Comment ID: 6

Hayashi, Takehiro

Comment Type: E  Comment Status: D  Text improvement

It should be indicated that the values "0000", "0001" (line 9), "0010" (line 10), "0011" line 11), and "0100" (line 12) are binary.

Suggested Remedy
add "the value of binary" before the numbers.

Proposed Response  Response Status: W  PROPOSED ACCEPT.

Hayashi, Takehiro

Comment Type: E  Comment Status: D  E

"change" occurs in plus and minus directions.

Suggested Remedy
Use "increment"

Proposed Response  Response Status: W  PROPOSED REJECT. The TXO_MSGT is a single bit that effectively changes with each new transmitted message.

Hayashi, Takehiro

Comment Type: E  Comment Status: X  E

"change" occurs in plus and minus directions. Use of "increment" can simplify the description.

Suggested Remedy
Change to "Bit 3.2330.12 is incremented by one bit by the BASE-U based PHY ..." and delete "acting as one bit sequence number"

Proposed Response  Response Status: W  PROPOSED REJECT. The TXO_MSGT is a single bit that effectively changes with each new transmitted message.

Hayashi, Takehiro

Comment Type: E  Comment Status: D  EZ

"content" should be plural.

Suggested Remedy
"contents"

Proposed Response  Response Status: W

Proposed REJECT. Content is singular referring to a group of bits.

Hayashi, Takehiro

Comment Type: E  Comment Status: D  EZ

"to" is inconsistency of description.

Suggested Remedy
"through"

Proposed Response  Response Status: W  PROPOSED REJECT. The meaning is "Up to the assignee of the OUI or CID"

Hayashi, Takehiro

Comment Type: E  Comment Status: X  EZ

change occurs in plus and minus directions. Use of "increment" can simplify the description.

Suggested Remedy
Change to "Bit 3.2339.12 is incremented by one bit ..." and delete "acting as one bit sequence number"

Proposed Response  Response Status: W  PROPOSED REJECT. The RXO_MSGT is a single bit that effectively changes with each new received message.
Cl 45  SC 45.2.3.87c.2  P 36  L 4  # 7
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  D  Text improvement
The description "(no loopback operation)" is inconsistent.
SuggestedRemedy
"(no loopback mode)"
Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLES. Use "no loopback" as described in Table 45-313c.

Cl 45  SC 45.2.3.87c.2  P 36  L 5  # 8
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  D  Text improvement
The meaning "no test mode is selected in 3.2348.15:13" is not clear.
SuggestedRemedy
"a value of binary 000 in 3.2348.15:13" may be better.
Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 45  SC 45.2.3.87c.3  P 36  L 13  # 9
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  D  Text improvement
No instruction what operation causes "PMA reset"
SuggestedRemedy
Add "see 166.3.4.1 for details".
Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLES. Add "(see 166.3.4.1)".

Cl 45  SC 45.2.3.87c.4  P 36  L 21  # 10
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  X  Text improvement
No instruction what operation causes "PMA reset"
SuggestedRemedy
Add "see 166.3.4.1 for details".
Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLES. Add "(see 166.3.4.1)".

Cl 45  SC 45.5.3.7  P 42  L 34  # 1
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  D  EZ
"to" is inconsistency of description.
SuggestedRemedy
"through"
Proposed Response  Response Status  W
PROPOSED REJECT.

Cl 45  SC 45.5.3.7  P 42  L 47  # 12
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  D  Text improvement
The description "(no loopback operation)" is inconsistent.
SuggestedRemedy
"(no loopback mode)"
Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLES. Use "no loopback" as described in Table 45-313c.

Cl 166  SC 166.1.4  P 64  L 31  # 13
Hayashi, Takehiro  HAT Lab.
Comment Type  E  Comment Status  D  Unidirectional fiber
1) The term "unidirectional transmission" is misleading.
2) If the subject of the sentence is "Each fiber", "BASE-AU port" must be at the both end of the "Each fiber".
3) The relation between the description and the following description "transmitting on one fiber and receiving on the second fiber" is not rational.
SuggestedRemedy
Change to "While the transmission in the optical fiber is single directional, the transmission in one optical fiber is counter directional against the transmission in the other optical fiber. BASE-AU ports are on the both ends of the link segment."
Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLES. Change "Each fiber is used for unidirectional transmission with the BASE-AU port on one end of the link segment transmitting on one fiber and receiving on the second fiber." by "Each fiber is used for unidirectional transmission with the BASE-AU port on one end of the link segment transmitting on one fiber and receiving on the other fiber."
"cross-over" is not the cause but the result of the connection of local TX to remote RX.

**Suggested Remedy**

Change to

"Establishing the communication channel, the local PMD transmitter and receiver shall be connected to the remote PMD receiver and transmitter respectively. Therefore, the crossover cabling is required."

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE. Change "A cross-over in the cabling connects the PMD transmitter to the link partner's PMD receiver, and the link partner's PMD transmitter to the local PMD receiver." by "The local PMD transmitter and PMD receiver are connected to the link partner's PMD receiver and PMD transmitter, respectively, by means of a cross-over in the optical cable."

"Type" typo

**Suggested Remedy**

**Proposed Response**

PROPOSED ACCEPT.

**Suggested Remedy**

Add a figure for PCS receiving function.

**Proposed Response**

PROPOSED REJECT. The PCS receive ordering is specified in 166.2.7.3. Particular block diagram in the PCS receiver is up to the implementer. Figures are included in the text with a specific objective, either to illustrate and make easier the understanding of specifications given in text or to provide the specifications themselves as it is the case of state diagrams, which are normative. Including figures should respond to a necessity to get a technically complete specification.
IEEE 802.3cz D1.2 Multi-Gig Automotive Optical Ethernet PHY 2nd Task Force review comments

<table>
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Proposed Response: PROPOSED REJECT. The indentation follows the IEEE 802.3 rules (see, i.e., IEEE Draft P802.3/D2.2, page 4623 line 20, 113.3.6.2.4)

Proposed Response: PROPOSED REJECT. This draft follows "https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf". In page 33 can be read "Figures should be organized to fit on a single page with the term, "Figure" and the figure number, followed by an em dash and the figure title, centered below the figure, as follows: "Figure 1—Title"."

The location of Figure 166-21 is in clause 166.3.1, and it is confusing.

Proposed Response: PROPOSED REJECT. This draft follows "https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf". In page 33 can be read "Figures should be organized to fit on a single page with the term, "Figure" and the figure number, followed by an em dash and the figure title, centered below the figure, as follows: "Figure 1—Title"."

The location of Figure 166-20 is in clause 166.2.8.1.1, and it is confusing.

Proposed Response: PROPOSED REJECT. This draft follows "https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf". In page 33 can be read "Figures should be organized to fit on a single page with the term, "Figure" and the figure number, followed by an em dash and the figure title, centered below the figure, as follows: "Figure 1—Title"."

The location of Figure 166-17 is wrong. (The order of Figure 177-17 and -18 is converse)

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE. PCS receive bit ordering should be first, PCS mapping from a 65-bit block to the XGMII or 25GMII second, and PCS mapping from a 65-bit block to the 50GMII third.

Proposed Response: PROPOSED REJECT. This draft follows "https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf". In page 33 can be read "Figures should be organized to fit on a single page with the term, "Figure" and the figure number, followed by an em dash and the figure title, centered below the figure, as follows: "Figure 1—Title"."

The location of Figure 166-18 is in clause 166.2.8.1.1, and it is confusing.

Proposed Response: PROPOSED REJECT. The location of Figure 166-19 is in clause 166.2.8.1.1, and it is confusing.
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<td>The location of Figure 166-18 is in clause 166.2.7.6, and it is confusing</td>
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<td>Move the figure 166-18 in clause 166.2.7.</td>
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<td>PROPOSED REJECT. Figure 166-18 shows the functionality described in 166.2.7.6</td>
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<td>Move the figure 166-19 in clause 166.2.7</td>
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<td>PROPOSED ACCEPT IN PRINCIPLE. PCS receive bit ordering should be first, PCS mapping from a 65-bit block to the XGMII or 25GMII second, and PCS mapping from a 65-bit block to the 50GMII third.</td>
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Proposed Response

PROPOSED REJECT. The indentation follows the IEEE 802.3 rules (see, i.e., IEEE Draft P802.3/D2.2, page 4623 line 20, 113.3.6.2.4)

Comment ID 36
Cl. 166  SC 166.3.4.5  P 102  L 27  # 37
Hayashi, Takehiro  HAT Lab.

Comment Type  E  Comment Status  X  Document layout
The location of Figure 166-27 is in clause 166.3.5.2, and it is confusing

Suggested Remedy
Move the figure 166-27 in clause 166.3.4.5

Proposed Response  Response Status  W
PROPOSED REJECT. This draft follows "https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf". In page 33 can be read "Figures should be organized to fit on a single page with the term, “Figure” and the figure number, followed by an em dash and the figure title, centered below the figure, as follows: “Figure 1—Title”.

The FrameMaker V5.0 template automatically arranges the figures in the document layout.

Cl. 166  SC 166.3.5.4  P 104  L 3  # 38
Hayashi, Takehiro  HAT Lab.

Comment Type  E  Comment Status  X  Document layout
The location of Figure 166-28 is in clause 166.4.1, and it is confusing

Suggested Remedy
Move the figure 166-28 in clause 166.3.5.4

Proposed Response  Response Status  W
PROPOSED REJECT. This draft follows "https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf". In page 33 can be read "Figures should be organized to fit on a single page with the term, “Figure” and the figure number, followed by an em dash and the figure title, centered below the figure, as follows: “Figure 1—Title”.

The FrameMaker V5.0 template automatically arranges the figures in the document layout.

Cl. 131  SC 131.1.3  P 49  L 27  # 41
Pérez - Aranda, Rubén  KDPOF

Comment Type  E  Comment Status  D  Text improvement
Table 105-1, Table 125-1 and 131-1 do not use consistent wording. Unify three tables with same wording.

Suggested Remedy
Replace with: 25 Gb/s PHY using 64B/65B and Reed-Solomon encoding with NRZ modulation over optical fiber for use in automotive applications (see Clause 166).

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl. 131  SC 131.1.3  P 59  L 32  # 42
Pérez - Aranda, Rubén  KDPOF

Comment Type  E  Comment Status  D  Text improvement
Table 105-1, Table 125-1 and 131-1 do not use consistent wording. Unify three tables with same wording.

Suggested Remedy
Replace with: 50 Gb/s PHY using 64B/65B and Reed-Solomon encoding with PAM4 modulation over optical fiber for use in automotive applications (see Clause 166).

Proposed Response  Response Status  W
PROPOSED ACCEPT.
<table>
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<td>E</td>
<td>D</td>
<td>PMA/PMD type selection</td>
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<td>65</td>
<td>E</td>
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<td>96</td>
<td>E</td>
<td>D</td>
<td>50GBASE-AU PCS is specified in Clause 166.</td>
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<td>Text improvement</td>
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<td>45</td>
<td>97</td>
<td>T</td>
<td>D</td>
<td>Only refresh is transmitted.</td>
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<td>46</td>
<td>67</td>
<td>E</td>
<td>D</td>
<td>Text improvement</td>
<td></td>
<td></td>
<td>45</td>
<td>98</td>
<td>T</td>
<td>D</td>
<td>Replace “transmitting refresh and quiet” with “transmitting refresh”.</td>
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**Comment Type**
- **E**: Editorial
- **T**: Technical
- **D**: Dispatched

**Response Status**
- **W**: Written
- **A**: Accepted
- **R**: Rejected
- **O**: Open
- **C**: Closed
- **Z**: Withdrawn
Cl 45 SC 45.2.3.87.d.10 P 38 L 34 # 49
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
Only refresh is received.
Suggested Remedy
  Replace "refresh and quiet" with "refresh".
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 46 SC 45.2.3.87d.14 P 39 L 12 # 50
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
When read as one, bit 3.24.0 indicates ...
Suggested Remedy
  Should be: When read as one, bit 3.2349.0 indicates
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 166 SC 166.1.4 P 64 L 33 # 53
Pérez - Aranda, Rubén KDPOF
Comment Type E Comment Status D Text improvement
... baselines the PMD transmitter ...
Suggested Remedy
  Should be: ... connects the local PMD transmitter ...
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 166 SC 166.1.4 P 64 L 38 # 54
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D symmetric BASE-AU PHY type
"and the same BASE-AU Type in TX and RX" is not clear in the meaning. On top of that, it is clear that TX and RX of link partners have to implement the same BASE-AU PHY type, e.g., 25GBASE-AU, because in other case they cannot communicate. However, the specification of clause 166 is compatible with having different BASE-AU type from local TX and local RX of a PHY, e.g., it is possible to establish a bidirectional link where a fiber direction operates at 2.5Gb/s and other fiber direction operates at 50 Gb/s, provided that link segment is compatible with both in terms of attenuation, bandwidth, etc.Disclaimer: the commenter only pursues consistency through spec, but not necessarily indicates preference on asymmetric rates, out of the scope.
Suggested Remedy
  Replace paragraph of lines 37 and 38 with: "This clause specifies the operation between link partners implementing the same BASE-AU PHY type and rate in both link partners for each of the fibers used for unidirectional transmission." Replace line 40 with: "A BASE-AU PHY TX shall be composed by PCS, PMA and PMD sublayers specified for the same data rate. A BASE-AU PHY RX shall be composed by PCS, PMA and PMD sublayers specified for the same data rate." Add corresponding PICs item.
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 166 SC 166.1.1 P 62 L 46 # 52
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
... specifications subject to frequency scaling.
Suggested Remedy
  Should be: ... specifications subject to frequency scaling and modulation scheme.
Proposed Response Response Status W
PROPOSED ACCEPT.
Figure 166-2 is not 100% accurate. PMA should be split into PMA RX and PMA TX in order to be 100% consistent with the specification. PMA TX and PMA RX may operate at different rates, being compatible with the specification in Cl 166. The figure should not reflect a different vision of the spec. Disclaimer: the commenter only pursues consistency through the spec, but not necessarily indicates preference on asymmetric rates, out of the scope.

Proposed Remedy
Replace PMA box with two boxes: PMA TX and PMA RX, in the left and right sides of the topology.

Suggested Remedy
Replace “Equalizer” with “Data recovery”. Equalizer is not mandatory, it is up to the implementor. Though spec allows training of an equalizer, and equalizer may improve the RX sensitivity, there may be interoperable implementations that do not implement equalizer.

Proposed Response
Replace “Equalizer” with “Data recovery”
**Comment ID 66**

**Proposed Response**

### Comment Type: E

**Comment Status:** Text improvement

**Suggested Remedy:**

- Most extended use is: encoded

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment ID 67**

**Proposed Response**

### Comment Type: E

**Comment Status:** Text improvement

**Suggested Remedy:**

- Change to: The Physical Header data path

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment ID 68**

**Proposed Response**

### Comment Type: E

**Comment Status:** Text improvement

**Suggested Remedy:**

- Replace with: PCS transmit bit ordering

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment ID 69**

**Proposed Response**

### Comment Type: T

**Comment Status:** Text improvement

**Suggested Remedy:**

- Paragraph of lines 6 through 8 is not complete in summarizing PCS RX function.

**Proposed Response**: PROPOSED ACCEPT.
Comment ID 72

Cl 166, SC 166.2.1.1, P 69 L 19 # 72

Pérez - Aranda, Rubén

Comment Type T

Comment Status D

Text improvement

Comment

Only one filed exists

Suggested Remedy

Should be: The field PHD.TX.NEXT.MODE is used by the local PHY to provide the link partner transmission mode of the next Transmit Block, so that the remote PHY can align its reception.

Proposed Response

Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Replace with "The field PHD.TX.NEXT.MODE is used by the local PHY to provide the transmission mode of the next Transmit Block to the remote PHY, so that the remote PHY can align its reception."
**Comment ID: 73**

**Cl: 166**  SC: 166.2.2.1.1  P: 70  L: 25  # 73

Pérez - Aranda, Rubén  KDPOF

**Comment Type:** E  **Comment Status:** D  **Type:** Text improvement

Should be period instead of full stop. Next paragraph is about the same thing.

**Suggested Remedy:**

Per comment

**Proposed Response**  **Response Status:** W

PROPOSED ACCEPT.

**Comment ID: 74**

**Cl: 166**  SC: 166.2.2.1.4  P: 71  L: 50  # 74

Pérez - Aranda, Rubén  KDPOF

**Comment Type:** T  **Comment Status:** D  **Type:** Text improvement

Then, the second 20-bit chunk is processed, repeated three times, and concatenated to the three 20-bit chunks resulting of the processing of the first 20-bit chunk. What is the meaning of "processed"? In my opinion nothing and it may be confuse in understanding the

**Suggested Remedy:**

Should be: Then, the second 20-bit chunk is repeated three times and concatenated to the three times repeated 20-bit of the first chunk.

**Proposed Response**  **Response Status:** W

PROPOSED ACCEPT.

**Comment ID: 75**

**Cl: 166**  SC: 166.2.2.2  P: 72  L: 5  # 75

Pérez - Aranda, Rubén  KDPOF

**Comment Type:** T  **Comment Status:** D  **Type:** Text improvement

"structured into 36 groups of 80 65-bit blocks". The 64B/65B encoder processes the xMII input regardless the Transmit Block structure, without awareness of groups.

**Suggested Remedy:**

Replace with: "equivalent to 2880 65-bit blocks".

**Proposed Response**  **Response Status:** W

PROPOSED ACCEPT.

**Comment ID: 76**

**Cl: 45**  SC: 45.2.3.87h  P: 40  L: 36  # 76

Pérez - Aranda, Rubén  KDPOF

**Comment Type:** T  **Comment Status:** D  **Type:** Text improvement

RS-FEC block error counter does not need of BER test mode to operate. It can also work in normal operation mode. The RS-FEC decoder knows for each processed codeword when the correction capability has been overpassed. The error detection capability is double compared with correction capability (22 10-bit symbols vs 11 10-bit symbols), so RS-FEC decoder can indicate a CW is erroneous in its output with high confidence.

**Suggested Remedy:**

Change: "A 16-bit counter used when operating in BER test mode" to: "A 16-bit counter when operating in normal and BER test modes"

**Proposed Response**  **Response Status:** W

PROPOSED ACCEPT.

**Comment ID: 77**

**Cl: 45**  SC: 45.2.3.87h  P: 40  L: 42  # 77

Pérez - Aranda, Rubén  KDPOF

**Comment Type:** T  **Comment Status:** D  **Type:** Text improvement

RS-FEC codeword error counter operates in BER test mode and normal operation mode.

**Suggested Remedy:**

Change paragraph to read: "When the BASE-U based PHY receiver is operating in normal and BER test mode, bits 3.2353.15:0 are a 16-bit counter that counts the number of erroneous RS-FEC codewords at the input of the 64B/65B PCS decoder (see 166.2.7.2)"

**Proposed Response**  **Response Status:** W

PROPOSED ACCEPT.

**Comment ID: 78**

**Cl: 166**  SC: 166.2.7.2  P: 86  L: 27  # 78

Pérez - Aranda, Rubén  KDPOF

**Comment Type:** T  **Comment Status:** D  **Type:** Text improvement

RS-FEC codeword error counter operates in BER test mode and normal operation mode.

**Suggested Remedy:**

Add: "and the codeword shall be counted as a RS-FEC codeword error and reflected in the RS-FEC codeword error counter (see 45.2.3.87h)"

**Proposed Response**  **Response Status:** W

PROPOSED ACCEPT.
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<td>79</td>
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<td>Unidirectional BER test mode</td>
<td>Transmitter is not a PHY. A PHY also includes a receiver.</td>
<td></td>
<td>Change paragraph to read: “BER test mode is for measurement of the bit error ratio (BER) of the link including the PCS, PMA, and PMD sublayers of two BASE-AU PHYs and a fiber optic cable connected to them. BER test is run between the transmitter of a PHY and the receiver of its link partner. BER test mode can be configured independently for each of the unidirectional transmissions.”</td>
<td>PROPOSED ACCEPT.</td>
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<tr>
<td>80</td>
<td>E</td>
<td>D</td>
<td>Text improvement</td>
<td>“and does not change value unless a PMA reset takes 16 place.” Operating mode does not change unless PMA reset, and value of PHD.TX.NEXT.MODE is a consequence.</td>
<td></td>
<td>Remove word “value”.</td>
<td>PROPOSED ACCEPT.</td>
</tr>
<tr>
<td>81</td>
<td>T</td>
<td>D</td>
<td>Unidirectional BER test mode</td>
<td>To be clear the BER test mode is unidirectional.</td>
<td></td>
<td>Change to read: “To be clear the BER test mode is unidirectional.”</td>
<td>PROPOSED ACCEPT.</td>
</tr>
<tr>
<td>82</td>
<td>T</td>
<td>D</td>
<td>Unidirectional BER test mode</td>
<td>To be clear the BER test mode is unidirectional.</td>
<td></td>
<td>Change to be: “To be clear the BER test mode is unidirectional.”</td>
<td>PROPOSED ACCEPT.</td>
</tr>
<tr>
<td>83</td>
<td>T</td>
<td>D</td>
<td>Unidirectional BER test mode</td>
<td>To be clear the BER test mode is unidirectional.</td>
<td></td>
<td>Change to be: “To be clear the BER test mode is unidirectional.”</td>
<td>PROPOSED ACCEPT.</td>
</tr>
</tbody>
</table>
IEEE P802.3cz D1.2 Multi-Gig Automotive Optical Ethernet PHY 2nd Task Force review comments

Cl 166 SC 166.2.2.5 P74 L46 #85

Pérez - Aranda, Rubén KDPOF

Comment Type T Comment Status D LFSR

According to resolution of comment #82 to draft D1.0, it was agreed per https://www.ieee802.org/3/cz/public/may_2021/perezaranda_3cz_04_0521_lfsr.pdf to include an annex with example LFSR sequence. Only data belonging to the beginning and to the end of the Transmit Block would be provided in tabular form as example to allow implementation verification in an informative annex. Annex has not been implemented.

Suggested Remedy


Proposed Response Response Status W PROPOSED ACCEPT.

Cl 166 SC 166.2.2.5 P74 L47 #86

Pérez - Aranda, Rubén KDPOF

Comment Type T Comment Status D LFSR

According to resolution of comment #82 to draft D1.0, it was agreed per https://www.ieee802.org/3/cz/public/may_2021/perezaranda_3cz_04_0521_lfsr.pdf to include an annex with example LFSR sequence. Because the shift register is initialized with different value depending on the parameter G (1 or 2), example sequence should be provided for both initialization values.

Suggested Remedy

Rubén Pérez - Aranda to generate similar tables of those for resolution of comment 82 for D1.0, but considering init value for G=2. To include examples for G=1 and G=2 in the same missing annex.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. A presentation including 50GBASE-U LFSR (G=2) (perezaranda_3cz_02_220111_LFSR) has been received for discussion.

Cl 166 SC 166.2.2.4 P72 L45 #90

Pérez - Aranda, Rubén KDPOF

Comment Type E Comment Status D LFSR

The acronym LFSR is used, but not included in clause 1.5 abbreviations (neither 802.3-2018)

Suggested Remedy

Two options: Add LFSR to C/1.5 as linear feedback shift register or expand acronym in all the occurrences in the text.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Add LFSR to C/1.5 as "linear feedback shift register"

Cl 166 SC 166.2.4 P68 L2 #88

Pérez - Aranda, Rubén KDPOF

Comment Type E Comment Status X LFSR

The acronym LFSR is used, but not included in clause 1.5 abbreviations (neither 802.3-2018)

Suggested Remedy

Two options: Add LFSR to C/1.5 as linear feedback shift register or expand acronym in all the occurrences in the text.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Add LFSR to C/1.5 as "linear feedback shift register"
Proposed Response: PROPOSED ACCEPT.

Suggested Remedy:
Change "the rightmost bit. " to "least significant bit"

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE. Change 166.2 hierarchy to:
166.2.1 PCS functions
166.2.2 PCS transmit function
  166.2.2.1 Physical header data path
    166.2.2.1.1 Physical header data (PHD) structure
    166.2.2.1.2 Physical header encoding
    166.2.2.1.3 Physical header CRC16
    166.2.2.1.4 Physical header three repetition code (TRC)
    166.2.2.2 Payload data path
    166.2.2.3 PCS transmit ordering
    166.2.2.4 RS-FEC encoder
    166.2.2.5 Binary scrambler
    166.2.2.6 PCS physical header data transmit bit order
    166.2.2.7 PCS transmit bit order
    166.2.2.8 PCS 64B/65B encoding
      166.2.2.8.1 Notation conventions
      166.2.2.8.2 65-bit block structure
      166.2.2.8.3 Control codes
        166.2.2.8.3.1 Idle (/I/)
        166.2.2.8.3.2 LPI (/LI/)
        166.2.2.8.3.3 Start (/S/)
        166.2.2.8.3.4 Terminate (/T/)
        166.2.2.8.3.5 Ordered set (/O/)
        166.2.2.8.3.6 Error (/E/)
    166.2.2.9 PCS 64B/65B transmit state diagram parameters
      166.2.2.9.1 Constants
      166.2.2.9.2 Variables
      166.2.2.9.3 Functions
      166.2.2.10 PCS 64B/65B transmit state diagram
    166.2.3 PCS receive function
      166.2.3.1 Binary descrambler
      166.2.3.2 RS-FEC decoder
      166.2.3.3 PCS receiver ordering
      166.2.3.4 PHD decoding
      166.2.3.5 Invalid 65-bit blocks
  166.2.2.2.1 PCS receive function
  166.2.2.2.2 RS-FEC decoder
  166.2.2.2.3 PCS receiver ordering
  166.2.2.2.4 PHD decoder
  166.2.2.2.5 Invalid 65-bit blocks

166.2.3.6 PCS receive bit order
166.2.3.7 PCS 64B/65B receive state diagram parameters
  166.2.3.7.1 Constants
  166.2.3.7.2 Variables
  166.2.3.7.3 Functions
  166.2.3.7.4 Counters
166.2.3.8 PCS 64B/65B receive state diagram

Cl  166  SC 166.2.5.1  P78  L 24  # 93
Pérez - Aranda, Rubén  KDPOF
Comment Type E  Comment Status D  PCS transmit state machine
  rx_block are from PCS receive functions. They should be defined in that corresponding
  section, not here.
SuggestedRemedy
  Move to “PCS 64B/65B reception”
Proposed Response  Response Status W
  PROPOSED ACCEPT IN PRINCIPLE. Add a reference to 166.2.5.1 Notation conventions
  in PCS 64B/65B reception section to avoid spread of notation along the document.

Cl  166  SC 166.2.5.2  P78  L 30  # 94
Pérez - Aranda, Rubén  KDPOF
Comment Type T  Comment Status D  Overspecification
  Just description, not specification.
SuggestedRemedy
  Remove line
Proposed Response  Response Status W
  PROPOSED ACCEPT IN PRINCIPLE.

Cl  166  SC 166.2.5.2  P78  L 41  # 97
Pérez - Aranda, Rubén  KDPOF
Comment Type T  Comment Status D  Overspecification
  Rate adaption is a matter of implementation and not a matter of interoperability, provided
  the delay constraints are fulfilled. This paragraph does not provide any specification, just
  description of potential different implementation situations. Rate adaption specification is
  already in the corresponding shall statements of control characters /I/ and /LI/.
SuggestedRemedy
  Remove full paragraph
Proposed Response  Response Status W
  PROPOSED ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment</th>
<th>Proposed Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>Cl 166</td>
<td>This is the real specification. It should include shall statement.</td>
<td>W</td>
</tr>
<tr>
<td>99</td>
<td>Cl 166</td>
<td>All unused values of block type field are reserved. Not 100% accurate, because 0x00 is used in LP1 operation to indicate refresh and wake.</td>
<td>W</td>
</tr>
<tr>
<td>100</td>
<td>Cl 166</td>
<td>The control codes in table 166-4 are valid for XGMII and 25GMII. However, some of them (reserved 0 to 5) are not valid for 50GMII/XLGMII, at least not defined before. Two separated tables should be used for XGMII/25GMII and 50GMII.</td>
<td>W</td>
</tr>
<tr>
<td>103</td>
<td>Cl 166</td>
<td>Use two separate tables per comment, as in clause 113, and modify text accordingly.</td>
<td>W</td>
</tr>
<tr>
<td>104</td>
<td>Cl 166</td>
<td>The PCS transmit state machine shall generate 65-bit blocks as specified in the PCS 64B/65B transmit state diagram (see 166.2.6.2, and Figure 166–16). Move the full paragraph to section “PCS 64B/65B transmission”</td>
<td>W</td>
</tr>
</tbody>
</table>

**Comment Type:** T  **Comment Status:** D  **Proposed Response**  **Response Status:** W

**Proposed ACCEPT IN PRINCIPLE.**

Remove full paragraph as the same shall statement is already in 166.2.2.2, page 72. Modify page 72 line 3 to be “The incoming data from the xMII shall be encapsulated and encoded into 65-bit blocks (64B/65B encoder in Figure 166–7) for transmission as specified by PCS 64B/65B transmit state diagram (see 166.2.6.2, and Figure 166–16).”

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment</th>
<th>Proposed Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Cl 45</td>
<td>BASE-AU —&gt; BASE-U (PCS). OAM is referred as BASE-U OAM.</td>
<td>W</td>
</tr>
<tr>
<td>102</td>
<td>Cl 45</td>
<td>BASE-AU —&gt; BASE-U (PCS).</td>
<td>W</td>
</tr>
<tr>
<td>103</td>
<td>Cl 45</td>
<td>BASE-AU —&gt; BASE-U (PCS).</td>
<td>W</td>
</tr>
<tr>
<td>104</td>
<td>Cl 45</td>
<td>BASE-AU —&gt; BASE-U (PCS).</td>
<td>W</td>
</tr>
</tbody>
</table>
Cl 45 SC 45.2.3.87d.13 P 39 L 3,4,5 # 105
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
BASE-AU → BASE-U (PCS).
SuggestedRemedy
Replace BASE-AU with BASE-U.
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 45 SC 45.2.3.87d.14 P 39 L 12,13,1 # 106
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
BASE-AU → BASE-U (PCS).
SuggestedRemedy
Replace BASE-AU with BASE-U.
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 166 SC 166.2.6.1.1 P 83 L 26 # 109
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D overspecification
The format for this vector is shown in Figure 166-14.
SuggestedRemedy
Replace with: "The format for this vector is shown in Figure 166-14 for 2.5GBASE-AU, 5GBASE-AU, 10GBASE-AU, and 25GBASE-AU PHYs, and Figure 166-15 for 50GBASE-AU PHY."
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 166 SC 166.2.5.9 P 82 L 42 # 107
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D overspecification
This paragraph is redundant with the state diagrams specifications and does not add additional specification. "Training mode" is a consequence of the Link Monitor state diagram, the 64B/65B transmit state diagram, and LFSR set to defined init value at the beginning of a Transmit Block. Training mode is not a specification.
SuggestedRemedy
Remove paragraph.
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPALE.

Cl 166 SC 166.2.5.5 P 81 L 36 # 110
Pérez - Aranda, Rubén KDPOF
Comment Type E Comment Status D Document layout
166.2.5.5 should be 166.2.5.4.1, 166.2.5.6 should be 166.2.5.4.2, 166.2.5.7 should be 166.2.5.4.3, 166.2.5.8 should be 166.2.5.4.4, 166.2.5.9 should be 166.2.5.4.5, and 166.2.5.10 should be 166.2.5.4.6. These subclauses include additional specifications for specific control codes, e.g., /I/, /LI/, etc.
SuggestedRemedy
Per comment.
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE: See #92
<table>
<thead>
<tr>
<th>ID</th>
<th>CL</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Text Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>166</td>
<td>166.2.6.1.2</td>
<td>P83</td>
<td>L41</td>
<td>T</td>
<td>D</td>
<td>The ENCODE function shall encode the block as specified in 166.2.5.4.</td>
</tr>
<tr>
<td>112</td>
<td>166</td>
<td>166.2.6.1.2</td>
<td>P83</td>
<td>L83</td>
<td>T</td>
<td>D</td>
<td>PCS transmit state machine T_BLOCK_TYPE will classify /LI/ as error (E), so LPI mode will not be entered even for a PHY supporting LPI. Asymmetries between XGMII/25GMII and 50GMII (i.e. LI). As it is specified in 166.4, the The BASE-U PCS transmit function in LPI operation mode shall monitor codified 65-bit blocks to detect the condition to resume to normal operation mode. In general, the TX state diagram, as it is specified, has the problem of preventing the LPI operation mode in the PHY, because LPI is not encoded in the generated 65-bit blocks. 64B/65B transmit state diagram has to be transparent encoding /LI/ (fast wake LPI principle). Use Clause 49 as reference to revise PCS 64B/65B transmit state functions and state diagram encoding XGMII and 25GMII, so that LPI is encoded in a transparent way. PCS 64B/65B TX state diagram has to be identical to C/49, with the difference of generating 65-bit blocks instead of 66-bit-blocks. Use Clause 82 as reference to revise PCS 64B/65B transmit state functions and state diagram encoding 50GMII, so that LPI is encoded in a transparent way. PCS 64B/65B TX state diagram has to be identical to C/82, with the difference of generating 65-bit blocks instead of 66-bit-blocks. Pay attention that state diagrams of Figures 49-16 an 82-16 are identical. Only state functions have differences due to the differences between XGMII/25GMII and 50GMII.</td>
</tr>
<tr>
<td>113</td>
<td>166</td>
<td>166.2.7</td>
<td>P86</td>
<td>L11</td>
<td>T</td>
<td>D</td>
<td>&quot;When the xMII and PMA sublayer data rates are not synchronized, the receive process inserts idles, deletes 5 idles, or deletes sequence ordered sets to adapt between rates.&quot; This is confuse. PMA recovers data and clock, which are provided to PCS. The xMII is source synchronous, so the clock is defined by the PCS. If different clock domains are used for each sublayer is a matter of implementation, nothing to do with interoperability. Rate matching is performed in the PCS transmit function. See 166.2.5.</td>
</tr>
<tr>
<td>114</td>
<td>166</td>
<td>166.2.7</td>
<td>P86</td>
<td>L19</td>
<td>E</td>
<td>D</td>
<td>Transmission Block</td>
</tr>
<tr>
<td>115</td>
<td>166</td>
<td>166.2.7.1</td>
<td>P86</td>
<td>L19</td>
<td>T</td>
<td>D</td>
<td>&quot;using the same polynomial&quot;. To be accurate, it is the same linear-feedback shift register, not just polynomial. Change to: &quot;using the same LFSR with same initialization value&quot;</td>
</tr>
</tbody>
</table>

Pérez - Aranda, Rubén
KDPOF

Proposed Response
Response Status W
PROPOSED ACCEPT IN PRINCIPLE. Use IEEE 802.3/D2.2 Figure 49-16 or Figure 82-16 as base for modification.
Cl 166 SC 166.2.7.2 P 86 L 27 # 116
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
"R_BLOCK_TYPE of the affected 65-bit blocks equal to /E/ is not valid value for R_BLOCK_TYPE, but E.

Suggested Remedy
Change to: "R_BLOCK_TYPE of the affected 65-bit blocks equal to E."

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 166 SC 166.2.7.3 P 86 L 33 # 117
Pérez - Aranda, Rubén KDPOF
Comment Type T Comment Status D Text improvement
Figure 166-17 does not specifies PHD sub-blocks concatenation to form a complete encoded PHD.

Suggested Remedy
Change paragraph to read: "The PCS receiver ordering shall separate from each RS-FEC message the group of 80 65-bit blocks and 20-bit encoded PHD sub-block as specified in Figure 166–17. The 36 20-bit encoded PHD sub-blocks that are in the same Transmit Block shall be concatenated to compose an encoded PHD."

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 166 SC 166.2.7.5 P 86 L 46,47 # 118
Pérez - Aranda, Rubén KDPOF
Comment Type E Comment Status D Text improvement
References to Table 166-14 should be replaced to references to two tables, when control codes for XGMII/25GMII and 50GMII are separated.

Suggested Remedy
Per comment. Check all the references to Table 166-14 in the text and change by two reference when control codes for XGMII/25GMII and 50GMII are separated.

Proposed Response Response Status W
PROPOSED ACCEPT.
Cl  166  SC  166.2.8.1.1  P 87  L 48  # 122
Pérez - Aranda, Rubén  KDPOF

Comment Type  E  Comment Status  D  Document layout
166.2.8.1.1 should be 166.2.8.2, 166.2.8.1.2 should be 166.2.8.3, 166.2.8.1.3 should be 166.2.8.4, therefore 166.2.8.2 will be 166.2.8.5.

SuggestedRemedy
Per comment.

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE. See #92

Cl  166  SC  166.2.7  P 84  L 37  # 123
Pérez - Aranda, Rubén  KDPOF

Comment Type  T  Comment Status  D  Text improvement
"including compliance with the associated state variables as specified in 166.2.8.1.1." Compliance should be with associated state functions and constants as well. However, compliance with variables, constants, counters and functions of a state diagram is implicit with being compliance with the state diagram itself.

SuggestedRemedy
Remove "including compliance with the associated state variables as specified in 166.2.8.1.1."

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl  166  SC  166.2.8.1.1  P 89  L 28  # 124
Pérez - Aranda, Rubén  KDPOF

Comment Type  T  Comment Status  D  Text improvement
The format for this vector is shown in Figure 166-14.

SuggestedRemedy
Replace with: "The format for this vector is shown in Figure 166-14 for 2.5GBASE-AU, 5GBASE-AU, 10GBASE-AU, and 25GBASE-AU PHYs, and Figure 166-15 for 50GBASE-AU PHY."

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl  166  SC  166.2.8.2  P 93  L 11  # 125
Pérez - Aranda, Rubén  KDPOF

Comment Type  T  Comment Status  D  Text improvement
The DECODE function shall decode the rx_block based on code specified in 166.2.5.4.

SuggestedRemedy
Change reference as: "The DECODE function shall decode the rx_block based on code specified in 166.2.5."

Proposed Response  Response Status  W
PROPOSED ACCEPT.
The PMA receive function comprises Transmit Block synchronization, clock recovery for sampling received symbols and adaptive channel equalization. It can be understood that equalization is obligatory. Equalization is up to the implementer, consistent with pg 94, line 4.

**Suggested Remedy**
Simplify this introductory paragraph to: "The PMA receive function comprises Transmit Block synchronization and the clock and data recovery from the signal received from the PMD receive function." Symbols are delimited by the clock recovery function in the PMA, which select the optimum sampling instants of time of the received signal. Therefore, I prefer to use the term "signal" instead of "symbol" for the information coming from PMD RX.

**Proposed Response**

PROPOSED ACCEPT.

---

where the received signal $y(n)$ is sampled by the PMA receive function with the recovered clock

**Suggested Remedy**
Change to: "where the received signal $y(n)$ is the result of sampling by the PMA receive function the signal produced by the PMD receive function"

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE. Replace with "where the received signal $y(n)$ is the result of sampling the signal produced by the PMD receive function"

---

**Proposed Response**

PROPOSED ACCEPT.

---

Upon receipt of this primitive the PMA performs clock recovery for correct time sampling of received symbols and adaptive channel equalization (see 166.3.2). Equalization is not mandatory. I suggest using more general wording. Specification for PMA receive function is referenced.

**Suggested Remedy**
Change to: "Upon receipt of this primitive the PMA performs clock and data recovery (see 166.3.2)."

**Proposed Response**

PROPOSED ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Commenter</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Proposed Response</th>
<th>Response Status</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>134</td>
<td>Pérez - Aranda, Rubén</td>
<td>T</td>
<td>D</td>
<td>In automotive applications, PMD signal detect function is used for implementation of wake-up / sleep functionality. For example, in ECU's integrating 1000BASE-RHC ports, reception of optical power over a threshold is used to wake up a full ECU from deep-sleep state where only few tens of micro-amperes are consumed from the battery.</td>
<td>Add at the end of line 4: “PMD_RXDETECT.indication(OK) may be used to wake up from deep sleep in a system that includes a BASE-AU PHY.” Add at the end of line 7: “PMD_RXDETECT.indication(FAIL) may be used to transition a system that includes a BASE-AU PHY into deep sleep.”</td>
<td>PROPOSED ACCEPT.</td>
<td>W</td>
</tr>
<tr>
<td>135</td>
<td>Pérez - Aranda, Rubén</td>
<td>E</td>
<td>D</td>
<td>BASE_U</td>
<td>should be: BASE-U</td>
<td>PROPOSED ACCEPT.</td>
<td>W</td>
</tr>
<tr>
<td>136</td>
<td>Pérez - Aranda, Rubén</td>
<td>T</td>
<td>D</td>
<td>Figure 166–3 shows</td>
<td>Reduce examples list. BASE-AU are targeted to automotive.</td>
<td>PROPOSED ACCEPT.</td>
<td>W</td>
</tr>
</tbody>
</table>

**Baseline proposal:** PHYs in the BASEA-AU set shall provide the management capabilities described in this clause and the functionality provided by the referenced Clause 45 registers and bits. The optional MDIO capability of Clause 45 describes several variables that provide control and status for and about the PHY. If the MDIO is not implemented, an implementation shall include the functionality provided by the specified MDIO registers. PHYs in the BASE-AU set use some generic control bits common with other IEEE 802.3 PHY types. PHY variables shall be mapped as shown in Table XXXX. PHYs in the BASE-AU set also use specific registers (1.72, 1.901, and 3.2330 through 3.2353). In addition to the normal operation capabilities specified elsewhere in this clause, test modes and loopback modes use these registers and bits to facilitate testing.” Copy Table 115-18, as BASE-AU variable mapping.

**Suggested Remedy:**

"PHYs in the BASEA-AU set shall provide the management capabilities described in this clause and the functionality provided by the referenced Clause 45 registers and bits. The optional MDIO capability of Clause 45 describes several variables that provide control and status for and about the PHY. If the MDIO is not implemented, an implementation shall include the functionality provided by the specified MDIO registers. PHYs in the BASE-AU set use some generic control bits common with other IEEE 802.3 PHY types. PHY variables shall be mapped as shown in Table XXXX. PHYs in the BASE-AU set also use specific registers (1.72, 1.901, and 3.2330 through 3.2353). In addition to the normal operation capabilities specified elsewhere in this clause, test modes and loopback modes use these registers and bits to facilitate testing.” Copy Table 115-18, as BASE-AU variable mapping.
Comment Type: T  Comment Status: D  Temperature grades

Temperature classes and nomenclature are not consistent with the ones used in the qualification of ICs in the automotive industry, i.e. AEC-Q100.

Suggested Remedy

Change “temperature classes” to “temperature grades” Change table content to be: Grade 0, -40ºC to +150ºC Grade 1, -40ºC to +125ºC Grade 2, -40ºC to +105ºC Grade 3, -40ºC to +85ºC Grade 4, 0ºC to +70ºC Temperatures are Ambient Operating Temperature Range. Ambient temperature refers to the ambient temperature inside the electronics computing unit (ECU) or equipment where a BASE-AU PHY is integrated.

Proposed Response  Response Status: W  PROPOSED ACCEPT.

Comment Type: T  Comment Status: D  LPI

No information is provided about PHY quality assessment in LPI operation.

Suggested Remedy

Change: “The noise variance at the symbol detector can be estimated either by measuring the Modulation Error Ratio (MER) at the decision points or measuring the ratio of symbols corrected by the RS-FEC decoder per CW.” to be: “In normal operation mode, the noise variance at the symbol detector can be estimated either by measuring the Modulation Error Ratio (MER) at the decision points or measuring the ratio of symbols corrected by the RS-FEC decoder per CW. In LPI mode, it can be estimated by measuring the MER or the corrected bits in the reception of the 12-time repeated 20-bit encoded PHD sub-block belonging to each LPI refresh codewords (see 166.4).”

Proposed Response  Response Status: W  PROPOSED ACCEPT.

Comment Type: E  Comment Status: D  Overspecification

“, also called data mode”This is versus training mode, however both modes are result of operation of 64B/65B encoding state diagram. Does not provide information and can produce confusion.

Suggested Remedy

remove it.

Proposed Response  Response Status: W  PROPOSED ACCEPT.
Cl 166 SC 166.3.4.3 P99 L 1 # 145
Pérez - Aranda, Rubén KDPOF

Comment Type T Comment Status D Text improvement

"The 65-bit blocks decoding function is stopped until the bidirectional link is re-established (link_status = OK)." I think decoding function is not really stopped, because it is generating LBLOCK_R as xMII transfers. I think this sentence can generate confusion and is not providing additional info not already stated.

Suggested Remedy
Remove it.

PROPOSED ACCEPT.

Cl 166 SC 166.3.5.1 P100 L 52 # 146
Pérez - Aranda, Rubén KDPOF

Comment Type T Comment Status D RFER
frame error ratio (RFER) is less than 5×10^-10.

Suggested Remedy
it should be less than 4.5×10^-10. Rubén Pérez-Aranda will do a contribution with maths behind the calculation.

PROPOSED ACCEPT IN PRINCIPLE. Presentation "perezaranda_3cz_01_220111_RFER.pdf" has been received for discussion.

Cl 166 SC 166.3.5.2 P101 L 43 # 147
Pérez - Aranda, Rubén KDPOF

Comment Type T Comment Status D Text improvement
log2(E[nd^2]) < T_LM. Comparison is not consistent with 166.3.5.4.

Suggested Remedy
Change to: log2(E[nd^2]) ≤ T_LM

PROPOSED ACCEPT.

Cl 166 SC 166.4.1 P103 L 48 # 148
Pérez - Aranda, Rubén KDPOF

Comment Type T Comment Status D LPI
Shall statement is not correct. According to 78.1.3.3.1, Fast wake refers to the mode for which the transmitter continues to transmit signals during Low Power Idle so that the receiver can resume operation with a shorter wake time (as shown in Figure 78–4). For transmit, other than the PCS encoding LPI, there is no difference between fast wake and normal operation. This is partially true for the LPI operation defined for BASE-AU PHYs. It is true that transmitter continues to transmit signals during Low Power Idle. However, it is not true that for transmit, other than the PCS encoding LPI, there is no difference between fast wake and normal operation, e.g. RS-FEC CW are replaced.

Suggested Remedy
Replace paragraph as (introductory w/o shall statements): A BASE-AU PHY that implements the optional EEE capability follows fast wake mode of LPI operation as specified in 78.1.3.3.1 in the sense the PHY transmitter remains transmitting signals during LPI (same symbol rate and modulation of normal mode). However, the data generated by the PCS sublayer is modified with respect to transparent LPI encoding of normal operation in order to allow power saving, robust OAM side communication channel and robust wake signal detection in the receiver.

PROPOSED ACCEPT.

Cl 166 SC 166.4.2 P104 L 52 # 149
Pérez - Aranda, Rubén KDPOF

Comment Type E Comment Status D Text improvement
LPI operation mode as specified in 166.5.

Suggested Remedy
should be: LPI operation mode as specified in 166.4.2.3.

PROPOSED ACCEPT.
Proposed Response

### Comment 155

**Comment ID**: 155  
**Page**: 27  
**TYPE**: TR/technical required  
**COMMENT STATUS**: D/dispatched  
**SORT ORDER**: Comment ID  

**Cl**: 166  
**SC**: 166.4.2.1  
**P**: 105  
**L**: 13  

**Perez - Aranda, Ruben**  
**KDPOF**  

**Comment Type**: T  
**Comment Status**: D  
**Text improvement**

*We shouldn't have shall statements doing reference to 78-4, which is not accurate reflecting the EEE operation of BASE-AU PHYs. On the other hand, I suggest to move this shall statement to 166.4.2.3, leaving 166.4.2.1 just for LPI refresh definition.*

**SuggestedRemedy**

*Remove lines 13,14 of page 105. In page 106, add following text after line 12: “The BASE-U PCS transmit function in LPI operation mode shall transmit LPI refresh codewords.”*

**Proposed Response**  
**Response Status**: W  
**PROPOSED ACCEPT.**
The PHY receive function shall

Suggested Remedy

should be: The PCS receive function. Same for page 108, lines 21, 25, 28.

Proposed Response

PROPOSED ACCEPT.

Redundant shall statement with previous one: “The PHY receive function in LPI operation mode shall detect whether the received LPI codeword is an LPI wake codeword.”

Suggested Remedy

Remove it.

Proposed Response

PROPOSED ACCEPT.

From each LPI codeword received, 12 repetitions of a 20-bit encoded PHD sub-block shall be collected. This shall statement imposes the use of the 12 repetitions to decode the 20-bit PHD sub-blocks, which is not consistent with adopted baseline. Number of repetitions to be used are implementation dependent.

Suggested Remedy

Replace with: “From each LPI codeword received, the 20-bit encoded PHD sub-block shall be decoded by majority voting using a number of repetitions equal or less than 11. Number of repetitions to be used is implementation dependent.” In Figure 166-32, replace “Detect LPI wake codeword and strip 12 repetitions of 20-bit encoded PHD sub-block” with “Detect LPI wake codeword and decode 20-bit encoded PHD sub-block.”

Proposed Response

PROPOSED ACCEPT.
Redundant shall statement with the one of line 18.
Suggested Remedy
Remove full sentence.
Proposed Response
PROPOSED ACCEPT.

Text improvement
Check full PCS spec and replace to use compact form and avoid the use of BASE-AU instead of BASE-U, in order to be consistent with other sections (PMA, EEE, ...).
Proposed Response
PROPOSED ACCEPT. Same as #132.

Text improvement
Check full PCS spec and replace to use compact form and avoid the use of BASE-AU instead of BASE-U, in order to be consistent with other sections (PMA, EEE, ...).
Proposed Response
PROPOSED ACCEPT.
Cl  30  SC  30.3.2.1.2  P  21  L  20  #  168
Grow, Robert  RMG Consulting / KDPOF
Comment Type  E  Comment Status  D  x P802.3 comment resolution
It appears that aPhyType is organized by speed in the first column, but not alphabetized, rather sorted within rate by clause number in the description column.
SuggestedRemedy
I've entered a comment on P802.3/D3.0, and we should track what  is done on sort order for various Clause 30 MIB items there. We may need to write new insert points for all of our Clause 30 inserts.
Proposed Response  Response Status  W  PROPOSED ACCEPT.

Cl  78  SC  78.1.4  P  45  L  16  #  169
Grow, Robert  RMG Consulting / KDPOF
Comment Type  E  Comment Status  D  x P802.3 comment resolution
This table doesn't have a consistent sort order beyond grouping by data rate.
SuggestedRemedy
I've entered a comment on P802.3/D3.0, and we should track what is done on that. We may need to write new insert points for our EEE PHY Types here and in Table 78-4.
Proposed Response  Response Status  W  PROPOSED ACCEPT.

Cl 105  SC  105.1.1  P  47  L  18  #  170
Grow, Robert  RMG Consulting / KDPOF
Comment Type  E  Comment Status  D  x Text improvement
Recommend rewriting to eliminate the list of PHY types as we did for Clause 44.
SuggestedRemedy
25 Gigabit Ethernet uses the IEEE 802.3 MAC sublayer, connected through a 25 Gigabit Media Independent Interface (25GMII) to [start underscore] one of a number of 25 Gb/s Physical Layers. [remainder of existing paragraph become strike-through].
Proposed Response  Response Status  W  PROPOSED ACCEPT.

Cl  44  SC  44.1.4.4  P  27  L  16  #  172
Grow, Robert  RMG Consulting / KDPOF
Comment Type  E  Comment Status  D  x P802.3 comment resolution
The sort order in data rate introduction clauses like this are inconsistent when listing the PHY Types at a given data rate or ordering sublayers in various delay constraint tables. Comments have been entered on P802.3/D3.0 about this, and we need to remain aware if there are any changes to establish a more global sort order for such tables. This could affect our changes to Clauses 44, 105, 125, and 131.
SuggestedRemedy
Monitor P802.3/D3.0 comment resolutions and update as required.
Proposed Response  Response Status  W  PROPOSED ACCEPT.

Cl 166  SC  166.6  P 109  L  24  #  173
Grow, Robert  RMG Consulting / KDPOF
Comment Type  T  Comment Status  D  x PMD baseline
We have only had one PMD proposal that addresses all of our rate/reach objectives. This proposal is the most complete proposal, it is consistent with our PAR project scope and with our CSD responses. It also is supported with testing, simulations and strong peer review.
SuggestedRemedy
Merge swanson_3cz_02c_030821_AUTO_MDI_Baseline.pdf into the draft.
Proposed Response  Response Status  W  PROPOSED ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Page 31 of 31</th>
</tr>
</thead>
</table>

### Comment 174

**Cl 1**  | **SC 1.5**  | **P 20**  | **L 24**  | # 174
---|---|---|---|---
Torres, Luisma | KDPOF

<table>
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<tr>
<th>Comment Type</th>
<th>Comment Status</th>
<th>LFSR</th>
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<tbody>
<tr>
<td>E</td>
<td>D</td>
<td>Add LFSR (used in 166.1.4 and 166.2.1) as abbreviation</td>
</tr>
</tbody>
</table>

#### Suggested Remedy
LFSR - Linear Feedback Shift Register

#### Proposed Response
PROPOSED ACCEPT.

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### Comment 175

**Cl 166A**  | **SC 166A**  | **P 119**  | **L 54**  | # 175
---|---|---|---|---
Torres, Luisma | KDPOF

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>T</td>
<td>D</td>
<td>BASE-U LFSR sequence missed for up to 25GBASE-U and for 50GBASE-U</td>
</tr>
</tbody>
</table>

#### Suggested Remedy
Add BASE-U LFSR sequence as approved in comment #82 of D1.0 comment resolution and presentation

#### Proposed Response
PROPOSED ACCEPT IN PRINCIPLE. A presentation including 50GBASE-U LFSR (perezaranda_3cz_02_220111_LFSR) has been received for discussion.

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### Comment 176

**Cl 166**  | **SC 166.1.4**  | **P 65**  | **L 36**  | # 176
---|---|---|---|---
Torres, Luisma | KDPOF

<table>
<thead>
<tr>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Text improvement</th>
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</thead>
<tbody>
<tr>
<td>E</td>
<td>D</td>
<td>Missing space between &quot;50GBASE-AU&quot; and &quot;over&quot;</td>
</tr>
</tbody>
</table>

#### Suggested Remedy
Add space

#### Proposed Response
PROPOSED ACCEPT.