Cl **45** *SC* **45.2.1.6** *P* **33** *L* **46** # 1

Lo, William
Axonne Inc.

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

The field changed to 8 bits. But there is no corresponding change to the description.

SuggestedRemedy

45.2.1.6.3 Editors discretion to make changes needed to refer to 8 bits (7:0).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This was changed to 8 bits by IEEE Std 802.3df-2024, so they were the ones to change the text.

Cl **45** *SC* **45.2.1.16** *P* **36** *L* **17** # 2

Lo, William
Axonne Inc.

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

The ability bits are done inconsisteltly between AT1/AV1 and T1/V1. Ether there should be 1 bit for both AT1/AV1 or separate bits for T1 and V1.
Everything points to register 1.77 anyway so we should make this consistent.

SuggestedRemedy

Pick either of the options. I'm ok with either one but prefer option 1 to preserve bits for the future.

Option1:
Consolidate AT1/AV1 into bit 11 and make bit 12 reserved. Consolidate 45.2.1.16.aaaa and aaab into 1 section

Option 2:
Expand T1/V1 in bit 10 into T1 for bit 10, V1 for bit 11, Move AT1 and AV1 up 1 bit.
Split 45.2.1.6.aaac into 2 separate sections, and adjust text in aaaa and aaab to reflect bit movement.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Consolidate AT1/AV1 into bit 11 and make bit 12 reserved.

Delete 45.2.1.16.aaaa (renumber the sections below.

Change 45.2.1.16.aaab to:

MultiGBASE-AT1/AV1 ability (1.18.11)

When read as a one, bit 1.18.11 indicates that the PMA/PMD is able to operate as a MultiGBASE-AT1/AV1 PMA/PMD type as indicated in register 1.77. When read as a zero, bit 1.18.11 indicates that the PMA/PMD
is not able to operate as a MultiGBASE-AT1/VV1 PMA/PMD type as indicated in register 1.77.

Cl **201** *SC* **201.1.1** *P* **69** *L* **1** # 3

Lo, William — Axonne Inc.

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

Style change

SuggestedRemedy

Change line 1, 6, 10:
"When takling about"
To:
"For"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.1.3** *P* **60** *L* **7** # 198

Razavi, Alireza — Infineon

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

Missing space and capitalization issues: “NOTE-Annex K” and “leader"and”; LEADER and FOLLOWER should be capitalized.

SuggestedRemedy

Change to “NOTE—Annex K … LEADER and FOLLOWER …” and correct spacing and quotation formatting.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.1.3.4** *P* **64** *L* **20** # 152

Pandey, Sujan — Velinktech

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

The wording "time and control link failure, and act as the data source for the PHY control state diagram" is not clear

SuggestedRemedy

no suggestion

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: The Link Synchronization function is used when Auto-Negotiation is disabled or not implemented to detect the presence of the link partner, time and control link failure, and act as the data source for the PHY control state diagram.

To: The purposes of the Link Synchronization fuction are to: detect the presence of the link partner; act as the data source for the PHY Control state diagram; and controls behavior on failure, including timeouts. The Link Synchronization function is used when Auto-Negotiation is disabled or not implemented.

Cl **201** *SC* **201.1.4** *P* **64** *L* **26** # 201

Razavi, Alireza — Infineon

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

Passive voice: “HS_PATH signaling is performed by the HS_TX PCS generating …”.

SuggestedRemedy

Grant editorial latitude to convert passive constructions to active. For example, change this instance to “HS_TX PCS generates …”.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **201** *SC* **201.1.4** *P* **64** *L* **31** # 153

Pandey, Sujan Velinktech

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

PAM2 symbols in the 2.5 Gb/s and

SuggestedRemedy

PAM2 symbols on the MDI port in the 2.5 Gb/s and

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

P64L33

Change: Algorithmic mapping from the received signal on the MDI port to RXD<31:0> and RXC<3:0>.

To: Algorithmic mapping from the received signal to RXD<31:0> and RXC<3:0>.

Cl **201** *SC* **201.1.4** *P* **64** *L* **45** # 154

Pandey, Sujan Velinktech

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

in definition it is called "normal data mode" but later in text everywhere sometime it is used as normal mode or data mode. Please make it consistent

SuggestedRemedy

normal data mode or normal mode or data mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to search for "normal mode" and "data mode" and change them to "data mode".

Cl **201** *SC* **201.1.5** *P* **65** *L* **2** # 155

Pandey, Sujan Velinktech

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

to DME symbols in the transmit path

SuggestedRemedy

to DME symbols on the MDI port in the transmit path

Proposed Response *Response Status* **W**

PROPOSED REJECT.

They are DME symbols before they reach the MDI.

Cl **201** *SC* **201.1.5** *P* **65** *L* **15** # 156

Pandey, Sujan Velinktech

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

normal mode

SuggestedRemedy

normal data mode or normal mode or data mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #154

Cl **201** *SC* **201.2.1** *P* **61** *L* **8** # 199

Razavi, Alireza Infineon

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

Inconsistent naming: “PMA_LINK” in text vs “PMA_Link” in figures.

SuggestedRemedy

Normalize the naming to a single format, recommended “PMA_LINK”, throughout the text and figures.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to search for "PMA_Link" with any capitalization and change it to "PMA_LINK".

Cl **201** *SC* **201.2.1.2.2** *P* **66** *L* **59** # 202

Razavi, Alireza Infineon

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

Broken reference: “Figure 201–32 Figure 149–33”

SuggestedRemedy

delete figure 149-33

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3** *P* **74** *L* **11** # 203

Razavi, Alireza Infineon

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

The clause opener “The PCS functions for HS_PATH are as specified for MultiGBASE-T1 PHYs in 149.3 with the exception that …” again over-relies on remote text.

SuggestedRemedy

Remove this sentence; Clause 201.3 shall fully describe HS_PATH behavior locally.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete: The PCS functions for HS_PATH are as specified for MultiGBASE-T1 PHYs in 149.3 with the exception that 2.5Gb/s and 5Gb/s use PAM2 instead of PAM4 in data mode and the differences noted in this subclause.

Cl **201** *SC* **201.3.2** *P* **61** *L* **25** # 233

Razavi, Alireza Infineon

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

Undefined variable: 'rx_boundary' and 'tx_boundary' are shown as signals in Figures 201–5, 201–6 (PCS-PMA interface diagrams) and used in state diagram code, but neither is defined in the variable tables of 201.5.2.6.2, 201.5.2.7.1, or 201.5.2.8.1, nor in the PMA service interface description of 201.2.2.

SuggestedRemedy

Add definitions for 'rx_boundary' and 'tx_boundary' in 201.2.2 or the appropriate state diagram variable table, specifying their type, source, and role in frame boundary alignment.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

These are defined in 149.3.9.4.3

Cl **201** *SC* **201.3.2** *P* **75** *L* **2** # 204

Razavi, Alireza Infineon

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

Mixed-signal naming inconsistency in Figures 201–7 and 201–8: TXc/TXC.

SuggestedRemedy

Normalize all such labels to TXC/RXC across the affected figures.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to do a global find and replace to correct the capitalization of TXC and RXC.

Cl **201** *SC* **201.3.2** *P* **75** *L* **35** # 231

Razavi, Alireza Infineon

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

Figures 201–8 has formatting issue on HS_RX box, LS_TXl.

SuggestedRemedy

Align arrows for loc_rcvr_status, link_status, tx_symb, tx_mode, and pcs_data_mode so they terminate at the bottom of the PCS_RECEIVE and HS_LX PCS_TRANSMIT blocks

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2** *P* **75** *L* **35** # 157

Pandey, Sujan Velinktech

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

correct the arrows in the figures

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #231

Cl **201** *SC* **201.3.2** *P* **75** *L* **36** # 190

Jonsson, Ragnar — Infineon

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

Arrow start and finish is not aligned with the box bundary

SuggestedRemedy

Align arrows with the box boundary

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #231

Cl **201** *SC* **201.3.2.2** *P* **76** *L* **32** # 129

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

PCS Transmit is more accurately a function, not a process. PCS Receive is more accurately a function, not a process.

SuggestedRemedy

Replace, "PCS Transmit process" with "PCS Transmit function" in 11 locations in the document. Replace, "PCS Receive process" with "PCS Receive function" in 11 locations in the document.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **201** *SC* **201.3.2.2** *P* **101** *L* **50** # 211

Razavi, Alireza — Infineon

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

Field naming drifts between “OAM field” and “OAM_field” in the PCS framing descriptions.

SuggestedRemedy

Use tx_oam_field consistently where the transmit OAM field signal is meant.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Usage in text (e.g, P76, 77) is correct - it is descriptive. Underscore gets used when it's a variable name.
ERRORS: P83 L12 - change to "OAM field" (descriptive)
P94 L51 - change to "OAM_field" (variable name definition

Cl **201** *SC* **201.3.2.2.1** *P* **78** *L* **28** # 12

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

the text says ENCODE and DECODE work according to the rules in 201.3.2.2.2, but there are no rules there (this was an error in earlier text, discovered in dg). Since the ENCODE and DECODE functions produce & interpret the 64B/65B blocks, the rules for blocks are indicated. These are in 201.3.2.2.4 (Block structure),

SuggestedRemedy

Change 201.3.2.2.2 to 201.3.2.2.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2.2.5** *P* **79** *L* **15** # 13

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

There is no "transcoder". The blocks shown are simply the encoded 65B blocks concatenated. Where the text said transcoder (in 201.3.2.2.12 and 201.4.2.2.12) it clearly meant RS-FEC encoder.

SuggestedRemedy

Delete "Output of transcoder" from Figures 201-11 and 201-12, and change "to the transcoder" to "to the RS-FEC encoder" in 201.3.2.2.12 (P83 L3) and 201.4.2.2.12 (P101 L8).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2.2.13** *P* **83** *L* **8** # 14

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

We jump directly from tx_coded, a 64B/65B block to "The resulting RS-FEC frame…" only 2 sections later does the RS-FEC encoding get described. This is because we skipped the definition of tx_group50x65B which had been in 201.1.3.1. (an awkward place).

SuggestedRemedy

Insert the following new first paragraph for 201.3.2.2.13: "To form the RS-FEC frame, 50 65B blocks are grouped as follows:
tx_group50x65B,65 * i + j> = tx_coded_i <j>
where i= 0 to 49, j = 0 to 64, and tx_coded_i<64:0> is the I th 65B/65B block and tx_coded_0 <64:0> is the first block transmitted."

(note "_" is subscript, and "*" is the multiplication symbol)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2.2.18** *P* **83** *L* **38** # 193

Zhu, Liang — Infineon

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

"Dn , which are represented in Figure 201–7 as Dn [0]" -- equation linking error

SuggestedRemedy

link to Figure 201–10

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2.3** *P* **84** *L* **39** # 158

Pandey, Sujan — Velinktech

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

and signals the reliable

SuggestedRemedy

and indicates the reliable

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2.3** *P* **85** *L* **7** # 205

Razavi, Alireza — Infineon

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

Subheadings 201.3.2.3.1 and 201.3.2.3.2 both read “Frame and block synchronization”.

SuggestedRemedy

Differentiate the subclause headings if they cover different functions, or confirm and document that the duplication is intentional.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #4

Cl **201** *SC* **201.3.2.3** *P* **98** *L* **22** # 210

Razavi, Alireza — Infineon

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

State-variable naming drifts between “block lock” and “block_lock”. Sentence reads “It obtains block lock …”.

SuggestedRemedy

Change the wording to “the PHY PCS locks the FEC frame …” and use consistent state-variable naming.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Entered as 201.3.2.3, P98L22.

Corrected to: 201.3.2.3.2, P85L22

Change: It obtains block lock to the PHY frames

To: It obtains block_lock to the PHY frames

Cl **201** *SC* **201.3.2.3.1** *P* **85** *L* **7** # 194

Zhu, Liang
Infineon

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

201.3.2.3.1 and 201.3.2.3.2 have a lot of duplication

SuggestedRemedy

merge

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #4

Cl **201** *SC* **201.3.2.3.1** *P* **85** *L* **7** # 4

Lo, William
Axonne Inc.

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

This section lines 7 to 16 was intended to be replaced with 201.3.2.3.2.

SuggestedRemedy

Delete 201.3.2.3.1 in its entirity.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.2.3.1** *P* **85** *L* **9** # 159

Pandey, Sujan
Velinktech

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

in the data mode

SuggestedRemedy

normal data mode or normal mode or data mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #154

Cl **201** *SC* **201.3.2.3.1** *P* **85** *L* **12** # 160

Pandey, Sujan
Velinktech

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

in the data mode

SuggestedRemedy

normal data mode or normal mode or data mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #154

Cl **201** *SC* **201.3.2.3.2** *P* **85** *L* **20** # 161

Pandey, Sujan
Velinktech

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

in the data mode

SuggestedRemedy

normal data mode or normal mode or data mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #154

Cl **201** *SC* **201.3.2.3.2** *P* **85** *L* **25** # 162

Pandey, Sujan
Velinktech

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

in the data mode

SuggestedRemedy

normal data mode or normal mode or data mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #154

Cl **201** *SC* **201.3.2.3.4** *P* **85** *L* **37** # 266

Wienckowski, Natalie IVN Solutions LLC

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

Refers to 149, but needs to be brought in to refer to 201 specific requirements and Figures.

SuggestedRemedy

Copy 149.3.2.3.3 into 201.3.2.3.4, and change the reference to be to 201.3.2.2.13.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.5** *P* **86** *L* **2** # 163

Pandey, Sujan Velinktech

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

shown in Figure 201-16

SuggestedRemedy

shown in Figure 201-15

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.5** *P* **86** *L* **5** # 164

Pandey, Sujan Velinktech

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

shown in Figure 201-15

SuggestedRemedy

shown in Figure 201-16

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.5** *P* **86** *L* **39** # 208

Razavi, Alireza Infineon

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

“InfoField” should be “Infofield” to align with the rest of the text.

SuggestedRemedy

see comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Search the document for various capitalizations and change all to "Infofield".

Cl **201** *SC* **201.3.6.1** *P* **87** *L* **2** # 15

Zimmerman, George CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

201.3.6.1 is unnecessary, since this has been previously stated for the entire clause (in 201.1.7)

SuggestedRemedy

Delete 201.3.6.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.3.8** *P* **94** *L* **41** # 209

Razavi, Alireza Infineon

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

The OAM field is tied to two different defining subclauses: 201.3.8 points to 201.3.2.2.13, while 201.3.8.1 points to 201.3.2.2.14.

SuggestedRemedy

Clarify that the OAM frame data is carried in the 10-bit OAM field described in 201.3.2.2.13 for HS_PATH.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In 201.3.8.1, change the reference to 201.3.2.2.13.

Cl **201** *SC* **201.4** *P* **96** *L* **10** # 263

Wienckowski, Natalie IVN Solutions LLC

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

Change references to 149 to those in 201.3 as content was brought in from 149.

SuggestedRemedy

P96L33: Change 149.3.2.1 to 201.3.2.1
P96L37&P101L7: Change Figure 149-16 to Figure 201-18.
P104L10&P104L25: Change Figure 149-18 to Figure 201-19.
P104L12: Change 149.3.7.2.2 to 201.3.6.2.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2** *P* **96** *L* **41** # 264

Wienckowski, Natalie IVN Solutions LLC

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

Reference to 149-16 replaced by 201-18, which has no dashed rectangles.

SuggestedRemedy

Delete sentence: Dashed rectangles in Figure 149-16 are not part of the low speed PCS.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2** *P* **97** *L* **26** # 239

Wang, Frank Realtek Semiconductor Corp.

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

typo: no space after comma

SuggestedRemedy

change "(50,46, 6)" to "(50,46,6)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2** *P* **98** *L* **38** # 235

Razavi, Alireza Infineon

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

Notation inconsistency.'RS-FEC(50,46) (in figures) ' and 'RS-FEC(50,46,6)' (120 occurrences).

SuggestedRemedy

please use RS-FEC(50,46,6)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2.1** *P* **98** *L* **4** # 16

Zimmerman, George CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

RS_FEC should be RS-FEC

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2.2** *P* **98** *L* **39** # 240

Wang, Frank Realtek Semiconductor Corp.

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

typo: insert a space before "decoder"

SuggestedRemedy

change "RS-FEC(50,46)decoder" to "RS-FEC(50,46) decoder"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2.14** *P* **101** *L* **51** # 212

Razavi, Alireza Infineon

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

RS-message assignment text uses vendor-specific_fielld<5:0> (double “l” in “field”).

SuggestedRemedy

see comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2.14** *P* **102** *L* **43** # 241

Wang, Frank — Realtek Semiconductor Corp.

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

typo: no space after comma

SuggestedRemedy

change "RS-FEC(50, 46)" to "RS-FEC(50,46)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2.16** *P* **103** *L* **14** # 5

Lo, William — Axonne Inc.

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

Copy and paste error

SuggestedRemedy

sections 201.4.2.2.16 to 201.4.2.2.22 should be deleted in its entirity

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.2.18** *P* **103** *L* **22** # 213

Razavi, Alireza — Infineon

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

High-speed-path wording is used inside a low-speed-path subsection (e.g., “All incoming PAM2 path HS_RX …”). Low-speed-path scrambling text points to 201.3.4, which appears to be a carried-over high-speed reference rather than a local 201.4 reference.

SuggestedRemedy

Review and update the text and references to use the correct LS_PATH wording and the correct local Clause 201.4 subclause references.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

see #5 which deletes this text

Cl **201** *SC* **201.4.2.3** *P* **96** *L* **41** # 265

Wienckowski, Natalie — IVN Solutions LLC

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

Reference to 149-18 replaced by 201-19, which has no dashed rectangles.

SuggestedRemedy

Delete sentence: Dashed rectangles in Figure 149-18 are not part of the low speed PCS.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.3** *P* **104** *L* **30** # 165

Pandey, Sujan — Velinktech

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

signals

SuggestedRemedy

indicates

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.2.3.2** *P* **105** *L* **6** # 6

Lo, William — Axonne Inc.

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

Inconsistent referencing.
201.4.2.2.15 points to 201.4.4
This section should do so as well.

SuggestedRemedy

Delete the existing text and replace with:The descrambling process is as specified in 149.3.2.3.2, except gM(x) shall be applied as defined in 201.4.4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text is consistent with 201.3.2.3.3, the corresponding HS_PATH section.

Cl **201** *SC* **201.4.5** *P* **105** *L* **54** # 7

Lo, William — Axonne Inc.

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

There is no 64 to 65 bit conversion for the training frame

SuggestedRemedy

Change 64B/65B to 65-bit

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.6** *P* **106** *L* **45** # 8

Lo, William — Axonne Inc.

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

We went through all the trouble to put in 201.3.6 so we should point to that.

SuggestedRemedy

Detailed functions and state diagrams are as specified in 201.3.6

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.7** *P* **106** *L* **48** # 9

Lo, William — Axonne Inc.

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

This section is identical to 201.3.7 so we should point to that.

SuggestedRemedy

Delete all contents in 201.4.7 including subclauses and replace with:
See 201.3.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.4.8** *P* **107** *L* **31** # 195

Zhu, Liang — Infineon

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

"The MultiG+100MBASE-T1/V1 PCS level operations administration, and ..." -- HS type in LS chapter

SuggestedRemedy

change to 100M+MultiGBASE-T1/V1…

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.5.2.2** *P* **109** *L* **27** # 10

Lo, William — Axonne Inc.

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

Grammar.

SuggestedRemedy

Line 17 "A PHY_D" and "A PHY_S" should be "PHY_D" and "PHY_S"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: A PHY_D
To: Each PHY_D

Change: A PHY_S
To: Each PHY_S

Cl **201** *SC* **201.5.2.4** *P* **111** *L* **1** # 166

Pandey, Sujan Velinktech

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

The infofield is also denoted IF

SuggestedRemedy

The infofield is also denoted as IF

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: The Infofield is also denoted IF. The link partner is not required to decode every IF transmitted but is required to decode IFs at a rate that enables the correct actions prior to the PAM2 to PAM4 transition.

To: The link partner is not required to decode every Infofield transmitted but is required to decode Infofields at a rate that enables the correct actions prior to the PAM2 to PAM4 transition.

Cl **201** *SC* **201.5.2.4.4** *P* **112** *L* **20** # 214

Razavi, Alireza Infineon

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

“message field” capitalization is inconsistent.

SuggestedRemedy

Use “Message Field” consistently throughout the text.e capitalize "Message Field" in titles of tables 201-5 and 201-6.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: message field

To: Message Field in titles of Tables 201-5, 201-6, and 202-9.

Cl **201** *SC* **201.5.2.5.4** *P* **112** *L* **50** # 217

Razavi, Alireza Infineon

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

OAMen is expanded differently in HS_PATH and LS_PATH text.

SuggestedRemedy

Change "OAMen indicates MultiGBASE-T1 OAM capability enable, respectively. The PHY shall indicate the
support of optional capabilities by setting the corresponding capability bits." - change to read: "OAMen indicates that the MultiGBASE-T1 OAM capability is enabled." (the second shall isn't needed, and grammar is fixed). In 201.5.2.5.4 (P116 L1) change "OAMen indicates 100M+MultiGBASE-T1/V1 OAM capability enable. The PHY shall indicate the support of this OAM capability by setting the OAMen capability bit to 1." to "OAMen indicates that the MultiGBASE-T1 OAM capability is enabled." (there is only one OAM capability, since both link partners need to exchange it - and the second shall isn't needed again.)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.5.2.6.1** *P* **116** *L* **24** # 215

Razavi, Alireza Infineon

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

Labels “startup sequence” and “PHY Control function, HS_PATH, LS_PATH” are redundant.

SuggestedRemedy

see comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the heading: 201.5.2.6.1 Startup Sequence, but leave the text so it is now under 201.5.2.6 PHY Control function, HS_PATH and LS_PATH.

Cl **201** *SC* **201.5.2.6.1** *P* **116** *L* **27** # 216

Razavi, Alireza Infineon

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

Startup Sequence text uses mr_autoneg_en, while PHY Control / Link Synchronization uses mr_autoneg_enable.

SuggestedRemedy

Use mr_autoneg_enable consistently throughout.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.5.2.6.1** *P* **117** *L* **6** # 236

Razavi, Alireza Infineon

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

replace 'en_slave_tx = 1' with en_follower_tx =1'.

SuggestedRemedy

see comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the correction on P117L6 and P117L24.

Cl **201** *SC* **201.5.2.6.3** *P* **119** *L* **26** # 269

van Dyck, Peter Infineon

Comment Type **T** *Comment Status* **D** *EZ - late*

Actual timer value for minwait_timer missing.

SuggestedRemedy

Add sentence at the end of minwait_timer definition:
"The timer shall expire 475 us +- 50 us after being started."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.5.2.6.4** *P* **120** *L* **33** # 218

Razavi, Alireza Infineon

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

The condition loc_rcvr_status = OK should apply to both PHY_D and PHY_S for TX_SWITCH state

SuggestedRemedy

see comment

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **201** *SC* **201.5.2.8.1** *P* **124** *L* **1** # 191

Jonsson, Ragnar Infineon

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

Incorrect condition for TRUE state

SuggestedRemedy

Change "No SEND_S pulses" to "Less than three SENBD_S pulses".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

TFTF - Is this a change to the decision in Vancouver, or was this implemented incorrectly?

Correct spelling of suggested remedy:

Change "No SEND_S pulses" to "Less than three SEND_S pulses".

Cl **201** *SC* **201.5.2.8.1** *P* **124** *L* **4** # 192

Jonsson, Ragnar Infineon

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

Incorrect condition for FALSE state

SuggestedRemedy

Change "At least one SEND_S pulse" to At least three SEND_S pulses".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

TFTF - Is this a change to the decision in Vancouver, or was this implemented incorrectly?

Cl **201** *SC* **201.6.2.2** *P* **131** *L* **43** # 267

Wienckowski, Natalie IVN Solutions LLC

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

No specific changes have been requested.

SuggestedRemedy

Delete Editor's Note

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.6.3.1** *P* **136** *L* **8** # 220

Razavi, Alireza Infineon

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

The test is called “BER monitoring” in Table 201–13.

SuggestedRemedy

Adjust the segment title to match “ frame error ratio requirment” and state explicitly that Test Mode 7 can be used.

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **201** *SC* **201.6.3.1** *P* **143** *L* **1** # 228

Razavi, Alireza Infineon

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

section 201.6.4 , and 201.7.4 should be removed

SuggestedRemedy

see comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.6.3.2** *P* **137** *L* **19** # 221

Razavi, Alireza Infineon

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

An Editor’s Note remains in the clause text.

SuggestedRemedy

Delete the editor's note at the end of 201.6.3.2

Proposed Response *Response Status* **W**

Cl **201** *SC* **201.7.2.3** *P* **139** *L* **47** # 224

Razavi, Alireza Infineon

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

Timing jitter test text appears in 201.6.2.3 and 201.7.2.3 but needs clarification and a clear distinction between the two tests. If they are equivalent, one should reference the other to reduce ambiguity.

SuggestedRemedy

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **201** *SC* **201.10.2.1.** *P* **148** *L* **18** # 230

Razavi, Alireza Infineon

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

Please add the word “loss” after PSANEXT on the vertical-axis label.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201** *SC* **201.14** *P* **152** *L* **45** # 122

Turner, Max Ethernovia

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

it is from S to D PHY, i.e. 2 PHYs

SuggestedRemedy

add a plural s to PHY

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: The HS_PATH delays for an implementation of the PHY (local XGMII to remote XGMII link delay minus the link segment propagation delay) shall not exceed the limits shown in Table 201–24.

To: The HS_PATH delay between the PHYs (local XGMII to remote XGMII link delay minus the link segment propagation delay) shall not exceed the limits shown in Table 201–24.

Cl **201** *SC* **201.14** *P* **152** *L* **50** # 123

Turner, Max — Ethernovia

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

it is from D to S PHY, i.e. 2 PHYs

SuggestedRemedy

add a plural s to PHY

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change: The LS_PATH delays for an implementation of the PHY (local XGMII to remote XGMII link delay minus the link segment propagation delay) shall not exceed the limits shown in Table 201–24.

To: The LS_PATH delay between the PHYs (local XGMII to remote XGMII link delay minus the link segment propagation delay) shall not exceed the limits shown in Table 201–24.

Cl **201** *SC* **201.14** *P* **153** *L* **17** # 121

Turner, Max — Ethernovia

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

the link to Annex 201A is wrong (A is missing) and the hyperlink does not work

SuggestedRemedy

change to Annex 201A and add hyperlink

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **201A** *SC* **201A** *P* **249** *L* **21** # 124

Turner, Max — Ethernovia

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

https://www.merriam-webster.com/dictionary/insure - seems not the most fitting term

SuggestedRemedy

replace insure by ensure

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.1.1** *P* **157** *L* **14** # 140

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Content has been added to address all Editor's Notes in clause 202.

SuggestedRemedy

Delete all Editor's Notes in clause 202. Grant Editor's license to work with TDD champion to determine appropriate insertion text as needed for grammatical and technical correctness.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.1.3** *P* **159** *L* **2** # 128

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Ensure that all figures, tables, and equations have a text call-out.

SuggestedRemedy

Insert, " The MultiGBASE-A functional block diagram is shown in Figure 202-1."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.1.3** *P* **159** *L* **18** # 173

Chini, Ahmad — Broadcom

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

Arrow going out from Link Monitor is going nowwhere

SuggestedRemedy

Remove the arrow going out from Link Monitor Block

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by Comment #242.

Cl **202** *SC* **202.1.3.1** *P* **160** *L* **18** # 243

Wang, Frank — Realtek Semiconductor Corp.

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

According to https://www.ieee802.org/3/dm/public/0126/muma_3dm_01_0126.pdf, some numbers are not updated yet.

SuggestedRemedy

change "L × 1040 bits" to "L × 1024 bits"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.2.1.1.1** *P* **165** *L* **18** # 244

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

change "This value is continuously asserted in case transmission of zero symbols is required." to "This value is continuously asserted in case transmission of Z symbols is required. See 202.5.2.4 for the encoding of "Z"."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

change "This value is continuously asserted in case transmission of zero symbols is required."

to "This value is continuously asserted in case transmission of Z symbols is required. See 202.5.2.4 for the encoding of Z."

Cl **202** *SC* **202.2.1.3.1** *P* **166** *L* **22** # 23

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Suggest that nomenclature for sending quiet symbols to the transmitter be aligned with clause 201, using "Z" instead of "0" (SILENCE comment)

SuggestedRemedy

Change 0 to "Z" and change to "When Z symbols are to be transmitted." Add appropriate definition of Z symbols at the MDI to the PMA clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #245.

Cl **202** *SC* **202.2.1.3.1** *P* **166** *L* **22** # 245

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

change lines 22~25 as follows:
Z when Z symbols are to be transmitted in the following two cases:
1) when PMA_TXMODE.indication is SEND_Z during PMA training, and
2) during the QUIET period in each TDD cycle.
See 202.5.2.4 for the encoding of Z symbols.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change lines 22~25 as follows:
Z when Z symbols are to be transmitted (see 202.5.2.4) in the following two cases:
1) when PMA_TXMODE.indication is SEND_Z during PMA training, and
2) during the QUIET period in each TDD cycle.

Cl **202** *SC* **202.2.1.4.1** *P* **166** *L* **46** # 25

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

There are no values given for rx_symb.

SuggestedRemedy

Insert "The rx_symb may take on the same values defined for tx_symb in 202.2.1.3.1." as new last sentence of last paragraph of 202.2.1.4.1 (P166 L46)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.2.1.8.2** *P* **169** *L* **3** # 26

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

typo

SuggestedRemedy

change "requent" to "request"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.2.1.10** *P* **169** *L* **32** # 147

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Content has been added to address all TBDs in clause 202.

SuggestedRemedy

Delete all occurances of "TBD" clause 202. Grant Editor's license to work with TDD champion to determine appropriate insertion text as needed for grammatical and technical correctness.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2** *P* **170** *L* **15** # 28

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

If I understand TDD operation correctly, the PCS transmit and receive functions, like the PMA transmit and receive are NOT simultaneous.

SuggestedRemedy

Delete "simulataneous and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.1** *P* **171** *L* **14** # 29

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

the MultiGBASE-T1 PCS reset bit is 3.2322.15 - no need for the TBD

SuggestedRemedy

Delete (TBD)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2** *P* **171** *L* **43** # 31

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

What does the dashed line around 'selectable precoder' block in Figures 202-4 and 202-6 mean? There is an editor's note saying to check figures. I think this should be removed, since it has been removed from the text.

SuggestedRemedy

Delete selectable precoder block and dashed line around it in figure 202-4 and figure 202-6.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by Comment #246.

Cl **202** *SC* **202.3.2.2** *P* **171** *L* **48** # 247

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

For Figure 202-4, change '0' to 'Z'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by Comment #32.

Cl **202** *SC* **202.3.2.2** *P* **171** *L* **51** # 32

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

"0" is a bit, "Z" is silent. See prior comment on 202.2.1.3.1 (marked "SILENCE comment")

SuggestedRemedy

Change "0" to "Z" if prior comment on 202.2.1.3.1 is accepted for nomenclature of silent. This also occurs at P172 L32. (202.3.2.2 description of SEND_Z)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change '0' to Z

Change, "shall pass a vector of zeros"

to, "shall pass a vector of Z symbols"

Cl **202** *SC* **202.3.2.2** *P* **172** *L* **11** # 34

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

"forms the input to the RS_FEC(130,124) which adds." missing word - "encoder" and RS_FEC should be RS-FEC

SuggestedRemedy

change "RS_FEC(130,124) which " to "RS-FEC(130,124) encoder which "

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

change "RS_FEC(130,124) which "

too "RS-FEC(130,124) encoder, which "

Cl **202** *SC* **202.3.2.2** *P* **172** *L* **17** # 248

Wang, Frank — Realtek Semiconductor Corp.

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

According to https://www.ieee802.org/3/dm/public/0126/muma_3dm_01_0126.pdf, some numbers are not updated yet.

SuggestedRemedy

change "L × 64 parity bits" to "L × 48 parity bits"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2** *P* **172** *L* **25** # 36

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The text here describes a continuous flow of PAM2 or PAM4 symbols from the PCS to the PMA. That is only true during the TDD burst.

SuggestedRemedy

Change the start of the sentence at L25 to read "In each symbol period of a TDD burst, when communicating."
Add new 2nd sentence (after "request primitive.") : "Between TDD bursts, the PCS Transmit transfers Z symbols to the PMA via the PMA_UNITDATA.request primitive."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: Proposed wording is missing the refresh header.)

Insert the following new sentence at the start of the paragraph on line 25, "For both LS_TX and HS_TX, each set of transmit data-units forming the payload of a TDD burst are preceded by a PAM-2 mapped refresh header sequence of N_r symbols and followed by a sequence of N_z Z symbols to complete the TDD cycle."

Change the start of the sentence at L25 to read "In each symbol period of a TDD burst, when communicating."

Add new sentence (after "request primitive.") : "Between TDD bursts, the PCS Transmit transfers Z symbols to the PMA via the PMA_UNITDATA.request primitive."

Cl **202** *SC* **202.3.2.2** *P* **172** *L* **32** # 249

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

change "pass a vector of zeros" to "pass a vector of Z symbols"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by Comment #32.

Cl **202** *SC* **202.3.2.2** *P* **172** *L* **32** # 37

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The modes SEND_Z, SEND_TA, and SEND_TS are only used during training. (according to PHY control, SEND_N is used in data mode). The text should say this, as it is giving introductory information of how the PCS transmit works.

SuggestedRemedy

Insert "During training, PMA_TXMODE.indication has values SEND_Z, SEND_TS, and SEND_TA, before transitioning to SEND_N for data mode." after "PHY Control function."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert "During training, PMA_TXMODE.indication has values SEND_Z, SEND_TS, and SEND_TA before transitioning to SEND_N for data mode." after "PHY Control function."

Cl **202** *SC* **202.3.2.2.1** *P* **173** *L* **14** # 38

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

the text says ENCODE and DECODE work according to the rules in 202.3.2.2.2, but there are no rules there (this was an error in earlier text, discovered in dg). Since the ENCODE and DECODE functions produce & interpret the 64B/65B blocks, the rules for blocks are indicated. These are in 202.3.2.2.4 (Block structure),

SuggestedRemedy

Change 202.3.2.2.2 to 202.3.2.2.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change 202.3.2.2.2 to 202.3.2.2.4 in the following locations:

P173, L14
P200, L16
P200, L20

Cl **202** *SC* **202.3.2.2.2** *P* **174** *L* **30** # 184

Muma, Scott — Microchip

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

The intent of this figure has expanded beyond bit ordering to also show the payload transmitted in a burst. It may help to also show the refresh header and quiet symbols transmitted to illustrate the complete TDD cycle.

SuggestedRemedy

See attached PDF P8023dm_D0pc_bit_order_figure_markup.pdf Figure 202-5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert changes in P8023dm_D0pc_bit_order_figure_markup.pdf Figure 202-5

Grant Editorial license to implement in alignment with Style, including adding a call-out to the figure.

Cl **202** *SC* **202.3.2.2.2** *P* **174** *L* **30** # 39

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

After the PAM symbols are created on both Figure 202-5 and 202-6, the figure indicates that this is the PMA service interface. The figure needs to show the insertion of the quiet (Z) symbols prior to the PMA service interface to form a TDD burst.

SuggestedRemedy

Add step of inserting the quiet symbols (a mux with the RS-FEC frame and a "Z" on the other input) and then show as the last line the output of the mux as a TDD burst with the correct number of PAM symbols and quiet symbols. Do this for both Figures 202-5 and 202-6

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #238.

Cl **202** *SC* **202.3.2.2.6** *P* **178** *L* **46** # 41

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Remote fault is used by the link fault state diagram, Figure 46-11 in response to receiving a local fault. Do not delete..

SuggestedRemedy

Delete editor's note at 202.3.2.2.6

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2.12** *P* **180** *L* **3** # 42

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Tx_coded is a variable name and should not be capitalized.

SuggestedRemedy

change "Tx_coded<0> contains" to "The bit tx_coded<0> contains"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2.12** *P* **180** *L* **3** # 43

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

There is no "transcoder". The blocks shown are simply the encoded 65B blocks concatenated. Where the text said transcoder it clearly means RS-FEC encoder.

SuggestedRemedy

Change "to the transcoder" to "to the RS-FEC encoder" in 202.3.2.2.12 (P180 L3).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2.15** *P* **180** *L* **47** # 130

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Shown be "an" before an "H".

SuggestedRemedy

Replace, "...operates as a HS_RX."

with "...operates as an HS_RX."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2.16** *P* **181** *L* **28** # 47

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

RS FEC message should be RS-FEC message

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.2.17** *P* **183** *L* **42** # 48

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

All of a sudden the text jumps to description of a refresh header. It needs some introduction first if it goes here (and the whole TDD frame structure probably needs to go up front before the scrambler) but perhaps the section can be rewritten without refresh frame.

SuggestedRemedy

Change "PAM2 encoding is used for the refresh header (see 202.3.5) at all symbol rates. Consequently, the scrambled
header data stream, Cn, is shown in Equation (202-4)." to "Different scramblers are used for the refresh header and for the data stream.
The scrambled PAM2 header data stream, Cn shall be as in Equation (202-4). "

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: Best to always call it refresh header and payload since the payload is sometimes training frames and sometimes RS-FEC frames. Also, Cn is a bit stream prior to PAM2 mapping, not a PAM2 symbol stream.)

Change "PAM2 encoding is used for the refresh header (see 202.3.5) at all symbol rates. Consequently, the scrambled header data stream, Cn, is shown in Equation (202-4)."

to "Different scramblers are used for the refresh header and for the burst payload. The scrambled refresh header data bit, Cn, shall be as in Equation (202-4). Refresh header data bits are mapped to PAM2 symbols for all data rates."

Cl **202** *SC* **202.3.2.2.17** *P* **184** *L* **14** # 49

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The paragraph beginning at line 15 should be part of the previous paragraph, since it also only applies to 10 Gb/s transmission.

SuggestedRemedy

see comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.3** *P* **185** *L* **40** # 52

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

"descrambling is performed according to rules." - what does this mean? Having unreferenced or undefined rules is meaningless. This appears to be specified in the clause, so deleteing the phrase is fine.

SuggestedRemedy

delete "according to rules."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.3** *P* **185** *L* **49** # 54

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

"This process" has no precedent. I assume it is referring to the PCS Receive function, not a process.

SuggestedRemedy

Replace "This process" with "The PCS Receive function"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: A step is missing in the description compared to the Figure 202-10 and Figure 202-11. Confirm if this is a process or a function.)

Replace "This process..."

with "Groups of 15 64/65B are then separated into individual 64/65B blocks. The PCS Receive function..."

Cl **202** *SC* **202.3.2.3** *P* **186** *L* **7** # 250

Wang, Frank — Realtek Semiconductor Corp.

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

wording

SuggestedRemedy

remove "(TBD)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.3** *P* **186** *L* **14** # 56

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The paragraph break between the monitoring of loc_rcvr_status and what loc_rcvr_status does isn't necessary and reduces clarity

SuggestedRemedy

Delete paragraph break at P186 L14

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.2.3.2** *P* **189** *L* **17** # 59

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Equation (202-6) and Equation (202-5) are not the scrambler polynomials. They are also not active cross references.

SuggestedRemedy

Make "Equation (202-6)" an active cross-reference to Equation (202-10) and "Equation (202-5)" an active cross-reference to Equation (202-9)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.3** *P* **189** *L* **39** # 60

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Figures 202-5 and 202-6 are the bit ordering, they don't show TDD bursts.Not clear whether there is a missing figure, but I can't find one showing TDD bursts that might be meant to be indicated. Perhaps the word "TDD bursts" is incorrect.

The same issue exists in teh receiver description on line 43

SuggestedRemedy

delete "TDD bursts" (in 2 locations) or add new figures showing what is meant.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment #150 adds TDD bursts/cycle handling to the figure.

Cl **202** *SC* **202.3.3** *P* **189** *L* **46** # 62

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The sentence that "However, there is a possibility that the RS-FEC decoder corrected some errors." isn't relevant. It is unclear what this is supposed to mean.

SuggestedRemedy

Delete "However, there is a possibility that the RS-FEC decoder corrected some errors."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: This is just differentiaing between the behavior that bit errors cause the descrambler output to be not all zeros but the RS-FEC decoder output might still be all zeros even in the presence of bit errors. It's a helpful hint from Cl149, but not changing anything whether it's there or not.)

Delete "However, there is a possibility that the RS-FEC decoder corrected some errors."

Cl **202** *SC* **202.3.3** *P* **189** *L* **47** # 251

Wang, Frank — Realtek Semiconductor Corp.

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

wording

SuggestedRemedy

remove "(TBD)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by Comment #63.

Cl **202** *SC* **202.3.3** *P* **189** *L* **47** # 63

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The test mode is in fact Test Mode 7, the TBD is unnecessary.

SuggestedRemedy

Delete (TBD) at P189 L46

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.4** *P* **189** *L* **50** # 64

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The TDD bursts have not been described, and are unnecessary in the descri[ption.

SuggestedRemedy

Replace the first sentence with "Different scrambler polynomials are used for the refresh header and the burst payload."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.4** *P* **189** *L* **51** # 66

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The term "refresh_hdr" looks like a variable. It is not. It is otherwise called the "refresh header". This is the first instance, but it appears in a number of places.

SuggestedRemedy

Replace "refresh_hdr" with "refresh header" globally. (P189 L51 & 53, Figure 202-14, P191 L28, P192 L3, P193 L14 (Eq 202-13), P193 L29 (twice), P193 L30, Figure 202-16 (P195 L46), Figure 202-17 (P196 L14 & 25), Figure 202-18 (P197 L14 & 21))
AND delete "(refresh_hdr)" at P191 L24.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.4.1** *P* **190** *L* **3** # 67

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Duplicate shall. The requirement for the refresh header scrambling is already stated in 202.3.2.2.17

SuggestedRemedy

change "shall be scrambled" to "is scrambled".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5** *P* **191** *L* **19** # 68

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

It seems that 202.3.5 defines the PMA TDD framing structure for both training and data mode, because it defines the SEND_N structure too. (TDD_BURST comment)

SuggestedRemedy

Change title of 202.3.5 to TDD Burst Structure
Replace first paragraph in 202.3.5 to read: "The PCS generates signals to be transmitted by the PMA in the form of TDD bursts. TDD burst structure depends on the value of tx_mode and the data rate of transmission. Each TDD burst is comprised of two parts, a refresh header and a payload section. During training, in addition to indicating silence with SEND_Z, the PCS transmits TDD bursts in two different formats for tx_modes SEND_TS and SEND_TA, before finally switching to SEND_N. SEND_TS uses a symmetric frame format and shall be transmitted at a 3 GBd rate, regardless of the speed selected. SEND_TA and SEND_N use an asymmetric frame format, and transmit at either 3 GBd or 6 GBd depending on the transmitter speed selected. Quiet times between transmissions are introduced between TDD bursts by the PCS, when the PCS inserts Z symbols between TDD bursts. The duration of quiet time length depends on the state of tx_mode.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5** *P* **191** *L* **20** # 174

Chini, Ahmad — Broadcom

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

Nr and Np is specified for normal modes as well as training mode in 202.3.5.1, however the normal mode frame is not descibed

SuggestedRemedy

1- Change the title of 202.3.5 to
PMA training and Normal frame
2- Add a new plot similar to Figure 202-14 but without info field and rename it to Normal mode frame.
3- Rewrite to include normal mode, see Chini-3dm_01b_0326.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5** *P* **191** *L* **21** # 186

Muma, Scott — Microchip

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

This subclause begins with several sections describing training burst/operation, but then also goes into describing data bursts. Much of what is happening is actually leveraging or directly using PCS functions, as shown in Figure 202-4. So some parts of this description need to be moved to the PCS description and more clearly explain the SEND_N data burst generation.

SuggestedRemedy

See attached 8023d0pc-202_202.3.5_sendz_changes.doc

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Modify content in file 8023d0pc-202_202.3.5_sendz_changes.doc to accommodate source content from the following comments:

Comment #68
Comment #71
Comment #72
Comment #75
Comment #76
Comment #174
Comment #175
Comment #176

Grant Editorial license to implement updated content and alignm with Style.

Cl **202** *SC* **202.3.5** *P* **191** *L* **23** # 131

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Ensure that all figures, tables, and equations have a text call-out.

SuggestedRemedy

Replace, "...by a training payload."

with "...by a training payload as shown in Figure 202-14."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5** *P* **191** *L* **25** # 69

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Missing articles.

SuggestedRemedy

Change "Refresh header" to "The refresh header".
Change "Training payload" to "The training payload"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5.1** *P* **192** *L* **1** # 176

Chini, Ahmad — Broadcom

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

The title does not include Normal mode

SuggestedRemedy

Rewrite title of the cluse as follows

Refresh header, training and normal payload length

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5.1** *P* **192** *L* **3** # 175

Chini, Ahmad — Broadcom

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

Tables have normal mode numbers but text does not refer to training

SuggestedRemedy

Rewrite as follows

The lengths for refresh_hdr along with training and Normal mode payload are described in Table 202-5, Table 202-6, and
Table 202-7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5.1** *P* **192** *L* **6** # 71

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Adding the number of quiet symbols to the tables would be very useful. Reconciling this to the times, exposed errors in the documentation of timing.

SuggestedRemedy

Add "Quiet symbols" column to Tables 202-5, 202-6 and 202-7. and change titles to "N_r, N_p, and N_q values for."
I believe that for 100 Mb/s N_q is 960 for SEND_TS and 27136 for SEND_TA & SEND_N;
for 2.5 Gb/s it is 960 for SEND_TS, 528 for SEND_TA & SEND_N;
for 5Gbs & 10 Gb/s it is 960 for SEND_TS and 1056 for SEND_TA & SEND_N
Add Note below Table 202-7: NOTE - SEND_TS is sent at 3 GBd whereas SEND_TA and SEND_N are at 6 GBd. N_r, N_p, and N_q are at the baud indicated for the appropriate tx_mode.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5.1** *P* **192** *L* **7** # 252

Wang, Frank — Realtek Semiconductor Corp.

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

According to https://www.ieee802.org/3/dm/public/0126/muma_3dm_01_0126.pdf, the values of Training_payload N_p(symb) for SEND_TA and SEND_N in Tables 202-5, 202-6, and 202-7 need to be updated.

SuggestedRemedy

For Table 202-5, change the two "1024" to "1040".
For Table 202-6, change the two "26 000" to "25 600".
For Table 202-7, change the two "52 000" to "51 200".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5.2** *P* **193** *L* **1** # 72

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The nomenclature here is unnecessarily complex. The variables aren't introduced before the tables, the names "refresh_header" and "training_payload" are only used in the tables. N_b isn't necessary - it is just N_p. N_b is only used in this subclause. Trn is also unnecessary, as it is the same as S_tn. The values of N_r and N_p are key to the frame structure and need to be clear. N_p isn't just the training payload length, it appears to be the length of the payload field regardless of whether it is in training - since the tables define it for SEND_N, which is also the format in data mode...
It also defines the parameters of the training frame without any requirement.

SuggestedRemedy

Change the first sentence of 202.3.5.1 (P192 L1) to "The lengths for the refresh header, N_r, and the payload field are described in Table 202-5, Table 202-6, and Table 202-7.

Replace the 1st paragraph of 202.3.5.2 wit:
"For TDD bursts, the refresh header shall be composed of eight bytes of zeros, followed by four bytes of 0xF0. The refresh header is scrambled by the PRBS11 scrambler in 202.3.4.1. The PRBS11 scrambler stops at the last bit of the refresh header and resumes at the first bit of the next refresh header.
The TDD burst is completed by N_p payload symbols following the refresh header.
The payload symbols are scrambled by the PRBS33 scrambler defined in 202.3.4.2.
Except when txmode is SEND_N transmitting at 10 Gb/s, the payload symbols are PAM2, defined by Equation 202-5. When transmitting at 10 Gb/s and tx_mode is SEND_N, the payload symbols are the output of the Gray-mapped PAM-4 encoder, specified in 202.2.2.18." (note to editor, this assumes a previous comment was accepted combining 202.2.2.18 & 19, if it is not then this should be 202.3.2.2.19)
<new paragraph>
"The contents of the training frame are specified in equation 202-12 and equation 202-13."
Delete Equation 202-11, and 202-14, and replace N_b with N_p in Equations 202-12 and 202,13.

Delete the last sentence in 202.3.5.2 (Trn[0[is the same...) at Lines 24 & 25.
Consider combining sections 202.3.5.1 and 202.3.5.2
Delete 202.3.5.2.1 as it is now unnecessary.

Replace Trn[0] with S_tn at Figure 202-4 (P171 L33), in Equation 202-5, and in 202.3.5.3 at P193 L36. (these are the only other occurences of it - note, the 202.3.5.3 might be deleted by another comment)

Add: "NOTE - See 202.3.5.1 for definition of S_tn ." after Equation 202-5 (P184 L6)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5.2** *P* **193** *L* **3** # 138

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Ensure that all figures, tables, and equations have a text call-out.

SuggestedRemedy

Replace "...in the training payload."

with "...in the training payload as shown in Equation (202-11)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5.2** *P* **193** *L* **4** # 139

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Ensure that all figures, tables, and equations have a text call-out.

SuggestedRemedy

Replace "...in the training payload."

with "...in the training payload as shown in Equation (202-12)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5.2** *P* **193** *L* **4** # 253

Wang, Frank — Realtek Semiconductor Corp.

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

wording: minus sign

SuggestedRemedy

change "N_r - 1" to "N_r - 1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: Editor is assuming the change is from "-" to an en-dash.)

change "N_r - 1" to "N_r - 1"

Cl **202** *SC* **202.3.5.2.1** *P* **193** *L* **31** # 73

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

"defined in (see 202.3.4.1)." should be "defined in 202.3.4.1."

SuggestedRemedy

see comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5.3** *P* **193** *L* **49** # 141

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Equation (202-15) and Equation (202-16) are missing call-outs. Technical changes to this text are anticipated, so it's not possible to propose the exact call-out at this time.

SuggestedRemedy

Grant Editorial license for Editor to add call-outs to Equation (202-15) and Equation (202-16) in clause 2.3.5.3 .

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.5.4** *P* **194** *L* **16** # 75

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

This section describes the generation of TDD bursts, and insertion of the quiet symbols. It should be renamed and rewritten so as not to hide that.

SuggestedRemedy

Retitle 202.3.5.4 PAM Mapping and generation of TDD bursts
With text:
"Except for when transmitting payload symbols for 10 Gb/s when tx_mode is SEND_N, the symbols are encoded by the PAM2 mapper defined in 202.3.2.2.20.
When transmitting 10 Gb/s payload symbols and tx_mode is SEND_N, the symbols are encoded by the Gray-coded PAM4 encoder defined in 202.3.2.2.18 and 202.3.2.2.19.
Quiet symbols, Z, are then introduced between each TDD burst frame to form the sequence On, as defined in Equation 202-17.
The values of On are then conveyed to the PMA for transmission via the parameter tx_symb of the PMA_UNITDATA.request primitive.

Retain equation 202-17.
After equation 202-17 insert: "Where N_tdd is the number of symbols equivalent to the nominal 9.6 us TDD cycle time."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.5.4** *P* **194** *L* **24** # 142

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Ensure that all figures, tables, and equations have a text call-out.

SuggestedRemedy

Replace "...based on symbol time index n."

with "...based on symbol time index n as shown in Equation (202-17)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.6** *P* **195** *L* **1** # 76

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

If we define the TDD frames in 202.3.5, it is not clear what value 202.3.6 adds, other than Table 202-8 and perhaps some informative figures. If the figures are necessary, they should be in 202.3.5

SuggestedRemedy

Move text and figures from P195 L2 through P197 L30 to 202.3.5, after Table 202-7. Alternatively,move only P195 L2 through P195 L34 (including first paragraph, Figure 202-15, and table 202-8) to 202.3.5, after Table 202-7, and delete the remaining content of 202.3.6.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: Editors agree, but feel it would be more coherent to move everything to 202.3.5 and perhaps rename section 202.3.5 PCS TDD signaling if no better naming is proposed.)

Grant Editor's license to implement during incorporation of Comment #186 changes.

Cl **202** *SC* **202.3.6** *P* **195** *L* **9** # 77

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

tdd_cycle_time and gap_time are not used or defined anywhere else

SuggestedRemedy

Please define it. - suggest add all times shown in the figure (e.g., tdd_cycle_time, and gap_time) to Table 202-8. (alternately, replace labels in the figure with defined values)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert,

tdd_cycle_time is the nominal 9.6us TDD cycle time.

gap_time is the time between the start of QUIET at one MDI output and end of QUIET at the other MDI output. The gap_time is a result of the alignment of the two ends, so is not specified.

Cl **202** *SC* **202.3.6** *P* **195** *L* **25** # 255

Wang, Frank — Realtek Semiconductor Corp.

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

According to https://www.ieee802.org/3/dm/public/0126/muma_3dm_01_0126.pdf, the values of LS_TX_time and HS_TX_time in Table 202-8 need to be updated.

SuggestedRemedy

change "560" to "554.67" and change "8826.67" to "8693.33"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.6** *P* **195** *L* **32** # 188

Muma, Scott — Microchip

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

The times in SEND_TA/SEND_N are not updated in Table 202-8

SuggestedRemedy

Change 560 to 554.67
Change 8826.67 to 8693.33

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #255.

Cl **202** *SC* **202.3.6** *P* **195** *L* **37** # 79

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

TS_Quiet doesn't show up anywhere else it needs definition. Is this the TDD_on_s timer value?

SuggestedRemedy

Please replace with QUIET or appropriate term and define its duration.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Grant Editor's license to replace with "QUIET (N_z)" to illustrate that the QUIET will be for N_z symbols that will be added to tables 202-5/6/7. Note that the parameters for SEND_TS are used for N_r, N_p, N_z in this figure.

Cl **202** *SC* **202.3.6** *P* **196** *L* **7** # 80

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

TA_Quiet doesn't show up anywhere else it needs definition. How does this differ from TS_Quiet or QUIET? Is this the 9040 ns LEADER TDD_qt_timer? Or is it the 773.33 ns FOLLOWER value? If it differs, specify that.

SuggestedRemedy

Please replace with QUIET or appropriate term in Figures 202-17 and 202-18 and define its duration.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace with QUIET (N_z) when tx_mode = SEND_TA or tx_mode = SEND_N.

Grant Editor's license to add the N_z values to Table 202-5, Table 202-6, and Table 202-7.

Cl **202** *SC* **202.3.7.1** *P* **197** *L* **34** # 81

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

202.3.7.1 is unnecessary, since this has been previously stated for the entire clause (in 202.1.7)

SuggestedRemedy

Delete 202.3.7.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.7.2.2** *P* **199** *L* **1** # 170

Chini, Ahmad — Broadcom

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

rx_data_active specifies but not used

SuggestedRemedy

remove rx_data_active

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.7.2.2** *P* **199** *L* **18** # 82

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The variables tx_data_active, tx_qt_active, and tdd_detect are unused in the state diagrams. All the timers are unused in the state diagrams.

SuggestedRemedy

delete definitions for tdd_detect, tx_data_active, and tx_qt_active.
Delete 202.3.7.2.3 and all timers

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.3.7.2.2** *P* **199** *L* **29** # 172

Chini, Ahmad — Broadcom

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

tx_qt_active specified but not used

SuggestedRemedy

remove tx_qt_active

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #82.

Cl **202** *SC* **202.4.2** *P* **206** *L* **47** # 132

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Use more common reference structure.

SuggestedRemedy

Replace, "The PMA reference diagram, Figure 202-22, shows..."

with "The PMA reference diagram (see Figure 202-22) shows..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.2** *P* **207** *L* **21** # 85

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The TDD cycles are generated by the PCS. The PMA doesn't have a requirement to repeat the cycles - it does what the PCS tells it to.

SuggestedRemedy

Delete "The PMA shall repeat such TDD cycles with the predefined timing parameters specified in 202.3.6."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.3** *P* **207** *L* **42** # 86

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The PMA Receive function must be able to receive PAM2 in all cases and PAM4 in 10Gb/s mode. Not "PAM2 or PAM4 signals"

SuggestedRemedy

Change "for PAM2 or PAM4 signals on the balanced pair or the single ended coaxial cable." to "for PAM2 signals and for PAM4 signals when receiving 10 Gb/s on the balanced pair or the single ended coaxial cable."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor' note: Include wording for all rates, not just 10 Gb/s.)

Change "for PAM2 or PAM4 signals on the balanced pair or the single ended coaxial cable."

to "for PAM2 signals for all rates and for PAM4 signals when receiving 10 Gb/s on the balanced pair or single ended coaxial cable."

Cl **202** *SC* **202.4.2.3** *P* **208** *L* **1** # 84

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The description of loc_rcvr_status is unclear and may be contradictory. First it says it is "expected to" become NOT_OK when the link_partner's tx_mode changes to SEND_Z from any other value, then it says that the failing to receive the "consecutive TDD bursts" could trigger deassertion (which should say "NOT_OK"), then it REQUIRES that SEND_Z during the QUIET period NOT trigger de-assertion. I looked at Figure 202-26, but only see SEND_Z transmitted during training. During data mode tx_mode is SEND_N....

SuggestedRemedy

Suggest: Change "The SEND_Z signal during the TDD QUIET period alone shall not trigger the DUT to de-assert its loc_rcvr_status." to "The reception of Z symbols during the TDD QUIET period alone, if followed by a TDD burst shall not trigger setting loc_rcvr_status to NOT_OK."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by Comment #257.

Cl **202** *SC* **202.4.2.3** *P* **208** *L* **3** # 257

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

change:
"The SEND_Z signal during the TDD QUIET period alone shall not trigger the DUT to de-assert its loc_rcvr_status."
to:
"The received Z symbols during the TDD QUIET period alone shall not trigger setting loc_rcvr_status to become NOT_OK."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

change:
"The SEND_Z signal during the TDD QUIET period alone shall not trigger the DUT to de-assert its loc_rcvr_status."

to:
The reception of Z symbols during the TDD QUIET period alone shall not trigger setting loc_rcvr_status to NOT_OK."

Cl **202** *SC* **202.4.2.4.2** *P* **209** *L* **20** # 87

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Octet 3<T:0> appears to be a typo - should be <7:0>

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.4.5** *P* **210** *L* **24** # 148

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Missing "." at the end of the sentence.

SuggestedRemedy

Replace "misconfiguration"

with "misconfiguration."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.4.5** *P* **210** *L* **26** # 136

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Use more typical reference language and more the reference closer to the descriptive text.

SuggestedRemedy

Replace "... contains the PHY capability bits."

with "... contains the PHY capability bits as shown in Table 202-10."

Delete, "See Table 202-10 for the details." on P210, L27.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.4.5** *P* **211** *L* **1** # 88

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

I thought the precoder was deleted.

SuggestedRemedy

Delete sentence at P211 L1-2: " PrecodeSel indicates. 202.3.2.2.19)."
Replace PrecodeSel with Reserved in Table 202-10
At P211 L47, change "the negotiated speed, and the PrecodeSel" to ", and the negotiated speed"
Delete "PrecoderSel," at P213 L35 (202.4.2.4.11)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete sentence at P211 L1-2: " PrecodeSel indicates. 202.3.2.2.19)."

Replace PrecodeSel with Reserved in Table 202-10

At P211 L47, change ", the negotiated speed, and the PrecodeSel" to "and the negotiated speed"

Delete "PrecoderSel," at P213 L35 (202.4.2.4.11)

Grant Editorial license to remove precoder in any other locations not addressed.

Cl **202** *SC* **202.4.2.4.6** *P* **211** *L* **12** # 137

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Use more typical reference language.

SuggestedRemedy

Replace "...Oct8<7> = delay_count_valid. See Table 202-11 for the details."

with "...Oct8<7> = delay_count_valid as shown in Table 202-11."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.4.11** *P* **213** *L* **29** # 90

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

"When entering the TRAINING0 state" - does this mean that the alignment is already there upon entry? If so, "Prior to entering" would make sense. If not (which I think is the meaning), then when does aligment need to take place by? If it is the latter, separation of TRAINING0 into an alignment state and a state maintaining the alignment is recommended, with the requirements language removed.

SuggestedRemedy

Either : Change "When entering. on the transmit MDI" to "Upon entry to the TRAINING0 state, the first symbol to of the FOLLOWER's transmit PMA training frame at the transmit MDI shall be aligned so that it is "
OR: Consider when the alignment must occur by, and separate the TRAINING0 state into multiple states - one where alignment occurs and one where the alignment is maintained. This also necessitates removal of the 2 "shalls" on P213 L29 and L32.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "When entering the TRAINING0 state, the FOLLOWER shall align the first symbol of the transmit PMA training frame to be on the transmit MDI..."

to "Upon entry to the TRAINING0 state, the first symbol to of the FOLLOWER's transmit PMA training frame at the transmit MDI shall be aligned so that it is..."

On P213, L31:
Change "The FOLLOWER shall maintain this alignment while in the TRAINING0 state."
To: The FOLLOWER shall maintain this alignment while in the TRAINING0 and COUNTDOWN0 states (i.e., while tx_mode = SEND_TS)."

Cl **202** *SC* **202.4.2.4.11** *P* **213** *L* **33** # 91

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Suggest that the requirment for the FOLLOWER Infofield burst coutn to match the LEADER's from the preceding frame isn't what you want - it can be met by simply echoing the count. I think this isn't a 'shall' but rather a recommendation that the counts should equal each other. Also, the name of the field is PHY burst count, not Infofield burst count.

SuggestedRemedy

Change "shall match" to "should match" at P213 L33
Change "FOLLOWER Infofield burst count" to "PHY burst count communicated by the FOLLOWER"
Change "LEADER Infofield burst count from" to "PHY burst count communicated by the leader during"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.4.11** *P* **213** *L* **36** # 92

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

I think you mean exchanged "using" infofields (you're not swapping these for infofields)

SuggestedRemedy

see comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "are exchanged with Infofields"

with, "are exchanged using Infofields"

Cl **202** *SC* **202.4.2.4.11** *P* **213** *L* **38** # 93

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The paragraph is already talking about being IN the TRAINING0 state, but this last sentence talks about 'until it enters the TRAINING0 state', and refers to 'this alignment' which doesn't have a precedent (what is "this alignment" here?) seems to be out of place, possibly left over and referrng to the requirement on line 32.

SuggestedRemedy

Delete "The FOLLOWER shall continue to maintain this alignment until it enters the TRAINING0 state."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.2.4.11** *P* **213** *L* **43** # 178

Chini, Ahmad — Broadcom

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

The delay requirement is for both training and normal mode, but normal mode is not mentioned anywhere else.

SuggestedRemedy

Include normal mode as in below

When entering the TRAINING1 state or normal mode, the FOLLOWER shall use the LEADER transmitted delay_count to align its transmit PMA frame to be 176 ns - delay_count × 5.33 ns (+-5.3ns), after the last PMA training or normal mode payload symbol from the LEADER appears on the FOLLOWER input MDI.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Consider with Comment #95, which proposes accuracy of +/- 0.5 delay count units instead of +/-5.3ns, and notes that 5.33ns should be 5.333ns.

Change, P213, L43-46 to:

When entering the TRAINING1 state, the FOLLOWER shall use the LEADER transmitted delay_count to align its transmit PMA frame to 176 ns - delay_count × 5.333 ns (+/-5.3ns) after the last PMA training or normal mode payload symbol from the LEADER appears on the FOLLOWER input MDI."

Add new sentence to the end of the paragraph on P213, L46, "The FOLLOWER shall maintain this alignment while tx_mode is SEND_TA or SEND_N."

Cl **202** *SC* **202.4.2.4.11** *P* **213** *L* **44** # 95

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

shall align its transmit PMA training frame. again, precise timing (see earlier comment about alignment in TRAINING0). It looks like the accuracy here should be related to the granular resolution of delay_count, which is 5.333 ns per tha above. There is a mismatch in the precision of the 5.33ns here and the 5.333 stated in the definition of delay_count...

SuggestedRemedy

Change "5.33 ns" to insert, "5.333 ns, +/- 0.5 delay count units," at P213 L44

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #178.

Cl **202** *SC* **202.4.3.1** *P* **214** *L* **28** # 112

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

There is no mention of what signals are transmitted during 2.5Gb/s or 5 Gb/s transmission. "all other symbols" isn't really sufficient specification.

SuggestedRemedy

Insert the following new second sentence in the first paragraph of 202.4.3.1:
"For 100 Mb/s, 2.5 Gb/s or 5 Gb/s, all transmit symbols are PAM2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "During RS-FEC frame transmission, 10 Gb/s transmit path uses PAM4 while all other symbols transmitted within a burst use PAM2."

with, "For 100 Mb/s, 2.5 Gb/s, or 5 Gb/s transmit rates, the refresh header and burst payload symbols are PAM2. For 10 Gb/s transmit rates, the burst payload is transmitted using PAM4 symbols, while the refresh header is transmitted using PAM4 symbols. When QUIET (i.e., not transmitting PAM2 or PAM4 symbols), Z symbols are transmitted."

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **6** # 100

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Definition of config should just reference the parameter passed by the primitive. There is no reason to reference passing to the PCS here either.

SuggestedRemedy

Change definition of config to : "See 202.2.1.2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **11** # 101

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

A better description is needed for link_control than just how it is set. Also descriptions are needed for the values. Consider using a different name too - link_control is used for the variable going to the TDI throughout 802.3, and this one doesn't do that - it is more like sync_link_control iin the automotive clauses.

SuggestedRemedy

Suggest change name of link_control to link_enable
Change Description to : "This link_enable variable is set by management or default to enable or disable the PHY. It is set to disable the link upon power on reset or release from power down (See 202.4.2.5). Transition to ENABLE initiates PHY Control and the Link Monitor state diagrams. Values:
DISABLE Disable the transmitter and await initiation of training.
ENABLE Enable operation of the PHY.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change name of link_control to link_enable

Change Description to : "This variable is set by management or default to enable or disable the PHY. It is set to disable the link upon power on reset or release from power down (see 202.4.2.5). Transition to ENABLE initiates PHY Control and the Link Monitor state diagram. Values:
DISABLE Disable the transmitter and await initiation of training.
ENABLE Enable operation of the PHY.

Grant Editor's license to make this change throughout the document where appropriate.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **16** # 102

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

The values of link_status need definition.

SuggestedRemedy

Change "Values: OK or FAIL" to "Values:
FAIL No valid link established.
OK The Link Monitor function indicates that a valid MultiGBASE-A link is established. Reliable reception of signals transmitted from the remote PHY is possible."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **18** # 99

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

You shouldn't put the state diagram actions in the variable definitions. Put the reset of loc_countdown_done in the state diagram. However, it isn't clear this is the right variable. The text says (202.3.2.4.7) "The LEADER will exit a COUNTDOWN state after sending the last burst (BC24=PhaseSwBC24-1), and receiving the last burst from the FOLLOWER. The FOLLOWER will exit a COUNTDOWN state after receiving the last burst (BC24=PhaseSwBC24-1) from the LEADER and finishing sending the last burst of its own."

The same can be said of rem_countdown_done at P216 L1

SuggestedRemedy

Change definition of loc_countdown_done to:
This variable is only used by the LEADER. It indicates that the LEADER has finished sending the last LEADER countdown
Infofield and received the responding (last) Infofield from the FOLLOWER at the current TRAINING stage.
Values:
TRUE: The LEADER has sent it's last burst (BC24=PhaseSwBC24-1), and received the last burst from the FOLLOWER as indicated by the received InfoField since the latest entry to a TRAINING state.
FALSE: The LEADER has not sent it's last burst (BC24=PhaseSwBC24-1), or has not received the last burst from the FOLLOWER as indicated by the received InfoField since the latest entry to a TRAINING state.

Change definition of rem_countdown_done to:
This variable is only used by the FOLLOWER. It indicates that the FOLLOWER has finished receiving the last Infofield from the LEADER at the current TRAINING stage, and has sent at least one Infofield.
Values:
TRUE: The FOLLOWER has received the last burst (BC24=PhaseSwBC24-1) sent by the leader, and has sent at least one InfoField since the latest entry to a TRAINING state.
FALSE: The FOLLOWER has not received the last burst (BC24=PhaseSwBC24-1) sent by the leader, or has not sent at least one InfoField since the latest entry to a TRAINING state.

Insert "loc_countdown_done <= FALSE" in states TRAINING0 and TRAINING1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change definition of loc_countdown_done to:
This variable is only used by the LEADER. It indicates that the LEADER has finished sending the last LEADER countdown Infofield and received the responding (last) Infofield from the FOLLOWER at the current TRAINING stage.
Values:
TRUE: The LEADER has sent its last burst (BC24=PhaseSwBC24-1) and received the last burst from the FOLLOWER, as indicated by the received InfoField since the latest entry to a

TRAINING state.
FALSE: The LEADER has not sent its last burst (BC24=PhaseSwBC24-1) or has not received the last burst from the FOLLOWER, as indicated by the received InfoField since the latest entry to a TRAINING state.

Change definition of rem_countdown_done to:
This variable is only used by the FOLLOWER. It indicates that the FOLLOWER has finished receiving the last Infofield from the LEADER at the current TRAINING stage, and has sent at least one Infofield.
Values:
TRUE: The FOLLOWER has received the last burst (BC24=PhaseSwBC24-1) sent by the leader and has sent at least one InfoField since the latest entry to a TRAINING state.
FALSE: The FOLLOWER has not received the last burst (BC24=PhaseSwBC24-1) sent by the leader or has not sent at least one InfoField since the latest entry to a TRAINING state.

Insert "loc_countdown_done <= FALSE" in states TRAINING0 and TRAINING1.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **26** # 103

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

what is "correct" or "incorrect" operation?. The remaining description is already covered. I believe what is meant is similar to other phys where the operation is implementation dependent, which is defined in 202.4.2.3. Fortunately, the variable is already defined in 202.2.1.7.

SuggestedRemedy

Change description of loc_rcvr_status to read:
See 202.2.1.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **34** # 104

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

Duplicate shall. There is already a requirement to exchange capabilities.

SuggestedRemedy

delete "shall" (the LEADER and FOLLOWER exchange capabilities.)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **34** # 258

Wang, Frank — Realtek Semiconductor Corp.

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

wording

SuggestedRemedy

change "loc_rcvr_status=1" to "loc_rcvr_status = OK"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **215** *L* **50** # 261

Wang, Frank — Realtek Semiconductor Corp.

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

remove the text highlight

SuggestedRemedy

remove the the text highlight for "7:6"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **216** *L* **9** # 106

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

what is "correct" or "incorrect" operation?. The remaining description is already covered. Like loc_rcvr_status, the variable is already defined in the primitives section, see 202.2.1.8.

SuggestedRemedy

The status of the link partner's receiver indicated in the loc_rcvr_status received in the InfoField from the remote PHY. See 202.2.1.8.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace the definition of rem_rcvr_status with, "The status of the link partner's receiver indicated in the loc_rcvr_status received in the InfoField from the remote PHY. See 202.2.1.8.1."

Cl **202** *SC* **202.4.4.1** *P* **216** *L* **25** # 108

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

tx_mode is defined identically in 202.2.1.1. It isn't a good idea to duplicate text, as they may get out of sync.

SuggestedRemedy

Replace definition of tx_mode with "See 202.2.1.1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.1** *P* **216** *L* **35** # 259

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

change "zero symbols" to "Z symbols"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.4.4.2** *P* **216** *L* **40** # 109

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

the link_fail_inhibit timer is started when the state diagram says it is. The variable text contradicts the diagram. But as noted earlier there is a problem with the diagram. If fixed as described in the comment, the timer starts when PHY control enters TRAINING0. For the LEADER this is when the first symmetric burst starts to be generated by the PCS, for the follower, this is when the loc_rcvr_status is OK AND minwait_timer is done.

SuggestedRemedy

Delete P216 L45-48 ("LEADER: This timer.. to the LEADER.")

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: The corrected state machine comments will allow this to be deleted.)

Delete P216 L45-48 ("LEADER: This timer.. to the LEADER.")

Cl **202** *SC* **202.4.5** *P* **217** *L* **16** # 110

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

training_active is not defined. This appears to be boolean. It appears to be an indication that this is the first pass through TRAINING0 and has not made it to PCS_DATA

SuggestedRemedy

Add definition for training_active to 202.4.4.1
training_active
A Boolean variable indicating that PHY Control has passed through the TRAINING0 state at least once since the exiting DISABLE_TRANSMITTER and has not yet reached PCS_DATA.

Change training_active <= 0 in DISABLE_TRANSMITTER and PCS_DATA to training_active <= FALSE
Change training_active <= 1 in TRAINING0 to training_active <= TRUE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #238.

Cl **202** *SC* **202.4.5** *P* **217** *L* **34** # 187

Muma, Scott — Microchip

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

Due to the way the state machine conventions work it's possible the link_fail_inhibit_timer never starts. Add a re-entry to TRAINING0 when detect_lp_burst=TRUE to ensure the timer will be started before transitioning to COUNTDOWN0.

SuggestedRemedy

See attached PDF P8023dm_D0pc_bit_order_figure_markup.pdf Figure 202-26 part a

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert changes in file P8023dm_D0pc_bit_order_figure_markup.pdf Figure 202-26 part a

Grant Editorial license to align with Comment #238 and implement in alignment with Style.

Cl **202** *SC* **202.4.5** *P* **218** *L* **17** # 98

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

TRAINING1 may simply fall through since loc_rcvr_status and rem_rcvr_status will likely be true on entry. Resetting them to NOT_OK in the state will prevent this, and they will get executed once on entry, and become OK as the local receiver settles and the remote receiver sends OK status via infofield.

SuggestedRemedy

add "loc_rcvr_status <= NOT_OK" and "rem_rcvr_status <= NOT_OK" to state TRAINING1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by Comment #238.

Cl **202** *SC* **202.5.1** *P* **220** *L* **11** # 113

Zimmerman, George — CME Consulting/ADI,APL Gp, Cisco, Infineon, OnSe

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

If the precoder is eliminated, then test mode 3 is eliminated too.

SuggestedRemedy

change the description of register value 3 to Test mode 3 - Reserved
Delete paragraph at P220 L20 through P220 L25 (Test mode 3)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.5.1** *P* **220** *L* **24** # 177

Chini, Ahmad — Broadcom

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

Precoder is for 10Gbps link only

SuggestedRemedy

Add a sentence to indictae test mode 3 is not required if 10Gbps is not supported.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Precoder has been removed.

Cl **202** *SC* **202.5.2.4** *P* **224** *L* **30** # 260

Wang, Frank — Realtek Semiconductor Corp.

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

To align with clause 201, using the definition of "Z".

SuggestedRemedy

add a new sentence: "When tx_symb is "Z", the transmit signal at the MDI is nominally zero, and the transmit signal shall be less than -36dBm."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert a new sentence: "When the value of tx_symb is Z, the transmit signal at the MDI is nominally zero and the transmit signal shall be less than -36 dBm."

Grant Editorial license to align 202.4.2.2.1 with change.

Cl **202** *SC* **202.5.2.4** *P* **226** *L* **22** # 262

Wang, Frank — Realtek Semiconductor Corp.

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

wording

SuggestedRemedy

remove "(TBD)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.5.2.6** *P* **227** *L* **28** # 179

Chini, Ahmad — Broadcom

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

PPM is relative itself, no need to scale it by S

SuggestedRemedy

Delete
scaled by S

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "When the FOLLOWER is using a recovered timing reference, the symbol transmission rate shall be within ± 10ppm of the recovered clock scaled by S."

with, "When the FOLLOWER is using a recovered timing reference, the symbol transmission rate (scaled by S) shall be within ± 10ppm of the recovered clock."

Cl **202** *SC* **202.5.3.1** *P* **227** *L* **47** # 180

Chini, Ahmad Broadcom

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

Sending decoding data to XGMII is regardless of link reset

SuggestedRemedy

Remove

after link reset completion

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(Editor's note: Reliable data to the XGMII isn't there until link_status=OK or pcs_data_mode=TRUE.)

Replace, "after link reset completion"

with, "after link_status = OK"

Cl **202** *SC* **202.5.3.2** *P* **228** *L* **6** # 133

Maguire, Valerie Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Improve clarity and improve accuracy of figures.

SuggestedRemedy

Replace, "The receive DUT is connected to the noise source through a directional coupler, as shown in Figure 202-35, with a link segment as defined in 202.7 for -T1 and shown in Figure 202-36, with a link segment as defined in 202.8 for -V1"

with "The -T1 receive DUT is connected to the noise source through a directional coupler with a -T1 link segment (see 202.7) as shown in Figure 202-35. The -V1 receive DUT is connected to the noise source through a directional coupler with a -V1 link segment (see 202.8) as shown in Figure 202-36."

Replace "Link segment" with "-T1 link segment" in Figure 202-35.

Replace "Link segment" with "-V1 link segment" in Figure 202-36.

Replace "directional coupler" with "Directional coupler" in Figure 202-36.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.7.1.6** *P* **231** *L* **3** # 181

Chini, Ahmad Broadcom

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

use a text similar to 201.

SuggestedRemedy

Replace

The maximum link delay of a -T1 link segment shall be 160 ns.

With

The propagation delay of a -T1 link segment shall not exceed 160 ns for all frequencies between 3 MHz and 4GHz.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace

The maximum link delay of a -T1 link segment shall be 160 ns.

With

The propagation delay of a -T1 link segment shall not exceed 160 ns for all frequencies between 3 MHz and 4GHz.

Cl **202** *SC* **202.7.2.1** *P* **231** *L* **18** # 143

Maguire, Valerie Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Broken Equation reference.

SuggestedRemedy

Replace "Equation (202-32)"

with "Equation (202-25)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.7.2.1** *P* **231** *L* **29** # 144

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Broken Equation reference.

SuggestedRemedy

Replace "Equation (202-33)"

with "Equation (202-26)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.7.2.1** *P* **232** *L* **1** # 134

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Broken figure link reference.

SuggestedRemedy

Replace "Figure 202-44" with "Figure 202-39".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.7.2.2** *P* **232** *L* **32** # 145

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Broken Equation reference.

SuggestedRemedy

Replace "Equation (202-34)"

with "Equation (202-27)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.7.2.2** *P* **233** *L* **2** # 146

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Broken Equation reference.

SuggestedRemedy

Replace "Equation (202-35)"

with "Equation (202-28)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.7.2.2** *P* **233** *L* **13** # 135

Maguire, Valerie — Copperopolis; aff'l w/ CME Consulting, Microchip, and

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

Broken figure link reference.

SuggestedRemedy

Replace "Figure 202-45" with "Figure 202-40".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **202** *SC* **202.8.1.6** *P* **236** *L* **42** # 182

Chini, Ahmad Broadcom

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

use a text similar to 201.

SuggestedRemedy

Replace

The maximum link delay of a -V1 link segment shall be 160 ns.

With

The propagation delay of a -V1 link segment shall not exceed 160 ns for all frequencies between 3 MHz and 4GHz.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace

The maximum link delay of a -V1 link segment shall be 160 ns.

With

The propagation delay of a -V1 link segment shall not exceed 160 ns for all frequencies between 3 MHz and 4 GHz.

Cl **202** *SC* **202.11.2** *P* **243** *L* **4** # 183

Chini, Ahmad Broadcom

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

"in a professional manner" is not a proper specification

SuggestedRemedy

Use the following instead
As per application requirement

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Cabling and equipment should be secured. The Suggested Remedy does not address what happens if an applicable application requirement doesn't exist. This text currently exists in 96.9.2, 97.9.2, 104.8.3, 146.9.2, 147.10.2, and 149.9.2.