Cl **00** *SC* **0** *P* **00** *L* **0** # 1225
Remein, Duane Huawei Technologies

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

References to Clause 102 are incorrect because the clause was moved to 103.

SuggestedRemedy

Correct references

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **0** *P* **38** *L* **1** # 1226
Remein, Duane Huawei Technologies

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

We need to determine the applicability of this figure to clause 101, 102 and possibly 103

SuggestedRemedy

Include this or a subsequent version of this figure in clause 101, and 102, omit in Cl 103

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Reference the figure in introduction to Cl 101
(replace 101-2 & 101-3)
and in 102.

Cl **00** *SC* **0** *P* **11** *L* **11** # 1227
Remein, Duane Huawei Technologies

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

Now would be a good time to begin work on Clause 45

SuggestedRemedy

See remein_3bn_03_0114.pdf for symopsis, remein_3bn_04_0114.pdf (also availabl ein frame) for details.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
As per remein_3bn_04a_0114.pdf with the following corrections:
pg 5 line 19 typo "0GPASS-XR-D" s/b "10GPASS-XR-D"
Preface "symbol" with "OFDM symbol"
To Definitions: add entries for:
"OFDM symbol" (definition TBD)" (Tom Kolze & Leo M.)
"OFDM channel (definition TBD)" (Tom Kolze & Leo M.)
Pg 7 line 41 change "0=0 us/0 samples," to "windowing disabled"
pg 7 line 50 change "windowing" to "cyclic prefix" (also pg 9 line 51)
Remove times for enumerations (keep # of samples) - this also applies to US enums, editor to conver all times to samples.

Cl **100** *SC* **100.2.3.1** *P* **40** *L* **17** # 1228
Remein, Duane Huawei Technologies

Comment Type **T** *Comment Status* **A** *1358*

And what pray tell is a "CEA channels"? Need definition.

SuggestedRemedy

Define this term.

Response *Response Status* **C**

ACCEPT.
See resolution to comment 1358

Cl **100** *SC* **100.2.3.1** *P* **40** *L* **17** # 1229
Remein, Duane Huawei Technologies

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

The para states that "the number of occupied CEA channels of an OFDM channel is the occupied bandwidth of the OFDM channel divided by 6 MHz."
The OFDM channel is 192 MHz therefore this number is 32. This relationship should be more clearly stated.

SuggestedRemedy

Change the para to read: There are 32 CEA channel in the OFDM channel. If the unclear term "occupied" means something other than one would surmise using common language then the term should be clearly defined before using it.

Response *Response Status* **C**

REJECT. Although the maximum channel bandwidth is 192 MHz, but the configured width of the OFDM channel may be different, for example 180 MHz.

Cl **100** *SC* **1.2.3.1** *P* **40** *L* **23** # 1230

Remein, Duane Huawei Technologies

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

The two para starting with "CLTs capable of generating NOFDM-channels of OFDM per RF port ..." seem unnecessarily wordy and complex. I gather what the text is trying to say is that multi-OFDM channel EPoC system must comply with all OFDM requirements, on a per CEA channel basis for all OFDM channels.

SuggestedRemedy

Reword the two paragraphs as:
"CLT's that support multiple OFDM channels shall comply with all electrical requirements on all OFDM channels or any sub-channel that is actively transmitting energy.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add intro para:
"This section defines the terms and concepts used when specifying the CLT RF output requirements. For an OFDM channel there is a) the number of equivalent 6 MHz channels (Neq), b) the encompassed spectrum, c) the occupied bandwidth, and d) the modulated spectrum."

Change existing para "For the purposes of this specification, the number of occupied CEA 6 MHz channels of an OFDM channel is the occupied bandwidth of the OFDM channel divided by 6 MHz."
To:
"The number of occupied 6 MHz channels of an OFDM channel
is the occupied bandwidth of the OFDM channel divided by 6 MHz."

Change commented para to:
"CLTs capable of generating NOFDM-channels of OFDM per RF port, for purposes of the output electrical requirements, are said to be capable of generating Neq equivalent 6 MHz channels per RF port, where Neq = 32*NOFDM for 192 MHz OFDM channels."

Delete the para "For an OFDM channel there is a) the occupied bandwidth, b) the encompassed spectrum, c) the modulated spectrum, and d) the number of equivalent 6 MHz CEA channels."
Editor to follow subscripting in origional text.

Cl **100** *SC* **100.2.3.1** *P* **40** *L* **28** # 1231

Remein, Duane Huawei Technologies

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

The paragraphs starting with "For an OFDM channel there is a) the occupied bandwidth, b) the encompassed spectrum, c) ..." and ending with "and the modulated spectrum is 189.7 MHz - 9.4 MHz = 180.3 MHz." appear to be more introductory (i.e., defining terms and explaining what each means).

SuggestedRemedy

Move these paragraphs to a new Section 100.1.6 OFDM structure.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

This entire section is defining terms that are used in defining fidelity requirements (the sub-sections that follow). Don't think moving out of this section improves the clause.

Cl **100** *SC* **N/A** *P* *L* # 1232

Remein, Duane Huawei Technologies

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

In Clause 75.7.14 there is the concept of laser on/off times. This idea needs to be carried forward to Cl 100 but expressed in terms of RF

SuggestedRemedy

Add placeholder text to 100.3.10 for Laseron/off times.

Response *Response Status* **C**

REJECT.

Cl **100** *SC* **100.2.2** *P* **40** *L* **12** # 1233

Remein, Duane Huawei Technologies

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

We need to include a section on RF On/Off Times similar to 60.7.1.3.1 Laser On/Off timing measurement and 75.7.14 Laser on/off timing measurement.
It would be good to be consistent with nomenclature that exists in Cl 103 (search for 75.7.14).

SuggestedRemedy

Add 100.2.3 "RF on/off timing measurement" to outline.

Response *Response Status* **C**

REJECT. Section 100.3.10 - Transmitter On/Off Timing Measurements already exists. I believe this is the same thing.

Cl **101** *SC* **101.2.1** *P* **58** *L* **6** # 1234

Remein, Duane Huawei Technologies

Comment Type **E** *Comment Status* **R**

Comment 1113 (copied below) from Draft 0.2 not implemented
Cl 00 SC 0 P 3 L 11 # 1113
Comment Type E
Marked text not being used consistently throughout the draft. Some Editors use colored text, some green highlighting, some red highlighting with no apparent consistency.
SuggestedRemedy
Pick one scheme and use it consistently.
Reccommend:
Magenta text for links that require updating
Yellow highlighting for text that may require other updates.
ACCEPT.
Applicable to all editors

SuggestedRemedy

Implement as agreed by the TF

Response *Response Status* **C**

REJECT.

Unclear as to what changes are needed in the draft.

Cl **101** *SC* **101.1.1** *P* **57** *L* **19** # 1235

Remein, Duane Huawei Technologies

Comment Type **E** *Comment Status* **R**

Comment 1113 (copied below) from Draft 0.2 not implemented
Cl 00 SC 0 P 3 L 11 # 1113
Comment Type E
Marked text not being used consistently throughout the draft. Some Editors use colored text, some green highlighting, some red highlighting with no apparent consistency.
SuggestedRemedy
Pick one scheme and use it consistently.
Reccommend:
Magenta text for links that require updating
Yellow highlighting for text that may require other updates.
ACCEPT.
Applicable to all editors

SuggestedRemedy

Implement as agree by the TF

Response *Response Status* **C**

REJECT.

Unclear as to what changes are needed in the draft.

Cl **101** *SC* **101.3.1** *P* **63** *L* **11** # 1236

Remein, Duane Huawei Technologies

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

The statement "The EPoC PCS is specified to support the operation of up to 10 Gb/s in the downstream direction and up to 10 Gb/s in the upstream direction ..." appears to be in jeopardy and could be construed as intentionally misleading as it is unlikely we will approach the 10 Gbps mark in either US or DS.

This comment also applies to Sub-Cl 101.3.4 pg 68 ln 2

This comment also applies to Sub-Cl 101.4 pg 94 ln 3

SuggestedRemedy

Replace "10 Gb/s" with "TDB Gb/s" in two places in this statement.

Response *Response Status* **C**

REJECT.

The current statement is consistent with the approved objectives for the project. Should a change of such objectives be needed, objectives need to be first modified, and then draft aligned to them, and not vice versa.

Cl **101** *SC* **101.3.1.1** *P* **63** *L* **22** # 1237

Remein, Duane Huawei Technologies

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

I don't see how this statement has any basis in truth "The EPoC PCS extends the 10GBASE-PR PCS described in Clause 76 to support TDD and FDD mode of operation over the point-to-multipoint coaxial medium architecture."
This is hardly and extension of Cl 76.

SuggestedRemedy

Change the sentence to read "The EPoC PCS supports TDD and FDD mode of operation of the EPON protocol defined elsewhere in this standard over a point-to-multipoint coaxial medium architecture."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the sentence to read "The EPoC PCS supports TDD and FDD mode of operation of the EPON protocol over a point-to-multipoint coaxial medium architecture."

Mark and others to provide text to introduce EPoC to be added to Clause 56

Cl **101** *SC* **101.3.1** *P* **63** *L* **15** # 1238

Remein, Duane Huawei Technologies

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

CRC40 should be included in the overview

SuggestedRemedy

Change the sentence reading "The FEC mechanism increases the available link budget."
to
"The FEC mechanism increases the available link budget and includes a CRC40 to ensure that mean time to false frame acceptance objectives are met."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the sentence
"The FEC mechanism increases the available link budget."
to
"The FEC mechanism increases the available link budget. The FEC codeword additionally includes a CRC40 to ensure that mean time to false frame acceptance is met."

Cl **101** *SC* **101.3.2** *P* **63** *L* **35** # 1239

Remein, Duane Huawei Technologies

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

BQ had not context yet.

SuggestedRemedy

Add a linked cross reference to Table 101-6 such as "This value is computed as a function of the contents of the BQ 65-bit blocks (see Table 101-6), forming the payload portion of the FEC codeword.

Response *Response Status* **C**

ACCEPT.

Cl **101** *SC* **101.3.3** *P* **64** *L* **42** # 1240

Remein, Duane Huawei Technologies

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

Hopefully we can agree on using a single FEC code for the Downstream for both TDD and FDD.

SuggestedRemedy

Reword the first sentence in this para to:
"The CLT 10GBASE-XR PCS operating on CCDN shall encode the transmitted data using LDPC (16200, 14400) code per Table 101-6."

Response *Response Status* **C**

ACCEPT.

Vote on proposed Accept:
For: 13
Against: 2
Abstain: 10

Cl **101** *SC* **101.3.3** *P* **64** *L* **44** # 1241

Remein, Duane Huawei Technologies

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

The selection mechanism for US FEC code has not been determined.

SuggestedRemedy

Marek the text "7, as selected using register TBD." in the last sentence in this para as tentative (Yellow highlighted).

Response *Response Status* **C**

REJECT.

The text was approved by TF and as such, it is not "tenative".

No changes to the draft are needed.

Cl **101** *SC* **101.3.4.3.5** *P* **78** *L* **28** # 1242

Remein, Duane Huawei Technologies

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

wording "... simplifies allows ...".

SuggestedRemedy

remove "allows"

Response *Response Status* **C**

ACCEPT.

Cl **101** *SC* **101.3.4.3.5** *P* **78** *L* **31** # 1243

Remein, Duane Huawei Technologies

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

Where did this come from?
"The Start of Burst delimiter is followed by the 65-bit long FEC Selector delimiter (burstFecSelector constant, see TBD), which identifies the specific FEC code used by the CNU to encode data in the given burst. The FEC Selector delimiter is not part of the first FEC codeword."
I don't recall ever discussing a "FEC Selector" in the TF

SuggestedRemedy

Mark the para preliminary (Yellow highlight)

Response *Response Status* **C**

REJECT.

Text was approved at the last meeting - see comment #1111 against D0.2.

Cl **101** *SC* **101.3.4.3.6** *P* **79** *L* **52** # 1244

Remein, Duane Huawei Technologies

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

The final statement is incorrect (at least so far as the TF has discussed)
"Only one of the FEC codes defined in Table 101-7 is active at any time, as selected by register TBD."

SuggestedRemedy

Strike the statement.

Response *Response Status* **C**

ACCEPT.

Vote on Proposed Accept:
Yes: 15
No: 0
Abstain: 1

Cl **101** *SC* **101.4.2.3** *P* **95** *L* **40** # 1245

Remein, Duane Huawei Technologies

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

Certainly we don't need another sub-clause describing 64B/66B Encode

SuggestedRemedy

Strike 101.4.2.3 64B/66B Encode

Response *Response Status* **C**

ACCEPT.

Cl **101** *SC* **101.4.1** *P* **95** *L* **33** # 1246

Remein, Duane Huawei Technologies

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

Text for TDD PCS Overview sub-clause

SuggestedRemedy

Insert the following:
"The TDD PCS layer is identical to the FDD PCS layer with the following exceptions:
- The TDD CLT downstream PCS includes a Data Detector process, similar to that found in the FDD PCS described in 101.3.4.3.1, with exceptions as noted in 101.4.2.4.
- The TDD CLT downstream PCS includes the PMA_SIGNAL.request as described for the CNU upstream PCS.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The text of introduction should be consistent with the remainder of the TDD subclause, which is currently missing. The proposed text makes a lot of forward going assumptions. First we need details and then add overview, not the other way around.

Cl **101** *SC* **101.4.2.1** *P* **95** *L* **37** # 1247

Remein, Duane Huawei Technologies

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

Text for 101.4.2.1 Idle control character deletion process

SuggestedRemedy

Insert the following:
The Idle control character deletion process for FDD is identical to that for the FDD PCS described in 101.3.4.1

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The process cannot be the same, since the process itself (counters, specifically) will have to account for the empty periods between bursts. Current FDD SDs do not account for that and assume continuous data stream.

Cl **101** *SC* **101.4.2.2** *P* **95** *L* **39** # 1248
Remein, Duane Huawei Technologies

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

Text for 101.4.2.2 64B/66B Encode

SuggestedRemedy

Insert the following:
The 64B/66B Encode for TDD is identical to that described for the FDD PCS described in 101.3.4.2

Response *Response Status* **C**

ACCEPT.

Cl **101** *SC* **101.4.2.4** *P* **95** *L* **43** # 1249
Remein, Duane Huawei Technologies

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

Text for 101.4.2.5 FEC Encode and Data Detector process

SuggestedRemedy

Insert the following:
The FEC Encode and Data Detector process for TDD is identical to that described for the FDD PCS described in 101.3.4.3 with the following exceptions.
The downstream data detector for TDD mode includes the PMA_SIGNAL.request output as described in 101.3.4.3.5 but, in the TDD downstream case, this signal is only turned OFF at the conclusion of the configured TDD_DS_frame time period.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

At this time, there is no approved baseline for the operation for TDD mode, or the operation of the data detector.

Cl **101** *SC* **101.4** *P* **94** *L* **46** # 1250
Remein, Duane Huawei Technologies

Comment Type **E** *Comment Status* **A** *Template update*

Errant figure number.

SuggestedRemedy

Figure titled "Figure 101-1-EPoC PCS functional block diagram, downstream path for TDD mode" should be figure 101-15. Renumber and check subsequent figure number in clause.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The problem is related with the template due to the use of H6 styles. Style updates will be needed across the whole draft to make sure it works correctly for all Clauses.

EOC needs to take this template issue up with WG Editorial staff.

Cl **102** *SC* **102.4** *P* **118** *L* **37** # 1251
Remein, Duane Huawei Technologies

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

Discovery can fail because:
1) the CNU cannot use the DS Profile

SuggestedRemedy

Add the following text at the end of Cl 102.4
"In some instances the CNU may fail to achieve link-up status. This may happen for a number of reasons; for example the CNU may be unable to support the DS or US Profile due to network conditions. In these circumstances the CLT may take mitigating action outside the scope of this standard and attempt to bring up the CNU at a later time."

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102** *P* **107** *L* **1** # 1252
Remein, Duane Huawei Technologies

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

This clause does not follow the text mark-up conventions described in front matter.

SuggestedRemedy

Use prescribed mark-up.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.1.1** *P* **107** *L* **22** # 1253

Remein, Duane Huawei Technologies

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

Missing Figure reference

SuggestedRemedy

Add figure reference to Figure 102-1

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.1.1** *P* **108** *L* **6** # 1254

Remein, Duane Huawei Technologies

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

If we adopt a fixed frame length for DS & US PHY Link in FDD then the following statement is extraneous and should be replaced.
"When operating in FDD mode, the PHY Link frame shall be longer than the one way transit time, including all PHY delays, to the logically most distant CNU in the network."

SuggestedRemedy

Replace with:
"When operating in FDD mode PHY Link frame shall be fix; the downstream length is 128 symbols long and the upstream length is TBD symbols long. This fixes the distance to the most distant CNU in the network to the greater of 128 or TDB symbol times."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
When operating in FDD mode PHY Link frame shall be fixed; the downstream length is 128 symbols long and the upstream length is TBD symbols long. This fixes the distance to the most distant CNU in the network to the greater of 128 or TBD symbol + cyclix prefix times."

Cl **102** *SC* **102.2.1** *P* **108** *L* **39** # 1255

Remein, Duane Huawei Technologies

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

Editors note can be removed

SuggestedRemedy

remove note

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.1.1** *P* **108** *L* **47** # 1256

Remein, Duane Huawei Technologies

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

Run-on sentence (poorly worded at best:
"The allocated spectrum shall reside anywhere within a 24 MHz contiguous OFDM/OFDMA 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, which includes eight pilot tone subcarriers placed symmetrically above and below the information sub-carriers."

note misspelled MHz

SuggestedRemedy

Change to:
"The allocated spectrum shall reside anywhere within a 24 MHz contiguous OFDM/OFDMA 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. This Phy Link band also includes eight pilot tone subcarriers placed symmetrically above and below the information sub-carriers."

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.1.1** *P* **108** *L* **48** # 1257

Remein, Duane Huawei Technologies

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

What?
"No additional pilot tones area allowed within this 6 MHz band(see ref)"

SuggestedRemedy

change to "No additional pilot tones are allowed within this 6 MHz band (see ref)"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.2** *P* **114** *L* **15** # 1258
Remein, Duane Huawei Technologies

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

By now we should be able to adopt the following parameters for the US PHY-Link:
number of sub-carriers for information = 32/16
total bandwidth = 800 kHz

SuggestedRemedy

Change sentence from:
"In the US direction the PHY Link shall be allocated TBD kHz of spectrum for information."
To"
"In the US direction the PHY Link shall be allocated 800 kHz of spectrum for information (see Figure 102-3)."

Modify Fig 102-3 to indicate "(400kHz DS, 800kHz US)"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **102** *SC* **102.2.2** *P* **109** *L* **34** # 1259
Remein, Duane Huawei Technologies

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

Stray "PLC"

SuggestedRemedy

Replace with "PHY Link"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.2** *P* **110** *L* **1** # 1260
Remein, Duane Huawei Technologies

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

Tables 102-1 and 102-2 are for DS only.

SuggestedRemedy

Add "DS" to table titles.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.3** *P* **109** *L* **48** # 1261
Remein, Duane Huawei Technologies

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

Let's fix the timestamp size at 32 bits

SuggestedRemedy

Change "TBD(16-32)" to "32" here (pg 106 ln 48) and at pg 111 ln 30.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.3.1** *P* **111** *L* **13** # 1262
Remein, Duane Huawei Technologies

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

I believe we've agreed on a CNU ID although we may need to agree on how big this field is. Surely 1024 CNU's is sufficient (10b field).

This comment also applied to US SD field (Cl 102.3.4.1, pg 114 ln 33).

SuggestedRemedy

Change:
"TBD {48, 11, 10}" to "10"
"... address.{if we decide to use MAC Address for this field state so here, if not include and reference a table of Unicast/Broadcast values as illustrated below }" to "... address(see Table 102-3)." (active reference)
"{assigned / MAC}" to "assigned"

On pg 114 ln 33 Change:
"TBD {48, 11, 10}" to "10"
At the conclusion of the sentence add active reference "(see Table 102-3)"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Use 16 bit rather than 10 bit. Align B'Cast value with LLID B'Cast in Table 102-3.

Cl **102** *SC* **102.2.3.1** *P* **111** *L* **30** # 1263

Remein, Duane Huawei Technologies

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

Timestamp structure:
Total of 32 bits
bits 3:0 clocked at 16*204.8 Mhz (phase)
bits 9:4 clocked at 204.8 Mhz and roll over to zero after reaching a value of 20 to produce a 10.24 MHz clock.
bits 32:10 clocked from the 10.24 MHz clock.

SuggestedRemedy

Change the second sentence of the para starting "The PHY Timestamp is a ..." from "The counter is clocked from the {204.8 MHz} OFDM clock."
To:
"The 32 bit timestamp is composed of three fields. The first field is composed of bits 3:0 and is clocked at a rate of 16 x 204.8 MHz (or 3.2768 GHz). The second field is composed of bits 9:4 and is clocked from 204.8 MHz; this field rolls over to zero after reaching a value of 20 to produce a 10.24 MHz clock. The final field, composed of bits 31:10, is clocked from the 10.24 MHz clock."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **102** *SC* **102.2.3.1** *P* **112** *L* **6** # 1264

Remein, Duane Huawei Technologies

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

Missing Table reference at first and figure reference at the end of the following sentence:
"summarizes the use and meaning of the PHY Config ID bits and their operation is illustrated in ."

SuggestedRemedy

Add "Table 102-4 " to beginning and " Figure 102-5" finally.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.3.1** *P* **111** *L* **1** # 1265

Remein, Duane Huawei Technologies

Comment Type **T** *Comment Status* **A** *PHY-Link CRC*

LDPC codes contain no positive indication that the encoded data is in error. A CRC should be added to the PHY Link to ensure the CNU Phy does not operate on errored PHY Link data.
Options include CRC8 (already part of EPON), CRC24-D (part of DOCSIS 3.1) or something new and different.
MULPI 3.1 uses a CRC24-D on their timestamp and one each on other message blocks but no CRC on the actual message (I believe this is formatted as a normal frame and therefore already has a CRC).

SuggestedRemedy

Restructure PHY Link frame as shown in remein_3bn_02_0114.pdf slides 6, 7 & 8.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
As per remein_3bn_02_0114.pdf but leave the size of the CRC starting point as CRC-32.
Add editors note that CRC analysis is required.

For: 20
Against: 0
Abstain: 4

Cl **102** *SC* **102.2.3.2** *P* **112** *L* **54** # 1266

Remein, Duane Huawei Technologies

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

The "command sub-field" concept has been removed, this sentence is incorrect.

SuggestedRemedy

Change sentence from:
"The CLT shall only transmit the valid values of the command sub-field as given in Table 3."
To:
"The CLT shall only transmit the valid values of the PHY Instruction fields as given in Table 102-3, Table 102-4 and Table 102-5."

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.3.2** *P* **113** *L* **31** # 1267

Remein, Duane Huawei Technologies

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

This section is only describes DS PHY Instructions. In a read instruction there are no 16 bit Data fields so the sentence is incorrect:
"The 16 bit Data fields contain the data values to be written in or read from consecutive MDIO registers starting ..."

SuggestedRemedy

Change to read:
"The 16 bit Data fields contain the data values to be written in consecutive MDIO registers starting ..."

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.4** *P* **113** *L* **42** # 1268

Remein, Duane Huawei Technologies

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

The list of items included in a PHY Discovery window should probably include the Discovery Window Start time.
Discovery Window Duration should not be Write/Verify (B'cast address)

SuggestedRemedy

Add between Discovery Preamble and CNU MAC Address the following line:
Write Discovery Window Start time

Change "Write/Verify" to "Write" before Discovery Window duration

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.4** *P* **113** *L* **48** # 1269

Remein, Duane Huawei Technologies

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

the word "shall" should not be in italics

SuggestedRemedy

Change to normal font.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.2.4** *P* **113** *L* **51** # 1270

Remein, Duane Huawei Technologies

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

The requirement for CNU quiet time seems a bit misplaced. Really this is totally dependent on the PHY Discovery window and does not need this one way travel time requirement.

SuggestedRemedy

Reword the para as follows:
"Once the PHY Discovery window is open the CLT shall refrain from sending PHY Instructions to any single CNU over the DS PHY Link, which would elicit a Response (i.e., read and write/.verify instructions)from the CNU for the duration of the PHY Discovery window, to allow sufficient time for joining CNUs to respond."

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.1** *P* **114** *L* **10** # 1271

Remein, Duane Huawei Technologies

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

Editors Note can be removed.

SuggestedRemedy

remove note.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.4.2** *P* **114** *L* **54** # 1272

Remein, Duane Huawei Technologies

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

Make fields set to zero on Nack a requirement.

SuggestedRemedy

Pg 114 ln 54 Change "should {shall?}" to "shall"
Pg 115 ln 39 Change "should {shall?}" to "shall"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.4.2** *P* **114** *L* **42** # 1273

Remein, Duane Huawei Technologies

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

Should split the Opcode field into OPCODE and Count fields as was done in DS direction..

SuggestedRemedy

Pg 114 ln 41 Change: "Each Response contains an OPCODE, an MDIO Address and up to 31 data fields."
To: "Each Response contains an OPCODE, a Data Count, an MDIO Address and up to 31 data fields."

Pg 114 Ln 45 Change: "The PHY Response OPCODE is an 8 bit field separated into two sub-fields; the Acknowledgement sub-field and the Data Count sub-field. The Acknowledgement sub-field is a 3 bit value that conveys the type of PHY Instruction to which the CNU is responding and the success or failure of the PHY Instruction Command. CNUs shall use the valid values of the Acknowledgement sub-field are given in ."
To: "The PHY Response OPCODE is an 3 bit 3 bit value that conveys the acknowledge type for PHY Instruction to which the CNU is responding and the success or failure of the PHY Instruction Command. CNUs shall use the valid values of the acknowledgement type are given in Table 102-6." (live link).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
As proposed but Pg 114 Ln 45 Change:
To: "The PHY Response OPCODE is a 3 bit value that conveys the acknowledge type for PHY Instruction to which the CNU is responding and the success or failure of the PHY Instruction Command. CNUs shall use the valid values of the acknowledgement type given in Table 102-6." (live link).

Cl **102** *SC* **102.3.5** *P* **115** *L* **44** # 1274

Remein, Duane Huawei Technologies

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

Should be _PHY_ Discovery not just Discovery

SuggestedRemedy

In CL 102 globally replace "XXX Discovery" with "PHY Discovery" anywhere that "XXX " does not equal "PHY ".

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.5** *P* **115** *L* **49** # 1275

Remein, Duane Huawei Technologies

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

Let's fix the size of the local clock to 32 bits to align with the DS Timestamp.

SuggestedRemedy

Change: "the a TDB {16-32} bit local clock of the CNU"
To: "the a 32 bit local clock of the CNU"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.5** *P* **115** *L* **46** # 1276

Remein, Duane Huawei Technologies

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

Editorial clean-up

SuggestedRemedy

Remove the following: "{if we decide to use the MAC address instead of an ONU ID can set this to MAC address}"
"{assumes using CNU_ID, if not combine 2nd &4thd bullets to read “the SA field is set to the CNUs MAC address}"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.3.6** *P* **116** *L* **1** # 1277

Remein, Duane Huawei Technologies

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

Isn't it reasonable to use the same FEC in the US PHY-Link as the DS-PHY-Link?

SuggestedRemedy

Remove this section (102.3.6) and move section 102.2.6 to a common section 102.2 Common PHY-Link (that covers both US & DS). Renumber existing sub-clauses.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **102** *SC* **102.4** *P* **117** *L* **24** # 1278
Remein, Duane Huawei Technologies

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

Add RF On Time and RF Off Time to Table 102-7

SuggestedRemedy

Add to table 102-7
"RF On Time | TBD | (blank) | Y"
"RF Off Time | TBD | (blank) | Y"

(listed as: Parameter | MDIO Reg, | PHY Discovery | Link-Up)

Response *Response Status* **C**

REJECT.

RF on/off time not needed for link establishment.
Check terminology in Cl 100 for consistency.

Cl **102** *SC* **102.4** *P* **117** *L* **24** # 1279
Remein, Duane Huawei Technologies

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

Table missing title

SuggestedRemedy

Add title "Required parameters for PHY Discovery Response and Link-Up"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.4** *P* **117** *L* **8** # 1280
Remein, Duane Huawei Technologies

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

Can update reference for probing

SuggestedRemedy

Ref section 102.5 Upstream wide band probing.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.4** *P* **117** *L* **10** # 1281
Remein, Duane Huawei Technologies

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

IEEE typically doesn't use "must". Also missing table ref (ln 13)

SuggestedRemedy

Change: "Before declaring a CNU is in the link-up state the CLT must ensure that a ... "
To: "Before declaring a CNU is in the link-up state the CLT shall ensure that a"
Add table Ref to Table 102-7 to end of the sentence.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.4** *P* **117** *L* **19** # 1282
Remein, Duane Huawei Technologies

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

Missing Figure Ref

SuggestedRemedy

Change "The PHY Discovery message exchange is illustrated in ."
To: "The PHY Discovery message exchange is illustrated in Figure 102-6."

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.4** *P* **118** *L* **39** # 1283
Remein, Duane Huawei Technologies

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

Change note in braces to Editors Note

SuggestedRemedy

Change to proper format.

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **103.3.3.1** *P* **157** *L* **31** # 1284

Remein, Duane Huawei Technologies

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

There are 5 references to "75.7.14" in the clause. This sub-clause speaks about laser on/off times which is not applicable to EPoC. The topic of RF on/off times needs to be addressed in Cl 100 and the 5 references in Cl 103 need to point to that material.
The changes to Cl 100 are addressed in another comment.

SuggestedRemedy

Change "75.7.14" to "100.x.y" in 5 places

Response *Response Status* **C**

ACCEPT.
Coordinate with Cl 100 editors to determine if an appropriate ref. exists.

Cl **103** *SC* **103.2.2.1** *P* **139** *L* **31** # 1285

Remein, Duane Huawei Technologies

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

Comment 1091 against Draft 0.2 not implemented properly.

Cl 00 SC 102.3.2.4 P 106 L 45 # 1091
Comment Type T
Why do we need to redefine "unit of time_quanta" again ? It's already defined as a constant in 64.2.2.1.
SuggestedRemedy
Recommend referencing all constants to the original text specified in 802.3. Only new constants should have references in Clause 102. We should look at all constants, timers, messages, state diagrams where we are essentially defining (re-defining) the same constant, timer, message, state diagram, etc.
ACCEPT.
Reassigned to from Clause 102 to Clause "00" (applicable to entire draft).

SuggestedRemedy

Replace the following definitions with xref's
The Editor should add a note to other parameter definitions which may be defined in existing std but are likely to change.
Pg 139 Ln 31; MAC_Control_type - This variable is defined in 64.2.2.1
Pg 140 Ln 5; localTime - This variable is defined in 64.2.2.2.
Pg 140 Ln 31; data_rx - This variable is defined in 64.2.2.3.
Pg 140 Ln 36; data_tx - This variable is defined in 64.2.2.3.
Pg 140 Ln 42; grantStart - This variable is defined in 77.2.2.3.
Pg 140 Ln 49; newRTT - This variable is defined in 64.2.2.3.
Pg 140 Ln 54; m_sdu_rx - This variable is defined in 77.2.2.3
Pg 141 Ln 4; m_sdu_tx - This variable is defined in 77.2.2.3
Pg 141 Ln 8; m_sdu_ctl - This variable is defined in 77.2.2.3
Pg 141 ln 25; opcode_rx - This variable is defined in 64.2.2.3.
Pg 141 ln 25; opcode_tx - This variable is defined in 64.2.2.3.
Pg 141 ln 44; stopTime - This variable is defined in 64.2.2.3.
Pg 141 ln 48; timestamp - This variable is defined in 64.2.2.3.
Pg 141 ln 53; timestampDrift - This variable is defined in 64.2.2.3.
Pg 142 ln 4; tqOffset - This variable is defined in 77.2.2.3
Pg 142 ln 9; transmitAllowed - This variable is defined in 64.2.2.3.
Pg 142 ln 17; transmitEnable - This variable is defined in 64.2.2.3.
Pg 142 ln 24; transmitInProgress - This variable is defined in 64.2.2.3.
Pg 142 ln 30; transmitPending - This variable is defined in 64.2.2.3.
Pg 144 ln 29; transmissionPending() - This function is defined in 64.2.2.4.
Pg 145 ln 3; packet_initiate_timer - This timer is defined in 64.2.2.5.
Pg 157 ln 49; data_rx - This variable is defined in 64.2.2.3.
Pg 157 ln 51; data_tx - This variable is defined in 64.2.2.3.
Pg 158 ln 8; - insideDiscoveryWindow - This variable is defined in 64.3.3.2.
Pg 158 ln 25; localTime - This variable is defined in 64.2.2.2.
Pg 158 Ln 28; m_sdu_ctl - This variable is defined in 77.2.2.3
Pg 158 ln 30; opcode_rx - This variable is defined in 64.2.2.3.

Pg 158 ln 38; registered - This variable is defined in 64.3.3.2.
Pg 159 ln 3; timestampDrift - This variable is defined in 64.2.2.3.
Pg 159 ln 13; discovery_window_size_timer - This timer is defined in 64.2.2.4.
Pg 159 ln 19; mpcp_timer - This timer is defined in 64.2.2.4.

Response *Response Status* **C**

ACCEPT.

Cl **103** *SC* **103.2.2.4** *P* **144** *L* **39** # 1286

Remein, Duane Huawei Technologies

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

Editors note should be removed

SuggestedRemedy

remove note

Response *Response Status* **C**

ACCEPT.

Cl **103** *SC* **103.1.2** *P* **131** *L* **7** # 1287

Remein, Duane Huawei Technologies

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

Clause numbering change from 102 to 103 didn't make it into figure 103-3

SuggestedRemedy

Change references to CL 102 to 103 in both figures. Where possible make references live.

Response *Response Status* **C**

ACCEPT.

Cl **103** *SC* **103.2.2.3** *P* **142** *L* **40** # 1288

Remein, Duane Huawei Technologies

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

Values are not specified for variables.

SuggestedRemedy

Remove "Value: {TBD}" here and in Line 49

Response *Response Status* **C**

ACCEPT.

Cl **103** *SC* **103.3.5.6** *P* **180** *L* **28** # 1289

Remein, Duane Huawei Technologies

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

Figure 103-30 still contains a reference to confirmDiscovery(data_rx[120:135])) in the PARSE GATE state. This function was removed in D0.3 via comment 1173. This instance of the function was missed. The operation statement is also missing a "then" (also true in 2012 STD).
Also some exit conditions mis-aligned (registered = TRUE, & gate_accepted = TRUE)

SuggestedRemedy

Remove the reference in Figure 103-30 so the operation reads:
"if (discovery * !registered) then gate_accepted <= TRUE"

aligned (registered = TRUE, & gate_accepted = TRUE)

Response *Response Status* **C**

ACCEPT.

Cl **56** *SC* **56.1.2** *P* **25** *L* **45** # 1290

Remein, Duane Huawei Technologies

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

Comment 1113 (copied below) from Draft 0.2 not implemented
Cl 00 SC 0 P 3 L 11 # 1113
Comment Type E
Marked text not being used consistently throughout the draft. Some Editors use colored text, some green highlighting, some red highlighting with no apparent consistency.
SuggestedRemedy
Pick one scheme and use it consistently.
Reccommend:
Magenta text for links that require updating
Yellow highlighting for text that may require other updates.
ACCEPT.
Applicable to all editors

SuggestedRemedy

Implement as agree by the TF

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Clause 56, change all instances of "XXX Mb/s" to "TBD Mb/s" without any colour marking.
Change "{EPoC_Signalling_Name}" to
"TBD signalling"
Change "a) {list of EPoC PMD types}" to "a) TBD"
Replace all text in green highlight with live links.

Cl **67** *SC* **67.6.1** *P* **36** *L* **48** # 1291

Remein, Duane Huawei Technologies

Comment Type **E** *Comment Status* **A** *Editor Notes*

There appears to be an editors note that is improperly mareked.

This also applied to
67.6.2 pg 37 ln 8 and
67.6.3 pg 36 ln 19

SuggestedRemedy

Preface with "EDITORS NOTE (to be remove prior to publication); " as agreed

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Preface with "EDITORS NOTE (to be removed prior to publication):"

67.6.1 pg 36 ln 48
67.6.2 pg 37 ln 8
67.6.3 pg 36 ln 19
67.3 pg 35 ln 15

Cl **101** *SC* **101.5.1** *P* **99** *L* **5** # 1292

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

Burst Markers (BM) are used to indicate Start and End of burst.
How do we differentiate between Start and End? There are 4 profiles for BM but none specific for Start and End of burst.

SuggestedRemedy

Have specific BM for Start and End.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

No specific changes to the draft proposed.

Cl **101** *SC* **101.5.4** *P* **99** *L* **40** # 1293

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

It is premature to decide on BM mapping scheme as the time 1-D to OFDMA 2-D mapping has not decided. Except for 1, 4 or 8 subcarriers, the Resource Block (RB) size has not been decided. Simulations have uncovered poor cross-correlation for some sequence alignment.

SuggestedRemedy

The BM ternary signaling scheme is a good idea and differentiates it from the data stream. We want to revisit the sequences and mapping when the RB size and 1-D to 2-D has been decided.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

No specific changes to the draft proposed.

Cl **101** *SC* **101.5.4** *P* **99** *L* **40** # 1294

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

If the BM size if larger than the RB, do we truncate the BM? Or span it across multiple RB? What is the rule?

SuggestedRemedy

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

It is a question, without a comment. No specific change to the draft proposed.

Cl **101** *SC* **101.5.4** *P* **100** *L* **1** # 1295

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

It is stated that the BM elements are interleaved with the data and Table 101-11 a mapping. If there is data, there are pilots. The upstream pilot structure and RB has not been decided. What do we do when a BM element fall into a pilot location?

SuggestedRemedy

Pilot locations are usually fixed and cannot be moved. We need a mapping that takes into account the pilot location. It is premature to decide on a mapping as the RB and pilot structure has not been decided.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

No specific changes to the draft proposed.

Cl **101** *SC* **101.5.5** *P* **100** *L* **23** # 1296

Montreuil, Leo Broadcom

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

It is mentioned that there are four sequences for four profiles. Do we need profiles? If yes, how many profiles do we need?

SuggestedRemedy

We need to decide how many profile we need first. Second, we need to decide how to signal the multiple profiles.
There are alternate ways to signal the profile. For example, we could have two unique Nulls patterns, one for Start and another one for End. The multiple profiles could be indicated by the non-nulls BPSK symbols.
To improve robustness, the Nulls pattern could be optimized as a 2-D pattern instead of a 1-D pattern (note: RBs are 2-D).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add an editors note:
"EDITORS NOTE (to be removed prior to publication); the TF has agreed that only one US profile is allowed to be in use at a time by all CNUs. Text to support this position is requested from the TF"

For: 15
Against: 0
Abstain: 3

Cl **101** *SC* **101.5.5** *P* **99** *L* **52** # 1297

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

Simulations indicate that BM sequences are optimized for the BM preceded and followed immediately by the OFDMA data stream. Because of the granularity of the RB and the 1-D to 2-D mapping, it is likely that we need to schedule idle time between OFDMA burst from different CNU.

SuggestedRemedy

We may need to design sequences that exploit the silence between burst to improve robustness and decrease the overhead.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

No changes to the draft proposed. The comment seems more a discussion on the approved text, than a comment against the draft itself.

Cl **101** *SC* **101.5.1** *P* **99** *L* **11** # 1298

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

There are two type of signaling for the BM, a ternary signaling and a two level BPSK signal. Why do we need two type of signaling?

SuggestedRemedy

Should we drop one scheme?

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

No specific changes to the draft proposed.

Cl **101** *SC* **101.5.5** *P* **100** *L* **37** # 1299

Montreuil, Leo Broadcom

Comment Type **TR** *Comment Status* **D**

The ratio of Nulls (N) to non-nulls (P) is 1/4. Simulations show that at low SNR the robustness is limited by the false detection rate.

SuggestedRemedy

N/P = 1/2 appears to be optimal for the ternary sequence. Two sequences with N/P = 1/2 could be designed for Start and End marker. The profiles could be encoded in the P elements of BM.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

No changes to the draft proposed.

Cl **100** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* **715** # 1300

Leo, Montreuil Broadcom

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

The 25 KHz carrier spacing has large latency while providing minimal gain in throughput.

SuggestedRemedy

Recommend removing the 25 KHz subcarrier spacing (8K FFT) for both downstream and upstream. We should instead focus on the 4K FFT.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response in comment 1359

Cl **100** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* **1415** # 1301

Leo, Montreuil Broadcom

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

The max number of subcarriers is not needed. What is important is the number of active subcarriers on line 17 and 18.

SuggestedRemedy

Remove "Maximum Number of Subcarriers per FFT" from table 100-1.

Response *Response Status* **C**

ACCEPT.

Cl **100** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* **1718** # 1302

Leo, Montreuil Broadcom

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

The "Number of Data Subcarriers per FFT" is 3801 and 7601. There is problems of scalability when multiple OFDM blocks are used next to each other. Two blocks of 4K FFT is 7602 subcarriers.

SuggestedRemedy

To solve this problem, I recommend setting the max to 3800 and 7600.
Note: If the 8K FFT is removed from spec, it will be 3800 for this item.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In addition to as suggested change"Number of Data Subcarriers per FFT" to "Maximum Number of Data Subcarriers per FFT"

Cl **101** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* # 1303

Leo, Montreuil Broadcom

Comment Type **TR** *Comment Status* **A** *Cl 45*

I could not find in the document a list of Cyclic Prefix for downstream. There are 5 CP: 0.9375 µs (192 * Ts), 1.25 µs (256 * Ts), 2.5 µs (512 * Ts), 3.75 µs (768 * Ts) and 5 µs (1024 * Ts).

SuggestedRemedy

Add CP to the spec. To simplify the standard, should the 0.9375 us and the 5 us removed?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add Table 101-xx
CP Size: 256 * Tsd (1.25 µs), 512 * Tsd (2.5 µs), 768 * Tsd (3.75 µs)."

Tsd = sample clock period (1/204.8 MHz)

For: 19
Against: 0
Abstain: 1

Cl **101** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* # 1304

Leo, Montreuil Broadcom

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

I could not find in the document a list of OFDM windows for downstream. There are 5 OFDM Window: 0 µs (0 * Ts), 0.15625 µs (32 * Ts), 0.3125 µs (64 * Ts), 0.625 µs (128 * Ts), 0.9375 µs (192 * Ts) and 1.25 µs (256 * Ts).

SuggestedRemedy

Add the OFDM window to the spec. Recommend removing the 0.15625 us window as it is not useful and too close to the 0 us case already in the table. Note: The 0.15625 us window is only in the downstream, not in the upstream.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add to Table 101-xx (see comment 1303)
Downstream OFDM Window: 0 * Tsd (0 µs), 64 * Tsd (0.3125 µs), 128 * Tsd (0.625 µs), 192 * Tsd (0.9375 µs) and 256 * Tsd (1.25 µs)"

For: 20
Against: 0
Abstain: 0

Cl **101** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* # 1305

Leo, Montreuil Broadcom

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

I could not find in the document a list of Cyclic Prefix for uptream. There are 16 CP that have been approved (to many to list here).

SuggestedRemedy

Add CP to the spec. There are too many options for CP size. It is not useful and add complexity. I recommend reducing the options to: 0.9375 µs (192 *Ts), 1.25 µs (256 *Ts), 1.5625 µs (320 *Ts), 1.875 µs (384 *Ts), 2.1875 µs (448 *Ts), 2.5 µs (512 *Ts), 2.8125 µs (576 *Ts), 3.125 µs (640 *Ts), 3.75 µs (768 *Ts) and 5.0 µs (1024 *Ts).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add Table 101-yy
Upstream Cyclic Prefix 256 * Tsd (1.25 µs), 384 *Ts (1.875 µs), 512 * Tsd (2.5 µs), 640 *Ts (3.125 µs), 768 * Tsd (3.75 µs)."

For: 20
Against: 0
Abstain: 0

Cl **101** *SC* **2.3.1.1 Table 100-1** *P* **42** *L* # 1306

Leo, Montreuil Broadcom

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

I could not find in the document a list of OFDM Window for downstream. There are 8 OFDM window that have been approved: 0 µs (0 * Ts), 0.3125 µs (64 * Ts), 0.625 µs (128 * Ts), 0.9375 µs (192 * Ts), 1.25 µs (256 * Ts), 1.5625 µs (320 * Ts), 1.875 µs (384 * Ts) and 2.1875 µs (448 * Ts).

SuggestedRemedy

Add the OFDM windows to the spec. Recommend removing the 0.15625 us window as it is not useful and too close to the 0 us case already in the table. I also recommend reducing the number of windows and make it the same as downstream by removing the 1.5625 µs (320 * Ts), 1.875 µs (384 * Ts) and 2.1875 µs (448 * Ts).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to Table 101-yy (see comment 1305)
Upstream OFDM Window: 0 * Tsd (0 µs), 64 * Tsd (0.3125 µs), 128 * Tsd (0.625 µs), 192 * Tsd (0.9375 µs) and 256 * Tsd (1.25 µs)"

For: 20
Against: 0
Abstain: 1

Cl **100** *SC* **100.1.4** *P* **38** *L* **3** # 1357

Laubach, Mark Broadcom

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

Figure 1 was taken from the wrong file. This figure was to be used if the Task Force approved the NCP change into the data channel. Since that was not approved, the figure that was accepted as part of laubach_3bn_04c_1113.docx

SuggestedRemedy

Use the figure from kliger_3bn_01b_1113.vsd

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Use figure in "kliger_3bn_01b_1113.pdf"

Cl **100** *SC* **100.2.3.1** *P* **40** *L* **16** # 1358

Laubach, Mark Broadcom

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

"CEA" is neither defined or referenced before use.

SuggestedRemedy

1) Define and provide references with reference to North America.
2) Provide some statements about internationalization and where to go.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Rather than refer to these as CEA channels, we will call out that they are 6 MHz channels and remove all CEA channel references from the document. This does not change based upon region - all fidelity requirements are expressed solely in terms of 6 MHz channels.

Cl **00** *SC* **100.2.3.1.1** *P* **42** *L* **12** # 1359

Laubach, Mark Broadcom

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

As a simplification and option reduction exercise for the Task Force, remove all references to 8K FFT and 40 usec symbols and their use throughout the P802.3bn specfication for FDD mode. Consider also for TDD mode.

SuggestedRemedy

Remove 8K FFT, including 40usec symbols and all dependencies from the P802.3bn specification for FDD (and possibly including TDD) operating mode(s).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove 8K FFT, including 40usec symbols and all dependencies from the P802.3bn specification for both TDD and FDD.

Vote:
For: 21
Against: 0
Abstain: 0

Cl **101** *SC* **101.3.5.1.3.2** *P* **87** *L* **2** # 1360

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *FEC Counters*

Add variable for CNU RX FEC codeword counter.

SuggestedRemedy

CNU_RX_FEC_CodeWord_Count
TYPE: 32-bit unsigned integer
This variable is incremented for every datain codeword received.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment needs to be considered together with #1360, #1361, #1362, #1363, #1364, #1365, #1366, #1367. In the future, please include all associated changes in a single comment / file, to make sure they are considered accordingly.

Insert the following variable into definitions in 101.3.5.1.3.2 Variables

FecCodeWordCount
TYPE: 32-bit unsigned integer
This variable is incremented for every received FEC codeword. After reaching 0xFF-FF-FF-FF, this variable is set to 0x00-00-00-00.

Cl **101** *SC* **101.3.5.1.3.2** *P* **87** *L* **2** # 1361

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *FEC Counters*

Add variable for CNU RX FEC codeword CRC failed counter.

SuggestedRemedy

CNU_RX_FEC_CodeWord_Fail
TYPE: 32-bit unsigned integer
This variable is incremented for every datain codeword received with failed CRC-40.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment needs to be considered together with #1360, #1361, #1362, #1363, #1364, #1365, #1366, #1367

Insert the following variable into definitions in 101.3.5.1.3.2 Variables

FecCodeWordFail
TYPE: 32-bit unsigned integer
This variable is incremented for every received FEC codeword for which the decoding process failed. After reaching 0xFF-FF-FF-FF, this variable is set to 0x00-00-00-00.

Cl **101** *SC* **101.3.5.1.3.2** *P* **87** *L* **2** # 1362

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *FEC Counters*

Add variable for CNU RX FEC codeword CRC success counter.

SuggestedRemedy

CNU_RX_FEC_CodeWord_Fail
TYPE: 32-bit unsigned integer
This variable is incremented for every datain codeword received with successful CRC-40.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment needs to be considered together with #1360, #1361, #1362, #1363, #1364, #1365, #1366, #1367

Insert the following variable into definitions in 101.3.5.1.3.2 Variables

FecCodeWordSuccess
TYPE: 32-bit unsigned integer
This variable is incremented for every received FEC codeword for which the decoding process completes successfully. After reaching 0xFF-FF-FF-FF, this variable is set to 0x00-00-00-00.

Cl **101** *SC* **101.3.5.1.3.2** *P* **87** *L* **2** # 1363

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *FEC Counters*

Add variable for CNU RX MAC frame counter, only if this counter is not already present somewhere else in the PHY.

SuggestedRemedy

CNU_RX_FEC_MAC_Frame_Count
TYPE: 32-bit unsigned integer
This variable is incremented for every received 64B/66B/65B decoded block where the Sync Header indicates Terminate.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

At this location, we are still operating on 65-bit blocks, so we cannot compare it to 66-bit long Terminate sequence.
Furthermore, definition is incorrect, since SyncHeader alone does not indicate Terminate sequence - it is the whole sequence in 66 bit block that indicates that.

Cl **101** *SC* **101.3.5.1.3.5** *P* **88** *L* **31** # 1364

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *FEC Counters*

Add codeword counter increment to block.

SuggestedRemedy

In DECODE_CACULATE_CRC40 add:
CNU_RX_FEC_CodeWord_Count++

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment needs to be considered together with #1360, #1361, #1362, #1363, #1364, #1365, #1366, #1367

Figure 101-12-FEC Decode, input process state diagram (CNU), insert in the state DECODE_CACULATE_CRC40 at the bottom of the state:

"FecCodeWordCount++"

Figure 101-12-FEC Decode, input process state diagram (CNU), insert in the state RESET at the bottom of the state:

"FecCodeWordCount <= 0"

Cl **101** *SC* **101.3.5.1.3.5** *P* **88** *L* **38** # 1365

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *FEC Counters*

Add codeword failed counter increment to block.

SuggestedRemedy

In DECODE_FAILED add:
CNU_RX_FEC_CodeWord_Fail++

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment needs to be considered together with #1360, #1361, #1362, #1363, #1364, #1365, #1366, #1367

Figure 101-12-FEC Decode, input process state diagram (CNU), insert in the state DECODE_FAILED at the bottom of the state:

"FecCodeWordFail++"

Figure 101-12-FEC Decode, input process state diagram (CNU), insert in the state RESET at the bottom of the state:

"FecCodeWordFail <= 0"

Cl **101** *SC* **101.3.5.1.3.5** *P* **88** *L* **38** # 1366

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *FEC Counters*

Add codeword success counter increment to block.

SuggestedRemedy

In DECODE_SUCEESS add:
CNU_RX_FEC_CodeWord_Sucess++

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment needs to be considered together with #1360, #1361, #1362, #1363, #1364, #1365, #1366, #1367

Figure 101-12 FEC Decode, input process state diagram (CNU), insert in the state DECODE_SUCCESS at the bottom of the state:

"FecCodeWordSuccess++"

Figure 101-12 FEC Decode, input process state diagram (CNU), insert in the state RESET at the bottom of the state:

"FecCodeWordSuccess <= 0"

Cl **101** *SC* **101.3.5.1.3.5** *P* **88** *L* **43** # 1367

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *FEC Counters (terminate)*

Add PHY MAC Frame counter, if not counted elsewhere.

SuggestedRemedy

In SEND_DATA_OUT, add the following or similar:
If Sync_Header(tx_coded<65:0>) == Terminate; then
CNU_RX_FEC_MAC_Frame_Count++

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

At this location, we are still operating on 65-bit blocks, so we cannot compare it to 66-bit long Terminate sequence.

Cl **101** *SC* **101.5.1** *P* **99** *L* **3** # 1368

Laubach, Mark Broadcom

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

Header says "Intro" but jumps right into Burst Marker description. This is assumed to be by position an Introduction to the PMA, not a sub-functions.

SuggestedRemedy

Fix to provide separate intro, subsections, etc. Following block functions from PHY Path Diagram, etc.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Immediately below 101.5.1 add a
1) Editors note reading
"EDITORS NOTE
(to be removed prior to publication) content required for this introduction."
2) new section 101.5.1 "Burst Markers"
Change the level of sections 101.5.2 throught 101.5.5 to header level 4.

Cl **101** *SC* **101.5.1** *P* **99** *L* **5** # 1369

Laubach, Mark Broadcom

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

While this is a good starting point for Burst Markers, it is premature given that Task Force has not made any technical decisions on the foundation architecture in which Burst Markers need to operate: Resource Block architecture, 1D-to-2D mapping, pilot distribution/insertion algoritm, interleaving, use of guard bands, etc.

SuggestedRemedy

Add and Editor's Note stating that the section on Burst Markers is a preliminary start and will be updated pending further Task Force decisions on: Resource Block architecture, 1D-to-2D mapping, pilot distribution/insertion algoritm, interleaving, use of guard bands, etc.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The draft includes current TF approved material. Adding an Editor's Note essentially overrides decision of TF from last meeting. If needed, a vote on this comment will be taken at the F2F meeting.
Also comment is technical and not editorial in nature.

Cl **101** *SC* **101.5.4** *P* **99** *L* **41** # 1370

Laubach, Mark Broadcom

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

Based on previous TF decision in pietsch_3bn_01_0513.pdf, resource block architecture will consist of N-subcarriers x M-symbols (frame width) that forms a frame. Within the frame, there will be other elements, a known pilot patterns all part of OFDM processing and then data. Burst Markers as presented as another form of modulated data (non an OFDM processing element and the modulation rate may be different than the data; e.g. ternary) that do not displace pilots or the other elements. The wording seems to indicate that burst markers may displace more than data, which doesn't seem consistent.

SuggestedRemedy

Recommend clarity and consistency with pietsch_3bn_01_0513.pdf

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

No specific changes to the draft were proposed. Editor does not feel sufficiently qualified to interpret what is clear and consistent withpietsch_3bn_01_0513.pdf

Cl **101** *SC* **101.5.5** *P* **99** *L* **53** # 1371

Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **R**

Does "Gold Sequence" needs some a reference or is it sufficiently well understood in the art?

SuggestedRemedy

Add reference if necessary.

Response *Response Status* **C**

REJECT.
Editor does not feel qualified enough to propose such a reference, and none was provided by the commenter. No changes to the draft at this time.

Cl **101** *SC* **101.5.5** *P* **100** *L* **1** # 1372

Laubach, Mark Broadcom

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

In Table 101-11, the arrows on "OFDM Symbols" and "subcarriers" that was in rahman_syed_3bn_01_1113.pdf are missing from the Table.

SuggestedRemedy

Add the arrows or enumerate the X and Y axis that this table represents.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The order of the subcarriers in rahman_syed_3bn_01_1113.pdf seems to be inverted from what is represented by the actual indices i.e., B1, B5, B9, etc. Seems that the numbering increases from the top to the bottom and not from the bottom to the top.

Insert editorial note requestign clarification on direction in which subcarrier and OFDM symbol numbering increases along X and Y axes.

Cl **101** *SC* **101.5.5** *P* **100** *L* **31** # 1373

Laubach, Mark Broadcom

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

The text in lines 31 through 44 were not present in rahman_syed_3bn_01_1113.pdf and therefore not approved by the Task Force. Why are they present in the draft?

SuggestedRemedy

Remove this unapproved text from the draft.

Response *Response Status* **C**

ACCEPT.

Cl **101** *SC* **101.3.4** *P* **68** *L* **30** # 1374

Laubach, Mark Broadcom

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

Two comments in figure: 1) "64B/66B" should reflect 65B in some manner so as to indicate this specification is doing 65B encoding/decoding, 2) "FEC encode" should be "FEC/CRC" to reflect addition of CRC-40.

SuggestedRemedy

Change the labels to "64B/66B/65B" and "FEC/CRC", respectively, or similar.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the Label "FEC" to "FEC/CRC"

Cl **101** *SC* **101.3.4** *P* **69** *L* **14** # 1375

Laubach, Mark Broadcom

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

Two comments in figure: 1) "64B/66B" should reflect 65B in some manner so as to indicate this specification is doing 65B encoding/decoding, 2) "FEC encode" should be "FEC/CRC" to reflect addition of CRC-40.

SuggestedRemedy

Change the labels to "64B/66B/65B" and "FEC/CRC", respectively, or similar.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The encoder we use is 64B/66B and then we selectively drop one bit. As such, the name of the encoder is correct as is.

CRC represents only one consituting feature of the FEC frame, and not the function itself. For example, in the MAC sublayer, we do not include CRC8 or CRC32 in the sublayer name.

Cl **103** *SC* **103** *P* **127** *L* **1** # 1376
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **R**

There is no real evident markup on this clause following page 19 Lines 26 through 40. Also, make sure all changes are viewable via a black and white printer, following IEEE practice.

SuggestedRemedy

Fix this entire clause to show markup.

Response *Response Status* **C**

REJECT.
Not quite sure what "mark-up" the commenter is refering to. The CMP file is the only file which shows text mark-up and should not be commented on. Rejection based on no intent to change the draft due to this comment.

Cl **103** *SC* **103.1** *P* **127** *L* **35** # 1377
Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **R**

Somewhere in here, lines 35-49 or more need to summarize use of active and passive spectrum for FDD and TDD.

SuggestedRemedy

Add some informative text to explain active vs passive media and spectrum, and use for FDD and TDD modes.

Response *Response Status* **C**

REJECT.
I would question the addition of such text to Cl 103 which addresses MPCP. Perhaps the commenter would like this text in Cl 100?

Cl **103** *SC* **103.1** *P* **127** *L* **46** # 1378
Laubach, Mark Broadcom

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

"This clause does not deal with" raises two comments 1) is there a clause that does deal with this, then provided references, and/or 2) perhaps it is mean to say indicate that the topics are outside the scope of this specification.

SuggestedRemedy

Replace the jargon "deal with" and provide references if necessary.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The clause does not address ("deal with") lots of things that are out of scope as these are. However, this text is a direct copy from Cl 77. That said the Editor would not be averse to striking the para.

Cl **103** *SC* **103.1** *P* **128** *L* **40** # 1379
Laubach, Mark Broadcom

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

Figure 103-2. There is a gray region to the right of the "US Transmitter ON". There is no label for this region or the same one to the far left.

SuggestedRemedy

Remove these regions from the figure or label them, conforming to description in the text. Add informative text as needed.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Remove gray area in figure.
On pg 127 ln 38 Change sentence reading "To facilitate the transitions from one direction to the other, guard intervals are typically inserted between transmission windows."
to:
"To facilitate the transitions from one direction to the other and to accommodate Transmitter on/off times, guard intervals are typically inserted between transmission windows."

Cl **103** *SC* **103.1.1** *P* **129** *L* **9** # 1380

Laubach, Mark Broadcom

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

c) implies only one LLID per CNU, which appears then to be a restrictive statement.

SuggestedRemedy

Support one or more LLIDs per CNU

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the statement to:
"c) Support a single LLID per CNU MAC"

Cl **103** *SC* **103.1.1** *P* **129** *L* **13** # 1381

Laubach, Mark Broadcom

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

f) which timestamp is this? Is this the MPCP timestamp or other 32-bit timestamp in the system?

SuggestedRemedy

Qualify/describe which timestamp this is in just this bullet.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Changed comment from ER to TR
Change bullet "f" from :
"f) Use of 32 bit timestamp for timing distribution"
To:
"f) Use of 32 bit MPCP timestamp for MAC Control timing distribution"

Cl **56** *SC* **56.1.2** *P* **25** *L* **17** # 1382

Laubach, Mark Broadcom

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

Avoid term "coaxial PMD", to avoid confusion with previous 802.3 coaxial PMDs where 802.3 "owned" the coax cable: 10Base2, 10Base5. In this standard, EPoC is another service offering on the network.

SuggestedRemedy

Uniformly substitute with "coaxial network PMD" or "CCDN PMD" or equivalent as a distingushing qualifier. Do not use "coaxial cable".

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

There is only one instance of this term in the whole draft.

Change "coaxial PMD" to "PMD" without further qualifier.

Cl **56** *SC* **5.1.2** *P* **25** *L* **44** # 1383

Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **R**

For both a) and b): If we are doing "up to" bit rates, then use the bit rates from the Task Force Objective. Somewhere there needs to be a an statement that the bit rate will be dependent on deployment conditions and provisioning of the cable operator; i.e. based on plant conditions and RF spectrum assigned at deployment time.

SuggestedRemedy

Response *Response Status* **C**

REJECT.

Bit rates we defined in Task Force are not precise enough to be used in this table. Furthermore, the exact number depends on the number of 192MHz spectrum channels that get allocated, which is operator specific.

Also, comment does not provide proposed change.

Cl **56** *SC* **1.3** *P* **28** *L* **10** # 1384
Laubach, Mark Broadcom

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

Line 10 and 12, an example of distinquishing "coaxial cable"

SuggestedRemedy

Use "CCDN" or "coaxial network"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "coaxial cable" to "CCDN" in Table 56-1.

Cl **67** *SC* **6.1** *P* **35** *L* **48** # 1385
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **A** *Editor Notes*

Is this an Editor's note?

SuggestedRemedy

Be consistent, add "Editors Note" or similar to distinguish.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See #1291

Cl **67** *SC* **6.3** *P* **36** *L* **24** # 1386
Laubach, Mark Broadcom

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

Can hardly read what appears to be gray on a b&w printout.

SuggestedRemedy

make darker, bolder, whatever.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Follow mark-up per front matter.

Cl **902** *SC* **902.1** *P* **107** *L* **9** # 1387
Laubach, Mark Broadcom

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

"typically", hmm, anything else is the PLC used for?

SuggestedRemedy

Remove "typically"

Response *Response Status* **C**

ACCEPT.

Cl **902** *SC* **902.1** *P* **107** *L* **12** # 1388
Laubach, Mark Broadcom

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

"simple" query response is not complete, broadcast is also used.

SuggestedRemedy

Replace with "broadcast combined with straightforward query response" or something similar.

Response *Response Status* **C**

ACCEPT.

Cl **902** *SC* **902.1** *P* **107** *L* **8** # 1389
Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **R**

This paragraph can be updated to be more accruate.

SuggestedRemedy

Place holder. Either I'll provide with this comment or submit for next time.

Response *Response Status* **C**

REJECT.
No suggested remedy. The editor encourages submission of appropriate text.

Cl **902** *SC* **902.1.1** *P* **108** *L* **17** # 1390

Laubach, Mark Broadcom

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

Need to show Intial and Fine Ranging probe structures also. Adapt text to describe. Provide editors notes and placeholders if awaiting on baseline.

SuggestedRemedy

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

No suggested remedy. The editor encourages submission of appropriate text.

Cl **902** *SC* **902.1.1** *P* **108** *L* **6** # 1391

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *PHY-Link CRC*

For both downstream and upstream PLC, add a standard CRC 32 to cover the information word of the PLC FEC codeword.

SuggestedRemedy

Add a standard CRC32 to cover the downstream and upstream FEC information word portion of each FEC codeword. Adapt all figures, text, etc. to indicate.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment 1265

Cl **902** *SC* **902.1.2** *P* **109** *L* **22** # 1392

Laubach, Mark Broadcom

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

Section and Figure 902-3 should be labled as "Downwstream". Upstream PLC path processing will also include Initial and Fine ranging block functions. In addition, downstream PLC has to include both NCP and Timestamp insertion functions as per the accepted PHY path block diagram.

SuggestedRemedy

Label as "downstream" as appropriate. Update Figure 902-3 to reflect components in approved downstream PHY path diagram, with augmentation as necessary for more detailed PLC funtions.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add editors note to review the diagram with respect to US/DS functionality.

Cl **902** *SC* **902.1.1** *P* **109** *L* **20** # 1393

Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *PHY-Link frame*

Should include some informative description and text to indicate alignment of downstream PLC cycle with data channel, etc.

SuggestedRemedy

Editors can create.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Normative text for this exists in the overview pg 107 ln 13: "When operating in TDD mode the PHY Link frame shall be aligned with the TDD Frame. When operating in FDD mode the PHY Frame shall be aligned with the staggered pilot pattern as described in {ref}."

Cl **902** *SC* **902.2.1.1** *P* **112** *L* **28** # 1394

Laubach, Mark Broadcom

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

Spelling "locater"

SuggestedRemedy

"located"

Response *Response Status* **C**

ACCEPT.

Cl **902** *SC* **902.1.1** *P* **112** *L* **29** # 1395
Laubach, Mark Broadcom

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

Spelling "frequecy"

SuggestedRemedy

"frequency"

Response *Response Status* **C**

ACCEPT.

Cl **902** *SC* **902.2.1.1** *P* **112** *L* **29** # 1396
Laubach, Mark Broadcom

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

"which determines" shoudl be "that determines". Need to provide better text to describe why some of the normative decisions promote faster location identification and acquisition of the PLC channel

SuggestedRemedy

Place holder for this round, or will provide more in text comment round.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Replace "which" with "that"

Cl **902** *SC* **902.2.1.1** *P* **112** *L* **36** # 1397
Laubach, Mark Broadcom

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

what does "for information" mean?

SuggestedRemedy

remove?.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change from:
"In the DS direction the PHY-Link shall be allocated 400 kHz of spectrum for information."
To:
"In the DS direction the PHY-Link shall be allocated 400 kHz of the RF Channel spectrum."

Cl **902** *SC* **902.2.2** *P* **116** *L* **1** # 1398
Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **D**

Table 902-1 is normative

SuggestedRemedy

Add normative indication to table title.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The normative statement is clearly indicated in the reference on pg 115 ln 34: "The CLT shall modulate the subcarriers in the DS PHY-
^^^^
Link preamble (the first eight symbols in the PHY-Link frame) using binary phase-shift keying (BPSK), as shown in Table 902–1 or Table 902–3 depending on the FFT size and …"

Cl **902** *SC* **902.2.2** *P* **116** *L* **21** # 1399
Laubach, Mark Broadcom

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

Table 902-2 is informative

SuggestedRemedy

Add informative indication to table title.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add a statement on pg 115 after ln 34 which begins: "The CLT shall modulate the subcarriers in the DS PHY-Link preamble (the first eight symbols in the PHY-Link frame) using binary phase-shift keying (BPSK), as shown in Table 902–1 ..."
"Table 902-2 is provided for information purposes and illustrates the receiver processing of the PHY Link preamble."

Cl **902** *SC* **902.2.3** *P* **117** *L* **1** # 1400
Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **D**
Table 902-3 is "normative"

SuggestedRemedy
Add normative indication to table title.

Proposed Response *Response Status* **Z**
REJECT.

This comment was WITHDRAWN by the commenter.

The normative statement is clearly indicated in the reference on pg 115 ln 34: "The CLT shall modulate the subcarriers in the DS PHY-
^^^^
Link preamble (the first eight symbols in the PHY-Link frame) using binary phase-shift keying (BPSK), as shown in Table 902–1 or Table 902–3 depending on the FFT size and …"

Cl **902** *SC* **902.2.3** *P* **117** *L* **32** # 1401
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D**
Table 902-4 is informative

SuggestedRemedy
Add informative indication to table title.

Proposed Response *Response Status* **Z**
REJECT.

This comment was WITHDRAWN by the commenter.

Changed to from ER to TR.
Given the effort to reduce complexity in the specification perhaps it would be easier to remove the table.

Cl **902** *SC* **902.2.3** *P* **118** *L* **31** # 1402
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D**
is this an editors note?

SuggestedRemedy
Label as Editor's Note or remove.

Proposed Response *Response Status* **Z**
REJECT.

This comment was WITHDRAWN by the commenter.

Label as Editor's Note

Cl **902** *SC* **902.2.3** *P* **118** *L* **32** # 1403
Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **R**
Seems appropriate to add informative text here, if needed on relation of PLC channel to data channel

SuggestedRemedy
Add any text to promote informational clarity.

Response *Response Status* **C**
REJECT.
No suggested remedy. The editor encourages submission of appropriate text.

Cl **902** *SC* **902.2.4.1** *P* **119** *L* **41** # 1404
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **A**
Define what is in a profile

SuggestedRemedy
Definitions and normative text needed to explain and define profiles and requirements. Otherwise, add editors note and ask for baseline.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.
Add editors note:
"EDITORS NOTE (to be removed prior to publication): Definitions and normative text needed to explain and define the profile and its' requirements."

Cl **902** *SC* **902.4** *P* **125`** *L* **4** # 1405
Laubach, Mark Broadcom

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

PHY Discovery included in Auto-Negotiation

SuggestedRemedy

Suggestion, rename: "PHY Auto-Negitation Process", include discovery if needed as a subsection.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

See comment 1408

Cl **902** *SC* **902.4** *P* **125** *L* **8** # 1406
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **R**

More enumeration needed to describe what goes on and achieved during EPoC Auto-Negotiation. What general items that must get set in a CNU can be listed.

SuggestedRemedy

Placeholder, or will expand later. Leave editors note.

Response *Response Status* **C**

REJECT.
The proposed list already exists in Table 103-10.

Cl **902** *SC* **902.4** *P* **125** *L* **13** # 1407
Laubach, Mark Broadcom

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

"in and"

SuggestedRemedy

missing text between "in" and "and" should be filled in or fixed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add reference to Table 102–7—Required parameters for PHY Discovery Response and Link-Up. (Table 902-10)

Cl **902** *SC* **902.4** *P* **125** *L* **26** # 1408
Laubach, Mark Broadcom

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

A "PHY Discovery Response" is better or also called an Initial Ranging Response.

SuggestedRemedy

Either replace with Initial Ranging or add a parenthetical.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Globally Replace "PHY Discovery" with "PHY Initial ranging process"

Cl **902** *SC* **902.4** *P* **125** *L* **42** # 1409
Laubach, Mark Broadcom

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

which upstream channel (data or PLC) and what type of guard band, time and/or frequency? With 1D to 2D mapping, is this for the data channel? Efficiency of the PLC upstream isn't really a concern or something to optimize.

SuggestedRemedy

Add appropriate descriptive text to clarify data vs PLC and what type of guard band.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Change from:
"In order to assure maximum utilization of the upstream channel and to decrease the required size of the guard band between individual data bursts ..."
to:
"In order to assure maximum utilization of the upstream RF channel and to decrease the required size of the guard band between individual data bursts …"

Cl **902** *SC* **902.4** *P* **125** *L* **43** # 1410

Laubach, Mark Broadcom

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

"notifies the CLT of the RF on/off times"... not clear why and/or how this is needed or used.

SuggestedRemedy

Provide informative lead in on this.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Previous sentence (clarified in comment 1409) provides lead-in. This variable is also a carry over from Laser ON/OFF time used in EPON and is used in numerous state diagrams.

Cl **902** *SC* **902.4** *P* **127** *L* **36** # 1411

Laubach, Mark Broadcom

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

Is this an Editor's note" If so, label. Also add Initial Ranging to the statement.

SuggestedRemedy

Add Editor's note label and "Intial Ranging and " to the note text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Reformat as Editors note.
"EDITORS NOTE (to be removed prior to publication): fine ranging to be described elsewhere as this is also a part of ongoing channel maintenance."

Cl **902** *SC* **902.5** *P* **127** *L* **38** # 1412

Laubach, Mark Broadcom

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

Is Wide Band Probing part of the PLC since it needs to be coordinated with MPCP?

SuggestedRemedy

Add Editors note that the mechanism for coordinating Wide Band probling with MPCP is still T.B.D. as well as any interoperation with the PLC.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add note:
"EDITORS NOTE (to be removed prior to publication): the mechanism for coordinating Wide Band probing with MPCP is still T.B.D. as well as any interoperation with the PHY-Link."

Cl **101** *SC* **table101-12** *P* **101** *L* # 1413

Rahman, Syed Huawei

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

The last 4 entries of the table (61,62,63,64) were cutoff during conversion from MS word to PDF.
The editor has shaded these lines.

SuggestedRemedy

Please remove the shade.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Also remove editors note on previous page ln 46-47.

Cl **102** *SC* **102.5.3** *P* **121** *L* **36** # 1414

Rahman, Syed Huawei

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

reference to incorrect figure number.

SuggestedRemedy

Please replace "Figure-2" with "Figure 102-8"

Response *Response Status* **C**

ACCEPT.

Cl **102** *SC* **102.5.3** *P* **121** *L* **42** # 1415
Rahman, Syed Huawei

Comment Type **ER** *Comment Status* **A**
Please close the parenthsis

SuggestedRemedy
(as illustrated in Figure 102-9)

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

Cl **902** *SC* **902.1** *P* **107** *L* **17** # 1429
Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **A**
A PLC frame should have several codewords in it, this text implies it has only one

SuggestedRemedy

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.
Clause was 902.1, Subclause was blank.

Change from:
"Each frame is composed of a fixed header, one or more PHY Instructions or PHY Responses, padding and FEC parity."
To:
"Each frame is composed of a fixed header, one or more PHY Instructions or PHY Responses, and padding; encoded in multiple FEC codewords."

Cl **902** *SC* **902.1.1 figure 902-1** *P* **108** *L* **5** # 1430
Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **A**
The figure showa a single FEC codeword between Preambles. There should be 10 codewords between preambles with the FEC defined in figure 902-9 for PLC and the 128 symbols between preambles

SuggestedRemedy

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.
Clause was 902.1, Subclause was figure 902-1. Page number and line were blank.

See comment 1265 & remein_3bn_02_0114.pdf

Cl **902** *SC* **902.1.2.1** *P* **109** *L* **52** # 1431
Kliger, Avi Broadcom

Comment Type **E** *Comment Status* **A**
change convert to converted

SuggestedRemedy

Response *Response Status* **C**
ACCEPT.
Clause was 902.1, Subclause was 100.2.6.3.

Cl **902** *SC* **902.2.3** *P* **118** *L* **32** # 1432
Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **A**
The interleaver is actually the write horizontally read vertically that is descibed above

SuggestedRemedy

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.
Remove the statement beginning ". Additional text needed …"

Cl **902** *SC* **902.2.4.1** *P* **118** *L* **43** # 1433
Kliger, Avi Broadcom

Comment Type **E** *Comment Status* **A**
TBD = 64 , the preamble is described above to have 8*8 or 64 bits

SuggestedRemedy

Response *Response Status* **C**
ACCEPT.
Clause was 902.2, Subclause was blank.

Cl **902** *SC* **902.2.6** *P* **121** *L* **50** # 1434

Kliger, Avi Broadcom

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

information bits - this is the usual term for the payload bits in the FEC word as opposed to parity bits.

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Clause was 902.2, Subclause was blank.
Change:
"In this step, called the shortening step, one or more information bits {inforamtion bits of what??} are filled with 0 and the rest are filled with input bits."
To:
"In this step, called the shortening step, one or more FEC information bits are filled with 0 and the rest are filled with PHY-Link data bits."

Cl **902** *SC* **902.2.2** *P* **115** *L* **42** # 1435

Kliger, Avi Broadcom

Comment Type **E** *Comment Status* **R**

preamble may consist of 8 or 16 subcarriers depending on the symbol size

SuggestedRemedy

Move scrambler to the FEC encoder output and descrambler to the FEC decoder input

Response *Response Status* **C**

REJECT.
Clause was 902.2, Subclause was "F".

The suggested remedy does not appear to correlate with the comment.

Cl **902** *SC* **902.3.5** *P* **124** *L* **44** # 1436

Kliger, Avi Broadcom

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

Why is this information required?

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Cremove the line beginning "the a TBD {16-32} bit local clock …"

Cl **902** *SC* **902.4** *P* **125** *L* **29** # 1437

Kliger, Avi Broadcom

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

The PHY discovery response messages are long in order to enable good reception and avoid interference, backoff algorithm whithin a discovery window will require a very long window, this needs to be discussed by the group
Mayb better to backoff PHY discovery opportunities

SuggestedRemedy

Response *Response Status* **C**

REJECT.
Clause was 902.4, Subclause was blank.

No suggeseted change to the draft.

Cl **902** *SC* **902.4** *P* **125** *L* **32** # 1438

Kliger, Avi Broadcom

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

"It should be noted" should be a requirement for the CLT : MUST? SHOULD? MAY?

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See resolution to comment 1439

Cl **902** *SC* **902.4** *P* **125** *L* **32** # 1439

Kliger, Avi Broadcom

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

"multiple valid PHY Discovery Responses can be received by the
CLT during a single discovery window. I" provided that they are not overlapping in time

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Clause was 902.4, Subclause was blank.

Change from:
"It should be noted that multiple valid PHY Discovery Responses can be received by the CLT during a single discovery window."
To:
"Multiple valid PHY Discovery Responses that do not overlap in time may be received by the CLT during a single discovery window."

Cl **902** *SC* **902.4** *P* **125** *L* **4245** # 1440

Kliger, Avi Broadcom

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

This text is not clear to me. Why is this required? The CLT knows when data arrived. The CLT can let the CNU know by how much it needs to change its transmission start time (relative timing)

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove the para starting "In order to assure …" and the preceeding editors note.

Cl **902** *SC* **902.4** *P* **126** *L* **4** # 1441

Kliger, Avi Broadcom

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

The PHY discovery response signals need to be specified as it is a special sugnal.
The description of this signal has been adopted by the group

SuggestedRemedy

Response *Response Status* **C**

REJECT.
Clause was 902.4, Subclause was blank.

No suggested remedy

Cl **101** *SC* **101.3.4.3** *P* **77** *L* **45** # 1442

Laubach, Mark Broadcom

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

Add Editor's Note regarding status of technical decision on the upstream FEC. Hopefully to help motivate baseline text contribution for the next meeting. Adjust wording as desired.

SuggestedRemedy

Editor's note: There is sufficient Task Force decisions TD#81, TD#95 and TD#102 to permit baseline contribution for this section.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add note as follows:
"EDITORS NOTE (to be removed prior to publication); There are sufficient technical decisions TD#81, TD#95 and TD#102 to permit baseline contribution for this section, the authors are encouraged to proposed baseline text."

Cl **101** *SC* **101.3.5.1** *P* **81** *L* **23** # 1443

Laubach, Mark Broadcom

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

Add Editor's Note regarding status of technical decision on the upstream FEC. Hopefully to help motivate baseline text contribution for the next meeting. Adjust wording as desired.

SuggestedRemedy

Editor's note: There is sufficient Task Force decisions TD#81, TD#95 and TD#102 to permit baseline contribution for this section.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
"EDITORS NOTE (to be removed prior to publication); There are sufficient technical decisions TD#81, TD#95 and TD#102 to permit baseline contribution for this section, the authors are encouraged to proposed baseline text."

Cl **902** *SC* **902.1.4** *P* **112** *L* **5** # 1444

Laubach, Mark Broadcom

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

Figure 902-6 inadvertently picked up the incorrect 16-QAM constellation (from the DOCSIS 3.1 text). It should be as adopted by the Task Force in TD#103 in prodan_3bn_01_1113.pdf for EPoC constellation mappings.

SuggestedRemedy

Update the mapping to be (as per BZ Shen):

```
 3 | 8   C   4   0
 1 | 9   D   5   1
-1 | B   F   7   3
-3 | A   E   6   2
     ----------------
      -3  -1   1   3
```

Response *Response Status* **C**

ACCEPT.