Cl **0** *SC* **0** *P* *L* # i-3

Anslow, Peter — Ciena Corporation

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

The draft contains numerous Editor's notes regarding publication order.
Now that the assumed publication order is decided, these should all be removed.

SuggestedRemedy

Remove all such editor's notes and modify the draft (if necessary) to account for the publication order:
IEEE P802.3bw - Amendment 1
IEEE P802.3by - Amendment 2
IEEE P802.3bq - Amendment 3
IEEE P802.3bp - Amendment 4
IEEE P802.3br - Amendment 5
IEEE P802.3bn - Amendment 6
IEEE P802.3bz - Amendment 7
IEEE P802.3bu - Amendment 8
IEEE P802.3bv - Amendment 9

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

The draft has accounted for the listed amendments and order. Editor will remove the content from Editor's Notes about amendment order. The context information related to numbering and reminders to the reader and/or editor will be retained.

Cl **0** *SC* **0** *P* *L* # i-16

Alessi, Julie

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

Draft meets all editorial requirements.

SuggestedRemedy

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **1** *L* **1** # i-38

Grow, Robert — Knowledge Developme

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

2nd MEC requested review for front matter for being current.

SuggestedRemedy

We somehow lost the bottom of page 2 boilerplate, restore. Copyright paragraph on title page disagrees with IEEE FrameMaker templates which disagrees with the style manual -- refer to publication editors for answer on which is most current.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Restore the page 2 boilerplate per P802.3 FrameMaker template v2.6.
Use copyright statement of 2014 IEEE-SA Standards Style Manual per publication editor response that it is the latest version of the copyright statement. Check the differences with current statement in P802.3bv/D3.0 and correct them.

Cl **0** *SC* **0** *P* **1** *L* **3** # i-36

Grow, Robert — Knowledge Developme

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

Can probably update year for IEEE Std 802.3bn and IEEE Std 802.3bz to 2016

SuggestedRemedy

If draft is produced after 22 September and the SASB approves these projects, update year to 2016.

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **1** *L* **30** # i-37

Grow, Robert — Knowledge Developme

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

Update for recirculation ballot.

SuggestedRemedy

Change initial Sponsor ballot to Sponsor recirculation ballot

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change initial Sponsor ballot to Sponsor ballot recirculation

Cl **0** *SC* **0** *P* **2** *L* **45** # i-39

Grow, Robert — Knowledge Developme

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

Somehow, we lost the boilerplate material anchored to the bottom of this page

SuggestedRemedy

Restore

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Restore the page 2 boilerplate per P802.3 FrameMaker template v2.6.

Cl **0** *SC* **0** *P* **12** *L* **8** # i-40

Grow, Robert — Knowledge Developme

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

Descriptions for 802.3bn and 802.3bu are not current

SuggestedRemedy

Update with descriptions in current drafts.

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **91** *L* **48** # i-29

RAN, ADEE — Intel

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

Inconsistent use of italics in the text and the equations. I found this first in 115.5.6 but it appears in several other places.

Also, the equations contain 0, 1, 2, 3 as indices, but these are not placed in subscripts as is customary; and all terms includes subscript "n" which seems redundant.

This makes the equation difficult to follow.

SuggestedRemedy

Make consistent use of italics (in variable names, not in numbers) across the draft.

in 115.5.6, consider making the numerical indices be subscripts, and consider removing the "n" index from all terms.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"n" index is not redundant because n indicates the discrete time (see P91, L48). The notation used in equations is consistent with the definition of test mode 4 in subclause 40.6.1.1.2, and the similar test modes for transmitter distortion measurement of clauses 96 and 97, running ahead of .3bv.

Editor's actions:
Make text agree with italics in equations across the draft (at least all of those we can find).

Cl **0** *SC* **0** *P* **107** *L* # i-1

Kobayashi, Shigeru — Tyco Electronics Japa

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

The vertical axis of Figure 114-37, -38, and -39 is wrong.

SuggestedRemedy

It should be "Transfer function magnitude" followed by the tables 114-13, -14, and -15.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

It is assumed that the commenter means equivalent figures 115-37, 115-39 and 115-39.

Editor's action: change vertical axis label to "Transfer function magnitude (dB)" in the three figures.

Cl **1** *SC* **1.4.91** *P* **19** *L* **52** # i-2

Anslow, Peter — Ciena Corporation

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

Should be "and" rather than "," in "See IEEE Std 802.3, Clause 55, Clause 115."
Same issue in 1.4.401

SuggestedRemedy

Change to "See IEEE Std 802.3, Clause 55 and Clause 115." here and in 1.4.401

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1** *P* **23** *L* **45** # i-4

Anslow, Peter — Ciena Corporation

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

In Table 45-3, register names do not end with "register"

SuggestedRemedy

In Table 45-3, change "BASE-H PMA/PMD control register" to "BASE-H PMA/PMD control"

Response *Response Status* **W**

ACCEPT.

Cl **45** *SC* **45.2.1.6** *P* **24** *L* **12** # i-5

Anslow, Peter — Ciena Corporation

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

There are multiple problems with the changes shown to Table 45-7.
The Editor's note starting on line 12 says that: "IEEE Std 802.3bw did not fully expand the 11xxxx value, Failing to include 10xxxx=reserved". Clearly, 10xxxx is not part of 11xxxx.
The only thing that is relevant here is that the P802.3bq amendment is inserting "1 1 0 1 0 x = reserved" (not 11011x=reserved as stated in part 2 of the Editor's note).
Footnote a to Table 45-7 is "R/W = Read/Write, RO = Read only" not as shown in the draft.
Footnote b to Table 45-7 has been inserted by IEEE Std 802.3bp-2016

SuggestedRemedy

Remove both editor's notes.
Show "1 1 0 1 0 x = reserved" in strikethrough font and show:
"1 1 0 1 0 1 = reserved"
"1 1 0 1 0 0 = BASE-H PMA/PMD"
as being inserted. (Note lower case r in reserved to match the base standard)
Show footnote b as inserted by IEEE Std 802.3bp-2016. (The only way I have found to do this is to apply the footnote to somewhere in the heading row and make the font for the "b" white)
Show the new footnote as footnote c in underline font as it is being added with a "Change" editing instruction.
Add "." to the end of the new footnote.

Response *Response Status* **W**

ACCEPT.

Cl **45** SC **45.2.1.6** P **24** L **17** # i-41

Grow, Robert — Knowledge Developme

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

Base text should be updated to be P802.3bq as highlighted in Editors Note #2.

SuggestedRemedy

Update editing instruction, add base text line for 11010x = reserved below current line 27, strike through the x and add underscore 1, current line 27 text should have strike through Reserved removed and everything remaining should be underscore.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Suggested remedy of comment i-5 is wider and include to the subject of comment i-41. Therefore, the suggested remedy of comment i-5 is chosen to be implemented.

Comment i-5 suggested remedy is:
Remove both editor's notes.
Show "1 1 0 1 0 x = reserved" in strikethrough font and show:
"1 1 0 1 0 1 = reserved"
"1 1 0 1 0 0 = BASE-H PMA/PMD"
as being inserted. (Note lower case r in reserved to match the base standard)
Show footnote b as inserted by IEEE Std 802.3bp-2016. (The only way I have found to do this is to apply the footnote to somewhere in the heading row and make the font for the "b" white)
Show the new footnote as footnote c in underline font as it is being added with a "Change" editing instruction.
Add "." to the end of the new footnote.

Cl **45** SC **45.2.1.10** P **25** L **6** # i-42

Grow, Robert — Knowledge Developme

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

Though assignment of amendment number allows deletion of most of the clause 45 editor's notes, if any thing is retained (e.g., context to aid reader) this should retain a reminder to review base text when P802.3bz is published.

SuggestedRemedy

Delete Editor's note paragraphs about amendment order. Retain context information. Add additional information about checking bz after publication because it has "zero" instead of "0".

Response *Response Status* **C**

ACCEPT.

Cl **45** SC **45.2.1.10.aaaa** P **25** L **28** # i-6

Anslow, Peter — Ciena Corporation

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

Editing instructions for new subclauses go above the subclause heading. http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html includes: "For insert, the only other amendments included in the editing instruction are those that affect the insert point". In this case it is sufficient to list IEEE Std 802.3bz-201x.

SuggestedRemedy

Move the editing instruction above the heading and only cite IEEE Std 802.3bz-201x.

Response *Response Status* **C**

ACCEPT.

Cl **45** SC **45.2.3.47a** P **28** L **34** # i-7

Anslow, Peter — Ciena Corporation

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

Editing instruction is not sufficiently precise.

SuggestedRemedy

Change to "Insert 45.2.3.47a after 45.2.3.47 as follows:"

Response *Response Status* **C**

ACCEPT.

Cl **45** SC **45.2.3.47a.1** P **29** L **35** # i-8

Anslow, Peter — Ciena Corporation

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

Sentence would be improved if re-arranged and too many "and"s

SuggestedRemedy

Change to: "Bit 3.500.15, together with bits 3.500.14 (TXO_PHYT), 3.500.13 (TXO_MERT), and 3.500.12 (TXO_MSGT), indicates the status of the 1000BASE-H OAM transmission channel (see 115.9.2).

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.47a.5** *P* **30** *L* **1** # i-11

Anslow, Peter — Ciena Corporation

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

In the text "Register bits 3.501.11:0 and Registers 3.501 through 3.508", "Register bits" should just be "Bits" (All bits are part of registers).
Similar issue in other places in the draft.

SuggestedRemedy

Change to "Bits 3.501.11:0 and Registers 3.501 through 3.508"
In the heading of 45.2.3.47b.3 make the equivalent change.
On page 35, line 10 change "Register bits 3.522.15:0 is a 16-bit counter" to "Bits 3.522.15:0 are a 16-bit counter"
On page 37, line 33 change "to register bits 1.900.3:0" to "to bits 1.900.3:0"
On page 72, line 1 change "register bit 1.0.15" to "bit 1.0.15"
On page 119, line 50 change "register bit 1.0.15" to "bit 1.0.15"
On page 120, line 31 change "register bit 1.0.15" to "bit 1.0.15"
On page 121, line 49 change "register bits 3.518.12:10" to "bits 3.518.12:10"
On page 121, line 53 change "register bit 1.0.15" to "bit 1.0.15"
On page 139, line 28 change "register bits 3.518.12:10" to "bits 3.518.12:10"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

All suggested changes accepted with editorial modification to third change: it is page 36, instead of page 35.

Cl **45** *SC* **45.2.3.47b** *P* **30** *L* **30** # i-9

Anslow, Peter — Ciena Corporation

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

Comment #58 against P802.3bx D2.0
http://www.ieee802.org/3/bx/comments/P8023-D2p0-Comments_Final_byID.pdf#page=16
Changed all reserved rows to say "Value always 0" in the description column

SuggestedRemedy

Change "Ignore on read" to "Value always 0" in Tables 160b, 160c, 160d, 160e, 160f

Response *Response Status* **W**

ACCEPT.

Cl **45** *SC* **45.2.3.47d.8** *P* **34** *L* **11** # i-10

Anslow, Peter — Ciena Corporation

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

This says "Bit 3.1.11 is a copy of bit 3.519.8". Since bit 3.1.11 was defined long before bit 3.519.8 it seems better to say "Bit 3.519.8 is a copy of bit 3.1.11".
Same issue for other "copy" bits.

SuggestedRemedy

Change "Bit 3.1.11 is a copy of bit 3.519.8" to "Bit 3.519.8 is a copy of bit 3.1.11".
Make the equivalent change in 45.2.3.47d.9, 45.2.3.47d.10, 45.2.3.47d.11, PICS item RM151, and PICS item 153

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.5.3.6** *P* **38** *L* **8** # i-12

Anslow, Peter — Ciena Corporation

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

To be meaningful, item *BHOAM "1000BASE-H OAM channel implementation" needs an entry in the "Subclause" column.
"45.2.3.47a" seems appropriate.

SuggestedRemedy

Add "45.2.3.47a" to the Subclause column.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add "45.2.3.47a" and "45.2.3.47b" to the Subclause column.

Cl **45** *SC* **45.5.3.7** *P* **38** *L* **31** # i-43

Grow, Robert — Knowledge Developme

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

2nd MEC flagged the draft for RAC review. This stimulated me to look at the draft again from the RAC perspective, but this is a personal comment, not a comment from the RAC.
PICS item could agree more closely with referenced text

SuggestedRemedy

Change "OUI" to "OUI or Company ID".

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.4** *P* **41** *L* **5** # i-44

Grow, Robert — Knowledge Developme

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

P802.3bz also inserts after 1000BASE-T1

SuggestedRemedy

Add (before 2.5GBASE-T inserted by IEEE Std 802.3bz-20xx) for clarity.

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.4** *P* **41** *L* **10** # i-45

Grow, Robert — Knowledge Developme

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

Update Editor's note

SuggestedRemedy

P802.3bz has editorial errors that might be fixed in publication. While the instruction for the Table 78-1 insert was updated between D3.1 and D3.3, similar required updates were not done to the Table 78-2 and Table 78-4 inserts. As currently written, the latter two inserts will put 2.5G and 5G terms of P802.3bz and P802.3cb in the midst of 1000BASE table rows.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Editor's Note to read:
Unfortunately, the current state of things in Clause 78 tables is messed up. The order of 1000BASE entries in Tables 78-1, 2 and 4 in 802.3-2015 is not consistent. 1000BASE-KX comes before 1000BASE-T in Tables 78-1 and Table 78-2 but comes after in Table 78-4.

802.3bp did all inserts between 1000BASE-T and XGSX (in Table 78-4 though, this is ambiguous because 1000BASE-KX is also between 1000BASE-T and XGSX). If this Table 78-4 ambiguity is not fixed in publication preparation, it gets worse with following amendments.

P802.3bz specifies different insertion points for each of the tables. After 1000BASE-T1 for Table 78-1 (okay), after 1000BASE-T in Table 78-2 (which if not changed during publication preparation puts it before 1000BASE-T1); and after 1000BASE-KX for Table 78-4 (because of the ambiguity in 802.3bp, the insert may or may not be between 1000BASE entries).

Cl **78** *SC* **78.2** *P* **41** *L* **40** # i-14

Anslow, Peter — Ciena Corporation

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

1.2.6 states "Unless otherwise stated, numerical limits in this standard are to be taken as exact, with the number of significant digits and trailing zeros having no significance."

SuggestedRemedy

In the additions to Table 78-2 change "1.30" to "1.3" in 6 places.

Response *Response Status* **W**

ACCEPT.

Cl **78** *SC* **78.4.1** *P* **41** *L* **14** # i-13

Anslow, Peter — Ciena Corporation

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

Editor's note says "The same issue and changes are applicable to Table 45-2."
Table 45-2 is "Devices in package registers bit definitions" and is not being modified by this amendment.

SuggestedRemedy

If editor's note is not removed, change to "Table 78-2".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The comment is overtaken by resolution of other comments.

While the commenter rightly points out the typo that had a clause 45 table the subject of the Editor's note, the Editor's Note will be replaced by the resolution to i-45 which removes the reference in its current form to provide more accurate information on the order problem in 802.3-2015 and amendments preceding this amendment.

Cl **115** *SC* **115.1.6** *P* **46** *L* **19** # i-23

RAN, ADEE Intel

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

The interface between the PCS and the PMA is not defined in this draft.

Based on Figure 115-3 it seems that the PCS transmit sends a stream of symbols to the PMA; but from Figure 115-5 it seems that it sends several streams, and it is not clear where the serialization and muxing belongs.

Also, figure 115-3 contains "control signals" bi-directional arrows between the PCS transmit function and the PMA, and between the PCS receive function and the PMA. These control signals are not explicitly mentioned anywhere; it is not clear what are and whether they should go in both directions.

Defining the PCS and the PMA as different sublayers requires a clear interface between them - otherwise their implementations cannot be separated.

Consider the sublayer separation in clause 55 as an example: detailed PMA service interface (55.2.2) and all signals between sublayers shown in a diagram (Figure 55-4). Most clauses follow this principle.

SuggestedRemedy

Define the service interface between the PCS and the PMA formally in the text. The "control signals" would then be the service interface excluding the transmitted/received symbols.

This should be aligned with the specification of where the serialization of blocks belongs - PCS or PMA:
- If it is in the PCS, the PMA should not do any multiplexing, only encode symbols based on the control signals
- If it is in the PMA (which makes more sense), the PMA should probably receive wholes block from the PCS, and serialize them to symbols and then encode the symbols based on the control signals.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

It is not expected that any implementations would implement the PCS and PMA separately, significantly reducing the rationale for specifying a service interface here. The commenter also is mistaken in asserting that a serialization is required near the proposed service interface.

Adding a formal definition of a service interface between the two sublayers is not going to add clarity to the specification. A PCS+PMA implementation has to be compliant at the GMII logical interface and at the PMD service interface, and it is up to the implementor how to do that.

The intention of functional block diagram in figure 115-3 was to keep it as simple as possible.

Editor's actions:
- Eliminate all the "control signals" bidirectional arrows in figure 115-3, to avoid confusion and because they are not really needed for the clarity and completeness of the specification.
- Eliminate the box "EEE (optional)", because the EEE functionality is really included in the PCS and PMA, modifying the operation of Transmit Blocks, but it is not a box with defined signals that control the other boxes.
- Modify the figure 115-5 to be more consistent with the text and the figure 115-3, as follow:
  + Move the Multiplexer block to the PCS sublayer
  + Do a rectangle covering all the PCS subblocks
  + Reduce the PMA to a rectangle (no shaded polygon) containing 2 sub-blocks, THP and Power Scaling, back to back connected and arrow.
  + Arrow from PCS's multiplexer to THP in PMA
  + Arrow from Power scaling to PMD.
  (As it is specified in the PMA Transmit function, the THP is bypassed when pilots or PHD sub-blocks are transmitted, and the power scaling affects with different scaling factor as a function of the sub-block, i.e. S1, S2, PHS, data.)

Cl **115** *SC* **115.2** *P* **47** *L* **9** # i-17

RAN, ADEE Intel

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

The term "PAM16 codewords" is used here (3 times) and in 115.6.4.1, but 115.2.1 uses "MLCC codeword" for the same thing. Consistency is preferable.

SuggestedRemedy

Change "PAM16 codeword" to "MLCC codeword" consistently.

Response *Response Status* **C**

ACCEPT.

Cl **115** *SC* **115.2.1** *P* **47** *L* **24** # i-46

Grow, Robert — Knowledge Developme

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

MEC has requested review of usage of "guarantee", "ensure", etc. Specific MEC review comments include:
115.6.4.8, item 2) uses "guarantee" with a "may" statement. Please consider replacing "guarantee" with "help ensure" or "establish" or "make certain null frequency deviation is achieved" in the following sentence:"In order to guarantee null frequency deviation between the transmitter and the clock used to sample the transmit waveform, the test instrument and the device under test may share the same clock reference."
115.9.3, second item 3). Consider changing "guarantee" to "maintain" in "...reading the register 3.517 last to guarantee the integrity of the 1000BASE-H OAM message."
115.8.1, in the second list, change "ensure" to "help ensure", i.e., "The duplex cable is split to help ensure:"

SuggestedRemedy

115.3.7.2, p.83, l.12 change "guarantee" to "enable"
115.6.4.8, p.103, l.32 change "In order to guarantee" to "To reduce"
115.8.1, p.112, l.50 change "guarantee" to "provide"
115.9.3, p.116, l.43 change "to guarantee the" to "is necessary for"
115.2.1, p.47, l.24 change "ensure that the receivers are synchronized and the equilizers are aligned" to "allow receivers to maintain synchronization and equilizers to maintain alignment"
115.8.1, p.113, l.24 change "ensure" to "enable"
115.12.1, p.122, l.45 change "ensured" to "claimed"
115.14.16, p.140, l.27 change "ensured" to "claimed"

Response *Response Status* **C**

ACCEPT.

Cl **115** *SC* **115.2.1** *P* **47** *L* **29** # i-18

RAN, ADEE — Intel

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

"(The top part of the figure
provides detail on the beginning of a Transmit Block and the bottom part of the figure the end of a Transmit
Block.)"

This information should be part of the figure. It is not obvious from just looking at the figure without the text.

SuggestedRemedy

Add a text frame in figure 115-4 and move this text into it.

Response *Response Status* **C**

REJECT.

Moving this text into the figure will produce a very busy figure difficult to read because the lot of text included.

In addition, the meaning of the parentetical text is already indicated in the figure: in the top left corner, it is indicated the beginning of the Transmit Block j , and in the bottom right corner, it is indicated the start of the Transmit Block j+1.

Cl **115** *SC* **115.2.1** *P* **47** *L* **31** # i-22

RAN, ADEE Intel

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

From the sentence "The symbols of all the sub-blocks shall be transmitted at the nominal rate" and the "symbols streams" mentioned in P48 L25, one can deduce that each "data path" by itself is a stream of symbols generated at the nominal rate.

This is obviously not true; since the sub-blocks are concatenated to create the transmit block, the symbol rate of each "data path" is lower than the nominal rate.

Architecturally, as figure 115-4 shows, the sub-blocks are concatenated to form the transmit block, which is then serialized to symbols at the nominal rate. This is the simplest way to describe the process (the alternative is "muxing" as shown in figure 115-5, but it requires the data paths to pause when they are not selected - this is more difficult to specify).

SuggestedRemedy

Change
"The symbols of all the sub-blocks shall be transmitted at the nominal rate"
to
"The sub-blocks are concatenated and then transmitted serially as symbols at the nominal rate, in the order indicated in figure 115-4".

Delete parenthesized text (subject of another comment), and the sentence before the parentheses, as it becomes redundant.

In the paragraph on P48 L25, change
"so the four symbol streams are multiplexed to produce the temporal order indicated in Figure 115-4"
to
"so the sub-blocks are arranged to produce the transmission order indicated in Figure 115-4".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The commenter is correct that transmit blocks are created by concatenating subblocks from the four data paths, but the commenter is wrong that this concatenation implies that either Transmit Blocks or sub-blocks have to be serialized. The data paths themselves can be implemented as significantly or completely serial symbol streams. The term "serialize" can produce confusion, because it may intent a parallel to serial transformation that is not needed at all.

The important points are:
1. The output of the muiltiplexer is what transmits at the actual symbol rate.
2. The multiplexer does multiplex symbols from each data path, but in groups described called sub-blocks.
3. With minimal storage in an implementation, each data path will periodically produce symbols at the actual rate. An implementer though may choose to tradeoff the speed at which a data path produces symbols and storage as long as the transmit multiplexer output is able to operating at the actual symbol rate without underflow from the selected data path and the implementation meets the latency constraints.

The comment does highlight a problem in the use of the term “nominal symbol rate”. A device will operate at a symbol rate which varies with tolerance from the nominal rate that meets the specification of 115.6.3.2.

Editor's actions:
In P47, L31, change:
"The symbols of all the sub-blocks shall be transmitted at the nominal rate."
to
"The symbols composing any sub-block shall be transmitted to the PMA at the symbol rate."
Modify the PICS item PCS3 accordingly.
(per response to comment i-23, the multiplexer of figure 115-5 is going to be moved to PCS, so that the PMA receives symbols at symbol rate that are transferred to the PMD.)

Replace paragraph of P48, L25 as:
Transmit Blocks are generated by the multiplexer from the four data paths shown in Figure 115-5. The symbols of pilot S1, pilot S2x, PHSx, and
payload data sub-blocks are generated in a different manner. Though the implementation method is not constrained, the input from each data path to the multiplexer may logically be viewed as a symbol FIFO, with the multiplexer selecting the appropriate data path symbols sequentially to create a sub-block. The sequence of sub-blocks results in the Transmit Block temporal order illustrated in Figure 115-4.

Change P52, L51:
"The 896 bits from the BCH encoder shall be mapped into 1792 PAM2 symbols transmitted at nominal symbol rate of 325 MBd so that bits with value 0 are mapped to 2 consecutive symbols {+1, -1}, and bits with value 1 are mapped to 2 consecutive symbols {-1, +1}."
to
"The 896 bits from the BCH encoder shall be mapped into 1792 PAM2 symbols so that bits with value 0 are mapped to 2 consecutive symbols {+1, -1}, and bits with value 1 are mapped to 2 consecutive symbols {-1, +1}."

(Symbol rate is deleted because it does not make sense in the context of this shall statement. The transmission rate is a property of the symbols at the output of the multiplexer when they are transmitted grouped in sub-blocks, but not in the mapping of bits, where the symbol rate finally may depend on the implementation).

Change in PICS items TM8, TM9, TM10 and TM11:
"symbols at nominal rate"
to
"symbols timed with local symbol clock"

Cl **115** *SC* **115.2.1** *P* **48** *L* **29** # i-21

RAN, ADEE Intel

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

It is not obvious from this figure where the PMA starts.

115.3.1 says that the THP encoder (and implicitly decoder too) is part of the PMA, so at the interface to the PMA the payload data path is encoded as PAM16 symbols.

In addition, the PMA function is to serialize the transmit block provided by the PCS; describing it as a multiplexer between data paths would require each of these data paths to pause or insert dummy symbols when not selected.

SuggestedRemedy

Arrange Figure 115-5 somewhat differently:

Show the PMA as a distinct rectangle, with the power scaling sub-blocks included, as well as the THP block. (currently there is a shaded polygon, it is not clear that this is the PMA)

Show the PCS as a separate rectangle including all PCS sub-blocks, with the interface being a transmit block (as defined in 115.2.1).

Change the label inside the PMA from "multiplexer" to "serializer".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The description as a multiplexer in the figure 115-5 is considered consistent with the intended function that really wants to be specified and with the figure 115-4. However, if we describe it as serializer, it may confuse to the reader that can think that a parallel to serial transformation has to be implemented, whis is not true. Because of that, the block named multiplexer should stay.

Editor to implement the changes of figure 115-5 per comment i-23 to be more consistent with the text and the figure 115-3. Copied here from response to i-23:
+ Move the Multiplexer block to the PCS sublayer
+ Do rectangle covering all the PCS subblocks
+ Reduce the PMA to a rectangle (no shaded polygon) containing 2 sub-blocks, THP and Power Scaling, back to back connected and arrow.
+ Arrow from PCS's multiplexer to THP in PMA
+ Arrow from Power scaling to PMD.
(As it is specified in the PMA Transmit function, the THP is bypassed when pilots or PHD sub-blocks are transmitted, and the power scaling affects with different scaling factor as a function of the sub-block, i.e. S1, S2, PHS, data.)

Cl **115** *SC* **115.2.4.1** *P* **53** *L* **32** # i-32

RAN, ADEE Intel

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

"Shall be" is inappropriate for a nominal bit rate; the bit rate is derived from the GMII clock frequency.

SuggestedRemedy

Change "shall be" to "is" and delete the corresponding PICS item.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Having PDB in the sentence is somewhat confusing and not really needed for understanding. Editor to replace whole sentence with:

"The nominal bit rate of the output of the 64B/65B encoder is (65/64) × 1000 = 1015.625 Mb/s."

Delete the corresponding PICS item PCS17.

Cl **115** *SC* **115.2.4.3.2** *P* **60** *L* **20** # i-25

RAN, ADEE Intel

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

In Equation (115-6), s1 appears as a factor of both x and x^2. This seems incorrect.

SuggestedRemedy

Change the factor of x^2 to s2.

Response *Response Status* **W**

ACCEPT.

Cl **115** *SC* **115.2.4.3.5** *P* **61** *L* **20** # i-26

RAN, ADEE Intel

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

What is the meaning of "t" in the superscripts? is it a variable? I don't see it defined anywhere.

If it is just a label for transformation, consider removing it or modifying the labels somehow, since the multiple levels of subscripts and superscripts create very small text size.

SuggestedRemedy

Define what t means.

Consider removing it or rearranging the labels to avoid creating extremely small text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"t" is a label to indicate the transformation result.

Editor's actions:
In P61, L21, add:
"The label t_1,1 indicates the result of the lattice transformation A^t_1(1)".

In P61, L30, add:
"The label t_1,2 indicates the result of the lattice transformation A^t_1(2)".

In P61, L41, add:
"The label a indicates the result of the lattice addition".

In P61, L52, add:
"The label t_2 indicates the result of the lattice transformation A^t_2".

Move "1,1", "1,2" and "2" subscripts of "t", to the same level of "t" to increase the font size.

Cl **115** *SC* **115.2.5** *P* **63** *L* **27** # i-33

RAN, ADEE Intel

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

"the resulting bits belonging to that codeword shall be marked as corrupt"

How are bits marked as corrupt? Is it done by signaling RX_ER on the GMII?

Behavior stated as "shall" should be clearly verifiable.

SuggestedRemedy

Clarify what the behavior should be.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

As stated in P63, L32 to L35, the 64B/65B uses the information of being marked as corrupt to properly indicate receive errors on the RX GMII. The "shall" statement of P63, L27 is complete in the sense that the MLCC decoder transfers the decoded information to the descrambler, and the last one to the 64B/65B decoder. Therefore, the MLCC decoder signals the bits corruption, and then the 64B/65B decoder has to process that information to indicate the errors in the RX GMII.

The implementation of the 64B/65B decoder has to produce the same result of the MATLAB code (shall statement of L37). In this code, it can be seen how the corrupted bits belonging to MLCC codewords that could not be corrected are mapped to GMII RX with RX_ER = 1.

Editor to improve the text of L32 to 35:
"The PDBs are then finally processed by the 64B/65B decoder to extract the GMII receive data stream, using also the information that indicates which
parts of the bitstream belong to codewords that could not be corrected to properly indicate receive errors on the RX GMII."

as

"The PDBs are then finally processed by the 64B/65B decoder to extract the GMII receive data stream. The 64B/65B decoding also includes the information that indicates the parts of the bitstream that have been determined to be corrupted (i.e., belong to MLCC codewords that cannot be corrected). Such corrupted data is signaled on the RX GMII by setting RX_ER =1."

Cl **115** *SC* **115.3.1.1** *P* **65** *L* **33** # i-24

RAN, ADEE Intel

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

"The coefficients of the finite-impulse-response (FIR) feedback filter c(i) are dynamically adapted using the PHD per 115.3.6"

This subclause is part of the transmit function; the transmit function does not adapt the coefficients by itself - it modifies them based on the requests from the link partner. The link partner may or may not perform this "dynamic adaptation".

SuggestedRemedy

Change
"are dynamically adapted using the PHD per 115.3.6"
to
"are set from the PHD received from the PHD received from the link partner (see 115.3.6).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept with editorial correction, as:
Change
"are dynamically adapted using the PHD per 115.3.6"
to
"are set from the PHD received from the link partner (see 115.3.6)."

Cl **115** *SC* **115.3.3.1** *P* **67** *L* **3** # i-27

RAN, ADEE Intel

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

Equation (115-22) has two expressions for x(n).

It is confusing since it seems as if x(n) can take two values, while in fact the values are equal (but this is only obvious after reading the long text in the paragraph below).

SuggestedRemedy

Change to a single expression (the first one seems sufficient).

Response *Response Status* **C**

ACCEPT.

Cl **115** *SC* **115.3.3.2** *P* **67** *L* **27** # i-28

RAN, ADEE Intel

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

This subclause does not specify or define anything relevant to the specification. The text and equation does not provide sufficient information for implementing a receiver.

It seems out of place in a standard text.

SuggestedRemedy

Delete this subclause.

Response *Response Status* **C**

REJECT.

The content of the sub-clause is intended to describe what signal is expected to receive in the output of the channel, and tries to highlight the fact of the transmit signal is affected by non-lineat distortion.

Add (informative) to the sub-clause title.

Cl **115** *SC* **115.3.3.2** *P* **67** *L* **37** # i-19

RAN, ADEE Intel

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

In the second line of equation 115-23, the index l1 appears in two summation operators.

SuggestedRemedy

Change the index to l2 in the second summation operator.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accept the change if sublause 115.3.3.2 is not deleted per comment i-28.

Cl **115** *SC* **115.3.3.2** *P* **67** *L* **46** # i-20

RAN, ADEE Intel

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

The received signal does not contain the end-to-end channel. It is created by, or is affected by the channel.

SuggestedRemedy

Change "contains" to "is created by" or "includes the effect of".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "contains" to "includes the effect of", in case of 115.3.3.2 is not deleted per comment i-28.

Cl **115** *SC* **115.6** *P* *L* # i-47

Stassar, Peter Huawei Technologies

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

The test results in perezaranda_3bv_1b_0916 appear to show that the optical interface specifications in P802.3bv draft 3.0 need significant further refinement, so that a set of devices, when meeting these requirements, a will operate satisfactorily in the field on worst case versions of standard POF, and that, when they fail these requirements, they do not operate in the field.
Such a robust specification is extremely important to protect the user in home applications against inadequate equipment.
I remain therefore unconvinced that this optical specification is sufficiently complete and therefore have the opinion that the Task Force has not completed its work.

SuggestedRemedy

Perform further testing to enable a refinement and increase of quality of the specification.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

The commenter did not provide specific text indicating what changes to the draft would be required to resolve the comment.

In http://www.ieee802.org/3/bv/public/Sep_2016/perezaranda_3bv_1c_0916.pdf are provided measurement results of the trasnmitter distortion parameters for new 4 PMD implementations. Based on those measurement results, the document proposes to do a refinement of the specifications of HD3 and HD4 parameters to allow more implementations. The presentation shows that this refinement does not have relevant impact on the expected receiver sensitivity and discussion on the selection of the new values is provided.
The presentation also provides an analysis on the correlation of the obtained measurement results with the prediction simulation models and analysis on robustness of the specification.

As comment i-35 proposes:
In Table 115-8, change HD3 max value from -26 to -23. In the same table, change HD4 max value from -36 to -34.

Cl **115** *SC* **115.6.3.1** *P* **98** *L* **30** # i-35

Perez De Aranda Alonso, Ruben Knowledge Developme

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

In http://www.ieee802.org/3/bv/public/Sep_2016/perezaranda_3bv_1b_0916.pdf are provided measurement results of the trasnmitter distortion parameters for new 3 PMD implementations. Results for a total number of 4 implementations are presented in a wide range of temperaure of operation. All of the implementations are able to establish Gigabit link with BER < 10^-12 in automotive range of temperatures. Based on those measurement results, it is proposed to do a refinement of the specifications of HD3 and HD4 parameters to allow more implementations. The presentation shows that this refinement does not have relevant impact on the expected receiver sensitivity and discussion on the selection of the new values is provided.

SuggestedRemedy

In Table 115-8, change HD3 max value from -26 to -23. In the same table, change HD4 max value from -36 to -34.

Response *Response Status* **C**

ACCEPT.

Cl **115** *SC* **115.6.4.5** *P* **102** *L* **32** # i-30

RAN, ADEE Intel

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

Equation number reset to 1.

SuggestedRemedy

Apply correct format so that equation numbers continue (this should be 115-30).

Response *Response Status* **W**

ACCEPT.

Cl **115** *SC* **115.6.4.8** *P* **103** *L* **17** # i-15

Anslow, Peter Ciena Corporation

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

The multi-vendor interoperability of this PHY is critically dependent on the ability of the specification to define a suitable quality for the worst case transmitter. It is very difficult without a physical implementation to assess whether the transmitter distortion measurement defined here does this adequately.
I can't find any presentations on the P802.3bv web pages that show any correlation between the performance of transmitters in actual links and the transmitter distortion measurement defined here.
While there is no rule that requires this to be done, it has been seen as a requirement in other projects before new specification methods have been accepted. See for instance, http://www.ieee802.org/3/bm/public/nov14/petrilla_01b_1114_optx.pdf#page=8 which has plots of receiver sensitivity vs the newly proposed TDEC transmitter quality metric.

SuggestedRemedy

As this measurement method is crucial to multi-vendor interoperability of these PHY types, please provide some measurement results showing the correlation between link performance and the transmitter distortion measurements that show that HD2 of -20 dB, HD3 of -26 dB, HD4 of -36 dB, and RD of -40 dB are attainable using transmitters that work in conformant links and that transmitters with HD2 of worse than -20 dB or HD3 of worse than -26 dB or HD4 of worse than -36 dB or RD of worse than -40 dB do not work in conformant links.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

The commenter did not provide specific text indicating what changes to the draft would be required to resolve the comment.

In http://www.ieee802.org/3/bv/public/Sep_2016/perezaranda_3bv_1c_0916.pdf are provided measurement results of the trasnmitter distortion parameters for new 4 PMD implementations. Based on those measurement results, the document proposes to do a refinement of the specifications of HD3 and HD4 parameters to allow more implementations. The presentation shows that this refinement does not have relevant impact on the expected receiver sensitivity and discussion on the selection of the new values is provided.
The presentation also provides an analysis on the correlation of the obtained measurement results with the prediction simulation models and analysis on robustness of the specification.

As comment i-35 proposes:
In Table 115-8, change HD3 max value from -26 to -23. In the same table, change HD4 max value from -36 to -34.

Cl **115** *SC* **115.7** *P* **108** *L* **10** # i-31

RAN, ADEE Intel

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

What does "includes up to at least 50 m length" mean when defining a channel type? It is an oxymoron, since "up to" and "at least" are antonyms.

In 802.3by we have a similar task of describing the defined cable assemblies. The following text is used there:

"Cable assembly long (CA-25G-L): Cable assembly that supports links between two PHYs that operate in RS-FEC mode with error correction enabled on both receivers, with achievable cable length of at least 5 m"

(similarly for other cable assembly types)
and

"NOTE--It may be possible to construct compliant cable assemblies longer than indicated. Length of a cable assembly does not imply compliance to specifications."

SuggestedRemedy

Considering using similar language to the text above, using "achievable" instead of "up to", and clarifying with a note that length is not the specification.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"up to at least 50 m length" means a cable length between 0 and at least 50 m. ("at least" means length of >= 50 meters). The same wording was used in subclauses 40.7.2 and 97.6 already adopted as standards. 802.3bs uses "with reach up to at least x m" for the same concept, and other clases in section 6 uses similar language.

Editor's actions:
Change P108, L10:
"Fiber optic channel type I includes up to at least 50 m length."
to
"Fiber optic channel type I supports realiable link per specification of 115.6.3.3 with reach up to at least 50 m."

Similar changes for P108, L15 and P108, L21.

Add in P108, L28, after list the note:
NOTE—It may be possible to construct compliant fiber optic cables longer than indicated. Length of a fiber optic cable does not imply compliance to specifications.

Cl **115** *SC* **115.14.5** *P* **130** *L* **35** # i-34

RAN, ADEE Intel

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

PMA10 value/comment says ""transmit" but it relates to receive.

SuggestedRemedy

In value/comment, change "transmit" to "receive".

Response *Response Status* **C**

ACCEPT.