Cl **FM** *SC* **FM** *P* **1** *L* **11** # I-7

Grow, Robert KDPOF,RMG Consulting

Comment Type **G** *Comment Status* **D** *Title*

When looking at the title in a large font it is really too long. We should work with staff to come up with an acceptable title that is in compliance with IEEE SA rules (within the scope of the PAR) but shorter. A modified version could also be adapted for P802.3dh.

The document title occurs on: title page, the boxed paragraph of the front matter introduction on page 10, and internal title on page 21. All should be consistent, either exactly matching the PAR Title, or within the scope as required by SASB Ops Man, 4.2.3.2.

SuggestedRemedy

One possible alternate amendment title is: "Physical Layer Specifications and Management Parameters for Multi-Gigabit Automotive Ethernet Using Glass Optical fiber". Another alternative is: "Physical Layer Specifications and Management Parameters for Multi-Gigabit Glass Fiber Optical Automotive Ethernet" (closer to P802.3cy title structure)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change " Physical Layer Specifications and Management Parameters for Multi-Gigabit Optical Ethernet Using Graded-Index Glass
Optical Fiber for Application in the Automotive Environmet"
to: "Physical Layer Specifications and Management Parameters for Multi-Gigabit Glass Fiber Optical Automotive Ethernet"

Cl **FM** *SC* **FM** *P* **1** *L* **31** # I-6

Grow, Robert KDPOF,RMG Consulting

Comment Type **E** *Comment Status* **D** *PAR synch*

Minor grammar problem that could be fixed when updating paragraph for the next draft.

SuggestedRemedy

Change "add a new Physical Layer specifications" to "add new Physical Layer specifications".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #i-109 response as copied below:

Change "The purpose of the amendment is to add a new Physical Layer specifications and Management Parameters for"
to
"This amendment adds Physical Layer specifications and management parameters for"

Cl **FM** *SC* **FM** *P* **1** *L* **31** # I-16

Wienckowski, Natalie General Motors Company

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

cs, db, ck, and de were approved based on emails sent by IEEE Standards on 9/22/22.

SuggestedRemedy

Change: 802.3cs-202X, IEEE Std 802.3db-202X, IEEE Std 802.3ck-202X, IEEE Std 802.3de-202X
To: 802.3cs-2022, IEEE Std 802.3db-2022, IEEE Std 802.3ck-2022, IEEE Std 802.3de-2022

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **32** # I-109

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *PAR synch*

This says "The purpose of the amendment is to add a new Physical Layer specifications and Management Parameters for" and on the next page the abstract says "This amendment to IEEE Std 802.3-2022 adds physical layer specifications and management parameters for". 802.3db says "This amendment adds Physical Layer specifications and management parameters for", 802.3ck says "This amendment includes Physical Layer specifications and management parameters for"

SuggestedRemedy

Simplify and follow house style, align with self-description on page 12. Remove capitals from "Management Parameters". e.g. "This amendment adds Physical Layer specifications and management parameters for"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The purpose of the amendment is to add a new Physical Layer specifications and Management Parameters for"
to
"This amendment adds Physical Layer specifications and management parameters for"

Cl **FM** *SC* **FM** *P* **1** *L* **33** # I-12

Torres, Luis Knowledge Development for Plastic Optical Fiber

Comment Type **E** *Comment Status* **D** *PAR synch*

The draft document description should include the type of fiber specified in PAR.

SuggestedRemedy

Add "using graded-index glass optical fiber" after "Automotive Ethernet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **33** # I-110

Dawe, Piers J G NVIDIA

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

"Optical Automotive Ethernet" but this is not a proper name

SuggestedRemedy

Change to "optical automotive Ethernet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **2** *L* **1** # I-111

Dawe, Piers J G NVIDIA

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

physical layer

SuggestedRemedy

Physical Layer (as at line 5 and page 12)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **2** *L* **2** # I-13

Torres, Luis Knowledge Development for Plastic Optical Fiber

Comment Type **E** *Comment Status* **D** *PAR synch*

The abstract should include the type of fiber specified in PAR.

SuggestedRemedy

Substitute "optical fiber" with "graded-index glass optical fiber"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change
"optical fiber for use in automotive applications"
to
"glass optical fiber in the automotive environment"
See #i-120

Cl **FM** *SC* **FM** *P* **2** *L* **6** # I-112

Dawe, Piers J G NVIDIA

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

Automotive Ethernet is not a proper name

SuggestedRemedy

Change to "automotive Ethernet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **7** *L* **12** # I-113

Dawe, Piers J G NVIDIA

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

This says "Multi-Gigabit Optical Automotive Ethernet PHY Task Force" while the header says "Multi-Gigabit Optical Automotive Ethernet Task Force"

SuggestedRemedy

Delete PHY, twice

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **10** *L* **3** # I-114

Dawe, Piers J G NVIDIA

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

Second sentence has no verb

SuggestedRemedy

Change "Standard for Ethernet. Amendment 7" to "Standard for Ethernet, Amendment 7"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **11** *L* **47** # I-8

Grow, Robert KDPOF,RMG Consulting

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

Note should be updated now that we are in SA ballot. "These descriptions will be updated by the P802.3cz TF editor for SA ballot to include latest text from the listed amendments. The list below reflects project timelines as of August 2022."

SuggestedRemedy

Suggest: If progress on projects running in parallel necessitates a change in the P802.3cz amendment number, the P802.3cz Editor will update the below list (Amendments 1 through 5 are approved).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "Publication editor will add/delete items from below list to only include amendments and corrigenda approved
prior to or at the same time as this amendment. The list below reflects project timelines as of August 2022."
to
"If progress on projects running in parallel necessitates a change in the P802.3cz amendment number, the P802.3cz Editor will update the below list (Amendments 1 through 5 are approved)."

Cl **FM** *SC* **FM** *P* **12** *L* **7** # I-17

Wienckowski, Natalie General Motors Company

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

cs was approved

SuggestedRemedy

Change: 802.3cs-202x To: 802.3cs-2022

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **14** # I-21

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Editorial scope*

The correct expansion of PMA is Physical Medium Attachment per 802.3-2022 1.5.

SuggestedRemedy

Change: Physical Media Attachment (PMA)
To: Physical Medium Attachment (PMA)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This Editor cannot make the required change as this is an introductory text that is not part of Amendment 7 (see Editor's note). (Commented text is taken from 802.3cs D3.4).

However, the suggested change will be made if approved by the WG Chair.

The comment has been communicated to the 802.3 WGAC so it can be corrected in 802.3cs and subsequent approved amendment publication preparation and draft amendments.

Cl **FM** *SC* **FM** *P* **12** *L* **18** # I-18

Wienckowski, Natalie General Motors Company

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

db was approved

SuggestedRemedy

Change: 802.3db-202x To: 802.3db-2022

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **24** # I-19

Wienckowski, Natalie General Motors Company

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

ck was approved

SuggestedRemedy

Change: 802.3ck-202x To: 802.3ck-2022

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **26** # I-23

Wienckowski, Natalie General Motors Company

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

The description of ck doesn't match D3.3 of P802.3ck as approved.

SuggestedRemedy

Change: This amendment to IEEE Std 802.3-2022 adds
To: This amendment includes changes to IEEE Std 802.3-2022 and adds

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **31** # I-20

Wienckowski, Natalie General Motors Company

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

de was approved

SuggestedRemedy

Change: 802.3de-202x To: 802.3de-2022

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **33** # I-22

Wienckowski, Natalie General Motors Company

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

The description of de doesn't match D3.1 of P802.3de as approved.

SuggestedRemedy

Change description to: Amendment 5 —This amendment includes changes to IEEE Std 802.3-202x to add 10 Mb/s Single-Pair Ethernet point-to-point PHYs to the PHYs supporting the MAC Merge function and the Time Synchronization Service Interface (TSSI).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **15** *L* **39** # I-115

Dawe, Piers J G NVIDIA

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

Missing tabs? Tabs don't provide enough space for 3-digit clauses?

SuggestedRemedy

Fix template?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Double-check TOC template. Adjust tab or add as necessary for 3-digit clause.

Cl **FM** *SC* **FM** *P* **21** *L* **4** # I-116

Dawe, Piers J G NVIDIA

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

Blank line

SuggestedRemedy

Remove

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **21** *L* **10** # I-117

Dawe, Piers J G NVIDIA

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

Man-
agement, Op-
tical Bad hyphenation. 802.3db and 802.3ck don't split "Management". These could be better hyphenated as Manage-
ment, Optic-
al, but better still not hyphenated. The very large text means that there is room for only about 42 characters per line, which is inconvenient with 10-character words.

SuggestedRemedy

Stop these words being split here. Ask staff to reduce this font size by about 10%

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to amendment title has been proposed in #i-1 and #i-7.

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

Laubach, Mark — Tibit Communications, Inc.

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

Extra "the"

SuggestedRemedy

Replace "the The" with "The"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* **0** *P* **21** *L* **0** # I-1

Turner, Michelle — Editorial Coordination

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

The title on page 21 and in the introduction box is different from what is cited on page 1.

SuggestedRemedy

It should be reconciled to match what is on page 1 as per the modified PAR.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: "Physical Layer Specifications and Management Parameters for Multi-Gigabit Optical Automotive Etherne
to "Physical Layer Specifications and Management Parameters for Multi-Gigabit Glass Fiber Optical Automotive Ethernet".

See #i-7 which addresses the impractical length of the title on the PAR and selecting a title consistent with 802.3 WG requirements.

Cl **1** *SC* **1.4** *P* **22** *L* **5** # I-9

Grow, Robert — KDPOF,RMG Consulting

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

I reviewed documents for base text (P802.3cx/D3.0 at date of comment) , and IMO this note can be updated.

SuggestedRemedy

The base text used to generate the editing instructions is IEEE Std 802.3-2022 as amended by IEEE Std 802.3dd-2022, IEEE Std 802.3cs-2022 (approved Draft 3.4, May 2022), IEEE Std 802.3db-2022 (approved Draft 3.2, July 2022), IEEE Std 802.3ck-2022 (approved Draft 3.3, June 2022), IEEE Std 802.3de-2022 (approved Draft 3.1, May 2022), and IEEE 802.3cx Draft 3.0 (July 2022).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.62a** *P* **22** *L* **15** # I-119

Dawe, Piers J G — NVIDIA

Comment Type **E** *Comment Status* **D** *Fulll duplex*

As 44.1.1 and 125.1.1 say, 2.5 Gigabit, 5 Gigabit and 10 Gigabit Ethernet are defined for full duplex mode of operation only. So no need to say it here; there are plenty of Physical Layer definitions that don't.

SuggestedRemedy

Delete "full duplex", four times.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Definitions should contain as much relevant information as possible.
i.e, the application of i.e. Annex 4A depends on the definition of these PHYs as full duplex.

Cl **1** *SC* **1.4.62a** *P* **22** *L* **15** # I-118

Dawe, Piers J G — NVIDIA

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

Phrase with adjectives and no noun

SuggestedRemedy

Change "for a 10 Gb/s Ethernet full duplex over" to "for a 10 Gb/s full duplex Ethernet over" or "for 10 Gb/s full duplex over".
Similarly in 1.4.95a, 1.4.116a and 1.4.165a.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.62a** *P* **22** *L* **17** # I-24

Wienckowski, Natalie — General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: multimode optical fiber for use in automotive applications.
To: multimode glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.95a** *P* **22** *L* **22** # I-25

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: multimode optical fiber for use in automotive applications.
To: multimode glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.116a** *P* **22** *L* **27** # I-26

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: multimode optical fiber for use in automotive applications.
To: multimode glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.165a** *P* **22** *L* **32** # I-27

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: multimode optical fiber for use in automotive applications.
To: multimode glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.178a** *P* **22** *L* **37** # I-28

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: multimode optical fiber for use in automotive applications.
To: multimode glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.204a** *P* **22** *L* **42** # I-29

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: operation over optical fiber in the automotive environment
To: operation over glass optical fiber in the automotive environment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.2** *P* **24** *L* **40** # I-30

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: Optical fiber PHY as specified in Clause 166.
To: Glass optical fiber PHY as specified in Clause 166.
Also P24L45, P24L49, P24L54, and P25L4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **44** *SC* **44.1.4.4** *P* **28** *L* **19** # I-31

Wienckowski, Natalie General Motors Company

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

typo in Editor's instruction

SuggestedRemedy

Change: 10BASE-AU PCS/PMA/PMD
To: 10GBASE-AU PCS/PMA/PMD

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **44** *SC* **44.1.4.4** *P* **28** *L* **43** # I-33

Wienckowski, Natalie General Motors Company

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

The paragraphs that define the different PHY types in Table 44-1 are in Clause order, not the order they appear in the table.

SuggestedRemedy

Change: Insert the following paragraph between paragraphs 3 and 4 in 44.1.4.4 as follows:
To: Insert the following paragraph between paragraphs 7 and 8 in 44.1.4.4 as follows:

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **44** *SC* **44.1.4.4** *P* **28** *L* **47** # I-120

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *PAR synch*

This could be better aligned to the project title in the PAR, which says "for application in the automotive environment". See similar comments to other "introduction to" clauses.

SuggestedRemedy

Change "for automotive applications" to "for application in the automotive environment" or possibly "in the automotive environment".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment".

Cl **44** *SC* **44.1.4.4** *P* **28** *L* **48** # I-32

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: transmission on optical fiber for automotive applications.
To: transmission on glass optical fiber for automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-120)

Cl **44** *SC* **44.3** *P* **29** *L* **3** # I-34

Wienckowski, Natalie General Motors Company

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

Only one new row is added.

SuggestedRemedy

Change: Insert new rows
To: Insert new row

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **44** *SC* **44.3** *P* **29** *L* **3** # I-10

Grow, Robert KDPOF,RMG Consulting

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

Grammar -- instruction says "rows" but only inserts one row.

SuggestedRemedy

Change "rows" to "row".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1** *P* **30** *L* **17** # I-35

Wienckowski, Natalie General Motors Company

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

Only one new row is added above each of the changed rows.

SuggestedRemedy

Change: and insert two new rows above each of them
To: and insert a new row above each of them
Alternatively, it could be changed to: and insert two new rows, one above each of the changed rows,

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "and insert two new rows above each of them"
To: "and insert a new row above each of them"

Cl **45** *SC* **45.2.1.158a.1** *P* **32** *L* **23** # I-36

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

When talking about the value of combinations of bits in a register, just the "01" stream is used. "0b" is not put before this. For an example, see 45.2.1.214.2.

SuggestedRemedy

Change 0b0000 to 0000
P32L24: Change 0b0001 to 0001
P32L24: Change 0b0010 to 0010
P32L25: Change 0b0011 to 0011
P32L26: Change 0b0100 to 0100

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.158a.1** *P* **32** *L* **27** # I-122

Dawe, Piers J G NVIDIA

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

modes of operation different of those advertised

SuggestedRemedy

modes of operation different to those advertised
or more simply,
modes of operation not advertised

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "modes of operation not advertised by register 1.72"

Cl **45** *SC* **45.2.1.158a.1** *P* **32** *L* **28** # I-37

Wienckowski, Natalie General Motors Company

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

awkward wording

SuggestedRemedy

Change: different of those advertised
To: different from those advertised

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "modes of operation not advertised by register 1.72"
See #i-122

Cl **45** *SC* **45.2.1.158a.1** *P* **33** *L* **22** # I-121

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **D** *Number writing*

There are very many bit-based registers in Clause 45 in the base document, and "0b" never appears there. It is clear from the descriptions and contexts that they are bits. "0b0000" is not well defined in 802.3 and not normal notation. b means 11 in hex, as in 115A.1 for example, same as B does. This is a 4-bit field as the text makes clear, so a 6-digit value makes no sense anyway.
These subclauses 45.2.1.158a BASE-AU PMA/PMD control register (1.901) and 45.2.1.158a.1 Type selection (1.901.3:0) should be precisely aligned to 45.2.1.158 BASE-H PMA/PMD control register (Register 1.900) and 45.2.1.158.1, Type selection (1.900.3:0). Similarly, 45.2.3.90.1 Operation mode (3.2348.15:13) should be precisely aligned to 45.2.3.53.1 Operation mode (3.518.15:13).

SuggestedRemedy

Change 0b0000 to 0000, 0b0001 to 0001, 0b000, to "binary 000", and so on to match the base document.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.88** *P* **34** *L* **14** # I-106

Martino, Kjersti Inneos

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

Missing 's'

SuggestedRemedy

its value changes with each new transmitted message

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.90.1** *P* **37** *L* **4** # I-38

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b000 to 000.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.90.2** *P* **37** *L* **10** # I-39

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b000 to 000

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.90.2** *P* **37** *L* **11** # I-40

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b000 to 000

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.91.12** *P* **39** *L* **38** # I-11

Rannow, R K Representing myself

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

Ambiguous and inconsistent termination used throughout the document. This is just one example:

When read as one, bit 3.2349.2 indicates both that the remote PHY has the EEE ability and that the EEE advertisement is enabled. When read as zero,

SuggestedRemedy

Check all instances and confirm consistency and remove ambiguity.

When read as a one, bit 3.2349.2 indicates that the remote PHY has the EEE ability and that the EEE advertisement is enabled. When read as a zero, ..

Multiple instances on inconsistency. Add "a" as necessary for consistency and correctness.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 39 line 18: Substitute "read as one" with "read as a one". Substitute "read as zero" with "read as a zero".
Page 39 line 30: Substitute "read as one" with "read as a one". Remove "both".
Page 39 line 31: Substitute "read as zero" with "read as a zero".
Page 39 line 38: Substitute "read as one" with "read as a one". Remove "both".
Page 39 line 39: Substitute "read as zero" with "read as a zero".
Page 39 line 44: Substitute "read as one" with "read as a one".
Page 39 line 45: Substitute "read as zero" with "read as a zero".
Page 40 line 3: Substitute "read as one" with "read as a one".
Page 40 line 4: Substitute "read as zero" with "read as a zero".

Cl **45** *SC* **45.5.3.6** *P* **43** *L* **25** # I-41

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b000 to 000

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.5.3.6** *P* **43** *L* **35** # I-42

Wienckowski, Natalie — General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b000 to 000

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **66** *SC* **66.4.1** *P* **103** *L* **40** # I-179

Mcclellan, Brett — Marvell Semiconductor, Inc.

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

The current definition of PHD.CAP.LPI does not preclude dynamic changing between 1 and 0. I don't believe this could actually work with dynamic changes while the link is up.

SuggestedRemedy

on page 103 line 40 insert the following text "The value of PHD.CAP.LPI shall not change."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The issue raised by the author of the comment is already covered by the current draft version.

In page 69, line 10:

"PHD.CAP.LPI is used by the PHY to advertise that Energy-Efficient Ethernet (EEE) is supported and that it is enabled."

In subclause 45.2.3.90.4 it is stated:

"Setting bit 3.2348.0 to one shall enable the advertisement of local PHY EEE ability (see 166.4). Setting bit 3.2348.0 to zero shall prevent establishment of EEE operation with the link partner. If the BASE-U PHY does not have EEE ability (bit 3.2349.0 = 0, see 45.2.3.91.14) setting bit 3.2348.0 has no effect. Changes in EEE advertisement enable value shall only take effect after a PMA reset (see 166.3.4.1). Bit 3.2348.0 has no specified default value."

Cl **78** *SC* **78.1.4** *P* **46** *L* **17** # I-123

Dawe, Piers J G — NVIDIA

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

"25GBASE-AU after 25GBASE-KR, and insert a row for 50GBASE-AU after 50GBASE-KR" but 25GBASE-CR is for 5 m, 25GBASE-T 30 m, 25GBASE-SR 100 m. Similarly, 50GBASE-CR for 3 m, 50GBASE-SR for 100 m. These AU PHYs are for 40 m.

SuggestedRemedy

Change "after 25GBASE-KR" to "after 25GBASE-CR" and "after 50GBASE-KR" to "after 50GBASE-CR". To make it easier to review and understand the amendment, include the unchanged row before and after each new row, and change "unchanged rows not shown" to "some unchanged rows not shown".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "after 25GBASE-KR" to "after 25GBASE-CR" and "after 50GBASE-KR" to "after 50GBASE-CR".
Include the unchanged row before and after each new row, and change "unchanged rows not shown" to "some unchanged rows not shown"

Cl **78** *SC* **78.5** *P* **46** *L* **49** # I-124

Dawe, Piers J G — NVIDIA

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

"25GBASE-AU after 25GBASE-KR, and insert a row for 50GBASE-AU after 50GBASE-KR" but 25GBASE-CR is for 5 m, 25GBASE-T 30 m. 50GBASE-KR and 50GBASE-CR do not appear in this table; this will be the first 50G PHY. These AU PHYs are for 40 m.

SuggestedRemedy

Change "after 25GBASE-KR" to "after 25GBASE-CR" and "after 50GBASE-KR" to "after 50GBASE-R fast wake". To make it easier to review and understand the amendment, include the unchanged row before and after each new row, and change "unchanged rows not shown" to "some unchanged rows not shown".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "after 25GBASE-KR" to "after 25GBASE-CR" and "after 50GBASE-KR" to "after 50GBASE-R fast wake".
Include the unchanged row before and after each new row, and change "unchanged rows not shown" to "some unchanged rows not shown".

Cl **105** *SC* **105.1.3** *P* **48** *L* **39** # I-125

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *PAR synch*

This could be better aligned to the project title in the PAR, which says "for application in the automotive environment". See similar comments to other "introduction to" clauses.

SuggestedRemedy

Change "for use in automotive applications" to "for application in the automotive environment" or possibly "for use in the automotive environment" or just "in the automotive environment".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-120, #i-48)

Cl **105** *SC* **105.1.3** *P* **48** *L* **40** # I-48

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications.
To: glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **105** *SC* **105.1.3** *P* **50** *L* **12** # I-47

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications
To: glass optical fiber for use in automotive applications

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **125** *SC* **125.1.3** *P* **54** *L* **26** # I-49

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications.
To: glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **125** *SC* **125.1.3** *P* **54** *L* **26** # I-126

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **X** *PAR synch*

This could be better aligned to the project title in the PAR, which says "for application in the automotive environment". See similar comments to other "introduction to" clauses.

SuggestedRemedy

Change "for use in automotive applications" to "for application in the automotive environment" or possibly "for use in the automotive environment" or just "in the automotive environment".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **125** *SC* **125.1.3** *P* **54** *L* **32** # I-50

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications.
To: glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **125** *SC* **125.1.4** *P* **56** *L* **14** # I-51

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications
To: glass optical fiber for use in automotive applications

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **125** *SC* **125.1.4** *P* **56** *L* **18** # I-52

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications
To: glass optical fiber for use in automotive applications

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **125** *SC* **125.3** *P* **57** *L* **40** # I-127

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *Simplification of lists*

As bit time and pause_quantum are are based on MAC bits, the table footnotes can be simplified.

SuggestedRemedy

Change "2.5GBASE-T, 2.5GBASE-X, 2.5GBASE-T1, and 2.5GBASE-AU" to "2.5 Gigabit Ethernet" twice; change "5GBASE-T, 5GBASE-R, 5GBASE-T1, and 5GBASE-AU" to "5 Gigabit Ethernet" twice.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **131** *SC* **131.1.3** *P* **59** *L* **7** # I-53

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications.
To: glass optical fiber for use in automotive applications.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **131** *SC* **131.1.3** *P* **59** *L* **7** # I-128

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **X** *PAR synch*

This could be better aligned to the project title in the PAR, which says "for application in the automotive environment". See similar comments to other "introduction to" clauses.

SuggestedRemedy

Change "for use in automotive applications" to "for application in the automotive environment" or possibly "for use in the automotive environment" or just "in the automotive environment".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **131** *SC* **131.1.3** *P* **59** *L* **11** # I-130

Dawe, Piers J G NVIDIA

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

"25GBASE-AU after 25GBASE-KR, and insert a row for 50GBASE-AU after 50GBASE-KR" but 25GBASE-CR is for 5 m, 25GBASE-T 30 m. 50GBASE-KR and 50GBASE-CR do not appear in this table; this will be the first 50G PHY. These AU PHYs are for 40 m.

SuggestedRemedy

Change "after 50GBASE-KR" to "after 50GBASE-CR". To make it easier to review and understand the amendment, include the unchanged row before and after each new row, and change "unchanged rows not shown" to "some unchanged rows not shown".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "after 50GBASE-KR" to "after 50GBASE-CR"
Include the unchanged row before and after each new row, and change "unchanged rows not shown" to "some unchanged rows not shown".

Cl **131** *SC* **131.1.3** *P* **59** *L* **21** # I-54

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *PAR synch*

P802.3cz split off P802.3dh. In doing this, the P802.3cz objectives were modified to specify glass optical fiber as plastic optical fiber is covered by dh.

SuggestedRemedy

Change: optical fiber for use in automotive applications
To: glass optical fiber for use in automotive applications

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **131** *SC* **131.1.3** *P* **59** *L* **21** # I-129

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **X** *PAR synch*

"Insert a row for 50GBASE-AU after 50GBASE-KR" but 50GBASE-CR is for 3 m, 50GBASE-SR for 100 m. These AU PHYs are for 40 m.

SuggestedRemedy

Change "for use in automotive applications" to "for application in the automotive environment", "for use in the automotive environment" or "in the automotive environment".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The comment seems to address a different issue in line 11 (Copy and paste problem from #i-130?)
The Editor assumes from the suggested remedy that the real comment is:
"This could be better aligned to the project title in the PAR, which says "for application in the automotive environment". See similar comments to other"

Change to "glass optical fiber in the automotive environment" (See #i-125)

Cl **131** *SC* **131.1.4** *P* **59** *L* **28** # I-56

Wienckowski, Natalie General Motors Company

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

Because the Editorial instruction is "insert" the new row and column should not have underlining.

SuggestedRemedy

Remove all underline in the table.
Alternatively, change the Editorial instruction to "change".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the editorial instruction to "Change Table 131-1 inserting a row for 50GBASE-AU after 50GBASE-CR as follows (some unchanged rows not shown)" (See #i-130)

Cl **131** *SC* **131.1.4** *P* **59** *L* **35** # I-55

Wienckowski, Natalie General Motors Company

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

formatting

SuggestedRemedy

The line weight in Table 131-3 is not consistent. The line below 50GBASE-AU should be the thinner line below the entire row.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **131** *SC* **131.4** *P* **60** *L* **34** # I-131

Dawe, Piers J G NVIDIA

Comment Type **TR** *Comment Status* **D** *50GBASE-AU delay increase*

The max PHY delay is 11,264 BT or 2.2 FEC blocks for the whole PHY, for all rates. At the highest rates, this is not reasonable for a range of implementations and not necessary. At the lowest rates, it could be tightened but this may not be necessary.
At 25G, this is 450.56 ns which is 40% of the allowance for 25GBASE-SR PCS and FEC with a similar FEC. At 50G, this is 225.28 ns which is 30% of the allowance for 50GBASE-SR PCS and FEC, again with a similar FEC. In both cases the allowance for this whole PHY is less than for those FECs alone.
The delay should allow for an FEC block (scales with MAC rate), some PMA and PMD functions (partially scale, much smaller) and FEC processing which relates to silicon process and FEC code, not MAC rate. This spec is asking for an aggressive design at 50G which is not necessary; the delay is significantly less than at 25G or slower anyway.

SuggestedRemedy

Increase the max PHY delay for 50GBASE_AU from 11264 BT, 22 PQ, 225.28 ns to 14848 BT, 29 PQ, 296.96 ns.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change Table 166-24 and Table 131-4 accordingly.

Cl **131** *SC* **131.4** *P* **60** *L* **38** # I-132

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *Simplification of lists*

A bit time and a pause_quantum are the same for 50GBASE-AU as for 50GBASE-R, and they would be the same for any other 50G Ethernet, as they are based on MAC bits.

SuggestedRemedy

Change "50GBASE-R" to "50 Gigabit Ethernet" (or "50GBASE") twice.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 60, line 38, footnote a: Change "50GBASE-R" with "50 Gigabit Ethernet".
Page 60, line 39, footnote a: Change "50GBASE-R" with "50 Gigabit Ethernet".

Cl **166** *SC* **166.5.4** *P* **109** *L* **52** # I-43

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b10101010010101010101101010101011011010
To: 1010101001010101010110101010101011011010.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.1** *P* **61** *L* **26** # I-134

Dawe, Piers J G NVIDIA

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

This can be shortened

SuggestedRemedy

Change "The 2.5GBASE-AU, 5GBASE-AU, 10GBASE-AU, 25GBASE-AU, and 50GBASE-AU PHYs" to "These PHYs" (or "These PHY types").

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The 2.5GBASE-AU, 5GBASE-AU, 10GBASE-AU, 25GBASE-AU, and 50GBASE-AU PHYs" to "These PHY types".

Cl **166** *SC* **166.1** *P* **61** *L* **28** # I-133

Dawe, Piers J G NVIDIA

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

as well as, repetition

SuggestedRemedy

Suggested change:
This clause defines the types 2.5GBASE-U, 5GBASE-U, 10GBASE-U, 25GBASE-U, and 50GBASE-U Physical Coding Sublayer (PCS) as well as the 2.5GBASE-U, 5GBASE-U, 10GBASE-U, 25GBASE-U, and 50GBASE-U Physical Medium Attachment (PMA) sublayers and the 2.5GBASE-AU, 5GBASE-AU, 10GBASE-AU, 25GBASE-AU, and 50GBASE-AU Physical Medium Dependent (PMD) sublayers.
This clause defines the Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA) sublayer and Physical Medium Dependent (PMD) sublayer types 2.5GBASE-U, 5GBASE-U, 10GBASE-U, 25GBASE-U, and 50GBASE-U.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "This clause defines the types 2.5GBASE-U, 5GBASE-U, 10GBASE-U, 25GBASE-U, and 50GBASE-U
Physical Coding Sublayer (PCS) as well as the 2.5GBASE-U, 5GBASE-U, 10GBASE-U, 25GBASE-U, and
50GBASE-U Physical Medium Attachment (PMA) sublayers and the 2.5GBASE-AU, 5GBASE-AU,
10GBASE-AU, 25GBASE-AU, and 50GBASE-AU Physical Medium Dependent (PMD) sublayers."
to
"This clause defines the Physical Coding Sublayer (PCS) and Physical Medium Attachment (PMA) types 2.5GBASE-U, 5GBASE-U, 10GBASE-U, 25GBASE-U, as well as Physical Medium Dependent (PMD) sublayer types 2.5GBASE-AU, 5GBASE-AU, 10GBASE-AU, 25GBASE-AU, and 50GBASE-AU ."

Cl **166** *SC* **166.1** *P* **61** *L* **37** # I-135

Dawe, Piers J G NVIDIA

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

This gave me the impression that this PHY can be powered down deep sleep style, which according to 78.1.4 is not the case. Compare the clearer text in 137.1:
50GBASE-KR, 100GBASE-KR2, and 200GBASE-KR4 PHYs with the optional Energy-Efficient Ethernet (EEE) fast wake capability may enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization (see Clause 78). The deep sleep mode of EEE is not supported.

SuggestedRemedy

Change "This clause also specifies an optional Energy-Efficient Ethernet (EEE) capability." to "This clause also specifies an optional Energy-Efficient Ethernet (EEE) fast wake capability." Add: "The deep sleep mode of EEE is not supported."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.1.1** *P* **62** *L* **22** # I-136

Dawe, Piers J G NVIDIA

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

m-bit binary - what? Adjectives but no noun

SuggestedRemedy

m-bit binary number?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "m-bit binary" to
"m-bit binary number"

Cl **166** *SC* **166.1.1** *P* **62** *L* **23** # I-137

Dawe, Piers J G NVIDIA

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

fixed-point rational - what? Adjectives but no noun

SuggestedRemedy

fixed-point number?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "rational" to "number"

Cl **166** *SC* **166.1.1** *P* **62** *L* **25** # I-4

Maguire, Valerie Copperopolis

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

Definitions are generally assumed to be "formal". Unless there's an "informal" definition, this adjective is redundant and potentially confusing. The phrase "definition is specified" is a little clunky, too.

SuggestedRemedy

Replace, "The fixed-point format formal definition is specified in 115.3.8." with "Fixed-point format is defined in 115.3.8."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.1.2** *P* **62** *L* **36** # I-138

Dawe, Piers J G NVIDIA

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

this Clause

SuggestedRemedy

this clause

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "this Clause" to "this clause".

Cl **166** *SC* **166.1.3** *P* **62** *L* **43** # I-139

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *Fulll duplex*

"Clause 4 Media Access Control (MAC) layer": call it IEEE 802.3 MAC sublayer? As these PHYs are full duplex, is the Annex 4A simplified full duplex MAC also suitable?

SuggestedRemedy

Suggest change "connect one Clause 4 Media Access Control (MAC) layer to the medium." to "connect one IEEE 802.3 Media Access Control (MAC) layer (see Clause 4 and Annex 4A) to the medium."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.1.4** *P* **63** *L* **37** # I-140

Dawe, Piers J G NVIDIA

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

composed by

SuggestedRemedy

composed of 8 places

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 63 line 37,
Page 63 line 38,
Page 66 line 46,
Page 66 line 51,
Page 71 line 34,
Page 125 line 6,
Page 144 line 15,
Page 144 line 20,

Change "by" to "of"

Cl **166** *SC* **166.1.4** *P* **63** *L* **37** # I-57

Wienckowski, Natalie General Motors Company

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

wording

SuggestedRemedy

Changed "composed by" to "composed of"
Also on P64L38, P66L46, P66L51.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See #i-140.

Cl **166** *SC* **166.1.4** *P* **64** *L* **5** # I-141

Dawe, Piers J G NVIDIA

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

The reader needs some idea what proportion of the channel is given over to OAM, yet the information to work it out is not privided until 166.2.1.

SuggestedRemedy

Change "The PHD" to "The 224-bit PHD". Change "a series of encoded PHD sub-blocks" to "a series of 20-bit encoded PHD sub-blocks".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.1.4** *P* **64** *L* **11** # I-142

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *Scrambler naming*

I would not call any scrambler "additive" because they rely on XOR gates which are multipliers. I think the point is that these are synchronous or side-stream scramblers, not self synchronous scramblers.

SuggestedRemedy

Change to the term which is typically used in the base document.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
"Additive scrambler" is also used in other parts of the base document. For example C/149. However, adjective additive does not add information to the specification so it may be removed.

Page 64 line 11

Remove "with an additive scrambler"

Page 64 line 14
Page 66 line 22
Page 75 line 36
Page 84 line 49
Page 88 line 31
Page 106 line 34
Page 107 line 22
Page 147 line 20,

Remove "additive"

Cl **166** *SC* **166.1.4** *P* **64** *L* **18** # I-58

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *State diagram*

wording - It doesn't make sense to say "PHD information reliability is checked by CRC calculation and, if it is correct, then it is fed to state diagrams." How do you feed a state diagram?

SuggestedRemedy

Change: PHD information reliability is
checked by CRC calculation and, if it is correct, then it is fed to state diagrams.
To: PHD information reliability is checked by CRC calculation, hdr_crc16_status, see 166.3.4.1, Figure 166-25, Figure 166-26, and Figure 166-27.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "PHD information reliability is
checked by CRC calculation and, if it is correct, then it is fed to state diagrams."
To: "PHD information reliability is
checked by CRC calculation and, if it is correct, it is used by the PCS sublayer."

Cl **166** *SC* **166.2** *P* **66** *L* # I-177

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *Interfaces definition*

There is no definition for PMA interfaces to the PCS.
Without a definition of these interfaces, this specification is technically incomplete.

SuggestedRemedy

Insert a new subclause 166.2.1 Technology Dependent Interface with definitions for PMA interfaces.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This PHY specification makes use of service interfaces where needed for technical completeness and interoperability.

Inclusion of a PMA interface is not necessary for an implementer to build a compliant and interoperable PHY implementation.

Note that 802.3cz does not specify Autonegotiation, and therefore primitives specified in other clauses to support this feature (i.e, Clause 97 and 98) are not needed.

Cl **166** *SC* **166.2** *P* **66** *L* **1** # I-176

Mcclellan, Brett — Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *Interfaces definition*

There is no definition for Technology Dependent Interfaces link_control and link_status which are used throughout Clause 166 without indicating where link_control comes from, or where link_status goes to.
Without a definition of these interfaces, this specification is technically incomplete.

SuggestedRemedy

Insert a new subclause 166.2.1 Technology Dependent Interface with definitions for link_control and link_status

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This PHY specification makes use of service interfaces where needed for technical completeness and interoperability.

Autonegotiation, and therefore primitives specified in other clauses to support this feature (i.e, Clause 97 and 98) are not needed.

link_control and link status are mapped in subclause 166.13 (Table 166-22) to MDIO register bits.

Cl **166** *SC* **166.2** *P* **66** *L* **1** # I-175

Mcclellan, Brett — Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *Interfaces definition*

This PHY specification lacks a definition of service primitives and interfaces between sublayers.
Without a definition of these interfaces, this specification is technically incomplete.

SuggestedRemedy

Insert a new subclause 166.2 2.5GBASE-AU,
5GBASE-AU, 10GBASE-AU, 25GBASE-AU, and 50GBASE-AU service primitives and interfaces.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This PHY specification makes use of service interfaces where needed for technical completeness and interoperability.

However, the three first paragraphs of the subclause 166.2.1 can be changed to mirror other BASE-R clauses.

Page 66 lines 5 to 7,

Change "The 2.5GBASE-AU, 5GBASE-AU, or 10GBASE-AU PCS couples a 10 Gigabit Media Independent Interface (XGMII), see Clause 46, to the 2.5GBASE-AU, 5GBASE-AU, or 10GBASE-AU Physical Medium Attachment (PMA) sublayer."
to
"The PCS service interface of 2.5GBASE-AU, 5GBASE-AU, or 10GBASE-AU is the 10 Gigabit Media Independent Interface (XGMII), which is defined in Clause 46. The 2.5GBASE-AU, 5GBASE-AU, or 10GBASE-AU PCS provides all services required by the XGMII and couple it to the 2.5GBASE-AU, 5GBASE-AU, or 10GBASE-AU Physical Medium Attachment (PMA) sublayer."

Page 66 lines 9 to 10,

Change "The 25GBASE-AU PCS couples a Media Independent Interface for 25 Gb/s operation (25GMII), see Clause
106, to the 25GBASE-AU PMA sublayer."
to
"The 25GBASE-AU PCS service interface is the Media Independent Interface for 25 Gb/s operation (25GMII), which is defined in Clause 106. The 25GBASE-AU PCS provides all services required by the 25GMII and couple it to the 25GBASE-AU PMA sublayer."

Page 66 lines 12 to 13,

Change "The 50GBASE-AU PCS couples a Media Independent Interface for 50 Gb/s operation (50GMII), see Clause
132, to the 50GBASE-AU PMA sublayer."

to: "The 50GBASE-AU PCS service interface is the Media Independent Interface for 50 Gb/s operation (50GMII), which is defined in Clause 132. The 50GBASE-AU PCS provides all services required by the 50GMII and couple it to the 50GBASE-AU PMA sublayer."

Cl **166** *SC* **166.2.1** *P* **67** *L* **16** # I-143

Dawe, Piers J G NVIDIA

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

a multiplicity - how many?

SuggestedRemedy

Delete "a multiplicity of"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.1** *P* **67** *L* **19** # I-44

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *Reset max time*

There is no definition of the PCS reset function. Without this, it can't be guaranteed that Objective #4: "Define optional startup procedure which enables the time from power_on=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms" can be met.

SuggestedRemedy

Insert new subclause before 166.2.2 called PCS Reset Function
PCS Reset initializes all PCS functions. The PCS Reset function shall be executed whenever one of the following conditions occur:
a)Power on (see 165.2.2.8.2).
b)The receipt of a request for reset from the management entity.
PCS Reset sets pcs_reset = TRUE while any of the above reset conditions hold true. All state diagrams take the open-ended pcs_reset branch upon execution of PCS Reset. The reference diagrams do not explicitly show the PCS Reset function.
The control and management interface shall be restored to operation within 10 ms from the setting of bit 3.0.15.
Add appropriate PICS (See Clause 149 PCT1 and PCT2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the shall statement (as proposed in #I-45) in page 98 line 51 (166.3.4.4 Link monitor state diagram):

"For a communication system composed of two connected link partners as shown in Figure 166-2, the time measured from the last unassertion of pma_reset or pcs_reset to OFF on either link partner, to the assertion of the link_status variable to OK on either link partner, shall be less than 25 ms."

Add PICS accordingly.

Page 82 line 37 already defines pcs_reset variable used in the state diagrams, and it covers conditions a) and b).

Cl **166** *SC* **166.2.2.1.1** *P* **67** *L* **35** # I-59

Wienckowski, Natalie General Motors Company

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

Periods are needed at the end of the sentences in the "Description" column as some cells contain more than one sentence, e.g. the one for PHD.RX.LINKSTATUS

SuggestedRemedy

Add periods at end of all cells in "Description" column in Table 166-2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.1.1** *P* **69** *L* **28** # I-144

Dawe, Piers J G NVIDIA

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

before the decoding of first RS-FEC codeword

SuggestedRemedy

before the decoding of first RS-FEC codeword
or
before decoding the first RS-FEC codeword
Also in PICS PCS4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 69, line 28,
Page 144, line 46,
Change "before the decoding of first RS-FEC codeword"
to
"before decoding the first RS-FEC codeword"

Cl **166** *SC* **166.2.2.1.3** *P* **69** *L* **49** # I-60

Wienckowski, Natalie General Motors Company

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

wording

SuggestedRemedy

Change: The 224 PHD bits from PHD Builder are followed with 16 cyclic redundancy check bits
To: The 224 PHD bits from the PHD Builder are followed by 16 cyclic redundancy check bits

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.1.5** *P* **70** *L* **36** # I-61

Wienckowski, Natalie General Motors Company

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

awkward wording

SuggestedRemedy

Change: The TRC encoder repeats three times each 20-bit sub-block.
To: The TRC encoder repeats each 20-bit sub-block three times.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.2** *P* **70** *L* **46** # I-145

Dawe, Piers J G NVIDIA

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

when link is established

SuggestedRemedy

when the link has been established
or
after the link has been established

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace "when link is established" with "when the link has been stablished"

Cl **166** *SC* **166.2.2.3** *P* **70** *L* **50** # I-146

Dawe, Piers J G NVIDIA

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

tx_group80x65B - as it's 65 bits, lower case b would avoid ambiguity

SuggestedRemedy

Change tx_group80x65B to tx_group80x65B (only 3 times)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 70 line 50,
Page 71 line 11,
Page 71 line 16,
Change "tx_group80x65B" to "tx_group80x65b"

Cl **166** *SC* **166.2.2.4** *P* **71** *L* **28** # I-147

Dawe, Piers J G NVIDIA

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

The CW consist of

SuggestedRemedy

The CW consists of

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.4** *P* **71** *L* **41** # I-148

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *FEC description improvement*

All inputs to an equation need to be defined; this is usually done with "where" and a list of definitions. There is text for alpha, the use of j defines itself, but there's nothing for x.

SuggestedRemedy

Say what x, the dummy variable, is.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Page 71 line 44,

Change "In Equation (166–1), , is a primitive element of the finite field defined by the primitive polynomial
0x409 = x10 + x3 + 1."
to
"In this specification of the RS-FEC encoder, (italic) x is used in general as the indeterminate variable of any polynomial in mathematical expressions. Polynomial operations will be used to specify the parity calculation carried out by the RS-FEC encoder. In Equation (166–1), (greek) alpha, is a primitive element of the finite Galois field GF(2^m), therefore (greek) alpha is the root of a primitive polynomial of degree m in GF(2). The primitive polynomial is x^10 +x^3 +1."

Cl **166** *SC* **166.2.2.4** *P* **71** *L* **44** # I-149

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *FEC description improvement*

"alpha is a primitive element of the finite field" - means?

SuggestedRemedy

Please explain. And see next comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See #i-148

Cl **166** *SC* **166.2.2.4** *P* **71** *L* **45** # I-150

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *FEC description improvement*

Please advertise the information provided.

SuggestedRemedy

Cross-reference Table 166-3 from here, or move the table and its introductory sentence to here.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Move Table 166-3 and its introductory sentence to page 71 line 45.

Cl **166** *SC* **166.2.2.4** *P* **72** *L* **31** # I-151

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *FEC description improvement*

GF add, GF multiply

SuggestedRemedy

Please define or give a reference

Proposed Response *Response Status* **W**

PROPOSED REJECT.

GF Multiply and GF Add are already used in all 802.3-2022 clauses defining Reed-Solomon codes.
See Figures 76-11, 91-5, 97-8, 113-13, 119-9, and 149-9.

Cl **166** *SC* **166.2.2.4** *P* **72** *L* **54** # I-152

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *Draft layout*

Two-column table inconveniently split, last line of first part not thin as would be needed.

SuggestedRemedy

Set the table so that it isn't split over two pages

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Tables cannot set to avoid split. However, after implementing #i-150 proposed response, the table may be not splitted over two pages.

Cl **166** *SC* **166.2.2.4** *P* **73** *L* **17** # I-62

Wienckowski, Natalie General Motors Company

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

redundant wording, codeword and CW are the same

SuggestedRemedy

Change: codeword CW
To: codeword
Alternatively, if you are defining the definition CW, you could put: codeword (CW)
Also P160L14, P160L25, P160L27

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 73 line 17
Change "codeword CW"
to
"codeword (CW)".
Page 160 line 14,
Page 160 line 25,
Page 160 line 27,
Change "codeword CW" to "codeword".

Cl **166** *SC* **166.2.2.5** *P* **73** *L* **19** # I-154

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *Scrambler naming*

binary scrambler - means? The 7000-page base document contains many scramblers, I assume they are all "binary" but only Clause 115 uses that term.

SuggestedRemedy

For consistency across 802.3, change "binary scrambler" to "scrambler" and "binary descrambler" to "descrambler" throughout.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.5** *P* **73** *L* **21** # I-153

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *Number writing*

This is unreadable. As the 802.3 editorial guidelines say "In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000).", but doing so trashes clarity here...

SuggestedRemedy

Change 195 840 to 195840, here, at line 38, and elswehre in running text to improve readability.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.5** *P* **73** *L* **51** # I-63

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: produced by BASE-U binary scrambler shift register
To: produced by the BASE-U binary scrambler shift register

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.6** *P* **74** *L* **47** # I-64

Wienckowski, Natalie General Motors Company

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

wording

SuggestedRemedy

Change: conform with
To: conform to
Also P74L48, P86L37, P86L39

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 74 line 47,
Page 74 line 48,
Page 86 line 37,
Page 86 line 39,
Change "conform with" to "conform to"

Cl **166** *SC* **166.2.2.6** *P* **76** *L* **38** # I-155

Dawe, Piers J G NVIDIA

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

These arrows are at odd angles but it's a simple 64:64 mapping.

SuggestedRemedy

Straighten up the arrows, as in Figure 166-20

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.7** *P* **77** *L* **1** # I-156

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *PCS subclause layout*

There are several definitions of 64B/65B encoding in the base standard; I doubt we need another one.

SuggestedRemedy

Choose the most suitable one and refer to it, removing most of this material except the PHY-specific /I/ and /LI/ insertion and deletion rules.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
This point has already been discused in the WG ballot process.
The resulting text is clearer than using reference to external clauses. Other 802.3-2022 clauses take the same approach to get all relevant specifications in the same clause. However, the relationship with other clauses can be highlighted using NOTEs in the Figures.

Add NOTE in Figure 166-14:
"NOTE -- Figure 166-14 is the same as Figure 55-9, Figure 113-9, Figure 126-8, and Figure 149-8."

Add NOTE in Figure 166-15:
"NOTE -- Figure 166-14 is the same as Figure 113-10"

Cl **166** *SC* **166.2.2.7.1** *P* **77** *L* **9** # I-65

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: For BASE-U PCS
To: For a BASE-U PCS
Also P77L14, P77L19, P77L22, P77L51, P77L54, P79L37 (2x), P79L40, P79L41, P79L52, P79L53, P80L38, P80L48, P80L49, P81L29, P81L30, P81L44, P81L45, P82L3, P82L5, P82L9, P82L10, P82L30, P82L32, P82L43, P82L44, P82L47, P82L51, P83L18, P82L33, P83L45, P83L47, P83L48, P83L51, P84L30, P84L34, P86L48, P86L50, P87L51 (2x), P90L2, P90L6, P90L29, P91L3,

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.7.1** *P* **77** *L* **25** # I-66

Wienckowski, Natalie General Motors Company

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

I believe this is referring to multiple paragraphs before this one.

SuggestedRemedy

Change: The subscript in the labels defined in the previous paragraph
To: The subscript in the labels defined in the previous paragraphs

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.7.3** *P* **80** *L* **4** # I-157

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *Table combination*

The two 65-bit block format tables can be combined for easier reading and understanding.

SuggestedRemedy

Make a single table with table footnotes identifying the five(?) rows that apply to 50G or all but 50G.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This point has already been discused in the draft development and WG balloting.

Separate tables for 50GBASE-U reinforce the differences by allowing a separate definition for 50GBASE-U in the text (Page 77 line 51 and 54) and avoid the use of definition statements in the footnotes.

However, the relationship with other clauses can be highlighted using NOTEs in the Figures.

Add NOTE in Figure 166-14:
"NOTE -- Figure 166-14 is the same as Figure 55-9, Figure 113-9, Figure 126-8, and Figure 149-8."

Add NOTE in Figure 166-15:
"NOTE -- Figure 166-14 is the same as Figure 113-10"

Cl **166** *SC* **166.2.2.7.4** *P* **80** *L* **4** # I-158

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **X** *Table combination*

The two control code tables should be combined for easier reading and understanding.

SuggestedRemedy

Make a single 5-column table with columns for 2.5, 5, 10, 25G PCS and for 50G PCS.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This point has already been discused in the draft development and WG balloting.

Separate tables for 50GBASE-U reinforce the differences by allowing a separate definition for 50GBASE-U in the text (Page 79 line 36 and 37) and avoid the use of definition statements in the footnotes.

Cl **166** *SC* **166.2.2.7.9** *P* **81** *L* **49** # I-67

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: BASE-U PCS
To: The BASE-U PCS

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.2.2.8.2** *P* **82** *L* **40** # I-159

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *Low power*

"low-power mode" is mentioned here and nowhere else, so not defined. What mode is this? Is this the wrong name? Is "a low power state" in 166.6.1.3.3 related?

SuggestedRemedy

Please clarify

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "low-power mode"
to
"Low Power = 1 (see Table 166-22)."

Cl **166** *SC* **166.2.2.8.3** *P* **83** *L* **20** # I-68

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Standard Style Manual*

The first letter of the items a)-c) under "C" should be capitalized.

SuggestedRemedy

Capitalize "Eight", "One", and "Two".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
After ":" or ";", capitalization is not needed.
See examples in 802.3-2022, page 4603, subclause 113.3.6.2.4.

However, page 83 lines 35 and 36 and other occurences are not consistent and should be lower case:

Page 83 line 35
Change "Eight" to "eight"

Page 83 line 36
Change "One" to "one"

Page 90 line 37, 38 and 39
Change "A" to "a"

Page 91 line 5, 7 and 9
Change "A" to "a"

Cl **166** *SC* **166.2.3.3** *P* **86** *L* **13** # I-69

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *PCS receiver ordering*

awkward wording

SuggestedRemedy

Change: The PCS receiver ordering shall separate
To: The PCS receiver shall separate

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "The PCS receiver ordering shall separate"
To: "The PCS receiver ordering block shall separate"

Cl **166** *SC* **166.2.3.4** *P* **86** *L* **20** # I-70

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *State diagram*

Data is not available to a state diagram, in this case it is available to the PMA.

SuggestedRemedy

Change: the contents of the different PHD fields be available to the PMA state diagrams
To: the contents of the different PHD fields be available to the PMA

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "the contents of the different PHD fields be available to the PMA state diagrams and to the other PCS receive
functions that use this information"
To: "the contents of the different PHD fields be available to the PMA and PCS receive sublayers"

Cl **166** *SC* **166.2.3.7.1** *P* **86** *L* **49** # I-178

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **T** *Comment Status* **D** *Local faults reference*

Local Faults for 50GMII are different than for XGMII/25GMII. There should be a reference to where Local Faults are defined for each interface.

SuggestedRemedy

On line 49 insert "The Local Fault ordered set for XGMII and 25GMII is defined in 46.3.4."
On line 51 insert "The Local Fault ordered set for 50GMII is defined in 81.3.4."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.3** *P* **91** *L* **47** # I-160

Dawe, Piers J G NVIDIA

Comment Type **E** *Comment Status* **D** *Standard Style Manual*

As traditionally a sublayer gets a clause to itself

SuggestedRemedy

Start 166.3 on a new page, asfter the PCS state diagrams. Similarly for 166.6, PMD.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
IEEE 802.3-2022 does not follow the commenter proposed editorial rule, and is not covered in 2021 IEEE SA Standards Style Manual (https://mentor.ieee.org/myproject/Public/mytools/draft/styleman.pdf).

Cl **166** *SC* **166.3.1** *P* **94** *L* **1** # I-45

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *Reset max time*

There is no definition of the PMA reset function. Without this, it can't be guaranteed that Objective #4: "Define optional startup procedure which enables the time from power_on=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms" can be met.

SuggestedRemedy

Insert new subclause before 166.3.1 called PMA Reset Function
The PMA Reset function shall be executed whenever one of the two following conditions occur:
a)Power for the device containing the PMA has not reached the operating state.
b)The receipt of a request for reset from the management entity.
PMA Reset sets pma_reset = ON while any of the above reset conditions hold TRUE. All state diagrams take the open-ended pma_reset branch upon execution of PMA Reset. The reference diagrams do not explicitly show the PMA Reset function.
TheBASE-AU PMA takes no longer than 100 ms to enter the PCS_DATA state after exiting from reset or low power mode (see Figure 166-23).
Add appropriate PICS (See Clause 149 PR1)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following shall statement in page 98 line 51 (166.3.4.4 Link monitor state diagram)

"For a communication system composed of two connected link partners as shown in Figure 166-2, the time measured from the last unassertion of pma_reset or pcs_reset to OFF on either link partner, to the assertion of the link_status variable to OK on either link partner, shall be less than 25 ms."

Add PICS accordingly.

Page 95 line 42 already defines pma_reset variable used in the state diagrams, and it covers conditions a) and b).

Cl **166** *SC* **166.3.1** *P* **94** *L* **18** # I-161

Dawe, Piers J G NVIDIA

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

Table 166-6-- Bit mapping

SuggestedRemedy

Rogue space before Bit

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.3.1** *P* **94** *L* **33** # I-71

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: Symbols shall be transmitted to PMD with
To: Symbols shall be transmitted to the PMD with

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.3.4.2** *P* **96** *L* **37** # I-72

Wienckowski, Natalie General Motors Company

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

missing Oxford comma

SuggestedRemedy

Change: clock recovery and train its equalizers
To: clock recovery, and train its equalizers

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.3.4.6.2** *P* **102** *L* **35** # I-162

Dawe, Piers J G NVIDIA

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

each LPI refresh codewords

SuggestedRemedy

codeword ?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "codewords"
to "codeword"

Cl **166** *SC* **166.3.4.6.4** *P* **103** *L* **19** # I-73

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *State diagram*

A state diagram cannot "wait" for something. It can remain in a state until something happens.

SuggestedRemedy

Change: The state diagram waits for the first estimate of the link margin to be available.
To: The state diagram remains in the PMAMON_DISABLE state until the first estimate of the link margin is available.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.4.2** *P* **103** *L* **49** # I-46

Wienckowski, Natalie General Motors Company

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

missing Oxford comma

SuggestedRemedy

Add a comma after "communication channel" before "and".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.4.3.3** *P* **105** *L* **52** # I-173

Dawe, Piers J G NVIDIA

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

the last 65-bit block (i.e., the 65-bit block #79)

SuggestedRemedy

the last 65-bit block (i.e., 65-bit block 79)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "(i.e., the 65-bit block #79)"
to "(i.e., the 65-bit block 79)"

Cl **166** *SC* **166.4.3.4** *P* **107** *L* **40** # I-74

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: next codeword
To: the next codeword

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.5.1** *P* **109** *L* **11** # I-75

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: as function of
To: as a function of

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.5.1** *P* **109** *L* **13** # I-76

Wienckowski, Natalie General Motors Company

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

A test mode can't be a conformance requirement. It could be used to confirm compliance with a requirement.

SuggestedRemedy

Change: BER test mode is not used as a conformance requirement
To: BER test mode is not used to confirm compliance with any requirement

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.5.2** *P* **109** *L* **19** # I-77

Wienckowski, Natalie General Motors Company

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

awkward wording

SuggestedRemedy

Chgange: being nsq
To: where nsq

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change
"where nsq depends on the BASE-AU PMD under test, being nsq = 16 for 50GBASE-AU and 25GBASE-AU, nsq = 8 for 10GBASE-AU, and nsq = 4 for 5GBASE-AU and 2.5BASE-AU."
to
"where nsq depends on the BASE-AU PMD under test, with nsq = 16 for 50GBASE-AU and 25GBASE-AU, nsq = 8 for 10GBASE-AU, and nsq = 4 for 5GBASE-AU and 2.5BASE-AU."

Cl **166** *SC* **166.5.2** *P* **109** *L* **21** # I-78

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Primitive parameters*

How do you generate a pattern toward a primitive? This doesn't make sense.

SuggestedRemedy

Change: The PMA generates this pattern towards the primitive
To: The PMA generates this pattern for the primitive
Also P109L28

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 109 line 21,
Page 109 line 28,
Change "The PMA generates this pattern towards the primitive PMD_COMSIGNAL.request (see 166.6.1.1)."
to
"the PMA generates this pattern for the service interface below the PMA via the PMD_COMSIGNAL.request primitive (see 166.6.1.1)."

Cl **166** *SC* **166.5.4** *P* **109** *L* **38** # I-79

Wienckowski, Natalie General Motors Company

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

The current text makes no sense. I'm not sure if my interpretation is correct, but this was the only thing I could think that it meant.

SuggestedRemedy

Change: The initial values of the bit sequence A are an 8-bit sequence of 0s, 1, an 11-bit sequence of 0s, 1,
To: The initial values of the bit sequence A are an 8-bit sequence of 0s, a single bit of 1, an 11-bit sequence of 0s, a single bit of 1,
The same issue can be found in 166.5.5, the initial values of A1 and A2.
The other option is to write out all the bits as is done for A3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Page 109 line 38,

Change "The initial values of the bit sequence A are an 8-bit sequence of 0s, 1, an 11-bit sequence of 0s, 1,"
to
"The initial values of the bit sequence A are an 8-bit sequence of 0s, a single bit of 1, an 11-bit sequence of 0s, a single bit of 1,"

Page 110 line 39

Change "The initial values of the bit sequence A1 are a 29-bit sequence of 0s, 1, a 27-bit sequence of 0s, 1, 0,
0, 1, and a 24-bit sequence of 0s."
to "The initial values of the bit sequence A1 are a 29-bit sequence of 0s, a single bit of 1, a 27-bit sequence of 0s, a single bit of 1, a single bit of 0, a single bit of 0, a single bit of 1, and a 24-bit sequence of 0s."

Page 110 line 46,
Change "The initial values of the bit sequence A2 are 0, 1, 1, 0, 1, a 9-bit sequence of 0s, 1, 0, 0, and a 10-bit
sequence of 1s."
to
"The initial values of the bit sequence A2 are a single bit of 0, a 2-bit sequence of 1s, a single bit of 0, a single bit of 1, a 9-bit sequence of 0s, a single bit of 1, a 2-bit sequence of 0s, and a 10-bit
sequence of 1s."

Cl **166** *SC* **166.5.4** *P* **109** *L* **52** # I-80

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Number writing*

Don't use "0b" before binary bit values.

SuggestedRemedy

Change: 0b10101010010101010101101010101011011010
To: 1010101001010101010110101010101011011010

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.6.1** *P* **112** *L* **13** # I-81

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: connected to BASE-U PMA
To: connected to a BASE-U PMA

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.6.1** *P* **112** *L* **17** # I-82

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *Primitive paramters*

How do you exchange signal amplitude?

SuggestedRemedy

Change: supports the exchange of signal amplitude
To: supports the exchange of signals of different amplitudes
Also P113L7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Page 112 line 17,
Change "supports the exchange of signal amplitude"
to "supports the exchange of communication signals"
Page 113 line 7,
Change "in the form of a signal amplitude"
to
"in the form of a communication signal".

Cl **166** *SC* **166.6.1.1** *P* **112** *L* **28** # I-83

Wienckowski, Natalie General Motors Company

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

awkward wording

SuggestedRemedy

Change: defines the transfer of symbols value
To: defines the transfer of symbol values

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.6.1.3.3** *P* **113** *L* **35** # I-84

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: that optical signal
To: that an optical signal
Also P113L41

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.6.2.1** *P* **113** *L* **48** # I-85

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: For purpose
For the purpose

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.6.2.2** *P* **114** *L* **21** # I-86

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *Primitive paramters*

What is an amplitude parameter? This doesn't make sense.

SuggestedRemedy

Change: The PMD transmit function shall convert the amplitude parameter tx_signal requested
To: The PMD transmit function shall convert the amplitude of the tx_signal parameter requested
Also on P114L39, PMD1, and PMD3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Page 114 line 21,
Change: "The PMD transmit function shall convert the amplitude parameter tx_signal requested by the PMD service interface primitive PMD_COMSIGNAL.request"
To: "The PMD transmit function shall convert the communication signal amplitude given by the tx_signal parameter requested by the PMD service interface primitive PMD_COMSIGNAL.request"

Page 114 line 39,
Change "The PMD receive function shall convert the optical signal received at the MDI into the amplitude parameter
rx_signal of the PMD service interface primitive PMD_COMSIGNAL.indication"
To: "The PMD receive function shall convert the optical signal received at the MDI into the communication signal amplitude given by the rx_signal parameter of the PMD service interface primitive PMD_COMSIGNAL.indication"

Page 151 line 29,
Change "The PMD transmit function
converts the amplitude
parameter tx_signal into
optical signal p at TP2
according to Equation (166–7)."
to "The PMD transmit function
converts the communication signal amplitude given by the tx_signal parameter into optical signal p at TP2
according to Equation (166–7)."

Page 151 line 38
Change "The PMD receive function
converts the optical signal
received at the MDI into
amplitude parameter rx_signal."
to "The PMD receive function
converts the optical signal
received at the MDI into
the communication signal amplitude given by the rx_signal parameter."

Cl **166** *SC* **166.6.2.2** *P* **114** *L* **41** # I-87

Wienckowski, Natalie General Motors Company

Comment Type **TR** *Comment Status* **D** *Primitive paramters*

What is an amplitude parameter? This doesn't make sense.

SuggestedRemedy

Change: into the amplitude parameter
rx_signal
To: into the amplitude of the rx_signal parameter
Also PMD3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See #i-86.

Cl **166** *SC* **166.6.3.2** *P* **116** *L* **40** # I-107

Murty, Ramana — Broadcom Inc.

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

Center wavelength (range) is defined over the narrow range of 970 - 990 nm. The justification for not accepting other source wavelengths, such as the one given in perezaranda_3cz_01b_080621_vcsel_reliability.pdf, are erroneous. The wavelength range should be expanded to allow a wide range of suppliers to participate.

SuggestedRemedy

Expand the center wavelength range to 840 - 990 nm.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Proposal already discussed at Montreal plenary meeting (July 2022). Consensus to modify wavelength range was not reached (see https://www.ieee802.org/3/cz/public/jul_2022/Minutes_3cz_01_0722.pdf Motion #3 and comment #32 to P802.3cz/D2.1).

Range of +/- 10 nm is consistent with other projects that use different nominal center wavelength, i.e. C/138 138.7.1, Table 138-8. C/95 95.7.1, Table 95-6. C/52 52.5.1, Table 52-7.
The TX and RX characteristics have been derived with margin considering real 980nm device samples operating in a range of backside temperature between -40ºC and +125ºC and bias current of up to 8 mA. It was demonstrated during the project that required wear-out reliability cannot be achieved with 850nm VCSEL devices using similar current densities. It was also demonstrated that in order to marginally meet the wear-out reliability requirements, the bias current should be reduced < 5 mA in high temperature, therefore reducing the speed and optical power and increasing the RIN of the VCSEL devices, hence making much more difficult the PHY implementation. On top of that, it was also demonstrated that 980nm devices are much less dependent with temperature, so they present a much more uniform threshold current between -40 and 125ºC. 850nm devices could be optimized for high temperature, but degrading (or making impossible) operation at low temperature and viceversa.
Technology for manufacturing 980nm VCSEL devices is widely available. It was developed during last decade for sensor devices. Producing reliable, high speed, low noise, and efficient VCSELs at 980nm is much easier than at 850nm. This will allow to expand the availability of manufacturers that can supply photonics for BASE-AU PHYs in automotive industry.

Cl **166** *SC* **166.6.3.2** *P* **117** *L* **16** # I-163

Dawe, Piers J G — NVIDIA

Comment Type **TR** *Comment Status* **D** *50GBASE-AU extinction ratio*

The extinction ratio spec should make allowance for laser speed, the wide temperature range and the extra accuracy desired when using PAM4. This has 4 dB at all rates, 50GBASE-SR has 3 dB. With further study, 3.5 dB might be feasible.

SuggestedRemedy

For 50GBASE-AU, change 4 dB to 3 dB.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Reference receiver of 50GBASE-SR is different of 50GBASE-AU.

Feasibility of min 4 dB has been determined based on measurements at extreme temperatures. See examples in contribution perezaranda_3cz_01_221011_comment_i_163.pdf).

Decreasing min ER will impact min OMA at TX for the same VCSEL bias and same max VCSEL to TP2 insertion loss, which finally impact in the link budget. Min ER decrease might be compensated with bias increase. However, it is against reliability considerations, even considering longer wavelength VCSELs.

Cl **166** *SC* **166.6.3.3** *P* **117** *L* **40** # I-108

Murty, Ramana — Broadcom Inc.

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

Center wavelength (range) is defined over the narrow range of 970 - 990 nm. "Rainbow" photodetectors that can detect a wide range of wavelengths have been widely used in datacom.

SuggestedRemedy

Expand the center wavelength range to 840 - 990 nm.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Proposal already discussed at Montreal plenary meeting (July 2022). Consensus to modify wavelength range was not reached (see https://www.ieee802.org/3/cz/public/jul_2022/Minutes_3cz_01_0722.pdf Motion #3 and comment #32 to P802.3cz/D2.1).

Expanding the center wavelength range to 840 - 990nm will imply that all the components between light emission and reception, including the photodetector, have to be validated and qualified to meet all the requirements for the full range of spectrum. This includes coupling optics in TX and RX as well as inline connections and fiber. Assuming butt-coupling and physical contact connectivity, which can be wavelength agnostic, as a feasible solution for automotive application just because it is used in data-centers may be an erroneous assumption.
Expanded beam optics, physical contact, and air gap connections are under consideration by connector makers to supply a robust, low cost, and fully automated terminated optical connectivity technology to automotive industry based on OM3 fiber. In the implementation of optical coupling, lenses and EBO connections, wavelength dependent refractive index and absorption of used materials needs to be considered. If same materials have to support reflow soldering, automotive environmental and mechanical conditions and perform well in a much wider range of wavelengths, then we are imposing constraints that will limit the solutions and will finally increase the cost without necessity.
Transceiver is not only affected by the materials used for optical coupling but also photodetector.

Cl **166** *SC* **166.7.1.1** *P* **119** *L* **4** # I-164

Dawe, Piers J G — NVIDIA

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

Overview - but there is nothing else in 166.7.1

SuggestedRemedy

Remove the subclause header "166.7.1.1 Overview"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.1.1** *P* **120** *L* **16** # I-165

Dawe, Piers J G — NVIDIA

Comment Type **E** *Comment Status* **D** *Table combination*

Tables 166-13, 14 can be combined

SuggestedRemedy

combine the tables

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The combination of tables may result in an overly complicated final table, and the need to distinguish between G=1 and G=2 using footnotes.

Cl **166** *SC* **166.7.4.1** *P* **121** *L* **46** # I-166

Dawe, Piers J G — NVIDIA

Comment Type **T** *Comment Status* **D** *BT4 bandwidths*

These BT4 bandwidths are 75.3% of the signalling rate. The ones in the scope hardware are already e.g. 70.1%, 73% of these signalling rates (75% of slightly different signalling rates). It's not worth creating new scope hardware for such minor differences

SuggestedRemedy

Align with the bandwidths that scopes actually have: e.g. 7.5, 19.34 GHz.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In the specification of the BT4 filter bandwidths, it has been considered that system impulse response correction is implemented in the sampling oscilloscope, which is usual practice in modern equipment. In case of real-time oscilloscopes, BT4 is usually implemented in digital filters, so frequency configuration is highly flexible. Therefore, the bandwidth can be adjusted to any value related with baud-rate. E.g. 16.4 GHz of TDFOM setup (166.7.8.1) is not related with any other data-rate, but specified so that input BT4 filter approximates the worst case EMB of 40 m OM3 at 980nm.
However, the noise should have taken into account, and the reuse of bandwidths already used in other Clauses can be an advantage.

Change bandwidth to 7.5 GHz for 2.5, 5 and 10GBASE-AU (mirrors Clause 52 bandwidth)

Change bandwith to 19.34 GHz for 25 and 50GBASE-AU (mirrors Clause 95 and 112 bandwidth for Tx Eye).

Subclause 166.5.2:
Change nsq value for 2.5GBASE-AU from 4 to 2

Cl **166** *SC* **166.7.4.1** *P* **121** *L* **50** # I-5

Maguire, Valerie Copperopolis

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

Orphaned text.

SuggestedRemedy

Move anchor for Table 166-15 so that the table appears after the text, "fourth-order Bessel-Thomson filter response."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.4.1** *P* **121** *L* **53** # I-167

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *CRU corner*

CRU corner is lower than usual, 100 kHz for 2.5 to 10G, 1 MHz for 25G and 50G, vs. 4 MHz for 10 GBd, 10 for 25 and 4 for 50

SuggestedRemedy

For 10G, change from 100 kHz to 400 kHz to keep in proportion with 25G and 50G. For 5G, consider changing 100 kHz to 200 kHz.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

CRU corner is lower than usual.

In https://www.ieee802.org/3/cz/public/8_feb_2022/perezaranda_3cz_03b_080222_test_methods.pdf was explained the rational behind the CRU low frequency corner.

This frequency corner is fundamentally affected by the LPI operation mode. After LPI is detected, while receiving Refresh codewords, the receiver only needs to sample, equalize and detect a small portion of symbols of each CW (last n 65-bit blocks plus the first m repeated 20-bit PHD sub-blocks for Wake detection and robust decoding of PHD).

Both clocks, TX and RX, should experience small deviation during Refresh CW transmission. The minimum clock recovery actuation period is equivalent to a CW (5440 bits) transmission time. For 50 Gb/s CW time is 108.8 ns. For 2.5 Gb/s CW transmission time is 2176 ns.

A CRU corner frequency of less than 1/4 the CW transmission rate is considered (Nyquist frequency of OJTF of RX CDR will be 1/2 CW transmission rate, so 1/4 is in the middle of the band of the control filter loop, so it is doable).

Under this consideration, the CRU corner frequency would be 2 MHz for 50 Gb/s, and 100 kHz for 2.5 Gb/s operation.

In general lower corner-frequencies in CRU spec will translate in an easier RX CDR implementation, and higher ones in easier TX PLL implementation. It is a trade-off, and in general we can consider that can scale with rate.

However, if we consider that multi-rate PHY components are expected in the market, then it is desirable to use the same PLL in some of them to simplify the implementation.

Multi-rate consideration for CRU specification was re-considered in two rate ranges in D2.1 comment resolution.

With this re-consideration we can make easier to meet the specifications in high rate modes, .i.e. easier TX PLL design without penalizing the RX CDR. This does not prevent

implementation of multi-rate components support from 2.5 to 50 Gb/s, because different PLL/VCO technology is expected for rates of <= 10 Gb/s and >= 25 Gb/s. Based on that, two CRU corner frequencies where considered for two data rate-ranges:

- First range: 2.5, 5, and 10Gb/s. CRU corner freq = 100 kHz
- Second range: 25 and 50 Gb/s. CRU corner freq = 1 MHz.

Cl **166** *SC* **166.7.8.1** *P* **124** *L* **16** # I-88

Wienckowski, Natalie — General Motors Company

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

typo

SuggestedRemedy

Change: 50GBASE-A
To: 50GBASE-AU

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.8.2** *P* **125** *L* **7** # I-168

Dawe, Piers J G — NVIDIA

Comment Type **TR** *Comment Status* **D** *Antialiasing filters*

is composed by the concatenation of two first-order low-pass filter with -3 dB bandwidth of S × 26.5625 / 2 GHz - not clear if that's each or in combination

SuggestedRemedy

Please clarify

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "For BASE-AU with G = 2, the antialiasing filter is composed by the concatenation of two first-order
low-pass filter with −3 dB bandwidth of S × 26.5625 / 2 GHz."
to
"For BASE-AU with G = 2, the antialiasing filter is composed of the concatenation of two first-order low-pass filter with −3 dB bandwidth of S × 26.5625 / 2 GHz each one."

See #i-140.

Cl **166** *SC* **166.7.8.2.1** *P* **125** *L* **45** # I-169

Dawe, Piers J G — NVIDIA

Comment Type **T** *Comment Status* **D** *Equalization filter definition*

This way of describing filters is unlike e.g. 121.8.5.4 TDECQ reference equalizer. z is not defined or needed.

SuggestedRemedy

Rewrite following other clauses, defining all quantities and functions as necessary.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The description of the filters is consistent and mathematically coherent. z represents the delay and it is necessary to specify the B(z) and F(z) polynomials.

Add definition of z as follows:

Page 125, line 42,
Add at the end of the line "z^-i represents a delay of i unit intervals"

Page 130, line 37,
Add at the end of the line "z^-i represents a delay of i unit intervals"

Cl **166** *SC* **166.7.8.2.1** *P* **126** *L* **11** # I-174

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **D** *Equalization filter definition*

I would not expect that a 2.5G or 5G link would benefit much from the second and third DFE tap

SuggestedRemedy

Consider reducing to 1 or 2 DFE taps

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

According to equation (166-11), the first coefficient of B(z) polynomial is 1 w/o delay.

According to Figure 166-41 the transmitted patter is filtered by 1-B(z), which is equivalent to a filter with N_B-1 taps.

Therefore, the number of feedback taps considered in the DFE is N_B-1: 2 feedback taps for 25, 10, 5, 2.5 Gb/s and 1 feedback tap for 50 Gb/s, which is consistent with one of the options proposed by the commenter.

The current number of feedback taps for 2.5 and 5 Gb/s offers more flexibility for TX and RX implementation.

F(z) and B(z) are part of a reference RX used for TDFOM and SRS calibration. There might be implementations where no B(z) is implemented in the receiver, or higher or lower number of feedback taps are used.

In a multi-rate PHY is expected that same RX circuitry will be used for different rates, e.g. 2.5, 5, and 10 Gb/s.

However, the readability of the text may be improved by using a definition of B(z) that mirrors the one given in Clause 93.

Figure 166-41:
Change "1 - B(z)" to "B(z)".
Eq (166-11):
Change to "B(z) = sum(i=1,Nb, b[i]z^-i)"
Table 166-11:
Change number of taps of the B(z) filter (N_B): "3" to "2", and "2" to "1".
Page 126, line 14:
Change "1-B(z)" to "-B(z)".
Figure 166-43, title of figure:
Change "1-B(z)" to "-B(z)"
Figure 166-43:
Change "-b[N_B-2]" to "-b[N_B-1]" and "-b[N_B-1]" to "-b[N_B]".
Eq (166-12):
Change "N_B-1" to "N_B".

Cl **166** *SC* **166.7.8.2.1** *P* **126** *L* **45** # I-89

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *Equalization filter definition*

Inconsitent usage of F and f for the same function.

SuggestedRemedy

Change f to F in Equation (166-10), also in Figure 166-42 and Equation (166-12).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

F(z) and B(z) are polynomials that uniquely specify equalizing filters with coefficients equal to f[i] and b[i], as specified in equations (166.10) and (166-11).

Cl **166** *SC* **166.7.8.2.1** *P* **126** *L* **49** # I-90

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **X** *Equalization filter definition*

Inconsitent usage of B and b for the same function.

SuggestedRemedy

Change b to B in Equation (166-11), also in Figure 166-43 and Equation (166-12).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

F(z) and B(z) are polynomials that uniquely specify equalizing filters with coefficients equal to f[i] and b[i], as specified in equations (166.10) and (166-11).

Cl **166** *SC* **166.7.9** *P* **129** *L* **16** # I-91

Wienckowski, Natalie General Motors Company

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

grammar

SuggestedRemedy

Change: transmitter with a values of STDFOM
To: transmitter with values of STDFOM
Also L20, L24, L28, and L32.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.10** *P* **129** *L* **48** # I-92

Wienckowski, Natalie General Motors Company

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

This is a confusing run-on sentence.

SuggestedRemedy

Change: Stressed receiver sensitivity condition 1 and 2 shall be within the limits given in Table 166–10 if measured using the methodology defined in 166.7.10.1 and 166.7.10.3, with the conformance test signal at TP3 as described in 166.7.10.2 for condition 1 and 2 respectively, respectively, using the test patterns for stressed receiver sensitivity specified in Table 166–13 for BASE-AU with G = 1 or in Table 166–14 for BASE-AU with G = 2.
To: Stressed receiver sensitivity shall be within the limits given in Table 166–10 if measured using the methodology defined in 166.7.10.1 and 166.7.10.3, with the conformance test signal at TP3 as described in 166.7.10.2, for conditions 1 and 2, respectively. The test patterns for stressed receiver sensitivity that are used are those specified in Table 166–13 for BASE-AU with G = 1 or in Table 166–14 for BASE-AU with G = 2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.10.1** *P* **130** *L* **36** # I-93

Wienckowski, Natalie General Motors Company

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

Subject verb agreement

SuggestedRemedy

Change: The FFE filter P(z) have
To: The FFE filter P(z) has

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.10.1** *P* **132** *L* **7** # I-94

Wienckowski, Natalie General Motors Company

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

Alternatively and also are redundant.

SuggestedRemedy

Change: Alternatively, OMATP3 can be also measured using the method described in 166.7.4.
To: Alternatively, OMATP3 can be measured using the method described in 166.7.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.10.4** *P* **133** *L* **28** # I-95

Wienckowski, Natalie General Motors Company

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

Incorrect reference. Table 166-18 is for 2.5G/5G/10GBASE-AU.

SuggestedRemedy

Change: Table 166–19
To:Table 166-18

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.7.10.4** *P* **133** *L* **30** # I-96

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *Frequency units*

As the ranges for f and the equation including f specify kHz, I believe f is in kHz to make the units cancel out.

SuggestedRemedy

Change: f is given in Hz for the equations in the table.
To: f is given in kHz for the equations in the table.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.9** *P* **134** *L* **42** # I-97

Wienckowski, Natalie General Motors Company

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

Subject verb agreement

SuggestedRemedy

Change: cabling consist
To: cabling consists

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.9.2** *P* **134** *L* **12** # I-99

Wienckowski, Natalie General Motors Company

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

Add a note to Figure 166-46 to clarify not all speeds support 4 connections as shown.

SuggestedRemedy

Inset: Note - Not all BASE-AU speeds support 4 connections in the channel as shown in this Figure.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert: "Note - 50BASE-AU typically supports two connections in the channel"

Cl **166** *SC* **166.9.2** *P* **134** *L* **54** # I-98

Wienckowski, Natalie General Motors Company

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

Subject verb agreement

SuggestedRemedy

Change: consist
To: consists

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.9.2.1** *P* **135** *L* **33** # I-170

Dawe, Piers J G NVIDIA

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

Up to 10 dB of connector loss! This looks like a modal noise problem, unless there is something that ensures that most of this loss is NOT mode selective - which I don't see.

SuggestedRemedy

Reduce the maximum total connection insertion loss or provide rules for what sort of loss is allowed.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

10 dB is max connections insertion loss for 10, 5 and 2.5 Gb/s. Part of this insertion loss is attributed to be mode selective, therefore, to cause modal noise. In Table 166-11, channel insertion loss is consistent with Table 166-21. Channel insertion loss of Table 166-11 considers 0.1 dB max (0.08 rounded) fiber attenuation and allocation of 0.4 dB for cable attenuation penalty due to aging.
Contribution https://www.ieee802.org/3/cz/public/3_aug_2021/perezaranda_3cz_01a_030821_link_budget_proposal.pdf shows:

* Modal noise impact in receiver sensitivity at several rates
* Modal noise vs mode selective loss based on https://www.ieee802.org/3/cz/public/15_jun_2021/pinzon_3cz_01_150621.pdf
* Calculation of min non-MSL IL for inline connections and therefore max MN, and RX sensitivity as a function of MSL IL

Based on this, allocation for modal noise is calculated for all the data-rates

The 802.3cz project has considered much higher insertion loss in the inline connections than the BASE-SR projects. Reasons behind:

* It is not clear that physical contact connection will be able to meet environmental (e.g. grease, dust conditions, metallic particles, in car automated assembly plant, or a garage) and mechanical (e.g. vibrations, scoop proof) requirements with the cost constraints of automotive application.
* During more than two decades, SI-POF has been used in automotive applications (e.g. MOST, 1000BASE-RHC), implementing butt-coupling with air-gap in inline connections to avoid end face surfaces of fiber are damaged by mechanical and environmental conditions.
* Expanded beam optics, physical contact, and air gap connections are under consideration by connector makers to supply a robust, low cost, and fully automated terminated optical connectivity technology to automotive industry based on OM3 fiber.
* 802.3cz PHYs support the highest technically feasible insertion loss that enable OM3 can be accepted by the automotive industry in terms of performance, environmental and mechanical conditions, and cost.

In Table 166-11, the row of allocation for penalties includes modal noise plus macro-

bending loss (0.2 dB).

Page 118 line 49:

Change footnote c: "Link penalties are used for link budget calculations. They are not requirements and are not meant to be tested."
to "The allocation for penalties considers addition of two factors, the receiver sensitivity loss caused modal noise and the macro-bending loss. Maximum macro-bending loss considered is 0.2 dB."

Cl **166** *SC* **166.11** *P* **136** *L* **8** # I-100

Wienckowski, Natalie General Motors Company

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

incorrect comma placement

SuggestedRemedy

Change: OAM channel functionality shall be active when both, the transmitted and received fields PHD.CAP.OAM, are equal to one, and disabled otherwise.
To: OAM channel functionality shall be active when both the transmitted and received fields, PHD.CAP.OAM, are equal to one, and disabled otherwise.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.12** *P* **137** *L* **6** # I-101

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change: Received signal
To: The received signal

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.14.1** *P* **138** *L* **11** # I-102

Wienckowski, Natalie General Motors Company

Comment Type **E** *Comment Status* **D** *Temperature grades*

I believe the temperature grades are based on the AEC-Q100 definition. This is missing.

SuggestedRemedy

Change: shall clearly indicate the temperature grade of Table 166–23
To: shall clearly indicate the AEC-Q100 temperature grade as shown in Table 166–23
Add 1.3 Norative references and in it add
AEC - Q100: Failure Mechanism Based Stress Test Qualification For Integrated Circuits

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Although currently the temperature grades are the same as defined in AEC-Q100, eventual changes to the AEC-Q100 specification may lead to a maintenance requirement to change IEEE 802.3 document.

The Editor beleives it is more practical to keep both temperature grade definitions separate, but with the same values at the date of publication of the standard.

Page 138 line 11,

Change "temperature grades" to "temperature classes"

Cl **166** *SC* **166.14.1** *P* **138** *L* **17** # I-2

Pardo, Carlos Knowledge Development for POF SL

Comment Type **E** *Comment Status* **D** *Temperature grades*

Bottom temperature comment (a) of "Table 166–23" should apply to both table columns (Low and High temperature).

SuggestedRemedy

Either put the (a) in both column headers, or placed it on the Table tittle.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Place call to footnote a also on High Temperature column head.

Cl **166** *SC* **166.14.3** *P* **138** *L* **49** # I-103

Wienckowski, Natalie General Motors Company

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

Subject verb agreement

SuggestedRemedy

Change: environment(s) require
To: environment(s) requires

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166** *SC* **166.14.5** *P* **139** *L* **26** # I-104

Wienckowski, Natalie General Motors Company

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

awkward wording

SuggestedRemedy

Change: where explicitly defines
To: which explicitly defines

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166A** *SC* **166A.2** *P* **156** *L* **38** # I-171

Dawe, Piers J G NVIDIA

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

Table is hard to use because it is split over two pages; font too small.

SuggestedRemedy

Adjust the orphan rows setting for the three tables in the annexes so that they stay together on one page. It looks like the 7 point entries can be changed to 8 point.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Pagination (including splitting a table) is automated in the document preparation software, and splits such as this will change with addition or deletion of draft content. Thus, such items are best addressed during publication preparation. Guidance on comments in SASB Operations Manual 5.4.3.3 states, “It should be borne in mind that proposed standards are professionally edited prior to publication.”

Cl **166A** *SC* **166A.3** *P* **159** *L* **1** # I-105

Wienckowski, Natalie General Motors Company

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

blank page

SuggestedRemedy

delete blank page

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **166B** *SC* **166B.2** *P* **160** *L* **31** # I-172

Dawe, Piers J G NVIDIA

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

Table title should include "example"

SuggestedRemedy

Example RS-FEC(544,522) codeword
or
RS-FEC(544,522) codeword example

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **Introdu** *SC* **Introduction** *P* **10** *L* **2** # I-14

Torres, Luis Knowledge Development for Plastic Optical Fiber

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

The name of the amendment does not match with the one given in page 1

SuggestedRemedy

Add "using Graded-Index Glass Optical Fiber" after "Automotive Ethernet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "Layer Specifications and Management Parameters for Multi-Gigabit Optical Automotive Ethernet."
to "Physical Layer Specifications and Management Parameters for Multi-Gigabit Glass Fiber Optical Automotive Ethernet"
See #i-7

Cl **Introdu** *SC* **Introduction** *P* **12** *L* **48** # I-15

Torres, Luis Knowledge Development for Plastic Optical Fiber

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

The abstract should include the type of fiber specified in PAR.

SuggestedRemedy

Add "using graded-index glass optical fiber" after "automotive Ethernet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.