 SC 101.5.1 P 228 L 54 # i-237**

Hajduczenia, Marek
Bright House Network

*Comment Type*: TR
*Comment Status*: A

Comment:  
What is the purpose of T_CORR_CLT where all it does it replace DiffDelay/2?

*Suggested Remedy*:  
Replace T_CORR_CLT with "DiffDelay/2". Remove T_CORR_CLT definition
Same for T_CORR_CNU on page 229, line 16

*Response*:  
Response Status: W

ACCEPT IN PRINCIPLE.
REVISED
Use DiffDelay_CLT/2 & DiffDelay_CNU/2
Cl 101 SC 101.5.1 P 229 L 1 # i-238
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status A TimeSync
DiffDelay_CLT defined and not used.

SuggestedRemedy
Remove
Same for DiffDelay_CNUi on page 229, line 17

Response Response Status C
ACCEPT IN PRINCIPLE.
See i-239 (response copied below).

Comment Type T Comment Status A TimeSync

SuggestedRemedy
Instead of adding new variables to keep track of the delay through stack, suggest to:
1) add mandatory support for Clause 90 (Ethernet support for time synchronization protocols) and TSSI interface, which allows 802.1AS applications perform all neccessary measurements and compensate for residency time in PCS/PMA.
2) remove existing calculations in 101.5.1/2/3 - these are not necessary once you provide native access to residency time measurements in both receive and transmit directions.
3) add support for registers: 1.1800 ... 1.1808 and 3.1800 ... 3.1808, which will give you measurement capability as well as Tx and Rx path delay measurements (min/max) which can be reported then between devices via PHY Link. Given that all register and interface work is done, this is the simplest mechanism to support 802.1AS without making purpose-built extensions into this PHY only.

Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Change the title of 101.5 from
"Applicability of IEEE Std 802.1AS, Clause 13 for EPoC time transport"
to
"Applicability of Clause 90- and IEEE Std 802.1AS, Clause 13 for EPoC time transport"
Pg 228 line 32? Change
"time delay asymmetries" to
"time delays described in Clause 90"

Remove DiffDelay, DiffDelayTol & TimeSyncCapable (101.5.3 & Table 101-1)

In 101.5.x
For CLT Replace DiffDelay with (Maximum PMA/PMD transmit path data delay - Maximum PMA/PMD receive path data delay + Minimum PMA/PMD transmit path data delay - Minimum PMA/PMD receive path data delay) /2

For CNU replace DiffDelay with (Maximum PMA/PMD receive path data delay - Maximum PMA/PMD transmit path data delay + Minimum PMA/PMD receive path data delay - Minimum PMA/PMD transmit path data delay) /2

Editor given lic. To use appropriate variable names and add to Table 101-1 (may want to indicate that these variables are not communicated via PHY Link with a footnote).

Remove 101.5.4 Derivation of Methodology

Comment ID i-239 Page 51 of 83
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Comment ID: i-240
Cl: 101 SC: 101.6.4.4 P 234 L 29

Hajduczenia, Marek
Bright House Network

Comment Type: E
Comment Status: A
Suggested Remedy:
Seems like font in this table is larger than in previous tables

Response Status: C
ACCEPT.

Comment ID: i-241
Cl: 101 SC: 101.6.4.7 P 236 L 33

Hajduczenia, Marek
Bright House Network

Comment Type: E
Comment Status: A
Suggested Remedy:
Wrong ”,” placement in LDPC code designation

Response Status: C
ACCEPT.

Comment ID: i-242
Cl: 101 SC: 101.6.4.10 P 238 L 28

Hajduczenia, Marek
Bright House Network

Comment Type: T
Comment Status: A
Suggested Remedy:
Unclear mathematical meaning: (Ck)^2

Response Status: C
ACCEPT.

Comment Type: TR
Comment Status: R
Suggested Remedy:
All of the recent non-fiber based projects define their own Operations, Administration, and Maintenance (OAM) protocols, providing the function of what you call "PHY Link". Even GPOF does it in their own OAM specification. All of these OAMs are PHY specific, and are aptly called "1000BASE-T1 OAM", "1000BASE-H OAM", etc.

Response Status: W
REJECT.

Comment ID: i-243
Cl: 102 SC: 102.1 P 239 L 8

Hajduczenia, Marek
Bright House Network

Comment Type: T
Comment Status: A
Suggested Remedy:
There is no difference that I can see between "join" and "rejoin" - the registration process is still the same

Response Status: C
ACCEPT.
**IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments**

**Draft 3.0**

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**Hajduczenia, Marek**

**Bright House Network**

**Comment Type**

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

"In a multi OFDM channel PHY only OFDM channel one has a PHY Link." - a pretty confusing statement, likely due to lack of commas

**SuggestedRemedy**

Change to "In a multi channel 10GPASS-XR PHY, only the first downstream and upstream OFDM channels have a PHY Link." - reference to architecture figures from Clause 101 might be welcome, to show where PHY Link is actually located

**Response**

Response Status **C**

ACCEPT IN PRINCIPLE.

REVISED

Change to "In a multi OFDM channel PHY, only OFDM channel one has a PHY Link (see Figure 100-1 and Figure 100-3).

---

<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
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<tbody>
<tr>
<td>102</td>
<td>102.1</td>
<td>239</td>
<td>13</td>
<td>#i-246</td>
</tr>
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<td>102</td>
<td>102.1</td>
<td>239</td>
<td>17</td>
<td>#i-247</td>
</tr>
</tbody>
</table>

**Hajduczenia, Marek**

**Bright House Network**

**Comment Type**

**TR** Comment Status **A**

And one more "frame" in this draft.

**SuggestedRemedy**

When referring to a frame in the context of a frame of PHY Link Channel, please use "PHY Link frame" consistently in Clause 102

**Response**

Response Status **W**

ACCEPT IN PRINCIPLE.

REVISED

Change "Each frame is composed" to "Each PHY Link frame is composed"

---

<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment ID</th>
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<td>102</td>
<td>102.1</td>
<td>239</td>
<td>17</td>
<td>#i-247</td>
</tr>
</tbody>
</table>

**Hajduczenia, Marek**

**Bright House Network**

**Comment Type**

**TR** Comment Status **A**

"Probe Period" or "Probing Period"

**SuggestedRemedy**

Pick one, use consistently

**Response**

Response Status **W**

ACCEPT IN PRINCIPLE.

REVISED

Change the one instance of Probing Period to Probe Period.

---

**Figure 102-1** is really composed of multiple figures, where you show downstream PHY Link frame and its elements. This should be broken into separate figures: 102-1 Downstream PHY Link frame, 102-2 EPFH field in Downstream PHY Link frame, etc. Then change "The PHY Link frame is illustrated in Figure 102-1 and Figure 102-2," to "The structure of the downstream PHY Link frame is shown in Figure 102-1, followed by structure of individual fields in the downstream PHY Link frame shown in Figure 102-2 ..."

**SuggestedRemedy**

Per comment - this will allow to reference specific figures later on, when fields are being described.

**Response**

Response Status **W**

REJECT.

There is nothing unclear with the current figure and how it is referenced. The TF feels the single figure is preferred.

---

<table>
<thead>
<tr>
<th>CI</th>
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<td>241</td>
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<td>#i-249</td>
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</tbody>
</table>

**Hajduczenia, Marek**

**Bright House Network**

**Comment Type**

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

This requirement should be more specific: "The PHY Link frame shall be fixed; the downstream length is 128 OFDM symbols long and the upstream length is 262 OFDM symbols long."

**SuggestedRemedy**

Change to "The downstream PHY Link frame shall be 128 OFDM symbols long. The upstream PHY Link frame shall be 262 OFDM symbols long."

**Response**

Response Status **C**

ACCEPT IN PRINCIPLE.

REVISED

See accepted TR comment i-296

Suggested Remedy: change to "The PHY Link frame length shall be fixed;"
It is not clear how Figure 102-3 and 102-4 fit with the layering model shown in Figures 101-1, where PHY link has a single interface (unnamed, undefined) to PMA IDFT, one interface to FRAME TIMING, one interface to SUBCARRIER etc.

To be consistent, Figures 102-3 and 102-4 should be demonstrated in the same layout, or have all interfaces defined and used consistently between clauses. Otherwise it is very hard to put these two together and understand what is really happening in here.

**Suggested Remedy**

Per comment - my preference would be to specify individual interfaces between PHY Link and PMA/PMD and have them used in Clause 102 in Figure 102-3/4 consistently with architecture drawings from Clause 101.

**Response**

ACCEPT IN PRINCIPLE.

REVISED

Align Figures 102-2 & 3 to the names used in Fig 101-1 to 4.

In Figure 102-3

change:

Frame Timing -> FRAME TIMING
Subcarrier Configuration and bit loading -> OFDM FRAME CONFIGURATION AND BIT LOADING from PMA (3x) -> PILOT PROCESSING, EQUALIZATION, AND FFT to PMD -> ????
To PMA -> IDFT 1
Tx FCP from PCS -> FCP GENERATION
Strike Probe & PHY Disc to PCS and remove PROBE RCV and attached SYM MAP blocks and PMD_SIGNAL.request

In Figure 102-3

change:

Subcarrier Configuration and bit loading -> OFDM FRAME CONFIGURATION AND BIT LOADING
Frame Timing -> FRAME TIMING
Rx FCP to PCS -> FCP ALIGNMENT from PMA -> PILOT PROCESSING, EQUALIZATION, and FFT 1 to PMA (3x) -> PRE-EQUALIZATION AND IDFT to PMA (TxType) -> CYCLIC PREFIX AND WINDOWING
Add PMD_SIGNAL.request going to PMD FUNCTIONS

Seems like repetition, unless there is some specific need for "ariables"

Also, there are some trimmed names like "SYM MAP", D'INTERLEAVER", PROBE RCV, which are not explained under the figure and one has to guess what they are intended to mean. Either expand them to full words, or if there is space missing - expand acronyms under the figures. This applies to Figure 102-3/4 alike.

**Response**

ACCEPT IN PRINCIPLE.

REVISED

Strike "ariables"

Fig 102-3 change

FEC ENCODE to FEC ENC
FEC to FEC DEC
INTERLEAVING to INTL
D'INTERLEAVER TO DEINTL

Add key to Figure 102-3

DEINTL = DEINTERLEAVER
FEC DEC = FEC DECODER
FEC ENC = FEC ENCODER
INTL = INTERLEAVER
PCS = PHYSICAL CODING SUBLAYER
PHY DISC RCV = PHY DISCOVERY RECEIVE
PHY DISC = PHY DISCOVERY
PMA = PHYSICAL MEDIUM ATTACHMENT
PMD = PHYSICAL MEDIUM DEPENDENT
PROBE RCV = PROBE RECEIVE
SYM MAP = SYMBOL MAPPER

In Fig 104-4

remove stray char in from of "DISC" in PHY DISC GEN block

Change:

FEC to FEC ENC
FEC DECODE to FEC DEC
SYMBOL DEMAP to SYM MAP
DEINTERLEAVER to DEINTL
INTERLEAVE to INTL

Add key to Figure 102-4

DEINTL = DEINTERLEAVER
FEC DEC = FEC DECODER
FEC ENC = FEC ENCODER
INTL = INTERLEAVER
PCS = PHYSICAL CODING SUBLAYER
PHY DISC GEN = PHY DISCOVERY RECEIVE
PHY DISC GEN = PHY DISCOVERY GENERATOR
PMA = PHYSICAL MEDIUM ATTACHMENT
PMD = PHYSICAL MEDIUM DEPENDENT
PROBE GEN = PROBE GENERATOR
SYM MAP = SYMBOL MAPPER

Response

# i-252
Cl 102 SC 102.1.3 P 242 L 32
Hajduczenia, Marek Bright House Network
Comment Type T Comment Status A
*passed over the PHY Link and all PHY to PHY signaling* - I do not think that 'all PHY to PHY signaling' is correct here - there are signals which end up in data path and not PHY path
Suggested Remedy
Strike *"and all PHY to PHY signaling"*
Response Response Status C
ACCEPT IN PRINCIPLE.
REVISED
Change *"PHY Link and all PHY to PHY signaling"* to *"PHY Link, as well as all PHY to PHY signaling"*

# i-253
Cl 102 SC 102.1.3 P 242 L 35
Hajduczenia, Marek Bright House Network
Comment Type TR Comment Status R
What is the difference between "message block" and "signalling type" - they are mentioned in the same context, implying these are just fields in the PHY Link frame
Suggested Remedy
Change *"PHY to PHY signalling types"* to *"PHY message blocks"* if that is what is intended here. Please make this change consistently in Clause 102 - there are many instances where creative terminology is made on the fly to mean "PHY Link message block"
Make sure all standalone *"message block"* instances are converted into *"PHY Link message block"* (e.g., PHY signalling types, PHY types (not meaning a PHY type), etc.)
Response Response Status W
REJECT.
Neither PHY Discovery Response nor Probing are PHY Link messages.
The commenter is invited to make specific comments agains specific offensive text if such exists.
Comment Type: T  Comment Status: A
"Shortening encoder consists of 3 steps" - the encode does not consist of any steps

SuggestedRemedy
Change to "The operation of the shortening PHY Link encoder includes the following 3 steps:"
Similarly, in line 24, change to "The operation of the puncturing PHT Link encoder includes the following 2 steps:"

Response  Response Status: C
ACCEPT IN PRINCIPLE.
REVISED
Change
"Shortening encoder consists of 3 steps:"
to
"The shortening encoder operationally includes 3 steps:"

Change:
"Puncturing encoder consists of 2 steps:"
to
"The puncturing encoder operationally includes 2 steps:"

Change the title of 102.1.4.2 from "... encoder" to "... encoders"

---

Comment Type: E  Comment Status: A
The purpose of 102.1.4.2 is unclear.

SuggestedRemedy
Move text from lines 15 - 22 to 102.1.4.2.1
Move text from lines 24 - 28 to 102.1.4.2.2
Remove 102.1.4.2
Promote 102.1.4.2.1 and 102.1.4.2.2 one level up

Response  Response Status: W
ACCEPT IN PRINCIPLE.
REVISED
Reformat to Li1,NumberedList:
Change "Period x:" to bulleted list with appropriate indent
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

**Comment ID** i-260

Hajduczenia, Marek
Bright House Network

**Comment Type** TR  **Comment Status** A  **DUT**

Wrong DUT - it says "The PHY shall scramble ...", while scrambler is likely in PHY Link block?

**Suggested Remedy**

Fix the DUT for this requirement and update PICS.
Also, please align the structure of requirement to match 101.3.2.3, to include a requirement to produce the same result as serial implementation shown in Figure 102-XX, and also add initialization requirements (text right now has initialization as informative only)

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

- ACCEPT IN PRINCIPLE.
- REVISED
  - Change "The PHY shall scramble …" to "The CLT and CNU shall scramble …"
  - At line 32 change "The PHY initializes the …" to "The CLT shall initialize the …"
  - At line 34 change "… the PHY initializes …" to "… the CNU shall initialize …"

Add PICS

PG7 | CLT PHY Link scrambler initialization | 102.1.5 | at the beginning of the first OFDM symbol following the PHY Link preamble | CLT: M | Yes [ ] No [ ] N/A [ ]
PG8 | CNU PHY Link scrambler initialization | 102.1.5 | at the beginning of an upstream PHY Link transmission | CNU: M | Yes [ ] No [ ] N/A [ ]

**Comment ID** i-261

Hajduczenia, Marek
Bright House Network

**Comment Type** TR  **Comment Status** A

"The PHY does not scramble the PHY Link preamble" - this is important enough to be a requirement

**Suggested Remedy**

Convert to a requirement + add PICS

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

- ACCEPT IN PRINCIPLE.
- REVISED
  - Change:
    - "The PHY does not scramble …" to "The PHY shall not scramble …"
  - Add PICS
    - PG9 | PHY Link preamble | 102.1.5 | at the is not scrambled | M | Yes [ ] No [ ]

**Comment ID** i-262

Hajduczenia, Marek
Bright House Network

**Comment Type** TR  **Comment Status** A

Missing requirements for symbol map and constellation mapping:
- In the downstream direction the assigned modulation order is always 16-QAM
- The upstream PHY Link may use 16-QAM or a higher order

**Suggested Remedy**

Convert both statements into requirements and add PICS

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

- ACCEPT IN PRINCIPLE.
- REVISED
  - Line 42 change "is always" to "shall be"
  - Line 43 change "may use" to "shall be"

Add PICS

PG10 | DS PHY Link modulation | 102.1.6 | 16-QAM | M | Yes [ ] No [ ]
PG11 | US PHY Link modulation | 102.1.6 | 16-QAM or higher | M | Yes [ ] No [ ]
IEEE 802.3bn EPON Protocol over Coax (EPOC) TF Initial Sponsor ballot comments

Comment Type: E
Comment Status: A

Incorrect multiplication operator: *. Use "x" instead

Suggested Remedy
Per comment

Response

Response Status: C

ACCEPT.

---

Comment Type: TR
Comment Status: A

Consider rewriting the if statement using C pseudo code instead

Suggested Remedy
Use:

If (RegAdd >= 1.1900 AND RegAdd <= 1.1999) then
  <tab> Index = (RegAdd - 1.1900) * 1000
else if (RegAdd <= 12.0000) then
  <tab> Index = (RegAdd - 12.0000) * 1000 + 1000
else
  Index = 500 + XXX

Where XXX needs to be defined in Table 102-3

Response

Response Status: W

ACCEPT IN PRINCIPLE.
REVISED
Change:
" Then" to ", then" in two places in the note also add periods to make each line a complete sentence.
Change
"Clause 45 indexes" to "Clause 45, indexes"

---

Comment Type: TR
Comment Status: R

Table 102-3 and Table 101-1 do not match and they have the same title: MDIO register to PHY variable mapping - I would expect them to match in terms of content

Suggested Remedy
Consider merging both tables into a single one, located preferably in Clause 102, where PHY Link is defined.

Response

Response Status: W

REJECT.
Each table only contains information on the variables used in that Clause. Note that this follows precedent set in Clause 84, 86, 87 ...
See
Table 84–2—MDIO/PMD control variable mapping
Table 86–3—MDIO/PMD control variable mapping
Table 87–2—MDIO/PMD control variable mapping and others
Comment Type | TR  | Comment Status | REV  
--- | --- | --- | --- 
There is terminology confusion here: first we say Phy Link is allocated 400 Khz and then we say it is allowed 24 MHz of contiguous OFDM channel. I am not sure how both of these requirements can be met at the same time.  
**Suggested Remedy**  
Change  
During network setup the downstream Phy Link shall be allocated 400 kHz of spectrum. The allocated spectrum for the downstream Phy Link shall reside anywhere within a 24 MHz contiguous OFDM channel spectrum (i.e., 24 MHz with no internal exclusion bands) and have at least 3 MHz of contiguous spectrum above and below it for a total band of 6 MHz.  
To  
During network setup the downstream Phy Link is allocated 400 kHz of spectrum anywhere within a 24 MHz contiguous OFDM channel spectrum (i.e., 24 MHz with no internal exclusion bands) and have at least 3 MHz of contiguous spectrum above and below it for a total band of 6 MHz.  
Remove existing PICS. Remove d1,d2,d3,d4 from Figure 102-8 unless they are needed somewhere (I could not locate any references to these in text today)  
Add a requirement in 102.2.11 saying: The placement of the Phy Link within the contiguous OFDM channel shall be per Figure 102-8. Add a new PICS.  
**Response**  
REJECT.  
The text reads: “During network setup the downstream Phy Link shall be allocated 400 kHz of spectrum. The allocated spectrum for the downstream Phy Link shall reside anywhere within a 24 MHz contiguous OFDM channel spectrum (i.e., 24 MHz with no internal exclusion bands) and have at least 3 MHz of contiguous spectrum above and below it for a total band of 6 MHz.”  
Note that the “allocated 400 kHz” is not the same as "24 MHz contiguous OFDM channel spectrum".
**IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments**

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Update PICS</th>
<th>Response Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-270</td>
<td>TR</td>
<td>R</td>
<td>&quot;CLTs shall use the appropriate message Type fields listed in Table 102-6 in each message block&quot; - seems like it should be a requirement for both CLT and CNU (they need to understand these on both ends)</td>
<td>Change to &quot;The CLT and CNU PHY link shall support message Type field values per Table 102-6.&quot;</td>
<td>Update PICS</td>
<td>REJECT.</td>
<td>See 102.3.2 Upstream frame</td>
</tr>
<tr>
<td>i-271</td>
<td>E</td>
<td>A</td>
<td>RD_IF should be italicised</td>
<td>Per comment</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i-272</td>
<td>TR</td>
<td>A</td>
<td>Very circular description: &quot;The CLT updates the unused profile then, using the PHY Configuration ID field, switches the CNU to the updated profile. Once the CLT begins the switchover, as indicated by Configuration ID field values 0b01 or 0b10 it shall complete the switchover. During a switchover the value of the Configuration ID field is either incremented or decremented by one in each successive frame; thus a switchover takes three PHY Link frame times.&quot;</td>
<td>Change to &quot;The CLT updates the unused profile on connected CNU's by setting the PHY Configuration ID field to one of two values: 0b01 or 0b10. The CNU switches the target profile, incrementing or decrementing the PHY Configuration ID field value by one in each successive PHY Link frame. The profile switchover takes three PHY Link frame times.&quot;</td>
<td>Update PICS</td>
<td>ACCEPT IN PRINCIPLE. REVISED</td>
<td>The suggested remedy is incorrect. Change: &quot;frame; thus a switchover takes three PHY Link frame times.&quot; to &quot;frame. The switchover is completed and the CNU activates the new profile when the Configuration ID field reaches a value of 0b00 or 0b11; thus a switchover takes three PHY Link frame times.&quot;</td>
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</tbody>
</table>
**Comment ID:** i-275  
**Page:** 61 of 83  
**Comment Type:** T  
**Comment Status:** A  
**Hajduczenia, Marek**  
**Bright House Network**  
**C_ID is not defined. I assume it is "Configuration ID", but it is not shown anywhere**

**Suggested Remedy:**  
Add a note to figure 102-11 explaining what C_ID is.

**Response:**  
**Response Status:** C  
**ACCEPT IN PRINCIPLE.**

**REVISITED**

Add "C_ID = Configuration ID".

---

**Comment ID:** i-276  
**Page:** 61 of 83  
**Comment Type:** TR  
**Comment Status:** R  
**Hajduczenia, Marek**  
**Bright House Network**  
**"The CLT shall ensure that all CNUs have sufficient time (as determined by the variable PhyLnkRspTm) to respond to the downstream PHY Link frame." - meaningless requirements, without specifying how much of time is needed.**

**Suggested Remedy:**  
Convert into informative text instead and remove any associated PICS.

**Response:**  
**Response Status:** C  
**REJECT.**

The specific time is dependent on capabilities of the networked devices and is specified by PhyLnkRspTm. This is similar to a mechanism used in EPON to allow for devices with various laser on/off times.

---

**Comment ID:** i-277  
**Page:** 61 of 83  
**Comment Type:** TR  
**Comment Status:** R  
**Hajduczenia, Marek**  
**Bright House Network**  
**"within 2.5 ms" - what is the reference point for these 2.5 ms?**

**Suggested Remedy:**  
Please add information for reference point for this 2.5ms period: is it since data is received on PHY, processed, etc.?  
The same applies to 102.2.5 "The CNU shall decode and be capable of acting on EPoC message block instructions included in a downstream PHY Link frame within 4.8 ms."

**Response:**  
**Response Status:** W  
**ACCEPT IN PRINCIPLE.**

**REVISED**

Add "after reception".

---

**Comment ID:** i-278  
**Page:** 61 of 83  
**Comment Type:** ER  
**Comment Status:** A  
**Hajduczenia, Marek**  
**Bright House Network**  
**"its" versus "it's" - these are not the same**

**Suggested Remedy:**  
There are 7 instances of "it's in the draft and all of them wrong !

**Response:**  
**Response Status:** W  
**ACCEPT IN PRINCIPLE.**

**REVISED**

Per comment. Also check for its'.

---

**Comment ID:** i-279  
**Page:** 61 of 83  
**Comment Type:** TR  
**Comment Status:** R  
**Hajduczenia, Marek**  
**Bright House Network**  
**"its" versus "it's" - these are not the same**

**Suggested Remedy:**  
There are 7 instances of "it's in the draft and all of them wrong !

**Response:**  
**Response Status:** C  
**ACCEPT.**

**REVISED**

Per comment. Also check for its'.

---

**Comment ID:** i-280  
**Page:** 61 of 83  
**Comment Type:** TR  
**Comment Status:** A  
**Hajduczenia, Marek**  
**Bright House Network**  
**"within 2.5 ms" - what is the reference point for these 2.5 ms?**

**Suggested Remedy:**  
Please add information for reference point for this 2.5ms period: is it since data is received on PHY, processed, etc.?  
The same applies to 102.2.5 "The CNU shall decode and be capable of acting on EPoC message block instructions included in a downstream PHY Link frame within 4.8 ms."

**Response:**  
**Response Status:** W  
**ACCEPT IN PRINCIPLE.**

**REVISED**

Add "after reception".
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<th>Comment</th>
<th>Status</th>
<th>Revised</th>
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<td>Bright House Network</td>
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<td>What is &quot;0x00b&quot;? Is it hex or binary? It is also not clear what 1b, 15b, 2b etc. are. If these are intended to be bit sizes for individual fields, show the size as &quot;1 bit&quot; in the line below the field name.</td>
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<td>The same applies to Figure 102-14/15</td>
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<td>&quot;PrbType = 0x00b&quot; to &quot;PrbType = binary value &quot;00&quot;&quot;</td>
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<td>Add note &quot;the notation &quot;(#b)&quot; indicates the number of bits in the field&quot;</td>
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<td>Make similar changes to Fig 102-14 &amp; 15</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 U/unsatisfied Z/withdrawn

Sort Order: Comment ID

3/17/2016 1:26:42 AM
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Comment ID i-286

Rolfe, Benjamin
Blind Creek Associate

Comment Type TR
Comment Status R

Term is used in the definition. This is not allowed in an IEEE Standard (see IEEE Standard Style Manual).

Suggested Remedy
Delete everything after first period.

Response Response Status W

REJECT.
The definition is modeled directly after a similar definition for the ONU in the 2015 STD. We would like to maintain consistency with previous PON related definitions.
"1.4.304 Optical Network Unit (ONU): The subscriber-end DTE to an optical access network. An ONU is a slave entity in a P2MP network with regard to the MPCP protocol."

If the commenter feels strongly about this issue they are invited to submit a maintenance request.

Comment ID i-287

Rolfe, Benjamin
Blind Creek Associate

Comment Type TR

"The k redundant CP samples attached at the beginning of the symbol are identical to the last k samples of the same symbol prior to applying windowing." is a normative characteristic of the cyclic prefix, and does not belong in the definition of the term cyclic prefix.

Suggested Remedy
Remove from definition, and move to an appropriate normative clause.

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED
Remove the phrase. The CP description in CI 101 is sufficient as is.

Comment ID i-288

Rolfe, Benjamin
Blind Creek Associate

Comment Type TR

"In effect, MER is a measure of how spread out the symbol points in a constellation are. More specifically, MER is a measure of the cluster variance that exists in a transmitted or received waveform at the output of an ideal receive matched filter. MER includes the effects of all discrete spurious, noise, carrier leakage, clock lines, synthesizer products, linear and nonlinear distortions, other undesired transmitter and receiver products, ingress, and similar in-channel impairments." may well be useful to know, but is WAY more than is appropriate in the definition of the term. This appears a mix of normative and informative text, which is better suited to a normative clause(s) and general informative overview, respectively.

Suggested Remedy
Remove extra informative and normative text from the definition and move it to an appropriate place in the standard.

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED
Remove the referenced text. Normative description in CI 100 is sufficient as is.

Comment ID i-289

Rolfe, Benjamin
Blind Creek Associate

Comment Type TR

"Thus individual QAM subcarriers carry a small percentage of the total payload at a low data rate." is an interesting and informative bit of additional information, but not part of the definition of the term. This text belongs in an overview discussion of OFDM.

Suggested Remedy
Remove the interesting and informative extra text from the definition and move to an overview clause where it will be both interesting have useful context for the user of the standard.

Response Response Status W

ACCEPT IN PRINCIPLE.
REVISED
Strike the sentence.
This text is explaining a notation for describing normative requirement (format) of certain MDIO registers. It is not a “term” and so this definition does not belong in this clause. A better place might be clause 45. Or in a clause in the standard titled “notation conventions”.

**SuggestedRemedy**
Delete the definition. Add text in clause 45 to explain the notation as used in defining MDIO registers.

**Response**
ACCEPT IN PRINCIPLE.
REVISED
Remove current definition 1.4.345b and 1.4.424a and adjust editing instructions as appropriate.
Add 1.2.7 as follows:

1.2.7 Qm.n number format
The Qm.n number format is a fixed-point number format where the number of fractional bits is specified by n and optionally the number of integer bits is specified by m. For example, a Q14 number has 14 fractional bits; a Q2.14 number has 2 integer bits and 14 fractional bits. Preceding the "Q" with a "U" indicates an unsigned number.

“shall” in table is unnecessary and contradicts text. The sentence “The CNU shall output an RF Modulated signal with characteristics delineated in Table 100-11” makes the table "requirements": “shall be capable of” is not the same as "shall output" so this is contradicting the normative text above; “CNU shall be capable of transmitting a total average output power.” is not an compete/sensible) requirement, but for example “be capable of transmitting a total average output power of 65 dBmV” would be both complete and completely sensible. It would appear either this text is misplaced, or otherwise mangled in editing?

**SuggestedRemedy**
Clarify the requirement. Suggest that if there is in fact a power range intended, specify the minimum and maximum power that shall be used at any given time.

**Response**
ACCEPT IN PRINCIPLE.
REVISED
See response to i-71 copied below
Change “Level CNU shall be capable of transmitting a total average output power.” To: “Total average transmit output power”

Update PICS as needed.
Comment Type TR Comment Status A
"Normative specifications in this clause shall be met by a system integrating 10GPASS-XR over the life of the product while the product operates within the manufacturer's range of environmental, power, and other specifications."

How would one verify that this requirement has been met by a conforming product? It would require testing the entire life of the product, which is only possible if the product is designed to end its life at the completion of conformance testing. If that is the intention clearly state the self-destruct requirement (although this seems to limit severely the utility of the product).

Suggested Remedy
(1) delete the paragraph,
or
(2) change "shall" to "should be designed to"

Response
ACCEPT IN PRINCIPLE.
REVISED
Option 2 as per remedy

Comment Type GR Comment Status R
"The supplier of a protocol implementation that is claimed to conform to Clause 101, Reconciliation Sublayer, Physical Coding Sublayer, and Physical Media Attachment for EPoC, shall complete the following protocol implementation conformance statement (PICS) proforma." is stating a required behavior of the user (implementer) of a standard, which is out of scope of this standard.

Suggested Remedy
Change "shall" to "will". Or delete the paragraph. Or change the scope of the standard to include human behavior.

Response
REJECT.
The phrasing of this paragraph is consistent with all other PICS clauses in STD 802.3 2015 and the working group template.
The commenter is invited to submit a maintenance request against the standard if this is considered a blocking issue.

Comment Type TR Comment Status A
"The PHY Link frame shall be fixed;" is missing the word "length" and the ";" should be a ":" (assuming you meant "not variable" rather than "not broken").

Suggested Remedy
change to "The PHY Link frame length shall be fixed:

Response
ACCEPT.
Comment Type TR Comment Status A

"The CLT shall only transmit the valid values of the PHY DA as given in Table 102-8." contradicts normative statements elsewhere in the draft which specify other things transmitted by the CLT. I might guess that what is intended is to specify that the PHY DA field of transmitted frames shall contain a valid value from Table 102-8.

Suggested Remedy
Change to "The PHY DA field shall contain one of the valid values given in Table 102-2"

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED
Change to "The CLT shall only transmit the valid values of the PHY DA field as given in Table 102–8."

Comment Type GR Comment Status R

"The supplier of a protocol implementation that is claimed to conform to Clause 103, Multipoint MACControl for EPoC, shall complete the following protocol implementation conformance statement (PICS) proforma." is specifying required behavior of a person or entity who's behavior is out of scope of this standard (and thus out of scope of the project).

Suggested Remedy
Withdraw the draft as the content exceeds the scope of the PAR.
or change "shall" to "will".

Response Response Status W
REJECT.
The phrasing of this paragraph is consistent with all other PICS clauses in STD 802.3 2015 and the working group template. The commenter is invited to submit a maintenance request against the standard if this is considered a blocking issue.

Comment Type GR Comment Status R

"The supplier of a protocol implementation that is claimed to conform to Annex 100A, EPoC OFDM channel model, shall complete the following protocol implementation conformance statement (PICS) proforma." specifies requirements outside the scope of this standard (e.g. behavior of the supplier). Either the draft exceeds the scope of the PAR, or we are stating a FACT, not a requirement (in the context of the standard). I prefer the second option ;-) 

Suggested Remedy
Change "shall" to "will"

Response Response Status W
REJECT.
The phrasing of this paragraph is consistent with all other PICS clauses in STD 802.3 2015 and the working group template. The commenter is invited to submit a maintenance request against the standard if this is considered a blocking issue.
Comment Type: TR
Maximum Physical Rate (MPR) on p.92,
Line 12: "100 Gbps".

Suggested Remedy
Move the content from this line to a new line.

Response
ACCEPT IN PRINCIPLE.
REVISED

Correction added:
"100 Gbps".

Comment ID: i-304
Page 67 of 83
3/17/2016 1:26:42 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 U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID
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**Comment ID: i-305**

**Response Status:** C

**Response:**

**Reported Issue:**

Figure 103-4 is a duplicate of 77-6.

**Suggested Remedy:**

Replace the figure 103-4 with "See Figure 77-6 for a high level diagram of the multipoint transmission control service interfaces."

**Comment ID: i-306**

**Response Status:** C

**Response:**

**Reported Issue:**

Figure 103-5 is a duplicate of 77-7.

**Suggested Remedy:**

Replace the figure 103-5 with "See Figure 77-7 for a high level diagram of the control parser service interfaces."

**Comment ID: i-309**

**Response Status:** C

**Response:**

**Reported Issue:**

The definition of counter packet_initiate_timerC refers back to CI 64 but it is unique to EPoC and should be a standalone definition.

**Suggested Remedy:**

Change the definition to "This timer is used to delay frame transmission from MAC Control to avoid variable MAC delay while MAC enforces IPG after a previous frame. In addition, this timer increases interframe spacing just enough to accommodate the extra parity data to be added by the FEC encoder."

**Comment ID: i-310**

**Response Status:** C

**Response:**

**Reported Issue:**

The definition of counter packet_initiate_timer done refers back to CI 64 but is unique to EPoC and should be a standalone definition.

**Suggested Remedy:**

Change the two instances of "packet_initiate_timer_done" to "packet_initiate_timerC_done"
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Final Responses

<table>
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IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Comment ID: i-316

Response

Re: Error in Editing Instruction: "Insert 45.2.1.131 through 45.2.1.165" should be "Insert 45.2.1.131 through 45.2.1.167"

Suggested Remedy: per comment.

Response Status: C

Accept in Principle.

Revised

See AIP comment i-10 Response copied below

Coordinate with other clause 45 editors and change clause numbering as agreed, register numbering remains as is. Tables will be renumbered per comment i-371 (resolution copied below)

Editors to consult with WG Secretary and IEEE staff editors for preferred resolution.

Comment ID: i-317

Response

Re: Missing word "variable" between "TimeSyncCapable defined"

Suggested Remedy: per comment.

Response Status: C

Accept.

Comment ID: i-318

Response

Re: Missing word "counter between "the DS_ChCnt"

Suggested Remedy: per comment.

Response Status: C

Accept.

Comment ID: i-321

Response

Re: Change

"These bits are a reflection of bit 1 of variable US_ModAbility defined in 101.4.3.4.5."

Suggested Remedy: per comment.

Response Status: C

Accept.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Proposed Response

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

Definition indicates a 4-bit binary field but only 2 bits are defined.

**Suggested Remedy:**
Change "4-bit binary" to 2-bit binary"

**REJECT.**

This comment was WITHDRAWN by the commenter.

---

Response

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

Incorrect reference to US_ModAbility

**Suggested Remedy:**
Change to DS_ModAbility. (ensure variable name is none-breaking (Esc-n-s)

**ACCEPT.**

---

Response

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

Incorrect ref to 102.4.1.9.2.

**Suggested Remedy:**
Change to 102.4.1.8.

**ACCEPT.**

---

Response

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

ODN is already spelled out and does not need to be done again here

**Suggested Remedy:**
Change "optical distribution network (ODN)" to "ODN" with underlineing.

**ACCEPT.**
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

<table>
<thead>
<tr>
<th>CI 56 SC 56.1.3</th>
<th>P 72 L 1 # i-329</th>
<th>Remein, Duane</th>
<th>Futurewei Technologie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>E</td>
<td>Comment Status</td>
<td>A</td>
</tr>
<tr>
<td>The editing instruction should refer to Table 56-1 not 56-2.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SuggestedRemedy

- Change "Insert two rows at the end of Table 56-2, ..." to "Insert two rows at the end of Table 56-1, ..."

Response

- Response Status | C | ACCEPT.

<table>
<thead>
<tr>
<th>CI 67 SC 67.1</th>
<th>P 75 L 10 # i-330</th>
<th>Remein, Duane</th>
<th>Futurewei Technologie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>E</td>
<td>Comment Status</td>
<td>A</td>
</tr>
<tr>
<td>It appears that the basis for Table 67-1 was taken from 2012 edition and not the latest revision.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SuggestedRemedy

- Change the editing instruction to read: "Insert two new rows at the end of Table 67-1 and two new footnotes labeled d and e as shown below (unchanged rows and footnotes not shown)".
- Remove the unchanged rows and footnotes from the table.

Response

- Response Status | C | ACCEPT.

<table>
<thead>
<tr>
<th>CI 100 SC 100.7.3.1</th>
<th>P 123 L 19 # i-332</th>
<th>Remein, Duane</th>
<th>Futurewei Technologie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>E</td>
<td>Comment Status</td>
<td>A</td>
</tr>
<tr>
<td>Everywhere else in the draft &quot;I/Q&quot; is &quot;I / Q&quot; (with spaces).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SuggestedRemedy

- Change "I/Q" to "I / Q" in 2 places (line 19 & 22).

Response

- Response Status | C | ACCEPT IN PRINCIPLE.

- REVISED
- See accepted comment i-18 which changes all instances to "I/Q"

<table>
<thead>
<tr>
<th>CI 100 SC 100.2.1.1</th>
<th>P 84 L 13 # i-331</th>
<th>Remein, Duane</th>
<th>Futurewei Technologie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>E</td>
<td>Comment Status</td>
<td>D</td>
</tr>
<tr>
<td>77.2.2.1 only points to 64.2.2.1. rather than create a double reference for the reader point directly to 64.2.2.1. Could also point to 103.2.2.1 for a &quot;sectional local&quot; reference.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SuggestedRemedy

- Change 77.2.2.1 to 64.2.2.1.

Proposed Response

- Response Status | Z |
- This comment was WITHDRAWN by the commenter.
This statement is not strictly true:
"CLT PMD data transmission is always enabled."
When PD_Enable is FALSE the CLT is not allowed to transmit onto the media. This
prevents a partially configured CLT from interfering with existing services (see Figure 102-
16)
Task Force may wish to adjust the wording in 102.2.7.3 also (see comment against pg 152
Cl 101.3.2.5.6 Line 27)

SuggestedRemedy
Change to read: "CLT PMD data transmission is always enabled except when PD_Enable
is FALSE (see 102.2.7.3)."

ACCEPT IN PRINCIPLE.

REVISED
Per Suggested Remedy and
In 102.2.7.3 Variables pg 263 line 45 change
"It is set to TRUE after all elements required for PHY Discovery listed in Table 102-13 have
been written by the CLT." to
"In the CNU it is set to TRUE after all elements required for PHY Discovery listed in Table
102-13 have been written by the CLT. In the CLT this variable, when set to FALSE,
prevents transmissions from the CLT until it is fully configured and when TRUE permits
transmissions."

Add PD_Enable to Table 100-1

Add the following as the new last paragraph in 100.3.4.6 CLT Transmitter Output
Requirements:
"The CLT shall disable transmitter output when <ital>PD_Enable</ital> is equal to FALSE
and continue in normal transmitter operation when <ital>PD_Enable</ital> is equal to
TRUE."

Add the following as the new last paragraph in 100.3.5.7 CNU RF power amplifier
requirements:
"The CNU shall disable transmitter output when <ital>PD_Enable</ital> is equal to FALSE
and continue in normal transmitter operation when <ital>PD_Enable</ital> is equal to
TRUE. This requirement has precedence over the requirements in 100.3.5.7."

Add PD_Enable to Table 100-1

Update PICS as needed.

Comment Type: TR/technical required
Comment Status: A/accepted
Response Status: C/closed

Comment Type: E/editorial required
Comment Status: A/accepted
Response Status: C/closed
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID i-337

Response

# 100

SC 100.3.5.2

P 98

L 24

Comment Type E

Comment Status A

Remain, Duane

Futurewei Technologie

"P1.6" should be italicised. Same issue:
pg 98 ln 27 "Pmax"
pg 98 ln 52 "P1.6t"

Suggested Remedy

per comment.

Accept.

Comment ID i-338

Response

# 100

SC 100.3.5.4.2

P 102

L 22

Comment Type E

Comment Status A

Remain, Duane

Futurewei Technologie

In Eq 100-16 the term "Under-grant Hold # Users" appears as "Under-grant Hold #Users" with a space between "#" and "Users"

Suggested Remedy

remove the excess space.

Accept.

Comment ID i-339

Response

# 100

SC 100.3.5.4.2

P 104

L 3

Comment Type T

Comment Status A

Remain, Duane

Futurewei Technologie

The term "Under-grant Hold Number of Users" in Eq 100-17 is undefined.

Suggested Remedy

Define the term (could this be "Under-grant Hold # Users")?

Accept in principle.

REVISED

1) Change Page 104, line 1, "with the number of Modulated Subcarriers" to "with the Grant Spectrum".
2) Change, page 104, line 3, in the denominator of the equation, "Modulated Subcarriers" should be replaced with "Grant Spectrum", with the latter in italics as on page 102.
3) On page 104, line 10, the italicized words "Modulated Subcarriers" in the equation should be replaced with the italicized words "Grant Spectrum". Remove the "The"
4) On page 104, line 18, in the equation, the italicized words "Modulated Subcarriers" should be replaced with the italicized words "Grant Spectrum".
5) Page 100, line 1, "simultaneous" is misspelled.
6) Page 103, line 39, first sentence of Section 100.3.5.4.3, the use of "Table 100-8" should be "Table 100-9".
7) Page 103, line 48, second word of third sentence of paragraph, the use of "Table 100-8" should be "Table 100-9". (The use of "Table 100-8" later in the sentence, on line 49, is CORRECT and should not be changed.
8) Page 104, line 7, the use of "Table 100-8" should be "Table 100-9".
9) Page 104, line 8, the use of "Table 100-7" should be "Table 100-8".
10) Page 104, lines 12 through 16 are CORRECT, FYI.
11) Page 104, line 19, the use of "Table 100-7" should be "Table 100-8".
12) Page 104, line 21, the use of "Table 100-8" should be "Table 100-9".
13) Page 104, line 22, the use of "Table 100-7" should be "Table 100-8".

(End of revisions for comment i-339.)

Comment ID i-340

Response

# 100

SC 100.3.5.4.3

P 104

L 3

Comment Type T

Comment Status A

Remain, Duane

Futurewei Technologie

It is not clear what "Modulated Subcarriers" refers to here and on lines 10 and 18. Is this the bandwidth of the modulated carriers (presumably or the units don't work)? The number of the modulated carriers (in which case you should use NS_Max as in Eq 100-11) mentioned earlier in the sentence or something else? Also on line 10 there is a spurious emission of the word "The".

Suggested Remedy

Clarify what is meant here and on lines 10 & 18 (possibly using "(NS_Max X 0.05)" <subscript>S_Max ). Use Italics as appropriate and remove the spurious "The" on line 10.

Accept in principle.

REVISED

1) Change Page 104, Line 1, "with the number of Modulated Subcarriers" to "with the Grant Spectrum".
2) Change, page 104, line 3, in the denominator of the equation, "Modulated Subcarriers" should be replaced with "Grant Spectrum", with the latter in italics as on page 102.
3) On page 104, line 10, the italicized words "Modulated Subcarriers" in the equation should be replaced with the italicized words "Grant Spectrum". Remove the "The"
4) On page 104, line 18, in the equation, the italicized words "Modulated Subcarriers" should be replaced with the italicized words "Grant Spectrum".
5) Page 100, line 1, "simultaneous" is misspelled.
6) Page 103, line 39, first sentence of Section 100.3.5.4.3, the use of "Table 100-8" should be "Table 100-9".
7) Page 103, line 48, second word of third sentence of paragraph, the use of "Table 100-8" should be "Table 100-9". (The use of "Table 100-8" later in the sentence, on line 49, is CORRECT and should not be changed.
8) Page 104, line 7, the use of "Table 100-8" should be "Table 100-9".
9) Page 104, line 8, the use of "Table 100-7" should be "Table 100-8".
10) Page 104, lines 12 through 16 are CORRECT, FYI.
11) Page 104, line 19, the use of "Table 100-7" should be "Table 100-8".
12) Page 104, line 21, the use of "Table 100-8" should be "Table 100-9".
13) Page 104, line 22, the use of "Table 100-7" should be "Table 100-8".

(End of revisions for comment i-340.)
Comment Type: T  Comment Status: A  EZ

To what voltage step does this refer “The CNU’s voltage step shall be dissipated ...”?
Presumably that at the MDI

Suggested Remedy

Change to read “The CNU’s voltage step at the MDI shall be dissipated ...”

Response Response Status: C

ACCEPT IN PRINCIPLE.
REVISED

Change to read “The CNU’s voltage step at the MDI (TP2) shall be dissipated.”

Comment Type: TR  Comment Status: A  +REV+

What is a "backed-off transmit level"? This term is not used anywhere in the draft. "Back-off" is only used to refer to the Discovery back-off algorithm.

Suggested Remedy

Clarify the term.

Response Response Status: C

ACCEPT IN PRINCIPLE.
REVISED

Replace the sentence at line 40 beginning with “At backed-off transmit level.” with “At transmit levels below +55 dBmV, the CNU’s maximum change in voltage shall decrease by a factor of 2 for each 6 dB decrease of power level, from +55 dBmV down to a maximum change of 3.5 mV at 31 dBmV and below.”

Update PICS as needed.

Comment Type: E  Comment Status: A

“BURSTMER” should be italicised.

Suggested Remedy

per comment.

Response Response Status: C

ACCEPT IN PRINCIPLE.
REVISED

To be clear: <ital>BURST<sub>MER</sub></ital>

Comment Type: E  Comment Status: A  EZ

Add missing period between "Figure 100-3" and "PMD_SIGNAL.request(ON)"

Suggested Remedy

per comment.

Response Response Status: C

ACCEPT.

Comment Type: E  Comment Status: A  EZ

Excessive white space in row starting "OFDM channel input level range" (probably due to para mark rather then linefeed).

Suggested Remedy

Remove excess white space.

Response Response Status: C

ACCEPT.
Unwarrented period between "subclause" and "Definitions"

---

**Comment Type:** E
**Comment Status:** A
**EZ**

**SuggestedRemedy**
- Remove period, insert missing space, and change "Definitions" to "definitions"

**Response**
- **Response Status:** C
  - ACCEPT IN PRINCIPLE.
  - REVISED
  - Line 33, remove "Definitions of parameters and measurement methods." It is a remenant left in error from prior subclause changes.

---

**Comment Type:** TR
**Comment Status:** A
**+REV+ ensures**

The phrase "The CLT ensures that" implies a requirement on the CLT which cannot currently be met as there is no way to ensure the configuration meets these objectives (e.g., a "NACK" capability in MDIO). These implied requirements can easily be provided by a system which includes the PHY but should not be implied requirements of the PHY.

See comment against pg 193 line 39 Cl 101.4.3.11.

**SuggestedRemedy**
- Remove the phrase at line 32.
- Remove the phrase at line 38 and change "does not" to "cannot" so the sentence reads: "The encompassed spectrum of a 192 MHz OFDM channel cannot exceed 190 MHz (3800 active subcarriers, see Table 100-3 and Table 100-11)."
- Remove the phrase at pg 116 line 24 and change "does not" to "cannot" 2x so the sentence reads: "The encompassed spectrum of the upstream OFDMA channel cannot exceed 190 MHz and cannot exceed 3800 active subcarriers (see Table 100-11)."

**Response**
- **Response Status:** C
  - ACCEPT IN PRINCIPLE.
  - REVISED
  - At line 40 strike "The CLT ensures that" and change "does not exceed" to "is"

---

**Comment Type:** T
**Comment Status:** A
**+EX+**

To which specified limit does this statement apply? "The specified limit applies"

**SuggestedRemedy**
- Clarify statement.

**Response**
- **Response Status:** C
  - ACCEPT IN PRINCIPLE.
  - REVISED
  - Change "The specified limit..." to "The specified limit of 73 dB below the operationally configured aggregate power (see <ital>CLT_TxMute</ital>)...".

---

**Comment Type:** E
**Comment Status:** A
**EZ**

In "The OFDM test receiver need to be functionally" "need" should be "needs"

**SuggestedRemedy**
- per comment.

**Response**
- **Response Status:** C
  - ACCEPT.
<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
<th>Comment Status</th>
<th>Comment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100.3.2.1</td>
<td>87</td>
<td>5</td>
<td>i-352</td>
<td>T</td>
<td>A</td>
<td>&quot;DS_Frame_Data_Load has the same value every frame, ...” My recollection is that this should be for every superframe not every frame.</td>
<td>Change &quot;frame to superframe&quot;</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>C</td>
<td>A</td>
<td>100.3.2.1</td>
</tr>
<tr>
<td>100</td>
<td>100.3.2.5.6</td>
<td>152</td>
<td>27</td>
<td>i-355</td>
<td>T</td>
<td>A</td>
<td>This statement is not strictly true: “At the CLT, this variable is always set to TRUE.” When PD_Enable is FALSE the CLT is not allowed to transmit onto the media. This prevents a partially configured CLT from interfering with existing services (see Figure 10) Task Force may wish to adjust the wording in 100.2.4 also (see comment against pg 85 CI 100.2.4 line 20)</td>
<td>Change to read: “At the CLT, this variable is always set to TRUE except when PD_Enable is FALSE (see 102.2.7.3).”</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>C</td>
<td>A</td>
<td>100.3.2.5.6</td>
</tr>
<tr>
<td>101</td>
<td>101.1.1</td>
<td>127</td>
<td>19</td>
<td>i-353</td>
<td>E</td>
<td>A</td>
<td>The notations &quot;- =&quot;, and &quot;+ =&quot; do not appear elsewhere in the draft and these descriptions could be removed.</td>
<td>per comment.</td>
<td>ACCEPT.</td>
<td>C</td>
<td>A</td>
<td>101.1.1</td>
</tr>
<tr>
<td>101</td>
<td>101.1.4</td>
<td>132</td>
<td>22</td>
<td>i-354</td>
<td>E</td>
<td>A</td>
<td>In Fig 101-1 &amp; 101-2 the &quot;Clause 102&quot; in the Phy Link block should be made a live link.</td>
<td>per comment.</td>
<td>ACCEPT.</td>
<td>C</td>
<td>A</td>
<td>101.1.4</td>
</tr>
</tbody>
</table>

Comment ID i-355 Page 77 of 83
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

**Comment ID** i-356

- **Comment Type**: E
- **Comment Status**: A
- **Comment**: "connect-or"
- **Response**: Remove excess dash
- **Response Status**: C
- **Suggested Remedy**: Remove excess dash

**Comment ID** i-357

- **Comment Type**: TR
- **Comment Status**: D
- **Comment**: This requirement cannot be enforced by the PHY as continuous pilots are provisioned.
- **Response**: Change statement to "The CLT should place continuous pilots ..."
- **Response Status**: C
- **Suggested Remedy**: Remove excess dash

**Comment ID** i-358

- **Comment Type**: E
- **Comment Status**: A
- **Comment**: Missing space "0 1 0 ="
- **Response**: Change to "0 1 0 ="
- **Response Status**: C

**Comment ID** i-359

- **Comment Type**: T
- **Comment Status**: A
- **Comment**: Per the definition of RBsize it has values of TRUE & FALSE to the following statement cannot be correct "Value: 8 when RBsize is 0, 16 when RBsize is 1."
- **Response**: Change to "Value: 8 when RBsize is FALSE, 16 when RBsize is TRUE."
- **Response Status**: C

**Comment ID** i-360

- **Comment Type**: T
- **Comment Status**: A
- **Comment**: Per the definition of RBsize it has values of TRUE & FALSE to the following statement cannot be correct "RBsize of 8 times or 16 times ..."
- **Response**: Change to "RBlen( RBsize ) of 8 times or 16 times ..."
- **Response Status**: C

**Comment ID** i-361

- **Comment Type**: E
- **Comment Status**: A
- **Comment**: While true this statement is slightly misleading as there is only one US channel" There is at least one contiguous 10 MHz or greater band of active subcarriers in any single 192 MHz OFDM channel (see Table 100-11)."
- **Response**: Change to read "There is at least one contiguous 10 MHz or greater band of active subcarriers in the upstream 192 MHz OFDM channel (see Table 100-11)."
- **Response Status**: C
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

---

**Comment ID:** i-365

**Comment Type:** ER

**Comment Status:** A +REV+ Sed

**Response Status:** W

**Staff Editors would like to change all amendment references to "IEEE Std 802.3yy-20xx" where yy is the project designation and xx is the year completed. If a project is not completed when this draft is approved by SASB leave the "xx". See i-363 (response copied below)**

---

**Comment ID:** i-362

**Comment Type:** T

**Comment Status:** A

**Response Status:** C

**Response:**

Grow, Robert
RMG Consulting

**Comment Type:** ER

**Comment Status:** A

**Response Status:** W +REV+ Sed

**Comment:**

There are other approved or likely to be approved amendments to IEEE Std 802.3 that should be concurrent or before P802.3bp approval.

**SuggestedRemedy:**

P802.3bw is approved and designated Amendment 1, P802.3by has been designated Amendment 2, P802.3bq Amendment 3 and P802.3bp Amendment 4. br failed to meet conditions for RevCom submittal, by and bq also in Sponsor ballot. Either add an editor’s note that other amendment descriptions will be added during publication preparation, or gather the amendment information (I think they are all in P802.3bw).

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

See comment i-6 (Response copied below)

Per comment except [2] (WG Chair has not yet announced the order of this amendment)

---

**Comment ID:** i-363

**Comment Type:** ER

**Comment Status:** A

**Response Status:** W +REV+ Sed

**Response:**

Grow, Robert
RMG Consulting

**Comment Type:** ER

**Comment Status:** A

**Response Status:** W

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

Staff Editors would like to change all amendment references to "IEEE Std 802.3yy-20xx" where yy is the project designation and xx is the year completed. If a project is not completed when this draft is approved by SASB leave the "xx".

---

**Comment ID:** i-364

**Comment Type:** ER

**Comment Status:** A

**Response Status:** W +REV+ Sed

**Response:**

Grow, Robert
RMG Consulting

**Comment Type:** ER

**Comment Status:** A

**Response Status:** W

**Response:**

ACCEPT IN PRINCIPLE.

REVISED

Add the following after confirming with Working Group Secretary:

IEEE Std 802.3bw-2015
IEEE Std 802.3by-20xx
IEEE Std 802.3bq-20xx
IEEE Std 802.3bp-20xx
IEEE Std 802.3ip-20xx

See i-365 (response copied below)

Staff Editors would like to change all amendment references to "IEEE Std 802.3yy-20xx" where yy is the project designation and xx is the year completed. If a project is not completed when this draft is approved by SASB leave the "xx".
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Draft 3.0

Final Responses

Comment ID i-366

Cl 1 SC 1.5 P 29 L 42 # L-366
Grow, Robert RMG Consulting

Comment Type E Comment Status A

The acronyms list is alphanumeric, not only alphabetic.

SuggestedRemedy
Change alphabetical to alphanumerical.

Response Response Status C
ACCEPT.

Comment ID i-367

Cl 30 SC 30.3.2.1.2 P 31 L 11 # L-367
Grow, Robert RMG Consulting

Comment Type TR Comment Status A

The SYNTAX list is not sorted. (It begins with other, unknown, none).

SuggestedRemedy
I assume the correct point is insert after 10GBASE-PRX. Same change for aPhyTypeList. For aMAUType, I believe the insert is after 10GBASE-T.

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED

Change editing instruction by removing "in alphanumeric order" and insert "after 10/1GBASE-PRX" for aPhyType and aPhyTypeList as per comment for aMAUType.

Comment ID i-368

Cl 45 SC 45.2.1.17aa P 38 L 17 # L-368
Grow, Robert RMG Consulting

Comment Type ER Comment Status A

This editorial instruction is wrong. Clause 45 presents registers in assending number. The 2015 revision has 45.2.1.14a describing register 1.16. IEEE Std 802.3bw-2015 inserts 45.2.1.14a describing register 1.18. Register 1.17 belongs between these two register descriptions. (P802.3by inserts 45.2.1.14b and Table 45-17b describing register 1.19). While the aa is arguably correct (what happens when we need to do the 27th insert and want to wrap to a), the referenced document isn't correct.

SuggestedRemedy
I recommend using the letter c and giving up on the letter meaning anything about order. Correct instruction to read Insert 45.2.1.14c and Table 45-17c after 45.2.1.14 (before the 45.2.1.14a and Table 45-17a inserted by IEEE Std 802.3bw-2015) as follows:

Response Response Status W
ACCEPT IN PRINCIPLE.
REVISED

See comment i-4 which changes "after" to "before" so correct order is maintained.

Comment ID i-370

Cl 45 SC 45.2.1.17aa P 38 L 17 # L-370
Grow, Robert RMG Consulting

Comment Type T Comment Status R

P802.3bw has comments to put in the specifications for changes to the reserved rows.

SuggestedRemedy
This is possible when amendment order is known, but better is a suggestion the publication editors liked for an early project to individually list the code points as reserved (rather than in blocks), then subsequent amendments can simply indicate a change to the appropriate reserved rows. Encourage support for this approach.

Response Response Status C
REJECT.

This Editors instruction follows the recommendation of the WG Secretary. Should that recommendation change we will be happy to reconsider. However doing so without that recommendation may result in unnecessary churn in the draft. The commentor is invited to take this subject up with the WG Secretary.
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

---

**Comment Type:** ER
**Comment Status:** A
**Comment ID:** i-371

Grow, Robert
RMG Consulting

*IEEE Std 802.3bw has inserted 45.2.1.131 and 45.2.1.132. Because these 802.3bw subclauses are defining registers 1.2101 and 1.2102, the inserts, if we continue to follow using letters, needs to be 45.2.1.130a through 45.2.1.130ak. (The instruction is also in error on the range of inserts as there is a 45.2.1.167 in the draft. This highlights the problem with aa being ambiguous as used on P.39, L.17.)*

**Suggested Remedy:**

Option 1 -- an option that I did not present to our publication editors would be to use our amendment number rather than trying to enforce an alphabetical ordered meaning. In that case, these would be 45.2.1.130bn1 through 45.2.1.130bn31. Pretty ugly. Option 2 -- 45.2.1.130a through 45.2.1.130ak. Option 3 -- Personally, I'd prefer not using letters but specify renumbering (but I seem to be in the minority of vocal participants). Doing that the instruction would be: Insert 45.2.1.131 through 45.2.1.167 and sub-clauses after 45.2.1.130 (before the inserts at the same place by IEEE Std 802-3bw), and renumber as required:

**Response**

ACCEPT IN PRINCIPLE.

REVISED
Editors to consult with WG Secretary and IEEE staff editors for preferred resolution.

---

**Comment Type:** G
**Comment Status:** R
**Comment ID:** i-372

Thompson, Geoffrey
GraCaSI S.A.

*The addition of yet another flavor to the point-to-multipoint set of amendments to 802.3 reinforces my earlier position that the P2MP clauses deserve their own separate IEEE Standard.*

**Suggested Remedy:**

Re-edit this clause to be a standalone standard (802.3.2 would be my choice). This standard would then provide the foundation during the next revision cycle to have all of the P2MP material added to it. The end result would be separate standards for CSMA/CD & P2P in one and P2MP in another.

**Response**

REJECT.

The suggested Remedy is beyond the scope of the project PAR (see below).

5.2.b. Scope of the project: The project is to amend IEEE Std 802.3 to add physical layer specifications and management parameters for symmetric and/or asymmetric operation of up to 10 Gb/s on point-to-multipoint Radio Frequency (RF) distribution plants comprising either amplified or passive coaxial media. It also extends the operation of Ethernet Passive Optical Networks (EPON) protocols, such as MultiPoint Control Protocol (MPCP) and Operation Administration and Management (OAM).
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF Initial Sponsor ballot comments

Comment Type: TR
Comment Status: A
TimeSync

It appears that this section deals with measuring the time delay between the MDI and MII interfaces. This functionality is in 802.3-2015 as Clause 90.

SuggestedRemedy
Please use the standardize mechanisms in Clause 90.
1) Add mandatory support for Clause 90 (Ethernet support for time synchronization protocols) and the TSSI interface. Clause 90 is design to directly support 802.1AS applications and to perform all the necessary measurements and compensate for residency time within the PCS/PMA.
2) Remove the existing calculations in 101.5.1/2/3, as they are not needed with Clause 90 support.
3) Add support for registers: 1.1800 ... 1.1808 and 3.1800 ... 3.1808, which provides the measurement capability and Tx and Rx path delay measurements (min/max) which can then be reported between devices via the PHY link.

As support for 802.1AS across all 802.3 PHYs was the purpose of Clause 90, please use it instead of adding a stand-alone mechanism to this PHY only.

Response
ACCEPT IN PRINCIPLE.
REVISED

Change the title of 101.5 from "Applicability of IEEE Std 802.1AS, Clause 13 for EPoC time transport" to "Applicability of Clause 90- and IEEE Std 802.1AS, Clause 13 for EPoC time transport"

Pg 228 line 32? Change "time delay asymmetries" to "time delays described in Clause 90"

Remove DiffDelay, DiffDelayTol & TimeSyncCapable (101.5.3 & Table 101-1)

In 101.5.x
For CLT Replace DiffDelay with (Maximum PMA/PMD transmit path data delay - Maximum PMA/PMD receive path data delay + Minimum PMA/PMD transmit path data delay - Minimum PMA/PMD receive path data delay) /2
For CNU replace DiffDelay with (Maximum PMA/PMD receive path data delay - Maximum PMA/PMD transmit path data delay + Minimum PMA/PMD transmit path data delay - Minimum PMA/PMD receive path data delay) /2

Editor given lic. To use appropriate variable names and add to Table 101-1 (may want to indicate that these variables are not communicated via PHY Link with a footnote).
<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
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<tr>
<td>101</td>
<td>101.4.3.8.3</td>
<td>P 184</td>
<td>L 12</td>
<td># 379</td>
<td>E</td>
<td>A</td>
<td>An equation is usually expressed as &quot;variable = value&quot;. Equation 101-15 looks odd as it is simply a value.</td>
<td>ACCEPT</td>
<td>C</td>
<td>A</td>
<td>i-382</td>
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<tr>
<td>100</td>
<td>100.2.1.1</td>
<td>P 84</td>
<td>L 10</td>
<td># 378</td>
<td>E</td>
<td>A</td>
<td>The &quot;PMD Delay constraints&quot; subclause should not be nested in the PMD service interface definition.</td>
<td>REJECT</td>
<td>C</td>
<td>A</td>
<td>i-378</td>
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<tr>
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<td>P 79</td>
<td>L 1</td>
<td># 377</td>
<td>E</td>
<td>R</td>
<td>The editing instruction &quot;Insert new clauses and corresponding annexes as follows&quot; isn't necessary.</td>
<td>REJECT</td>
<td>C</td>
<td>R</td>
<td>i-380</td>
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<tr>
<td>100</td>
<td>100.3.4.2</td>
<td>P 92</td>
<td>L 21</td>
<td># 382</td>
<td>G</td>
<td>R</td>
<td>In note c for Table 100-3 there is this statement: &quot;Phase noise up to + of the subcarrier's center frequencies is excluded from inband specification.&quot; This reads a bit odd.</td>
<td>ACCEPT</td>
<td>C</td>
<td>R</td>
<td>i-382</td>
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**Final Responses**

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<td>P 257</td>
<td>L 4</td>
<td># 380</td>
<td>E</td>
<td>A</td>
<td>The word &quot;ODFMA&quot; is incorrect.</td>
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<td>A</td>
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<td>P 280</td>
<td>L 1</td>
<td># 381</td>
<td>E</td>
<td>A</td>
<td>The subclause number is incorrect.</td>
<td>ACCEPT</td>
<td>C</td>
<td>A</td>
<td>i-381</td>
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<tr>
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<td>100.4.1.9.5</td>
<td>P 184</td>
<td>L 12</td>
<td># 379</td>
<td>E</td>
<td>A</td>
<td>The expression seems trivial enough to be included inline with the previous paragraph and Equation 101-15 seems unnecessary. Alternatively, modify the equation to include the variable that is being assigned a value.</td>
<td>ACCEPT</td>
<td>C</td>
<td>A</td>
<td>i-382</td>
</tr>
</tbody>
</table>

**Comment ID** i-382  
**Page 83 of 83**  
3/17/2016 1:26:42 AM
Comment Type: E

This draft meets all editorial requirements.

Suggested Remedy:

ACCEPT IN PRINCIPLE.

REVISED

Thank you!

Response Status: C