Cl **00** *SC* *P* *L* # 3568

Kliger, Avi Broadcom

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

missing text

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
And then some

Cl **00** *SC* **0** *P* **111** *L* **49** # 3517

Laubach, Mark Broadcom

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

From Peter: The 802.3 web page has: Since Boolean is named after George Boole the capitalization Boolean should always be used (and not boolean) with the exception of the MIB clauses and annexes described below.

Search and replace throughout the draft

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **162** *L* **45** # 3592

Remein, Duane Huawei

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

This is the first of two instances where active subcarrier is defined (active subcarrier used 37x).
"Subcarriers that are not configured as excluded are active subcarriers."

SuggestedRemedy

Change the following locations to include the definintion:
Cl 100 pg 87 ln 23 so the line reads:
"summation of bit per subcarrier for all active subcarriers (subcarriers that are not configured as excluded are active subcarriers):"

Cl 101 pg 160 ln 49 so the line reads:
"that are configured to carry data (subcarriers that are not configured as excluded are active subcarriers). See 101.4.2.8.

Remove all other instances of the phrase.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **214** *L* **24** # 3599

Remein, Duane Huawei

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

Add PICS for Clause 101, 102 & updaste PICS in 103

SuggestedRemedy

See remein_3bn_02_0515.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **234** *L* **32** # 3400

Remein, Duane Huawei

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

PhyLnkRspTm is not reflected in CL 45 registers.
However PhyLnkRspTm is defined as 16 bits in Cl 102 pg 241 ln 11 which equates to 300+ us. Whereas on pg 238 ln 35 the is a max response time of 4.8 ms.

SuggestedRemedy

Add new register
45.2.1.aaa PHY Link Response Time register (Register 1.19xx)
The assignment of bits in the PHY Link Response Time register is shown in Table 45-xxx. Bits 1.19xx15:0 indicate of the amount of time needed by the upstream PHY Link to respond to an EPoC MessageBlock instruction in the downstream PHY Link. These bits are a reflection of the PhyLnkRspTm variable defined in 102.2.6.3.

Add new table for Registers 1.19xx & 1.19xy

Add variable and Cl 45 cross reference to Table 102-3

Change definition of PhyLnkRspTm from:
"in OFDM clocks' to
"in units of 78.125 ns (12 x 1/204.8)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
As proposed but units to be:
""in units of 78.125 ns (16 x 1/204.8)""

Cl **00** *SC* **0** *P* **27** *L* **1** # 3535

Laubach, Mark Broadcom

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

Make sure the use of RBsize and definitions are all TRUE and FALSE and not "1" and "0" respectively throughout the draft. As per 101.4.3.3.5 (page 188), TRUE is for 16 symbols, and FALSE is for 8 symbols.

SuggestedRemedy

Editors: make it so.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **3** *L* **11** # 3448

Remein, Duane Huawei

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

Remove notes about magenta text, yellow highlighting, and PICS from within Editors Note, remove yellow highlights throughout draft,
change all magenta text to black

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **38** *L* **25** # 3441

Remein, Duane Huawei

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

If we are consistently using FEC Encoder we should probably also use FEC Decoder universally.
Likewise for 64B/66B encode(r) and 64B/66B decode(r)

SuggestedRemedy

Globally replace
"FEC decode" (3x) and "FEC decoder" (18x) with
"FEC Decoder"

"64B/66B encode" (1x) and 64B/66B encoder (2x) with
"64B/66B Encoder"

"64B/66B decode" (1x) and 64B/66B decoder (11x) with
"64B/66B Decoder"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **38** *L* **29** # 3430

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *CRC40ErrCtrl Rev*

Apparently "every 8th block" in the following confuses some folks:
"If CRC40ErrCtrl is TRUE and the calculated value of CRC40 does not match the value of CRC40 retrieved from the received FEC codeword, the FEC decoder replaces bit <0> and <1> in the sync headers in first 64B/66B block and every 8th 64B/66B block, e.g. 1st, 9th, 17th, 25th, etc. as well as the last 64B/66B block from the errored FEC codeword with the binary value of "11"."

SuggestedRemedy

Change 45.2.1.131.2 to read:
"Bit 1.1900.2 is used to control marking of frames with CRC40 errors to higher layers as described in 101.3.3.1.4."

Remove the Editors note

In Cl 101, SCl 101.3.3.1.4, pg 149, ln 28 change sentence to read:
"If CRC40ErrCtrl is TRUE and the calculated value of CRC40 does not match the value of CRC40 retrieved from the received FEC codeword, the FEC decoder replaces bit <0> and <1> in the sync headers in first 64B/66B block and every 8th 64B/66B block, (i.e., if Mod(N/8) = 1 where Mod return the remainder and N is the block number) as well as the last 64B/66B block from the errored FEC codeword with the binary value of "11"."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **38** *L* **51** # 3433

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *TxEnable Rev*

EDITORS NOTE (to be removed prior to publication): Transmit Enable and it's reflected variable TxEnable, need to be rationalized against tx_enable (also referred to as Tx_Enable and TX_ENABLE) used in EPON clauses. Note that EPoC clauses use TxEnable exclusively except in Cl 100 which has 3 instances of tx_enable.

See related comment on TxEnable SCl 102.4.3 Pg 264 Ln 12

SuggestedRemedy

Remove Editors Note.
Change 17 instances of TxEnable to PD_Enable.

At Pg 38 ln 45, Pg 38 ln 9, Change 2 instances of
"Transmit enable"
To
"PHY Discovery enable"

SCl 102.2.6.3 Pg 241 ln 30: change the definition of PD_Enable from:
"This variable enables the device to transmit onto the media when TRUE. It is set to FALSE following initialization and every reset."
To:
"This variable enables the device to respond to a PHY Discovery window and transmit onto the media when TRUE. It is set to FALSE following initialization and every reset. It is set to TRUE after all elements required for PHY Discovery listed in Table 102-13 have been written by the CLT."

SCl 102.1.8 Pg 225 Ln 29: change row in Table 102-3 from:
"Transmit enable 10GPASS-XR control 1.1900.0 TxEnable 0 0"
To:
"PHY Discovery enable 10GPASS-XR control 1.1900.0 PD_Enable 0 0"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **54** *L* **45** # 3594

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *TimeSync Rev*

Add new registers and variables to support Timesync.

SuggestedRemedy

45.2.1.160 PHY Delay registers (1.1948 through 1.1949)
The assignment of bits in the PHY Delay registers is shown in Table 45-98ad.

Table 45-98ad PHY Delay registers bit definitions
Bit(s) | Name | Description | R/Wa
1.1948.15:0 | PHY differential delaylower | Difference in delay between XGMII to MDI path and MDI to XGMII path, low order | RO
1.1949.3:0 | PHY differential delay upper | Difference in delay between XGMII to MDI path and MDI to XGMII path, high order | RO
1.1949.15:4 | PHY differential delay precision | Precision of PHY differential delay | RO

45.2.1.160.1 PHY differential delay (1.1948.15:0 through 1.1949.3:0)
Bits 1.1948.15:0 and 1.1949.3:0 form a 20-bit signed integer that the PHY manufacturer uses to declare the difference in delay between the XGMII interface to the MDI interface path and the MDI interface to the XGMII interface path in units of 1/204.8 MHz. These bits are a reflection of the DiffDelay variable.

45.2.1.160.2 XGMII to MDI delay tolerance (1.1949.15:4)
Bits 1.1949.15:4 form a 12-bit integer that the PHY manufacturer uses to declare the tolerance of the PHY differential delay parameter in units of 1/204.8 MHz. These bits are a reflection of the DiffDelayTol variable.

Pg 115 ln 26 Change
"100.6 Timesync capability"
To
"100.6 Time of day synchronization capability
See 101.6 for PHY requirements pertaining to time of day synchronization."

Pg 214 ln 17 Change
"101.6 Timesync capability"
To
"101.6 Time of day synchronization capability
EPoC PHYs may support time of day synchronization using the IEEE 1588 protocol. EPoC PHYs that are intended to support IEEE 1588 shall support the variables in 101.6.1."

Add two items to PICS based on the above option and conditional requirement.

Add:
101.6.1 Variables
DiffDelay
TYPE: 20-bit signed integer
This variable declares the difference in delay between the XGMII interface to the MDI interface path and the MDI interface to the XGMII interface path in units of 1/204.8 MHz. The variable may be updated by the PHY when any of the parameters listed in Table 102-13 are changed.

DiffDelayTol
TYPE: 12-bit integer
This variable declares the tolerance of the DiffDelay variable in units of 1/204.8 MHz. The variable may be updated by the PHY when any of the parameters listed in Table 102-13 are changed."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **54** *L* **45** # 3595

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *TimeSync Rev*

Add new registers and variables to support Timesync.

SuggestedRemedy

Add:
45.2.1.161 PHY Link Differential TS registers (1.1950 through 1.1951)
The assignment of bits in the PHY Link Differential TS registers is shown in Table 45-98ae.

Table 45-98ae PHY Link Differential TS registers bit definitions
Bit(s) | Name | Description | R/Wa
1.1950.15 | PHY Link differential TS Valid | Value of PHY Link differential TS is valid| RW
1.1950.14:8 | Reserved | Value always 0| RO
1.1950.7:0 | PHY Link differential TS | Difference between LocalTS and received timestamp | RO
1.1951.15 | Reserved | Value always 0| RO
1.1951.14:0 | CNU to Capture[b] | CNU on which to capture | PHY Link differential TS | RW
aR/W = Read/Write, RO = Read Only
bvalid only for CLT, in CNU this register is reserved and always read as zero.

45.2.1.161.1 PHY Link differential TS Valid (1.1950.15)
When bit 1.1950.15 has a value of 1 it indicate that the value in PHY Link differential TS is valid. When this bit is 0 the value in PHY Link differential TS may be invalid. This bit is a reflection of the PhyLnkDiffTS_Valid variable defined in 101.6.1.

45.2.1.161.2 PHY Link differential TS (1.1950.7:0)
Bits 1.1950.7:0 report the difference between the LocalTS (see 102.2.6.2) and the value of the timestamp received in the PHY Link message. These bits are a reflection of the PhyLnkDiffTS variable defined in 101.6.1.

45.2.1.161.3 CNU to Capture (1.1951.14:0)
Bits 1.1951.14:0 indicate on which CNU the value of PhyLnkDiffTS is calculated. Only for timestamps received from the CNUs whose CNU_ID matches the value of these bits are used in the calculation. These bits are only valid in the CLT, in the CNU they are reserved and always read as zero. These bits are a reflection of the PhyLnkDiffTS_CNU variable defined in 101.6.1.

Add to 101.6.1:
"PhyLnkDiffTS
Type: 8-bit signed integer
This variable records the difference between the LocalTS and the timestamp in the most recently received PHY Link message. In the CLT the value is calculated only for the CNU indicated by the PhyDiffTS_CNU variable and is only valid when PhyDiffTS_Valid is TRUE.

PhyLnkDiffTS_CNU
TYPE: 14-bit integer
In the CLT the value of PhyLnkDiffTS is calculated only for timestamps received from the CNUs whose CNU_ID matches the value of PhyDiffTS_CNU. This variable exists only in the CLT.

PhyLnkDiffTS_Valid
TYPE: Boolean
In the CLT the value of PhyLnkDiffTS is only valid when this variable is TRUE. The PhyLnkDiffTS_Valid variable is set to FALSE by any write to PhyLnkDiffTS_CNU."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **63** *L* **36** # 3487

Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *magenta Rev*

Cross references for "100", "101", "102", and "103".
Remove magenta color.

All other clause change to "external" character tag.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt # 3448 (topic "magenta")
Rev - meaning of {Cross references for "100", "101", "102", and "103"} not at all clear to this Ed.

Cl **00** *SC* **30.3.2.1.2** *P* **388** *L* **14** # 3578
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *CL30*

Page/line references to P802.3bx Section 2, Clause 30, Draft 3.0.

Page 388, Line 14:
Create editors directive to update aPhyType. Place the following line in alphanumeric order after "10/1GBASE-PRX", underlined:

"10GPASS-XR<tab>Clause 100 and 101 up to 10 Gb/s 64B/66B OFDM downstream and up to 1.7 Gb/s 64B/66B OFDMA upstream"

Clause 30.3.2.1.3, Page 388, Line 48.

Repeat the above instructions to add a new line to aPhyTypeList after "10/1GBASE-PRX".

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add Cl 30
Then per comment.

Cl **00** *SC* **30.5.1.1.2** *P* **432** *L* **10** # 3577
Laubach, Mark Broadcom

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

Page/line references to P802.3bx Section 2, Clause 30, Draft 3.0.

Page 432, Line 10:
Create editors directive to update aMAUType. Please the following line in alphanumeric order after "10GBASE-PR-U4", underlined:

"10GPASS-XR<tab>Coax cable distribution network PCS/PMA up to 10GBd continuous downstream / burst mode upstream as specified in Clause 101"

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See Cmt# 3578

Cl **01** *SC* **n/a** *P* **23** *L* **3** # 3451
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Change per remein_3bn_12_0515.pdf
(on behalf of P Anslow, see anslow_3bn_01_0515.pdf)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* *P* **101** *L* **5** # 3466
Laubach, Mark Broadcom

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

Line 5 and in Table 100-8: all short dashes to Ctrl-q Shft-p
Line 5 and 17: asterisk to Control+q 4
Line 38: spacing missing before "142"
Line 46: lower case all put start of sentence and variable name.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100** *P* **75** *L* **29** # 3493
Laubach, Mark Broadcom

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

Put this above the heading for Clause 100 on the next page as per the template.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.1** *P* **76** *L* **1** # 3495

Laubach, Mark Broadcom

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

In clause title, lower case words to meet guidelines: "Physical Medium Dependent (PMD) sublayer, and medium for coaxial distribution networks, type 10GPASS-XR"

SuggestedRemedy

as commented

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.1** *P* **76** *L* **1** # 3494

Laubach, Mark Broadcom

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

Make sure all external cross references in this clause have a character tag of "External".

SuggestedRemedy

as per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
This applies to all clauses. Editors need to do a sanity check.

Cl **100** *SC* **100.1** *P* **76** *L* **6** # 3496

Laubach, Mark Broadcom

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

Line 6: Insert "the" to make: "describes the Physical"
Line 7: Change "PHY" to "PHYs"
Line 8: Delete ", relative to the MAC/PLS service interface"
Lines 35 and 38: Add comma "direction, respectively"

SuggestedRemedy

as commented.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.1** *P* **76** *L* **8** # 3562

Kliger, Avi Broadcom

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

There is no support for upto 10 Gbps in the upstream in these specifications. 1.8 Gbps can be supported as indicated in section 56 and 1.6 Gb/s somewhere else

SuggestedRemedy

Change text accordingly

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
For upstream laubach_3bn_15_0914.xlxs predicts 1.7 Gb/s in upstream with 4.4% pilot overhead. Suggest making it "up to 1.7 Gb/s" for upstream consistent in all places.

Cl **100** *SC* **100.1.3** *P* **79** *L* **1** # 3481

Laubach, Mark Broadcom

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

The changed position of the PMD_SIGNAL_request() to be just before the IDFT does not give sufficient lead time for conventional RF power amplifier turn on times. Need to acommodate up to 100 us of turn on time. Moving signal generation back to the data detector satisfies this lead in timing.
1) Update Figure 100-3 to move PMD_SIGNAL.request() back up to be an output of the Data Detector.
2) Page 85, Line 33, change "PMA" to "PCS data detector".
3) CL 101.4.3.8.2, Page 201, Line 46 to 54, remove text and remove editor's note.
4) CL 101.3.3.5.7, Page 142, Line 19. Insert this paragraph at the end of the transferToPMA description, as part of the description: "CNU only operation: upon initialization of the CNU, the PMD_SIGNAL.request(tx_enable) primitive is set to the value OFF. When burstStart is TRUE, the CNU sets the PMD_SIGNAL.request(tx_enable) primitive to the value ON, instructing the PMD sublayer to start the process of turning the RF power amplifer ON (see Figure 100-3 and 100.2.9.7). When burstEnd is TRUE, the CNU sets the PMD_SIGNAL.request(tx_enable) primitive to the value OFF, instructing the PMD sublayer to start the process of turning the RF power amplifier off."
5) Clause 100, 100.2.9, Page 106, Line 16, Add new subclause "100.2.9.8 CNU RF power amplifier time reporting requirements" as per laubach_3bn_1X_0515.pdf and process the other editing directives.
6) Clause 103, 103.3.2.4, Page 295 Line 42. Replace "The CLT shall not grant less than TBD time_quanta into the future, in order to allow the CNU processing time when it receives a gate message. The CNU shall process all messages in less than this period. The CLT shall not issue more than one message every TBD time_quanta to a single CNU." with "The CLT shall not issue more than one message every 1024 time_quanta to a single CNU. The CNU shall process all messages in less than this period. The CLT shall not issue a gate message than 1024 time_quanta plus <ital>rfOnTimeCapability<ital>. into the future. The unit of time_quantum is defined in 77.2.2.1."

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
File not provided as per comment.

Cl **100** *SC* **100.1.4** *P* **82** *L* **7** # 3499

Laubach, Mark Broadcom

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

Line 7: insert command to make "rates, respectively"
Line 19: "Phy" to "PHY"
In Table 100-1:
Line 53: "Upper" to "upper"
Page 83
Line 18: remove blank row
Lines 20 to end of table: change all "Type" to "type" in first column of each row.
Page 84
Lines 16 through 24: Change "RxMER" to "receive MER" in first two columns of each row where present.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.1.5** *P* **82** *L* **33** # 3413

Remein, Duane Huawei

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

CLT_TxMute (as in Cl 45 & 100.3.4) or just TxMute?

SuggestedRemedy

Change Entry in Table 100-1 to CLT_TxMute.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.1.5** *P* **83** *L* **20** # 3538

Kliger, Avi Broadcom

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

Table 100-1 does not support modulation type (bit loading) profiles for 5 DS channels

SuggestedRemedy

Add entries for modulation types for all channels or a channel indicator

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
May need an information note to explain how this works or may need to update variables as per the remedy.

Cl **100** *SC* **100.2.1** *P* **84** *L* **36** # 3500
Laubach, Mark Broadcom

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

Cross reference "Clause 100"

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.1.1** *P* **85** *L* **4** # 3501
Laubach, Mark Broadcom

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

Line 4: char tag External on cross ref
Lines 8 thorugh 46, add cross references to all Clause 100 and 101 mentions.
Line 40, "Clause 101" should be "Clause 100".
Line 46, remove "TBD", this was an accidental typo leftover from last round edits.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.1.1** *P* **85** *L* **8** # 3555
Kliger, Avi Broadcom

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

"symbol" is usedd in various places to describe a resource elements, and is also used in conjunction with OFDM symbol.
In oteher places modulation symbol or I/Q value pair are used

SuggestedRemedy

Replace symbol with modulated symbol or I/Q value pair where applicable

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Note: Subclause 100.2.1.1 is on Delay constraints and is not the target of this comment.
Line 8: replace "symbol" with "modulated symbol"

Cl **100** *SC* **100.2.10.1** *P* **106** *L* **27** # 3572
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Disregard earlier comment to only remove the Editor's note without creating a variable.
Delete editors note. Create variable name: "Target Receive Power",
type signed integer "This is the configured target receive power for the CLT upstream receiver, represented in 0.1 dB steps. See Table 100-12." Value: 0 (default). Editors to add to appropriate clause tables and clause 45 as needed.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.10.1** *P* **106** *L* **30** # 3584
Laubach, Mark Broadcom

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

1) Change "Upstream" to "upstream"
2) Line 32, Cross reference should be to Table 100-12. Update it.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.10.2** *P* **107** *L* **30** # 3470
Laubach, Mark Broadcom

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

Line 30: ",," to ","
Lines 45-53: remove trailing ".0" form numbers in second column.,

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.12.1** *P* **108** *L* **50** # 3471
Laubach, Mark Broadcom

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

Table 100-14:
Set the Orphan Rows for this table to a more reasonable value (3)
Page 109:
Lines 12 and 13 Lower case of second, and second and third parameter words
Line 12 "ohms" to omega symbol
Lines 15 and 17, "-" to "to"

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.12.1** *P* **109** *L* **17** # 3525
Laubach, Mark Broadcom

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

Remove last row of Table 100-14 and attached Table footnote. No longer need with prior frequency changes.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.12.1** *P* **109** *L* **9** # 3523
Laubach, Mark Broadcom

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

Update Table 100-14 as per laubach_3bn_12_0515.pdf (and fm)

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.12.2.1** *P* **109** *L* **53** # 3516
Laubach, Mark Broadcom

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

Table 100-15
Remove trailing ".0" in all numbers.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.12.3.1** *P* **11** *L* **54** # 3581
Laubach, Mark Broadcom

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

Insert new subclause on Channel Band Plan as contained in laubach_3bn_14.0515.pdf (and docx). Note that this addition includes adding a normative reference Clause 1.3.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.2** *P* **85** *L* **44** # 3588
Laubach, Mark Broadcom

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

Line 44: Change "shall convey" to "conveys"
Page 86, Line 3: same change.

Makes the Cl 100 PICS a little easier.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.4** *P* **85** *L* **34** # 3532

Laubach, Mark Broadcom

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

PMD_SIGNAL.request() generation is being moved back to the Clause 101 PCS if approved by the TF. See related comment #

Lines 33 and 34:
Change: "In the upstream direction, this primitive is generated by the Clause 101 PMA to turn on and off the transmitter
according to the presence of non-null data presented to the IDFT."
to: "In the upstream direction, this primitive is generated by the Clause 101 PCS to turn on and off the RF power amplifier in the Clause 100 PMD (see 100.2.9.x.)"

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.4** *P* **86** *L* **9** # 3510

Laubach, Mark Broadcom

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

Line 9: add cross reference to "Clause 100"
Line 44: question from Peter shouldn't it be "NS" for "not supported"? Mark note: there is no "NA" in Clause 1 appreviations, first use in section 1 is for "numerical aperture" in D.4.1.1. Section 2: Table 29-2 uses "NA" without any definition. Same in Section 3, Table 42-2. Same in Section 4, Table 52-19 and 53-11. Same in Section 5, Table 59-3. No use in Section 6
Line 58: insert comma before "respectively"

SuggestedRemedy

For line 44: discuss with TF on changing NA to NS everywhere or changing "supported" to something else or simply removing ", NA = not supported"
for other items, as per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Pending discussion with TF.

Cl **100** *SC* **100.2.5** *P* **86** *L* **39** # 3479

Laubach, Mark Broadcom

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

Table 100-2 change "O"s to "NA"s for upstream 8K and 16K QAM entries. These optional rates are meant for DS only, not US.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.5** *P* **86** *L* **41** # 3540

Kliger, Avi Broadcom

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

Table 100-2 includes Optional modulation formats. Are these optional at the transmitter, receiver or both? Is ther a corresponding capability register?

SuggestedRemedy

Specify where optional. If optional in the transmitter a capability register is required.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add "The CNU reports supported optional modulations to the CLT via <capability register name> see 102.x.x.x." or similar, if one exists.

Cl **100** *SC* **100.2.5** *P* **86** *L* **42** # 3539

Kliger, Avi Broadcom

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

8192-QAM and 16384-QAM are not applicable for the upstream

SuggestedRemedy

Correct table 100-2 accordingly

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Already done in comment #3479

Cl **100** *SC* **100.2.6** *P* **87** *L* **1** # 3511

Laubach, Mark Broadcom

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

Page 87:
Line 1: change "Date" to "Data" in title
Line 3: change "at MAC/PLS" to "at the MAC/PLS", drop "/PLS" form second use.
Line 4: change first "in" to "for"
Line 12: change variable text in FM to not hyphenate.
All clauses, editors to verify/change:
Line 15: remove "size (usec)" from end of sentence, "size" is already in sentence and usec is already in equation.
Line 18: change all "<mu>sec" to "<mu>s" in this clause as per style guide.
Line 37: change all "bits/sec" to "b/s" in this clause.
Line 43, change all "bps" to "b/s" in this clause.
Line 43: Remove trailing ".0" from "10.0" as from Peter: 1.2.6 says: "trailing zeros having no significance" so don't show them.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. Change fm Cl 00 SCl 0 to Cl 100 SCl 100.2.6

Cl **100** *SC* **100.2.6** *P* **87** *L* **4** # 3541

Kliger, Avi Broadcom

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

"data rate of at least 1.6 Gb/s". This is different than the data rate required in section 56 (1.8 Gbps)

SuggestedRemedy

Align th etwo specs

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Use same TF resolution as for comment #3562

Cl **100** *SC* **100.2.6** *P* **88** *L* **14** # 3543

Kliger, Avi Broadcom

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

Equation 100-2 doesnt take the FEC overhead into account.

SuggestedRemedy

Multiply by the max US FEC Rate

Proposed Response *Response Status* **W**

PROPOSED REJECT.
PCS overheads are not included in this calculation. This is the PMA raw data rate, see laubach_3bn_15_0194.xlxs

Cl **100** *SC* **100.2.6.1** *P* **87** *L* **26** # 3542

Kliger, Avi Broadcom

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

Equation 100-1 doesnt take the FEC overhead into account.

SuggestedRemedy

Multiply by the max DS FEC Rate

Proposed Response *Response Status* **W**

PROPOSED REJECT.
PCS overheads are not included in this calculation. This is the PMA raw data rate, see laubach_3bn_15_0194.xlxs

Cl **100** *SC* **100.2.6.1** *P* **87** *L* **37** # 3381

Remein, Duane Huawei

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

DS_DataRate & DS_DataRate have no defined data type (although they are well defined).

SuggestedRemedy

Add new section 100.2.6.3 Variables
DS_DataRate
TYPE: UQ34.3 format
This variable indicates the downstream data rate in units of bps and is calculated as shown in Equation 100-1.

US_DataRate
TYPE: UQ34.3 format
This variable indicates the upstream data rate in units of bps and is calculated as shown in Equation 100-2.

Update reference in Cl 45.2.1.147 & 45.2.1.148 pg 50 ln 7 & 37

This comment should be changed to clause 00 after a proposed response is made.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.7.1** *P* **88** *L* **41** # 3512

Laubach, Mark Broadcom

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

Line 41 and 48: change first "is" to "are"

SuggestedRemedy

as per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.7.3** *P* **89** *L* **10** # 3415

Remein, Duane Huawei

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

US_FreqCh1 is not formally defined. This seems to be a logical place.

SuggestedRemedy

In 100.2.7.3 Variables Add
US_FreqCh1
TYPE: 16-bit unsigned integer
This variable specifies the center frequency, in steps of 50 kHz, of subcarrier 0 for the upstream OFDM channel. Subcarriers are numbered from 0 to 4095 with subcarrier 0 at the lowest frequency. This definition equates to a subcarrier 0 center frequency of from 5 MHz to 3.27675 GHz. The minimum value for this register is 100. See Table 100-11 for additional details.

Note currently there is no table for CNU RF output requirements but Table 100-11 seems to be similar

Update ref in 45.2.1.135.1 pg 43 ln 27 to 100.2.7.3

Note this comment is written against Cl 100 but should be changed to Cl 00 after a proposed response has been made.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.7.3** *P* **89** *L* **7** # 3513

Laubach, Mark Broadcom

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

Line 7: Change "54.0" to "54 MHz"
Line 8: Remove comma, change to "3276.76 MHz"
Line 26 and 52: Use the multiply symbol Ctrl-q 0
Line 52: "9.40" to "9.4" "190.00" to "190", "180.60" to "180.6"

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.7.3** *P* **89** *L* **7** # 3544
Kliger, Avi Broadcom

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

54 MHz is in the upstream frequency range

SuggestedRemedy

change 54 MHz to 258 MHz

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The integer range of this variable is larger than the DS requirements of 258 to 1218 MHz on both the low side and the high side. Does the TF wish to narrow the range of this variable or leave as is?

Cl **100** *SC* **100.2.8.1** *P* **89** *L* **40** # 3579
Laubach, Mark Broadcom

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

Remove ",with a minimum of 24 MHz," from the sentence as this is already specified in Table 100-3 as a requirement.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.2** *P* **90** *L* **17** # 3570
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Create a variable per downstream channel for OFDM channel power. Editor can pick the variable name. Type: unsigned integer. Description: "Downstream OFDM channel power expressed in increments of 0.2 dB. The value is set according to the requirements in Table 100-7.". Editors to add to appropriate clause tables and clause 45 as needed.

Remove editor's note on lin 17.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.2** *P* **90** *L* **26** # 3514
Laubach, Mark Broadcom

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

Line 26: change "-" to Ctrl-q Shft-p
Line 34: lower case letters for every word not starting a sentence and not for "OFDM".
In Table 100-3:
All rows: lower case all but first word in Parameter
Line 52: change "usec" to "us"
Page 91
Line 40: use omega symbol rather than "ohms"

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.2** *P* **90** *L* **45** # 3537
Laubach, Mark Broadcom

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

In Table 100-3, insert a new row before the first non-header row before "Frequency band". New parameter text "Downstream master frequency clock", value "10.24", and units "MHz".

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.2** *P* **92** *L* **5** # 3515
Laubach, Mark Broadcom

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

Line 5: Question on meaning for: "up to <+-> of the subcarrier". Replace "up to +- of the subcarrier" with "up to <+-> 50 kHz of the subcarriers' center frequencies"
Line 18: change "be meet" to "meet"
Line 21: lower case all but first word in table title

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.3** *P* **92** *L* **40** # 3533

Laubach, Mark Broadcom

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

A transcription error was made in the N* equation. In side the minimum function, change ceiling(Neqport'/4) to ceiling(Neqport/4) (i.e., drop the apostrophe).

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.3** *P* **93** *L* **23** # 3458

Laubach, Mark Broadcom

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

Line 23: fix "two rows above" as there is only one row above
Line 36: add apostrophe to "channels": From Peter: is this intended to be possessive? if so it should be channels'
Line 42: From Peter "These footnotes don't seem applicable to this table which is about power levels and not noise and spurious requirements."
Line 46: "all channel with 999", wording is broken

SuggestedRemedy

As per comment for lines 23 and 46.
Line 42: add draft text to explain what relaxations are and how to apply to this table.
Line 46: Change footnote to "Add 5 dB relaxation to the values specified above for noise and spurious emissions requirements in all channels with 999 MHz < center frequency of the noise measurement ? 1215 MHz. For example -73 dBc becomes -68 dBc." with appropriate Framemaker symbols.
For Table Footnotes a, b, and c, add the following to the send of each footnote: "Also see 100.2.8.5."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.4** *P* **92** *L* **40** # 3411

Remein, Duane Huawei

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

Eq 100-6 (N*) needs to be formatted with two conditions: something like
If Neqport = 1 then
N* = {factor1}
If Neqport > 1 then
N* = {factor2}
As it is now it is not clear exactly how N* is calculated.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Will consider best approach and present to TF.

Cl **100** *SC* **100.2.8.5** *P* **94** *L* **17** # 3596

Remein, Duane Huawei

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

The following statement is the only instance of the term inactive subcarrier.
"The CLT modulator shall satisfy the out-of-band spurious emissions requirements of Table 100-6 in gap spectrum between OFDM channels of at least 6 MHz and within exclusion bands within OFDM channels of at least 8 MHz, except for the 1 MHz of inactive subcarriers on each edge of any exclusion band, with relaxations as described in the following paragraphs when applicable."

As such is may be confusing.

SuggestedRemedy

Replace "inactive" with "excluded"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.5** *P* **94** *L* **40** # 3459

Laubach, Mark Broadcom

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

To prevent cross-refs splitting across lines: Format, Document, Text Options, delete the middle dash of three, Apply

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.5** *P* **95** *L* **49** # 3460

Laubach, Mark Broadcom

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

"wedged" is not a technical term. Replace word with "positioned"

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.5** *P* **96** *L* **30** # 3461

Laubach, Mark Broadcom

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

Line 30: lower case "Measured"
Line 41: comma before "respectively"
Line 50: Peter: what equation? This note is applied to the "Requirement (in dBc)" heading. There are no equations producing values in 0.5 dB steps in this column. Mark: this footnote used to point to EQ 100-6 that was embedded in the table, since we moved the eq out separately, this footnote can be removed if it is not longer needed.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.7** *P* **97** *L* **10** # 3462

Laubach, Mark Broadcom

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

Line 10: from Peter: what is this doing here? It is the only occurrence of DS_ChCnt in this clause.
Line 48: lower case "Superframe" in figure title.

SuggestedRemedy

As per comment for line 48. For line 10, queried CE for input.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.8.7** *P* **97** *L* **10** # 3414

Remein, Duane Huawei

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

The definition of variable DS_ChCnt can be better placed.

SuggestedRemedy

Move the definition to new section 100.2.6.3 Variables
Remove section 100.2.8.7

In 100.2.6.1 pg 87 ln 22 change
"The downstream Frame Data Load (bits) is a summation over all active channels, over 128 symbols, ..."
to
"The downstream Frame Data Load (bits) is a summation over all active channels, as define by DS_ChCnt, over 128 symbols, ..."

In equation on pg 87 line 26 change "5" above 1st summation symbol to "DS_ChCnt"
Add DS_ChCnt to Table 100-1 after DSNrp
DS OFDM channels | DS OFDM control | 1.1901.14:12 | DS_ChCnt | 1 | 14:12

In Cl 101.4.2.1 pg 160 ln 40 change
"Optional OFDM channels 2, 3, 4, and 5 are enabled when configured for operation."
to:
"Optional OFDM channels 2, 3, 4, and 5 are enabled when configured for operation via the DS_ChCnt variable."

Add to Table 101-1 after DS_TmIntrlv
DS OFDM channels | DS OFDM control | 1.1901.14:12 | DS_ChCnt | 1 | 14:12

In Cl 45.2.1.132.2 pg 39 ln 52 change
"TBD_Var_name" to "DS_ChCnt" and
"{ref}" to "100.2.6.3"

Note this comment is written against Cl 100 but should be changed to Cl 00 after a proposed response has been made.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.1** *P* **106** *L* **33** # 3583
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D**
Change cross reference from Table-11 to Table-12

SuggestedRemedy
As per comment.

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

Cl **100** *SC* **100.2.9.3** *P* **98** *L* **25** # 3463
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D**
Change dash to Ctrl-q Shft-p

SuggestedRemedy
As per comment.

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

Cl **100** *SC* **100.2.9.5.1** *P* **100** *L* **30** # 3476
Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **D** *Rev*
Replace table 100-7 as per laubach_3bn_10_0515.pdf. This removes the TBD. Editors Note on Line 33 no longer needed, delete.

SuggestedRemedy
As per comment.

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

Cl **100** *SC* **100.2.9.5.1** *P* **100** *L* **45** # 3465
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D**
Line 45: "2.0" to "2"
Line 54: lower cae "Specification" and "Interval"

SuggestedRemedy
As per comment.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
"lower case"

Cl **100** *SC* **100.2.9.5.1** *P* **99** *L* **18** # 3464
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D**
Line 18, 29, 30, and 45: dash to Ctrl-q Shft-p
Line 22: Esc n s
Line 53: change ".." to "."

SuggestedRemedy
As per comment.

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

Cl **100** *SC* **100.2.9.5.1** *P* **99** *L* **22** # 3475
Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **D**
Fix variable name so that it doesn't hypenate.

SuggestedRemedy
As per comment.

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

Cl **100** *SC* **100.2.9.5.3** *P* **102** *L* **17** # 3467
Laubach, Mark Broadcom

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

Line 3, 37: asterisk to fm multiply
Line 46: insert nonbreaking space in "400 kHz" to avoid line separation.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.5.3** *P* **102** *L* **41** # 3589
Laubach, Mark Broadcom

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

This paragraph is a duplicate shall for the paragraph on in CL 100.2.9.5.2 Page 101, Line 50 with the exception of the parenthetial phrase. This will confuse the PICS with duplicate shalls.

SuggestedRemedy

Remove the paragraph on page 102 at line 41.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.5.3** *P* **103** *L* **12** # 3468
Laubach, Mark Broadcom

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

In Table 100-9 all dashes to Ctrl-q Shft-p

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.5.4** *P* **103** *L* **32** # 3590
Laubach, Mark Broadcom

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

1) Change "ramp-up" to "RF power amplifier turn on" and "ramp-down" to "turn off".
2) Add a "see 100.x.x.x" cross reference at end of the sentence pointing to the subclause IFF the power amplifier turn on and turn off time text proposal gets accepted.
3)Line 39, add missing period at end of sentence.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.6.1** *P* **104** *L* **43** # 3534
Laubach, Mark Broadcom

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

How is "j" used in the equation?

Line 35, add a comma at end after "1"

SuggestedRemedy

Add a sentence to the "where:" list for eq 100-19:

"j is the jth subbcarrier in the burst." italicize each "j".

Line 35: add the comma at the end.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.7** *P* **105** *L* **30** # 3380
Remein, Duane Huawei

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

Change title of Table 100-11 from "CNU transmitter output signal characteristics" to "CNU RF output requirements" (to match the complementary CLT RF output requirements table 100-3)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.2.9.7** *P* **105** *L* **31** # 3474
Laubach, Mark Broadcom

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

Table 100-11 title should match CLT transmitter table header text.

Change "CNU transmitter output signal characteristics" to "CNU RF output requirements"

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See comment #3380

Cl **100** *SC* **100.2.9.7** *P* **106** *L* **8** # 3469
Laubach, Mark Broadcom

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

Line 8 to 12: lower case all but first Parameter word in first column.
Line 10: ohms to omeage symbol.
Line 24: add ctrl space to "6.4 MHz"
Lines 39 to 46: in second column all dashes to Ctrl-q Shft-p

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3** *P* **77** *L* **1** # 3497
Laubach, Mark Broadcom

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

In Figure 100-1:
Lines 17 and 41: Change "PR-type" to "XR-type"
Line 49, insert "CCDN coax cable distribution network" before CLT line.

SuggestedRemedy

as commented

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3** *P* **78** *L* **14** # 3571
Laubach, Mark Broadcom

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

Remove "Data Detector" from FEC Encoder box in Figure 100-2.
Page 79, Line 13: Add "Data Detector" to box FEC Encode in Figure 100-3.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3** *P* **79** *L* **28** # 3498
Laubach, Mark Broadcom

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

In Figure 100-3, avoid hypenating "PILOT".

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3.2** *P* **112** *L* **45** # 3576
Laubach, Mark Broadcom

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

Insert new test subclause after 100.3.2 as per laubach_3bn_13_0515.pdf

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3.3** *P* **114** *L* **25** # 3591
Laubach, Mark Broadcom

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

The sentence "When operating in one-CW-per-channel test mode the CLT shall be capable of generating the CW tone over the full range of Center Frequency in Table 100-16." essentially duplicates the "shall" on Line 1. Suggest deleting this second sentence from Line 25 to end of paragraph. Having these two similar "shalls" confused the PICS.

Also on line 2, change "the CW" to "a CW" or "any CW".

SuggestedRemedy

As per comment and TF selection.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3.3** *P* **114** *L* **3** # 3585
Laubach, Mark Broadcom

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

Move "In addition, the CLT shall be configurable in either one or both of the following conditions: " out of the first sub-bullet and place at the end of the preceding paragraph.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.3.4** *P* **114** *L* **31** # 3587
Laubach, Mark Broadcom

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

Move this text to the end of 100.3.1, remove 100.3.4 subclause header. There is a subclause for this material already. Update PICS.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.6** *P* **115** *L* **26** # 3456
Powell, Bill Alcatel-Lucent

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

100.6 Timesync Capability has no text at moment

SuggestedRemedy

Add suggested text from powell_3bn_02_0515.pdf

Proposed Response *Response Status* **W**

PROPOSED REJECT.
File not provided.

Cl **100** *SC* **100.6** *P* **115** *L* **27** # 3526
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Remove subclause and editors note. If we address this topic, it will be done in Clause 102 as it has to be coupled to the PHY Link time stamps.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.7** *P* **115** *L* **30** # 3518
Laubach, Mark Broadcom

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

From Peter: 1) this heading should be at the top of a new page as per the 802.3 template, 2) provide the rest of the PICS.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **100.7** *P* **115** *L* **31** # 3582
Laubach, Mark Broadcom

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

Add PICS subclauses to 100.7 as per laubach_3bn_15_0515.pdf (and fm).

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100** *SC* **110.3.1** *P* **112** *L* **14** # 3586
Laubach, Mark Broadcom

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

Change cross reference "Table 100-2" to "Table 100-3".

SuggestedRemedy

as per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A** *P* **346** *L* # 3521
Laubach, Mark Broadcom

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

Line 8: Peter commented: "These are all table notes and hence are informative"
Check with Peter to see if we need to change anything.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A.1** *P* **343** *L* **33** # 3519
Laubach, Mark Broadcom

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

From Peter: "meters is a lower case m and there should be a space between a number and its unit."
Change "50M" to "50 m" and "2M" to "2 m"

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A.1.3** *P* **347** *L* **24** # 3478
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

For creating Draft 1.4, a comparison was done between Table 100A-2 and the channel model spreadsheet in baseline_channel_model_3bn_01_0413.xlsx, worksheet "US Baseline". The value of "54" was incorrect as noticed in D1.3 and changed to "-50" to match the spreadsheet value. An editors note was added to make sure this technical value change is approved by TF in this comment resolution.
If the TF approves this comment, leave as "-50" and remove the editors note. If the TF wants the old value of "54" returned, then change the table cell text back to "54" and remove the editors note.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A.1.3** *P* **348** *L* **18** # 3477

Laubach, Mark Broadcom

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

Some DOCSIS or other jargon remains in the table notes.

Question on NOTE 6: assuming CM is cable modem, and needs to change to CNU, what does the "97% criteria" specfically refer to in this statement?

SuggestedRemedy

Line 18/19: NOTE 2, change "MSO" to "cable operator"
Line 23/24: NOTE 5, change "U/S" to "US"
Line 24/25: NOTE 6, change "Upstream CM" to "upstream CNU".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Still need clarification on "97% criteria".

Cl **100A** *SC* **100A.2** *P* **344** *L* **6** # 3520

Laubach, Mark Broadcom

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

Table 100A-1:
Line 5: "1.0" to "1", add non breaking space also.
Line 9: dash to space Ctrl-q Shft-p
Line 22: 54 to 1000 (Style manual)
Line 26 and elsewehre in able: dashes to Ctrl-q Shft-p
Lines 37 through 42: all "nsec" to "ns"
In table, fix dashes and usecs as per remedies in other
Page 346:
Lines 12 and 17: dash to Ctrl-q Shft-p
Line 26, font issue with "Echo mask..."
Line 27< "-" to " to "

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A.3** *P* **346** *L* **52** # 3522

Laubach, Mark Broadcom

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

Table 100A-2
Line 52: "-" to " to "
Page 347:
Fix dashes, usec, and nsec. Same as in previous comment for Table 100A-1.
Page 348:
Line 14: Nominal Conditions value is blank (empty) for 5 usec. Remove this row in the table.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A.3** *P* **347** *L* **23** # 3509

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Remove TBD from "nominal conditions" column.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **100A** *SC* **100A.3** *P* **347** *L* **29** # 3574

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Line 29: Change "(Non-white characteristics" and ")" to "Bandwidth", Change "TBD" to "Occupied spectrum". Leave table note 5 remaining.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **100.2.5** *P* **160** *L* **47** # 3597

Remein, Duane Huawei

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

Ability registers missing:
Optional DS Modulation Types
Optional US Modulation Types
Number of Supported DS OFDM Channels

consider changing the "O" in Table 100-2 for 8-QAM PHY Link CNU Tx/CLT Rx to either M or NA

SuggestedRemedy

See remein_3bn_03_0515.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Change from Cl 100.2.5 to 101.4.2.3 pg 160 ln 47

Cl **101** *SC* **101.2.4.3** *P* **123** *L* **39** # 3351

Remein, Duane Huawei

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

Change per remein_3bn_14_0515.pdf
(on behalf of P Anslow, see anslow_3bn_01_0515.pdf)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1** *P* **124** *L* **2** # 3376

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Unless there are other comments on this EN remove.
EDITORS NOTE (to be removed prior to publication) the TF need to do a thorough review of Idle control character deletion process as it is currently written to be applicable to both US & DS and these processes will be very different in EPoC where US/DS rates are different and US has multiple FEC's.

SuggestedRemedy

remove Ed Note

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.1** *P* **124** *L* **32** # 3435

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): we should specify a minimum precision for this number.
Range is~28.3 a U5.2 should be sufficient. (calc to right) However PHY_xS_Rate has 3 bits of significance so maybe using 3 sig bits for consistency would be good? So use U5.3.

SuggestedRemedy

Change:
"TYPE: real number"
to:
"TYPE: U5.3 format"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.2** *P* **124** *L* **54** # 3436

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): we should specify a minimum precision for this number.
Use Ux.3 for consistency with UD/DS Rate.
Same comment against Pg 125 ln 45 (PHY_OSizeFrac TYPE).

SuggestedRemedy

Pg 124 ln 54 Change:
"TYPE: real number"
"TYPE: U1.3 format"
Remove Ed Note

Pg 125 ln 45 Change:
"TYPE: real number"
"TYPE: U0.3 format"
Remove Ed Note pg 126 ln 1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.2** *P* **125** *L* **29** # 3385
Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Clear non-controversial TBDs in Clause 101

SuggestedRemedy

pg ln Replace with
125 29 UQ34.3 format fractional number [matches DS data rate precision]
194 36 Table 101-TBD -> Table 101-7
194 46 Table 101-TBD -> Table 101-7
195 11 Table 101-TBD -> Table 101-7
196 6 101.4.2.7
196 14 101.4.2.7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.2** *P* **125** *L* **9** # 3412
Remein, Duane Huawei

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

Need to rationalize the three 16-bit unsigned integer countVector's

Pg 125 ln 9
countVectorT - Counts ... as part of data rate adaptation and FEC overhead compensation. {used in Figure 101-2)
Pg 126 ln 36
countVectorF - Counts ... as part of the FEC overhead compensation sub-process. {used in Figure 101-4}
countVectorP - Counts ... as part of the data rate adaptation sub-process. {used in Figure 101-3}

SuggestedRemedy

At a minimum move countVectorT definition to 101.3.2.1.3 Counters instead of 101.3.2.1.2 Variables

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.2** *P* **126** *L* **44** # 3354
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Remove the following Editors Notes:
Pg Ln
126 44
126 51
129 41
208 18

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.3** *P* **126** *L* **11** # 3377
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Ed Note has served it's purpose.
"EDITORS NOTE (to be remove prior to publication): Note that the list of variables will be updated per technical decision #45 (http://www.ieee802.org/3/bn/public/decisions/decisions.html) once EPoC-specific FEC and PMD overhead details are settled."

SuggestedRemedy

Remove Ed Note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.5** *P* **127** *L* **39** # 3389
Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Fig 101-3 & 4 Rev*

Redraw figures 101-3 & 101-4 so symbols display correctly.

SuggestedRemedy

Replace with native FrameMaker figures as illustrated in remein_3bn_19_0515.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.5** *P* **127** *L* **5** # 3440

Remein, Duane Huawei

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

This statement is peppered throughout the clause 5x and only needs to be stated once: "In case of any discrepancy between state diagrams and the descriptive text, the state diagrams prevail."

SuggestedRemedy

Move the statement to the end of SCl 101.1.1
Remove other instances.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.5** *P* **127** *L* **5** # 3378

Remein, Duane Huawei

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

Figure 101-4 does not imply an "order shown" as specified in the following statement:
"The CLT PCS shall perform the Idle deletion process as shown in Figure 101-2. The CNU PCS shall perform the Idle deletion process as shown in Figure 101-3 (data rate adaptation sub-process) Figure 101-3 and in (FEC overhead compensation sub-process), in the order shown in Figure 101-4."

SuggestedRemedy

Change to read:
The CNU PCS shall perform the Idle deletion process as shown in Figure 101-3 (data rate adaptation sub-process) and in Figure 101-4 (FEC overhead compensation sub-process).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.1.5** *P* **128** *L* **2** # 3419

Remein, Duane Huawei

Comment Type **TR** *Comment Status* **D** *Fig 101-3 & 4*

Figure 101-3 symbols did not translate from viseo well (came out as dots). Similar issue with Figure 101-4 pg 129

SuggestedRemedy

Convert to native framemaker or if not time for that convert to EMF format.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt #3389 (topic Fig 101-3 & 4)

Cl **101** *SC* **101.3.2.2** *P* **136** *L* **52** # 3386

Remein, Duane Huawei

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

This statement describes the output of the encoder not the input.
"The EPoC 64B/66B encoder does not include a scrambler function as described in 49.2.6 and the input is a 65B block with a single synch header bit."

SuggestedRemedy

Change "input" to "output"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.4** *P* **131** *L* **1** # 3390

Remein, Duane Huawei

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

Wording:
"The CLT 10GPASS-XR PCS operating on CCDN shall encode the transmitted data using one of the LDPC
(16200, 14400) code per Table 101-2."

SuggestedRemedy

to:
"The CLT 10GPASS-XR PCS operating on CCDN shall encode the transmitted data using the LDPC (16200, 14400) code per Table 101-2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.5** *P* **134** *L* **3** # 3388

Remein, Duane Huawei

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

"FEC encode" should be "FEC Encoder" in 4 places:
Pg line
134 3
134 31
144 37
145 46
"data detector" should be "Data Detector" in 3 places
125 20
144 37
146 46

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Also see Cmt# 3441 regarding FEC Encoder

Cl **101** *SC* **101.3.2.5.1** *P* **134** *L* **10** # 3387

Remein, Duane Huawei

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

Now that we know positively what "any additional FEC-related overhead" is we can be more precise in this statement:

SuggestedRemedy

Change:
"insertion of the FEC parity data as well as any additional FEC-related overhead"
to:
"insertion of the FEC parity data and CRC40"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.5.3** *P* **136** *L* **1** # 3545

Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **D** *Fig 101-7 Rev*

Figure 101-7 is not updated

SuggestedRemedy

Correct the burst structure in the figure accordinglu

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3375

Cl **101** *SC* **101.3.2.5.3** *P* **136** *L* **26** # 3375

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Fig 101-7 Rev*

EDITORS NOTE (to be removed prior to publication):
this figure will need to be updated if burst marker structure is changed.

SuggestedRemedy

Replace figure with that in remein_3bn_17_0515.pdf

Pg 187 ln 34 change
"An OFDMA transmission shall start with a Type 2 resource block followed by four contiguous subcarriers which include the start burst marker (see 101.4.3.9)."
to:
"An OFDMA transmission shall start with four contiguous subcarriers which include the start burst marker (see 101.4.3.9)."

Pg 187 ln 49 change:
"An OFDMA transmission shall end with a Type 2 resource block preceded by four contiguous subcarriers which include the stop burst marker (see 101.4.3.9)."
to:
"An OFDMA transmission shall end with four contiguous subcarriers which include the stop burst marker (see 101.4.3.9)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace figure with that in remein_3bn_17b_0515.pdf

Pg 187 ln 34 change
"An OFDMA transmission shall start with a Type 2 resource block followed by four contiguous subcarriers which include the start burst marker (see 101.4.3.9)."
to:
"An OFDMA transmission shall start with five contiguous subcarriers which include the start burst marker immediately followed by a Type 2 resource block (see 101.4.3.9)."

Pg 187 ln 49 change:
"An OFDMA transmission shall end with a Type 2 resource block preceded by four contiguous subcarriers which include the stop burst marker (see 101.4.3.9)."
to:
"An OFDMA transmission shall end with five contiguous subcarriers which include the stop burst marker immediately preceded by a Type 2 resource block (see 101.4.3.9)."

Cl **101** *SC* **101.3.2.5.3** *P* **136** *L* **3** # 3480

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **D** *Fig 101-7*

Figure 101-7, the top part is incorrect. The Type 2's RBs should be removed as the first and last RBs of a burst. First and last are the first and last RBs of the respective marker. Also, the burst markers use all the RB's in the marker and no "holes" are left for data. Belief is that this is already corrected in another comment, this one is here "just in case".

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3375

Cl **101** *SC* **101.3.2.5.8** *P* **142** *L* **23** # 3391

Remein, Duane Huawei

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

Incorrect Fig Ref:
"The CLT shall implement the Data Detector output process as depicted in Figure 101-8,"

SuggestedRemedy

Change to:
"The CLT shall implement the Data Detector output process as depicted in Figure 101-9."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.2.5.8** *P* **143** *L* **31** # 3473

Laubach, Mark Broadcom

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

Figure 101-8, change title of "ADD_BLOCK_BLOCK_TO_FIFO" to "ADD_65BIT_BLOCK_TO_FIFO" to convey that the one SH bit is being stripped as part of the tx_coded<65:1> copy to the FIFO. Also fixes the "BLOCK_BLOCK" title word duplication.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Time permitting Editor authorized to convert the SD to native FrameMaker.

Cl **101** *SC* **101.3.3.1.1** *P* **147** *L* **31** # 3374

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

In 101.3.3.1.1 there is an Ed Note:
EDITORS NOTE (to be removed prior to publication): A figure and reference to same is needed showing FEC decoding process in CLT receiver.
However there is no reason that Figure 101-12 cannot cover both CNU and CLT receive paths.

SuggestedRemedy

Change title of Figure 101-12 to "PCS receive path processing"

Add text to the end of the 1st para in 101.3.3.1.2 as follows:
"Note that burstStart and burstEnd indications are passed via the PMA_UNITDATA.indication and are used by the LDPC Decoder in the CLT to determine FEC codeword sizes in any given burst."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.3.1.8** *P* **153** *L* **41** # 3379

Remein, Duane Huawei

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

Replace "decodeFailure ++" with "FecCodeWordFail ++" in DECODE_FAIL state

SuggestedRemedy

Per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.3.3** *P* **155** *L* **3** # 3437

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): the text in this subclause needs to be updated to account for FEC parity removal and CRC40.

SuggestedRemedy

Remove the Ed Note, the text has been updated in previous revisions of the draft.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.3.3.3.1** *P* **155** *L* **7** # 3442

Remein, Duane Huawei

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

FIFO_II_SIZE - given the editors note this cannot be considered a constant.

SuggestedRemedy

Move definition to 101.3.3.3.2 Variables
Change definition from
"This constant represents the size of Idle Insertion FIFO buffer. The size of this buffer is selected in such a way that it is able to accommodate the number of 66-bit vectors sufficient to fill the gap introduced by removing the FEC parity data for a maximum size MAC frame, and compensate for the maximum supported difference between the MAC rate and PMD rate."
To:
"This variable represents the size of Idle Insertion FIFO buffer. The size of this buffer is selected in such a way that it is able to accommodate the number of 66-bit vectors sufficient to fill the gap introduced by removing the FEC parity data for a maximum size MAC frame, and compensate for the maximum supported difference between the MAC rate and PMD rate. FIFO_II_SIZE is depended on the line rate the PHY is operating at and may need to be adjusted whenever the profile is changed."
Remove the Ed Notes ln 15 & 25

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.1.3** *P* **160** *L* **3** # 3528

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Change "synchronization" to "receive path".
Remove editors note at Line 5.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.1** *P* **160** *L* **33** # 3556

Kliger, Avi Broadcom

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

"The PMA supports five 190 MHz wide OFDM channels; each containing 3800 subcarrierseach" - 3800 is the number of active subcarriers

SuggestedRemedy

CHange sentence as follows:
"The PMA supports five 190 MHz wide OFDM channels; each containing upto 3800 active subcarriers

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.1** *P* **160** *L* **38** # 3557

Kliger, Avi Broadcom

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

all channels must use the same CP size

SuggestedRemedy

edit sentence accordingly

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change:
"All OFDM channels use the same sampling rate clock as per Table 101-8 and follow the same frame timing."
to:
"All OFDM channels use the
same sampling rate clock as per Table 101-8, cyclic prefix size, window size, and follow the same frame timing."

Cl **101** *SC* **101.4.2.11** *P* **181** *L* **9** # 3575

Laubach, Mark Broadcom

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

Add to where a line for k: "k is the spectral index of the subcarrier."

After line 16 add:
"The CLT and CNU shall ensure that the encompassed spectrum of a 192 MHz downstream OFDM channel or the upstream OFDMA channel, respectively does not exceed 190 MHz (3800 subcarriers, see Table 100-3 and Table 100-11). These 3800 maximum active subcarriers shall occupy the range 148 <= k <= 3947 , where k is the spectral index of the subcarrier in EQ 101-18."

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change:
“Where: N equals 4096, X(0) is the lowest frequency component and X(N-1) is the highest frequency component.”
To:
“Where:
N equals 4096, X(0) is the lowest frequency component and X(N-1) is the highest frequency component.
k is the spectral index of the subcarrier”
After line 16 add:
"The CLT ensures that the encompassed spectrum of a 192 MHz downstream OFDM channel or the upstream OFDMA channel, respectively does not exceed 190 MHz (3800 subcarriers, see Table 100-3 and Table 100-11). These 3800 maximum active subcarriers typically occupy the range 148 <= k <= 3947, where k is the spectral index of the subcarrier in EQ 101-18."

Cl **101** *SC* **101.4.2.12.1** *P* **185** *L* **7** # 3454

Remein, Duane Huawei

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

DSNcp enum "0 1 0 0 = reserved" doesn't cover the full range

Also line 23
DSNrp enum two entries for 0 1 1
0 1 1 = 128 samples
0 1 1 = 64 samples
0 0 1 = reserved

SuggestedRemedy

Change
0 1 0 0 = reserved
to
x 1 x x = reserved
1 0 x x = reserved

Change
0 1 1 = 64 samples
to
0 1 0 = 64 samples

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.2** *P* **161** *L* **13** # 3443

Remein, Duane Huawei

Comment Type **TR** *Comment Status* **D** *PICS Rev*

The wording of these para's are overly complex and, in some cases incorrect:
"The CLT downstream OFDM symbol and subcarrier frequency and timing relationship is defined in 101.4.2.3.
Tolerances for the downstream subcarrier clock frequency are given in this subclause Table 100-3). Functional requirements involving the downstream subcarrier clock frequency and downstream signal generation are contained in 101.4.2.3, which couple the subcarrier clock frequency tolerance performance to the phase noise requirements of Table 100-3 and the downstream OFDM symbol clock requirements of this subclause. Each cycle of the downstream subcarrier clock is 4096 cycles (50 kHz subcarrier spacing) of the downstream OFDM symbol clock (which is nominally 204.8 MHz), since the subcarrier clock period is defined as the FFT duration for each OFDM symbol. Functional requirements on locking the downstream waveform to the 10.24 MHz Master Clock are then equivalently functional requirements locking the downstream subcarrier clock to the Master Clock. Downstream OFDM symbol clock jitter requirements (which are in the time domain) of Table 101-8 are equivalently requirements on the downstream subcarrier clock (and its harmonics). The requirements on the OFDM symbol clock are effectively measured on observables in the downstream waveform, which include the downstream subcarrier clock frequency (manifested in the subcarrier spacing) and downstream subcarrier frequencies."
Can we just say that if you pass the phase noise it can be assume that the clock jitter requirements are met? Can we make Table 101-9 informative (since otherwise we need to identify a place where it is to be measured).

1) Table 100-3 does not directly mention subcarrier clock or it's tolerances.
2) the "functional requirements" in 101.4.2.3 are not normative (no "shalls"); further Cl 101.4.2.3 refers back to 101.4.2.2 creating a circular ref. Compounding the problem Cl 101.4.2.3 does not mention phase noise or Table 100-3 so it is difficult to see how it couples "the subcarrier clock frequency tolerance performance to the phase noise requirements of Table 100-3"
3) the 50 kHz subcarrier clock period is not observable at the MDI as it is obscured by the CP time.
4) the 10.24 MHz Master Clock is not defined in the draft.

See remein_3bn_20_0515.pdf and remein_3bn_21_0515.pdf for more information on this issue

SuggestedRemedy

Reword 101.4.2.2 and 101.4.2.3 so they are correct and easily understood.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to:
"The CLT downstream OFDM symbol and subcarrier frequency and timing relationship is defined in 101.4.2.3.
Functional requirements for the subcarrier clock are given in 101.4.2.3. The relationship

between the OFDM symbol clock and output phase noise are given in 101.4.2.2. Each cycle of the downstream subcarrier clock is 4096 cycles of the downstream 204.8 MHz OFDM symbol clock(50 kHz subcarrier spacing). As the 10.24 MHz Master Clock, the 204.8 MHz OFDM clock and the subcarrier clock are all synchronous then it follows that the downstream output waveform is also locked to the 10.24 MHz Master Clock.Furthermore the downstream OFDM symbol clock jitter requirements (which are in the time domain) of Table 101-8 are equivalent to requirements on the downstream subcarrier clock (and its harmonics). The requirements on the OFDM symbol clock are measured using observable parameters in the downstream waveform, which include the downstream subcarrier clock frequency (manifested in the subcarrier spacing) and the downstream subcarrier frequencies."

Cl **101** *SC* **101.4.2.2** *P* **161** *L* **30** # 3549

Kliger, Avi Broadcom

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

Jitter requirements in Table 101-8 for frequencies above 1 KHz are excessively loose for OFDM at 200 MHz, and practical transmitters must have orders of magnitude better jitter performance. Phase noise is defined for the frequencies above 1 KHz and is much tighter (100-4)

SuggestedRemedy

Propose to delete specifications above 1 KHz in Table 101-8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Only three line to remain for OFDM Symbol Clock Jitter:
- < [-21 + 20*log (fDS /204.8)] dBc (i.e., < 0.07 ns RMS) 10 Hz to 100 Hz
- < [-21 + 20*log (fDS /204.8)] dBc (i.e., < 0.07 ns RMS) 100 Hz to 1 kHz
where fDS is the frequency of the measured downstream OFDM clock in MHz. a

---

Cl **101** *SC* **101.4.2.2** *P* **162** *L* **6** # 3558

Kliger, Avi Broadcom

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

"Acquisition Time for the CNU" - state specifically that this is the downstream channel (or PLC) acquisiton time, that is including PLC proper decoding, being able to receive the downstream PLC and to transmit PHY DIscovery responses

SuggestedRemedy

shoudl state:
"Downstream channel Acquisition Time for the CNU .... "

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
"Downstream channel acquisition time for the CNU .. "

Cl **101** *SC* **101.4.2.2** *P* **162** *L* **8** # 3529

Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *Ed/TBD*

Delete editor's note. The statement on lines 6 and 7 and the requirements in Table 101-8 on timing accuracy and acquistion time are consistent with DOCSIS D2.1 PHY I05.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **101** *SC* **101.4.2.3** *P* **162** *L* **14** # 3566

Kliger, Avi Broadcom

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

Several corrections and clarifications are required for this text:
to this text are needed:
1.The relation of K to the subcarrier frequency and relation of L to the cyclic prefix are not explicitly defined. Clarify that the center frequency is a K is an integer related to the subcarrier index and frequency upconversion of the OFDM channel, and L is an integer related to the cyclic prefix".
2. Add clarification that the carrier frequency (center frequency of the Nth subcarrier must ne an integer multiple of teh subcarrier spacing)
3. Make the equation for the subcarrier clock freuqency more intuitive; 20*Masterclock is the OFDM sampling frequency (204.8 MHz) divided by th enumber of subcarriers : 4096

SuggestedRemedy

Make the following corrections in section 101.4.2.3

1. 2nd bullet:
"change the equqtion to:
subcarrier clock frequency = (20 / 4096) * Master Clock frequency"
2. 4th bullet:
change text: "Each OFDM symbol has a cyclic prefix which is an integer multiple of 1 / 128th, of the subcarrier clock period
3. 6th bullet:
change text to the following:
"The carrier frequency (i.e. the center frequency of the N-th subcarrier) MUST be an integer multiple of the sub-carrier spacing (1)"
and add the following as the footnote (1)
"The number of cycles of each subcarrier generated by the CLT during the OFDM symbol duration (of each symbol) shall be K + K * L / 128, where K is an integer equal to the nominal RF frequency of the subcarrier (Hz) divided by the nominal subcarrier spacin (Hz), and L is an integer related to the cyclic prefix wherein L=128*(nominal cyclic prefix duration, seconds)*(nominal subcarrier spacing, Hz)

4.Replace the last bullet, which starts with "The phase of each subcarrier within one OFDM is the same, …", with
"The symbol clock and carrier frequency clock will both be derived from the 10.24 MHz Master Clock reference frequency, since Section 101.4.2.3 requires locking of the RF carrier to the Master Clock and and locking the Downstream OFDM Clock (204.8 MHz) to the Master Clock."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Make the following corrections in section 101.4.2.3
1. 2nd bullet: per comment
change the equation to: subcarrier clock frequency = (20 / 4096) * Master Clock frequency

2. 4th bullet: Per comment - change “1/64th” to: "1/128th

3. 6th bullet: change text to the following (also see Cmt# 3392):
"The carrier frequency (i.e. the center frequency of the N-th subcarrier) is an integer multiple of the sub-carrier spacing. The number of cycles for each subcarrier generated by the CLT during an OFDM symbol duration shall be as given in Eq 101-xxx

K + K * L / 128 Eq (101-xxx)

Where:
K is an integer equal to the nominal RF frequency of the subcarrier (Hz) divided by the nominal subcarrier spacing (Hz), and
L is an integer related to the cyclic prefix as shown in Eq 100-yyy

L = 128 * (DSNcp*10^-6) * 50000 Eq (101-yyy)

4. Strike last bullet, which starts with "The phase of each subcarrier within one OFDM is the same, …", as the suggested remedy was to essentiall state “the OFDM sym clock is derived from the 10.24 MC clock since this section requires that the subcarrier clock is locked to the 10.24 MC and locking the OFDM clock to the 10.24 MC”.
ED Note: the terms “carrier frequency clock” and “RF carrier” do not appear in the draft hence they were removed from the above statement.

At pg 162 line 16 change:
The "locking" of subcarrier "clock and carrier" are defined and characterized by the following rules
To
The synchronization of then subcarrier clock and subcarrier frequency are defined and characterized by the following rules

Cl **101** *SC* **101.4.2.3** *P* **162** *L* **15** # 3546

Kliger, Avi Broadcom

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

The text in this section should be replaced in accordance with the recent ECR submited to DOCSIS3.1

SuggestedRemedy

Modify the text accordingly.
Proposed text is provided in a separate document

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The referenced ECR is not a public document available to the editor.

Cl **101** *SC* **101.4.2.3** *P* **162** *L* **21** # 3392

Remein, Duane Huawei

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

The Equation following this statement needs an Eq Number so it can be referenced by PICS

The "MUST" on line 21 seems to be D3.1 carry-over and the sentence is poorly worded.

SuggestedRemedy

Change para style to numbered equation.
Change:
"The number of cycles of each subcarrier generated by the CLT during one period of the subcarrier clock (for each OFDM symbol) MUST be an integer number."
to:
"The number of OFDM clock cycles of each subcarrier generated by the CLT during one period of the subcarrier clock is an integer number."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See Cmt# 3566

Cl **101** *SC* **101.4.2.4** *P* **162** *L* **41** # 3382

Remein, Duane Huawei

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

DS_OFDM_ID formally defined in Cl 102.4.1.7.2 pg 255 ln 10 and should be used here where we discuss SC configuration.

SuggestedRemedy

Move definition of DS_OFDM_ID from 102.4.1.7.2 to 101.4.2.3.5
Add ref at 102.4.1.7.2 to 101.4.2.3.5

Pg 162 ln 43 change:
"... using the DS_ModTypeSC(n) variables (where 0 <LTE> n <LTE> 4095). These variables allow the PHY to configure ... "
To read:
"... using the DS_ModTypeSC(n) variables (where 0 <LTE> n <LTE> 4095) in conjunction with DS_OFDM_ID. The OFDM channel being configured is determined by DS_OFDM_ID. The DS_ModTypeSC(n) variables configure ... "
{<LTE> above is the symbol "less than or equal to"}

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.4.3** *P* **163** *L* **27** # 3547

Kliger, Avi Broadcom

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

May the 22 MHz contiguous band include nulls?

SuggestedRemedy

Clarify the specifications accordingly. A null subcarrier is not "excluded"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change:
"There is at least one contiguous 22 MHz or greater band of subcarriers with an assigned bit loading in any single 192 MHz OFDM channel."
to:
"There is at least one contiguous 22 MHz or greater band of active subcarriers with an assigned bit loading in any single 192 MHz OFDM channel."

WARNING - this leaves the posibility of a 22 MHz channel that is null except for the PHY Link! Is this what we want?

Cl **101** *SC* **101.4.2.6** *P* **165** *L* **46** # 3530

Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *Ed/TBD*

Not sure what this editors note refers to at this time. FIgure 101-2 is a state diagram. Delete this EN.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.6.4** *P* **168** *L* **31** # 3395

Remein, Duane Huawei

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

This requirement is a duplicate of that at line 12.
"The CLT shall follow Step 1 through Step 8 as specified below for defining the frequencies for the location of these continuous pilots.

SuggestedRemedy

Strike the sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.6.4** *P* **169** *L* **41** # 3396

Remein, Duane Huawei

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

This Step is already required per statement pg 168 ln 12:
"The CLT shall transmit this continuous pilot pattern to the CNUs in the system and communicate the placement using the PHY Link."

SuggestedRemedy

Change to read:
"The CLT transmits this continuous pilot pattern to the CNUs in the system and communicate the placement using the PHY Link."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.8.2** *P* **171** *L* **30** # 3438

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

zero bit-loading
EDITORS NOTE (to be removed prior to publication): May need to adjust "zero-bit-loaded" via more socialization on its use.

zero bit-load 3x 171-25, 171-27, & 172-16

SuggestedRemedy

Pg 171 ln 25 Change:
"zero bit-loading"
to:
"nulled subcarriers (i.e., subcarrier that are not use for data transport)."

Remove Ed Note

Pg 172 ln 16 change:
"zero-bit-loaded."
to
"nulled."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.8.2** *P* **171** *L* **30** # 3531

Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *Ed/TBD*

Move the text as the first sentence in Subclause 101.4.2.10.1.
Remove the editors note.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.8.3** *P* **172** *L* **24** # 3397

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Note p172 l24*

A note seems to be a inappropriate place for a requirement:
"Note that downstream RF spectrum availability as well as device implementation will determine OFDM channel presence and actual subcarrier use. The symbol mapping function therefore shall process all active subcarriers per symbol across all OFDM channels."

SuggestedRemedy

Strike "Note that" and change para style so the statement reads:
"Downstream RF spectrum availability as well as device implementation will determine OFDM channel presence and actual subcarrier use. The symbol mapping function therefore shall process all active subcarriers per symbol across all OFDM channels."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.8.3** *P* **172** *L* **29** # 3432

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Note p172 l24*

Para starting "Note that downstream RF spectrum ..." should be in t,text style

SuggestedRemedy

Per Comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3397

Cl **101** *SC* **101.4.2.8.3** *P* **172** *L* **9** # 3364

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): a state diagram is needed for this subclause.
It is my opinion that the bit loading function is described in sufficient detail that a state diagram is not needed.

SuggestedRemedy

Remove the Ed Note

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.2.8.4** *P* **174** *L* **12** # 3527

Laubach, Mark Broadcom

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

Add new informative text to the end of this subclause: "As FEC codewords may straddle downstream frame boundaries, the CNU may optionally process the FCP value encoded in the received PHY Link messages in the current downstream frame. The FCP value indicates the starting bit position of the next codeword in the next downstream frame.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
"The downstream FEC Encoder is not aligned with the downstream frame, thus FEC codewords may straddle downstream frame boundaries. The CNU may use the FCP value in the received PHY Link messages to help locate the downstream FEC codewords. The FCP value indicates the starting bit position of the first full codeword in the next downstream frame. See 102.2.3.5"

Cl **101** *SC* **101.4.2.9** *P* **174** *L* **35** # 3349

Richard, Prodan Broadcom

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

Correcting some equation/notation errors, adding text and a generator polynomial as needed for clarification of operation. Page 179, Line 4, Figure 101-24 has an error as the left-most XOR has no output.

SuggestedRemedy

Update subclause 101.4.2.9 as per attached prodan_3bn_10_0514.pdf (and fm). CMP files are also provided to indicate the changes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Per suggestion with the following modificaitons:
Pg 175 ln 20 should ref 101.4.2.9.5 not 45.2.1.108 as in prodan_3bn_10_0514.
Pg 175 ln 38 should ref Equation (101-10) not 101-6 as in prodan_3bn_10_0514.
Pg 178 ln 27 change style to numbered eq.
Pg 179 ln 4 the illustration of the CRC S/R will be changed by the removal the the up arrow entering XOR by Gm=1 and addition of a left arrow on the same signal line entering box cm-1.

Cl **101** *SC* **101.4.3.1** *P* **186** *L* **27** # 3455

Powell, Bill Alcatel-Lucent

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

Clauses 101.4.3.1 & 101.4.3.2 have no text at the moment

SuggestedRemedy

Not sure what to add right now.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Nothing to do at the moment.

Cl **101** *SC* **101.4.3.10** *P* **207** *L* **1** # 3548

Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **D** *US_Intrlvr Rev*

There is no interleaver defined in the upstream

SuggestedRemedy

Remove section 101.4.3.10 and all references to it

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Per Comment
Pg 201 ln 28 change:
"Pilots are inserted after the RB Frame is processed by the symbol mapper (see 101.4.2.8) and the interleaving functions (see 101.4.3.10) and before the RB Frame is passed to the IDFT function."
to:
"Pilots are inserted after the RB Frame is processed by the symbol mapper (see 101.4.2.8) and before the RB Frame is passed to the IDFT function."

Cl **101** *SC* **101.4.3.10** *P* **207** *L* **1** # 3503

Laubach, Mark Broadcom

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

Remove this subclause title. It is a leftover and will contain no future text.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3548

Cl **101** *SC* **101.4.3.11.1** *P* **207** *L* **15** # 3505

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *PreEq Rev*

Delete editors note.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
*** See Topic PreEq ***
This is included in remein_3BN_04_0515.pdf

"The TF needs to agree on how Pre-Equalization Coefficients (i.e., mdio registers) are adjusted via the PHY Link and how Probes are scheduled by the CLT"

Are Pre-Equalization Coefficients part of the profile? Not currently list in Table 101-7. If it was we have a mechanism to precisly schedule when updates to them take effect. If not ?

Cl **101** *SC* **101.4.3.11.1** *P* **207** *L* **29** # 3569

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **D** *PreEq Rev*

The text doesnt specify how to handle pre-equalizer coefficients of subcarriers that are excluded

SuggestedRemedy

Add the following text below line 29:
The CNU shall use a default value of 1+j0 for all pre-equalizer coefficients of the used and unused subcarriers. The CNU shall set to zero all pre-equalizer coefficients that correspond to the excluded subcarriers.
The CNU shall set the pre-equalizer coefficient to one for any subcarrier whose status is changed from excluded to non-excluded. At the next probe opportunity the CNU shall use a pre-equalization coefficient of 1+j0 on the subcarriers whose status has changed"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
*** See Topic PreEq ***
This is included in remein_3BN_04_0515.pdf

Suggestion: At initialization and reset require all SC to be excluded and all PreEq coef to be zero (value 0 + j0). If a SC is set from excluded to non-excluded then the PreEq for that SC is automaticaly set to one (value 1 +j0). If a SC is set from non-excluded to excluded automaticaly set to zero (value 0 +j0).

Change:
"A CNU shall use a default value of 1+j0 for all pre-equalizer coefficients."
to:
"A CNU shall use a default value of 0+j0 for all pre-equalizer coefficients. Changing a subcarrier from excluded to active or visa versa shall cause the pre-equalizer coefficients for that subcarrier to be automatically set to a value of 1 + j0 (for subcarrers set to active) or 0 + j0 (for subcarrers set to excluded). "

Cl **101** *SC* **101.4.3.11.1** *P* **207** *L* **30** # 3393

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *PreEq PICS Rev*

This set of 3 requirements can be simplified, steps 2 & 3 have nothing to do with normalization:
"The CNU normalizes the new calculated coefficients as follows:
1) Upon applying any updates, the CNU shall normalize the new calculated coefficients as follows: mean (abs (Ck)^2) = 1 (summation is over all k subcarriers, which are active subcarriers).
2) The CNU shall apply the newly calculated coefficients for transmitting within 10 ms after receiving an update via a PHY Link message.
3) The newly calculated coefficients for transmitting shall take affect at the beginning of a transmission."

SuggestedRemedy

Change to read:
"The CNU shall normalize the new calculated coefficients by adjusting the mean of (abs (Ck)^2) to be 1. The summation is over all k subcarriers, which are active subcarriers. The CNU shall apply the newly calculated coefficients for transmitting at the beginning of a transmission within 10 ms after receiving an update via a PHY Link message."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
*** See Topic PreEq ***
This is included in remein_3BN_04_0515.pdf

Change to read:
The CNU shall normalize the newly calculated coefficients by adjusting the mean of the absolute value of s (Ck)^2) to be one. The summation is over all k subcarriers, which are active subcarriers. The CNU shall apply the newly calculated coefficients for transmitting at the beginning of a transmission within 10 ms after receiving an update via a PHY Link message.

Cl **101** *SC* **101.4.3.11.1** *P* **207** *L* **41** # 3563

Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **D** *PreEq Rev*

section 101.4.3.11.1 specifies that all transmissions other than probes and PHY Discovery must use probes but it doesnt specify when the CNU must reset its pre-equalizer coefficients

SuggestedRemedy

Add the following text below line 43:
The CNU shall reset all its pre-equalizer coefficients to the default value of 1+j0 in the following cases: before its first transmission after a change in at least one of the following parameters: upstream channel frequency (the frequency of subcarrier with index zero), subcarrier spacing, Cyclic Prefix size, Rolloff Period duration.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
*** See Topic PreEq ***
This is included in remein_3BN_04_0515.pdf

What is really needed is a normative statement regarding what can cause a reset.
Suggeset modification of Table 102-13 as shown in file above.

Cl **101** *SC* **101.4.3.11.1** *P* **207** *L* **44** # 3580

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *PreEq Rev*

Item 1) in editors note is resolved as the protocol permits updating only those subcarreries that are needed. However, ranges are not supported, individual subcarriers are specified. For 2) add directly after line 43, a new paragraph/sentence with "When switching from current upstream profile to the next profile where there is a change between excluded and active subcarrier use, the CNU upstream PHY shall be reset, see xxx.xx". Editor to add cross reference to appropriate subclause.

Remove the editor's note at lines 44-49.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
*** See Topic PreEq ***
This is included in remein_3BN_04_0515.pdf

Add to the end of the first para:
"Note that setting a significant number of subcarriers from excluded to active may cause interference to existing services on the coax cable distribution network and it is therefore recommended that the CLT reset the EPoC network prior to making such changes.".

Remove the editor's note at lines 44-49.

Cl **101** *SC* **101.4.3.11.1** *P* **207** *L* **49** # 3564

Kliger, Avi
Broadcom

Comment Type **TR** *Comment Status* **D** *PreEq Rev*

CLT pre-equalization operation is verified subject to specified conditions using the described method

SuggestedRemedy

Add the follwoing text to the section 101.4.3.11.1:
"The CMTS MUST be able to calculate and distribute initial pre-equalizer coefficients to reduce the channel amplitude variation, by 0.8 dB or more corresponding to a 3 dB increase in MER from 16 dB to 19 dB, under the following conditions:
"As measured by a spectrum analyzer or equivalent, on upstream probes.
"The probe signal power into CMTS burst receiver is +5.4 dBmV ±1 dB (approximately 0 dBmV per 6.4 MHz).
"An OFDMA channel with 22 MHz encompassed spectrum, where all subcarriers within the encompassed spectrum are active subcarriers, is measured.

Pre-equalization operation subject to these conditions is verified using the following method:
The test modulator generates the first transmission using a compliant probe:
"This transmission is input into the spectrum analyzer, with an initial "flat" test channel, achieving 0.3 dB p-p amplitude variation or less after calibration of the spectrum analyzer (corresponding to a residual MER of 35 dB).
"Add a micro-reflection into the test channel with an amplitude of -16 dB ±0.5 dB and a delay of 0.3125 microseconds ±0.5 nanoseconds compared to main path.
"Verify the channel (except for the echo) changes by no more than 0.3 dB p-p, in addition to the 2.78 dB p-p signal amplitude variation induced by the micro-reflection (the 0.3 dB tolerance allows the maximum amplitude variation to increase to 3.08 dB p-p corresponding to total MER of 15.3 dB or a residual MER of 35 dB).

The test modulator generates the second transmission using a compliant probe sent to both the spectrum analyzer and the CMTS burst receiver (unit under test) with a CNR > 35 dB:
"The spectrum analyzer measures and records the amplitude variation over the spectrum of subcarriers (this is the "reference amplitude variation measurement" of the test).
"The CLT OFDMA receiver develops pre-equalizer coefficients.
"The CLT formats and transmits compliant commands for the pre-equalizer coefficients.
"The downstream test receiver validates reception of pre-equalization coefficients.

Pre-equalization coefficients are implemented by the test modulator prior to the third transmission:
"The spectrum analyzer measures and records the amplitude variation over the spectrum of subcarriers for this third transmission from the test modulator, which has been pre-equalized.
"The reduction in this third amplitude variation measurement at the spectrum analyzer compared to the initial amplitude variation measurement of the second transmission is measured.
"The required minimum reduction in amplitude variation or better is observed.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
*** See Topic PreEq ***
This is included in remein_3BN_04_0515.pdf

Add to the end of 101.4.3.11.1:
instructed by the CLT using the PHY Link probe instruction described in 102.4.2.
The CLT shall be able to calculate and distribute initial pre-equalizer coefficients to reduce the channel amplitude variation, by 0.8 dB or more corresponding to a 3 dB increase in MER from 16 dB to 19 dB, given that the probe signal power into CMTS burst receiver is +5.4 dBmV ±1 dB (approximately 0 dBmV per 6.4 MHz) and the upstream OFDM channel has an encompassed spectrum of at least 22 MHz where all where all subcarriers within the encompassed spectrum are active subcarriers.
Ed Note: the above requirement was adopted from the Suggested Remedy from Comment # 3564. However it strikes the editor as odd that the requirement only applies to an OFDM channel consisting solely of 440 contigeous active SCs.
Add the following section renumbering subsequent sections:
Pre-equalization testing
Pre-equalization operation is verified using the following method:
A test modulator generates the first transmission using a compliant probe. This transmission is input into a spectrum analyzer, with an initial "flat" test channel, achieving 0.3 dB p-p amplitude variation or less after calibration of the spectrum analyzer (corresponding to a residual MER of 35 dB).
A micro-reflection is added into the test channel with an amplitude of -16 dB ±0.5 dB and a delay of 0.3125 microseconds ±0.5 nanoseconds compared to main path.
Verify the channel (except for the echo) changes by no more than 0.3 dB p-p, in addition to the 2.78 dB p-p signal amplitude variation induced by the micro-reflection (the 0.3 dB tolerance allows the maximum amplitude variation to increase to 3.08 dB p-p corresponding to total MER of 15.3 dB or a residual MER of 35 dB).
The test modulator generates a second transmission using a compliant probe sent to both the spectrum analyzer and the CLT receiver (unit under test) with a CNR > 35 dB
Measure and record the amplitude variation over the spectrum of subcarriers (this is the "reference amplitude variation measurement" of the test) using the spectrum analyzer.
The CLT OFDMA receiver develops pre-equalizer coefficients.
The CLT formats and transmits compliant commands for the pre-equalizer coefficients.
The downstream test receiver validates reception of pre-equalization coefficients.
The received pre-equalization coefficients are implemented by the test modulator and used to generate a third transmission
Measure and record the amplitude variation over the spectrum of subcarriers for this third transmission, pre-equalized, from the test modulator.
Compare the amplitude variation measurement taken in step 10 to the reference amplitude variation measurement. The difference observed should be less than the required minimum reduction in amplitude variation.
Ed Note: the above tests only the CLT, shouldn't there ber an equivilent test for the CNT?

Cl **101** *SC* **101.4.3.12.1** *P* **208** *L* **54** # 3565

Kliger, Avi Broadcom

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

The CP size must be greater than the windwowingf size except for PHY discovery,

SuggestedRemedy

Add the following text to the end of sub section 101.4.3.12.1:
The CP size (USNcp) shall always ne greatewr than window size (USNrp)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
As in 101.4.2.12 to end of para at pg 208 ln 23 add:
"CP and Window sizes shall be selected such that the USNrp value is less than the USNcp value."

Pg 183 ln 3 change:
"CP and Window sizes shall be selected such that the DSNrp value is less than the CP value"
to:
"CP and Window sizes shall be selected such that the DSNrp value is less than the DSNcp value

Cl **101** *SC* **101.4.3.2** *P* **186** *L* **24** # 3567

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **D** *PreEq Rev*

Text for this sub-section is missing

SuggestedRemedy

Add text as proposed in the presentation

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The proposed presentation (kilger_3bn_01_0515.pdf) is not sufficiently refined to be included in the draft at this time.
Multiple uses of the words MUST and requirement that would require interpretation on the part of the Editor. (for example: does the statement "to be accurate within 0.4 ppm and each subcarrier frequency accurate within 30 Hz" imply a hard requirement?
The statement "The CLT shall be able to send timing adjustment commands with a resolution of 305 ps or an integer submultiple of 305 ps" cannot be met with the current specification as the CLT is only capable of sending timing offsets as integers of 1/204.8 MHz.

Cl **101** *SC* **101.4.3.2** *P* **250** *L* **17** # 3601

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **X**

On figure 102-19 "AmpOffset" is used but the text uses PowerOffset
Probing is also used for pre-equalization settings

SuggestedRemedy

Change AmpOffset to PowerOffset in Figure 102-19
Add update pre-equalizer setting in line 23

Proposed Response *Response Status* **O**

Cl **101** *SC* **101.4.3.3.2** *P* **187** *L* **34** # 3559

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **D** *Fig 101-7*

Type 2 RB follows the burst marker

SuggestedRemedy

Correct text

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3375 (topic Fig 101-7)

Cl **101** *SC* **101.4.3.3.4** *P* **187** *L* **50** # 3560

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **D** *Fig 101-7*

Type 2 RB preceds the stop burst marker

SuggestedRemedy

correct text

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3375 (topic Fig 101-7)

Cl **101** *SC* **101.4.3.3.5** *P* **188** *L* **16** # 3444

Remein, Duane Huawei

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

We state when the boolean is true but never state when it goes false

SuggestedRemedy

Change:
"This Boolean is TRUE on ..."
to:
"This clear on read boolean is TRUE on ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Capitalize Boolean

Cl **101** *SC* **101.4.3.3.5** *P* **188** *L* **20** # 3445

Remein, Duane Huawei

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

I don't think the variable RBSF_reset should be controlled by the PHY Link. The proper functional block for this is the Frame Timing block.
"This boolean variable is used by the PHY Link to reset the Frame Timing state. A positive transition from value FALSE to value TRUE will cause the state machine to reset to the beginning of the RB Superframe on SCLK."

SuggestedRemedy

Change wording to:
"This boolean variable is used to reset the Frame Timing state. A transition from FALSE to TRUE will cause the state machine to reset to the beginning of the RB Superframe when SCLK goes TRUE. Upon being read this variable is reset to FALSE. The variable is set to TRUE by the Frame Timing function and may be advanced or delayed when the CLT performs a write to the PhyTimingOffset variable."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Capitalize Boolean

Cl **101** *SC* **101.4.3.4.2** *P* **190** *L* **32** # 3561

Kliger, Avi Broadcom

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

for the upstream n<=12

SuggestedRemedy

correct text

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Swapped pg & ln
Per Table 100-2 16k-QAM is optional for US so 16 is correct.

Cl **101** *SC* **101.4.3.4.3** *P* **190** *L* **44** # 3550

Kliger, Avi Broadcom

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

"there may be up to 14 exclusion bands internal to a single 192 MHz OFDM channel" - Limiting number of exclusion bands to 14 is not needed.

SuggestedRemedy

Remove limitation or increase it to 64

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Added pg 190

Change to 62 (this makes a total of 64 including the external exclusion bands).
We had discussed this topic of swiss cheese a great deal early on. Why is it suddenly OK (note this has been here since D1.1)?

Cl **101** *SC* **101.4.3.4.4** *P* **191** *L* **4** # 3551

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **D** *US QAM Rev*

8192-QAM and 16384-QAM are not supported by upstream.

SuggestedRemedy

Remove

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Per Table 100-2 they are optional.

Cl **101** *SC* **101.4.3.5.1** *P* **191** *L* **23** # 3446

Remein, Duane Huawei

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

101.4.3.5.1 Variables
These are all provisioned variable and we should state that.

SuggestedRemedy

For the 4 variables in this section change:
"When this variable is ..."
to:
"When this provisioned variable is ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.3.6.1** *P* **193** *L* **38** # 3502

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Line 38: Change "interleaver and pilot insertion functions" to "pilot inserting and staging functions.
Line 31. Add to end of sentence for "EX": "; i.e., nulled subcarriers and excluded subcarriers. Remove underline under "EX".
Line 39: delete editors note.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.3.6.2** *P* **194** *L* **26** # 3447

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

No reason to cross reference to Table 101-1 as it is just another cross reference.

SuggestedRemedy

Remove "(see Table 101-1)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.3.6.2** *P* **195** *L* **33** # 3593

Remein, Duane Huawei

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

Everywhere else EX is in quotes, there is only one function
"is EX, this functions ..."

SuggestedRemedy

Change to read:
is "EX", this function ...

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.3.6.2** *P* **196** *L* **7** # 3504

Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *US Scrambler Ed/TBD*

Line 6: Change "This function initializes the bit scrambler with the seed value. See TBD." to "The upstream symbol mapper utilizes a separate instantiation of the scrambler as described in 101.4.2.7 with the same seed value of 0x4732BA. This function initializes the bit scrambler with the seed value."
Line 8: delete editors note.
Line 13: delete "See TBD."

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.3.6.4** *P* **199** *L* **5** # 3398
Remein, Duane Huawei

Comment Type **TR** *Comment Status* **D** *PICS Rev*

This requirement is inappropriate here. The PCS has no control over the minimum gap time between bursts which is control by the MPCP layer.

SuggestedRemedy

Change wording to:
The CLT grant generator ensures a minimum gap time between bursts from any CNU equal to the transmission time of one (1) resource block expressed in units of time_quantaum (see 77.2.2.2)."

In 103.3.2.4 add the following requirement:
"The CLT shall ensure that a minimum gap time between bursts from any two CNUs equal to the transmission time of one (1) resource block expressed in units of time_quantaum."
Add PICS statement to cover new requirement.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.4.5** *P* **213** *L* **31** # 3394
Remein, Duane Huawei

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

Requirement clarification/simplification.

SuggestedRemedy

Both real and imaginary axes of a QAM constellation shall be scaled using the scaling factor given in Table 101-20. These scaling factors ensure that the mean square value of all QAM constellations are equal to 1.0.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.5** *P* **214** *L* **11** # 3367
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

"EDITORS NOTE (to be removed prior to publication): This subclause is reserved for the summary of the power-saving capabilities for this PMD type. This material would be all new in the amendment added by IEEE P802.3bn EPoC Task Force"

SuggestedRemedy

Strike the section. Power-saving capabilities are documented in Cl 100.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.6** *P* **214** *L* **16** # 3506
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *101.6 Rev*

Remove 101.6 subclause title and following editors note. If documented, time sync will move to Clause 102 with use of the PHY Link timestamp.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See resolution to Cmt# 3457

Cl **101** *SC* **101.6** *P* **214** *L* **17** # 3457
Powell, Bill Alcatel-Lucent

Comment Type **T** *Comment Status* **D** *101.6 Rev*

101.6 Timesync Capability has no text at moment

SuggestedRemedy

Add suggested text from powell_3bn_02_0515.pdf

Proposed Response *Response Status* **W**

PROPOSED REJECT.
powell_3bn_02_0515.pdf not submitted.
See related Cmt# 3506

Cl **101** *SC* **101.9** *P* **136** *L* **45** # 3472
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Fig 101-7*

Figure 101-7, update top of figure for burst marker updates. This has likely be done in another comment.

Line 37: designate/illustrate a Bq 65 bit block and label as "Burst time header" with an arrow pointing to that block. This block is after the two "Idles" blocks and before the first "MAC Data" block.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Added pg & line info
See Cmt# 3375 for update to Figure 101-7.

Cl **101** *SC* **102.2.1.1** *P* **228** *L* **45** # 3399

Remein, Duane Huawei

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

Remnants of two symbol sizes and no mention of windowing:
"The downstream PHY Link shall use the same OFDM Symbol size and cyclic prefix duration as the downstream MAC data channel."

SuggestedRemedy

Change to:
"The downstream PHY Link shall use the same OFDM Symbol definition (cyclic prefix duration and windowing size) as the downstream MAC data channel.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102** *P* **217** *L* **3** # 3368

Remein, Duane Huawei

Comment Type **ER** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): Probe processing needs to be pulled out of the PHY Link.
If everyone is comfortable with the architecture as is (part of PHY Link) then we can leave it as it is.

SuggestedRemedy

Remove the Ed Note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.1.1** *P* **218** *L* **44** # 3408

Remein, Duane Huawei

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

It may be useful to include the timestamp in the upstream direction for TOD Sync.

SuggestedRemedy

In Figure 102-2 EPFH replace "R(32b)" with "Timestamp(32b)"

In 102.3.2.1 pg 244 line 35 change:
"The upstream PHY Frame Header includes a Type field, the Return Frame ID field, the PHY SA and a CRC(32) as illustrated in Figure 102-2. ..."
To:
"The upstream PHY Frame Header includes a Type field, the Return Frame ID field, the PHY SA, the PHY Timestamp field, and a CRC(32) as illustrated in Figure 102-2. ... The PHY Timestamp is a 32 bit field set from the LocalTS."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.1.2** *P* **219** *L* **30** # 3553

Kliger, Avi Broadcom

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

In figure 102-3 FEC and Sym map blocks are split while descrambler block is not.

SuggestedRemedy

Split descrambler for consistency

Proposed Response *Response Status* **W**

PROPOSED REJECT.
But there is only one descrambling funciton described. It works for both PHY Discovery and normal PHY Link messages. If that is not the case please provide a description of the PHY Discovery Scramble/Descrambler

Cl **102** *SC* **102.1.2** *P* **220** *L* **16** # 3552

Kliger, Avi Broadcom

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

In figure 102-4 FEC and Sym map blocks are split while descrambler block is not.

SuggestedRemedy

Split descrambler for consistency

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See Cmt# 3553

Cl **102** *SC* **102.1.3** *P* **220** *L* **43** # 3355

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Remove the following Editors Notes:
Pg Ln
220 43
223 23
233 21
233 52
250 45

SuggestedRemedy

Per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.1.8** *P* **225** *L* **9** # 3369

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): not all variables need to be included in Cl 45. We need
to determine how to index variables that need to be communicated over the PHY Link that are not included in
Cl 45. Current ¡rule¡¨ is:
If 1.1900 <= RegAdd <=1.1999 Then Index = RegAdd - 1.1900)*1000) (i.e., 0-99)
46 indexes in this range were in use as of Draft 1.4.
If 12.0000 <= RegAdd Then Index = (RegAdd - 12.0000)*1000 + 1000 (i.e., 1000 +)
12287 indexes in this range are in use as of Draft 1.4
If variable is not in Cl 45 use indexes 500-999

SuggestedRemedy

Replace with the following note:
NOTE: Most of the variables transferred via the PHY Link are reflected in Clause 45. The EPoC Index and bits are determined from Clause 45 register designations using the following rules:
1.1900 <= RegAdd <=1.1999 Then Index = RegAdd - 1.1900)*1000) (i.e., 0-99)
If 12.0000 <= RegAdd Then Index = (RegAdd - 12.0000)*1000 + 1000 (i.e., 1000 +)
If variable is not in Cl 45 use indexes 500-999.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to
NOTE: Most of the variables transferred via the PHY Link are reflected in Clause 45. The EPoC Index and bits are determined from Clause 45 register designations using the following rules:
If 1.1900 <= RegAdd <=1.1999 Then Index = RegAdd - 1.1900)*1000) (i.e., 0-99)
If 12.0000 <= RegAdd Then Index = (RegAdd - 12.0000)*1000 + 1000 (i.e., 1000 +)
If variable is not in Cl 45 indexes between 500 and 999 are used and are given in the variable definition."
Use Style NOTE

Cl **102** *SC* **102.1.8** *P* **226** *L* **16** # 3418
Remein, Duane Huawei

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

NewCNU_Rng not formally defined or used.

SuggestedRemedy

Add to 102.4.1.7.2 Variables
NewCNU_Rng
TYPE: 16-bit integer
This variable indicates the range of the CNU corresponding to Allowed CNU_ID in units of OFDM clock (1/204.8 MHz).

Add to the end of 102.4.1.4:
"The CLT calculates the range of the CNU based on the PHY Link Response and uses this to report the NewCNU_Rng when declaring the CNU link-up (see 102.4.3)."

Update reference in 45.2.1.142.1 pg 48 ln 18 to 102.4.1.7.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.2.1.1** *P* **228** *L* **43** # 3416
Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *102.2.1.1*

DS_PhyLinkStrt not formally defined and should remove ref to Cl 45 here "(see DS PHY Link Start parameter, 45.2.1.138)"

SuggestedRemedy

Change
"(see DS PHY Link Start parameter, 45.2.1.138)"
to
"(see 102.2.6.3)"

Add to 102.2.6.3 Variables
DS_PhyLinkStrt
TYPE: 12-bit integer
This variable sets the starting subcarrier in OFDM Channel 1 of the downstream PHY Link. It specifies the lowest frequency subcarrier of the downstream PHY Link used to carry PHY Link information bits.

In Cl 45.2.1.138.1 pg 46 ln 6 update reference to 102.2.6.3
Note that Cl 45.2.1.138.1 should be combined with 45.2.1.138 per IEEE Style guide (no single subclauses). Likewise 45.2.1.139 and 45.2.1.139.1 should be combined.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Changed pg to 228 fm 229

Cl **102** *SC* **102.2.1.1** *P* **228** *L* **44** # 3536
Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *102.2.1.1*

From weekely conference call review notes:
Cross reference to Clause 45 should be removed/changed.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See Cmt# 3416

Cl **102** *SC* **102.2.3.1.4** *P* **235** *L* **23** # 3352
Remein, Duane Huawei

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

Change per remein_3bn_15_0515.pdf
(on behalf of P Anslow, see anslow_3bn_01_0515.pdf)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Change to pg 235 fm 23

Cl **102** *SC* **102.2.3.1.4** *P* **235** *L* **3** # 3401
Remein, Duane Huawei

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

Several instance of LocalTS_ctr should be LocalTS

SuggestedRemedy

Globally replace LocalTS_ctr with LocalTS

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.2.3.2** *P* **235** *L* **53** # 3371

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *PICS Ed/TBD*

Fm pg 263 ln 53: "EDITORS NOTE (to be removed prior to publication); we need to define a minimum time of 2.5 ms between the EPCH message and the beginning of the Probe Period."

SuggestedRemedy

Remove the Ed Note
At pg 263 ln 52 add
"The CNU shall decode and be capable of acting on EPoC Probe Control Header instructions included in a downstream PHY Link frame within 2.5 ms."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.2.3.3** *P* **237** *L* **24** # 3402

Remein, Duane Huawei

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

DS requirement is duplicate pg 234 ln 39 & 237 ln 24
"The CLT shall only transmit the valid values of the PHY DA and OPCODE fields as given in Table 102-8, and Table 102-10 respectively."

SuggestedRemedy

Change to:
"The CLT shall only transmit the valid OPCODE field values as given in Table 102-10."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.2.5** *P* **238** *L* **37** # 3370

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

EDITORS NOTE (to be removed prior to publication): We might want to consider creating a variable that the CNU can pass to the CLT to indicate what it's min response time is if it can be shorter than this. For example:
US_PlnkRspTm
TYPE: 16-bit integer
This read only variable indicates the PHYs minimum response time to a downstream PHY Link instruction in units of 16/204.8 MHz. The maximum value for this variable is 61440 (4.8 ms).
A complementary register may be defined in Cl 45.
Define variable per note, add to Cl 45

SuggestedRemedy

Add variable definition in 102.2.6.3
PhyLinkRspTm
TYPE: 16-bit integer
This read only variable indicates the PHYs minimum response time to a downstream PHY Link instruction in units of 16/204.8 MHz. The maximum value for this variable is 61440 (4.8 ms) which is also the default value for this variable.

Add Row in Table 102-3
PHY Link response time | PHY Link response time | 1.1947.15:0 | PhyLinkRspTm | 47 | 15:0

Add new Cl 45 Register
Add Row to Table 45-3
1.1947 | PHY Link response time | 45.2.1.160

Add new SCl:
45.2.1.160 PHY Link response time register (Register 1.1947)
The assignment of bits in the PHY Link response register is shown in Table 45-98ad. These bits indicate the time required by a CNU to respond to an EPoC Message Block received on the PHY Link and are a reflection of the PhyLinkRspTm defined in 102.2.6.3.
Table 45-98ad PHY Link response time register bit definitions
Bit(s) | Name | Description | R/Wa
1.1946.15:0 | PHY Link response time | Time required by a CNU to respond to an EPoC Message Block | RO
aRO = Read only

At pg line 35 change:
"The CNU shall decode and be capable of acting on instructions included in a downstream PHY Link frame within 4.8 ms."
To:
The CNU shall decode and be capable of acting on EPoC Message Block instructions included in a downstream PHY Link frame within 4.8 ms."

At 138 line 37 replace the Ed. Note with the following:
"The CNU may indicate it is capable of a shorter response time to a downstream EPoC Message Block by setting the PhyLinkRspTm to a value of less than 61440 (4.8 ms).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.2.6.2** *P* **240** *L* **10** # 3407

Remein, Duane Huawei

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

LocalTS is not directly visible to "Layer Management" so the following statement is false by definition:
"Changing the value of this variable while running using Layer Management is highly undesirable and is unspecified."
However PhyTimingOffset is and cautions concerning this issue have been addressed in another comment (Cl 102.4.1.7.2 pg 255 line 2) that formally defines that variable.

SuggestedRemedy

Strike "Changing the value of this variable while running using Layer Management is highly undesirable and is unspecified."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.3.1** *P* **254** *L* **43** # 3606

Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **X**

Text must specify how the CNU shall handle the power offset value received from the CLT

SuggestedRemedy

Add the following text in line 43:
"When the CNU receives the PhypowerOffset variable it shall increase its transmission power by the PhypowerOffset value if the PhypowerOffset is negative and reduced its transmission power by the PhyPowerOffset value if PhyPowerOffset is positive"

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.3.1.1** *P* **244** *L* **7** # 3410

Remein, Duane Huawei

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

Clause 45 ref.
"... per the US_PHyLinkStrt variable (see US PHY Link Start, 45.2.1.139) ..."

SuggestedRemedy

change to:
"... per the US_PHyLinkStrt variable (see 102.3.5.3) ..."

Add to 102.3.5.3
US_PHyLinkStrt
TYPE: 12-bit unsigned integer
This variable indicates the starting subcarrier of the upstream 10GPASS-XR PHY Link. It specifies the lowest frequency subcarrier of the upstream PHY Link used to carry PHY Link information bits.

In 45.2.1.139.1 change {ref} to 102.3.5.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Per comment
Globally replace US_PHyLinkStrt with US_PhyLinkStrt

Cl **102** *SC* **102.3.1.2** *P* **244** *L* **14** # 3403

Remein, Duane Huawei

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

Nowhere do we specify where the US PHY Link modulation is set, only that it is limited to those type listed in Table 100-2.
"The upstream PHY Link shall use any of the modulation formats listed under PHY Link CNU Tx/CLT Rx in Table 100-2."

SuggestedRemedy

Change to read:
"The upstream PHY Link shall use any of the modulation formats listed under PHY Link CNU Tx/CLT Rx in Table 100-2 and is set using the US_PhyLnkMod variable."

In 102.3.5.3 add:
US_PhyLnkMod
TYPE: 4 bit integer
This variable sets the type of modulation used for the upstream PHY Link. The assignment of bits to each modulation type is shown below.
bit 3 2 1 0
1 x x x = reserved
0 1 1 1 = 128-QAM
0 1 1 0 = 64-QAM
0 1 0 1 = 32-QAM
0 1 0 0 = 16-QAM
0 0 1 1 = 8-QAM
0 0 1 0 = reserved
0 0 0 1 = BPSK
0 0 0 0 = reserved

In Table 102-3 add:
US PHY Link Modulation | US PHY Link control | 1.1912.15:12 | US_PhyLnkMod | 12 | 15:12

In Cl 45.2.1.139 US PHY Link control register (Register 1.1912)
In table 45-98i change:
1.1912.15:12 | Reserved | Ignore on read | RO
to:
1.1912.15:12 | US PHY Link Modulation | US PHY Link modulation type | R/W

Add:
45.2.1.138.1 US PHY Link Modulation (1.1912.15:12)
Bits 1.1912.15:12 are used to set the modulation type of the US PHY Link. These bits are a reflection of the US_PhyLnkMod variable defined in 102.3.5.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Use US_PhyLinkMod instead of US_PhyLnkMod

Cl **102** *SC* **102.3.1.3** *P* **244** *L* **17** # 3607

Kliger, Avi Broadcom

Comment Type **E** *Comment Status* **X**

Subclause has no text

SuggestedRemedy

Remove subclause

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.3.2.2** *P* **245** *L* **13** # 3598

Remein, Duane Huawei

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

OPCODE Write ACK & Write/Verify ACK. Some registers may include read only bits. Failure to write a Read Only bit should not be consider an unsuccessfully "received and executed write Instruction"

SuggestedRemedy

Add footnote to Write ACK & Write/Verify ACK:
a a write or write verify PHY Instruction to an index that contains read only bits is considered successful when all read/write bits in teh index are written.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.3.3** *P* **246** *L* **8** # 3404

Remein, Duane Huawei

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

Incomplete ref:
described in 102.1.4.2.1.

SuggestedRemedy

Change to:
102.1.4.1.1 and 102.1.4.2.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.3.4** *P* **246** *L* **17** # 3602
Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **X**

first and last subcarriers of the PLC should be of type-2 RBs

SuggestedRemedy

correct figure 102-17 accordingly

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.4** *P* **249** *L* **9** # 3600
Kliger, Avi Broadcom

Comment Type **T** *Comment Status* **X**

Probes are used for periodic verification of the CNU's timing as well transmission power and pre-equailzer coefficients

SuggestedRemedy

Modify the sentence as follows:
"While an EPoC network is in operation, periodic verification of the CNUs OFDMA timing, transmission power and pre-equalizer coefficients is needed to
ensure orthogonality and proper reception. This is accomplished using Wideband Probing. Wideband Probing may also used during
the PHY Discovery process to fine tune the timing of CNUs joining the network

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.4.1.4** *P* **251** *L* **13** # 3605
Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **X**

"Multiple valid PHY Discovery Responses that overlap in time may be received by the CLT during a single PHY Discovery window depending on the modulated spectrum of OFDM channel 0"

This sentence is not clear in how that PD overlaped in time may be received depends on the modulat3ed spectrum of channel 0.
During a probe period there could multiple PD windows open on different subcarriers. The CKT may receive them simulataneously.

SuggestedRemedy

Modify the sentence accordingly

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.4.1.4** *P* **251** *L* **28** # 3604
Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **X**

The transmit power of the unaligned CNU must be controlled by the CLT with a value that is provided in the downstream PLC and is common to all initial PD responses from new CNUs. If the CNU does not receive a corresponding CNU_ID instruction from the CLT it shall retry with an increased transmission power by a step that is also provided by the CLT. This is required to prevent interference to other CNUs and to expedite the acquisition time.

SuggestedRemedy

Add this description below line 28 and update table 102-13 accordingly (enter a corresponding new field for the initial PD transmission power) with Y under PHY DIscovery column. Add initial PD transmission power and initial pD TX power step to teh PLC parameters. Add increasing PD transmission power function in TRANSMIT BDISC block in figure 102-24

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.4.1.5** *P* **253** *L* **48** # 3405
Remein, Duane Huawei

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

improper Figure Ref.
"illustrated in 102-22."

SuggestedRemedy

Change to:
"illustrated in Figure 102-22."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.4.1.6** *P* **254** *L* **16** # 3384

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *CNU_ID_Alloc Rev*

Enhancements to CNI_ID allocation.
1)include text about AssgndCNU_ID (in same index as AllwdCNU_ID) here in the discussion of CNU_ID allocation message and explain how AssgndCNU_ID and AllwdCNU_ID are used at CNU.
2) Explain how PhyPowerOffset is used at CNU
3) Add AssgndCNU_ID definition (see Sug Rem in my comment pg 264 ln 12)
4) Add formal definition for PHYPowerOffset

SuggestedRemedy

See remein_3bn_10_0515.pdf (also in framemaker)

See related comment on SCl 102.4.3 pg 264 ln 12 suggested topic CNU_ID_Alloc

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See related comment # 3417

Cl **102** *SC* **102.4.1.6** *P* **254** *L* **42** # 3406

Remein, Duane Huawei

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

Undefined variable RangingOffset.
"When the CNU receives the PhyTimingOffset variable it shall add the new value of PhyTimingOffset to the RangingOffset."

SuggestedRemedy

Change to read:
"When the CNU receives the PhyTimingOffset variable it shall add the new value of PhyTimingOffset to the LocalTS."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.4.1.7.2** *P* **255** *L* **2** # 3420

Remein, Duane Huawei

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

PhyTimingOffset, and PhyPowerOffset not formally defined.

SuggestedRemedy

Add to 102.4.1.7.2 Variables
PhyPowerOffset
TYPE: signed 8-bit integer
This variable is used to set the CNU upstream transmitter power by specifying the relative change, in units of 1/4 dB, the CNU is to make in order that transmissions arrive at the CLT at the desired power level. Changing the value of this variable while running using Management is highly undesirable and is unspecified.

PhyTimingOffset
TYPE: signed 32-bit integer
This variable is used to align the CNU to the upstream OFDM timing. PhyTimingOffset is in units of 1/204.8 MHz and a negative value causes the timing of the CNU transmissions to be delayed. Changing the value of this variable while running using Management is highly undesirable and is unspecified.

Update reference in 45.2.1.120 & 45.2.1.121 pg 49 ln 2 & 23

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.4.3** *P* **264** *L* **12** # 3417

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *CNU_ID_Alloc Rev*

AssgndCNU_ID not formally defined, remove Cl 45 ref "(see 45.2.1.141)

SuggestedRemedy

Change
"(see 45.2.1.141)"
to
"(see 102.4.3.3)

New definition included in remein_3bn_10_0515.pdf:
AssgndCNU_ID
TYPE: boolean
The value of this variable is used to indicate if the associated CNU_ID value has been assigned to a CNU by the PHY. When the flag is set to a one the associated CNU_ID has been assigned to a new CNU whereas when the flag is set to zero the associated CNU_ID has not been assigned.

Update reference in 45.2.1.141.1 pg 47 ln 25 to 102.4.3.3

See related comment on SCl 102.4.1.6 pg 254 ln 16 suggested topic CNU_ID_Alloc

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See Cmt # 3384

Cl **102** *SC* **102.4.3** *P* **264** *L* **12** # 3434

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *TxEnable PICS Rev*

Assuming we change TxEnable to PD_Enable the new variable does not fully describe the state of link-up ready.
Create a new variable for this:

SuggestedRemedy

Create new variable LinkUpRdy.
Change at Pg 264 ln 11"
"Once the CLT has verified the CNU is in the link-up status by reading the TxEnable variable as TRUE it may set ."
To:
"Once the CLT has verified the CNU is in the link-up status by reading the Variable listed in the Link-Up column of Table 102-3 it shall set the LinUpRdy variable to TRUE and it may set ."

Pg 266 ln 17 change:
"to be link-down
and set both PhyDiscComplete and TxEnable to FALSE"
to:
"to be link-down
and sets LinkUpRdy, PhyDiscComplete and PD_Enable to FALSE"

at Pg 267 ln 4 and pg 267 ln 9 change:
"It may further force the CNU to reassess its' readiness for participation on the network by setting TxEnable to FALSE."
To:
"It may further force the CNU to reassess its' readiness for participation on the network by setting PD_Enable and LinkUpRdy to FALSE.

Add Row to Table 102-13:
LinkUpRdy | | 0 | 10 | (blank)| T

Add definition in 102.4.1.7.2
LinkUpRdy
TYPE: Boolean
This Boolean variable is set to TRUE by the CLT when it has verified all of the variables required for Link-Up state in Table 102-13. The variable is set to FALSE on reset or as describe in 102.4.4.

SCl 45.2.1.131 Pg 37 Ln 47 change table 98a as follows:
Add 1.1900.10 | Link Up Ready | The CNU is ready to enter the Link-Up state. | RW
Change 1.1900:15:10 to 1.1900:15:11
Add SCl 45.2.1.131.1 to read: "Link Up Ready (1.1900:10)"
"Bit 1.1900.10 indicates that the CNU is ready for the link-up state. This bit is a reflection of the LinkUpRdy variable defined in 102.4.1.7.2."
Add row to Table 102-3:

Link Up Ready | 10GPASS-XR control | 1.1900:10 | LinkUpRdy | 0 | 10

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.4.3** *P* **265** *L* *#* 3603

Kliger, Avi Broadcom

Comment Type **TR** *Comment Status* **X**

Since RB types are required in order to send data in the upstream direction, their corresponding entry in the Link-up column should be Y.

SuggestedRemedy

Correct table 102-13 accordingly

Proposed Response *Response Status* **O**

Cl **102** *SC* **102.4.3** *P* **265** *L* **47** *#* 3573

Laubach, Mark Broadcom

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

Turn OFDMA_ClkSync and DS_PHY_LinkSync into variables and remove the four TBDs. Editor to assign Index and bit(s) values. Editors to add to appropriate clause tables and clause 45 as needed.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
For DS_PHY_LinkSync See Cmt# 3431

For OFDMA_ClkSync need a defintion.

Cl **102** *SC* **102.4.3** *P* **265** *L* **49** *#* 3431

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

DS_PHY_LinkSync is not a required variable; if the PHY Link is not synchronized the rest of the variables listed in Table 102-13 cannot be obtained.

SuggestedRemedy

remove row from table

Also remove Ed Note on pg 267 ln 1 (assuming OFDMA_ClkSync is defined).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.4.4.1** *P* **266** *L* **25** *#* 3357

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Clear non-controversial TBDs in Clause 102

SuggestedRemedy

pg ln Replace with
266 25 TBD(5?) -> 10 (48.8 ns, aligned with Leo's 50 ns alignment)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **102** *SC* **102.4.4.1** *P* **266** *L* **27** *#* 3507

Laubach, Mark Broadcom

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

After reviewing DOCSIS D3.1 MULPI I05, the CNU may be receiving the DS PHY Link, but not properly receiving one or more downstream channels properly.

Consider adding the following new row after DS PHY Link loss of frame:
Condition "DS Data FEC lost of lock". Description "After successfully decoding FEC codewords in a prior downstream frame, the PCS is unable to decode any FEC codeword in a downstream frame for 3 or more consecutive frames."

Line 50: delete editors note.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
This requriement seems a bit stringent to me. The way I read this is that if you have 3 unsuccessful FEC decodes in 15.72 ms (3 frames, with at least 1 failed FEC decode in each frame) you will declare link-down. How many clear frames to declare link-up?
Would we want to be able to report this causal condition? If so need varaible and Cl 45 reg.
(might want to add same for PHY Link loss of frame)

Cl **103** *SC* **103.1** *P* **271** *L* **5** *#* 3353

Remein, Duane Huawei

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

Change Protocol to protocol (2x) and Coax to coax in this para.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.1** *P* **272** *L* **26** # 3429

Remein, Duane Huawei

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

Include a statement regarding similarities between Cl 77 & 64 with Cl 103 and a table that summarizes the major differences between Cl 103 defined items (variables, counters, functions etc.) and those of Cl 77.

SuggestedRemedy

At the end of Cl 103..1 add the following:
"The EPoC Multipoint MAC Control shares much in common with prior versions of this protocol defined in Clause 64 and Clause 77. There are a number of variables, constants and functions that are complementary to those defined for EPON Multipoint MAC Control but that are unique to EPoC. These are listed in Table 103-1."
Add Table 103-1 as shown in remein_3bn_17_0515.pdf pg 1

{see related comments on fecOffset pg 283 ln 27 and IdleGapCount pg 283 ln 37}

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See Related Cmt# 3429, 3363, & 3421

Cl **103** *SC* **103.1.2** *P* **274** *L* **1** # 3360

Remein, Duane Huawei

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

Figure 103-2 should be nearly identical to Figure 101-1 and 100-1 but isn't

SuggestedRemedy

Copy Figure 101-1 to 103-1 changing highlighting and adding "CCDN" to abbreviation key at the bottom.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.2** *P* **276** *L* **40** # 3362

Remein, Duane Huawei

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

There are no substantive differences between Cl 103.2/103.2.1/103.2.1.1/103.2.2 and the corresponding subclauses of Cl 77. We should avoid duplication between these clauses where possible.

SuggestedRemedy

Replace the text of 103.2 with the following:
"As depicted in Figure 103-3, the Multipoint MAC Control functional block contains functions very similar to those found in Clause 77. In EPoC the CLT replaces the OLT and the CNU replaces the ONU. Significant differences are noted in the following sections."

Replace the text of 103.2.1 with the following:
"The principle of Multipoint MAC Control is the same as those described in 77.2.1 for EPON."

Replace the text of 103.2.1.1 with the following:
"The ranging and timing processes for EPoC are the same as those described in 77.2.1.1 for EPON."

Replace the text of 103.2.2 with the following:
"The purpose and high level functionality of multipoint transmission control is similar to those described in 77.2.2 for EPON. Detailed differences are noted in the definitions below and in Figure 103-9 through Figure 103-14.

Remove Figure 103-4-"Round trip time calculation".
RETAIN Figure 103-5-"Multipoint Transmission Control service interfaces" through . Figure 103-14-"CNU Control Multiplexer state diagram".
RETAIN sections 103.2.2.1 "Constants" through 103.2.2.7 "State diagrams".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Note: The keyword "shall" does not appear in the removed text.

Cl **103** *SC* **103.2.2** *P* **279** *L* **41** # 3422
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Remove the following Editors Notes:
Pg Ln
279 41
282 53
285 25
287 7
287 42
292 52
294 1

SuggestedRemedy

Per Comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.2.2** *P* **281** *L* **2** # 3409
Remein, Duane Huawei

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

Figure 103-7 still has a carry-over from TDD - "transmitAllowed(n)"

SuggestedRemedy

Remove from:
Figure 103-7
Figure 103-13

Pg 285 ln 12 change
"This variable is used to control PDU transmission at the CNU and at the CLT and is defined in 64.2.2.3."
to
"This variable is used to control PDU transmission at the CNU and is defined in 64.2.2.3."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.2.2.1** *P* **282** *L* **35** # 3361
Remein, Duane Huawei

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

MAC_Control_type is defined in Cl 32 not 64.

SuggestedRemedy

Change ref from 64.2.2.1 to 31.4.1.3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.2.2.1** *P* **282** *L* **48** # 3358
Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

tqSizeC is dependent on the data rate and cannot therefore be a constant.

SuggestedRemedy

Move this definition to 103.2.2.3
Change "constant" to "variable"
Strike "VALUE: TBD"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.2.2.3** *P* **283** *L* **16** # 3427
Remein, Duane Huawei

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

There are inconsistencies in how we are cross referencing variable in CL 103 when the variable is previously defined in EPON. For example data_rx is defined 4 times in the draft.
Here the full definition is repeated and a cross reference provided to 64.2.2.3
Pg 299 ln 46 is simply cross referenced to 64.2.2.3
Pg 309 ln 49 is cross referenced to 103.2.2.3 as is the def on pg 314 ln 25.

SuggestedRemedy

For each variable that is identical to one defined in Cl 64 or 77:
For the 1st instance of the definition repeat the def and provide a cross reference to the earliest definition.
For all subsequent definitions internally cross reference to the first definition in Cl 103.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.2.2.3** *P* **283** *L* **27** # 3363

Remein, Duane Huawei

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

There are several defined items in Cl 103.2.2.x that are different between EPoC and EPON such as fecOffset. It would be a good idea to give these unique names.
This is true for:
Pg Ln Variable,
283 25 fecOffset,
284 10 OctetsRemaining,
284 36 ResetBound,
285 36 CheckGrantSize(length),
287 16 packet_initiate_timer,
314 31 effectiveLength,
316 17 rndDlyTmr,

SuggestedRemedy

Globally change:
fecOffset -> fecOffsetC (15 instances)
OctetsRemaining -> OctetsRemainingC (3 instances)
ResetBound -> ResetBoundC (4 instances)
CheckGrantSize -> CheckGrantSizeC (3 instances)
packet_initiate_timer -> packet_initiate_timerC (6 instances)
effectiveLength -> effectiveLengthC (5 instances)
rndDlyTmr -> rndDlyTmrC (3 instances)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See Related Cmt# 3429, 3363, & 3421

Cl **103** *SC* **103.2.2.3** *P* **283** *L* **37** # 3421

Remein, Duane Huawei

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

There are several defined item in Cl Cl 103.2.2.x that are identical to items defined elsewhere for EPON. For example IdleGapCount definition is identical to that in Cl 77.2.2.3.
This is true for:
Pg Ln Variable (xRef)
283 35 IdleGapCount (Cl 77.2.2.3),
284 41 RTT (cl 64.2.2.3),
285 33 Opcode-specific function(opcode) (Cl 64.3.5.5),
286 43 select() (Cl 64.2.2.4),
286 48 SelectFrame() (Cl 64.2.2.4),
287 1 sizeof(sdu) (Cl 64.2.2.4),
300 26 pendingGrants (64.3.3.2),
310 3 mpcp_timeout (64.3.4.2),
310 14 report_timeout (64.3.4.2),
310 27 report_periodic_timer (64.3.4.4),
313 28 max_future_grant_time (64.3.5.1),
314 12 currentGrant (64.3.5.2),
314 36 gate_timeout (64.3.5.2),
314 41 grantList (64.3.5.2),
314 53 maxDelay (64.3.5.2),
315 8 nextGrant (64.3.5.2),
315 14 nextStopTime (64.3.5.2),
315 33 empty(list) (64.3.5.3),
315 36 InsertInOrder(sorted_list, inserted_element) (64.3.5.3),
315 42 IsBroadcast(grant) (64.3.5.3),
315 47 PeekHead(sorted_list) (64.3.5.3),
315 51 Random(r) (64.3.5.3),
316 1 RemoveHead(sorted_list) (64.3.5.3),
316 7 gntStTmr (64.3.5.4),
316 11 gate_periodic_timer (64.3.5.4)

SuggestedRemedy

Add to the descriptions: "as described in xxx" replacing xxx with the appropriate ref.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See Related Cmt# 3429, 3363, & 3421

Cl **103** *SC* **103.2.2.4** *P* **285** *L* **36** # 3356
Remein, Duane Huawei

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

The pseudo code for CheckGrantSize() should be in quasi "C"

SuggestedRemedy

Replace the pseudo code for CheckGrantSize() with that in remein_3bn_16_0515.pdf.
Remove Editors note pg 286 ln 17.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.3** *P* **294** *L* **3** # 3423
Remein, Duane Huawei

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

There are no substantive differences between Cl 103.3/103.3.1/103.3.2/103.3.2.x/103.3.3/103.3.4 and the corresponding subclauses of Cl 77, with some exceptions. We should avoid duplication between these clauses where possible.

SuggestedRemedy

See remein_3bn_17_0515.pdf pg 3-5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Correct file name is remein_3bn_18_0515.pdf

Cl **103** *SC* **103.3.2.4** *P* **295** *L* **42** # 3372
Remein, Duane Huawei

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

Given that this only applies to MAC Control and that time in PHY is seen as distance there is no reason these TBDs cannot be the same as in EPON.
In cl 77 these two TBD's are both 1024 (i.e., 16.384 us).

SuggestedRemedy

Change both TBDs to 1024 (i.e., 16.384 us).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.3.3** *P* **298** *L* **8** # 3424
Remein, Duane Huawei

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

In numerous figures "RFOnTime" should be "rfOnTime"

SuggestedRemedy

Replace 19 instance of "RFOnTime" with "rfOnTime"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.3.3.2** *P* **300** *L* **26** # 3425
Remein, Duane Huawei

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

The definition of pendingGrants is identical to that in 64.3.3.2.

SuggestedRemedy

Append to the description
"and is defined in 64.3.3.2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.3.3.2** *P* **300** *L* **35** # 3508
Laubach, Mark Broadcom

Comment Type **T** *Comment Status* **D** *Ed/TBD*

Change the description of the syncTime variable to "This variable holds the time required to stabilize an EPON receiver at the OLT (see 76.3.2.5.3 and 77.3.3). The EPoC CLT OFDMA receiver is synchronized and stablized during PHY Discovery and does not use a synchronization preamble as part of the upstream burst (see 101.3.2.5.3). This variable is present to maintain compatibility with the EPON MPCP.
<newline>
VALUE: 0

Line 44: delete Editors note.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Per commnet but last sentence to read:
"This variable is present to maintain compatibility with the EPON MPCP and always has a value of zero in EPoC PHYs."

Cl **103** *SC* **103.3.4** *P* **294** *L* **3** # 3426

Remein, Duane Huawei

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

There are no substantive differences between Cl 103.3/103.3.1/103.3.2/103.3.2.x/103.3.3/103.3.4/103.3.5/103.3.6 and the corresponding subclauses of Cl 77, with some exceptions. We should avoid duplication between these clauses where possible.

SuggestedRemedy

Replace the text of 103.3 with the following:
"As depicted in Figure 103-3, the Multipoint MAC Control functional block comprises nearly the same functions and layering system as that described in 77.3. In EPoC the CLT replaces the OLT and the CNU replaces the ONU. Significant differences are noted in the following sections.

103.3.1 Principles of Multipoint Control Protocol
The principles of the Multipoint Control Protocol are the same as those found in 77.3.1 except the EPoC system uses an Orthogonal Frequency Division Multiple Access (OFDMA) method in the upstream direction. In EPON the Multipoint Control Protocol allows one and only one MAC is allowed to transmit at any given time. In EPoC the Multipoint Control Protocol allows multiple MACs to transmit in any given time but coincident transmitters are separated in frequency.

103.3.2 Compatibility considerations
103.3.2.1 PAUSE operation
See 77.3.2.1
103.3.2.2 Optional Shared LAN emulation
Optional Shared LAN emulation for EPoC is the same as described in 77.3.2.2 except the specific behavior of the filtering layer at the RS is specified in 101.2.4.3.
103.3.2.3 Multicast and single copy broadcast support
Multicast and single copy broadcast support in EPoC is the same as described in 77.3.2.3 except the configuration of SCB channels as well as filtering and marking of frames for support of SCB is defined in 101.2.4.3."

RETAIN the text of 103.3.2.4 Delay requirements as is.

Replace the text of 103.3.3 with the following:
"Discovery processing in the EPoC system is largely the same as in the EPON system with the following exceptions. In the EPoC system CNUs that have not completed PHY Discovery process (see 102.4.1) will not respond to Discovery GATE MPCPDUs. In the EPoC coax cable distribution network only one upstream data rate is allowed for a given configuration. The laserOnTime and laserOffTime parameters of EPON are replaced in EPoC with rfOnTime and rfOffTime, respectively."

Remove Figure 103-15

Replace the text in 103.3.4 with the following:
"Report processing in EPoC is as described in 77.3.4."

Replace the text in 103.3.4 with the following:
"Gate processing in EPoC is as described in 77.3.4 with the exception being that EPoC used an RF transmitter rather than a laser."

Replace the text of 103.3.6 with the following:
"MPCPDU structure and encoding in EPoC is as described in 77.3.4 with the exceptions noted below."

Replace the text of 103.3.6.1 with the following:
"The GATE used in EPoC is the same as used for EPON with the following exceptions. In EPoC rfOnTime and rfOffTime replace laserOnTime and laserOffTime, respectively. The 16-bit Discovery Information register described in 77.3.6.1 is not used in EPoC; all bits in this register are reserved and ignored on reception."

Replace the text of 103.3.6.1 with the following:
"The REPORT description for EPoC is identical to that of EPON."

Replace the text of 103.3.6.2 with the following:
"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to Cmt# 3423

Cl **103** *SC* **103.3.5.2** *P* **314** *L* **1** # 3359

Remein, Duane Huawei

Comment Type **T** *Comment Status* **D** *Ed/TBD*

BurstOverhead definition needs to be aligned with EPoC burst overhead.
"This variable represents the burst overhead and equals the sum of rfOnTime, rfOffTime, syncTime and an additional {TBD} time_quanta to account for END_BURST_DELIMITER and two leading IDLE vectors of the payload. This variable is expressed in units of time_quanta."

SuggestedRemedy

Change to read:
"This variable represents the burst overhead and equals the sum of rfOnTime, rfOffTime, syncTime, Start Marker, End Marker and two leading IDLE vectors of the payload. This variable is expressed in units of time_quanta."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **103** *SC* **103.3.5.2** *P* **315** *L* **3** # 3428
Remein, Duane Huawei

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

In definition of macDelay REGISTER_REQ is incorrect in the following sentence: This delay is calculated such that the CNU would have sufficient time to transmit the REGISTER_REQ message and its associated overhead (FEC parity data, end-of-frame sequence, etc.) and terminate the RF before the end of the discovery grant.

SuggestedRemedy

Change REGISTER_REQ to REGISTER (as in 64.3.5.2 & 77.3.5.2)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Cl 64 uses REGISTER while Cl 77 uses REGISTER_REQ. Leave wording as is. Enusure any crossreference is tagged to Cl 77.3.5.2.

Cl **103** *SC* **103.3.5.6** *P* **318** *L* **51** # 3373
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

"EDITORS NOTE (to be removed prior to publication): the figure above "Gate Processing CNU Programing state diagram" will require modification if sub-clause 10x.4 "Discovery Process in dual-rate systems" is removed."
However some ONUs are single rate (10G) and this SD seems to work fine for them. Therefore I must conclude that it works fine even with the removal of 10x.4 Discovery Process in dual-rate systems.

SuggestedRemedy

Remove the Ed Note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2** *P* **27** *L* **5** # 3452
Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Remove Ed Note and Table 45-0

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2** *P* **29** *L* **33** # 3350
Remein, Duane Huawei

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

Change per remein_3bn_13_0515.pdf
(on behalf of P Anslow, see anslow_3bn_01_0515.pdf)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.131** *P* **37** *L* **50** # 3453
Remein, Duane Huawei

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

The description of CRC40 Errors in Table 45-98a does not match the behavior described in the accompanying text.
1 = CRC40 Errored frames are passed to the MAC layer without error indication
0 = CRC40 Errored frames are passed to the MAC layer using an error indication

SuggestedRemedy

Change to:
1 = CRC40 Errored frames are passed with all sync headers set to <1,1>
0 = CRC40 Errored frames are passed with some sync headers set to <1,1>

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.134** *P* **42** *L* **6** # 3554

Kliger, Avi Broadcom

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

Some entries have range of values and corresponding bit mapping, some do not

SuggestedRemedy

Add values and bit mapping to RB size and Rnd

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Rnd is an 8-bit integer and would not normally be "mapped"
For RB size change description to:
1 = 16 OFDMA symbols in the upstream OFDMA Resource Block
0 = 8 OFDMA symbols in the upstream OFDMA Resource Block

Perform a similar change for:
1.1901.15 CLT tx mute
1.1910.11 US copy in process
1.1910.10 US profile copy
1.1910.3 DS copy in process
1.1910.2 DS profile copy
12.10240.3 MER measurement
valid

Cl **45** *SC* **45.2.1.136** *P* **43** *L* **1** # 3365

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Pg 201 line 8: EDITORS NOTE (to be removed prior to publication): the above definition are essentially copies from Cl 45.2.1.112. Recommend keeping this and referencing this from Cl 45.

SuggestedRemedy

Change subclauses 45.2.1.136.2 and 45.2.1.136.4 from:
45.2.1.136.2 Type 2 Start (1.1909.11:8)
Register bits 1.1909.11 through 1.1909.8 indicate the number, as a integer between 0 and 15, of the first subcarrier designated as a Type 2 Pilot. These register bits are a reflection of the variable Type2_Start defined in 101.4.3.7.1.
45.2.1.136.4 Type 1 Start (1.1909.3:0)
Register bits 1.1909.3 through 1.1909.0 indicate the number, as a integer between 0 and 15, of the first subcarrier designated as a Type 1 Pilot. These register bits are a reflection of the variable Type1_Start defined in 101.4.3.7.1.
To:
Type 2 Start (1.1909.11:8)
Bits 1.1909.11:8 indicate the number of the first subcarrier designated as a Type 2 Pilot. These bits are a reflection of the variable Type2_Start defined in 101.4.3.7.1.
Type 1 Start (1.1909.3:0)
Bits 1.1909.3:0 indicate the number of the first subcarrier designated as a Type 1 Pilot. These bits are a reflection of the variable Type1_Start defined in 101.4.3.7.1.

Remove the Ed Note pg 201 ln 8

Pg 201 ln5: Typo - in line 5 "Type 1Start" s/b "Type2Start"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.137.4** *P* **45** *L* **18** # 3439

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *PICS Ed/TBD*

From Pg 158 ln 48: EDITORS NOTE (to be removed prior to publication): the above definitions were copied from those in Cl 45. We should probably keep these are reference them from Cl 45 rather than keep both.
Modify the definition in Cl 45.

SuggestedRemedy

Pg 45 ln 21 Change
Change 45.2.1.137.1 US copy in process (1.1910.3) from:
"When read as a one bit 1.1910.3 indicates that a copy of the currently active upstream profile to the inactive profile is in process. Note that while this variable has a value of one writes to all upstream profile variables shall be ignored and switching between profiles is prohibited. This register bit is a reflection of the variable US_CpyInP defined in 101.4.1.1.1.
To:
"When read as a one, bit 1.1910.11 indicates that a copy of the currently active upstream profile to the inactive profile is in process, writes to all upstream profile variables are ignored, and switching between profiles is prohibited. This bit is a reflection of the variable US_CpyInP defined in 101.4.1.1.1."

Change 45.2.1.137.2 US profile copy (1.1910.2) from:
"When bit 1.1910.2 is set to one a copy of the currently active upstream profile to the inactive profile is initiated. Once initiated this action continues to completion (i.e., it cannot be interrupted or aborted once initiated). These register bits are a reflection of the variable US_PrflCpy defined in 101.4.1.1.1.
To:
"When bit 1.1910.10 is set to one, a copy of the currently active upstream profile to the inactive profile is initiated and will continue to completion. This bit is a reflection of the variable US_PrflCpy defined in 101.4.1.1.1."

Change 45.2.1.137.4 DS copy in process (1.1910.3) from:
"When read as a one bit 1.1910.3 indicates that a copy of the currently active downstream profile to the inactive profile is in process. Note that while this variable has a value of one writes to all upstream profile variables shall be ignored and switching between profiles is prohibited. This register bit is a reflection of the variable DS_CpyInP defined in 101.4.1.1.1."
To:
"When read as a one, bit 1.1910.3 indicates that a copy of the currently active downstream profile to the inactive profile is in process, writes to all upstream profile variables are ignored, and switching between profiles is prohibited. This bit is a reflection of the variable DS_CpyInP defined in 101.4.1.1.1.

Change 45.2.1.137.5 DS profile copy (1.1910.2) from:
"When bit 1.1910.2 is set to one a copy of the currently active downstream profile to the inactive profile is initiated. Once initiated this action continues to completion (i.e., it cannot be interrupted or aborted once initiated). These register bits are a reflection of the variable UDS_PrflCpy defined in 101.4.1.1.1."
To:
"When bit 1.1910.2 is set to one, a copy of the currently active downstream profile to the inactive profile is initiated and will continue to completion. This bit is a reflection of the variable UDS_PrflCpy defined in 101.4.1.1.1."

Remove the Ed Note pg 158 ln 48

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7a.2.1** *P* **56** *L* **21** # 3383

Remein, Duane Huawei

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

This statement made sense when the bit definition was in Reg 12.1.3:0 but now that the enumeration is in Cl 101 it doesn't.
"See registers 12.1.3 through 12.1.0 for interpretation of individual bits."

SuggestedRemedy

Strike the statement in 4 places in 45.2.7a.2.x
Strike the similar phrase in 3 places in 45.2.7a.3.x

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7a.4** *P* **58** *L* **12** # 3366

Remein, Duane Huawei

Comment Type **E** *Comment Status* **D** *Ed/TBD*

Pg 208 line 13: "EDITORS NOTE (to be removed prior to publication): the above definition are essentially copies from Cl 45.2.7a.3. Recommend keeping this and referencing this from Cl 45."

SuggestedRemedy

Change 45.2.7a.4.1 and 45.2.7a.4.2 from:
45.2.7a.4.1 Real pre-equalizer coefficient SC(0) (12.2048.15:0)
Register bits 12.2048.15 through 12.2048.0 specify the real part of the pre-equalizer coefficient for subcarrier 0 for the US OFDMA channel. The number is a Q2.14 format signed fractional number. This register is a reflection of the variable EQ_CoefR(0) defined in 101.4.3.11.2.
45.2.7a.4.2 Imaginary pre-equalizer coefficient SC(0) (12.2049.15:0)
Register bits 12.2049.15 through 12.2049.0 specify the imaginary part of the pre-equalizer coefficient for subcarrier 0 for the US OFDMA channel. The number is a Q2.14 format signed fractional number. This register is a reflection of the variable EQ_CoefI(0) defined in 101.4.3.11.2.
To:
45.2.7a.4.1 Real pre-equalizer coefficient SC(0) (12.2048.15:0)
Register bits 12.2048.15 through 12.2048.0 specify the real part of the pre-equalizer coefficient for subcarrier 0 for the US OFDMA channel. This register is a reflection of the variable EQ_CoefR(0) defined in 101.4.3.11.2.
45.2.7a.4.2 Imaginary pre-equalizer coefficient SC(0) (12.2049.15:0)
Register bits 12.2049.15 through 12.2049.0 specify the imaginary part of the pre-equalizer coefficient for subcarrier 0 for the US OFDMA channel. This register is a reflection of the variable EQ_CoefI(0) defined in 101.4.3.11.2.

Removed Ed Note pg 208 ln 13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* *P* **69** *L* **1** # 3488

Laubach, Mark Broadcom

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

Delete the two last blank pages.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1** *P* **63** *L* **5** # 3482

Laubach, Mark Broadcom

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

Add "of 56.1" after "first paragraph".
Delete "Change the third paragraph as shown below."

Line 26: add editing directive before third paragraph: "
"Change the last paragraph of 56.1 as follows:"

Line 25. Make the reference to Figure 56-4a a cross reference.

Line 29: Make all references to Clause 100-103 cross references.

Line 38: make ref to CL 100 a cross reference.

Line 43: change "a new paragraph" to "two new paragraphs"

Line 50: lower case words before "(ODN)"

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.2.1** *P* **64** *L* **17** # 3483

Laubach, Mark Broadcom

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

Change "PR-type" to "XR-type" in PMD box., Same for Line 41.

Line 49, insert "CCDN coax cable distribution network" before CLT line.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.2.1** *P* **65** *L* **4** # 3484
Laubach, Mark Broadcom

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

Add cross ref for Clause 103.

Line 7, add cross ref for Figure 56-4a

Line 18, add cross ref for Clause 76 and Clause 101

Same for line 28.

Line 37-38, add cross refs for Clauses 100-103.

Line 40, delete "(as modified by IEEE Std 802.3bk-2013)"

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.3** *P* **62** *L* **18** # 3485
Laubach, Mark Broadcom

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

In Table 56-1, change tag to XREF for all "60" and "75".

Change references to "100" to cross references.

SuggestedRemedy

Changed color to forest green as a remedy.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change character Tag to "External" and the color wil be set appropriately.

Cl **56** *SC* **56.1.3** *P* **63** *L* **30** # 3489
Laubach, Mark Broadcom

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

Change editing directive "Change Table 56-3 as follows" to "Change Table 56-3 as follows to add the four right most new columns for Clauses 100, 101, 102, and 103.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.3** *P* **67** *L* **27** # 3486
Laubach, Mark Broadcom

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

In editing directive, delete "(as modified by IEEE Std 802.3bk-2013)"

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **67** *SC* **67.2.3a** *P* **72** *L* **17** # 3491
Laubach, Mark Broadcom

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

Delete subclause 67.2.3a and the following italized text on linse 18-20. No example topologies have been accepted by TF consensus.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **67** *SC* **67.6,1** *P* **72** *L* **25** # 3490
Laubach, Mark Broadcom

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

Change editing directive to: "Change the second paragraph of 67.6.1 as follows:"

Line 37: Change editing directive to: "Change the first paragraph of 67.6.3 as follows:"

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **67** *SC* **67.6.1** *P* **72** *L* **28** # 3524

Laubach, Mark Broadcom

Comment Type **ER** *Comment Status* **D** *Ed/TBD*

Remove editors note, no longer relevant.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **76** *SC* **76** *P* **73** *L* **3** # 3492

Laubach, Mark Broadcom

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

Insert subclause titles before editing directive:
76.2 Reconciliation Sublayer (RS) for 10G-EPON
76.2.6 Mapping of XGMII and GMII signals to PLS service primitives
76.2.6.1 Functional specifications for multiple MACs
76.2.6.1.3 RS Receive function
76.2.6.1.3.2 LLID

SuggestedRemedy

Note that an H6 is not in the current template, left as text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **n/a** *P* **1** *L* **1** # 3449

Remein, Duane Huawei

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

Change Front Matter per remein_3bn_11_0515.pdf
(on behalf of P. Anslow, see anslow_3bn_01_0515.pdf)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **n/a** *P* **2** *L* **1** # 3450

Remein, Duane Huawei

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

Update abstract text & keywords list and update project description on pg 4 line 49.

SuggestedRemedy

Replace [abstract text] with:
"defines physical layer specifications and management parameters for the operation of Ethernet Passive Optical Networks (EPON) Protocol over coaxial media.

Replace [keywords list] with:
"Ethernet Passive Optical Networks (EPON), EPON Protocol over Coax (EPoC), Multi-Point MAC Control (MPMC), orthogonal frequency division multiplexing (OFDM), Physical Coding Sublayer (PCS), Physical Media Attachment (PMA), Physical Medium Dependent (PMD), PON, Point to Multipoint (P2MP), Reconciliation Sublayer (RS)"

Replace:
"This amendment adds the physical layer specifications and management parameters for the operation of EPON Protocol over coaxial media. [complete]"
with
"This amendment adds physical layer specifications and management parameters for symmetric and/or asymmetric operation of up to 10 Gb/s on point-to-multipoint Radio Frequency (RF) distribution plants comprising either amplified or passive coaxial media. It also extends the operation of Ethernet Passive Optical Networks (EPON) protocols, such as Multipoint Control Protocol (MPCP) and Operation Administration and Management (OAM)."
(copied from PAR)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.