### IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 1st Task Force review comments

**Draft 1.0**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
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<td>00</td>
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<td>130</td>
<td>41</td>
<td>E</td>
<td>A</td>
<td>active subcarriers</td>
<td>Agree on terms: non-excluded subcarriers (102.4.3.5)</td>
<td>ACCEPT.</td>
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<td></td>
<td>Change all instances (3) of &quot;non-excluded subcarriers&quot; to &quot;active subcarriers&quot;</td>
<td>See related comment 2215</td>
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<td>Equation numbering style in not per 802.3 template. Should be (CCC-N) where CCC is the clause number and N is a running number in that clause.</td>
<td>ACCEPT.</td>
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<td>Align equation numbering in all clauses to latest 802.3 template style.</td>
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<td>00</td>
<td>0</td>
<td>80</td>
<td>6</td>
<td>T</td>
<td>A</td>
<td>NCP</td>
<td>Use of the term NCP is inconsistent and contradictory. Sometimes it appears as Ncp (subscripted as on pg 80 line 6) and refers to cyclic prefix length. Sometime (see pg line ) it appears as NCP (subscripted) and refers to cyclic prefix length. Last it sometimes appears as NCP (no subscripting) and refers to Next Codeword Pointer. This is confusing and misleading</td>
<td>ACCEPT IN PRINCIPLE.</td>
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<td></td>
<td>When used to refer to cyclic prefix length use NCP with CP subscripted. When used to refer to Next Codeword Pointer replace with &quot;FEC Codeword Pointer&quot;: (see related comments and remain_3bn_01_0814.pdf).</td>
<td></td>
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</tr>
</tbody>
</table>

**Comment Status:** D/dispatched  A/accepted  R/rejected  **Response Status:** O/open  W/written  C/closed  Z/withdrawn

**Type:** TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general

**Comment Status:** D/dispatched  A/accepted  R/rejected  **Response Status:** O/open  W/written  C/closed  Z/withdrawn

**Sort Order:** Clause, Subclause, page, line

---

**Comment Type:** E  **Comment Status:** A  **Comment:** 1.4.2.280A OFDM channel (definition TBD) - Proposed definition

**Suggested Remedy:** Suggest definition derived from vI01 D3.1 PHY spec:

OFDM channel: A data transmission channel in which a large number of closely-spaced or overlapping very-narrow bandwidth orthogonal QAM signals are transmitted. Each of the QAM signals called subcarriers, carries a small percentage of the total payload at a very low data rate.

**Response:** ACCEPT IN PRINCIPLE.

---

**Comment Type:** E  **Comment Status:** A  **Comment:** There is a conflict in the use of the term "NCP": in some cases it refers to cyclic prefix length and at other times it refers to Next Codeword Pointer. Search the draft for the term "NCP"; when it refers to next codeword pointer, replace it with "FEC Codeword Pointer". In figures the abbreviation "FCP" may be used.

**Suggested Remedy:** In Figure 100-2 (& 100-3) Replace "NCP ..." with "FCP ..."

**Response:** ACCEPT.
Figures 100-2 & 100-3 only illustrate the transmitter side not the entire PCS/PMA & PMD as implied in the figure title.

Suggested Remedy
Change figure titles from:
* “Functional blocks within 10GPASS-XR-D CLT PCS, PMA, and PMD sublayers” &
* “Functional blocks within 10GPASS-XR-U CNU PCS, PMA, and PMD sublayers”
To:
* “Functional blocks within 10GPASS-XR-D CLT transmit PCS, PMA, and PMD sublayers” &
* “Functional blocks within 10GPASS-XR-U CNU transmit PCS, PMA, and PMD sublayers”

ACCEPT.

Typo: “MHzchannel”
Fix with space “MHz channel”

ACCEPT.

“CLT calculates power for data subcarrier and pilots (using total number of non-zero valued (nonexcluded) subcarriers)”
Everywhere else in the draft we refer to these as active subcarriers

Suggested Remedy
Change to read:
* “CLT calculates power for data subcarrier and pilots (using total number of active subcarriers)”

ACCEPT.

Undefined terms
Active Signal Bandwidth (1 instance Pg 75 In 14) Table 100-1
RF output port muting (1 instance Pg 79 line 12) Table 100-2

Suggested Remedy
In Table 100-1 Change:
* “Minimum Active Signal Bandwidth” to
* “Minimum encompassed spectrum”

ACCEPT IN PRINCIPLE.
As proposed and change 24 MHz to 22 MHz
Also in row previous to this change:
* “Single FFT Block Bandwidth | 192 MHz”
to:
* “Channel Bandwidth | 24 to 192 MHz”

For Subcarrier Spacing in Table 100-1 insert a value of 50 kHz

ACCEPT.
As proposed.
Also in next row change from:
* “OFDM Symbol Rate FFT Duration (μs) | 20 kHz”
to:
* “OFDM Symbol Rate FFT Duration | 20 us”
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 1st Task Force review comments

Cl 100 SC 100.2.8.1.1 P 77 L 14 # 2243
Remeim, Duane Huawei Technologies,

Comment Type E Comment Status A
Table 100-1 & other tables in Cl 100 include borders around table notes. IEEE table Style has Notes being outside the table border.
This is true for:
Table 100-1
Table 100-3
Table 100-5

SuggestedRemedy
Update Tables using IEEE Table Style

Response Response Status C
ACCEPT.

Cl 100 SC 100.2.8.2 P 77 L 35 # 2263
Remeim, Duane Huawei Technologies,

Comment Type T Comment Status A
The term channel here is ambiguous
*100.2.8.2 Power per channel for CLT*

SuggestedRemedy
Change to:
*100.2.8.2 Power per OFDM channel for CLT*

On line 39 change
"adjusting channel RF power" to
"adjusting OFDM channel RF power"

In Table 100-2 change
"per channel" to
"per OFDM channel" in it's first appearance in each row (6x)

In Table 100-2 change
"adjacent channels" to
"adjacent OFDM channels" (pg 78 ln 15 & 19)

Response Response Status C
ACCEPT.

Cl 100 SC 2.11.1 P 84 L 27 # 2291
Leo, Montreuil Broadcom

Comment Type TR Comment Status A
Upper level should be +21 dBmV / 24 MHz

SuggestedRemedy
Change -21 to +21

Response Response Status C
ACCEPT.
Changed clause from 102 to 100
Comment Type: T  Comment Status: A
I do not understand this section. What is Bremond, Bno-demod?

Suggested Remedy
Add definitions of terms used in equation.

Response
Response Status: C
ACCEPT IN PRINCIPLE.
Replace the value cell with "TBD"

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Comment Type: ER  Comment Status: A
In the following text "... subcarrier spacing of and 150", it seem there are something missing after OF.

Suggested Remedy
Add missing text.

Response
Response Status: C
ACCEPT IN PRINCIPLE.
The missing text is "50 kHz"

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Comment Type: TR  Comment Status: A
I think the encompassed spectrum of 189.7 MHz is wrong. It was agreed before that we can have up to 3800 active subcarriers. This is 190 MHz of subcarrier or 190+0.05 = 190.05 MHz of RF bandwidth for a 192 MHz channel.

For the 24 MHz, it is 22 MHz of active subcarriers

Suggested Remedy
Use active subcarriers definition, 190 MHz of active subcarriers for 192 MHz.

Response
Response Status: C
ACCEPT.
<table>
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<th>Cl 101</th>
<th>SC 101.2.1</th>
<th>P 89 L 45</th>
<th># 2218</th>
<th>CL 101</th>
<th>SC 101.3.2.4</th>
<th>P 103 L 8</th>
<th># 2226</th>
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<td>2252 Cl 101 SC 101.2.4.3.2 P 94 L 9 # 2252</td>
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<td>Figure 101-1 referenced but not present.</td>
<td>There is no proposed register to select the LDPC code at the CNU. &quot;The CNU 10GPASS-XR PCS operating on CCDN shall encode the transmitted data using one of the LDPC (FC, FP) codes per Table 101–5, as selected using register TBD.&quot;</td>
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<tr>
<td>Add figure by copying Figure 100-1 and making appropriate changes to highlight RS, PCS &amp; PMA sections. Fix all cross references.</td>
<td>Strike the phrase &quot;as selected using register TBD&quot;</td>
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<td>Response Response Status C ACCEPT.</td>
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<table>
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<th>P 94 L 9</th>
<th># 2252</th>
<th>Cl 101</th>
<th>SC 101.3.2.5.2</th>
<th>P 106 L 40</th>
<th># 2245</th>
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<td>2245 Cl 101 SC 101.3.2.5.2 P 106 L 40 # 2245</td>
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<tr>
<td>Ref to Table 101-4 is misdirective. Should be to Table 76-4</td>
<td>The following sentence needs some grammatical fixes: &quot;These 66-bit blocks are converted to 65-bit block by removing the redundant first bit (i.e., sync header bit &lt;0&gt;) in each 66-bit block received from the 64B/66B encoder, which are delivered to the FEC encode and Data Detector input process.&quot;</td>
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</tbody>
</table>
| SuggestedRemedy Change ref and link to 76-4 | SuggestedRemedy Change from: "... encoder, which are delivered to ..." to: "... encoder, and are then delivered to ...
| Response Response Status C ACCEPT. | So the entire sentence reads: "These 66-bit blocks are converted to 65-bit block by removing the redundant first bit (i.e., sync header bit <0>) in each 66-bit block received from the 64B/66B encoder, and are then delivered to the FEC encode and Data Detector input process." |
| ACCEPT. | |

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<table>
<thead>
<tr>
<th>Cl 101</th>
<th>SC 101.3.2.4</th>
<th>P 103 L 13</th>
<th># 2219</th>
<th>Cl 101 SC 101.3.2.5.2 P 106 L 40 # 2245</th>
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<td>Remein, Duane Huawei Technologies,</td>
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<td>Comment Type E Comment Status A</td>
<td>Comment Type E Comment Status A</td>
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<tr>
<td>There is no reason not to combine Tables 101-4 &amp; 101-5</td>
<td>The following sentence needs some grammatical fixes: &quot;These 66-bit blocks are converted to 65-bit block by removing the redundant first bit (i.e., sync header bit &lt;0&gt;) in each 66-bit block received from the 64B/66B encoder, which are delivered to the FEC encode and Data Detector input process.&quot;</td>
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</tbody>
</table>
| SuggestedRemedy Combine tables by adding a column for US/DS. Update all cross references. | SuggestedRemedy Change from: "... encoder, which are delivered to ..." to: "... encoder, and are then delivered to ...
| Response Response Status C ACCEPT. | So the entire sentence reads: "These 66-bit blocks are converted to 65-bit block by removing the redundant first bit (i.e., sync header bit <0>) in each 66-bit block received from the 64B/66B encoder, and are then delivered to the FEC encode and Data Detector input process." |
| ACCEPT. | |

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See related comment 2278 (impacts Table 101-4/5, Topic = 65B blocking)
Comment Type: TR

Comment Status: A

Laubach, Mark
Broadcom

Comment Type: TR
Comment Status: A

65B blocking

Figure 101-6—10GPASS-XR PCS transmit path processing and associated text were ambiguous with respect to where 65-bit blocking occurs in the downstream TX LDPC encoder (CLT) and decoder (CNU) processing and the intent of the original contribution. These changes fix those ambiguities. Summary: remove 65-bit blocking context covering CRC40, FP pad bits, and FEC Parity regions.

Suggested Remedy:

1) Update figure 101-6 as per laubach_3bn_10_0914.vsd (PDF, wmf).
2) Page 103 Line 13, Table 101-4 and Table 101-5. Remove the three right columns from the table covering C(Q), C(PL), and C(P). These values are no longer needed.
3) Page 106, line 51 replace paragraph as per laubach_3bn_11_0914.fm (PDF).
4) Add a new subsection in an appropriate place to document a system constant for the fixed downstream codeword size, also as in laubach_3bn_11_0914.fm (PDF).
5) Page 107, line 33 replace paragraph also as in laubach_3bn_11_0914.fm (PDF)
6) Page 108, line 2 Update figure 101-10 as per laubach_3bn_12_0914.vsd (PDF, wmf) as well as change "PMA" text label in lower block to "(DE)SCRAMBLER".
7) Page 110, line 1, replace paragraph as in laubach_3bn_11_0914.fm (PDF)
8) Page 110, line 42 through 51. Delete C(P) variables.
9) Page 111, line 6, delete text "+ C(P)".
10) Page 111, line 3 and line 6, delete text "+ C(P)" in both places.
11) Page 111, line 34, change "<64:0>" to "<F(C)-1:0>".
12) Change TYPE to "Bit array", change "This 65-bit block" to "This bit array", change "<64:" to "<F(C)-1:".
13) Page 111, line 44, change function to add length as per laubach_3bn_11_0914.fm (PDF)
14) Page 113, line 2, replace figure 101-8 with laubach_3bn_13_0914.vsd (PDF, wmf)
15) Page 115, line 13 through 23 replace paragraphs as per laubach_3bn_11_0914.fm (PDF)
16) Page 117, line 13, remove definition for C(Q).
17) Page 117, line 17, update dataInSize VALUE from "(BQ + 1 + CQ) × 65 + BP" to "(BQ + 1) × 65 + CRC bits + B(P)"
18) Page 118, line 31, update decodeFec() definition as per laubach_3bn_11_0914.fm (PDF)
19) Page 119, line 2, replace Figure 101-11 with laubach_3bn_14_0914.vsd (PDF, wmf)

Note for Editors figure file management:
Original vsd file for 101-6: “Figure 101-PCS Transmit bit ordering within CLT (downstream).vsd” sheet R04.
Original vsd file for 101-10: “Figure 101-PCS Receive bit ordering within CNU (downstream).vsd” sheet R03.
Original vsd file for 101-8: “Figure 101-PCS FEC encoding output process CLT.vsd” sheet R04.
Original vsd file for 101-11: “Figure 101-PCS FEC decoding input process CNU.vsd” sheet Page 1

Response: ACCEPT IN PRINCIPLE.
See cmt 2219 (also impacts table 101-4 & 5, Topic = Table 101-4/5)
As proposed with the following changes:
Page 106, line 51: omit the sentence “The output codeword is passed to the scrambler.” as this conflicts with a similar statement about when data is sent in changed para on Page 107, line 33 & Page 110 Line 1.
Fig 106-10 is on PG 116 not 108.
After Figure 101-6 add an editors note stating that the Data Detector needs to be modified to accommodate the fractional 65B blocking.

Vote:
For: 8
Against: 2
Abstain: 0

Response Status: C

FIFO_FEC_TX buffer

We now have a good idea of what “additional burst elements” are needed.

Suggested Remedy:

Change:
"The length of the FIFO_FEC_TX buffer at the 10GPASS-XR CNU PCS shall be set such that the delay introduced by the FIFO_FEC_TX buffer together with any delay introduced by the PMA sublayer is long enough to turn the transmitter on and to allow transmission of any additional burst elements, such as TBD."

To read:
"The length of the FIFO_FEC_TX buffer at the 10GPASS-XR CNU PCS shall be set such that the delay introduced by the FIFO_FEC_TX buffer together with delay introduced by the Start Marker (see 101.4.3.8) is long enough to turn the transmitter on."

Response: ACCEPT.
IEEE 802.3bn EPON Protocol over Coax (EPOC) TF 1st Task Force review comments

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

For the PHY link we removed the provisionable seed, can we do this for the MAC data scrambler also?

"The scrambler is initialized to the hexadecimal value of 0x4732BA or other value as provisioned."

**Suggested Remedy**

Remove the phrase "or other value as provisioned"
Replace "Seed" with "0x4732BA" in figure 101-9
Editors note at the beginning of this section can be removed.

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

**Comment Status: A**  **Response Status: C**

**Suggested Remedy**

In the following statement "RP" should be "NRP" (with RP subscripted).

"Window size (RP) options are selected from the DS windowing parameter for the CLT (see 45.2.1.108.1). CP and Window sizes shall be selected such that the RP value is less than the CP value."

"Window" in 2nd sentence should be lower case

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

**Comment Status: A**  **Response Status: C**

**Suggested Remedy**

Table ref should be live link.

"In addition to meeting the clock jitter requirements given above, the CLT is required to meet the phase noise specifications defined in Table 100-1."

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

**Comment Status: A**  **Response Status: C**
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 1st Task Force review comments

**Cl 101 SC 101.4.2.5.4 P 129 L 16 # 2265**

Remain, Duane Huawei Technologies,

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

The following statements can be more precise.

"eight predefined pilots" (l n 16)

"eight predefined continuous pilots" (l n 19)

**Suggested Remedy**

Change to:

"eight continuous pilots around the PHY Link."

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

ACCEPT.

---

**Cl 101 SC 101.4.2.7.3 P 136 L 1 # 2277**

Laubach, Mark Broadcom

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

This section is to be updated as per presentation prodan_3bn_01_0914 made at the San Diego meeting.

**Suggested Remedy**

Replace the entire content of this section with the material in prodan_3bn_10_0914.docx (PDF).

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

ACCEPT.

---

**Cl 101 SC 101.4.2.9 P 140 L 3 # 2239**

Remain, Duane Huawei Technologies,

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

Table 101-11

Header in first column should be "Direction" not "OFDM Active Channel Bandwidth" which is the name of the table.

**Suggested Remedy**

Change first column header to "Direction"

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

ACCEPT.
<table>
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<tr>
<th>Comment</th>
<th>Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBD should be replaced by 6.4 MHz</td>
<td>ER</td>
<td>A</td>
<td>TBD should be replaced by 6.4 MHz</td>
<td>C</td>
<td>ACCEPT IN PRINCIPLE.</td>
</tr>
<tr>
<td>Change: &quot;TBD / 128&quot; to: &quot;10 / 200</td>
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<tr>
<td>EDITORS NOTE (remove prior to publication): need to scrub the spec to align with this value for minimum US active subcarriers</td>
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<td>In table 101-17, would it be better to have the OFDM window units in us like Ncp instead of ns?</td>
<td>T</td>
<td>A</td>
<td></td>
<td>C</td>
<td>ACCEPT IN PRINCIPLE.</td>
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<td>Change to us with 4 significant digits for each entry.</td>
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<td>&quot;crosses a band edge, the ...&quot;</td>
<td>E</td>
<td>A</td>
<td>We should add &quot;crosses a band edge or an exclusion band, the ...&quot;</td>
<td>C</td>
<td>ACCEPT IN PRINCIPLE.</td>
</tr>
<tr>
<td>Add a definition of band edge to read: &quot;and excluded SC adjacent to an active subcarrier&quot;</td>
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<td>&quot;two pilots in the first and SECOND resource element&quot; is not correct</td>
<td>ER</td>
<td>A</td>
<td>Instead: &quot;two pilots in the first and THIRD resource element&quot;</td>
<td>C</td>
<td>ACCEPT.</td>
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<td>Cl.</td>
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<td>Leo, Montreuil</td>
<td>Broadcom</td>
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<td><strong>Figure 101-23 show RB with some bold vertical line.</strong></td>
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<td><strong>Suggested Remedy:</strong></td>
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<td>Diagram need to be fix. Arbitrary bold vertical divider line between RE may confuse the reader.</td>
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<td><strong>Response:</strong></td>
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<td>This is an anomolie of the framemaker drawing tool, the editor will argue with framemaker but makes no promises on the outcome.</td>
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<td>In Fig 102-1 and elsewhere throughout this clause we say that the PHY Link uses MDIO regesters. However, MDIO registers are optional in 802.3 so we should instead refer to variables. Because the PHY Link frame structure relies on 16 bit blocks of data we will also need to create groups of variables that total 16 bits or less.</td>
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<td>A proposal for variables and variable group is included in remein_3bn_06_0814.pdf (available in framemaker). Note that all variables and variable groups in this proposal map directly to MDIO registers in terms of bit position within the variable group.</td>
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<td>There is a conflict in the use of the term &quot;NCP&quot;; in some cases it refers to cyclic prefix length and at other times it refers to Next Codeword Pointer. Search the draft for the term &quot;NCP&quot;; when it refers to next codeword pointer, replace it with &quot;FEC Codeword Pointer&quot;. In figures the abbreviation &quot;FCP&quot; may be used.</td>
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<td>In Figures 102-1, 102-4 * 102-5 replace &quot;NCP&quot; with &quot;FCP&quot;</td>
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<td>Change to as indicate in both figures</td>
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<td><strong>Fig 102-3</strong></td>
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<td>Figure 102–3 is not referenced from the text and should either be removed or references</td>
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<td><strong>Fig 102-1/2</strong></td>
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<td>The sentence &quot;This fixes the distance to the most distant CNU ...&quot; is no longer true as this distance is now determined by the OFDMA Frame size</td>
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<td>Strike the sentence.</td>
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### TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

### COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn

### SORT ORDER: Clause, Subclause, page, line

**Page 10 of 18**

**9/11/2014 2:26:33 PM**
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<td>Redraw figure so time marches on (not back).</td>
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<td>The identical scrambler is used in the MAC data channel. Rather than duplicate the figure here in Cl 102 we should reference the figure in Cl 101 (Fig 101-9)</td>
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<td>Remove Figure 102-10 and reference Figure 101-9.</td>
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<td>Strike the Phrase &quot;The scrambler is defined by the following polynomial.&quot; and reference section 101.3.2.6 Scrambler</td>
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<td>#2238</td>
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<td>Figure 102-12 is fuzzy</td>
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<td>Redraw figure in framemaker native format</td>
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<tr>
<td>#2231</td>
<td>ER</td>
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<td>This para begins: &quot;The Phy uses an (8x12) array&quot; which implies some implementation and give no reason for this array.</td>
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<td><strong>Suggested Remedy</strong></td>
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<td>Change the sentence to read: &quot;Conceptually, the Phy uses an 8x12 array to perform interleaving.&quot;</td>
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<tr>
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<td>this section states: &quot;The downstream PHY Link uses a fixed frame format, that shall be aligned with the 128 symbol staggered pilot pattern as described in 101.4.2.5.1.&quot;</td>
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<td>Section 101.4.2.5.1 states: &quot;The scattered pilot pattern is synchronized to the PHY Link as shown in Figure 101–14.&quot;</td>
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<td>Sounds like the proverbial tail chasing dog.</td>
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<td><strong>Suggested Remedy</strong></td>
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<td>Change from: &quot;The downstream PHY Link uses a fixed frame format, that shall be aligned with the 128 symbol staggered pilot pattern as described in 101.4.2.5.1.&quot;</td>
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<td></td>
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<td>to: &quot;The downstream PHY Link uses a fixed frame format, that the 128 symbol staggered pilot pattern is aligned with, as described in 101.4.2.5.1.&quot;</td>
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<td>this section states: &quot;The downstream PHY Link uses a fixed frame format, that shall be aligned with the 128 symbol staggered pilot pattern as described in 101.4.2.5.1.&quot;</td>
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<td>ACCEPT.</td>
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**Related Comment:** #2221, Topic = Scattered Pilot
The para on Pg 173 and Figure 102-14 adequately describe the DS_Config_ID bits, their usage and when a new profile takes effect. However, the same cannot be said for the US_ConfigID.

We can tie the effectivity of the new US profile conveyed by the US_ConfigID bit to the Return Frame ID.

Suggested Remedy

Change the last sentence of this para from:

"In the Upstream direction the new profile is activated at TBD."

To:

"In the Upstream direction the new profile is activated in the frame identified by the Return Frame ID field."

Response

ACCEPT.

---

Surely we don't want to reset the local timestamp in the CNU with every PHY Link reception as stated in the following sentence

"When the CNU PHY receives a PHY Frame addressed to it or to the broadcast address it shall reset its local clock to the value in the Timestamp plus the value in its Offset register (see ref.)."

Suggested Remedy

Change to read:

"When a CNU PHY that has TxEnable equal to False receives a PHY Frame addressed to it or to the broadcast address it shall reset its local timestamp to the value in the Timestamp."

Response

ACCEPT.

---

The following sentence should reference Table 102-11.

"The CNU PHY Discovery Response is only allowed after a CNU has completed the PHY Discovery prerequisites (see ref.)."

Suggested Remedy

Add Ref to Table 102-11

Response

ACCEPT.
This was written assuming the PHY Discovery would be a type of EMB, that is no longer a reasonable assumption.

"In the PHY Discovery Response message:
the preamble used is the special PHY Discovery Preamble (see 102.4.1.5)
the SA field is set to 0x00
the CNU MAC address is carried in the MDIO Data fields."

SuggestedRemedy

Change the statement to read:
"In the PHY Discovery Response message the preamble used is the PHY Discovery Preamble (see 102.4.1.5) and the only data included is the CNU MAC address."

Note this change is included in remein_3bn_06_0914.pdf

Response
Response Status C
ACCEPT.
Note to TF - consider cmts w/ Topic "PHY Disc" together

We need to refine what is included in the PHY Discovery Response.

SuggestedRemedy

Should only include CNU Mac Address. Change from:
"Included in the PHY Discovery Response is a preamble (see 102.4.1.5), the CNU's MAC address and [list of other parameters]."
to:
"Included in the PHY Discovery Response is a preamble (see 102.4.1.5) and the CNU's MAC address."

Response
Response Status C
ACCEPT.
Note to TF - consider cmts w/ Topic "PHY Disc" together

This statement is now incorrect based on decisions made in San Diego.

"The second four symbols of the PHY Discovery preamble shall be a duplicate copy of the first four symbols."

SuggestedRemedy

Change the sentence to read:
"The second symbol of the PHY Discovery preamble shall be a duplicate copy of the first symbol."

Response
Response Status C
ACCEPT.
Note to TF - consider cmts w/ Topic "PHY Disc" together

In San Diego we decided that the PHY Response was 128 SC x 4 symbols, so it's probably unreasonable that the preamble take the first 8 symbols.

"The PHY Discovery preamble is transmitted in the first eight symbols of the PHY Discovery Response. The first four symbols of the preamble shall be populated with a BPSK mapped 128 bit sequence generated by a pseudo-random sequence generator defined by the polynomial seeded with a fixed bit pattern of 0x55 (see Figure 102–18) at the beginning of the PHY Discovery Response (illustrated in Figure 102–22). The output of the sequence generator is mapped using BPSK modulation (see Figure 101.4.4.2) where a bit value of 0 is mapped to a BPSK value of plus 1 and a bit value of 1 is mapped to a BPSK value of minus 1. The second four symbols of the PHY Discovery preamble shall be a duplicate copy of the first four symbols."

SuggestedRemedy

In the first sentence change "eight" to "two" so it reads:
"The PHY Discovery preamble is transmitted in the first >>>two<<< symbols of the PHY Discovery Response."

In the 2nd sentence change "first four symbols" to "first symbol" so it reads:
"The first symbol of the preamble shall be populated with a ..."

In the 4th sentence change in "second four symbols" to "second symbol" and "first four symbols" to "first symbol" so it reads:
"The second symbol of the PHY Discovery preamble shall be a duplicate copy of the first symbol."

Response
Response Status C
ACCEPT.
Note to TF - consider cmts w/ Topic "PHY Disc" together
We need to describe what actions the CNU takes upon receiving the timing offset variable; a result of Fine Ranging.

**Suggested Remedy**

Add the following text:

“When the CNU receives the PhyTimingOffset variable it shall add the value in the variable to the local timestamp and reset the PhyTimingOffset variable to zero.

EDITORS NOTE (to be remove prior to publication); we may want to specify a maximum response time for this action.”

**Response**

ACCEPT IN PRINCIPLE.

“Each upstream superframe begins with 5 or 6 symbols, called the Probe Period, designated for probing. Each symbol within the Probe Period is referred to as a probing symbol (see 45.2.1.110.1).”

**Response**

ACCEPT.

We have significantly refined our concept of Probing and should update the following sentence “The OFDM symbol which is used for probing shall be defined as a probing symbol.”

**Suggested Remedy**

Change to:

“Each upstream superframe begins with 5 or 6 symbols, called the Probe Period, designated for probing. Each symbol within the Probe Period is referred to as a probing symbol and the number of symbols in the Probe Period is set via the ProbDur variable (see 45.2.1.110.1).”

**Response**

ACCEPT.

The visual difference between CNU 1 and CNU 2 is minimum and should be enhanced.

**Suggested Remedy**

Use a more visually distinctive pattern for CNU 1.

**Response**

ACCEPT.

I do not think that section in yellow “The preamble will be .... 2D correlation every time.” is applicable.

**Suggested Remedy**

Remove text in yellow.

**Response**

ACCEPT IN PRINCIPLE.

Also remove the Ed Note on line 36.
### IEEE 802.3bn EPON Protocol over Coax (EPOC) TF 1st Task Force review comments

#### Draft 1.0

#### Approved Responses

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<td>177</td>
<td>27</td>
<td>2290</td>
<td>T</td>
<td>A</td>
<td>The text with TBD about the placement of the upstream PHY link is not needed.</td>
<td><strong>SuggestedRemedy</strong> In the downstream, the placement must be known by the CNU before there is a link. In the upstream, the placement is dictated by the CLT. It is an implementation decision by the CLT. Does not need to have rule in the spec.</td>
<td>ACCEPT IN PRINCIPLE. Remove the text &quot;The allocated spectrum for the upstream PHY Link shall reside anywhere within a TBD MHz contiguous OFDM channel spectrum (i.e., TBD MHz with no internal exclusion bands).&quot;</td>
<td>C</td>
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| 103 | 103.2.2.7 | 212 | 30 | 2224 | T | A | Fig 103-12 Way back we added the CHECKSIZE state in the CLT Control Multiplexer state diagram (Figure 103-12) to accommodate TDD. This block is no longer needed and should be removed. | **SuggestedRemedy** Remove state, connect all inputs to SEND FRAME See remain_3bn_02_0914.pdf for modified SD. | ACCEPT. |

| 102 | 3.3.3 | 178 | 45 | 2264 | T | A | There is a SHALL following a SHOULD. | **Response** Remove one | ACCEPT IN PRINCIPLE. Remove requirement ("shall") |

| 102 | 4.1.3 | 181 | 31 | 2285 | E | A | In table 102-9, "window at start time". | **SuggestedRemedy** Should it be: "window at start time?" | ACCEPT IN PRINCIPLE. "window start time" |

| 45 | 2.1.109 | 36 | 1 | 2276 | T | A | 45.2.1.109 10GPASS-XR DS OFDM channel center frequency control register 1 through N (Register 1.1902 through 1.19aa) Title implies center frequency of DS OFDM channels 1-N; Content in Table 45-78c is for subcarrier 0 (lower band-edge) of each DS OFDM channel. | **SuggestedRemedy** Change section title to read: "DS OFDM channel frequency control register 1 through N" On line 4, replace "center frequency" with "lower band edge frequency (subcarrier 0)" | ACCEPT IN PRINCIPLE. Change section title as suggested. copy new title to line 4 and table 45-78c title per convention. In Table 45-78c and in 45.2.1.109.1 change (4x) "DS OFDM center freq" to "DS OFDM freq" Add entries in table for register 1904 - 1909 Ch 3-8 (replace n with 8). Change Register designation 1.19aa to 1909 In 45.2.1.109.1 change (3x) "specify the center frequency of OFDM" to "specify the center frequency of subcarrier 0, OFDM" Add bullet entries for Ch 3-8 (replace n with 8). Remove editors note ln 6. Replace remaining variable register designations in CL45 (19bb, 19cc, etc) with appropriate numbers. | C |
IEEE 802.3bn EPON Protocol over Coax (EPoC) TF 1st Task Force review comments

Cl 45 SC 2.1.109.1 P 36 L 27 # 2274
Powell, Bill Alcatel-Lucent

Comment Type T Comment Status A
45.2.2.209.1 DS OFDM center freq ch1 (1.1902.15:0)

Title implies center frequency of DS OFDM channel 1 instead of frequency of subcarrier 0 for DS channels 1-N (content of clause)

Suggested Remedy
Change title to read: DS OFDM channel 1 through N Subcarrier 0 center frequency control register

Line 32 - Replace "TBD" with "54.0 MHz" (per previous Technical Decision 72)

Response Response Status C
ACCEPT.

Cl 45 SC 2.1.113 P 39 L 19 # 2210
Leo, Montreuil Broadcom

Comment Type E Comment Status A
This is a question, not a comment. How do we write these registers that control the PHY Link search? Do we need to have a Link first?

Suggested Remedy

Response Response Status C
ACCEPT IN PRINCIPLE.

Questions cannot be accepted, even in principle; they can be answered though.
These registers can only be written by the MDIO interface. If we decide to create variables reflecting these registers then they could be written via the PHY Link via a broadcast message once the CNU has acquired the DS link but before a full duplex link is established.
Pay close attention to discussion on related comment 2270 for exciting news about MDIO registers and mapped variables!

Cl 45 SC 2.1.115 P 40 L 44 # 2213
Leo, Montreuil Broadcom

Comment Type T Comment Status A
PHY Disc Dur

What are the units of the PHY Discovery duration?

Suggested Remedy

Response Response Status C
ACCEPT.

See resolution to cmt 2247, Topic = PHY Disc Dur

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

Page 16 of 18
Comment Type | T | Comment Status | A | Phy Link Frame counter will not work for PHY Discovery start as it is asynchronous to the US Frame, use lower 16 bits of DS timestamp. PHY Discovery duration is no longer needed as it is fixed.

SuggestedRemedy
In table 45-78i Change "Time of next open PHY Discovery window relative to PHY Frame Counter." to: "Time of next open PHY Discovery window relative to Timestamp."

In 45.2.a.115.2 Change "The PHY Discovery start bits 1.19gg.12:0 determine when the next PHY Discovery window is opened relative to the local PHY Link frame counter." to: "The PHY Discovery start bits 1.19gg.15:0 determine when the next PHY Discovery window is opened relative to the Timestamp."

Remove PHY Discovery duration entries in table and descriptive text.

Response | Response Status | C | ACCEPT.

Comment Type | E | Comment Status | A | Table 45-78j is mistitled
SuggestedRemedy
Change "10GPASS-XR new CNU control registers 1-8 bit definitions" to "10GPASS-XR new CNU control register bit definitions"

Response | Response Status | C | ACCEPT IN PRINCIPLE.
Simplify section and table title to:
"New CNU control register bit definitions"

Strike "10GPASS-XR " from all section, table, and text for registers in the 19xx address range.

Comment Type | T | Comment Status | A | Move to: Instruct the Editors to create registers in Clause 45 to specify CNU upstream pre-equalizer coefficients as two 16 bit registers per subcarrier Clause 101.4.3.12.1.
Note for a description see Draft 0.6, Page 143, Line 36

SuggestedRemedy
Implement the motion as registers 12.2046 through 12.10237 moving down existing register 10GPASS-XR US Resource Block type to 10238 through 10749.

Response | Response Status | C | ACCEPT.
We need to make it clear that writing to the US/DS profile descriptor only impacts the offline profile and does not affect the active profile.

**Suggested Remedy**

On pg 44 line 23 change from:

"The 10GPASS-XR DS profile descriptor control 0 through 1023 registers determine the modulation for the downstream OFDM spectrum".

To:

"The 10GPASS-XR DS profile descriptor control 0 through 1023 registers determine the offline modulation settings for the downstream OFDM spectrum"

On pg 46 line 4 change from:

"The 10GPASS-XR US profile descriptor control 0 through 1023 registers determine the modulation for the upstream OFDMA spectrum"

To:

"The 10GPASS-XR US profile descriptor control 0 through 1023 registers determine the offline modulation settings for the upstream OFDMA spectrum"

**Response**

ACCEPT IN PRINCIPLE.

As proposed but instead of "offline" use "inactive"

Add editors note to indicate we need a way to copy the active profile copy to the offline profile? IF so this would affect these registers.