

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl **FM** SC **FM** P1 L11 # 1 [REDACTED]  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type **ER** Comment Status **A** PAR  
 Match new PAR title  
 SuggestedRemedy  
 Change "Physical Layer Specifications and Management Parameters for 25 Gb/s, 50 Gb/s, and 100 Gb/s Passive Optical Networks" to "Physical Layer Specifications and Management Parameters for 25 Gb/s and 50 Gb/s Passive Optical Networks" to match the new PAR as approved by TF in September 2018  
 The same change on page 19  
 Response Response Status **C**  
 ACCEPT.

Cl **FM** SC **FM** P1 L28 # 2 [REDACTED]  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type **ER** Comment Status **D** bucket  
 With IEEE Std 802.3-2018 now published, need to update the frontmatter accordingly  
 SuggestedRemedy  
 Apply a new FM template (use P802\_3xx\_D0p1\_version\_3p4), accounting for new IEEE Std 802.3-2018 baseline document, with new list of sections, and amendments  
 Proposed Response Response Status **W**  
 PROPOSED ACCEPT.

Cl **FM** SC **FM** P8 L13 # 3 [REDACTED]  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type **E** Comment Status **A** PAR  
 Update the name of the TF accordingly  
 SuggestedRemedy  
 Change "100G-EPON Task Force" to "25&50G-EPON Task Force"  
 Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Change "100G-EPON Task Force" to "Nx25G-EPON Task Force"

Cl **00** SC **0** P1 L17 # 119 [REDACTED]  
 Powell, Bill Nokia  
 Comment Type **TR** Comment Status **A** PAR  
 Now that the PAR, CSD, and project objectives have been changed to remove 100G, it's time to change the title of our Draft D1.3 to drop 100G.  
 SuggestedRemedy  
 Change the current draft title from:  
 Draft Standard for Ethernet  
 Amendment:  
 Physical Layer Specifications and Management Parameters for 25 Gb/s, 50 Gb/s, and 100 Gb/s Passive Optical Networks  
 to:  
 Draft Standard for Ethernet  
 Amendment:  
 Physical Layer Specifications and Management Parameters for 25 Gb/s and 50 Gb/s Passive Optical Networks  
 Response Response Status **C**  
 ACCEPT.  
 See comment #1

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Cl 00 SC 0 P19 L11 # 120  
Powell, Bill Nokia

Comment Type TR Comment Status A PAR

Now that the PAR, CSD, and project objectives have been changed to remove 100G, it's time to change the title of our Draft D1.3 to drop 100G.

SuggestedRemedy

Change the current draft title from:  
Draft Standard for Ethernet  
Amendment:  
Physical Layer Specifications and  
Management Parameters for 25 Gb/s,  
50 Gb/s, and 100 Gb/s Passive Optical  
Networks

to:  
Draft Standard for Ethernet  
Amendment:  
Physical Layer Specifications and  
Management Parameters for 25 Gb/s and  
50 Gb/s Passive Optical Networks

Response Response Status C

ACCEPT.

See comment #1

Cl 00 SC 0 P89 L # 28  
Hajduczenia, Marek Charter Communicatio

Comment Type TR Comment Status D

The value of FEC\_CW\_EQ\_SZ does not seem to be correct. It is supposed to be the size of a FEC codeword in Eqs: 257 EQs is 18504 bits and not matching the size of the codeword in LDPC(16952,14392) FEC we use

SuggestedRemedy

The LDPC codeword size (16952) is not divisible by 72 to be expressed in EQs. Discussion is needed to figure out what this variable is expected to represent and whether it is needed at all

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change size of FEC\_CW\_EQ\_SZ to <TBD> and mark in red.

Cl 1 SC 1.4.90b P20 L41 # 130  
Powell, Bill Nokia

Comment Type E Comment Status D bucket

sentence: ... in downstream direction

SuggestedRemedy

Rewrite: ... in the downstream direction

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 1 SC 1.4.90b P20 L41 # 131  
Powell, Bill Nokia

Comment Type E Comment Status D bucket

sentence: ... in upstream direction

SuggestedRemedy

Rewrite: ... in the upstream direction

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 1 SC 1.4.244a P21 L11 # 176  
Remein, Duane Huawei

Comment Type E Comment Status D bucket

Missing "the" in "In Multi-Channel Reconciliation Sublayer"

SuggestedRemedy

change to "In the Multi-Channel Reconciliation Sublayer"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 1 SC 1.4.244b P21 L15 # 177  
Remein, Duane Huawei

Comment Type T Comment Status D bucket

Actually Cl 143 never mentions the term envelope allocation.

SuggestedRemedy

Change "In Clause 143" to "In Nx25G-EPON"

Proposed Response Response Status W

PROPOSED ACCEPT.

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IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 1 SC 1.4.244c P21 L20 # 178  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Most everywhere else in the draft we use "envelope descriptor" (no caps)  
 SuggestedRemedy  
 Change all instances of "Envelope Descriptor" to "envelope descriptor"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 1 SC 1.4.244d P21 L23 # 179  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Most everywhere else in the draft we use "envelope start header" and envelope continuation header (no caps)  
 SuggestedRemedy  
 Change all to lower case  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 1 SC 1.4.278 P20 L22 # 125  
 Powell, Bill Nokia  
 Comment Type E Comment Status D bucket  
 sentence: There is one-to-one correspondence ...  
 SuggestedRemedy  
 Rewrite: There is a one-to-one correspondence ...  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 1 SC 1.4.313 P20 L29 # 175  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Why do we find it necessary to change "Point-to-Point Emulation sublayer" to "point-to-point emulation sublayer" given that it has been in the Std since 2004? Isn't this change for changes sake? If this is really something that is necessary than at least fix all other variations of this phrase in the Std.  
 SuggestedRemedy  
 Remove change.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 1 SC 1.4.313 P20 L29 # 126  
 Powell, Bill Nokia  
 Comment Type E Comment Status D bucket  
 sentence: ... through the point-to-point emulation.  
 SuggestedRemedy  
 Rewrite: ... through point-to-point emulation.  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 Emulation being a countable noun, it does need an article :)

Cl 1 SC 1.4.313 P20 L30 # 127  
 Powell, Bill Nokia  
 Comment Type E Comment Status D bucket  
 sentence: ... where a MAC would observe ...  
 SuggestedRemedy  
 Rewrite: ... where the ONU's MAC is to observe ...  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Use "where the ONU MAC is to observe" - use proper markup, since it is a change in the original text of base standard.

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Cl 1 SC 1.4.313 P20 L31 # 128  
 Powell, Bill Nokia  
 Comment Type E Comment Status D bucket  
 sentence: ... that refers to Physical ...  
 SuggestedRemedy  
 Rewrite: ... that refers to a Physical ...  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 1 SC 1.4.313 P20 L32 # 129  
 Powell, Bill Nokia  
 Comment Type E Comment Status D bucket  
 sentence: ... and Group Link ...  
 SuggestedRemedy  
 Rewrite: ... and a Group Link  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 1 SC 1.4.333a P21 L27 # 180  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 MCRS has already been introduced (in 1.4.244a)  
 SuggestedRemedy  
 Change:  
 "a Multi-Channel RS (MCRS)." to "an MCRS."  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 31A SC 31A P23 L13 # 75  
 Kramer, Glen Broadcom  
 Comment Type E Comment Status D bucket  
 No need to capitalize "Discovery Window"  
 SuggestedRemedy  
 Change to lower case (16 instances) (whatch for start of sentence capitalization)  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 31A SC 31A P23 L15 # 4  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type TR Comment Status A  
 Missing SYNC\_PATTERN MPCPDU  
 SuggestedRemedy  
 Insert a new entry in Table 31A-1 with value 00-18 as follows:  
 00-18 | SYNC\_PATTERN | 144.3.4.7 | Used by OLT to announce elements of the FEC-  
 unprotected area (SP) to all ONUs on the given PON | Yes

Change the reserved row designation from "00-18 through 01-00" to "00-19 through 01-00"  
 Response Response Status C  
 ACCEPT.

Cl 31A SC 31A P23 L15 # 91  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status A  
 SYNC\_PATTERN opcode is missing in Table 31A-1  
 SuggestedRemedy  
 Opcode: 00-18.  
 MAC Control function: SYNC\_PATTERN.  
 Specified in: 144.3.4.7.  
 Value/Comment: Notify the recipient of patterns to be sent at the beginning of  
 transmissions as indicated by the parameters of this function.  
 Timestamp: Yes.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #4

Cl 56 SC 56.1.2 P26 L9 # 181  
 Remein, Duane Huawei  
 Comment Type ER Comment Status D bucket  
 Figure 56-5a is a new figure and should not show any changes  
 SuggestedRemedy  
 Remove change markings from the figure.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

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IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 141 SC 141.2.5 P37 L47 # 277  
 Law, David HPE

Comment Type E Comment Status D bucket

There are four instances of 'power budget class' but 13 instances of 'power class' in the draft, I believe that they are in reference to the same item. Looking at Clause 75 I can find instances of 'power budget class' but no instances of 'power class'.

SuggestedRemedy

Suggest that only 'power budget class' is used.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

In 141.2.5 change

Nx25G-EPON PMDs defined in this clause are defined as one of two power classes

to

Nx25G-EPON PMDs defined in this clause are defined as one of two power classes (a power class is a differentiator for PMD specifications based of their launch powers and sensitivities)

-----

In 141.2.7 change

The PHY link power budget

to

The PHY link power budget (a power budget is a characteristic of a link and depends on PMDs in the function transmitter launch power and receiver sensitivity)

Cl 141 SC 141.2.7 P38 L34 # 93  
 Johnson, John Broadcom

Comment Type T Comment Status A

The meanings of US0/1 and DS0/1 are not defined in Table 141-7.

SuggestedRemedy

Add footnotes to the Downstream Wavelength (a) and Upstream Wavelength headers (b):

- a. Downstream wavelengths are defined in Table 141-11.
- b. Upstream wavelengths are defined in Table 141-12.

Response Response Status C

ACCEPT.

Cl 141 SC 141.2.7 P39 L33 # 84  
 Kramer, Glen Broadcom

Comment Type E Comment Status D bucket

Two instances of "50/50/-PQ" - extra "/" just before hyphen.

SuggestedRemedy

Replace "50/50/" with "50/50"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 141 SC 141.2.7.1 P39 L34 # 182  
 Remein, Duane Huawei

Comment Type T Comment Status A

The footnote to tables 141-8 and 141-9 is incorrect "All OLT and ONU PMDs support the same coexistence mode, either X or G"

SuggestedRemedy

Change to read: "Paired OLT and ONU PMDs support the same coexistence mode, either X or G"

Response Response Status C

ACCEPT IN PRINCIPLE.

In Table 141-8 and Table 141-9, change

All OLT and ONU PMDs support the same coexistence mode, either X or G

to

On an ODN, OLT and ONU PMDs support the same coexistence mode, either X or G

Cl 141 SC 141.3.1.3 P41 L22 # 183  
 Remein, Duane Huawei

Comment Type E Comment Status R

Redundant statement in the same sentence "...to the PMA defined in 142.4 ... to the PMA defined in 142.4 ..."

SuggestedRemedy

Strike the 2nd instance of "to the PMA defined in 142.4"

Response Response Status C

REJECT.

After the strike the statement does not make sense. There are two different rates at which the PMA may operate.

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Cl 141 SC 141.3.1.4 P41 L29 # 184  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 142.3 describes the receive PCS which does not turn any laser on or off.  
 SuggestedRemedy  
 Strike "and 142.3"  
 While you're here fixe the xref {142.x.x.x} to 142.2.5.4.3 (in D1.3).  
 Response Response Status C  
 ACCEPT.  
 Comment type changed to T.

Cl 141 SC 141.3.2 P41 L52 # 185  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 Given that each TP#[i] represents 2 TPs I believe there are more than "eight reference points shown in Figure 141-2"  
 SuggestedRemedy  
 Strike "eight" (Engineers are typically able to count on their own)  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.3.4 P43 L6 # 186  
 Remein, Duane Huawei  
 Comment Type E Comment Status A  
 Earlier PMD\_UNITDATA[i].indication is defined as a primitive, we should be consistent. Same issue line 14.  
 SuggestedRemedy  
 Change "message" to "primitive"  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.3.5.1 P43 L16 # 187  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 This requirement is nearly duplicated in 141.3.5.1 and 141.3.5.2. We should avoid the duplication.  
 "The value of the SIGNAL\_DETECT parameter shall be generated according to the conditions defined in Table 141-10 for Nx25G-EPON PMDs."  
 "The value of the SIGNAL\_DETECT parameter shall be generated according to the conditions defined in Table 141-10 for PMDs defined in this clause."  
 SuggestedRemedy  
 Strike the requirements in 141.3.5.1 & 141.3.5.2 and add the following sentence to 141.3.5.3: "The value of the SIGNAL\_DETECT parameter shall be generated according to the conditions defined in Table 141-10 for Nx25G-EPON PMDs."  
 The last sentence in 141.3.5.2 should then be combined with the 1st para.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Strike the requirements in 141.3.5.1 & 141.3.5.2 and add the following sentence to 141.3.5.3: "The value of the SIGNAL\_DETECT parameter for Nx25G-EPON PMDs shall be generated according to the conditions defined in Table 141-10."  
 The last sentence in 141.3.5.2 should then be combined with the 1st para.

Cl 141 SC 141.3.6 P43 L46 # 81  
Kramer, Glen Broadcom

Comment Type T Comment Status A

Resolution to comment #443 from Spokane: "AI for Glen to prepare a contribution to add "[i]" to SIGNAL\_DETECT consistently in Clause 141."

*SuggestedRemedy*

SIGNAL\_DETECT is already treated consistently in C141. SIGNAL\_DETECT values associated with different channels are distinguished by indexing the associated PMD\_SIGNAL interface, i.e., PMD\_SIGNAL[i].indication( SIGNAL\_DETECT ). SIGNAL\_DETECT here is simply a boolean that takes values of OK or FAIL).

In section 141.3.6, PMD\_SIGNAL.request(tx\_enable) should have "[i]" as well, e.g., PMD\_SIGNAL[i].request(tx\_enable) - 2 locations

Depending on how detailed we want to be with Test Points illustration (Fig. 141-2) we may want to show two arrows for SIGNAL\_DETECT and two arrows for tx\_enable for every ONU and the OLT. The labels then would be for signal detect arrows:

```
PMD_SIGNAL[0].indication( SIGNAL_DETECT )
PMD_SIGNAL[1].indication( SIGNAL_DETECT )
```

and for tx enable arrows:

```
PMD_SIGNAL[0].request(tx_enable)
PMD_SIGNAL[1].request(tx_enable)
```

But this would make the figure too busy. So, I would just leave it as is.

Response Response Status C

ACCEPT IN PRINCIPLE.

In section 141.3.6, PMD\_SIGNAL.request(tx\_enable) should have "[i]" as well, e.g., PMD\_SIGNAL[i].request(tx\_enable) - 2 locations

Cl 141 SC 141.5.1 P44 L39 # 5  
Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

Hardly any need for 141.5.1 and 141.5.2, given that there is no text in there right now.

*SuggestedRemedy*

Transmitter specification subclause in 10G-EPON (see 75.4.1) lists normative parameters from PMD tables and tie them with the measurement methods. Our draft has none of that right now. There is also description of the relationship between OMA, extinction ratio, and average power, which I believe we do not use (and do not need to specify).

Receiver specification subclause in 10G-EPON (see 75.4.2) lists normative parameters from PMD tables and tie them with the measurement methods.

Suggest to copy text from 141.6.2 to 141.5.2, with necessary updates.

Text for 141.6.1 and 141.5.1 should be copied from 10G-EPON (Clause 75, specifically 75.4.1) as applicable

Response Response Status C

ACCEPT IN PRINCIPLE.

See comment #188

Cl 141 SC 141.5.1 P44 L40 # 188  
Remein, Duane Huawei

Comment Type TR Comment Status A

Section with no text

*SuggestedRemedy*

Add: "A medium power class Nx25G-EPON OLT PMD transmitter shall comply with the parameters shown in Table 141-13. A high power class Nx25G-EPON OLT PMD transmitter shall comply with the parameters shown in Table 141-14.

Response Response Status C

ACCEPT.

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Cl 141 SC 141.5.1 P45 L1 # 94  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The requirements for Optical return loss tolerance are determined by the fiber plant, which is the same as 10G-EPON. The same values for max ORL tolerance should be used for Nx25G-EPON.  
 SuggestedRemedy  
 Replace TBD values for Optical return loss tolerance (max) in Tables 141-13, 14, 17 and 18 with a value of 15dB.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.5.1 P45 L1 # 95  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The same OLT transmitter technology used for 10G-EPON (EML) will be widely used for Nx25G-EPON. The same values for RIN15OMA, Average launch power of OFF transmitter and Transmitter reflectance should be used.  
 SuggestedRemedy  
 Replace TBD values for RIN15OMA (max) in Tables 141-13 and 141-14 with a value of -128 dB/Hz.  
 Replace TBD values for Average launch power of OFF transmitter, each channel (max) in Tables 141-13 and 141-14 with a value of -39 dBm.  
 Replace TBD values for Transmitter reflectance (max) in Tables 141-13 and 141-14 with a value of -10 dB.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.5.1 P45 L1 # 96  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The same OLT transmitter technology used for 100GBASE-LR4 (EML) will be widely used for Nx25G-EPON. The same values for Transmitter eye mask definition should be used. Note that this same eye mask is also used for 10G-EPON.  
 SuggestedRemedy  
 Replace TBD values for Transmitter eye mask definition in Tables 141-13 and 141-14 with a value of {0.25, 0.4, 0.45, 0.25, 0.28, 0.4} UI. Add a footnote: "As defined in Figure 86.4."  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.5.1 P46 L1 # 97  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The TF agreed at the May 2018 meeting to not specify Optical Modulation Amplitude (OMA), each channel (max). Maximum TX output power is defined by Average launch power, each channel (max). Refer to johnson\_3ca\_1a\_0518, slide 17 for background.  
 SuggestedRemedy  
 Remove line for Optical Modulation Amplitude (OMA), each channel (max) in Table 141-14 and 141-18.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.5.1 P46 L30 # 6  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status A  
 Missing parameters in Table 141-14  
 SuggestedRemedy  
 Replace empty entries in Table 141-14 with {TBD}  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Replace empty entries in Table 141-14 with {TBD}, if there are any empty entries after this meeting.

Cl 141 SC 141.5.2 P44 L44 # 189  
 Remein, Duane Huawei  
 Comment Type TR Comment Status A  
 Section with no text  
 SuggestedRemedy  
 Add: "A medium power class Nx25G-EPON OLT PMD receiver shall comply with the parameters shown in Table 141-15. A high power class Nx25G-EPON OLT PMD receiver shall comply with the parameters shown in Table 141-16. Table references should be live.  
 Response Response Status C  
 ACCEPT.



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Cl 141 SC 141.5.2 P47 L1 # 98  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The same type of receiver technology will be used for Nx25G-EPON as for 10G-EPON (APD in TO-can). The same value of receiver reflectance (max) should be used.  
 SuggestedRemedy  
 Replace TBD values for Receiver reflectance (max) in Tables 141-15 and 141-16 with a value of -12 dB.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.5.2 P47 L11 # 7  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type TR Comment Status D  
 Given that 10G upstream PMD definition (OLT Rx) relies on a different FEC (with different gain) and different line code, can parameters defined in Clause 75 be reused directly, with no additional mapping / adaptation? Given that the raw BER (per-FEC) is lower than in 10G-EPON, it seems numbers need to be updated at least, using Clause 75 numbers for reference  
 SuggestedRemedy  
 Per comment  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 No specific proposed values available at this time.

Cl 141 SC 141.5.2 P47 L21 # 163  
 Wey, Jun Shan ZTE TX  
 Comment Type E Comment Status D informative, bucket  
 In Table 141-15, "Receiver sensitivity (OMA), each channel (max)" is informative. Even though this information is mentioned in the footnote, it would be useful to add "Informative" within the table for convinience.  
 SuggestedRemedy  
 "Receiver sensitivity (OMA), each channel (max) (Informative)"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 Footnote is sufficient. Even though informative parameters were used in .3av, no such markup was used in tables.

Cl 141 SC 141.5.2 P48 L1 # 99  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The TF agreed at the May 2018 meeting to not specify Receive power, each channel (OMA) (max). Maximum RX output power is defined by Average receive power, each channel (max). Refer to johnson\_3ca\_1a\_0518, slide 17 for background.  
 SuggestedRemedy  
 Remove line for Receive power, each channel (OMA), each channel (max) in Table 141-16 and 141-20.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.5.2 P48 L19 # 164  
 Wey, Jun Shan ZTE TX  
 Comment Type E Comment Status D informative, bucket  
 In Table 141-16, "Average receive power, each channel (min)" is informative. Even though this information is mentioned in the footnote, it would be useful to add "Informative" within the table for convinience.  
 SuggestedRemedy  
 "Average receive power, each channel (min) (Informative)"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 See comment #163

Cl 141 SC 141.5.2 P48 L26 # 165  
 Wey, Jun Shan ZTE TX  
 Comment Type E Comment Status D informative, bucket  
 In Table 141-16, "Receiver sensitivity (OMA), each channel (max)" is informative. Even though this information is mentioned in the footnote, it would be useful to add "Informative" within the table for convinience.  
 SuggestedRemedy  
 "Receiver sensitivity (OMA), each channel (max) (Informative)"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 See comment #163

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Cl 141 SC 141.6.1 P49 L40 # 190  
 Remein, Duane Huawei  
 Comment Type TR Comment Status A  
 Section with no text  
 SuggestedRemedy  
 Add: "A medium power class Nx25G-EPON ONU PMD transmitter shall comply with the parameters shown in Table 141-17. A high power class Nx25G-EPON ONU PMD transmitter shall comply with the parameters shown in Table 141-18. Table references should be live.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.6.1 P50 L1 # 100  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The same ONU transmitter technology used for 10G-EPON (DML) will be widely used for Nx25G-EPON. The same values for RIN15OMA, Average launch power of OFF transmitter and Transmitter reflectance should be used.  
 SuggestedRemedy  
 Replace TBD values for RIN15OMA (max) in Tables 141-17 and 141-18 with a value of -128 dB/Hz.  
 Replace TBD values for Average launch power of OFF transmitter, each channel (max) in Tables 141-17 and 141-18 with a value of -45 dBm.  
 Replace TBD values for Transmitter reflectance (max) in Tables 141-17 and 141-18 with a value of -10 dB.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.6.1 P50 L1 # 101  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 The same ONU transmitter technology used for 25GBASE-LR/ER (25G DML) will be widely used for Nx25G-EPON. The same values for Transmitter eye mask definition should be used.  
 SuggestedRemedy  
 Replace TBD values for Transmitter eye mask definition in Tables 141-17 and 141-18 with a value of {0.31, 0.4, 0.45, 0.34, 0.38, 0.4} UI. Add a footnote: "As defined in Figure 86-4"  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.6.1 P50 L15 # 191  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Parameter (1st) column in Table 141-17 looks odd.  
 SuggestedRemedy  
 Change para formatting and ensure these are left justified.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 141 SC 141.6.1 P51 L1 # 192  
 Remein, Duane Huawei  
 Comment Type E Comment Status A  
 Footnotes for Table 141-17 appear on next page without a table continuation header.  
 SuggestedRemedy  
 Interesting problem, the table could be extended so some of it crosses the page and creates a continuation header or shortened so the footnotes appear on the same page as the table.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Editor to contact staff editor to investigate options.

Cl 141 SC 141.6.1 P51 L1 # 102  
 Johnson, John Broadcom  
 Comment Type T Comment Status D bucket  
 Table 141-18 does not display completely in the D1.3 pdf file (has missing rows and missing borders). Table 141-18 should have the same format as Table 141-17.  
 SuggestedRemedy  
 Reformat Table 141-18 to be the same as 141-17.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 141 SC 141.6.1 P51 L16 # 193  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Cell borders are difficult to see in Table 141-18  
 SuggestedRemedy  
 Ensure they are turned on and black in color.  
 Also check footnotes, they should be on the same page as the table body (appears to be enough room).  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 141 SC 141.6.1 P51 L16 # 166  
 Wey, Jun Shan ZTE TX  
 Comment Type ER Comment Status D bucket  
 Table 141-18 has a formatting problem. Entries after "TDP, each channel (max)" are missing  
 SuggestedRemedy  
 Restore the table  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 141 SC 141.6.2 P53 L2 # 194  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 A literal reading of this requirement leads one to believe that all ONU PMDs must comply with both table 141-19 and 20: "The signaling speed, operating wavelength, overload, stressed sensitivity, reflectance, and signal detect for receivers forming part of the ONU PMDs shall meet the specifications defined in T able 141-19 and T able 141-20 for Clause 141 ONU PMDs, per measurement techniques defined in 141.7."  
 SuggestedRemedy  
 Change to: "The signaling speed, operating wavelength, overload, stressed sensitivity, reflectance, and signal detect for receivers forming part of the ONU PMDs shall meet the specifications defined in Table 141-19 or Table 141-20 for Nx25G-EPON ONU PMDs, per measurement techniques defined in 141.7."  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 141 SC 141.6.2 P53 L7 # 8  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type TR Comment Status A  
 Damage threshold is not defined in Table 141-11  
 SuggestedRemedy  
 Change reference from Table 141-11 to "Table 141-19 or Table 141-20" (2 locations on page 53)  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.6.2 P53 L20 # 9  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type TR Comment Status A  
 No 50GBASE-PQG-U2 in Table 141-19?  
 SuggestedRemedy  
 It is defined in Table 141-17, and should be included in Table 141-19 as well  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Add 50GBASE-PQG-U2 to Table 141-19

Cl 141 SC 141.6.2 P53 L37 # 167  
 Wey, Jun Shan ZTE TX  
 Comment Type E Comment Status D informative, bucket  
 In Table 141-19, "Receiver sensitivity (OMA), each channel (max)" is informative. Even though this information is mentioned in the footnote, it would be useful to add "Informative" within the table for convenience.  
 SuggestedRemedy  
 "Receiver sensitivity (OMA), each channel (max) (Informative)"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 See comment #163

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 141 SC 141.6.2 P54 L22 # 168  
 Wey, Jun Shan ZTE TX  
 Comment Type E Comment Status D informative, bucket  
 In Table 141-20, "Average receive power, each channel (min)" is informative. Even though this information is mentioned in the footnote, it would be useful to add "Informative" within the table for convenience.  
 SuggestedRemedy  
 "Average receive power, each channel (min) (Informative)"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 See comment #163

Cl 141 SC 141.6.2 P54 L27 # 169  
 Wey, Jun Shan ZTE TX  
 Comment Type E Comment Status D informative, bucket  
 In Table 141-20, "Receiver sensitivity (OMA), each channel (max)" is informative. Even though this information is mentioned in the footnote, it would be useful to add "Informative" within the table for convenience.  
 SuggestedRemedy  
 "Receiver sensitivity (OMA), each channel (max) (Informative)"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 See comment #163

Cl 141 SC 141.7 P55 L3 # 195  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 This sentence seems out of place "When measuring jitter at TP1[i] and TP5[i], it is recommended that jitter contributions at frequencies below receiver corner frequencies (i.e., {TBD}) are filtered at the measurement unit."  
 SuggestedRemedy  
 Move to 141.7.12 where it is more appropriate  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #105 for updated text + move to 141.7.12.

Cl 141 SC 141.7 P55 L3 # 105  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 TBD Corner frequencies should be based on 10G-EPON for 10G receivers (see 75.7) and on 100GBASE-LR4 (see 88.8.5.3) for 25G and 50G receivers.  
 SuggestedRemedy  
 Change first sentence to read:  
 "When measuring jitter at TP1[i] and TP5[i], it is recommended that jitter contributions at frequencies below receiver corner frequencies (i.e., 10 MHz for 25.78125 GBd receiver and 4 MHz for 10.3125 GBd receiver) are filtered at the measurement unit."  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.7.4 P55 L34 # 196  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Is the phrase "any valid encoded 256B/257B data stream" meant to imply a scrambled data stream also? If so we should be explicit.  
 SuggestedRemedy  
 Change to "any valid 256B/257B encoded and scrambled data stream (see 142.2)."  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.  
 Looking at .3av, no reference to scrambling was being made.

Cl 141 SC 141.7.6 P55 L43 # 103  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 OMA test procedure is required.  
 SuggestedRemedy  
 Use the OMA test procedure as defined in 88.8.4.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Replace TBD with "See 88.8.4" and use proper formatting.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 141 SC 141.7.7 P55 L47 # 104  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 RIN\_OMA test procedure is required.  
 SuggestedRemedy  
 Use the RIN20OMA test procedure as defined in 88.8.7 with the exception that the optical return loss is 15 dB.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Replace TBD with "See 88.8.7, with exception of the optical return loss value of 15 dB." and use proper formatting.

Cl 141 SC 141.7.8 P56 L3 # 106  
 Johnson, John Broadcom  
 Comment Type T Comment Status A  
 TBD transmitter eye mask references should be based on 100GBASE-LR4 for 25GBd OLT TX and on 25GBASE-LR for 25Bd ONU TX.  
 SuggestedRemedy  
 Change the sentence to read:  
 "The required transmitter pulse shape characteristics are specified in the form of a mask of the transmitter eye diagram as shown in Figure 86-4 for PQ type PMDs, and the test method shall be according to 88.8.8."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change the sentence to read:  
 "The required transmitter pulse shape characteristics for PQ type PMDs are specified in the form of a mask of the transmitter eye diagram as shown in Figure 86-4 and the test method shall be according to 88.8.8."

Cl 141 SC 141.7.13.1 P57 L25 # 197  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 In Figure 141-3 we can be more accurate regarding the Upstream data during Ton to Tcdr.  
 SuggestedRemedy  
 Change "Idles" to "Synchronization Pattern". Move the Toff dimension line down slightly to align with Ton and Tcdr dimensions not the signal base-line.  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.7.13.2 P58 L5 # 198  
 Remein, Duane Huawei  
 Comment Type TR Comment Status A  
 Figure 141-4 appears to redefined TP4[i] and, given Tx\_Enable (global) turns on all channels at the same time so measurement of individual channels is impossible as shown.  
 SuggestedRemedy  
 Change "Tx\_Enable" to "Tx\_Enable[i]"  
 Remove TP4[i], MDI to the right (it is not part of the system, TP3 is sufficient), and right arrow from "System Bulkhead" (dropping the "s").  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.7.14.1 P58 L31 # 199  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Stray paren "jitter"  
 SuggestedRemedy  
 Strike the errant parenthesis.  
 While here fix the "Figure <TBD>" which should be "(Figure 141-3)"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 141 SC 141.7.14.1 P58 L38 # 200  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 I believe Fig 141-3 and 141-5 fulfill the Ed Note  
 SuggestedRemedy  
 Strike the Editor's Note.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 141 SC 141.7.14.1 P59 L15 # 201  
 Remein, Duane Huawei  
 Comment Type TR Comment Status A  
 "Tx\_Enable" should be "Tx\_Enable[i]"  
 SuggestedRemedy  
 per comment  
 Response Response Status C  
 ACCEPT.

Cl 141 SC 141.9 P61 L28 # 159  
 Ferretti, Vince Corning  
 Comment Type TR Comment Status A  
 Re-write of of section 141.9, 141.9.1, 141.9.2 and 141.9.3 to define normative and informative fiber and cable characteristics  
 SuggestedRemedy  
 Normative reference for dispersion removed from 141.9 paragraph.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See Ferretti\_3ca\_1a\_1112.pdf, use "dated" reference to G.652-2016.

Cl 141 SC 141.91 P61 L42 # 160  
 Ferretti, Vince Corning  
 Comment Type ER Comment Status A  
 Re-write of of section 141.9, 141.9.1, 141.9.2 and 141.9.3 to define normative and informative fiber and cable characteristics  
 SuggestedRemedy  
 Updated table reference from Table 141.21 to Table 141.1  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #159

Cl 141 SC 141.92 P61 L47 # 161  
 Ferretti, Vince Corning  
 Comment Type TR Comment Status A  
 Re-write of of section 141.9, 141.9.1, 141.9.2 and 141.9.3 to define normative and informative fiber and cable characteristics  
 SuggestedRemedy  
 Added normative and informative information fiber and cable dispersion uincluding informative table with nominal wavelengths of UW and DW channels  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #159

Cl 141 SC 141.93 P62 L1 # 162  
 Ferretti, Vince Corning  
 Comment Type TR Comment Status A  
 Re-write of of section 141.9, 141.9.1, 141.9.2 and 141.9.3 to define normative and informative fiber and cable characteristics  
 SuggestedRemedy  
 Removed Table 141.20 as it should have been in section 141.92. Removed references to splitter and fiber specifications as they are not needed  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #159

Cl 142 SC 142.1.3 P65 L44 # 202  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 We equate SP to "Synchronization Pattern" but are then very inconsistent in using this abbreviation (20 instances of "Synchronization Pattern", 25 of "SP")  
 SuggestedRemedy  
 Replace all instances of "synchronization pattern" (case insensitive) with "SP" except in clause titles and first use in a clause.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Use non-subscripted version of SP1, SP2, and SP3

Proposed Responses

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Cl 142 SC 142.1.3 P65 L47 # 10  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Formatting consistency: SP1, SP2, SP3  
 SuggestedRemedy  
 Make sure that 1, 2, 3 is in subscript - apply changes consistently to Clause 142 and 144  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Use non-subscripted version consistently.

Cl 142 SC 142.1.3 P65 L48 # 73  
 Kramer, Glen Broadcom  
 Comment Type E Comment Status D bucket  
 Inconsistent terminology:  
 "Start of Burst Delimiter (SBD)" - used twice  
 "start-of-burst delimiter (SBD)" - used once  
 "End of Burst Delimiter (EBD)" - used once  
 "end of burst delimiter" - used twice  
 "end-of-burts delimiter (EBD)" - used once  
 SuggestedRemedy  
 In all places use "start-of-burst delimiter (SBD)" and "end-of-burst delimiter (EBD)"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.1.3 P66 L52 # 107  
 Laubach, Mark Broadcom  
 Comment Type T Comment Status A  
 "Figure 142-1" is not introduced in any preceding text.  
 SuggestedRemedy  
 Editor's choice to add a sentence in the appropriate preceding clause on Page 65 prior to the mention of Figure 142-2 on line 16 that introduces the Figure 142-1.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Add "(see Figure 142-1)" page 65, line 12 (at the end).

Cl 142 SC 142.1.3 P67 L1 # 11  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Make sure Figure 142-2 has all instances of "process" capitalized, per comment #452 against D1.2  
 SuggestedRemedy  
 Per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.1.3 P67 L22 # 44  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status D bucket  
 Units missing in Figure 142-2: 25.78125 is missing "G"  
 SuggestedRemedy  
 Make sure units are shown in Figure 142-2  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.1.3 P67 L49 # 12  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Missing reference to Clause 144  
 SuggestedRemedy  
 Change "<TBD new subclause with MPCPDU definition>" with "144.3.4.7", make sure the link is live  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.1.3.1 P68 L21 # 203  
 Remein, Duane Huawei  
 Comment Type ER Comment Status D bucket  
 When referring to SP1, SP2, and SP3 the use of number subscripting is very inconsistent.  
 SuggestedRemedy  
 Either subscripted or normal font is fine. Using both is not.  
 I would recommend not subscripting to make life easier for the editor.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Use non-subscriber version consistently.

Cl 142 SC 142.1.3.1 P68 L50 # 85  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status A  
 "a concatenation of x bits of SP1 (x is between 1 and 257) and (257-x) bits of SP2"  
 This text is poorly formed, as the first parenthetical expression meant to be an explanation of x and the second parenthetical expression meant to represent a number.  
 SuggestedRemedy  
 Replace the text with this: " concatenation of x bits of SP1 and y bits of SP2, where x is between 1 and 257, and x + y = 257" (Show x and y in italics)  
 Response Response Status C  
 ACCEPT.

Cl 142 SC 142.2 P69 L30 # 46  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Missing references marked in red  
 SuggestedRemedy  
 Use the following references:  
 - Input: 142.2.5.4.1  
 - Framer: 142.2.5.4.2  
 - Transmit: 142.2.5.4.3  
 Make sure that links are live  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2 P69 L34 # 45  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status A  
 Figure 142-5 is missing  
 SuggestedRemedy  
 Mark it as TBD at this time.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #77

Cl 142 SC 142.2 P70 L1 # 77  
 Kramer, Glen Broadcom  
 Comment Type TR Comment Status A  
 Transmit bit order (Figure 142-5) is missing  
 SuggestedRemedy  
 Insert figure 142-5 as shown in kramer\_3ca\_4\_1118.pdf  
 Response Response Status C  
 ACCEPT.

Cl 142 SC 142.2 P70 L2 # 108  
 Laubach, Mark Broadcom  
 Comment Type T Comment Status A  
 There is space for the drawing for Figure 142-5 "Transmit bit ordering", but nothing is shown, it is blank and no editor's note.  
 SuggestedRemedy  
 Provide the figure if available or an Editor's note mentioning the intentional absence.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See comment #77



Proposed Responses

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Cl 142 SC 142.2.1 P69 L44 # 47  
 Hajduczenia, Marek Charter Communicatio

*Comment Type* TR *Comment Status* A  
 This subclause has the total of 3 sentences

*SuggestedRemedy*  
 Change first two sentences to read as follows

The Nx25G PCS encodes a 72-bit tx\_raw vector into a 64B/66B block structure as defined in 49.2.4, using all the block type fields in Figure 49-7 except block type field values of: 0x2D, 0x33, 0x66, 0x55, and 0x4B.

There are no other exceptions listed in this subclause

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

Per comment + change "The PCS bit transmission order illustrated in Figure 142-5." to "The PCS bit transmission order is illustrated in Figure 142-5."

Cl 142 SC 142.2.1.1 P69 L49 # 48  
 Hajduczenia, Marek Charter Communicatio

*Comment Type* E *Comment Status* D bucket

There is no need to create a new subclause 142.2.1.1 to separate line codes in any way

*SuggestedRemedy*  
 Remove heading 142.2.1.1.

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

Cl 142 SC 142.2.1.1 P70 L1 # 170  
 Wey, Jun Shan ZTE TX

*Comment Type* TR *Comment Status* A  
 Figure 142-5 is missing

*SuggestedRemedy*  
 Restore the figure

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

See comment #77

Cl 142 SC 142.2.2 P70 L38 # 82  
 Kramer, Glen Broadcom

*Comment Type* T *Comment Status* A  
 Scrambler defined in C49 only scrambles 64-bit blocks of data, not the 66 bits. (The sync headers are not scrambled). Also, we don't say anything about the scrambler synchronization for each upstream burst.

*SuggestedRemedy*  
 1) Replace "Each 66-bit block is scrambled using the scrambling function defined in 49.2.6." with "The payload of each 66-bit block is scrambled using the scrambling function defined in 49.2.6."  
 2) Add new paragraph following the above sentence: "In the ONU, at the beginning of each burst, the scrambler is initialized with the unscrambled value of IBI\_EQ (see 143.3.3.3)."  
 3) Add a new paragraph at the end of section 142.3.3 Descrambler: "In the OLT, at the beginning of each burst, the descrambler is initialized with the unscrambled value of IBI\_EQ (see 143.3.3.3)."

*Response* *Response Status* C  
 ACCEPT.

Cl 142 SC 142.2.4 P70 L52 # 132  
 Powell, Bill Nokia

*Comment Type* ER *Comment Status* R  
 sentence: ... using LDPC(16952,14392) FEC, defined

*SuggestedRemedy*  
 there is no reason to introduce specific LDPC-related notation here; propose to rewrite: ... using the FEC Encoder specified in 142.2.4.1.

*Response* *Response Status* C  
 REJECT.

This is the only location where LDPC codeword size is defined in a simple manner

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.4 P70 L52 # 135  
Powell, Bill Nokia

Comment Type TR Comment Status R

We think that there are a lot of issues with the descriptions in this section, and that it could be significantly improved by first describing the full FEC matrix, and then describing puncturing, shortening, and interleaving in the right sequence.

SuggestedRemedy

My colleagues and I volunteer to re-write section 142.2.4 (in conjunction with other interested parties) if we could get the source text file for this section as it currently exists (or will exist in D1.4) in MS Word docx, RTF, or Framemaker format.

We will discuss our proposed plan and notation offline with interested parties before our re-write.

If this is generally accepted by the group (and the editor to provide the text in one of these formats), we can skip all of our other following comments that pertain to Sections 142.2.4.x relative to D1.3.

Response Response Status C

REJECT.

No changes required at this time.

Cl 142 SC 142.2.4 P70 L52 # 49  
Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

We are still missing an Annex to provide an example of LDPC(16952,14392) FEC encoding.

SuggestedRemedy

Add a new Annex 142A with the title "Encoding example for LDPC(16952,14392) FEC"  
Change "gives an example of {TBD} FEC Encoding" to "gives an example of LDPC(16952,14392) FEC encoding"  
Is content included in 142.2.4.5 Example of initial control seed sequence intended to be used as an encoding example?

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a new Annex 142A with the title "Encoding example for LDPC(16952,14392) FEC and interleaving"  
Change "gives an example of {TBD} FEC Encoding" to "gives an example of LDPC(16952,14392) FEC encoding and interleaving"

Move content from 142.2.4.5 into new Annex.

Cl 142 SC 142.2.4 P70 L53 # 134  
Powell, Bill Nokia

Comment Type TR Comment Status D

Note - These comments apply to various instances throughout section 142.2.4.x

The term interleaving is generally used to describe the process of transforming a sequence that is in regular order into a sequence that is interleaved or transformed.

The current use of "interleaver" and "de-interleaver" should be reversed in these sections.

The terms "omega network" and "reverse omega network" are also used in these sections where:

- omega network corresponds to de-interleaver and
- reverse omega network corresponds to "interleaver"

We think that it would be clearer to use interleaver and de-interleaver throughout the text in this section instead of the omega network and reverse omega network terms.

SuggestedRemedy

Proposed changes:  
Change all instances in 142.2.4.x sections as follows:  
- Change "interleaver" to "de-interleaver"  
- Change "de-interleaver" to "interleaver"

- Change "omega network" to "de-interleaver"
- Change "reverse omega network" to "interleaver"

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 142 SC 142.2.4 P70 L53 # 133  
Powell, Bill Nokia

Comment Type ER Comment Status A

reference to non-existing section: 142.2.2.5.1

SuggestedRemedy

Add section or remove reference

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace with link to 142.2.4 and make the link live.

Proposed Responses

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Cl 142 SC 142.2.4.1 P71 L2 # 136  
 Powell, Bill Nokia  
 Comment Type ER Comment Status R  
 sentence: ... produced by FEC Encoder ...  
 SuggestedRemedy  
 rewrite: ... generated by the FEC Encoder ...  
 Response Response Status C  
 REJECT.  
 Not clear what the proposed change achieves.

Cl 142 SC 142.2.4.1 P71 L3 # 138  
 Powell, Bill Nokia  
 Comment Type TR Comment Status R  
 The current text is convoluted; it would make most sense to write that a quasi-cyclic LDPC code was selected, specified by an  $m \times n$  shift-matrix and a lifting factor  $Z = 256$ . This specifies the maximum word length:  $N^* = nZ$  and the number of parity-check bits  $M^* = mZ$ . It is typically also useful to specify  $k = n - m$ , and  $K^* = N - M$ , the maximum number of systematic bits. After the definition of the code and its parameters, one can state that one uses  $K$  information bits, where  $K \leq K_{\max} \leq K^*$ , and that the remaining  $K^* - K$  bits are assumed to be zero, and not transmitted - this way, one also does not need a "zero-padding" module in the encoder. The first  $M = M^* - 512$  parity-check bits are transmitted; this implies that the remaining parity-check bits do not have to be computed (one does not need a puncturing module in the encoder). Using this outline, one does not need the parameters  $P$  and  $S$ .  
 SuggestedRemedy  
 Proposal: specify the full-length LDPC code in 142.2.4.1. Avoid any discussion about puncturing and shortening here. Move this to 142.2.4.3. The description on p. 75, lines 5-18 is generally better than on p. 71, lines 3-25.  
 Response Response Status C  
 REJECT.  
 A set of specific proposed changes would be welcome. General outlines are not helpful. The Editor will not be undertaking a rewrite based on rather generic guidelines.

Cl 142 SC 142.2.4.1 P71 L3 # 137  
 Powell, Bill Nokia  
 Comment Type ER Comment Status A  
 sentence: ... to channel encoding is ...  
 SuggestedRemedy  
 rewrite: to the FEC Encoder is ...  
 Response Response Status C  
 ACCEPT.

Cl 142 SC 142.2.4.1 P71 L5 # 139  
 Powell, Bill Nokia  
 Comment Type TR Comment Status R  
 sentence: ... where  $M$  is the number of parity-check bits.  
 SuggestedRemedy  
 rewrite: ... where  $M$  is the number of "transmitted" parity-check bits.  
 Response Response Status C  
 REJECT.  
 Unclear of what the purpose of "transmitted" is and what the change achieves.

Cl 142 SC 142.2.4.1 P71 L5 # 140  
 Powell, Bill Nokia  
 Comment Type ER Comment Status D bucket  
 Current: "The output of FEC Encoder is denoted by ..."  
 SuggestedRemedy  
 Add "the" as follows: The output of "the" FEC Encoder is denoted by...  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

## Proposed Responses

## IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.4.1 P71 L6 # 141  
 Powell, Bill Nokia  
 Comment Type ER Comment Status D bucket  
 channel code element u2  
 SuggestedRemedy  
 use subscript: u2  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.4.1 P71 L6 # 142  
 Powell, Bill Nokia  
 Comment Type ER Comment Status D bucket  
 sentence: ... is length of encoder output sequence  
 SuggestedRemedy  
 rewrite: is the length of the encoder output sequence.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.4.1 P71 L14 # 143  
 Powell, Bill Nokia  
 Comment Type TR Comment Status R  
 a maximum number of information bits is specified, but can this be any number, or is it a multiple of 8, 16, ...? Should one also specify a minimum number of information bits?  
 SuggestedRemedy  
 discussion and resolution with respect to the minimum length and the granularity  
 Response Response Status C  
 REJECT.  
 Discussion needed at the meeting. No changes at this time.

Cl 142 SC 142.2.4.1 P71 L18 # 144  
 Powell, Bill Nokia  
 Comment Type ER Comment Status D  
 sentence: ... the number of parity-check bits after puncturing, M (M = 3072 - 512 = 2560);  
 SuggestedRemedy  
 please note that M has already been defined on p. 71, line 5; it may not be necessary to redefine it here; rewrite: ... the number of transmitted parity-check bits, M (M = 2560).  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 142 SC 142.2.4.1 P71 L20 # 145  
 Powell, Bill Nokia  
 Comment Type E Comment Status R  
 sentence: ... shortening length  
 SuggestedRemedy  
 Will provide suggested change before meeting  
 Response Response Status C  
 REJECT.  
 No change at this time.

Cl 142 SC 142.2.4.1 P71 L24 # 146  
 Powell, Bill Nokia  
 Comment Type TR Comment Status D  
 sentence: The encoder supports highest code rate  $R_{max} = K_{max}/N_{max} = 0.849$ .  
 SuggestedRemedy  
 please note the difference in the maximum rate; propose to rewrite: The FEC Encoder supports an FEC code rate up to  $R_{max} = K_{max}/N_{max} = 14392/16952 = 0.8466$ .  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.4.1 P71 L40 # 50  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Dead link to "142.2.2.6"  
 SuggestedRemedy  
 Change to "142.2.5.4.3" and make sure it is live  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.4.1 P74 L42 # 51  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 It does not seem there is a special purpose for capitalizing "Codeword Information/Parity Location"  
 SuggestedRemedy  
 Drop capitalization in "Codeword Information/Parity Location"  
 The same applies to Figure 142-7 caption  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.4.1 P74 L48 # 148  
 Powell, Bill Nokia  
 Comment Type TR Comment Status R  
 Fig. 142-7 - the labeling in this figure is ambiguous. If the systematic part of this "codeword" represents the input to the encoder, then the label "transmitted user bits" is inaccurate, as the encoder operates on an "bit-interleaved" sequence. The label "Transmitted Parity Bits" is also ambiguous, as the Parity Bits are interleaved prior to transmission. At the same time, this is also not a depiction of the transmitted sequence.  
 SuggestedRemedy  
 It is proposed to modify at least the labels, and possibly to introduce a second/third figure, or a combined figure. One could then show: block of K information bits; implicit zero-extension; 256-bit blockwise interleaving; encoding, i.e., determination of the first 10 256-bit parity-check segments; (de)interleaving of the parity segments; transmission of the K user bits, followed by 2560 interleaved parity-check bits.  
 Response Response Status C  
 REJECT.  
 A specific solution / set of changes would be welcome, please.

Cl 142 SC 142.2.4.1 P74 L51 # 52  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Minor issues with the text of the Note  
 SuggestedRemedy  
 1. Make sure that the text of the note starts with upper case letter.  
 2. Not "Transmitter User Bits" but "Transmitted User Bits" to match Figure 142-7  
 3. Not sure why we need to match capitalization; drop capitalization in Transmitted User Bits and Zero Bits  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.4.2 P72 L21 # 147  
 Powell, Bill Nokia  
 Comment Type TR Comment Status D  
 right column shifts  
 SuggestedRemedy  
 propose to introduce a shift-by-one ZxZ matrix B, or using a cyclic permutation. The matrix probably works best. The HC matrix would then specify the exponent of B (repeated shifts).  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 142 SC 142.2.4.3 P75 L15 # 149  
 Powell, Bill Nokia  
 Comment Type TR Comment Status D  
 Sentence: M+P parity bits ... are sent to the puncturing block. In the encoder, it does not seem to be necessary to compute the P 256-bit parity-check bit sequence and then to puncture these. There is no option for a different puncturing rate, and therefore there does not seem to be a need to include a puncturing block.  
 SuggestedRemedy  
 Remove puncturing block  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.4.4 P75 L37 # 150  
Powell, Bill Nokia

Comment Type TR Comment Status R

The proposed de-interleaver/interleaver is a module that has 256 data inputs, 256 data outputs, a 128-bit seed, and a "fixed/pre-defined" cyclic rotation of this seed (shift factor: 17). Fig. 142-8 seems to imply that a massively parallel structure is needed with 57 \* 256 inputs.

SuggestedRemedy

It seems more straightforward to present one de-interleaver unit and then associate the seeds with the segment indices.

Response Response Status C

REJECT.

A specific solution / set of changes would be welcome, please.

Cl 142 SC 142.2.4.4 P75 L45 # 152  
Powell, Bill Nokia

Comment Type TR Comment Status A

Sentence: ... consists of 12 local interleavers ... not sure what local refers to; it seems to make more sense to state that the first 10 256-bit parity-check bit segments are de-interleaved using an 8-stage 256x256 reversed omega network, where each segment has its own seed.

SuggestedRemedy

Proposed: The first 10 256-bit parity-check bit segments are de-interleaved using an 8-stage 256x256 reversed omega network, where each segment has its own seed.

Response Response Status C

ACCEPT IN PRINCIPLE.

Use the following text

The first ten 256-bit parity-check bit segments are de-interleaved using an eight-stage 256x256 reversed omega network, where each segment has its own seed.

Cl 142 SC 142.2.4.4 P75 L45 # 151  
Powell, Bill Nokia

Comment Type TR Comment Status D

Sentence: The parity bit interleaver ... given that Fig. 142-8 show the information bit de-interleaver, it seems to make sense to first discuss the parity-check bit interleaver

SuggestedRemedy

Sentence: The parity-check bit de-interleaver ...

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 142 SC 142.2.4.4 P75 L50 # 153  
Powell, Bill Nokia

Comment Type TR Comment Status R

Paragraph - at this point, the omega network has not yet been properly described. It is stated that the omega network architecture is such that data is input from the left side and output from the right - the supporting figure shows that data is input at the top and that it is output at the bottom; all in all this is a very vague specification. Also, the statement that the data can be fed to the right side to obtain the inverse at the left side is true in the sense of a permutation, but it is generally not true when one is using hardware; it is hard to operate AND and OR gates in the reverse direction.

SuggestedRemedy

Another reason for our proposed re-write of section 142.2.4

Response Response Status C

REJECT.

A specific solution / set of changes would be welcome, please.

## Proposed Responses

## IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.4.4 P76 L10 # 154  
Powell, Bill Nokia

Comment Type TR Comment Status A

Fig. 142-9 - there is no need to draw two interleavers that are then removed. Also, for a consistent terminology, the parity-check bit segments are being "deinterleaved" prior to transmission. The figure caption is also misleading, as this is the Parity-Check Bit Deinterleaver.

## SuggestedRemedy

Remove two crossed out interleavers

Response Response Status C  
ACCEPT.

Cl 142 SC 142.2.4.4 P76 L30 # 155  
Powell, Bill Nokia

Comment Type T Comment Status R

Fig. 142-10 is colorful, but it does not contain relevant information. First, the interconnections in the eight interconnection blocks are identical (one may as well draw this as a parallel-switch followed by an interconnection block, that is repeated eight times. It is also important to note that the parallel-switch is controlled by a "seed" sequence, and cyclic shifts (by 17) thereof.

## SuggestedRemedy

No specific fix proposed at this time

Response Response Status C  
REJECT.

A specific solution / set of changes would be welcome, please.

Cl 142 SC 142.2.4.4 P76 L46 # 156  
Powell, Bill Nokia

Comment Type T Comment Status R

A two-port switch has two data inputs, two data outputs, and a control signal. It is important to depict the switch as such, and introduce notation to specify a 128-bit switch control sequence.

## SuggestedRemedy

No specific figure change proposed at this time

Response Response Status C  
REJECT.

A specific solution / set of changes would be welcome, please.

Cl 142 SC 142.2.4.4 P76 L52 # 53  
Hajduczenia, Marek Charter Communicatio

Comment Type TR Comment Status A

It is absolutely not clear Figure 142-11 is supposed to represent. Text speaks that "If the switch is programmed to be 1, then this switch performs a swap of the input bits, otherwise, the input will be pass-through as shown in Figure 142-11". But it is not clear which one is the 0 and which one is the 1 setting.

## SuggestedRemedy

Either additional text is needed, or skip the reference to the said switch altogether.

Response Response Status C  
ACCEPT IN PRINCIPLE.

Remove Figure 142-11 and statement "as shown in Figure 142-11"

Cl 142 SC 142.2.4.5 P77 L2 # 157  
Powell, Bill Nokia

Comment Type TR Comment Status A

Sentence: ... and  $i = 0, \dots, 127$  - the regular numbering thus far starts at 1. In the context of the permutation, an index starting at 0 can be useful, but it is not difficult to let this index also start at 1.

## SuggestedRemedy

Rewrite: ... and  $i = 0, \dots, 127$ .

Response Response Status C  
ACCEPT.

Cl 142 SC 142.2.4.5 P77 L6 # 158  
Powell, Bill Nokia

Comment Type T Comment Status R

The description of the permutation is overly complex and should be simplified. Given that the permutation is the same for all eight stages, it is not necessary to specify it as a function of the stage parameter  $k$ . Note also the reuse of the parameters  $S$  (number of zeroed bits), and  $k$ , related to the number of information bits.

## SuggestedRemedy

No specific fix proposed at this time

Response Response Status C  
REJECT.

A specific solution / set of changes would be welcome, please.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.4.5 P77 L50 # 109  
 Laubach, Mark Broadcom  
 Comment Type E Comment Status D bucket  
 Tables 142-3 and 142-4 have landed right in the middle of the example.  
 SuggestedRemedy  
 Wish: if there is any way to "keep with next" in Framemaker to keep all the clause text together without interruption from another clauses tables.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.  
 Editor will wrestle with Frame and make sure the home team wins.

Cl 142 SC 142.2.5 P81 L9 # 54  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 We usually say that the bit is equal or set to a specific value: bit 257 is one  
 SuggestedRemedy  
 Change: "bit 257 is one" to "bit 257 is equal to 1"  
 Change: "bit 257 is zero" to "bit 257 is equal to 0"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.5 P81 L10 # 55  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status D  
 Information "The value of bit 257 being one implies that the 257-bit block has been transcoded and scrambled." could be included where the bit origin is being explained, to be more coherent  
 SuggestedRemedy  
 Change "(bit 257 is one)" to "(bit 257 is one, indicating that this 257-bit block has been transcoded and scrambled)"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.5.1 P81 L14 # 74  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status D bucket  
 EBD constant is defined twice. On time it is defined as 258-bit value, the other time it is defined as 257-bit value.  
 SuggestedRemedy  
 Keep the definition in 142.2.5.1, but replace Value with "0x0-(00)<sub>32</sub>"  
 In EBD definition in 142.3.5.1, just reference 142.2.5.1  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.  
 Comment is against 142.2.5.1, page: 81, line: 14 (references were fixed)  
 Comment type was changed from E to T

Cl 142 SC 142.2.5.1 P81 L16 # 87  
 Kramer, Glen Broadcom  
 Comment Type E Comment Status D bucket  
 In .3ca, we have  
 "msb" - 3 instances  
 "MSB" = 5 instances  
 in 802.3-2018 we have  
 "msb" - 2 instances  
 "MSB" = 130 instances  
 "MSB" wins  
 SuggestedRemedy  
 Replace all "msb" with "MSB"  
 Replace all "lsb" with "LSB"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.



Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.5.1 P81 L48 # 204  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 What is a "FEC Delimiter"? This term is undefined.  
 SuggestedRemedy  
 Change to "FEC\_CW\_DELIM"  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 FEC Parity is an object, FEC delimiter is an object . FEC\_CW\_DELIM is a constant value of 0x3CA that represents the value of FEC delimiter. You cannot insert a constant into a bit stream. It makes no sense at all.  
 Change "FEC Delimiter" to "burst delimiter bit pattern"

Cl 142 SC 142.2.5.2 P82 L10 # 58  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status A  
 "SP1\_RepeatCount" and similar do not exist anymore  
 SuggestedRemedy  
 Likely, Count (per Table 144-8) is meant here?  
 Change "of SP1\_RepeatCount, SP2\_RepeatCount and SP3\_RepeatCount" to "Count value for SP1, SP2, and SP3" - use proper formatting  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 SPn\_RepeatCounts should all be replaced with SP#Length. Comment #409 from San Diego was not implemented completely (- Repeat Count SP 1/2/3 to SP1Length, SP2Length, SP3Length + propagate through)

Cl 142 SC 142.2.5.2 P82 L28 # 59  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Two different ways of saying the same thing, i.e., taking the larger value of the two options. My personal preference is for the first one, given it is simpler to read  
 This FIFO holds either SP\_LENGTH or FEC\_PARITY\_SIZE elements, whichever is greater. The length of the TX\_FIFO[] is defined as: MAX{ FEC\_DELAY - SP\_LENGTH, 2 }  
 SuggestedRemedy  
 Change  
 The length of the TX\_FIFO[] is defined as: MAX{ FEC\_DELAY - SP\_LENGTH, 2 }  
 to  
 This FIFO holds either (FEC\_DELAY - SP\_LENGTH) or two elements, whichever is greater.

Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.5.2 P82 L28 # 205  
 Remein, Duane Huawei  
 Comment Type T Comment Status A  
 Oops! Cmt #459 was misguided. Apologies to the Editor.  
 SuggestedRemedy  
 Change :  
 "This FIFO holds either SP\_LENGTH or FEC\_PARITY\_SIZE elements, whichever is greater." to:  
 "This FIFO holds SP\_LENGTH elements."  
 Response Response Status C  
 ACCEPT.

Cl 142 SC 142.2.5.2 P82 L47 # 57  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Anything special about this particular parity to capitalize it? "257-bit Parity vectors"  
 SuggestedRemedy  
 Change to read "257-bit parity vectors"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.5.2 P82 L48 # 56  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 PCS Framer or PCS Framer Process, as called everywhere else?  
 SuggestedRemedy  
 Change all standalone instances of "PCS Framer" to "PCS Framer Process" - do observe capitalization  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 142 SC 142.2.5.2 P82 L52 # 18  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status A  
 "257-bit payload vector" - block versus vector - in some locations, we speak of multi-bit fields as blocks, in other - as vectors. Is there any distinction intended here, i.e., different internal organization of the field, structure, etc. that would differentiate these?  
 SuggestedRemedy  
 Reading through various locations in the draft, it seems block and vector are used interchanagbly and we could collapse terminology to "block" only, which is more common today in the draft  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Use the term "block" (112 instances) in all instances of "vector" (75 instances) for consistency

Cl 142 SC 142.2.5.2 P83 L8 # 86  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status A  
 Definition of SP\_LENGTH has some issues:  
 We only use all caps for constants and buffer names. SP\_LENGTH is a variable, so probably should be called SpLength. Also, we do not use field names SP1\_RepeatCount, SP2\_RepeatCount and SP3\_RepeatCount anymore.  
 SuggestedRemedy  
 Use the following definition:  
 SpLength  
 TYPE: integer  
 The SpLength variable represents the length of the synchronization pattern as determined by the most recent settings of SP1Length, SP2Length, and SP3Length provisioned in an ONU (see 144.3.4.4 and 144.3.4.6).  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Use the following definition:  
 SpLength  
 TYPE: unsigned integer  
 The SpLength variable represents the length of the synchronization pattern as determined by the sum of the most recent settings of SP1Length, SP2Length, and SP3Length provisioned in an ONU (see 144.3.4.4 and 144.3.4.6).  
 No need to use signed integer, since it is never expected to be a negative value. Update SDs to match new SpLength spelling.

Cl 142 SC 142.2.5.2 P83 L14 # 83  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status A  
 SpIndex used in different places to represent two very different concepts. In C143, it represents the intex of a sync pattern and can take values of 1, 2, or [3]. In C142, it represents index of an individual sync pattern 257b block and can range from 0 to a few hundred. While not a technical error, it just makes a confusing spec.  
 SuggestedRemedy  
 in C143, replace all instances of "SpIndex" with "SpSeq" for SP sequence. Keep SpIndex in C142.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 In C144, replace all instances of "SpIndex" with "SpSeq"

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.5.2 P83 L41 # 60  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

Given that we have also option for running 10Gb/s in upstream, MII can be of 25GMII or XGMII type

SuggestedRemedy

Change "Input Process from the 25GMII" to "Input Process from the 25GMII or XGMII"  
 Similar change is needed in NextTxVector where 25GMII is listed explicitly.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "Input Process from the 25GMII" to "Input Process from the xMII"  
 Similar change is needed in NextTxVector where 25GMII is listed explicitly.

Cl 142 SC 142.2.5.3 P84 L7 # 61  
 Hajduczenia, Marek Charter Communicatio

Comment Type E Comment Status D bucket

Make sure that PARITY\_STAGING\_BUFFER name is not broken across lines

SuggestedRemedy

Per comment

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 142 SC 142.2.5.3 P84 L10 # 15  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D

FIFO implementations are typically described using push and pop operations, i.e., push adds an element at the end of the FIFO, while pop removes the head element. Not clear why we had to come up with "Append" and "GetHead" methods instead of using push and pop methods?

SuggestedRemedy

Change .Append to .Push  
 Change .GetHead to .Pop

Proposed Response Response Status Z

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl 142 SC 142.2.5.3 P84 L34 # 62  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D bucket

There are only two reference to TX\_CLK25 in the whole draft

SuggestedRemedy

Change both instances of TX\_CLK25 to TX\_CLK

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 142 SC 142.2.5.3 P84 L43 # 16  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

Transcode function definition is not technically correct - it does not perform "64B/66B to 256B/257B transcoding", but rather performs transcoding between four 64B/66B-encoded blocks into one 256B/257B-encoded block

SuggestedRemedy

Change  
 This function performs 64B/66B to 256B/257B transcoding  
 To  
 This function transcodes four 64B/66B-encoded blocks into a single 256B/257B-encoded block

Response Response Status C

ACCEPT.

Cl 142 SC 142.2.5.3 P84 L44 # 17  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

Irrelevant information: takes an array of four scrambled 66-bit blocks - the function does not verify whether blocks are scrambled or not.

SuggestedRemedy

Change  
 takes an array of four scrambled 66-bit blocks  
 to  
 takes four 64B/66B-encoded blocks

Response Response Status C

ACCEPT.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 142 SC 142.2.5.4.1 P84 L52 # 13  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

"into a single 72-bit tx\_raw vector" - tx\_raw vector is not mentioned really anywhere, so it does not need to be mentioned - two 36-bit transfers are spliced together, it is all that happens here

SuggestedRemedy

Change "into a single 72-bit tx\_raw vector" to "into a single 72-bit vector"  
 Consider whether reference to tx\_raw vector reference in 142.2.1 is really needed - seems spurious as well.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the first instance of "tx\_raw vector" to "tx\_raw vector (see 49.2.13.2.2)" and use proper formatting.

Cl 142 SC 142.2.5.4.1 P84 L53 # 63  
 Hajduczenia, Marek Charter Communicatio

Comment Type E Comment Status D bucket

Reference marked in red is correct

SuggestedRemedy

Remove red background + make reference live

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 142 SC 142.2.5.4.1 P84 L54 # 67  
 Hajduczenia, Marek Charter Communicatio

Comment Type TR Comment Status D

What is a "64B/66B" block? Similarly, what is a "256B/257B block"? 64B/66B describes encoding operation or a line code, not a block. A block is either 64-bit or 66-bit long, not 64B/66B bit long. It is a misnomer

SuggestedRemedy

Change all instances of "256B/257B block" to "256B/257B-encoded block" (3 instances, it speaks to the size and structure at the same time)  
 Change all instances of "64B/66B block" to "64B/66B-encoded block" (4 instances)  
 Change all instances of "256B/257B vector" to "256B/257B-encoded block" (1 instance)

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 142 SC 142.2.5.4.1 P84 L54 # 14  
 Hajduczenia, Marek Charter Communicatio

Comment Type TR Comment Status A

"at the end of a transmission" - unclear what transmission is being referred to in here? Upstream burst?

SuggestedRemedy

Please clarify whether an upstream transmission slot is meant here, or something altogether else

Response Response Status C

ACCEPT IN PRINCIPLE.

Change

at the end of a transmission

to

at the end of an upstream burst

Cl 142 SC 142.2.5.4.1 P86 L1 # 65  
Hajduczenia, Marek Charter Communicatio

Comment Type E Comment Status D bucket

We have very inconsistent way of defining function names: looking at Figure 142–13, we have ENCODE, but Transcode, Scramble, Append, but also FEC\_Encode. I suggest we use a simple notation with no "\_" to combine words  
Similar inconsistencies appear in variables names: TxNext, TxPrev, but xIndex, XBUFFER  
We need to adopt some naming scheme and stick to it to avoid confusion: typically, we used all caps for state names and constants; camel case for variable and function names.

*SuggestedRemedy*

Change function names as follows:  
- ENCODE to Encode  
- FEC\_Encode to EncodeFec

Change variable names as follows:  
- XBUFFER to BufferX  
- xIndex to IndexX  
- INPUT\_FIFO to FifoInput  
- TX\_FIFO to FifoTx

Update SDs accordingly. A global update to the draft might be needed if TF believes it is the right time to do such a cleanup.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change function names as follows:  
- ENCODE to Encode  
- FEC\_Encode to FecEncode

Change variable names as follows:  
- XBUFFER to xBuffer  
- INPUT\_FIFO to InputFifo  
- TX\_FIFO to TxFifo

Update SDs accordingly. A global update to the draft might be needed if TF believes it is the right time to do such a cleanup.

Cl 142 SC 142.2.5.4.1 P86 L11 # 64  
Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

Likely wrong name of the block: WAIT\_FOR\_66B - at this level, we are collecting vectors (72-bit) from xGMII and only encode them after that, in ACCUMULATOR state, using ENCODE() function.  
Note also definitions of variables in NEXT\_VECTOR state (TxNext, TxPrev) which clearly state these are 72-bit vectors.

*SuggestedRemedy*

Change WAIT\_FOR\_66B to WAIT\_FOR\_72B state name, since it reflects more correctly what happens here

Response Response Status C

ACCEPT IN PRINCIPLE.

Change WAIT\_FOR\_66B to WAIT\_FOR\_VECTOR state name

Cl 142 SC 142.2.5.4.1 P86 L32 # 66  
Hajduczenia, Marek Charter Communicatio

Comment Type TR Comment Status A

In state PROCESS\_DATA, it is clear that aggregated data is transcoded and placed into TxInput<256:0>, with 257 bit indicating whether data is scrambled or not. However, XBUFFER[3:0] is then scrambled and written onto itself (XBUFFER[3:0] <= Scramble( XBUFFER[3:0] )) and then nothing else happens with the XBUFFER content. All further operations are performed on TxInput vector. Is the transcoded vector expected to be scrambled before it is FEC encoded? That is what the description in 142.2.5.4.1 would imply: "Four 64B/66B blocks are accumulated, scrambled, and transcoded into a single 256B/257B block and copied to the FEC Encoder."

The order of operations, though (first scrambling, then transcoding) is questionable, though - transcoding maps between well known sequences, while scrambling adds a level of bit stream randomization after which transcoding does not make much sense IMO. I believe sequence should be first transcoded from 4 x 72 bit vectors into a single 256 bit sequence and then scrambled, and only then FEC encoded.

*SuggestedRemedy*

in Figure 142-13, in state PROCESS\_DATA, change the following operations

```
TxInput<256:0> <= Transcode( XBUFFER[3:0] )
XBUFFER[3:0] <= Scramble( XBUFFER[3:0] )
```

to read

```
XBUFFER[3:0] <= Transcode( XBUFFER[3:0] )
TxInput<256:0> <= Scramble( XBUFFER[3:0] )
```

to match the logical order of assignment into the TxInput vector, i.e., first we transcode and overwrite the XBUFFER with the resulting value, and then use this value to perform scrambling and write the resulting (scrambled) value into TxInput vector for further processing in the following states.

Change

"Four 64B/66B blocks are accumulated, scrambled, and transcoded into a single 256B/257B block and copied to the FEC Encoder."

to

"Four 64B/66B blocks are accumulated, transcoded, and scrambled into a single 256B/257B block and copied to the FEC Encoder."

Response Response Status C

ACCEPT IN PRINCIPLE.

Comment #544 from Spokane was not implemented properly. In Fig 142-13, in State PROCESS\_DATA, change

```
TxInput<256:0> <= Transcode( XBUFFER[3:0] )
XBUFFER[3:0] <= Scramble( XBUFFER[3:0] )
```

to

```
XBUFFER[3:0] <= Scramble( XBUFFER[3:0] )
TxInput<256:0> <= Transcode( XBUFFER[3:0] )
```

Cl 142 SC 142.2.5.4.2 P85 L16 # 19  
Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status A

There is no such thing as "FEC parity codeword"

*SuggestedRemedy*

Change to "FEC parity" or "FEC codeword parity" - there are two instances in the draft where this term exists

Response Response Status C

ACCEPT IN PRINCIPLE.

In 142.2.5.4.2, change "FEC parity codeword" to "PARITY\_STAGING\_BUFFER"

In 142.2.5.4.3, remove "indicating a FEC parity codeword needs to be inserted in the data stream,", and change "257-bits of the parity" to 257-bits"

Cl 142 SC 142.2.5.4.3 P85 L25 # 21  
Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status R

Unnecessary detail: "On each transition of the CLK\_OUT to True"

*SuggestedRemedy*

Simplify to "On each CLK\_OUT, "

Response Response Status C

REJECT.

CLK\_OUT is defined as clear-on-read Boolean variable, so we need to be clear on what the trigger is. Even if in the introduction text, we want to treat CLK\_OUT as a clock, we still need to clarify whether transition happens on rising edge, falling edge, or both edges (like 25GMII clock.)

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**Cl 142**    **SC 142.2.5.4.3**    **P85**    **L25**    # **20**  
 Hajduczenia, Marek    Charter Communicatio  
*Comment Type*    **T**    *Comment Status*    **A**  
 Unnecessary detail in the summary "from the TX\_FIFO or FEC Encoder"  
*SuggestedRemedy*  
 Strike  
*Response*    *Response Status*    **C**  
 ACCEPT.

**Cl 142**    **SC 142.2.5.4.3**    **P85**    **L27**    # **24**  
 Hajduczenia, Marek    Charter Communicatio  
*Comment Type*    **T**    *Comment Status*    **A**  
 This text reads way too much like blow by blow readout of the state diagram, which defeats the whole purpose of the SD to begin with: people know how to read conditions and the text needs only to outline the operation, and not read out the SD as it operates:

If the retrieved 258-bit block is equal to SP[0] and Transmitting is False, indicating the beginning of a transmission, the argument of the PMA\_SIGNAL.request is set to True indicating that the laser needs to be turned on, and the lower 257-bits of the 258-bit block are sent to the PMA. If the retrieved 258-bit block is EBD and Transmitting is True, indicating the end of a transmission, the argument of the PMA\_SIGNAL.request is set to False indicating that the laser needs to be turned off, and the lower 257-bits of the 258-bit block are sent to the PMA. If the retrieved 258-bit block is PAR\_PLACEHLDR, indicating a FEC parity codeword needs to be inserted in the data stream, 257-bits of the parity are retrieved from the PARITY\_STAGING\_BUFFER and sent to the PMA. In all other cases, i.e., normal transmission data, the lower 257-bits of the 258-bit block retrieved from the TX\_FIFO are sent to the PMA.

*SuggestedRemedy*  
 Change to read:  
 If the retrieved 258-bit block indicates the start of the burst and the ONU is currently not transmitting, laser is turned off and data is being sent towards the PMA for transmission. If the retrieved 258-bit block indicates the end of the burst and the ONU is currently transmitting, the laser is turned off and end of the burst delimiter is sent towards the PMA for transmission. If the retrieved 258-bit block indicates the FEC parity placeholder, the calculated FEC parity is sent towards the PMA for transmission, irrespective of the actual state of the laser. Otherwise, data from the TX\_FIFO is sent towards the PMA for transmission.

*Response*    *Response Status*    **C**  
 ACCEPT IN PRINCIPLE.  
 Change to read:  
 If the retrieved 258-bit block indicates the start of the burst and the ONU is currently not transmitting, laser is turned off and data is being sent towards the PMA for transmission. If the retrieved 258-bit block indicates the end of the burst and the ONU is currently transmitting, the laser is turned off and end of the burst delimiter is sent towards the PMA for transmission. If the retrieved 258-bit block indicates the FEC parity placeholder, the calculated FEC parity and 10 bits of burst delimiter bit pattern are sent towards the PMA for

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

transmission. Otherwise, data from the TX\_FIFO is sent towards the PMA for transmission.

**Cl 142 SC 142.2.5.4.3 P85 L28 # 110**  
 Laubach, Mark Broadcom

**Comment Type T Comment Status A**

PMA\_SIGNAL.request is used in this paragraph. However, when defined on page 91, line 15, a PMA\_SIGNAL[i].request form is used. We should consider being consistent with using the '[i]' form in this clause. Also, the use of '[i]' should be defined/explained somewhere, similar to PMD primitives on Page 40, line 37, clause 141.31. Not sure what to do inside SD Figure 142-15, page 88, line 22.

**SuggestedRemedy**

I don't have proposed text at this time. If not cleaned up by other comment(s), suggest adding an Editor's note somewhere that the mentions the need for consistency, etc. for the PMA\_\* primitives.

**Response Response Status C**

ACCEPT IN PRINCIPLE.

See comment #24

**Cl 142 SC 142.2.5.4.3 P88 L11 # 22**  
 Hajduczenia, Marek Charter Communicatio

**Comment Type T Comment Status A**

Wrong state name: WAIT\_FOR\_257B

**SuggestedRemedy**

Change to WAIT\_FOR\_CLK to avoid encoding block size in state names - it does not impact state diagram operation

**Response Response Status C**

ACCEPT IN PRINCIPLE.

Change to WAIT\_FOR\_BLOCK

**Cl 142 SC 142.3.1 P86 L45 # 23**  
 Hajduczenia, Marek Charter Communicatio

**Comment Type TR Comment Status R**

Note to Editor: text and figures extracted from 142.2.2.5.

**SuggestedRemedy**

It is not clear what text and what figures are intended - in D1.2, 142.2.2.5 contains also state diagrams, definitions, and accompanying text. The original commenter should clarify what is really intended to be placed in here

**Response Response Status C**

REJECT.

AI for Mark and Bill to cover FEC Decoder during the rewrite the FEC section.

**Cl 142 SC 142.3.4 P89 L12 # 25**  
 Hajduczenia, Marek Charter Communicatio

**Comment Type E Comment Status D bucket**

No content for Figure 142-17

**SuggestedRemedy**

Mark the content as TBD

**Proposed Response Response Status W**

PROPOSED ACCEPT.

**Cl 142 SC 142.3.5.1 P89 L18 # 26**  
 Hajduczenia, Marek Charter Communicatio

**Comment Type T Comment Status D**

EBD is already defined in 142.2.5.1

**SuggestedRemedy**

Change definition to read: "See 142.2.5.1." - make link live

**Proposed Response Response Status W**

PROPOSED ACCEPT.

Copy definition from 142.3.5.1 to 142.2.5.1. In 142.3.5.1, use "See 142.2.5.1." and make link live.

AI for Duane and Mark to look at this for 11/14.



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Cl 142 SC 142.3.5.1 P89 L30 # 27  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status A  
 FEC\_CW\_SZ is not defined anywhere before.  
 SuggestedRemedy  
 Strike the editorial note  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change FEC\_CW\_SIZE in SD to FEC\_CW\_SZ.

Cl 142 SC 142.3.5.2 P90 L12 # 88  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status A  
 Missing definition of rx\_buffer. All other buffers in .3ca use names in all caps.  
 SuggestedRemedy  
 Add the following definition tgo 142.3.5.2:  
 RX\_BUFFER  
 TYPE: Array of 10 bits  
 The RX\_BUFFER is an array containing the 10 bits most recently received from the PMA sublayer.  
 Change rx\_buffer to RX\_BUFFER throughoyut the draft.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Per comment, but with proper capitalization for variable, i.e., RxBuffer + update other buffer name styles.

Cl 142 SC 142.3.5.2 P90 L14 # 80  
 Kramer, Glen Broadcom  
 Comment Type TR Comment Status A  
 Unused variable definitions and incorrect variable names  
 SuggestedRemedy  
 1) Delete definition of FecDecodeFail  
 2) Delete definition of fecDecodeSucceed  
 3) In 142.3.5.4.2, replace "FecDecodeFaile(d)" with FecDecodeFailure  
 4) In 142.3.5.4.2, replace "FecDecodeSucceeded" with FecDecodeSuccess  
 Response Response Status C  
 ACCEPT.

Cl 142 SC 142.3.5.4.1 P92 L18 # 111  
 Laubach, Mark Broadcom  
 Comment Type T Comment Status D  
 There is space for the drawing for Figure 142-18 "OLT Synchronizer state diagram", but nothing is shown, it is blank and no editor's note. Also shouldn't the "S" be lower case?  
 SuggestedRemedy  
 Provide the figure if available or an Editor's note mentioning the intentional absence..  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Mark text and figure in RED to attract attentiion, Editor does not have a figure to place at this time. I believe Duane was supposed to contribute these missing pieces.

Cl 142 SC 142.4 P93 L39 # 112  
 Laubach, Mark Broadcom  
 Comment Type TR Comment Status D  
 On the transmit side, the EBD is sent outside (after) the FEC codeword and not processed by the FEC encoder. On the receive side, the EBD must not be processed by FEC\_Decode(). An alteration of the state transitions is needed in this SD.  
 SuggestedRemedy  
 Change the title of box "CHECK\_EBD" to "FEC\_DECODE". Move the END\_OF\_BURST box to the left and extend the left side of the CHECK\_IDLE box to the left. Move the arrow labled "PMAUDI[i] = EBD" to the left and extend the top so that it is now connecting CHECK\_IDLE with END\_OF\_BURST. Change the conditions from "PMAUDI[i] = EBD" to "RxCik \* !RxIdle \* PMAUDI[i] = EBD". Change the label on the arrow from CHECK\_IDLE to FEC\_DECODE from "RxCik \* !RxIdle" to "else". Change the remaining "else" under "FEC\_DECODE" to "UCT".  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Change the title of box "CHECK\_EBD" to "FEC\_DECODE". Move the END\_OF\_BURST box to the left and extend the left side of the CHECK\_IDLE box to the left. Move the arrow labled "PMAUDI[i] = EBD" to the left and extend the top so that it is now connecting CHECK\_IDLE with END\_OF\_BURST. Change the conditions from "PMAUDI[i] = EBD" to "RxCik \* !RxIdle \* PMAUDI[i] = EBD". Change the label on the arrow from CHECK\_IDLE to FEC\_DECODE from "RxCik \* !RxIdle" to "RxCik \* else". Change the remaining "else" under "FEC\_DECODE" to "UCT".  
 AI for Mark and Duane !!!!!

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**Cl 143 SC 143.2.3 P99 L40 # 113**  
 Laubach, Mark Broadcom  
**Comment Type T Comment Status D bucket**  
 Here the "m" (lower case) represents the MAC instance. In Figure 143-10 "M" is used (upper case), page 108 line 21.  
**SuggestedRemedy**  
 Suggest changing one or the other to make the references be consistent in case.  
**Proposed Response Response Status W**  
 PROPOSED REJECT.  
 There are M channels in total, where m (index of MCRS channel) ranges from 0 to M-1

**Cl 143 SC 143.2.4.3 P101 L2 # 114**  
 Laubach, Mark Broadcom  
**Comment Type E Comment Status D bucket**  
 This reads like a blank line has been inserted.  
**SuggestedRemedy**  
 Remove the blank line.  
**Proposed Response Response Status W**  
 PROPOSED ACCEPT.

**Cl 143 SC 143.2.5 P103 L11 # 121**  
 Powell, Bill Nokia  
**Comment Type TR Comment Status R MCRS**  
 Figure 143-6 still shows four 25 Gb/s channels designated as UC0, UC1, UC2, and UC-3 in a diagram illustrating channel bonding, with peak aggregate rates up to 75/100 Gb/s.  
**SuggestedRemedy**  
 Remove channels UC2 and UC3 from the diagram, or re-draw with UC0 & UCn, defining n=1 for this standard (i.e. - two 25 Gb/s channels in this standard).  
**Response Response Status C**  
 REJECT.  
 These are examples in a generic section of MCRS description. All Nx25G-EPON specific stuff is located in 143.4.  
 Per TF minutes from Pittsburgh meeting: "During the discussion following the above two presentations there was a general consensus to make the entire MPRS specification channel independent (i.e., upper number of channels unspecified) and make a formal requirement that for P802.3ca PHYs, the number of channels shall be equal to either 1 or 2."

**Cl 143 SC 143.2.5 P103 L11 # 115**  
 Laubach, Mark Broadcom  
**Comment Type TR Comment Status R MCRS**  
 Speeds have gone from 100 to 50 Gb/s and chanelns from 4 to 2. Eventually, the figures and text need to catch up with this. Page 103, Figure 143-6, Page 103 Line 42, Page 104 Line 3 Figure 143-7, Page 105, Line 3 Figure 143-8, Page 107 Figure 143-9.  
**SuggestedRemedy**  
 If not fixed in this comment round suggest adding an appropriate Editor's note on Page 103 (or other suitable location) indicating that this work needs to be done.  
**Response Response Status C**  
 REJECT.

These are examples in a generic section of MCRS description. All Nx25G-EPON specific stuff is located in 143.4  
 Per TF minutes from Pittsburgh meeting: "During the discussion following the above two presentations there was a general consensus to make the entire MPRS specification channel independent (i.e., upper number of channels unspecified) and make a formal requirement that for P802.3ca PHYs, the number of channels shall be equal to either 1 or 2."

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Cl 143 SC 143.2.5 P103 L41 # 122  
Powell, Bill Nokia

Comment Type TR Comment Status A MCRS

The paragraph below figure 143-6 still refers to "four channels with instantaneous transmission rate of 25, 50, 75, or 100 Gb/s..."

SuggestedRemedy

Change last sentence in this paragraph to read: "For example, a MAC instance connected to an MCRS with two channels of 25 Gb/s each can achieve an instantaneous transmission rate of 25 or 50 Gb/s by varying, in real time, the number of channels that are bonded to send data from a single LLID."

Response Response Status C

ACCEPT IN PRINCIPLE.

These are examples in a generic section of MCRS description. All Nx25G-EPON specific stuff is located in 143.4

Per TF minutes from Pittsburgh meeting: "During the discussion following the above two presentations there was a general consensus to make the entire MPRS specification channel independent (i.e., upper number of channels unspecified) and make a formal requirement that for P802.3ca PHYs, the number of channels shall be equal to either 1 or 2."

In Figure 143-18, remove "..." at the PHY level.

Cl 143 SC 143.2.5.1 P103 L47 # 171  
Wey, Jun Shan ZTE TX

Comment Type ER Comment Status D

This clause gives an example of dynamic channel bonding using the partially overlapping envelopes scenario in Fig 143-6. It would be helpful to readers if this fact is mentioned.

SuggestedRemedy

Revise the sentence: "The dynamic channel bonding is achieved by interleaving data belonging to a single LLID (i.e., data from a single MAC instance) over multiple envelopes on multiple MCRS channels, as illustrated in Figure 143-7."

To the following: "The dynamic channel bonding is achieved by interleaving data belonging to a single LLID (i.e., data from a single MAC instance) over multiple envelopes on multiple MCRS channels. Figure 143-7 illustrates a dynamic channel bonding example based on the partially overlapping envelopes scenario in Figure 143-6."

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 143 SC 143.3.2 P110 L54 # 116  
Laubach, Mark Broadcom

Comment Type TR Comment Status D

Bits "E" and "K" are mentioned here in the text, but are absent from Table 143-3 on page 112 line 17, yet they are shown in Table 143-4, 143-5, and 143-6. Of the two bits in Table 143-3, which bit is E and which is K?

SuggestedRemedy

Change the Description of bits 46 and 47 Table 143-3 to define bit 46 as E and bit 47 as K. Change "Reserved" to the 802.3 adopted term for "this is being used outside the standard". "Allocated"? I'll check up with other 802.3 folks before .3ca comment resolution completes to clarify.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change the Description of bits 46 and 47 Table 143-3 to define bit 46 as E and bit 47 as K.

Cl 143 SC 143.3.2 P111 L43 # 206  
Remein, Duane Huawei

Comment Type E Comment Status D bucket

ESH & ECH have already been introduced.

SuggestedRemedy

strike "envelope start header" and parenthesis around ESH.  
On pg 117 line 52, pg 119 line 14, and pg 122 line 42 change "envelope start header" to "ESH"  
Strike "envelope continuation header" and parenthesis around "ECH"  
On pg 117 line 29, pg 119 line 15, and pg 126 line 38 change "envelope continuation header" to "ESH"

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 143 SC 143.3.2.1 P112 L40 # 117  
 Laubach, Mark Broadcom  
 Comment Type T Comment Status D  
 For consistency, the terms here should match the terms in Table 143-3, e.g. "Block Field Type" doesn't match "Start Control Code" as defined in Table 143-3. Suggest aligning names as needed for consistency.  
 SuggestedRemedy  
 Editor's choice for consistency.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Change "Block Field Type" to "Start Control Code"

Cl 143 SC 143.3.3 P114 L30 # 118  
 Laubach, Mark Broadcom  
 Comment Type T Comment Status D  
 "Figure title placeholder" needs to be changed to the appropriate figure title. Same for Page 122 line 30, Clause 143.3.4.  
 SuggestedRemedy  
 At the time of submitting this comment, I don't know what the figure title should be.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Duane's AI for this meeting to propose the title for this figure

Cl 143 SC 143.3.3.4 P116 L22 # 207  
 Remein, Duane Huawei  
 Comment Type E Comment Status D  
 of ... of grammar  
 SuggestedRemedy  
 change:  
 "All or some number of lower bits of EnvPam" to:  
 "All or some number of EnvPam lower bits"  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 Text reads fine as it is.

Cl 143 SC 143.3.3.5 P117 L37 # 78  
 Kramer, Glen Broadcom  
 Comment Type TR Comment Status D  
 Function definition of EnvStartHeader() is incorrect now, since we allow the number of channels to not be a power of 2 and introduced the NUM\_CH constant. Also the function has wrong indentation.  
 SuggestedRemedy  
 Use function code as shown in kramer\_3ca\_5\_1118.pdf. Note the indentation and the changed code in red.  
 Also replace "int2" with "int" and add a return type EQ in the definition of EnvContHeader():  
 "EQ EnvContHeader( int col )"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 143 SC 143.3.3.5 P118 L6 # 79  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status D  
 Missing definition of GetFillerEQ, only code is provided. In code, we should use variable col instead of wCol to be consistent with other functions defined in this clause. Argument type is missing too.  
 SuggestedRemedy  
 Add function definition and modify the function code as shown in kramer\_3ca\_6\_1118.pdf.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 143 SC 143.4.1.3.1 P130 L13 # 29  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status D  
 Definitions need some back reference to where the given values are first defined  
 SuggestedRemedy  
 Insert the following text under 143.4.1.3:  
 For definitions of constants, variables, and functions, see 143.3.3 (trasmit direction) and 143.3.4 (reeive direction).  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

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Cl 143 SC 143.4.1.3.2 P130 L30 # 30  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D

This is not possible: represented by 1-bit integers - an integer requires 1 bit for sign representation.

SuggestedRemedy

Strike "If this optimization is implemented, the variables rRow and wRow are represented by 1-bit integers."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change

"If this optimization is implemented, the variables rRow and wRow are represented by 1-bit integers."

to

"If this optimization is implemented, the variables rRow and wRow are represented by 1-bit unsigned integers."

Cl 143 SC 143.4.1.3.3 P130 L35 # 31  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D

There is very little value on specyfing the ENV\_RX values in such an unclear manner. We should specify the maximum value and leave any optimizations for implementers to figure out

SuggestedRemedy

Strike 143.4.1.3.3, use the maximum value specified in 143.3.4.3 (64)

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 143 SC 143.4.4.1 P131 L7 # 33  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D

Given that 25GMII and XGMII operate using the same set of primitives, everything we need is already covered in 143.3.1.1, specifically in Table 143-1 and Table 143-2

SuggestedRemedy

Strike 143.4.4.1 and 143.4.4.2

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 143 SC 143.4.4.3 P131 L11 # 32  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D

Given that 25GMII and XGMII have the same width and operate only on different clock rates, there is no need to adjust MCRS operation for 10Gb/s

SuggestedRemedy

Strike 143.4.4.3 and associated subclauses

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 144 SC 144.1.1.3 P136 L47 # 34  
 Hajduczenia, Marek Charter Communicatio

Comment Type T Comment Status D bucket

"MCRS described in this clause" is wrong - this is MPMC Clause

SuggestedRemedy

Change "MCRS described in this clause" to "MPMC described in this clause"

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 144 SC 144.1.4.1 P138 L1 # 172  
 Wey, Jun Shan ZTE TX

Comment Type TR Comment Status D

In the Layered diagram, there's OAM function between MAC Client and MPMC. It seems the OAM function should also be shown in Fig 144-4, but it's not.

SuggestedRemedy

Discuss and clarify

Proposed Response Response Status W

PROPOSED REJECT.

OAM is already covered in Clause 56.

Proposed Responses

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Cl 144 SC 144.1.4.1 P138 L34 # 76  
 Kramer, Glen Broadcom  
 Comment Type T Comment Status D  
 When we define primitive abbreviations MCSI/MCSR, MCII/MCIR, and MADI/MADR, we need to be more precise with the arguments. We only use operand\_list in our state diagrams, while the base definitions of MA\_DATA and MA\_CONTROL include additional arguments.  
 SuggestedRemedy  
 Expand the definitions of MCSI/MCSR, MCII/MCIR, and MADI/MADR to include the list of arguments and add cross-references to the base definitions of MA\_DATA in clause 4 and MA\_CONTROL in Clause 32. Use the text as shown in kramer\_3ca\_3\_1118.pdf.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.2 P140 L2 # 208  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 "opcode specific" or "opcode-specific" we should be consistent  
 SuggestedRemedy  
 Use "opcode-specific" consistently.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.2 P140 L8 # 173  
 Wey, Jun Shan ZTE TX  
 Comment Type TR Comment Status D  
 REPORT Generation/Reception Process functional block is described in the text, but not shown in Figures 144-3 or 144-4.  
 SuggestedRemedy  
 Discuss and clarify  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Remove item e) on page 140

Cl 144 SC 144.2.1.1 P140 L32 # 209  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 EQT is used but never defined.  
 WAKE UP FOLKS!: this definition points out the face that EQT changes based on xMII rate.  
 SuggestedRemedy  
 Add the following definition in 144.2.1.1:  
 EQT  
 TYPE: real number  
 This constant is equivalent to the time required to transmit one EQ between the MCRS and the PCS of an Nx25G-EPON device. For 25 Gb/s PHYs this is 2.56 ns. For 10 Gb/s PHYs this is 6.4 ns.

Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Add new definitions in 1.4xxx (editor to find the right place), as follows  
 EQT: The unit of measurement of time for time-related parameters specified in Clause 144 Multipoint MAC Control. Each EQT is equal to the time required to transmit one EQ between the MCRS and the PCS across 25GMII, and equal to 2.56 ns.  
 EQ: The unit of measurement of volume of information. Each EQ is equal to two 25GMII transfers, i.e., 72 bits.  
 Add EQT into abbreviations in 1.5  
 We introduced EQT specifically to represent EQ time at 25Gb/s rate. That is, we decided that EQT is ALWAYS 2.56 ns (see comment #378 from San Diego). LocalTime counter in the OLT is lined to the 25Gb/s TX clock and in the ONU it is locked to 25Gb/s receive clock. All times (timestamp, startTime, laserOn/Off times) are linked to this clock, so are expressed in EQT. There is nothing that ever needs to be expressed in time units of 6.4 ns. Saying that EQT is rate-dependent breaks most state diagrams in C144.  
 Rather than add EQT/EQ as a constant and embedd somewhere in Clause 144/143, it is better to define it as a new unit.

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Cl 144 SC 144.2.1.3 P141 L4 # 210  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 This definition is for RTTdelta not RTT.  
 SuggestedRemedy  
 Change:  
 "The RTT value" to:  
 "The RTTdelta value"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Per comment + apply italics to variable name.

Cl 144 SC 144.2.1.3 P141 L29 # 211  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 Given that timestampDrift does not appear in the indirectly referenced SD we seem to be sending the reader on a wild goose chase; "(see ONU Registration state diagram in 144.3.5.8)". A better reference is needed.  
 SuggestedRemedy  
 Change:  
 "(see ONU Registration state diagram in 144.3.5.8)" to  
 "(see DeregistrationTrigger in 144.3.5.3, Figure 144-22, and Figure 144-23)"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.2.1.5 P142 L12 # 212  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 The variable "operand\_list" has multiple indirect definitions and is thus ambiguous.  
 SuggestedRemedy  
 Provide a concise definition in 144.2.1.3 for this context such as:  
 "operand\_list A set of parameters carried in the payload of an MPCPDU."  
 Add xRef in 144.3.5.3 and 144.3.6.3  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 See comment #76

Cl 144 SC 144.2.1.5 P142 L14 # 35  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Symbol (does not belong to) did not get mapped correctly (exit out of PARSE\_OPCODE state), when opcode does not belong to the group of supported opcodes  
 SuggestedRemedy  
 Fix the symbol (does not belong to)  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.2.1.5 P142 L14 # 72  
 Kramer, Glen Broadcom  
 Comment Type TR Comment Status D bucket  
 "Not equal" and "Not belong" symbols in several state diagrams got corrupted when converting from Word to FM  
 SuggestedRemedy  
 Replace "?" in the following state diagrams:  
 144-5 - replace with "not belong"  
 144-22 - replace with "not equal"  
 144-23 - replace with "not equal"  
 144-25 - replace with "not equal"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.2.1.5 P142 L14 # 213  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D bucket  
 "?" is not a valid SD operator per table 21-5.  
 SuggestedRemedy  
 Change to the symbol for Indicates nonmembership (̈́ or ALT-0207 in frame Symbol font).  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.2.1.6 P142 L35 # 214  
 Remein, Duane Huawei

Comment Type TR Comment Status D

What does "MCIR[PLD] refer to? Presumably only MCIRs arriving on the PLID but this is never explained. Furthermore per Fig 144-3 the Control Multiplexer is fed from the ONU Registration Process, how can the Reg-Req happen before the PLID had been assigned in Discovery? In INSERT\_TIMESTAMP is a malformed assignment action "Timestamp = LocalTime + RTT[PLID]" but RTT is not available to the ONU which is required to implement the SD so I'm left wondering how this can occur? Lastly 144.2 claims to be "Protocol-independent", and PLID is only associated with MPCP.

#### SuggestedRemedy

Remove "[PLID]" in exit from WAIT\_FOR\_MPCPDU.

Change the definition of RTT on pg 141 from:

"RTT

TYPE: 24-bit unsigned integer

This variable holds the measured Round Trip Time to the ONU. The RTT value is represented in units of EQT." to:

"RTT[]

TYPE: 24-bit unsigned integer

In the OLT this variable holds the measured Round Trip Time to the ONU (in units of EQT) and is referenced via the PLID. In the ONU this variable is always set to zero." Globally replace (case sensitive, whole word) "RTT" with "RTT[PLID]"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Since the comment touches on multiple items, a few detailed explanations are in order

\*\*\* What does "MCIR[PLD] refer to? Presumably only MCIRs arriving on the PLID but this is never explained.

That assumption is not correct. In the OLT, Control Multiplexor interfaces with multiple instances of GATE Generation or Registration Completion processes. As the Control Multiplexor gets a request for a specific MPCPDU transmission, it needs to perform certain action that is dependent on which exact instance the request arrived from. For example, it needs to increase the advertised timestamp by the instance-specific RTT value. So, we get PLID instance information from MCIR[PLID](...) primitive. We use the same approach in many places. For example, in C143, MCRS Input SD: MCRS\_CTRL[wCol].Request(...) – is a request received for channel "wCol".

\*\*\* Furthermore per Fig 144-3 the Control Multiplexer is fed from the ONU Registration Process, how can the Reg-Req happen before the PLID had been assigned in Discovery?

Figure 144-3 describes OLT block diagram. Figure 144-4 describes the ONU. Before the ONU completed its discovery, it operates with DISC\_PLID, which from Control Multiplexor SD point of view is just another instance of an interface to a higher layer block. This fact will be addressed by adding an explicit statement to the definition of RTT, indicating that at the

OLT, RTT[DISC\_PLID] is always zero.

\*\*\* In INSERT\_TIMESTAMP is a malformed assignment action "Timestamp = LocalTime + RTT[PLID]" but RTT is not available to the ONU which is required to implement the SD so I'm left wondering how this can occur?

Nothing is malformed in this action. In the ONU, RTT[PLID] is always zero. This fact will be addressed by adding an explicit statement to the definition of RTT, indicating that at the ONU, RTT[PLID] is always zero.

\*\*\* Lastly 144.2 claims to be "Protocol-independent", and PLID is only associated with MPCP.

Replace "[PLID]" with "[LLID]", so we can process requests from either PLID-related interfaces (MPCP discovery, MPCP granting) or MLID-related interfaces (CCP). Our MAC Control never sees any data frames.

Cl 144 SC 144.3.1.1 P143 L7 # 92  
 Kramer, Glen Broadcom

Comment Type TR Comment Status D

The section on ranging and time synchronization is empty. A new text is provided. Also, there needs to be a section related to time synchronization in C143 MCRS.

#### SuggestedRemedy

- 1) Use text in kramer\_3ca\_2\_1118.pdf for subclause 144.3.1.1 (note the changed title)
- 2) Include a new sub-clause "143.2.6 MCRS Time synchronization" as shown in kramer\_3ca\_1\_1118.pdf

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 144 SC 144.3.2.2 P143 L30 # 215  
 Remein, Duane Huawei

Comment Type T Comment Status D

We clearly state that PLIDs are unique but don't for MLIDs, which also must be unique.

#### SuggestedRemedy

Change "a single MLID value" to: "a single unique PLID value"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change "a single MLID value" to: "a single unique MLID value"



Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.2.4 P143 L51 # 216  
 Remein, Duane Huawei

Comment Type T Comment Status D

It should be clear that multicast ULIDs are excluded from GLID grants.

SuggestedRemedy

Change:  
 "or a ULID value" to:  
 "or a unicast ULID value"  
 Change on line 52:  
 "PLID, MLID, or ULID," to:  
 "PLID, MLID, or unicast ULID,"

Proposed Response Response Status W

PROPOSED REJECT.

There is no separate class of multicast ULIDs. All ULIDs are provisioned in ONUs by NMS. If NMS provisions the same ULID value in several ONUs, then this ULID becomes multicast ULID in the downstream. An ONU would never know if any particular ULID is assigned to it exclusively or not. However, in the upstream, the OLT may grant each such ULID separately, because GATEs always come under unique PLID envelopes, so only one ONU would response to an envelope allocation that has multicast ULID. So, our architecture is flexible and no special restrictions are needed, as noting breaks. If anyone doesn't want to grant unicast ULIDs, then they just should not.

It is not clear why such an exclusion would be made. Please present your case at the meeting.

Cl 144 SC 144.3.3 P144 L8 # 217  
 Remein, Duane Huawei

Comment Type T Comment Status D

This definition of LLID = 0x0000 should be broader that just GATE and MCRS\_CTRL.request primitives

SuggestedRemedy

Change:  
 "A reserved PLID value indicating an empty EnvAlloc[n] field in a GATE MPCPDU. ESC\_PLID is also used in MCRS\_CTRL.request primitive to mark the end of upstream burst." to:  
 "A reserved LLID value indicating an unused or empty LLID or MPCPDU field which includes an LLID. In particular the ESC\_PLID is used in the GATE MPCPDU to indicate an empty EnvAlloc[n] field and in the REPORT MPCPDU to indicate an empty LLIDstatus field. The ESC\_PLID is also used in MCRS\_CTRL.request primitive to mark the end of an upstream burst."

Proposed Response Response Status W

PROPOSED REJECT.

The proposed text is much more confusing. Please present the reason for the requested change, and not just state it "should be broader". It is not clear why that is

Cl 144 SC 144.3.4 P144 L45 # 218  
 Remein, Duane Huawei

Comment Type ER Comment Status D

The outline of 144.3.4 does not match that agree in cmt # 548.

SuggestedRemedy

Follow the outline per the comment (i.e., kramer\_3ca\_3\_0918)

Proposed Response Response Status W

PROPOSED REJECT.

Current outline follows Opcode value allocated to each and every message.

Cl 144 SC 144.3.4 P144 L53 # 219  
 Remein, Duane Huawei

Comment Type E Comment Status D bucket

Wording: "the address any of the individual MACs"

SuggestedRemedy

Change to "the address of any individual MAC"

Proposed Response Response Status W

PROPOSED ACCEPT.

## Proposed Responses

## IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.4 P145 L4 # 220  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 "Table 31A-1" can be a live link.  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4 P145 L13 # 90  
 Kramer, Glen Broadcom  
 Comment Type TR Comment Status D  
 "Octets within each field are transmitted from least significant to most significant."  
 Specifying the octet order this way was a mistake. It goes against the existing requirements in 802.3:  
 3.2.6: "The Length/Type field is transmitted and received with the high order octet first."  
 31B.2 pause\_time: "The field is transmitted most significant octet first,..."  
 57B.1 OAMPDUs: "When consecutive octets are used to represent a numerical value, the most significant octet is transmitted first, followed by successively less significant octets."  
 SuggestedRemedy  
 Replace "Octets within each field are transmitted from least significant to most significant." with  
 "When consecutive octets are used to represent a numerical value, the most significant octet is transmitted first, followed by successively less significant octets."  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4.1 P145 L50 # 221  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Items a - d.4 are already part of a requirement; "The GATE MPCPDU is an instantiation of the Generic MPCPDU and shall be as shown in Figure 144-8 with details defined as follows:" what is the point of a requirement within a requirement?  
 "When multiple channels are assigned in a single GATE MPCPDU, the transmission on each channel shall start at Grant Start Time and shall have the length as necessary ..."  
 SuggestedRemedy  
 change:  
 "When multiple channels are assigned in a single GATE MPCPDU, the transmission on each channel shall start at Grant Start Time and shall have the length as necessary ..." to:  
 " All channels assigned in a single GATE MPCPDU have the same Grant Start Time and length as necessary ..."  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 "When multiple channels are assigned in a single GATE MPCPDU, the transmission on each channel shall start at Grant Start Time and shall have the length as necessary ..."  
 to:  
 "When multiple channels are assigned in a single GATE MPCPDU, the transmission on each channel shall start at grant start time and have the length as necessary ..."  
 Channels don't have Start times and lengths. Only transmissions on each channel can be characterized by start times and transmission lengths.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.4.1 P146 L27 # 222  
 Remein, Duane Huawei

Comment Type TR Comment Status D

I can find no mention of the active state of this flag.  
 There is also a small ambiguity here. If a frame has already been fragmented, and the grant is not large enough to transmit the entire remaining fragment, and the Fragment flag is set to prohibit fragmentation, what should the ONU do? I submit that it should transmit as much of the remaining fragment as possible as the buffer on the receive side has already been allocated so there is no need to avoid transmitting the fragment.

SuggestedRemedy

Change:  
 "This flag informs the ONU whether it is allowed to fragment new frames transmitted on the given LLID." to:  
 "When set to 1 this flag informs the ONU it is allowed to fragment new frames transmitted on the given LLID. When "set to 0 transmission of new fragments are prohibited."  
 Add at the end of the last sentence: " even if the EnvLength is not sufficient to contain the entire remaining fragment"  
 (EnvLength s/b in italics)  
 While mucking about here ensure that "Fragmentation" does not split the line.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change bullet 3) to read as follows

Fragmentation (F): When set to 1, this flag informs the ONU it is allowed to fragment new frames transmitted on the given LLID. If a frame fragment remains queued in this LLID since previous envelope transmission, this fragment is transmitted first, regardless of the value of the Fragmentation flag.

Use proper variable format (italics).

Cl 144 SC 144.3.4.3 P148 L54 # 223  
 Remein, Duane Huawei

Comment Type TR Comment Status D

Optional indication in a requirement ("should" under a "shall"):  
 "The OLT should not grant ..."

SuggestedRemedy

Change:  
 "The OLT should not grant" to:  
 "The OLT does not grant"

Proposed Response Response Status W

PROPOSED REJECT.

The first "shall" is the message format requirement. The second "should" is behavior requirement. Without the second "should" there will be no normative requirement for the OLT's behavior. We used exactly the same approach in .3av.

Cl 144 SC 144.3.4.3 P149 L3 # 224  
 Remein, Duane Huawei

Comment Type T Comment Status D

We have two closely related tables that define "Discovery Information Fields"; Table 144-4 & Table 144-7. This becomes especially confusing when reading 144.3.5 which refers to both fields in the opening three paras. It would be clearer for the reader if these fields used different names.

SuggestedRemedy

In 144.3.4.3 REGISTER\_REQ description change "Discovery Information" to "Register Request Information".  
 In the 2nd & 3rd para of 144.3.5 Discovery Process change "Discovery Information" to "Register Request Information".  
 In Figure 144-15—Discovery handshake message exchange change  
 "content = Pending Envelopes + Discovery Information +" to  
 "content = Pending Envelopes + Register Request Information +"

Proposed Response Response Status W

PROPOSED ACCEPT.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.4.3 P149 L23 # 225  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 If Laser On/Off Time is really a time then this should be in EQT not EQ.  
 SuggestedRemedy  
 Change in 2 places:  
 "in the units of 1 EQ" to:  
 "in the units of EQT"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4.4 P150 L35 # 36  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Reference marked in red needs to be fixed  
 SuggestedRemedy  
 Change 143.2.1.1 to 144.3.2.1 and mark the link live  
 Change 143.2.1.2 to 144.3.2.2 and mark the link live  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4.4 P150 L35 # 226  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Fix the Ref "(see 143.2.1.1)" here and pg 152 line 13  
 SuggestedRemedy  
 144.3.2.1  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4.4 P150 L37 # 227  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Fix the Ref "(see 143.2.1.2)" here and pg 152 line 15  
 SuggestedRemedy  
 144.3.2.2  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4.4 P151 L2 # 228  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Optional indication in a requirement ("should" under a "shall"):  
 "The OLT should not grant ..."  
 SuggestedRemedy  
 Change:  
 "The OLT should not grant" to:  
 "The OLT does not grant"  
 Proposed Response Response Status W  
 PROPOSED REJECT.

The first "shall" is the message format requirement. The second "should" is behavior requirement. Without the second "should" there will be no normative requirement for the OLT's behavior. We used exactly the same approach in .3av.

Cl 144 SC 144.3.4.4 P151 L4 # 229  
 Remein, Duane Huawei  
 Comment Type E Comment Status D  
 Wording "This is an 16-bit field, value-encoded to indicate the number of times"  
 SuggestedRemedy  
 change to "This 16-bit field's value indicates the number of times" in 6 places  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 Nothing wrong with the text as is.

## Proposed Responses

## IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.4.4 P151 L12 # 37  
Hajduczenia, Marek Charter Communicatio

Comment Type E Comment Status D bucket

I do not believe this statement is correct anymore: The xxx MPCPDU is generated by a MAC Control instance mapped to all ONUs and such frame is marked by the broadcast LLID (see TBD).

*SuggestedRemedy*

Change to "The xxx MPCPDU is generated by a MAC Control instance mapped to all ONUs and such frame is marked by the broadcast PLID (BCAST\_PLID, see Table 144-1)." make the link live

Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE.

Change to: "The REGISTER MPCPDU uses an individual ONU MAC as the DA and is tagged with discovery PLID (See DISC\_PLID in Table 144-1)."

Cl 144 SC 144.3.4.4 P151 L12 # 230  
Remein, Duane Huawei

Comment Type E Comment Status D bucket

Wording "and such frame is marked"

*SuggestedRemedy*

Change to "and is marked"  
Change ref to Table 144-1

Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE.

See comment #37

Cl 144 SC 144.3.4.6 P152 L48 # 231  
Remein, Duane Huawei

Comment Type E Comment Status D bucket

Add xRef to Table 144-2 in Channel Assignment description.

*SuggestedRemedy*

per comment

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 144 SC 144.3.4.6 P153 L2 # 232  
Remein, Duane Huawei

Comment Type E Comment Status D bucket

Sentence beginning "2 bits" should be "Two bits ..." Add period at end of sentence.

*SuggestedRemedy*

per comment

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 144 SC 144.3.4.6 P153 L3 # 233  
Remein, Duane Huawei

Comment Type E Comment Status D bucket

"This is 16-bit unsigned" should be "This is a 16-bit unsigned"

*SuggestedRemedy*

per comment

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 144 SC 144.3.4.6 P153 L9 # 234  
Remein, Duane Huawei

Comment Type T Comment Status D

What does this sentence mean; "Discovery Information field presents the internal structure of the Discovery Information flag field."?

*SuggestedRemedy*

Change:  
"Discovery Information field presents the internal structure of the Discovery Information flag field." to:  
"Table 144-7 presents the internal structure of the Discovery Information flag field."

Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE.

Per comment + change title of Table 144-7 to read "Discovery Information field"

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.4.6 P153 L9 # 235  
 Remein, Duane Huawei  
 Comment Type ER Comment Status D bucket  
 We are inconsistent in using italics for "Discovery Information".  
 SuggestedRemedy  
 Scrub the draft and be consistent (not italics; it is not a variable it is a field).  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Per comment + field name from Discovery Information to DiscioveryInfo (we agreed to have all field names as single word).  
 Target locations as follows (received from Duane): pg/ln 153/9, 156/7  
 AI for Glen to make updates to 144.3.4 per offline discussion.

Cl 144 SC 144.3.4.7 P154 L36 # 236  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 The SYNC\_PATTERN MPCPDU should be required.  
 SuggestedRemedy  
 Change  
 "Generic MPCPDU, and is further defined as follows:" to:  
 "Generic MPCPDU and shall be as shown in Figure 144–14 with details defined as follows:"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.4.7 P154 L39 # 237  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Is this a case of crossed names?  
 "PatternInfo: This is a 16-bit field, with individual bits defined per SplInfo field value"  
 Table 144-8 is not referenced.  
 SuggestedRemedy  
 Change all (3-4) instances of "PatternInfo" to "SplInfo"  
 Change:  
 "defined per SplInfo field value" to:  
 "defined per Table 144-8"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 See comment #40.

Cl 144 SC 144.3.4.7 P154 L48 # 265  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Table 144-8 should make it clear that Count must be the same for each MPCPDU in a set.  
 SuggestedRemedy  
 Add to "Indicates the number of Sync Pattern elements in a burst. The valid values are 2 or 3."  
 "The count field is the same for all SYNC\_PATTERN MPCPDUs describing a single Sync Pattern (SP1, SP2 and optionally SP3)."  
 Follow whatever decision is taken on subscribing SP1, SP2 and SP3.  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 MPCPDU is just a data unit and as such, has no notion of past or future messages and their values. The target behavior is already covered in Figure 144-21, line 15, and no new requirements in text are needed.

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.4.7 P155 L12 # 266  
 Remein, Duane Huawei

Comment Type T Comment Status D

It would make more sense to have Octets <31:0> map to bits <255:0> and use bit 15 of PatternInfo (or SplInfo as the case may be) for bit 256 rather than 0.

Admittedly this is a somewhat trivial change for HW but is more straight forward imho.

SuggestedRemedy

In Table 144-8 change bit 15 definition to "Value, bit 256" and "Carries the last (index 256) bit of the Sync Pattern value."

Change "c)" to read "Value: This is a 32-octet field, containing right-justified bits 0 through 255 of the Sync Pattern element (SP1, SP2, or (if present) SP3), where bit 256 of the Sync Pattern is carried in the SplInfo field. The allocation of remaining 255 bits in the Value field is shown in Sync Pattern placement in Table 144-9.

Change indexes in Table 144-9 accordingly to SP<7:0>, SP<247:240>, and SP<255:248>.

Proposed Response Response Status W

PROPOSED REJECT.

Current bit allocation is precisely optimized for HW implementation. This was discussed in detail when SYNC\_PATTERN was first presented to the group.

Cl 144 SC 144.3.5 P156 L8 # 267  
 Remein, Duane Huawei

Comment Type E Comment Status D

Fix xRef. 77.3.6.1

SuggestedRemedy

Change to Table 144-7 (included in remain\_3ca\_1\_1118.pdf)

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See comment #38

Cl 144 SC 144.3.5 P156 L8 # 38  
 Hajduczenia, Marek Charter Communicatio

Comment Type E Comment Status D

Missing reference updates in lines 8 and 23

SuggestedRemedy

Replace 77.3.6.1 with 144.3.4.6

Replace 77.3.6.3 with 144.3.4.3

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 144 SC 144.3.5 P156 L10 # 268  
 Remein, Duane Huawei

Comment Type TR Comment Status D

Two data rates are only supported in the downstream direction.

SuggestedRemedy

Change:

"the given transmission direction" to:

"the downstream direction"

(included in remain\_3ca\_1\_1118.pdf)

Proposed Response Response Status W

PROPOSED REJECT.

Incorrect. The text speaks of lines rate values possible in upstream that can be reported during the discovery window. OLT may pre-tune to 25Gb/s RX or 10Gb/s RX TIA/LA, so two line rates possible in the upstream.

Cl 144 SC 144.3.5 P156 L23 # 269  
 Remein, Duane Huawei

Comment Type E Comment Status D

Fix xRef. 77.3.6.3

SuggestedRemedy

Change to Table 144-4.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See comment #38

Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.5 P156 L29 # 270  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Time should be in time units not bits "Laser On  
 Time and Laser Off Time fields, where both values are expressed in the units of 1 EQ"  
 SuggestedRemedy  
 Change "1 EQ" to "EQT".  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 No need to repeat. Unit are defined where fields are specified.  
 Strike ", where both values are expressed in the units of 1 EQ"

Cl 144 SC 144.3.5 P156 L41 # 271  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Most everywhere else these terms are capitalized; laser on time and laser off time  
 SuggestedRemedy  
 Capitalize consistently.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5 P156 L48 # 272  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Figure 144-30 should be Figure 144-15 and a live xref.  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5 P156 L49 # 174  
 Wey, Jun Shan ZTE TX  
 Comment Type TR Comment Status D bucket  
 "Figure 144-30" should be "Figure 144-15"  
 SuggestedRemedy  
 Correct the figure number  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5 P157 L9 # 40  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status D  
 No such field: SplInfo  
 SuggestedRemedy  
 Change all instances to PatternInfo  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5 P157 L32 # 273  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 In REGISTER message SP3Length should reference footnote 3.  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 SP3Length is not an optional field - it is always present, but if only two zones are present, it is set to 0.



Proposed Responses

IEEE P802.3ca D1.3 25/50G-EPON Task Force 4th Task Force review comments

Cl 144 SC 144.3.5 P157 L49 # 39  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status D  
 Note uses wrong field name: SPCCount is no more  
 SuggestedRemedy  
 Change SpCount to Count (see Table 144-8)  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Change SpCount to <i>Count</i> field

Cl 144 SC 144.3.5 P158 L4 # 274  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 "<TBD reference to clause 143>)." should be 144.3.4.7  
 SuggestedRemedy  
 per comment  
 (included in remein\_3a\_1\_1118.pdf)  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5 P158 L27 # 41  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type TR Comment Status D  
 Figures 144-16,-17,-18,-19,-20 are not needed anymore, given that individual interfaces are specified in a more consistent manner in SDs  
 SuggestedRemedy  
 Remove the figures  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.1 P160 L33 # 275  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D EQTs  
 DISCOVERY\_MARGIN measured in EQTs is stated to be 205 us. However this is only true if the ONU is operating at 25G for a 10G ONU it will be closer to 512 us.  
 SuggestedRemedy  
 There are several approaches to fixing this. One would be to define DISCOVERY\_MARGIN in ns and convert to EQT in the SD by doing an integer division by EQT. Another would be to leave this as a constant with a value of 80,078 and change the note to indicate the time difference depending on the ONU rate. Other solutions could be suggested.

Proposed Response Response Status W  
 PROPOSED REJECT.  
 We introduced EQT specifically to represent EQ time at 25Gb/s rate. We decided that EQT is >>ALWAYS<< 2.56 ns long (see comment #378 from San Diego meeting. LocalTime counter in the OLT is lined to the 25Gb/s TX clock and in the ONU it is locked to 25Gb/s receive clock. All times (timestamp, startTime, laserOn/Off times) are linked to this clock, so are expressed in EQT. There is nothing that ever needs to be expressed in time units of 6.4 ns. Saying that EQT is rate-dependent breaks most state diagrams in C144.

Cl 144 SC 144.3.5.2 P160 L46 # 276  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Wording "registration attempt deemed failed due to lack"  
 SuggestedRemedy  
 Change to "registration attempt is deemed to have failed due to a lack"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.3 P161 L12 # 238  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Indenting should match "// 1)" for "// 2) ... MsgRegisterAck.Flag = Deregister)".  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

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Cl 144 SC 144.3.5.3 P161 L31 # 239  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 "trans-mission"?  
 SuggestedRemedy  
 strike the dash  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.3 P161 L41 # 240  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 Several issues with "This variable indicates the ONU local time at which it REGISTER\_REQ MPCPDU is to be transmitted." Most importantly what is "local time"?  
 SuggestedRemedy  
 change:  
 "This variable indicates the ONU local time at which it REGISTER\_REQ MPCPDU is to be transmitted" to:  
 "This variable indicates the LocalTime at which the ONU is to transmit the REGISTER\_REQ MPCPDU."  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 local time (at the ONU) is a concept. LocalTime is a name of a variable that holds a value of local time. Original text reads OK as is.

Cl 144 SC 144.3.5.3 P161 L49 # 241  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Wording "in case when" in two places  
 SuggestedRemedy  
 change to: "in the case where"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.3 P161 L52 # 42  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type T Comment Status D bucket  
 Referece missing  
 SuggestedRemedy  
 Replace 144.2.2.2 with 142.1.3 and make link live  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.3 P161 L52 # 242  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 142.2.2.2 should be 142.1.3 and live xRef  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.4 P162 L9 # 43  
 Hajduczenia, Marek Charter Communicatio  
 Comment Type E Comment Status D bucket  
 Wrong (even though correct) capitalization in 256b/257b  
 SuggestedRemedy  
 Change to 256B/257B  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

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Cl 144 SC 144.3.5.4 P162 L9 # 243  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 Clarification "e) The FEC Parity overhead"  
 SuggestedRemedy  
 Add " including the FEC\_CW\_DELIM."  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 FEC\_CW\_DELIM is a constant that has a value 0x3CA (970), so adding it to the statement does not make much sense ("FEC Parity overhead including 970"??).  
 Use the following updated statement: "The FEC Parity overhead, including 10 bits of FEC codeword delimiter"

Cl 144 SC 144.3.5.5 P162 L24 # 244  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 Deep in the details of ONU Discovery & Registration we point to a blank introduction?  
 SuggestedRemedy  
 Change "see 144.1.1.3" to "see 144.3.5.8"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.5 P162 L28 # 245  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 "that ONU" should be "that the ONU"  
 "where nth" should be "where the nth" (2x)  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Per comment + use proper formatting for "n<sub>th</sub>"

Cl 144 SC 144.3.5.5 P162 L30 # 71  
 Kramer, Glen Broadcom  
 Comment Type E Comment Status D bucket  
 Lost formatting of "nth" when converting from Word to FM  
 SuggestedRemedy  
 Replace "nth" with "n<sup>th</sup>" - 8 occurrences in the draft , all in Clause 144.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.5 P162 L36 # 246  
 Remein, Duane Huawei  
 Comment Type E Comment Status D bucket  
 "carried in ..." should be "carried in the ..." (6x on this page)  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.6 P163 L3 # 247  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 "instance the Discovery Initiation" should be "instance of the OLT Discovery Initiation"  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.  
 Change "shall implement a single instance the Discovery Initiation" to "shall implement a single instance of the Discovery Initiation"

Proposed Responses

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Cl 144 SC 144.3.5.6 P163 L5 # 248  
 Remein, Duane Huawei  
 Comment Type T Comment Status D bucket  
 "are carries in" should be "are carried in"  
 SuggestedRemedy  
 per comment  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.7 P164 L3 # 249  
 Remein, Duane Huawei  
 Comment Type T Comment Status D  
 These two requirements can be combined.  
 SuggestedRemedy  
 Change:  
 "The Discovery Process in the OLT shall implement multiple instances of the Registration Completion state diagram shown in Figure 144–22. Each instance of the Registration Completion state diagram shall be associated with the unicast PLID being registered." to:  
 "The Discovery Process in the OLT shall implement multiple instances of the Registration Completion state diagram shown in Figure 144–22 where each instance is associated with a unicast PLID being registered."  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.7 P164 L24 # 250  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D bucket  
 Improper exit criteria from VERIFY\_REGISTER\_ACK "MsgRegsiterAck.Flag ? ACK"  
 SuggestedRemedy  
 Replace "?" with not equal sign (≠)  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.8 P165 L7 # 251  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D bucket  
 More questionable exit criteria, this time from WAIT\_FOR\_SYNC\_PATTERN "MsgSyncPattern.Index ? SplIndex"  
 SuggestedRemedy  
 Replace "?" with not equal sign (≠)  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 144 SC 144.3.5.8 P165 L22 # 255  
 Remein, Duane Huawei  
 Comment Type TR Comment Status D  
 Exit criteria from PASS\_DISC\_TO\_CLIENT reading "LocalTime = ReqStart" is incorrect.  
 SuggestedRemedy  
 Change to "LocalTime ≥ ReqStart" (i.e., use greater than or equal symbol).  
 Proposed Response Response Status W  
 PROPOSED REJECT.  
 The MPCP\_PROCESSING\_DLY is the time that the ONU is given to generate a response, such as generating REPORT after receiving a GATE. The commenter's suggestion is for the ONU to generate REGISTER\_REQ in such a way that the ONU still has MPCP\_PROCESSING\_DLY time left to spare. That is, it makes ONU processing requirement more stringent by MPCP\_PROCESSING\_DLY, decreasing the time ONU has to react to the message received. Note that the REGISTER\_REQ message is typically generated in software and requires a lot of internal processing (such as reading its RSSI in .3ca, parsing and processing Discovery Information field, and deciding if the ONU is allowed to participate in this discovery).  
 See also comment #254, which points to the same location, comes from the same commenter, but proposes a different solution (???)

Cl 144 SC 144.3.5.8 P165 L22 # 252  
 Remein, Duane Huawei  
 Comment Type ER Comment Status D bucket  
 Why is there a blank line in the middle of COMMIT\_DISC\_ENV?  
 SuggestedRemedy  
 remove the blank line  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Proposed Responses

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Cl 144 SC 144.3.5.8 P165 L22 # 254  
 Remein, Duane Huawei

Comment Type TR Comment Status D

Exit criteria from PASS\_DISC\_TO\_CLIENT assumes that the DISCOVERY MPCPDU is received before RegStart and any time the ONU needs to setup the REGISTER\_REG.

SuggestedRemedy

Change:  
 "LocalTime = ReqStart: to:  
 "RegStart: <= LocalTime + MPCP\_PROCESS\_DLY" (Note this assumes ReqStart is replaced with RegStart per another cmt)  
 Move the definition of MPCP\_PROCESS\_DLY to 144.3.5 and replace the definition in 144.3.6.1 with a cross ref.

Proposed Response Response Status W

PROPOSED REJECT.

Current state diagram operates as intended.

After the MsgDiscovery is passed to the MAC Control Client, the SD waits in PASS\_DISC\_TO\_CLIENT state. Two things may happen: (1) we get MsgRegisterReq from the Client in time to participate in this discovery attempt, or (2) localTime reached the time when ONU need to send the REGISTER\_REQ MPCPDU, but the SD did not get the MsgRegisterReq from the client. In the first case, we proceed with the discovery. In the second case, we abort the attempt and go back to waiting for SYNC\_PATTERNS.

The ONU is allowed to use all available time until the ReqStart to generate MsgRegisterReq, so if this time is larger than MPCP\_PROCESS\_DLY, all the better for the ONU. There is no need to artificially restrict ONU to a shorter time.

Cl 144 SC 144.3.5.8 P165 L22 # 253  
 Remein, Duane Huawei

Comment Type TR Comment Status D

Undefined variable ReqStart appears 4x.

SuggestedRemedy

Replace with RegStart which is well defined.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 144 SC 144.3.5.8 P165 L25 # 257  
 Remein, Duane Huawei

Comment Type T Comment Status D

Issuing a new Sync Pattern MPCPDU prior to completion of a previously issued Discovery Windw (including response time of OLT to Register Req from an ONU) will cause a registration attempt by ONUs that have not received the Register message to be aborted (see exit from ISSUE\_REGISTER\_REQ in Fig 144-23). This should be noted in the description of the Discovery and Sync Pattern messages. Furthermore the Discovery Process really begins with the Sync Pattern MPCPDU not the DISCOVERY MPCPDU as in previous generations. This information should come early in 144.3.5 and not as a after thought at the end.

SuggestedRemedy

See remain\_3a\_1\_1118.pdf (also available in MS Word).  
 Note SP1, SP2, and SP3 are not subscribed in this file.

Proposed Response Response Status W

PROPOSED REJECT.

The state diagram operates as designed.

Cl 144 SC 144.3.5.8 P165 L39 # 258  
 Remein, Duane Huawei

Comment Type E Comment Status D bucket

Searching for "Figure 144-23" does not find the reference to the figure on pg 164 due to a hidden charcter in the ref.

SuggestedRemedy

Remove the hidden character so a search on "Figure 144-23" finds both the ref and the figure.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 144 SC 144.3.6.1 P165 L24 # 256  
 Remein, Duane Huawei

Comment Type ER Comment Status D bucket

GRANT\_MARGIN not yet defined.

SuggestedRemedy

Move definiton including note from 144.3.6.1 to 144.3.5.1. Add xRef to 144.3.6.1.

Proposed Response Response Status W

PROPOSED ACCEPT.

Proposed Responses

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Cl 144 SC 144.3.6.1 P165 L47 # 259  
 Remein, Duane Huawei

Comment Type TR Comment Status D EQTs

MPCP\_PROCESS\_DLY measured in EQTs is stated to be 16.384 us. However this is only true if the ONU is operating at 25G for a 10G ONU it will be closer to 41 us.

SuggestedRemedy

There are several approaches to fixing this. One would be to define MPCP\_PROCESS\_DLY in ns and conver to EQT in the SD by doing an interger division by EQT. Another would be to leave this as a constant with a value of 6,400 and change the note to indicate the time difference depending on the ONU rate. Other solutions could be suggested.

Proposed Response Response Status W

PROPOSED REJECT.

We introduced EQT specifically to represent EQ time at 25Gb/s rate. We decided that EQT is >>ALWAYS<< 2.56 ns long (see comment #378 from San Diego meeting. LocalTime counter in the OLT is lined to the 25Gb/s TX clock and in the ONU it is locked to 25Gb/s receive clock. All times (timestamp, startTime, laserOn/Off times) are linked to this clock, so are expressed in EQT. There is nothing that ever needs to be expressed in time units of 6.4 ns. Saying that EQT is rate-dependent breaks most state diagrams in C144.

Cl 144 SC 144.3.6.1 P166 L8 # 260  
 Remein, Duane Huawei

Comment Type T Comment Status D

Clarification "e) The FEC Parity overhead (see <TBD???)>)"

SuggestedRemedy

Replace "(see <TBD???)>)" with "including FEC\_CW\_DELIM."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

FEC\_CW\_DELIM is a constant that has a value 0x3CA (970), so adding it to the statememnt does not make much sense ("FEC Parity overhead including 970"???).

Use the following updated statement: "The FEC Parity overhead, including 10 bits of FEC codeword delimiter"

Cl 144 SC 144.3.6.1 P166 L47 # 262  
 Remein, Duane Huawei

Comment Type TR Comment Status D EQTs

GATE\_TIMEOUT measured in EQTs is stated to be 50 ms. However this is only true if the ONU is operating at 25G for a 10G ONU it will be closer to 125 ms.

SuggestedRemedy

There are several approaches to fixing this. One would be to define GATE\_TIMEOUT in ns and conver to EQT in the SD by doing an interger division by EQT. Another would be to leave this as a constant with a value of 19,531,250 and change the note to indicate the time difference depending on the ONU rate. Other solutions could be suggested.

Proposed Response Response Status W

PROPOSED REJECT.

We introduced EQT specifically to represent EQ time at 25Gb/s rate. We decided that EQT is >>ALWAYS<< 2.56 ns long (see comment #378 from San Diego meeting. LocalTime counter in the OLT is lined to the 25Gb/s TX clock and in the ONU it is locked to 25Gb/s receive clock. All times (timestamp, startTime, laserOn/Off times) are linked to this clock, so are expressed in EQT. There is nothing that ever needs to be expressed in time units of 6.4 ns. Saying that EQT is rate-dependent breaks most state diagrams in C144.

Cl 144 SC 144.3.6.3 P166 L41 # 261  
 Remein, Duane Huawei

Comment Type E Comment Status D bucket

Why "etc"? We only have two channels.

SuggestedRemedy

Remove ", etc"

Proposed Response Response Status W

PROPOSED ACCEPT.

Proposed Responses

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CI 144 SC 144.3.6.3 P167 L3 # 89  
 Kramer, Glen Broadcom

Comment Type ER Comment Status D

State diagrams 144-26 and 144-27 use EnvList[ChIndex], but there is no standalone variable ChIndex. This variable is a subfield of MsgEnvDescriptor.

Also, we have several structures that have start time fields in them having different names: GrantStartTime, EnvStartTime, StartTime. These names are not used in a consistent manner and it is confusing to have different field names to represent the same concept.

Finally, MsgEnvDescriptor actually carries a group of envelope descriptors, so a better name would be MsgEnvGroup.

SuggestedRemedy

- 1) In SDs 144-26 and 144-27, replace MsgEnvDescriptor with MsgEnvGroup
- 2) In SDs 144-26 and 144-27, replace EnvList[ChIndex] with EnvList[MsgEnvDescriptor.ChIndex] (3 locations total)
- 3) Use StartTime for all fields that carry start times, regardless of what message or structure they are part of.

The exact list of changes is shown in kramer\_3ca\_7\_11\_18.pdf

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

- 1) In SDs 144-26 and 144-27, replace MsgEnvDescriptor with MsgEnvGroup
- 2) In SDs 144-26 and 144-27, replace EnvList[ChIndex] with EnvList[MsgEnvGroup.ChIndex] (3 locations total)
- 3) Use StartTime for all fields that carry start times, regardless of what message or structure they are part of.

CI 144 SC 144.3.6.3 P167 L19 # 263  
 Remein, Duane Huawei

Comment Type TR Comment Status D

This definition seems backwards "EnvList[ch].IsEmpty(): this function returns true if EnvList[ch] list has any envelopes descriptors, otherwise, false is returned;" Why return True for IsEmpty if the FIFO is not empty?  
 Also this does not appear to be consistent with it's use in Envelope Activation state diagram.

SuggestedRemedy

Change to: "EnvList[ch].IsEmpty(): this function returns true if EnvList[ch] list does not have any envelopes descriptors, otherwise, false is returned;"

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 144 SC 144.3.6.5 P167 L41 # 69  
 Kramer, Glen Broadcom

Comment Type ER Comment Status D bucket

Definition of GateTxTime has a stray new line character and appears as two separate definitions.

SuggestedRemedy

Fix to match the formatting in the original contribution kramer\_3ca\_3a\_0918.pdf

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 144 SC 144.3.6.6 P167 L53 # 70  
 Kramer, Glen Broadcom

Comment Type ER Comment Status D bucket

A set of sub-fields in MsgEnvDescriptor got formatted as if they were definitions of separate independent messages

SuggestedRemedy

Fix to match the formatting in the original contribution kramer\_3ca\_3a\_0918.pdf (indent the sub-fields)

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 144 SC 144.3.6.6 P168 L1 # 264  
 Remein, Duane Huawei

Comment Type ER Comment Status D bucket

Formatting of the MsgEnvDescriptor parameters is confusing.

SuggestedRemedy

Indent all parameters (ChIndex, EnvStartTime, EnvCount, EnvLLID[], and EnvLength[]) so it is clear this is part of the MsgEnvDescriptor definition as was done in kramer\_3ca\_3a\_0918.pdf. Skip the newline after each parameter (for example: "ChIndex: a 1-bit integer indicating whether the following envelope descriptors are intended for channel 0 or channel 1. EnvStartTime: 32-bit unsigned ..." Remove blank lines between parameters.

Proposed Response Response Status W

PROPOSED ACCEPT.

## Proposed Responses

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Cl **144** SC **144.4** P171 L53 # 68  
 Hajduczenia, Marek Charter Communicatio

Comment Type **TR** Comment Status **D**  
 Missing content of 144.4 Channel Control Protocol subclause

SuggestedRemedy  
 Adopt changes per hajduczenia\_3ca\_2\_1118.pdf, with explanation of the CCP operation, behavioral assumptions, etc. included in hajduczenia\_3ca\_1\_1118.pdf. This is a joint contribution from Glen and myself.  
 Note the change of existing ChStatus variable to ChState to align terminology with CCP operation.

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

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Cl **Abstrac** SC **Abstract** P3 L3 # 123  
 Powell, Bill Nokia

Comment Type **E** Comment Status **D** bucket  
 (downstream / upstream)

SuggestedRemedy  
 remove spaces: (downstream/upstream)

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

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Cl **Abstrac** SC **Abstract** P3 L11 # 124  
 Powell, Bill Nokia

Comment Type **E** Comment Status **D** bucket  
 and for split ratio

SuggestedRemedy  
 insert "a": and for a split ratio

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

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