Cl **0** *SC* *P* *L* # 113

Grow, Robert RMG Consulting

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

Editor can make a number of text, style manual and FrameMaker related improvements.

SuggestedRemedy

1. Add table of contents
2. Subclause reference format differs from base document. Change subclause references to Section format.
3. Search for "Section" and "Figure" update to proper cross reference.
4. Number equations.
5. Some large numbers are missing a non-breaking space as 1000s separator.
6. Review and remove obsolete Editor's Notes.
7. Re-enter some equations as large rather than medium (e.g., 114.2.3.4) to improve readability.
8. Search for .. and replace with : where possible (.. is not an 802.3 convention)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* *P* *L* # 112

Grow, Robert RMG Consulting

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

There are a few places in PICS where "clause title" has not been replaced

SuggestedRemedy

Search and replace with appropriate title

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 89

Grow, Robert RMG Consulting

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

Suclause reference format differs from base document.

SuggestedRemedy

The word Clause only appears in front of complete clauses, any subclause shouldn't have the word Clause. Use correct Cross reference format.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4** *P* **13** *L* **12** # 26

Pérez-Aranda, Rubén KDPOF

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

Some definitions related to the technologies adopted may be included in this subclause.

SuggestedRemedy

See attached gepof_definitions_v1.1.docx

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Some of these terms is added to Definitions, should also have acronym expansions in Clause 1.

Cl **114** *SC* *P* *L* # 102

Pérez-Aranda, Rubén KDPOF

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

Proposed text for additional subclause explaining the signals in interface between PCS and PMD

SuggestedRemedy

Proposed text is attached in gepof_interfacePMD_v1.0.docx

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **114** *SC* *P* *L* # 104

Pérez-Aranda, Rubén KDPOF

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

Proposed text for additional subclause for Delay Constraints

SuggestedRemedy

Proposed text is attached in gepof_delay_constraints_v1.0

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **114** *SC* **114** *P* **29** *L* **28** # 63

Pérez-Aranda, Rubén KDPOF

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

Baseband medium is not defined in Clause 114, therefore the title of the clause is not correct.

SuggestedRemedy

Eliminate: "and baseband medium"
The title should be:
"Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA) sublayer, type 1000BASE-H"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.1** *P* **29** *L* **34** # 27

Pérez-Aranda, Rubén KDPOF

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

Because the PCS and PMA is defined in Clause 114 independently of PMD, it seems that serveral PMD Clauses could be defined able to be attached to Clause 114.

SuggestedRemedy

A modification is suggested to clarify this topic:

"This PHY uses a Physical Coding Sublayer (PCS) and a Physical Medium Attachment (PMA) sublayer specified in this clause, which are common to a family of 1000 Mb/s PHY implementations with different Pysical Medium Dependent (PMD) sublayers. In particular, Clause 115 defines a PMD sublayer attacheable to the PCS and PMA sublayers defined in this clause."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The change would be appropriate when we define something other than -RH, but to refer to a family when there isn't one is not friendly to the reader.

Cl **114** *SC* **114.1** *P* **31** *L* **7** # 64

Pérez-Aranda, Rubén KDPOF

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

A functional block diagram should be inserted to aid to understand the relationship among the different parts composing the 1000BASE-H PHY: PCS, PMA, EEE, OAM, PMD, etc.

SuggestedRemedy

Insert new sub-clause:

114.1.5 Functional block diagram
Figure 114-3 provides a functional block diagram of the 1000BASE-H PHY.
< insert the figure included in the attached file gepof_functional_block_diagram_v1.0.pdf>

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.1.2** *P* **30** *L* **7** # 28

Pérez-Aranda, Rubén KDPOF

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

It may be indicated in Figure 114-1 which are the sublayers defined in Clause 114 (PCS and PMA), for example, with gray background.

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The title of Clause 114 properly indicates the which sublayer are defined.

Cl **114** *SC* **114.1.4** *P* **30** *L* **44** # 1

Pérez-Aranda, Rubén KDPOF

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

Figure 114-2 uses term driver for the transmiter side. Driver is a term more related to the implementation, and in fact it is part of the optical transmiter, composed by the driver and the light emitter photonics device (e.g. LED, laser, etc).

SuggestedRemedy

To replace driver by Optical Transmitter, and receiver by Optical Receiver in Figure 114-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2** *P* **31** *L* **11** # 65

Pérez-Aranda, Rubén KDPOF

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

The sentence: "The 1000BASE-H PCS couples a Gigabit Media Independent Interface (GMII), see Clause 35, to the Physical Medium Attachment (PMA) sublayer"

is not consistent with the rest of the Clause 114, because a PMA service interface is not defined and PMA does not perform any transformation of the symbols generated by PCS.

According to the suggested functional block diagram, the PCS is directly attached to the PMD.

SuggestedRemedy

Replace sentence by:
"The 1000BASE-H PCS couples a Gigabit Media Independent Interface (GMII), see Clause 35, to the Physical Medium Dependent (PMD) sublayer"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.1** *P* **31** *L* **28** # 32

Pérez-Aranda, Rubén KDPOF

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

The temporal order of each part composing the Transmit Block should be described in text, since the figure 114-3 is useful to help to understand, but it does not represent a formal definition of that.

SuggestedRemedy

The parts composing the Transmit Block are temporally ordered as:
S1, D_0, PHS_0, D_1,
S2_0, D_2, PHS_1, D_3,
S2_1, D_4, PHS_2, D_5,
S2_2, D_6, PHS_3, D_7,
S2_3, D_8, PHS_4, D_9,
S2_4, D_10,PHS_5, D_11,
S2_5, D_12,PHS_6, D_13,
S2_6, D_14,PHS_7, D_15,
S2_7, D_16,PHS_8, D_17,
S2_8, D_18,PHS_9, D_19,
S2_9, D_20,PHS_10,D_21,
S2_10,D_22,PHS_11,D_23,
S2_11,D_24,PHS_12,D_25,
S2_12,D_26,PHS_13,D_27

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Figures can be normative. It is suggested to simply add a "shall" to the first paragraph with edits to require continuous transmission of Transmit Blocks on an active link and that the Transmit Block shall be composed as illustrated in Figure 114-3.

Cl **114** *SC* **114.2.1** *P* **31** *L* **30** # 29

Pérez-Aranda, Rubén KDPOF

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

PHS_12 in Figure 114-3 is used indistinctly to refer to the sub-block composed by the real content that is part of the complete PHS and the preamble and postamble zeroes sequences, and to refer only to the content. The same for S2_12 and S1 that are indicated in the figure as example.
The term "content" should be used to indicate the content of sub-blocks not including the preamble and postamble to be consistent with the rest of text.
Repeated S2_1 in the left side of upper row of Fig 114-3. It should be S2_0.

SuggestedRemedy

To modify the figure following as example the figure attached in p802_3bv_D1.0_figures.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.1** *P* **31** *L* **46** # 107

Grow, Robert RMG Consulting

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

Figure 114-3
Zero being prepended to content of control subblocks is ambiguous. Data zeroes are not the same as an analog zero.

SuggestedRemedy

Describe better what the 16 symbols of zero actually are (e.g., 16 symbol times of 0 volts. If zero volts, it would be better if illustration in the Transmit Block figure was changed from a box to a line to highlight this.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Better description may be provided.
Symbols with value 0 does not mean 0 volts.

See comment #102 and attached file for proposed text for definition of interface between PCS and PMD.

See comment #68 and attached file for proposed text of PMD.

Clause 114 defines a PCS transmit function that generate symbols with a rate of 325 Msymbols/s. The symbols can take value from the interval [-256, 256). This interval, as it is defined in C/114, does not relates to any physical magnitude like volts, power, current, etc.

Clause 115 defines how the PMD transmit function translates the relative amplitude values of the symbols into optical signal, the optical signal fulfilling some specified parameters like ER, LOP, etc. Electrical levels of PMD service interface are not specified (TP1 is not specified).

Said this, symbols with value {0} translate to LOP by the PMD transmit function. Symbols with value -256 translate to P0 optical power and symbols that take ~+256 translate to P1 optical power, being ER=P1/P0.

Editor to incorporate this explanation with editorial licence for grammar and changes to meet IEEE style in C/115.

Cl **114** *SC* **114.2.1** *P* **45** *L* **15** # 105

Grow, Robert RMG Consulting

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

Figure 114-20
The switch in the feedback path makes some unstated assumptions about an open circuit.

SuggestedRemedy

Modify figure to replace switch with a mux and make clear what is the feedback data when generation is completed and result is shifted out.

Similar changes to Figure 114-9.

Update supporting text accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See comments #74 and #80.

Cl **114** *SC* **114.2.2** *P* **32** *L* **37** # 2

Pérez-Aranda, Rubén KDPOF

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

Pilots S1 and S2 are signals a priori known by the receiver. This property allows to receiver to implement symbol synchronization, timing recovery and equalizer adaptation.

SuggestedRemedy

Modify text as:
Pilots S1 and S2 are predefined signals transmitted in fixed allocatted time slots of the Transmit Block and intended to be used by the receiver for initialization and continuous tracking purposes based on data-aided signal processing.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.2** *P* **32** *L* **39** # 3

Pérez-Aranda, Rubén KDPOF

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

Pilot S1 signal is intended to be used by the receiver for both fast symbol synchronization and for timing recovery

SuggestedRemedy

To add timing recovery to the purpose of S1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.2.1** *P* **33** *L* **38** # 4

Pérez-Aranda, Rubén KDPOF

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

Names of variables that are explained in the text and that are used in the C-code provided below for the LFSR formal definition should be in italic style or other font, to improve understanding of the text.

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Proposed use of italics is inconsistent with 802.3 style for code.

Cl **114** *SC* **114.2.2.1** *P* **34** *L* **1** # 5

Pérez-Aranda, Rubén KDPOF

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

Distinguish between pilot S1 signal and pilot S1 sub-block by adding "content" where corresponds

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The paragraph is consistent with Figure 114-3 and definition in 114.2.2.1.

Cl **114** *SC* **114.2.2.2** *P* **34** *L* **10** # 31

Pérez-Aranda, Rubén KDPOF

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

Each S2 pilot sub-block is prepended and postpended ....
This is not really correct.

SuggestedRemedy

Each S2 pilot chunk is prepended and postpended by zero valued sequences of 16 symbols, thus obtaining the 160 symbols length S2 pilot sub-blocks.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Replace "sub-block" with "chunk".

Cl **114** *SC* **114.2.2.2** *P* **34** *L* **8** # 30

Pérez-Aranda, Rubén KDPOF

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

The pilot sub-block S2 consists of a pseudo-random sequence of 1664 256 PAM symbols ....
This senscence is not correct.
The pilot S2 consists of ....
The term sub-block is used to indicate each of the 13 chuncks including the preamble and postamble zero valued sequences.

SuggestedRemedy

See comment, and modify text to be consistent.
S2 pilot: 1664 symbols length sequence
S2 chunks: 128 symbols length
S2 pilot sub-block: the S2 chunk including pre and postamble.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace second sentence with: Pilot S2 sub-blocks contain a chunk from a pseudo-random sequence of 1664 256-PAM symbols. The 1664 symbols are divided into 13 chunks each of 128 symbols, and each chunk is prepended and postpended by a sequence of zero symbols to create an S2 pilot sub-block

Cl **114** *SC* **114.2.3** *P* **35** *L* **2** # 34

Pérez-Aranda, Rubén KDPOF

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

Each PHS sub-block is prepended and postpended ....
This is not really correct.

SuggestedRemedy

Each PHS chunk is prepended and postpended by zero valued sequences of 16 symbols, thus obtaining the 160 …

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Replace "sub-block" with "chunk".

Cl **114** *SC* **114.2.3.1** *P* **35** *L* **16** # 74

Pérez-Aranda, Rubén KDPOF

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

Figure 114-9 is not complete. The control signal to mux that enable disable the feedback of LFSR is not indicated. The text description from line 12 to 15 does not agree with figure.

SuggestedRemedy

The 704 PHD bits are then used to compute the CRC-16 with the mux configured to CRCgen setting. After the 704 bits have been serially processed, the mux is configured to CRCout setting and the 16 stored values are the CRC-16. CRC-16 is transmitted in order from S15 to S0.
Improved figure is attached in p802_3bv_D1.0_figures.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.3.3** *P* **36** *L* **1** # 33

Pérez-Aranda, Rubén KDPOF

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

The number of parity bits is p = 176 bits.
Indicate variable p, because it is used in G(x) equation.
In Equation G(x), eliminate last parathesis.

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.3.3** *P* **36** *L* **6** # 6

Pérez-Aranda, Rubén KDPOF

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

The G(x) coefficients are by:

SuggestedRemedy

The G(x) coefficients are by hexadecimal number:

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE. The G(x) coefficients are given by the hexadecimal number:

Cl **114** *SC* **114.2.3.4** *P* **36** *L* **45** # 35

Pérez-Aranda, Rubén KDPOF

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

Figure 114-11. Incorrect sequence of symbols provided as example at the output BPSK 2-PAM modulator.

SuggestedRemedy

To correct figure with the correct sequence:
-x0,x0,-x1,x1,-x2,x2,-x3,x3,-x4,x4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.3.4** *P* **36** *L* **51** # 7

Pérez-Aranda, Rubén KDPOF

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

PHS is the Physical Header Sub-frame composed by the symbols stream generated after encoding process of the PHD (Physical Header Data) and which is split in 14 PHS sub-blocks (PHS_x in text and figures).

I think it is clear in text.

SuggestedRemedy

Clear editor's note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4** *P* **37** *L* **10** # 36

Pérez-Aranda, Rubén KDPOF

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

Parenthesis for see Clause 114.2.4.1 are missed.

Line 11: the bits from PCS encoding are not really mapped to 16-PAM; after scrambling, the bits are encoded by a Multilevel Coset Code that generates symbols mapped onto a 16-PAM constellation. There are FEC and mapping combined in the same process that cannot be separated.

Line 15: cross reference is needed to 114.2.1, where it explained that the Transmit Block consists of 28 payload sub-blocks

SuggestedRemedy

Line 11: ... are encoded by a Multilevel Coset Code that generates symbols mapped onto a 16-PAM constellation (see Clause 114.2.4.3)

Line 15: add reference.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Eliminate the reference to 114.2.4.1, because it is reducntant with reference to Figure 114-12, later.

Replace "mapped to" with "encoded by a Multilevel Coset Code that generates symbols mapped onto"

Extra reference in line 15 is not needed.

Cl **114** *SC* **114.2.4** *P* **37** *L* **11** # 38

Pérez-Aranda, Rubén KDPOF

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

The term "PCS encoding" is used, but it has not been introduced and is not consistent with the Figure 114-12 and the title of Clause 114.2.4.1.

SuggestedRemedy

Replace all "PCS encoding" by "GMII data stream encapsulation"
Replace all "64B/65B PCS encoding" by "64B/65B encoding"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The box is data stream encapsulation, the text is intended to reference the boxes in the figure, use consistent name. Editor to search document for "PCS encoding" and replace with data stream encapsulation or "64B/65B encoding" as appropriate (the former in reference to the box, the latter when refering to what the box is doing.

Cl **114** *SC* **114.2.4** *P* **37** *L* **19** # 37

Pérez-Aranda, Rubén KDPOF

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

The text from line 19 to 25 is already repeated in 114.2.4.2.
114.2.4.2 is the right section to describe scrambler details.

SuggestedRemedy

Eliminate text from of lines 19 to 25 related to scrambler details

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.1** *P* **37** *L* **39** # 69

Pérez-Aranda, Rubén KDPOF

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

It is not indicated how is the interface with the next data processing block (binary scrambler). It is important to indicate that the interface between Encapsulation and Scrambler is a binary serial stream, because the scrambler is not aware about 65-bit units, operating bit by bit.

SuggestedRemedy

Proposed text:
"This encapsulation uses a 64B/65B encoding, with the output result being a stream of 65-bit data units, called Physical Data Blocks (PDB), which are serially transmitted to the binary scrambler at bit-rate of 65/64·1000 = 1015.625 Mbits/s"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
With minor gramatical and IEEE style improvement:
This encapsulation uses a 64B/65B encoding, with the output being a stream of 65-bit data units, called Physical Data Blocks (PDB), which are serially transmitted to the binary scrambler at a bit rate of 65/64·1000 = 1015.625 Mb/s.

Cl **114** *SC* **114.2.4.1** *P* **37** *L* **40** # 75

Pérez-Aranda, Rubén KDPOF

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

The GMII data stream encapsulation described in 114.2.4.1 does not replace any part of the Ethernet preamble or SFD, and it is GMII to GMII transparent for Ethernet packets (from the first byte of the preamble to the last byte of FCS).
Therefore, using the term "Ethernet packet" is more correct than using "Ethernet frame", since in reality, the 64B/65B encoding performs encapsulation of the whole Ethernet packet, but not only of the Ethernet frame.

SuggestedRemedy

Replace "frame" by "packet". Also in line 41.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The 1000BASE-H encapsulation is of the GMII data stream, including interframe (more than packets). Yes, 1000BASE-H preserves preamble, but that is not end-to-end transmission. With a possible end-to-end path covering multiple links, preamble can be modified depending on the PHY types used (e.g., 1000BASE-X does not preserve all preamble bytes). Therefore, the statement being about end-to-end should only refer to frames.

Cl **114** *SC* **114.2.4.1.1** *P* **37** *L* **48** # 8

Pérez-Aranda, Rubén KDPOF

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

"to indicate to delimit"

SuggestedRemedy

Eliminate "to indicate"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.1.1** *P* **37** *L* **53** # 9

Pérez-Aranda, Rubén KDPOF

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

TXD <7:0>, TX_EN and TX_ER, compose each GMII word.
Size of the word is not indicated.

SuggestedRemedy

TXD <7:0>, TX_EN and TX_ER, compose each GMII 10-bit word.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
It is unnecesary for understanding. Simple math left to the reader.

Cl **114** *SC* **114.2.4.1.1** *P* **38** *L* **11** # 11

Pérez-Aranda, Rubén KDPOF

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

Type and TYPE are used indistinctly.
Several parts of the text.

SuggestedRemedy

To use "Type" always.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to search and replace TYPE with "Type" where appropriate (when refering to the first bit of a PDB).

Cl **114** *SC* **114.2.4.1.1** *P* **38** *L* **3** # 10

Pérez-Aranda, Rubén KDPOF

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

I miss a reference to Figure 114-14.

SuggestedRemedy

Reference to Figure 114-14 after "... Type bit is set to 1 and PDB.CTRL is generated".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The reference to the figure a bit later in the text is sufficient.

Cl **114** *SC* **114.2.4.1.1** *P* **38** *L* **41** # 39

Pérez-Aranda, Rubén KDPOF

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

Although bit ordering for each field of CB is formaly indicated in C/114.2.4.1.2, the text should be improved.

SuggestedRemedy

At the beginning of line 41, replace by: "CTRL<1:0> (CB<7:6>)"
Line 44, replace by: "OFS<2:0> (CB<5:3>)"
Line 47, replace by: "LEN<2:0> (CB<2:0>)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.1.1** *P* **40** *L* **4** # 12

Pérez-Aranda, Rubén KDPOF

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

OFS in the right side of Figure 114-15 does not make sense.

SuggestedRemedy

Eliminate OFS of the right side.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.1.1** *P* **40** *L* **46** # 76

Pérez-Aranda, Rubén KDPOF

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

Equation is not correct

SuggestedRemedy

Replace equation by that in the attached file p802_3bv_D1.0_equations.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.1.2** *P* **41** *L* **4** # 114

Grow, Robert RMG Consulting

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

PCS 64B/65B encoding formal definition might be better as an annex

SuggestedRemedy

Create normative Annex and move content

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Cl **114** *SC* **114.2.4.2** *P* **42** *L* **27** # 13

Pérez-Aranda, Rubén KDPOF

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

typo: "format definition"

SuggestedRemedy

Replace by "formal definition"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3** *P* **42** *L* **44** # 14

Pérez-Aranda, Rubén KDPOF

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

"After encapsulation of the GMII data stream and scrambling it is mapped into 16-PAM symbols"

It is important to note that the process is not only consisting of mapping, but parity addition and coset partitioning is also included. The MLCC that is used is a "coded modulation". Channel coding and modulation are unseparable parts of the same thing. The term "mapping" is something that typically does not include any information addition like parity and only translates bits at input to symbols at output without generating extra information.

SuggestedRemedy

Replace the term "mapped" by "encoded"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3** *P* **42** *L* **50** # 40

Pérez-Aranda, Rubén KDPOF

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

The term MLCC is used but it was not previously introduced and is not related to the terms used in the previous paragraph.

SuggestedRemedy

Modify line 45 to relate MLCC with two-level coser coding, that are concepts not related before:
"In particular, a Multilevel Coset Coding (MLCC) of two levels based on ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3** *P* **43** *L* **10** # 41

Pérez-Aranda, Rubén KDPOF

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

Figure 114-18: the superscript tau of upper case lambda (used to indicate lattice transformations) should be "t" to be in coherence with text and equations later described.

SuggestedRemedy

Replace in figure "tau" by "t"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3** *P* **43** *L* **39** # 77

Pérez-Aranda, Rubén KDPOF

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

Equations for number of bits per 1D symbol and spectral efficincy are not correct.

Line 39: equation uses nb that is not defined. It has to use n_b (subscript)
Line 43: equation is a copy of previous one.

General, limits of summation should be nearer to upper case sigma symbol.

SuggestedRemedy

Replace equation by that in the attached file p802_3bv_D1.0_equations.pdf
The summation limits could be in line with sumation symbol (upper case sigma) as it indicated in attached document, to avoid overlapping with text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.1** *P* **43** *L* **53** # 15

Pérez-Aranda, Rubén KDPOF

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

Reference to Figure 114-19 not included

SuggestedRemedy

Add reference to Figure 114-19

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.1** *P* **44** *L* **14** # 42

Pérez-Aranda, Rubén KDPOF

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

Reference to a figure 3 that does not exist.

SuggestedRemedy

Replace by a reference to Figure 114-19.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.1** *P* **44** *L* **19** # 16

Pérez-Aranda, Rubén KDPOF

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

Figure 114-19: nb,demux(2)=3 bits is indicated, but not nb,demux(1)=4. I think both or none.

SuggestedRemedy

To eliminate nb,demux(2)=3 of the figure.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.2** *P* **44** *L* **42** # 43

Pérez-Aranda, Rubén KDPOF

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

Number 9 inserted without meaning.
g(i) can only take values 0 or 1.

SuggestedRemedy

To eliminate 9.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Remove 9 and period.

Cl **114** *SC* **114.2.4.3.2** *P* **44** *L* **45** # 17

Pérez-Aranda, Rubén KDPOF

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

Typo error in polynomial: "COC4 484A..."

SuggestedRemedy

Replace by C0C4.
The second hexa digit should be ZERO, no upper case letter "O".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.2** *P* **44** *L* **48** # 78

Pérez-Aranda, Rubén KDPOF

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

The equation is not correct; parenthesis order.
In addition, the equation should be inserted after line 41, where G(x) is introduced, instead of line 48.

SuggestedRemedy

Replace equation by that in the attached file p802_3bv_D1.0_equations.pdf.
Move upwards the equation. Inline or separated line

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.2** *P* **44** *L* **52** # 79

Pérez-Aranda, Rubén KDPOF

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

- k, n and p have not been introduced before. k_c, n_c and p_c were introduced, and they should be used in equations. "_" indicates subscript.

- Equations for M(x), S(x) and C(x) should add an ellipsis between the quadratic term of the polynomial and the highest order term, since in general terms in between will exist.
Also affects to pg. 52, where M(x), S(x) and C(x) are involved.

SuggestedRemedy

Replace k with k_c, n with n_c and p with p_c.
Add ellipsis to polynomials M(x), S(x) and C(x).
E.g. M(x) = m_0 + m_1*x + m_2*x^2 + ... + m_(k-1)*x^(k-1)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.2** *P* **45** *L* **8** # 80

Pérez-Aranda, Rubén KDPOF

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

Text and Figure 114-20 describing the BCH encoder should be improved.
In Figure 114-20, the feedback values g(i)·x^i are undefined when switch is connected to position BCHout.

SuggestedRemedy

Suggested text:
"The delay elements s_0, s_1, ..., s_p-1 shall be initialized to zero before encoding. All the k bits composing the information message are used to calculate the parity and enter the BCH encoder in the same order provided by the MLCC demultiplexer with the muxes indicated in Figure 114-20 connected with BCHgen setting. After all the k bits have been serially processed, the muxes are configured to BCHout setting and the p stored values s_0, s_1, ..., s_p-1 are the parity bits. The parity bits are then transmitted in the order from s_p-1 to s_0"

Improved figure is attached in p802_3bv_D1.0_figures.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.3** *P* **46** *L* **53** # 81

Pérez-Aranda, Rubén KDPOF

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

Equations for Gray to Bin converter are not correct.

SuggestedRemedy

Replace equations by those in the attached file p802_3bv_D1.0_equations.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.3** *P* **47** *L* **6** # 18

Pérez-Aranda, Rubén KDPOF

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

"... more significant bit (MSB) ..."

SuggestedRemedy

Replace by "most significant bit (MSB)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.4** *P* **48** *L* **26** # 44

Pérez-Aranda, Rubén KDPOF

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

Lattice transformation indicated in Figure 114-18 is lambda_1^t(l), but not lambda_1,1^t(l).
Please, note that lambda_1^t(l) is composed by the concatenation of two operations, lambda_1,1^t(l) and lambda_1,2^t(l).
In Figure 114-18 the complete operation lambda_1^t(l) is indicated.

SuggestedRemedy

Replace lambda_1,1^t(l) with lambda_1^t(l).
At the end of line 26, eliminate "./"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.4** *P* **48** *L* **39** # 47

Pérez-Aranda, Rubén KDPOF

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

C is used to indicate the field of complex numbers. It should be indicated that x is a complex number and C indicates the field of complex numbers just after the equation.

SuggestedRemedy

See comments.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add at the beginning of line 42:
"where C indicates the the field of complex numbers."

Later is explained that x is considered a complex number for the definition of the lattice transformations, therefore no more information is considered to be added here.

Cl **114** *SC* **114.2.4.3.4** *P* **48** *L* **48** # 82

Pérez-Aranda, Rubén KDPOF

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

Equation of lattice transformation is not correct.
The summation is superscript of 2 and parenthesis of last superscript are not correct.

SuggestedRemedy

Replace equation by that in the attached file p802_3bv_D1.0_equations.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.4** *P* **49** *L* **11** # 45

Pérez-Aranda, Rubén KDPOF

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

Bad reference to Figure 8

SuggestedRemedy

Replace by reference to Figure 114-24

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.4** *P* **49** *L* **4** # 106

Grow, Robert RMG Consulting

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

Unreadable inline equation.

SuggestedRemedy

Enter in FrameMaker

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.3.4** *P* **49** *L* **7** # 83

Pérez-Aranda, Rubén KDPOF

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

Equation is not correct.

SuggestedRemedy

Replace equation by that in the attached file p802_3bv_D1.0_equations.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.4** *P* **50** *L* **1** # 46

Pérez-Aranda, Rubén KDPOF

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

114.2.4.4 should 114.2.4.3.5, because Lattice addition belongs to Coded 16-PAM
Because the same reason:
114.2.4.5 should be 114.2.4.3.6
114.2.4.6 should be 114.2.4.3.7
and
114.2.4.7 should be 114.2.4.4

SuggestedRemedy

See comment and change labeling of sections.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.5** *P* **50** *L* **45** # 84

Pérez-Aranda, Rubén KDPOF

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

Equation is not correct.

SuggestedRemedy

Replace equation by that in the attached file p802_3bv_D1.0_equations.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.5** *P* **51** *L* **21** # 85

Pérez-Aranda, Rubén KDPOF

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

Reference to Figure 114-24 is not valid, it should be Figure 114-28.
Also equation Y=mod(X, 2^ceil(psi)-1) is not correct.

SuggestedRemedy

Replace referece to figure as indicated in comment.
Replace equation by Y=mod(X, 2^ceil(psi)) (eliminate the term -1).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete, Figure 114-24 shows, begin the sentence with The and add a verb.

Cl **114** *SC* **114.2.4.7** *P* **53** *L* **18** # 86

Pérez-Aranda, Rubén KDPOF

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

Figure 114-31 is not correct.
u(m) is the signal in the input of modulo operation.
v signal has to add to output of multiplier, but not substract.

SuggestedRemedy

Improved figure is attached in p802_3bv_D1.0_figures.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.8** *P* **53** *L* **33** # 48

Pérez-Aranda, Rubén KDPOF

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

"The coefficients of the finite-impulse response (FIR) feedback filter b(i) are dynamically adapted using the PMD"

SuggestedRemedy

Replace PMD by PHD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.2.4.8** *P* **53** *L* **45** # 87

Pérez-Aranda, Rubén KDPOF

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

Equation is not correct. Replace v(m) by y(m).
It should be indicated that M takes the value of 16 in the text.
This is because the symbols that are precoded belongs to a constellation 16-PAM, taking values {-15, -13, ... +13, +15}.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Equation will be corrected.

Add after bunch of equations:
"M = 16 because the symbols at the input of THP belongs to a constellation 16-PAM that takes values in the set {-15, -13, ... +13, +15}" with granting editorial license to editor for grammatical improvement.

Cl **114** *SC* **114.3** *P* *L* # 101

Pérez-Aranda, Rubén KDPOF

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

The term "state machine" is used instead of "state diagram"

SuggestedRemedy

Replace "state machine" with "state diagram" in all the text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3** *P* **54** *L* **23** # 49

Pérez-Aranda, Rubén KDPOF

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

Organization of the clause 114.3 may be improved to be more clear.
Also some modifications for titles of the sub-clauses are suggested.

SuggestedRemedy

114.3 - Physical Medium Attachment (PMA)
114.3.1 - Physical Header Data (PHD)
114.3.2 - PMA control state diagrams description
114.3.2.1 - PHY RX control state diagram
114.3.2.2 - PHY TX control state diagram
114.3.2.3 - Link monitor state diagram
114.3.2.4 - PHD monitor state diagrams
114.3.2.5 - Adaptive THP protocol
114.3.2.5.1 - Adaptive THP TX state diagram
114.3.2.5.2 - Adaptive THP REQ state diagram
114.3.2.6 - PHY quality monitor state diagram
114.3.2.7 - PMA control state variables
(This sub-clause should include the definition of all the state variables, so only one sub-clause is devoted to that.)
114.3.3 - Fixed-point format formal definition
114.4 - Test modes
(all test modes under the same sub-clause)
114.5 - Operations, Administration, and Maintenance (OAM) channel
114.6 - Energy Efficient Ethernet (EEE)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accept modification of sub-clauses titles and organization.

It is 802.3 practice to put all the variables used in a state diagram next to the state diagram, not lump them together.

Cl **114** *SC* **114.3** *P* **54** *L* **27** # 19

Pérez-Aranda, Rubén KDPOF

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

The sentence "The PHD sub-blocks support reliable exchange of information to optimize link operation" is redundant with the next sentence about PHS and may produce confusion. Moreover, PHS sub-blocks are defined in 114.2.3 but not PHD sub-blocks.

SuggestedRemedy

Replace by:
"PHD information is encoded into the Physical Header Subframe (PHS) as defined in 114.2.3. The PHS is transmitted periodically once per Transmit Block split in 14 PHS sub-blocks and the modulation and ...."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The PHS isn't transmitted periodically, chunks of it are.
Suggested:
"PHD information is encoded into the PHS as defined in 114.2.3. The PHS is transmitted once per Transmit Block. The PHS is divided into 14 chunks, each chunk being conveyed in a PHSx sub-block. The modulation and .."

Cl **114** *SC* **114.3** *P* **55** *L* **52** # 57

Pérez-Aranda, Rubén KDPOF

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

The titles of figures do not agree with the text.

SuggestedRemedy

Figure 114-33 - PHY RX control state diagram
Figure 114-34 - PHY TX control state diagram
Figure 114-35 - Link monitor state diagram
Figure 114-36 - Local PHD reception monitor state diagram
Figure 114-37 - Remote PHD reception monitor state diagram
Figure 114-38 - PHD monitor state diagram
Figure 114-39 - Adaptive THP TX state diagram
Figure 114-40 - Adaptive THP REQ state diagram
FIgure 114-41 - PHY quality monitor state diagram

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.1** *P* **56** *L* **13** # 50

Pérez-Aranda, Rubén KDPOF

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

Bad references in table 114-2.
- pg 56, line 13: replace 114.3.2 by 114.3.2.2
- pg 56, line 18: replace 114.3.1 by 114.2.4.1.1
- pg 56, line 21: replace 114.3.1 by 114.3.2.2

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.1** *P* **56** *L* **29** # 51

Pérez-Aranda, Rubén KDPOF

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

The description of some fiels of Table 114-2 is not coherent with PMA structure
PMA receive function is not defined in 114.3. The funcionality is actually performed by the PCS.

SuggestedRemedy

Pg 56, line 29, replace by: "Indicates whether local PHY is able to ..."
Pg 56, line 35, replace by: "The local PHY shall use this field of received PHD to determine ..."
Pg 56, line 40, replace by: "Indicates whether local PHY is able to ..."
Pg 56, line 45, replace by: "The local PHY shall use this field of received PHD to determine ..."
Pg 57, line 10, replace by: The local PHY shall use this field of received PHD to determine ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.1.1** *P* **58** *L* **24** # 52

Pérez-Aranda, Rubén KDPOF

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

PMA receive function is not defined at all.

SuggestedRemedy

Pg 58, line 24, replace "PMA Receive function" by "PHY receiver operation"
Pg 58, line 25, replace "PMA Receive function" by "PHY receiver"
Pg 58, line 35, replace "PMA Receive function" by "PHY receiver"
Pg 58, line 39, replace "PMA Receive function" by "PHY receiver"
Pg 58, line 45, replace "PMA Receive function" by "PHY receiver"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.1.2** *P* **59** *L* **11** # 54

Pérez-Aranda, Rubén KDPOF

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

PMA transmit function is not defined at all.

SuggestedRemedy

Pg 59, line 11, replace "PMA Transmit function" by "PHY transmitter operation"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.1.2** *P* **59** *L* **13** # 55

Pérez-Aranda, Rubén KDPOF

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

Line 13, bad reference to [1]
Line 17, bad reference to 114.3.1
Line 22, bad reference to Section 3.1.5

SuggestedRemedy

Line 13, replace by 114.2.1.
Line 17, replace by 114.2.4.1.1
Line 22, replace by 114.3.2.1.5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.1.2** *P* **59** *L* **5** # 53

Pérez-Aranda, Rubén KDPOF

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

Bad reference to section 3.1.5.

SuggestedRemedy

Replace by 114.3.2.1.5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.1.3** *P* **59** *L* **31** # 56

Pérez-Aranda, Rubén KDPOF

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

Bad reference to section 3.3

SuggestedRemedy

Replace by Clause 114.3.2.3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Should be simply 114.3.2.3.

Cl **114** *SC* **114.3.2.1.5** *P* **64** *L* **30** # 58

Pérez-Aranda, Rubén KDPOF

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

Several PMA functions are indicated in state variables description, but these functions, although described as functionalities before, they are not defined as concrete functions. Text should be improved.

SuggestedRemedy

Pg 64, line 31, eliminate "It is set by the PMA reset"
Pg 64, line 46, replace "PMA Clock Recovery function" by "PHY clock recovery function"
Pg 64, line 53, replace "PMA Clock Recovery function" by "PHY clock recovery function"
Pg 65, line 6, replace "PMA Receive function" by "PHY quality monitor state machine"
Pg 65, line 13, replace "the PCS Receive function" by "the reception of PHD"
Pg 65, line 14, replace bad reference to Section 2 by Clause 114.3.1
Pg 65, line 20, replace "PMA Link Monitor function ..." by "link monitor state machine and used by PMA TX and RX state machines to enable the 64B/65B PCS encoder and decoder, respctively" (eliminate "passed to PCS via the ...", because this primitive is not defined at all)
Pg 65, line 28, replace "PMA Receive function" by "local PHD reception monitor state machine"
Pg 65, line 35, replace "PCS Receive function" by "remote PHD reception monitor state machine"
Pg 65, line 36, replace bad reference to Section 2 by Clause 114.3.1
Pg 65, line 42, replace "PMA Receive function" by "PHD monitor state machine"
Pg 65, line 49, replace "PCS Receive function" by "PHY receiver"
Pg 66, line 2, replace "PMA PHY Control function" by "adaptive THP REQ state machine"
Pg 66, line 3, replace "PMA Receive function" by "PHY"
Pg 66, line 4, replace "PMA PHY Control function" by "adaptive THP REQ state machine"
Pg 66, line 10, replace "PMA PHY Control function" by "PHY RX state machine"
Pg 66, line 17, replace "PMA PHY Control function" by "PHY TX state machine"
Pg 66, line 26, replace "PMA and PCS" by "PHY", same for line 28

In general, indentation of variables description and values that can take would help to follow the text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.2** *P* **66** *L* **49** # 59

Pérez-Aranda, Rubén KDPOF

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

PMA receive function is not defined.

SuggestedRemedy

Pg 66, line 49, replace "PMA receive function" by "PHY", the same for line 50.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.2** *P* **67** *L* **1** # 70

Pérez-Aranda, Rubén KDPOF

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

FFF also compensate the cursor of inter-symbol interference produced by the channel.

SuggestedRemedy

Replace by: "FFF compensates the cursor and pre-cursor ISI and whitens the noise ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.2** *P* **67** *L* **24** # 20

Pérez-Aranda, Rubén KDPOF

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

Replace sections by clauses

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See comment #89.

Cl **114** *SC* **114.3.2.2.2** *P* **68** *L* **35** # 21

Pérez-Aranda, Rubén KDPOF

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

Condition for transition is not complete

SuggestedRemedy

Replace by:
"new_rxphd_event = TRUE * hdr_crc16_status = OK * REMPHD.TX.NEXT.THP.SETID = thp_setid"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.2.2** *P* **68** *L* **38** # 71

Pérez-Aranda, Rubén KDPOF

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

Actually the PHY receiver is not receiving payload data sub-blocks TH precoded, but it shall receive them starting in the next received Transmit Block, since the REMPHD carries information announcing the mode of the next Transmit Block

SuggestedRemedy

Proposed text (change tense):
"The local PHY receiver shall receive payload data sub-blocks TH precoded with the requested coefficients starting from the next Transmit Block received from link partner"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Granting editorial license to editor for gramatical improvements.

Cl **114** *SC* **114.3.2.2.3** *P* **70** *L* **31** # 60

Pérez-Aranda, Rubén KDPOF

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

Several PMA/PCS functions are indicated in state variables description, but these functions, although described as functionalities before, they are not defined as concrete functions. Text should be improved.

SuggestedRemedy

Pg 70, line 31, replace "PCS Transmit function" by "PHY transmitter"
Pg 70, line 36, replcae "transmitter block" by "Transmit Block"
Pg 70, line 41, replace "PMA PHY Control function" by "adaptive THP TX state machine"
Pg 70, line 41, replace "PMA Transmit function" by "PHY transmitter"
Pg 70, line 47, replace "PCS Receive function" by "reception of PHD"
Pg 70, line 50, replace bad reference 2 by Clause 114.3.1 or eliminate it.
Pg 71, line 1, replace "PCS Receive function" by "reception of PHD"
Pg 71, line 3, replace bad reference 2 by Clause 114.3.1 or eliminate it.
Pg 71, line 9, replace "PMA PHY Control" by "Adaptive THP REQ state machine"
Pg 71, line 15, replace "PMA PHY Control" by "Adaptive THP REQ state machine"
Pg 71, line 29, replace "PMA Receive function" by "PHY receiver"
Pg 71, line 36, replace "PMA Receive function" by "PHY receiver"

In general, indentation of variables description and values that can take would help to follow the text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.3** *P* **71** *L* **48** # 22

Pérez-Aranda, Rubén KDPOF

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

It is the first time the term "detector" is used and may be no clear.

SuggestedRemedy

I suggest to replace by "MLCC decoder"
Also for Pg 72, lines 1, 7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.3** *P* **72** *L* **10** # 88

Pérez-Aranda, Rubén KDPOF

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

Equation for link margin (LM) definition is not correct

SuggestedRemedy

Elminate parenthesis around (LM =)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.3** *P* **72** *L* **26** # 23

Pérez-Aranda, Rubén KDPOF

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

Threshold value S is not defined. This is a typo

SuggestedRemedy

Replace by upper case sigma.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.2.3.1** *P* **73** *L* **39** # 61

Pérez-Aranda, Rubén KDPOF

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

PMA Receive function is indicated in state variables description, but this function, although described as functionality before, it is not defined as concrete function.
Text should be improved.

SuggestedRemedy

Replace "PMA Receive function" by "PHY receiver"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.3.4** *P* **74** *L* **27** # 67

Pérez-Aranda, Rubén KDPOF

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

Propose text for Test modes

SuggestedRemedy

Proposed text is attached in gepof_test_modes_v1.0.docx

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **114** *SC* **114.4** *P* **74** *L* **32** # 66

Pérez-Aranda, Rubén KDPOF

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

Propose text for OAM sub-clause

SuggestedRemedy

Proposed text is attached in gepof_oam_channel_v1.2.docx

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **114** *SC* **114.5** *P* **74** *L* **37** # 103

Pérez-Aranda, Rubén KDPOF

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

Improved proposed text for EEE.

SuggestedRemedy

Proposed text is attached in gepof_energy_efficient_ethernet_v1.2.docx

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **114** *SC* **114.5** *P* **74** *L* **39** # 72

Pérez-Aranda, Rubén KDPOF

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

Actually auto-negotiation functionality is not defined, therefore this term should not be used.

SuggestedRemedy

Eliminate "through auto-negotiation".

In line 41, after first point, add: "It is required that the two link partners indicate PHD.CAP.LPI = 1 to enable bidirectional EEE functionality. PHD.CAP.LPI = 1 advertising indicates to link partner that the local PHY can generate Transmit Blocks according to LPI operation and it is able to accept Transmit Blocks from link partner conformed according to LPI operation."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

It should be rewritten to include a "shall" rather than "it is required"

Cl **114** *SC* **114.5** *P* **75** *L* **28** # 73

Pérez-Aranda, Rubén KDPOF

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

The PMD service interface should defined in Clause 115 (PMD). Actually, the service interface primitives here defined are a requirement for any PMD attached to a 1000BASE-H PMA.

Line 46. The term "timing" is too generic and can produce confusion.

SuggestedRemedy

Modify wording:
"Since special control signaling is required to implement LPI mode, any PMD attached to a 1000BASE-H PMA shall provide the following service interface primitives:"

Eliminate reference to Figure 114-43 in pg 75, line 29, and the figure itself in pg 76. This figure should be included in any PMD clause suitable to be attached to 1000BASE-H.

Pg 75, line 46. Eliminate the sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5** *P* **75** *L* **34** # 62

Pérez-Aranda, Rubén KDPOF

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

PMA Transmit and Receive functions are not defined, however they are referenced.

SuggestedRemedy

Line 34, replace "PMA" by "PCS"
Line 38, replace "PMA" by "PCS"
Line 40, replace "PMA" by "PCS"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5.1** *P* **76** *L* **18** # 24

Pérez-Aranda, Rubén KDPOF

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

Reference to Table 114-1 does not provide enough information.

SuggestedRemedy

To replace reference to Table 114-1 by Clause 114.2.4.1

Proposed Response *Response Status* **W**

PROPOSED REJECT.

I favor the table reference as it is more specific to the point, what Assert_LPI is. If the reader doesn't understand how or where that encoding fits, they are free to read the information describing the table. The reference to the entire subclause is insufficient to find what the point of including the reference in the sentence was (the four values).

Cl **114** *SC* **114.5.3** *P* **77** *L* **25** # 90

Grow, Robert RMG Consulting

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

The two tables belong in Clause 78 changes as inserts to existing tables. The paragraph also needs to be edited. Additionally, we need to list 1000BASE-RH in Table 78-1.

SuggestedRemedy

Change the paragraph at line 25 to read: Additional LPI timing parameters for 1000BASE-RH are defined in Clause 78. Note that the 24.82 usec in Table 78-4 is the time needed to transmit a pilot or physical header sub-block and a payload data sub-block.

In clause 78:

Insert new row below into Table 78-1 after 1000BASE-KX:

<Table 78-1 title>
PHY or interface type Clause
1000BASE-RH 114, 115

Insert new 1000BASE-RH row below into Table 78-2 after 1000BASE-KX:

<what is now Table 114-3>, with table title of Table 78-2>

Insert new 1000BASE-RH row below into Table 78-4 below 1000BASE-KX:

<what is now Table 114-4, with table title of Table 78-4>

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5.3** *P* **77** *L* **7** # 25

Pérez-Aranda, Rubén KDPOF

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

Tables 114-3 and 114-4 are rows to be included within the corresponding tables of clause 78 and they should not be included in this clause.

SuggestedRemedy

Move tables to the correponding rows of tables of Clause 78.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See comment #90.

Cl **114** *SC* **114.6** *P* **78** *L* **1** # 91

Grow, Robert RMG Consulting

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

Editor needs to generate a PICs based on occurance of shalls contained in the clause text.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115** *P* **81** *L* **1** # 68

Pérez-Aranda, Rubén KDPOF

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

Propose text for PMD type 1000BASE-RH

SuggestedRemedy

Proposed text is attached in gepof_pmd_sublayer_v1.6.docx

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **115** *SC* **115.12** *P* **86** *L* **19** # 92

Grow, Robert — RMG Consulting

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

Editor needs to generate a PICs based on occurance of shalls contained in the clause text after new text is added.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.2.2** *P* **82** *L* **15** # 96

Satoshi Takahashi — POF promotion

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

Micro-pigtail or lens shall be optional, not mandatory.

SuggestedRemedy

Delete "Micro-pigtail / lens"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.2.2** *P* **82** *L* **33** # 98

Satoshi Takahashi — POF promotion

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

(Table 115-1, 3rd line, 2nd row).

SuggestedRemedy

Change "85C" to "85 C"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to "85 ºC"

Cl **115** *SC* **115.2.2** *P* **82** *L* **33** # 97

Satoshi Takahashi — POF promotion

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

Lowest ambient temperature for Type B shall be -40 C.(Table 115-1, 2nd line, 2nd row)

SuggestedRemedy

Change "-45" to "-40"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.2.2** *P* **82** *L* **34** # 99

Satoshi Takahashi — POF promotion

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

(Table 115-1, 3rd line, 3rd row)

SuggestedRemedy

Change "4inline" to "4 inline", "0inline" to "0 inline".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "4inline" with "4 inline"
Replace "0inline" with "no inline"

Cl **30** *SC* *P* *L* # 93

Grow, Robert — RMG Consulting

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

aSymbolError during Carrier.
Make sure assertion of RX_ER for other than TX_ER conveyed across the interface is counted. If that can't be done, the 1000 Mb/s BEHAVIOUR needs to be modified.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* *P* *L* # 111

Grow, Robert RMG Consulting

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

Clause 30 may need updates based on content adopted for Clause 45 management.

SuggestedRemedy

Authorize the editor to produce changes to Clause 30 as appropriate for adopted Clause 45 content.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **35** *SC* **35.1.1** *P* *L* # 94

Grow, Robert RMG Consulting

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

Does item g) need to be modified for us?

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Commenter did not provide a suggested remedy.

Cl **45** *SC* *P* *L* # 110

Grow, Robert RMG Consulting

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

A number of registers need to be defined for 1000BASE-RH. We can follow 1000BASE-KX and define control and status registers for the PHY, or use the generic capabilities of 1.0 and 1.1 which seem to fulfill all PMA/PMD needs.

SuggestedRemedy

If separate registers are desired, change Table 45-3 for PMA/PMD GEPOF register(s), recommend 1.158 for control, 1.159 for status.

If generic registers are used, then in 45.2.1.2.3, Register/bit 1.1.7 define what GEPOF detailed faults this bit is based on.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Separated registers are preferred because the use of generic registers impose the definition of some funcionalities related to some bits that may not make sense for 1000BASE-RH. That is a forced implementation of MDIO registers.

Separated registers for PMA/PMD MMD in the reserved space 1.1809 to 1.32767 is also an option that does not limit 1000BASE-RH to only 2 registers in a contiguous space. Moreover, same address space may be used for PCS MMD, that is, 3.1809 to 3.32767, allowing a simpler implementation of the PHY.

Cl **45** *SC* *P* **23** *L* **1** # 100

Pérez-Aranda, Rubén KDPOF

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

Propose text for Clause 45

SuggestedRemedy

Proposed text is attached in gepof_management_mdio_v1.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Editor to incorporate with editorial licence for grammar and changes to meet IEEE style.

Cl **45** *SC* **45.2.1.1.4** *P* *L* # 108

Grow, Robert RMG Consulting

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

Local and remote loopback are not described in Clause 114. Should PMA/PMD loopback be supported and if so should it be mandatory? Recommend mandatory local and remote loopback.

SuggestedRemedy

If remote loopback is supported, a reference to the definition should be added to 45.2.1.1.4. And it should be defined in Clause 114.

If local loopback is mandatory, Clause 45 bit 1.0.0 controls the function and 1000BASE-H should be added to the port type list in 45.2.1.1.5, if optional, no change to 45.2.1.1.5 is necessary. If either mandatory or optional, local loopback should be defined in Clause 114.

If not supported, 1000BASE-H non-support should be added to both of the above sub-clauses.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See comment #110.

See comment #100 and attached file. Two types of local loopbacks are defined. Line loopback is also defined, that is similar to remote loopback. The difference is that the defined line loopback is defined at PCS level by connection of the PCS decoder output to PCS encoder input. Remote loopback at PMD level does not make sense since no any signal recovery is implemented by the PMD receive function.

Cl **45** *SC* **45.5** *P* *L* # 109

Grow, Robert RMG Consulting

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

Editor needs to generate PICs changes based on occurance of shalls contained in the clause text after new text is added.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* *P* *L* # 95

Grow, Robert RMG Consulting

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

Need to list 1000BASE-RH in this table

SuggestedRemedy

Insert new row into Table 78-1 below 1000BASE-T (below 1000BASE-T1 if it is approved currently or before this project):

1000BASE-RH 114, 115

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.