Cl **FM** *SC* **FM** *P* **1** *L* **27** # 585

Anslow, Pete Ciena

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

This list should contain all of the amendments assumed to be in front of the P802.3ca draft in the queue as determined by the IEEE 802.3 Chair.

SuggestedRemedy

Change to: "as amended by IEEE Std 802.3cb-2018, IEEE Std 802.3bt-2018, IEEE Std 802.3cd-2018, IEEE Std 802.3cn-20xx, IEEE Std 802.3cg-20xx, IEEE Std 802.3cq-20xx, IEEE Std 802.3cm-20xx, and IEEE Std 802.3ch-20xx."

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **7** *L* **3** # 586

Anslow, Pete Ciena

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

The first paragraph of "Participants" is not in line with the latest boilerplate.

SuggestedRemedy

Change to:
"The following individuals were officers and members of the IEEE 802.3 Working Group at the beginning of the IEEE P802.3ca Working Group ballot."

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **7** *L* **20** # 587

Anslow, Pete Ciena

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

The list of WG ballot members should not include the officers of the Working Group or the Task Force who are already listed.
Also, the column widths are not as per the latest 802.3 FrameMaker template.

SuggestedRemedy

Remove the 8 officers names from the WG ballot list of names.
Change the column widths to be in accordance with the latest 802.3 FrameMaker template (so that Kochuparambil, Elizabeth does not line wrap)

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **11** *L* **53** # 588

Anslow, Pete Ciena

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

The text of the summary for P802.3cg does not match the latest version in P802.3cg D3.2

SuggestedRemedy

Change "balanced pair copper cable" to: "balanced pair of conductors"

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **12** *L* **1** # 589

Anslow, Pete Ciena

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

IEEE Std 802.3ca is not going to be approved in 2019. Also, it is not likely to be Amendment 5.
Amendment numbers should only be added to drafts when the assumed order has been announced by the 802.3 Chair.

SuggestedRemedy

On line 1 change "201x" to "20xx"
On line 3 delete "Amendment 5-"

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P* **24** *L* **5** # 590

Anslow, Pete Ciena

Comment Type **TR** *Comment Status* **X**

This draft adds a reference to ITU-T G.652, 2016 in addition to the existing reference to ITU-T G.652, 2009.
While all of the references to G.652 in this draft have been changed to dated references to G.652-2016, this would leave the 27 existing references to G.652 in IEEE Std 802.3-2018 ambiguous as to which version is being referenced.

SuggestedRemedy

Either:
Change back to the D2.0 text which changes G.652-2009 to G.652-2016
or:
Bring the 27 existing undated references to G.652 in to the draft and make them all dated references.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.90c** *P* **24** *L* **34** # 591

Anslow, Pete Ciena

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

1.4.90c should be 1.4.90b as per the editing instruction.

SuggestedRemedy

Re-number 1.4.90c to 1.4.90b

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.334a** *P* **26** *L* **13** # 592

Anslow, Pete Ciena

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

The sorting order for definitions in 1.4 is defined at:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#sort
This means that "Multi-Channel Reconciliation Layer (MCRS)" comes before "MultiGBASE-T". Also, "MultiGBASE-T" has been re-numbered to 1.4.333 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018.

SuggestedRemedy

Change the editing instruction to:
"Insert the following new definition after 1.4.332 "modulation error ratio (MER)" (re-numbered from 1.4.333 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:"
Re-number the new definition to 1.4.332a

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.334a** *P* **26** *L* **15** # 593

Anslow, Pete Ciena

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

"Multi-Channel Reconciliation Layer (MCRS)" should be: "Multi-Channel Reconciliation Sublayer (MCRS)" as per the expansion of the abbreviation in 1.4

SuggestedRemedy

Change "Multi-Channel Reconciliation Layer (MCRS)" to: "Multi-Channel Reconciliation Sublayer (MCRS)"

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.5** *P* **26** *L* **42** # 594

Anslow, Pete Ciena

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

The expansion of LDPC should be "low-density parity check" rather than "low-density parity code"

SuggestedRemedy

Change "parity code" to "parity check"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.2** *P* **31** *L* **46** # 501

Hajduczenia, Marek Charter Communications

Comment Type **TR** *Comment Status* **X**

A comment against D2.0 requested changes to MAU type description. The changes did introduce an issue, though. For example, 25/10GBASE-PQG-D3 description is correct (1x25G continuous transmission / 1x10G burst mode reception, i.e., OLT MAU with continuous donwstream and burst mode upstream); however, descriptions for all U type MAUs are wrong (for example, 25/10GBASE-PQG-U2, reads now 1x25G continuous transmission / 1x10G burst mode reception).

SuggestedRemedy

Change all U type MAU descriptions in 30.5.1.1.2 to indicate they are "burst-mode transmission" and "continuous reception"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.2** *P* **31** *L* **54** # 502

Hajduczenia, Marek Charter Communications

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

Missing space in "1x25G continuous transmission /1x10G burst"

SuggestedRemedy

Should be "1x25G continuous transmission / 1x10G burst"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.23a.1** *P* **35** *L* **28** # 569

Kramer, Glen Broadcom

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

Conflicting requirements:
C142 PMA clause says that "The ONU shall implement automatic detection of receive path differential encoding, and switch in the
decoder as appropriate."

on the other hand, PMA control register bit 1.29.15 is R/W and it enables/disables the differential encoding in both the OLT and ONU

SuggestedRemedy

Change "R/W" to
"R/W in OLT
RO in ONU"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.6** *P* **45** *L* **15** # 553

Kramer, Glen Broadcom

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

Clause 45 uses terminology incorrect terminology. There is no 25/25GBASE-PQ PCS type.

SuggestedRemedy

Replace 7 occurrences of 25/25GBASE-PQ with 25GBASE-PQ

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.45a** *P* **49** *L* **54** # 596

Anslow, Pete Ciena

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

Bottom ruling missing for Table 217a at the foot of page 49

SuggestedRemedy

Uncheck "Draw Bottom Ruling on Last Sheet Only"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **53** *L* **5** # 597

Anslow, Pete Ciena

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

This draft is assumed to be applied after P802.3cg and P802.3ch. The P802.3ch draft adds items up to "MM231" in the D2.1 version

SuggestedRemedy

Change "MM152" to be "MM232"

Proposed Response *Response Status* **O**

Cl **56** *SC* **56.1.2** *P* **55** *L* **11** # 504

Hajduczenia, Marek Charter Communications

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

A comment against D2.0 added footnotes to 25GMII instances. Footnote a) implies the use of 25GMII and XGMII halves to achieve assymetric data rates. Yet 25GMII is defined as capable of 25G and 10G operation, hence the reference to XGMII is not needed and may be considered confusing.
To further add to confusion, we have also heavily used the term "xMII" to imply the 25GMII or XGMII when the actual clock rate across the MII does not matter for the purpose of description. There are in total 85 instances where xMII is used in the draft (drawings and text alike).
To avoid discussion on actual physical implementation of 25GMII and XGMII, it might be best to use a generic term we already define (xMII) where referring to a generic MII between RS and PCS and not distinguish the speed unless specifically needed.

SuggestedRemedy

Suggest to change "25GMII" with "xMII" in Figures 141-1, 142-1, 144-1, Figure 56–5a, and Figure 143–17

Proposed Response *Response Status* **O**

Cl **67** *SC* **67.1** *P* **64** *L* **16** # 557

Kramer, Glen Broadcom

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

In table 67-1, link types 25/25PQ and 25/10PQ are missing hyphen before the "PQ"

SuggestedRemedy

Add hyphen in 4 places

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.1.3** *P* **65** *L* **34** # 562

Kramer, Glen Broadcom

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

"Nx25G-EPON PHY Link Types supporting 50 Gb/s use wavelength division multiplexing on two wavelengths; two wavelengths are listed for these links in Table 141–1 through Table 141–5."

This sentence is confuisng, as it seems like to unrelated sentences joined into one. The original text came as comment #356 against D2.0 and it had the two senetences linked properly.

SuggestedRemedy

Link the two sentences as it was in the original comment:
"Nx25G-EPON PHY Link Types supporting 50 Gb/s use wavelength division multiplexing on two wavelengths *and hense* two wavelengths are listed for these links in Table 141–1 through Table 141–5."

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.2.6** *P* **69** *L* **12** # 561

Kramer, Glen Broadcom

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

Table 144-6 has several issues:
1) Some rows refer to singular PMD, some refere to plural PMDs.
2) "PMDs use a PON P2MP protocol" is wrong. PMDs do not use any protocols. They convert serial optical stream to electrical and vise versa.
3) the only table with a caption "Explanation". Most other tables use caption "Description"
4) "PMD power budget class" should be called "PMD power class"
5) Descriptions for most rows properly point to the relevant PMD class, except the description for the coexistence parameter. This description just repeats the already given definition.

SuggestedRemedy

Modify the table 141-6 as shown in kramer_3ca_4_0919.pdf. Make cross-references live.

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.3.1.1** *P* **71** *L* **51** # 565

Kramer, Glen Broadcom

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

Rereference to 142.x.x.x

SuggestedRemedy

Use142.4.1. make it live.

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.3.1.1** *P* **71** *L* **51** # 598

Anslow, Pete Ciena

Comment Type **ER** *Comment Status* **X**

"see 142.x.x.x" renders this draft unready for progression to SA ballot - hence a required comment

SuggestedRemedy

Change "see 142.x.x.x" to a suitable cross-reference

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.3.1.1** *P* **71** *L* **52** # 599

Anslow, Pete Ciena

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

"shall be as illustrated in Table 141–10" is conflicting language.
"shall" is appropriate for a normative requirement.
"illustrated" is appropriate for something informative.

SuggestedRemedy

Change "shall be as illustrated in Table 141–10" to: "shall be as given in Table 141–10"

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.3.1.1** *P* **71** *L* **52** # 503

Hajduczenia, Marek Charter Communications

Comment Type **ER** *Comment Status* **X**

Cross reference is missing (marked in red)

SuggestedRemedy

Not sure where the piinter should be do, but x.x.x.x will not work for sure :)

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.3.1.3** *P* **72** *L* **41** # 600

Anslow, Pete Ciena

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

In "PMD_UNITDATA[i].request(tx_bit) (where i = 0 or 1)" i is a variable and should be italic

SuggestedRemedy

Change "I" to be in italic font here (2 places) and anywhere else in the draft that this occurs

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.5.1** *P* **76** *L* **19** # 601

Anslow, Pete Ciena

Comment Type **TR** *Comment Status* **X**

The editor's note in 141.5.1, the reference to non-existent 143.4.4, and the editor's note in 143.4.1.2 render this draft unready for progression to SA ballot - hence a required comment

SuggestedRemedy

Include a new eye mask definition and remove editor's note in 141.5.1.
Populate 143.4.4 with suitable "details" in 143.4.4 and remove editor's note in 143.4.1.2

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.5.1** *P* **76** *L* **19** # 506

Hajduczenia, Marek Charter Communications

Comment Type **ER** *Comment Status* **X**

Editor's note with no text at this time.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.5.2** *P* **78** *L* **11** # 512

Lee, Han Hyub ETRI

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

To be consistent with other tables, the first parameter should be Signaling rate (range)

SuggestedRemedy

Change the order of Channel wavelength ranges and Signaling rate

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.5.2** *P* **78** *L* **11** # 513

Lee, Han Hyub ETRI

Comment Type **ER** *Comment Status* **X**

Missing Unit of channel wavelengths

SuggestedRemedy

Insert 'nm' as Unit

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.6.1** *P* **82** *L* **12** # 514

Lee, Han Hyub ETRI

Comment Type **ER** *Comment Status* **X**

Missing Unit of channel wavelengths

SuggestedRemedy

Insert 'nm' as Unit

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.6.1** *P* **82** *L* **18** # 515

Lee, Han Hyub ETRI

Comment Type **ER** *Comment Status* **X**

Missing Unit of Average launch power, each channel (max)

SuggestedRemedy

Insert 'dBm' as Unit

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.6.1** *P* **83** *L* **11** # 516

Lee, Han Hyub ETRI

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

To be consistent with other tables, the first parameter should be Signaling rate (range)

SuggestedRemedy

Change the order of Channel wavelength ranges and Signaling rate

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.7.13.2** *P* **89** *L* **26** # 517

Lee, Han Hyub ETRI

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

TP4 should be change to TP4 [i]

SuggestedRemedy

Change TP4 to TP4 [i]

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.10.4.1** *P* **98** *L* **24** # 602

Anslow, Pete Ciena

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

Comment #101 against D2.0 clarified the rules for the PICS "Support" column:
for items with status of:
"M" change the Support entry to "Yes [ ]"
"O" change the Support entry to "Yes [ ] No [ ]"
"Something:M" change the Support entry to "Yes [ ] N/A [ ]"
"Something:O" change the Support entry to "Yes [ ] No [ ] N/A [ ]"
"O.Number" change the Support entry to "Yes [ ] No [ ]"
"O/Number" change the Support entry to "Yes [ ] No [ ]"

SuggestedRemedy

For Items FN7, FN8, and FN9 change the entry to "Yes [ ] No [ ]"
In 141.10.4.42 item OM10 change the entry to "Yes [ ] No [ ]"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.1.1.2** *P* **111** *L* **40** # 507

Hajduczenia, Marek Charter Communications

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

"… the following conventions are used in this clause" - well, it is not just in Clause 142, really.

SuggestedRemedy

Change to "the following conventions are used:"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.1.1.6** *P* **115** *L* **28** # 508

Hajduczenia, Marek Charter Communications

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

"...State diagrams used in this clause make extensive use of first-in, first-out…" - well, not just in this clause

SuggestedRemedy

Change to "State diagrams make extensive use of first-in, first-out"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.1.3.1** *P* **116** *L* **49** # 541

Lynskey, Eric Broadcom

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

The SP1 is written with its LSB on the left, and MSB on the right. The bit order should be specified, similar to how it was done in Clause 76.

SuggestedRemedy

The transmission bit sequence is binary 1 followed by:
1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010
1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010
1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010
1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010 1010

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.1.3.1** *P* **116** *L* **54** # 540

Lynskey, Eric Broadcom

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

The SBD is written with its LSB on the left, and MSB on the right. The bit order should be specified, similar to how it was done in Clause 76.

SuggestedRemedy

The transmission bit sequence is binary 1 followed by:
1111 1101 0000 0010 0001 1000 1010 0111 1010 0011 1001 0010 1101 1101 1001 1010
1101 0110 0001 1111 0001 1011 0100 1000 0001 1011 0001 1010 0010 0111 1101 0101
0000 0010 1111 1101 1110 0111 0101 1000 0101 1100 0110 1101 0010 0010 0110 0101
0010 1001 1110 0000 1110 0100 1011 0111 1110 0100 1110 0101 1101 1000 0010 1010

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.1.3.1** *P* **116** *L* **52** # 576

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

The transmisison order of SBD needs further clarification. For various numeric constants in PCS, we show transmission order as LSB to MSB.

The SBD pattern is different (for consistency with 802.3av). The SBD pattern is constructed using BD and SP values defined in 802.3av(SBD257 = 1 + BD[64] + SP[64] + <inv>BD[64] + <inv>SP[64], see slide 11 in http://www.ieee802.org/3/ca/public/meeting_archive/2018/01/kramer_3ca_2_0118.pdf. The SP and BD are transmitted most-significant byte first, each byte is transmitted LSB first.

SuggestedRemedy

There are two options:

#1) To claryfy SBD transmission order, add a binary sequence, as it was done in 802.3av.

#2) Don't define SBD value in 802.3ca, jusr reference SP and BD in 802.3av.

The commenter prefers option #1. Both options are shown in kramer_3ca_7_0919.pdf

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.2** *P* **119** *L* **12** # 499

Hajduczenia, Marek Charter Communications

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

"64B/66B encoder" should be "64B/66B Encoder" (capitalization issue)
"LDPC FEC encoder" should be "LDPC FEC Encoder" (capitaliation issue)

SuggestedRemedy

per comment

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.2** *P* **119** *L* **23** # 498

Hajduczenia, Marek Charter Communications

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

Different capitalizations of XBUFFER. There are 4 instances of XBUFFER and 13 instances of xBuffer (which is what I believe to be the right capitalization)

SuggestedRemedy

Change all instances (cap sensitive) of XBUFFER to xBuffer (all seem to be limited to Figure 142–5)

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.2** *P* **119** *L* **33** # 500

Hajduczenia, Marek Charter Communications

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

I do not believe INPUT_FIFO and TX_FIFO exist (are defined) anymore.

SuggestedRemedy

Change INPUT_FIFO to InputFifo
Change TX_FIFO to TxFifo

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.1** *P* **120** *L* **16** # 577

Wienckowski, Natalie General Motors

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

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: = 3072 × 17664
To: = 3 072 × 17 664

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.2** *P* **123** *L* **8** # 578

Wienckowski, Natalie General Motors

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

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 14592
To: 14 592
Also on P123 L12

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.2** *P* **123** *L* **10** # 579

Wienckowski, Natalie General Motors

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

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 17664
To: 17 664

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.2** *P* **123** *L* **11** # 580

Wienckowski, Natalie General Motors

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

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 14392
To: 14 392

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.2** *P* **123** *L* **17** # 581

Wienckowski, Natalie General Motors

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

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 16962
To: 16 962

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.3** *P* **123** *L* **49** # 550

Laubach, Mark Broadcom

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

Change to improve clarity based on feedback from previous comment resolution against D2.0.

SuggestedRemedy

Insert new paragraph after sub-clause title and before paragraph beginning with "For the purposes here":

The Interleaver and De-interleaver are realized by using Omega Networks and Reverse-Omega Networks. An Omega network is a multistage interconnection network that uses multiple stages of switches. At each stage, the switches can be controlled independently to "pass-through" or "cross". The outputs from each stage are connected to the inputs of the next stage using an interconnection system. The details of interconnection and switch programming are shown in Figure 142-9.

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.3** *P* **123** *L* **50** # 551

Laubach, Mark Broadcom

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

Change to improve clarity based on feedback from previous comment resolution against D2.0.

SuggestedRemedy

Replace paragraph beginning with "For the purposes here" with the following paragraph:

For the purposes here: “De-interleaver” refers to the mapping from transmitted sequence to encoding/decoding sequence (including user and parity). This is implemented using “Reverse-Omega (R->L)” (i.e., data input from the right side and output from the left). “Interleaver” refers to the mapping from encoding/decoding sequence to transmitted sequence. This is implemented as “Omega (L->R)” (i.e., data input from the left side and output from the right). Note that the Interleaver and De-interleaver area reverse mapping (permutation) of each other. That is, the Omega and Reverse-Omega Networks are just the reverse of the data flow of each other.

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.3** *P* **127** *L* **1** # 548

Laubach, Mark Broadcom

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

Change to improve clarity based on feedback from previous comment resolution against D2.0.

SuggestedRemedy

Change "57 independent user interleavers" to "57 independent user omega networks"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.3** *P* **128** *L* **48** # 549

Laubach, Mark Broadcom

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

Change to improve clarity based on feedback from previous comment resolution against D2.0.

SuggestedRemedy

Change "10 independent parity Interleavers" to "10 independent parity omega networks"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.5.3** *P* **133** *L* **24** # 560

Kramer, Glen Broadcom

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

In D2.1, we have renamed FecDecode to PassToFecDecoder (see comment #358) to more accurately reflect the behavior of the function. We should do the same with its counterpart function FecEncode. These functions do not perform any action of encoding or decoding (which take relatively long time in LDPC). These fnctions only pass the data from one functional block to another and return immediately.

SuggestedRemedy

Rename FecEncode to PassToFecEncoder in 142.2.5.3 and in SD 142-10, Also move the lines that set TxInput<256:0> and TxInput<257> to be next to each other.
The exact changes are shown in kramer_3ca_3_0919.pdf.

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.5.3** *P* **133** *L* **32** # 555

Kramer, Glen Broadcom

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

Definition of function PassToPMA(v) mentions PMA_UNITDATA[i].request(v), which is in a different clause. A reference would be very helpful here.

SuggestedRemedy

Add "(see 142.4.1.1)" after "PMA_UNITDATA[i].request(v)"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.5.3** *P* **133** *L* **35** # 563

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

Definition of ResetScrambler() function is wrong. We don't reste to IEI_EQ anomore. Also, the definition said that function erstes both scrambler and descrambler. This is not correct. It only resets one, depending on whether it is called in the ONU or the OLT.

SuggestedRemedy

1) Use the following definition of ResetScrambler() function in 142.2.5.3:

ResetScrambler()
Description: This function resets the scrambler to the value of 0x3-(FF)₇, i.e., each of the bits S0 through S57 of the scrambler shift register is set to 1 (see Figure 49–8).

2) Replace the definition of ResetScrambler() function in 142.3.5.3 with a new function ResetDescrambler

ResetDescrambler()
Description: This function resets the descrambler to the value of 0x3-(FF)₇, i.e., each of the bits S0 through S57 of the descrambler shift register is set to 1 (see Figure 49–10).

3) In SD 142-18, replace ResetScrambler() with ResetDescrambler().

4) In 142.2.2, replace the sentence "In the ONU, at the beginning of each burst, the scrambler is initialized with the value of 0x3-(FF)7, i.e., each of the bits S0 through S57 is set to 1 (see Figure 49–8)."
with
"In the ONU, at the beginning of each burst, the scrambler is reset to a known initialization value (see the definition of ResetScrambler() function in 142.2.5.3)."

5) In 142.3.3, replace the sentence "In the OLT, at the beginning of each burst, the descrambler is initialized with the value of 0x3-(FF)7, i.e., each of the bits S0 through S57 is set to 1 (see Figure 49–8)."
with
"In the OLT, at the beginning of each burst, the descrambler is reset to a known initialization value (see the definition of ResetDescrambler() function in 142.3.5.3)."

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.3.5.1** *P* **139** *L* **16** # 582

Wienckowski, Natalie General Motors

Comment Type **ER** *Comment Status* **X**

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 16,962
To: 16 962

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.3.5.4** *P* **144** *L* **1** # 558

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

Comment #485 against D2.0 was correct. The state GET_NEXT_BLOCK contains a blocking function that takes 257 bit times to execute. While this function is executing, no exit conditions from this block are tested. This causes the SignalFail and MatchFound conditions to be tested simultaneously. So, we need to handle the case when both conditions evaluate to true.

SuggestedRemedy

change the State diagram 142-15 as shown in kramer_3ca_2_0919.pdf.

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.4** *P* **144** *L* **47** # 564

Kramer, Glen Broadcom

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

The text under 142.4 is out of place. This section should be an introduction to the entire PMA. Instead it focuses only of the deifferential encoding, which is a small part of PMA.

The following text is confusing and serves no purpose:
"(output bits represent changes to succeeding input values rather than in respect to a given reference)"

SuggestedRemedy

Use the following text:

The PMA adopts the serial PMD service interface (PMD_UNITDATA, see 141.3.3 and 141.34) to the 257-bit wide interface of the PCS (PMA_UNITDATA, see 142.4.1). Where Nx25G-EPON operates over multiple channels, the PMA sublayer includes multiple identical instances of the transmit data path and/or the receive data path.

In the downstream direction (from the OLT to the ONUs), the PMA includes a differential encoding option (see 142.4.2 and 142.4.3). This encoding technique facilitates the use of lower bandwidth receivers at the ONUs.

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.4.1.1.1** *P* **146** *L* **52** # 566

Kramer, Glen Broadcom

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

In "PCS Transmit State Diagram", the "state diagram" should be lower case

SuggestedRemedy

Change to lower case

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.4.1.2.1** *P* **146** *L* **45** # 603

Anslow, Pete Ciena

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

"Figure 142-15" should be a cross-reference

SuggestedRemedy

Change "Figure 142-15" to be a cross-reference

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.4.2** *P* **148** *L* **1** # 546

Powell, William Nokia

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

A D2.0 commenter expressed concern over this section:
- Not sure if we're dealing with serial bits or 257b vectors
- Not happy with Fig. 142-19 Figure output going to the PMA (already in the PMA)

SuggestedRemedy

Implement the proposed Fig. 142-19 and 142-20 changes shown in RED in powell_3ca_1_0919.pdf

Proposed Response *Response Status* **O**

Cl **142A** *SC* **142A.2** *P* **266** *L* **22** # 534

Lynskey, Eric Broadcom

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

Table 142A-6 shows the bits Post Interleaver.

SuggestedRemedy

Change Pre to Post.

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.1.2.3** *P* **165** *L* **36** # 509

Hajduczenia, Marek Charter Communications

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

Inconsistent primitive formatting. We had rules on variable formatting, etc. but right now it seems that primitives are formatted inconsistently. In some locations, the whole primitive is italicised, in others it is not.

SuggestedRemedy

For consistenty, it seems a better approach would be to italicize names of primitives as a whole.

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.3** *P* **170** *L* **32** # 510

Hajduczenia, Marek Charter Communications

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

Compount adjective: application specific

SuggestedRemedy

Change to "application-specific"

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.4** *P* **170** *L* **36** # 537

Lynskey, Eric Broadcom

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

Add Encryption Enable and Encryption Key variables in the correct alphabetical order.

SuggestedRemedy

E
Type: integer
Description: Reserved for encryption.
K
Type: integer
Description: Reserved for encryption.

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.4** *P* **171** *L* **41** # 547

Powell, William Nokia

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

rRow Variable:
Current Last Sentence:
The value of this variable is synchronized to wRow and is equal wRow - 1.

Missing preposition "to"

SuggestedRemedy

Change wording to:
The value of this variable is synchronized to wRow and is equal to wRow - 1.
-or-
The value of this variable is synchronized to wRow and equals wRow - 1.

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.5** *P* **172** *L* **20** # 568

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

Conventions in Table 142-1 are not applied consistently to code fragments throughout the draft.

SuggestedRemedy

Apply conventions to:
1) EnvContHeader() function, page 172
2) EnvStartHeader() function, page 172
3) GetMacBlock() function, page 173
4) IsHeader() function, page 179
5) IsMisaligned() function, page 179
6) OutputToMac() function, page 179
7) ProcessTimestamp() function, page 198
8) RegAllowed variable, page 227
9) GetResponseCode() function, page 249
10) UpdateChState() function, page 250

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.5** *P* **172** *L* **25** # 535

Lynskey, Eric Broadcom

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

Earlier in the draft, it is stated that bit 17 is set to 0 by the transmitter. That should be shown here.

SuggestedRemedy

In both EnvContHeader and EnvStartHeader, add:
hdr<17> = 0; // Reserved

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.5** *P* **172** *L* **27** # 536

Lynskey, Eric Broadcom

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

The E and K bits are previously defined in 143.3.2, but there is no way to set either of these bits in the ESH or ECH.

SuggestedRemedy

In both EnvContHeader and EnvStartHeader, add:
hdr<46> = E; // Encryption enable
hdr<47> = K; // Encryption Key

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.3.6.1** *P* **175** *L* **23** # 556

Kramer, Glen Broadcom

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

MCRS Input Process has a transition labelled "LinkId[wCol] != 0x00-00". We have defined a names constant for 0x00-00. It is called ESC_LLID.

SuggestedRemedy

1) Replace the SD 143-12 with the one shown in kramer_3ca_1_0919.pdf
2) Add the following definition to 143.3.3.3:
ESC_LLID
See Table 144-1

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.4.4** *P* **179** *L* **42** # 511

Hajduczenia, Marek Charter Communications

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

Comment #366 fixed one location in the draft; one more instance is missing

SuggestedRemedy

Change "octet_index = 0; octet_index < 8," to "octet_index = 0; octet_index < 8;"

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.4.4** *P* **180** *L* **7** # 567

Kramer, Glen Broadcom

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

We provided a very precise definition for GetMacOctet function, giving the exact details of how a data octet is constructed from multiple PLS_DATA.requests. But we only have very high-level, impresize definition for the SetMacOctet function. No details are given on how 8 bit values are passed to MAC 1 bit at a time.

SuggestedRemedy

Replace the definition of SetMacOctet with the definition provided in kramer_3ca_5_0919.pdf. Observe the italics and make the links live.

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.4.5.2** *P* **182** *L* **17** # 538

Lynskey, Eric Broadcom

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

Bit ordering in the PROCESS_HEADER state of Figure 143-16 should be flipped.

SuggestedRemedy

Change to OutEQ<63:48> and OutEQ<39:18>.

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.3.4.5.2** *P* **182** *L* **22** # 559

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

State diagram 143-16 misses a label in a transition from INSERT_PREAMBLE to CHECK_ENV_SIZE

SuggestedRemedy

Add label UCT

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.4.1.2** *P* **186** *L* **8** # 505

Hajduczenia, Marek Charter Communications

Comment Type **ER** *Comment Status* **X**

Editor's note with no text at this time.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **143** *SC* **143.5.4.2** *P* **189** *L* **17** # 539

Lynskey, Eric Broadcom

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

Missing PICS. There are four shall statements in 143.4.1.1, but only three PICS entries.

SuggestedRemedy

EPON4 - Channel bonding - 143.4.1.1 - Device supports channel bonding - 50G10G:M or 50G25G:M or 50G50G:M - Yes [] N/A []

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.1.1** *P* **202** *L* **31** # 605

Anslow, Pete Ciena

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

The IEEE style manual has:
"Only one occurrence of any level of an ordered list may be presented in any subclause to avoid confusing cross-references [e.g., it is OK to have an a) level list followed by a 1) level list , etc., but there should not be more than one a) level list in the same clause or subclause]."

SuggestedRemedy

Change the second numbered list (starting at line 31) to a lettered list.

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.1.1** *P* **202** *L* **33** # 604

Anslow, Pete Ciena

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

IEEE uses an en-dash as a minus sign

SuggestedRemedy

Change the minus signs to en-dashes (Ctrl-q Shft-p) (5 instances)

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.1** *P* **209** *L* **12** # 571

Kramer, Glen Broadcom

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

Where a subset of bits is taken to represent a single field or a single numericvalue, we should use the notation "M:N" instead of "N to M". This will make it consistent with C45 and vector notation used throughout the draft.

SuggestedRemedy

Apply the following changes:
1) Table 144-2: change "2 to 7" to "7:2"
2) Table 144-4: change "3 to 4" to "4:3"
3) Table 144-4: change "7 to 15" to "15:7"
4) Table 144-7: change "3 to 4" to "4:3"
5) Table 144-7: change "7 to 13" to "13:7"
6) Table 144-8: change "0 to 1" to "1:0"
7) Table 144-8: change "3 to 4" to "4:3"
8) Table 144-8: change "5 to 6" to "6:5"
9) Table 144-8: change "8 to 14" to "14:8"
10) Table 144-11: change "0 to 3" to "3:0"
11) Table 144-11: change "4 to 6" to "6:4"
12) Table 144-12: change "0 to 3" to "3:0"
13) Table 144-12: change "4 to 7" to "7:4"

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.1** *P* **209** *L* **39** # 573

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

MPCPDUs are not allowed to be fragmented, as this breakes the timestamping reference.

A fragmented MPCPDU would be transmitted in two or more PLID envelopes. Every time an ESH is received, a new MPCP time is latched, overwriting the previous time. A timestamp in fragmented MPCPDU may reference the time of the first ESH, but this timestamp is parsed out of an MPCPDU and checked after the entire MPCPDU is received, which means the MPCP time will already be overwritten by the later ESH.

SuggestedRemedy

The draft shall specify that MPCPDU shall not be fragmented. Add the following statement at the end of definition of "Fragmentation" flag (new paragraph):

"If the value of LLID field represents a PLID, the Fragmentation flag shall be equal zero."

Add PICS.

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.1** *P* **210** *L* **31** # 533

Lynskey, Eric Broadcom

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

Figure 144-12 shows extra EnvAlloc[7].

SuggestedRemedy

Remove EnvAlloc[7].

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.1** *P* **210** *L* **31** # 570

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

GATE and REPORT MPCPDU figures are showing 8 EnvAlloc/LlidStatus elements instead of 7.

SuggestedRemedy

Remove EnvAlloc[7] from figure 144-12
Remove LlidStatus[7] element from figure 144-13

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.2** *P* **211** *L* **35** # 531

Lynskey, Eric Broadcom

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

Figure 144-13 shows incorrect LlidStatus[0] length.

SuggestedRemedy

Change to 5 octets.

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.2** *P* **211** *L* **47** # 532

Lynskey, Eric Broadcom

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

Figure 144-13 shows extra LlidStatus[7].

SuggestedRemedy

Remove LlidStatus[7].

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.6.3** *P* **213** *L* **39** # 530

Lynskey, Eric Broadcom

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

Figure 144-14 shows the incorrect pad length.

SuggestedRemedy

Change to 33 octets.

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.7** *P* **222** *L* **32** # 572

Kramer, Glen Broadcom

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

The last paragraph is 144.3.7 is very confusing and does not reflect the behavior specified in state diagrams.

When an ONU wants to deregister, it deregisters unconfitionally. Sending REGISTER_REQ/NACK to the OLT is just a courtesy call.

SuggestedRemedy

Replace the last paragraph in 144.3.7 with the text provided in kramer_3ca_6_0919.pdf. Observe italics.

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.7.7** *P* **230** *L* **27** # 554

Kramer, Glen Broadcom

Comment Type **TR** *Comment Status* **X**

State diagram 144-21 uses not-existent flag value "Deregister"

SuggestedRemedy

Replace "Deregister" with "NACK"

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.8** *P* **232** *L* **3** # 575

Kramer, Glen Broadcom

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

A couple of missing commas in sub-clause 144.3.8

SuggestedRemedy

Insert the following commas:

1) After "As noted in 144.1.1.1", line 3
2) Before "which" in "state diagram (see 144.3.8.11) which results", line 25

Proposed Response *Response Status* **O**

Cl **144** SC **144.3.8** P **232** L **28** # 574

Kramer, Glen Broadcom

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

Sentence "In the OLT transmission is continuous,…" either needs a comma after the OLT, or better, should be re-phrased.

Missing comma after "In the case of the OLT"

The text includes a reference to the OLT
Envelope Commitment process, but is missing a reference to the Envelope Activation process

SuggestedRemedy

Change the paragraph staring with "Grants are not explicitly used by the OLT…" with

"Since the OLT transmits continuously, grants are not explicitly used by the OLT in the downstream direction. However, the OLT does use the envelope descriptors, OLT Envelope Commitment process (see 144.3.8.9), and Envelope Activation process (see 144.3.8.11) in a manner similar to how these processes are used in the ONUs. In the case of the OLT, the transition from Inter-Envelope Idle to data transmission begins with the issuing of an envelope descriptor by the OLT MPMC Client (MPCP). The envelope descriptor is processed by the OLT Envelope Commitment state diagram and Envelope Activation state diagram as described for the ONU."

Proposed Response *Response Status* **O**

Cl **144** SC **144.3.8.1** P **232** L **42** # 583

Wienckowski, Natalie General Motors

Comment Type **ER** *Comment Status* **X**

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 6,400
To: 6 400 or 6400 as 4 digit numbers don't have to have the space unless they are in a column with larger numbers.

Proposed Response *Response Status* **O**

Cl **144** SC **144.3.8.1** P **232** L **49** # 584

Wienckowski, Natalie General Motors

Comment Type **ER** *Comment Status* **X**

In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000). The groups should be separated by a space, and not a comma, period, or dash.

SuggestedRemedy

Change: 19,531,250
To: 19 531 250

Proposed Response *Response Status* **O**

Cl **144** SC **144.4.3.1** P **245** L **17** # 552

Remein, Duane independent

Comment Type **TR** *Comment Status* **X**

Persistenly disabling all downstream or all upstream channels to an ONU results in that ONU being unusable. The user should be warned of this.
This comment is submitted as an alternative solutio to unsatisfied comment # 249 and # 253

SuggestedRemedy

Add a note to Table 144-11 to read as follows:
NOTE - Persistently disabling all downstream or all upstream channels of an ONU results in that ONU being unusable requiring replacement or repair.

Proposed Response *Response Status* **O**

Cl **A** SC **A** P **27** L **1** # 595

Anslow, Pete Ciena

Comment Type **ER** *Comment Status* **X**

Amendments to IEEE 802.3-2018 place all of the annexes at the end after all of the clauses (as was the case in D2.0 for Annex 31A)

SuggestedRemedy

Move Annex A and Annex 31A between Clause 144 and Annex 142A

Proposed Response *Response Status* **O**