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

Hajduczenia, Marek Charter Communications

Comment Type **G** *Comment Status* **D** *EZ*

It seems unlikely that .3cw (Amendment #8) is approved before .3cy (Amendment #9). I suggest that the order of amendments be swapped, i.e., .3cy becomes Amendment #9 and .3cw becomes Amendment #8.

SuggestedRemedy

Change .3cy amendment number from #9 to #8 and notify .3cw of the change.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **10** # I-14

Grow, Robert RMG Consulting

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

It appears to me that this project is likely to get to RevCom before P802.3cw (D2.0 being the current draft). I don't find any order dependency between P802.3cw/D2.0 and P802.3cy/D3.0.

SuggestedRemedy

If Mr. Law concurs: 1. renumber to Amendment 8, 2. remove cw from list at line 28 (note that cw is not in proper order now), 3. remove cw description on page 12 and renumber cy to amendment 8.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

1. renumbered to Amendment 8,
2. removed cw from list at line 28 (note that cw is not in proper order now),
3. removed cw description on page 12 and renumber cy to amendment 8.

Cl **FM** *SC* **FM** *P* **1** *L* **33** # I-16

Grow, Robert RMG Consulting

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

With a 22 Dec 2022 ballot close, it is unlikely D3.1 will be created this year.

SuggestedRemedy

A friendly reminder that in addition to the title page and header draft date the copyright year needs to be updated at page 1, line 33 and page 2 line 46, and in page footer.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **2** *L* **1** # I-142

Wienckowski, Natalie General Motors Company

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

Incorrect formatting.

SuggestedRemedy

Remove "bold" style from "T" in "This".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **7** *L* **24** # I-15

Grow, Robert RMG Consulting

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

It looks like Merek has double billing (TF editor above list plus in the list here).

SuggestedRemedy

Delete Mr. Hajduczenia at line 24.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **7** *L* **24** # I-143

Wienckowski, Natalie General Motors Company

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

Participant name is duplicated. All names of officers are removed from general list except one.

SuggestedRemedy

Remove duplicate of "Hajduczenia, Marek" in general list it is included above as the Task Force Editor-in-Chief.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **10** *L* **4** # I-17

Grow, Robert RMG Consulting

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

This boxed paragraph is published in the approved standard, so the self reference should be IEEE Std 802.3cy-202x.

SuggestedRemedy

Change P802.3cy to IEEE Std 802.3cy-202x.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.16** *P* **24** *L* **44** # I-30

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Table 45-19 is significantly separated from the editing instruction.

SuggestedRemedy

Change pagination (e.g., force new page before 45.2.1.16) so that Table 45-19 stays with its editing instruction and before editing instruction to insert 45.2.1.16.a

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.16** *P* **24** *L* **47** # I-144

Wienckowski, Natalie General Motors Company

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

grammar

SuggestedRemedy

Change: as shown follows
To: as follows

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.244.1** *P* **26** *L* **23** # I-103

Ran, Adee Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A** *MultiGBASE-T1*

"Reed-Solomon interleaving is described in 149.3.2.2.15 for MultiGBASE-T1 and 165.3.2.2.15 for 25GBASE-T1"

But the definition of MultiGBASE-T1 in 1.4.407 includes 25GBASE-T1 (in addition to 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1).

Similarly in the subsequent sentence and in other places (e.g., 45.2.1.246.1, 45.2.1.246.2).

SuggestedRemedy

Change both instances of "MultiGBASE-T1" to "2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1".

Implement elsewhere as necessary.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"149.3.2.2.15 for MultiGBASE-T1 and 165.3.2.2.15 for 25GBASE-T1"

to

"149.3.2.2.15 and 165.3.2.2.15 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.244.1** *P* **26** *L* **23** # I-31

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. This occurs in multiple places in clause 45. (comments marked MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and 165.3.2.2.15 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and 165.3.2.2.15 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"149.3.2.2.15 for MultiGBASE-T1 and 165.3.2.2.15 for 25GBASE-T1"

to

"149.3.2.2.15 and 165.3.2.2.15 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.244.1** *P* **26** *L* **29** # I-104

Ran, Adee Cisco Systems, Inc.

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

"If bits 1.2311.12:11 are set to these undefined values, the PHY will communicate these values to the link partner"

The term "undefined" (and sometimes "not defined") seems incorrect here - the values are defined, but are invalid in some cases. All the other text in 45.2.1 seems to use the word "invalid" for values that are not allowed.

Also, "will" is deprecated and should only used in statements of fact. In this case, since the value is invalid ("undefined"), saying that the PHY will communicate is likely not a requirement but rather allowed behavior, so "may" is preferable.

Also, it is not stated how a receiver that receives an invalid value and does not support it is expected to behave. To prevent such a receiver from "taking the blame", the behavior should be stated as "undefined".

SuggestedRemedy

Change all instances of "undefined" and "not defined" in 45.2.1.244.1 and 45.2.1.245.1, and in Table 45-206 and Table 45-207, to "invalid".

Change "will" to "may" in 45.2.1.244.1. Change "will indicate" to "indicates" in 45.2.1.245.1.

Append the following sentence to the end of the second paragraph of 45.2.1.244.1 and the second paragraph of 45.2.1.245.1: "The behavior of a receiver that receives an invalid interleave request is undefined".

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change all instances of "undefined" in 45.2.1.244.1 and 45.2.1.245.1, and in Table 45-206 and Table 45-207, to "not defined".

Change "PHY will communicate these values" to "PHY communicates these values" in 45.2.1.244.1. Change "will indicate" to "indicates" in 45.2.1.245.1.

The use of the word "invalid" changes the meaning for the existing Clause 149 PHY and indicates a new error condition which was not intended.

Cl **45** *SC* **45.2.1.245.1** *P* **27** *L* **9** # I-33

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. (MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and 165.3.2.2.15 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and 165.3.2.2.15 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"described in 149.3.2.2.15 for MultiGBASE-T1 and 165.3.2.2.15 for 25GBASE-T1"

to

"described in 149.3.2.2.15 and 165.3.2.2.15 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.244.1** *P* **27** *L* **24** # I-32

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. (MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and 165.3.2.4.5 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and 165.3.2.4.5 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"149.4.2.4.5 for MultiGBASE-T1 and 165.4.2.4.5 for 25GBASE-T1"

to

"149.4.2.4.5 and 165.4.2.4.5 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.245.1** *P* **27** *L* **10** # I-34

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. (MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and 165.3.2.4.5 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and 165.3.2.4.5 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"specified in 149.4.2.4.5 for MultiGBASE-T1 and 165.4.2.4.5 for 25GBASE-T1"

to

"specified in 149.4.2.4.5 and 165.4.2.4.5 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.246.1** *P* **27** *L* **26** # I-35

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. (MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and in 165.5.1 and Table 165-11 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and in 165.5.1 and Table 165-11 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"described in 149.5.1 and Table 149–17 for MultiGBASE-T1 and in 165.5.1 and Table 165–11 for 25GBASE-T1"

to

"described in 149.5.1, Table 149–17, 165.5.1, and Table 165–11 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.246.2** *P* **27** *L* **36** # I-36

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. (MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and 165.3.2.2.20 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and 165.3.2.2.20 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"specified in 149.3.2.2.20 for MultiGBASE-T1 and 165.3.2.2.20 25GBASE-T1"

to

"specified in 149.3.2.2.20 and 165.3.2.2.20 for MultiGBASE-T1"

Cl **45** *SC* **45.2.1.246.2** *P* **27** *L* **37** # I-105

Ran, Adee Cisco Systems, Inc.

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

"165.3.2.2.20 25GBASE-T1"

Also in 45.2.1.246.3.

SuggestedRemedy

Change to "in 165.3.2.2.20 for 25GBASE-T1", in both places.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.246.2** *P* **27** *L* **38** # I-145

Wienckowski, Natalie General Motors Company

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

missing "for"

SuggestedRemedy

Insert "for" between 165.3.2.2.20 and 25GBASE-T1.
Also on P27L45.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.246.3** *P* **27** *L* **44** # I-37

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **E** *Comment Status* **A** *MultiGBASE-T1*

25GBASE-T1 is a MULTIGBASE-T1 PHY as well. (MGBT1)

SuggestedRemedy

Change inserted text "for MultiGBASE-T1 and 165.3.2.2.20 for 25GBASE-T1." to "for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1; and 165.3.2.2.20 for 25GBASE-T1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"defined in 149.3.2.2.20 for MultiGBASE-T1 and 165.3.2.2.20 25GBASE-T1"

to

"defined in 149.3.2.2.20 and 165.3.2.2.20 for MultiGBASE-T1"

Cl **45** *SC* **45.2.3.87.2** *P* **28** *L* **12** # I-38

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

The rfer_timer does not appear in the RFER Monitor State Diagram (Fig 149-15 or Figure 165-13), hence it does not appear to control the high_rfer state. While the variable definition says within one rfer_timer interval, this is in disagreement with the state diagram, which never starts (or resets) rfer_timer appears to count RFRX_CNT_LIMIT RS-FEC frames. RFRX_CNT_LIMIT is a constant set to 88 frames. This equates to 281 600 bit times in clause 149, and 732 160 bit times in clause 165. Note the error rate is still 16 blocks out of 88 blocks received according to the state diagram, which would be high anyways. (note - this appears to be an error in the base standard and the change would correct a double/inconsistent requirement in clause 149)

SuggestedRemedy

P28 L10 & 11 (2 occurences): Change "within one rfer_timer interval" to "within 88 RS-FEC frames"
Add 149.3.7.2.2 to the draft, changing the definition of hi_rfer from "Boolean variable that is asserted TRUE when the rfer_cnt reaches 16 errors in one rfer_timer
interval." to "Boolean variable that is asserted TRUE when the rfer_cnt reaches 16 errors in one RFRX_CNT_LIMIT interval."
Delete definition of rfer_timer at 165.3.7.2.3 (P67 L35 to 38).

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.87.2** *P* **28** *L* **13** # I-39

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

165.3.8 does not define the hi_rfer variable - clause 165 defines it by reference to the already referenced 149.3.8.1 so the addition is unnecessary.

SuggestedRemedy

delete "and 165.3.8"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.5** *P* **30** *L* **10** # I-81

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Values for case-1 and case-2 are incorrect in table 78-4.

SuggestedRemedy

Change values for case-1 to 15.9744, 15.9744, and 10.6496. Change values for case-3 to 43.9296, 43.9296, and 38.6048.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed values for case-1 to 15.9744, 15.9744, and 10.6496.

Changed values for case-3 to 45.2608, 45.2608, and 39.9360.

Cl **165** *SC* **165.1.3** *P* **31** *L* **31** # I-40

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

"an effective rate of 25 Gb/s on each pair" - there is only one pair, so "each" is redundant.

SuggestedRemedy

delete "on each pair"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment is actually against page 37, not 31. Deleted "on each pair"

Cl **105** *SC* **105.1.3** *P* **33** *L* **48** # I-106

Ran, Adee Cisco Systems, Inc.

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

The editorial instruction is unclear (a reader of this amendment may not have 802.3cz).

For consistency with the order in Figure 105-1 and the list in 105.1.2, the new paragraph for 25GBASE-T1 should appear after the paragraph for 25GBASE-AU (inserted by 802.3cz).

SuggestedRemedy

Change the editorial instruction to "Insert a new paragraph at the end of 105.1.3 (as modified by IEEE Std 802.3cz-202x) as follows".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.1.3** *P* **33** *L* **51** # I-107

Ran, Adee Cisco Systems, Inc.

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

"25GBASE-T1 represents… and baseband medium, for data communication at 25Gb/s over a point-to-point single balanced pair of conductors… for transmission on a single balanced pair of conductors"

This text is unnecessarily wordy.

25GBASE-T1 does not "use a baseband medium for data communication over a point-to-point single balanced pair of conductors"; the point-to-point single balanced pair of conductors is the baseband medium.

It is sufficient to mention "single balanced pair of conductors" once.

SuggestedRemedy

Change the text of the new paragraph to read:
"25GBASE-T1 represents Physical Layer devices using Clause 165 Physical Coding Sublayer (PCS) and Physical Medium Attachment (PMA) sublayer, for data communication at 25Gb/s over a point-to-point single balanced pair of conductors. 25GBASE-T1 uses Reed-Solomon FEC and PAM4 modulation".

Response *Response Status* **W**

ACCEPT.

Cl **105** *SC* **105.1.3** *P* **34** *L* **1** # I-108

Ran, Adee Cisco Systems, Inc.

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

According to the Illuminati order (e.g. in Table 125–1), single twisted pair PHYs are listed after multi-pair ones of the same speed.

SuggestedRemedy

Change "before the row for 25GBASE-T" to "after the row for 25GBASE-T".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.2** *P* **34** *L* **20** # I-109

Ran, Adee Cisco Systems, Inc.

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

The editorial instruction is phrased out of order; the table has been modified by 802.3cz, not the clauses.

SuggestedRemedy

Insert "(as modified by IEEE Std 802.3cz-202x)" after "Table 105-2", and delete the same phrase from the end of the instruction.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.5** *P* **35** *L* **21** # I-110

Ran, Adee Cisco Systems, Inc.

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

Table 105-3 is also modified by 802.3cz.

SuggestedRemedy

Insert "(as modified by IEEE Std 802.3cz-202x)" after "Table 105-3".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1** *P* **36** *L* **10** # I-7

Grow, Robert RMG Consulting

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

Incorrect use of acronym PHY in text "25GBASE-T1 Physical Layer (PHY)". IEEE Std 802.3-2022, 1.5 says: "PHY Physical Layer device (PHY)". Also, the text is inconsistent with Figure 165-1 where the optional Autonegotiation sublayer is also part of the PHY.

SuggestedRemedy

Change "Together, the corresponding PCS, PMA sublayers comprise a 25GBASE-T1 Physical Layer (PHY)." to "Together, the corresponding PCS, PMA, and optional Autonegotiation sublayers comprise a 25GBASE-T1 Physical Layer device (PHY).

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.1** *P* **36** *L* **16** # I-93

Rolfe, Benjamin Blind Creek Associates

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

"may" is used to describe an optional behavior (requirement) within the scope of this standard. How the standard is used is not within scope of the standard. As an informative statement this is stating a possibility with respect to the use of this standard. The correct word for that is "can".

SuggestedRemedy

Change "may" to "can"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.1** *P* **36** *L* **28** # I-111

Ran, Adee Cisco Systems, Inc.

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

"The term ‘MultiGBASE-T1’ when used in this clause refers to"

Commas would make the parenthetical clearer.

SuggestedRemedy

Change to "The term ‘MultiGBASE-T1’, when used in this clause, refers to"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.2** *P* **36** *L* **34** # I-112

Ran, Adee Cisco Systems, Inc.

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

"The relationship… are shown" - mismatch

SuggestedRemedy

Change "are shown" to "is shown"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.2** *P* **36** *L* **35** # I-8

Grow, Robert RMG Consulting

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

The PCS and PMA only connect to the medium when the optional AN sublayer is not present.

SuggestedRemedy

Change to: "The PHY sublayers shown shaded in Figure 165–1 are specified in this clause, while the optional Auto-Negotiation sublayer for a 25GBASE-T1 PHY is defined in Clause 98. The 25GBASE-T1 PHY connects one Clause 4 Media Access Control (MAC) layer to the medium."

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.1.3** *P* **37** *L* **31** # I-113

Ran, Adee Cisco Systems, Inc.

Comment Type **T** *Comment Status* **D** *EZ, pair*

There is only one pair in the medium of this PHY.

SuggestedRemedy

Delete "on each pair".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.3** *P* **38** *L* **7** # I-114

Ran, Adee Cisco Systems, Inc.

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

EEE is not a specification for reducing power consumption; it is an optional way to advertise periods of low link utilization (identified by unspecified means), such that a PHY or its partner may be able reduce power (by unspecified means).

Even if EEE is supported, a device does not necessarily save power.

SuggestedRemedy

Change "is able to reduce power consumption during periods of low link utilization" to "can indicate periods of low link utilization, providing opportunity for reducing power consumption,"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Changed "is able to reduce power consumption during periods of low link utilization" to "adapts signalling during periods of low link utilization to provide opportunities for reduced power consumption"

Text was changed to more precisely describe what EEE signalling in this PHY does.

Cl **165** *SC* **165.1.3** *P* **38** *L* **12** # I-41

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

"The OAM for 25GBASE-T1 information is exchanged" is awkward word order

SuggestedRemedy

Change "The OAM for 25GBASE-T1 information" to "The OAM information for 25GBASE-T1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.3** *P* **38** *L* **13** # I-115

Ran, Adee Cisco Systems, Inc.

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

The term "out of band" is defined in 1.4.442 as "using a frequency that is within the pass band
of the transmission facility but outside a frequency range normally used for data transmission".

The OAM signaling does not match this definition; on the contrary, it is in-band, per the definition in 1.4.359: "within the bandwidth of the information channel".

There are several instances of this incorrect use of "out of band" in the base standard, which should be dealt with through maintenance; but a new clause should be correct.

(See comment R1-9 against P802.3cz D3.1)

SuggestedRemedy

Change "The OAM for 25GBASE-T1 information is exchanged between two 25GBASE-T1 PHYs out of band, that is, outside of the specified 25 Gb/s Ethernet data stream" to "The OAM for 25GBASE-T1 information is exchanged between two 25GBASE-T1 PHYs in-band, by interleaving it with the 25 GB/s Ethernet data stream".

Alternatively, delete the sentence to avoid the "band" terms.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Changed "The OAM for 25GBASE-T1 information is exchanged between two 25GBASE-T1 PHYs out of band, that is, outside of the specified 25 Gb/s Ethernet data stream" to "The OAM for 25GBASE-T1 information is exchanged between two 25GBASE-T1 PHYs by interspersing it with the 25 GB/s Ethernet data stream".

Cl **165** *SC* **165.1.3** *P* **38** *L* **19** # I-42

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

"over the single balanced pair of conductors." in our zeal to reference the conductors, we have left out of the overview any reference to the link segment specified in 165.7. Besides, the only thing matters to the PMA is the link segment. If someone could do this on unbalanced conductors and meet the specs, the PMA would still support it.

SuggestedRemedy

change "over the single balanced pair of conductors" to "over a link segment meeting the specifications of 165.7"

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.1.3.1** *P* **38** *L* **29** # I-116

Ran, Adee Cisco Systems, Inc.

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

"the PCS receives eight 25GMII data octets"

These could be either data or control.

SuggestedRemedy

Delete "data".

Response *Response Status* **W**

ACCEPT.

Cl **165** *SC* **165.1.3.1** *P* **38** *L* **35** # I-58

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

"an" should be used for 8460-bit block

SuggestedRemedy

change "a 8460-bit block" to "an 8460-bit block"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.3.1** *P* **38** *L* **35** # I-146

Wienckowski, Natalie General Motors Company

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

grammar

SuggestedRemedy

Change: a 8460-bit
To: an 8460-bit

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.3.1** *P* **38** *L* **35** # I-59

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

It would be better to introduce the term of "RS-FEC input frame" here before introducing "RS-FEC input superframe".

SuggestedRemedy

rewrite to "Next, a 10-bit OAM field is appended to form an 8460-bit RS-FEC input frame."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed: Next, a 10-bit OAM field is appended to form a 8460-bit block.
To: Next, a 10-bit OAM field is appended to form an 8460-bit RS-FEC input frame.

Cl **165** *SC* **165.1.3.1** *P* **38** *L* **35** # I-117

Ran, Adee Cisco Systems, Inc.

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

The terms "RS-FEC frame", "superframe", "training frames", "PHY frame", "framing", in addition to the usual meaning of "frame" as a MAC frame (see 1.4.385); "frame" is often used with not qualifier, leaving it to the reader to understand it from the context.

This loose terminology is unfortunate. Although it originates from earlier projects, there are efforts to use the term "codeword" for RS-FEC blocks (which is quite established and unambiguous), and it may come up in maintenance at some point. Better do it well in each new project...

For completeness consider the following terminology replacements:
Frame (referring to RS-FEC) -> codeword
"Superframe" -> codeword group
"Training frame" - retain (used in several other places) but only as a qualified term
"Framing" -> alignment (in the receive direction), "encoding" (in the transmit direction).

SuggestedRemedy

Change to the terminology described in the comment, with editorial license.

If this is not done, ensure that all instances of "frame" that do not refer to MAC frames are fully qualified.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Added table from slide 4 of https://www.ieee802.org/3/cy/public/aug22/jonsson_tu_zimmerman_3cy_01_08_22_22.pdf, with the following title: Table 165-XX---Frame alignment parameters
Added the following text under the newly added: "The information in Table 165-XX shows the period and relative offset of the start of various frames. The values are given in terms of PFC24, which are synchronized between master and slave."

Cl **165** *SC* **165.1.3** *P* **39** *L* **32** # I-9

Grow, Robert RMG Consulting

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

Figure 165-2 eliminates the optional AN sublayer. (Problems with the bottom left to right arrow at line 46, but also with MDI+ and MDI- at line 32.) This could be handled with a footnote (but mixing NOTE and footnote in the figure is somewhat messy), adding a NOTE 3, or changing the figure to indicate the opptional AN layer is not shown.

SuggestedRemedy

I favor: "NOTE 3--The optional AN sublayer is not shown between the PMA sublayer and the MDI." Make consistent changes to Figure 165-3 (if adding the preferred NOTE 3, Figure 165-3 will need a NOTE 1 and NOTE 2).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Added "NOTE 3--The optional AN sublayer is not shown between the PMA sublayer and the MDI." to Figure 165-2
Made consistent changes to Figure 165-3 adding "NOTE 2--The optional AN sublayer is not shown between the PMA sublayer and the MDI." and renumbered existing note to NOTE 1

Cl **165** *SC* **165.1.3** *P* **39** *L* **39** # I-10

Grow, Robert RMG Consulting

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

The vertical interface lines are not consistent. On the left, the MII aligns with the transition arrow on the left at lines 30 through 35, but on the right, the MDI line if extended would not transect the line for MDI+/MDI-.

SuggestedRemedy

Adjust the MDI+/MDI- signal lines and placement of the vertical MDI line so that if extended, it would transect the signal lines.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Adjusted the MDI+/MDI- signal lines and placement of the vertical MDI line so that it would transect the signal lines.
Moved the vertical sync_link_control line to the left so it does not cross the MID Interface "plane".

Cl **165** *SC* **165.1.3** *P* **39** *L* **46** # I-11

Grow, Robert RMG Consulting

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

Putting PHY and the parenthetical text on different lines makes readability worse.

SuggestedRemedy

Put all the text on one line.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.3.2** *P* **40** *L* **17** # I-2

Maguire, Valerie Copperopolis

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

Enclose the id est examples in parenthesis to be consistent with the parent document.

SuggestedRemedy

Replace, "electrical parameters of the PMA, i.e., test modes and electrical specifications for the transmitter and receiver, are specified" with, "electrical parameters of the PMA (i.e., test modes and electrical specifications for the transmitter and receiver) are specified".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.1.4** *P* **40** *L* **51** # I-118

Ran, Adee Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **R**

"25GBASE-T1 signaling is performed by the PCS generating continuous code-group sequences"

The "continuous code-group sequences" seem to come from multi-pair PHYs. This PHY has a single pair, and uses a sequence of PAM4 symbols (item b in the list following this paragraph).

Also, in 165.3.2.2, P52 L29, and 165.3.2.3, P61 L50.

SuggestedRemedy

Change "continuous code-group sequences" to "a sequence of PAM4 symbols".

Change "code-groups" to "symbols" in the other two locations provided in the comment.

Response *Response Status* **W**

REJECT.

The term "continuous code-group sequences" is correct and has been used consistently for many PCS using block codes. This PHY uses both PAM4 and PAM2 signalling

Cl **165** *SC* **165.2.2.1.1** *P* **43** *L* **29** # I-147

Wienckowski, Natalie General Motors Company

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

grammar

SuggestedRemedy

Change: an 25GMII
To: a 25GMII
Also, P43L42, P56L45

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.2.2.9.1** *P* **48** *L* **41** # I-148

Wienckowski, Natalie General Motors Company

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

incorrect format

SuggestedRemedy

Change the format for the TRUE and FALSE statements to match the remainder of the doucument, e.g. remove the "--" and add a tab between TRUE/FALSE and the description.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2** *P* **52** *L* **37** # I-119

Ran, Adee Cisco Systems, Inc.

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

"...the PCS Transmit function shall use a 65B coding technique to generate code-groups that represent data or control"

"code-groups" is inadequate here; it seems to originate from existing BASE-T PHYs. The 65B blocks represent data and control characters, but there are additional processing steps (FEC, OAM) before the data is converted to PAM4 symbols (corresponding to code-groups in other BASE-T PHYs).

The suggested remedy is a possible replacement text; other changes may be possible, but the term "code-group" should not be used.

SuggestedRemedy

Change the quoted sentence to
"the PCS Transmit function shall use the transmit process specified in 165.3.2.2.13 through 165.3.2.2.21 to generate the data stream and PAM4 symbol stream, as illustrated in Figure 165-5."

Change the PICS item accordingly.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change: “the PCS Transmit function shall use a 65B coding technique to generate code-groups that represent data or control.”

To “the PCS Transmit function shall use the 65B coding technique specified in 149.3.2.2.4 to represent data or control.”

Cl **165** *SC* **165.3.2.** *P* **52** *L* **54** # I-88

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The relative relationship between various frame alignments can be confusing and it would be beneficial to add an informative text to better explain this relationship.

SuggestedRemedy

Add table on slide 4 of jonsson_tu_zimmerman_3cy_01_08_22_22, with the following text: "The information in Table 165-XX shows the period and relative offset of the start of various frames. The values are given in terms of PFC24, which are synchronized between master and slave."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Added table from slide 4 of https://www.ieee802.org/3/cy/public/aug22/jonsson_tu_zimmerman_3cy_01_08_22_22.pdf, with the following title: Table 165-XX---Frame alignment parameters
Added the following text under the newly added: "The information in Table 165-XX shows the period and relative offset of the start of various frames. The values are given in terms of PFC24, which are synchronized between master and slave."

Cl **165** *SC* **165.3.2.2.2** *P* **53** *L* # I-121

Ran, Adee Cisco Systems, Inc.

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

Incorrect hierarchy; the subclause heading "65B RS-FEC transmission code" addresses all the content in the subsequent subclauses, 165.3.2.2.3 through 165.3.2.2.17, most of which are details of "Use of blocks".

The hierarchy is unnecessarily deep, and can be flattened; 165.3 and 165.3.2 have practically the same title.

SuggestedRemedy

Move 163.3.2.2.3 through 163.3.2.2.17 to be below the current 163.3.2.2.2.

Flatten the hierarchy by removing the subclause 165.3.2 ("PCS functions") and promoting its three subclauses upwards to the parent subclause 165.3 ("Physical Coding Sublayer (PCS) functions")

Response *Response Status* **C**

REJECT.

The Task Force believes matching the structure of Clause 165 with the previous BASE-T1 clauses is beneficial. No changes to the draft needed.

Cl **165** *SC* **165.3.2.2** *P* **53** *L* **11** # I-120

Ran, Adee Cisco Systems, Inc.

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

In Figure 165-5, the "circled large plus sign" seems to denote a bitwise XOR operation (or modulo 2 addition), but it is not stated explicitly. Compare to Figure 165-9 which has a legend for its operations.

Figure 165-6 and Figure 165-7 also use similar, but different, "plus sign in a circle".

The same symbol is also used in Equation 165-4 without explicit definition.

Note that the established convention for XOR is a gate symbol, and in text the caret character (^, see Table 21-1).

SuggestedRemedy

Add a legend explaining the "circled plus sign" in the figures.

Change to the "^" symbol in Equation 165-4 and add "where ^ denotes the XOR operation".

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add a legend explaining the "circled plus sign" in 165.1.6.

Cl **165** *SC* **165.3.2.2.2** *P* **54** *L* **17** # I-60

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

since the RS-FEC encoder/decoder and interleaver/deinterleaver are specified in different sections, it would be better to have separate function blocks in Figure 165-6 PCS TX bit ordering.

SuggestedRemedy

have separate RS-FEC Encoder and interleaver blocks in Figure 165-6 PCS TX bit ordering.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.3** *P* **55** *L* **20** # I-63

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Figure 165-7 PCS RX bit ordering should be placed in PCS Receive function section

SuggestedRemedy

place somewhere in sections 165.3.2.3 PCS Receive function

Response *Response Status* **C**

REJECT.

The reference to Figure 165-7 is in subclause 165.3.2.2.2. No changes to the draft needed.

Cl **165** *SC* **165.3.2.2.3** *P* **55** *L* **20** # I-62

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

since the RS-FEC encoder/decoder and interleaver/deinterleaver are specified in different sections, it would be better to have separate function blocks in Figure 165-7 PCS RX bit ordering.

SuggestedRemedy

have separate RS-FEC decoder and deinterleaver blocks in Figure 165-7 PCS RX bit ordering.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.3** *P* **55** *L* **47** # I-122

Ran, Adee Cisco Systems, Inc.

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

"The value of the data/ctrl header is shown as a binary value. Binary values are shown with the first transmitted bit (the LSB) on the left."

data/ctrl header is a single bit - there is no LSB and no "first" transmitted bit. So this sentence is meaningless and quite confusing.

Note that the value of the data/ctrl header bit is not shown in any figure in this clause; it only appears in Figure 149–8, which is referenced along with 149.3.2.2.4 in 165.3.2.2.4. Also the "notation conventions" in 165.3.2.2.3 already cover binary values. No need to repeat the same information.

SuggestedRemedy

Delete the quoted text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.7** *P* **56** *L* **18** # I-123

Ran, Adee Cisco Systems, Inc.

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

In this subclause the text refers to a corresponding subclause in 149 with "shall be as specified"; also in 165.3.2.2.8; in 165.3.2.2.11 it is "shall be specified"; but in all others "is/are as specified".

This is inconsistent, and results in having arbitrary PICS items.

It seems that "shall" is unnecessary here and creates a burden for people who read the PICS (if there are any)..

SuggestedRemedy

Change all instances of references to 149.3.2.2.x to be consistent: "is/are as specified in <reference>".

Delete PICS that become unnecessary as a result of this change.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.11** *P* **56** *L* **34** # I-102

Rolfe, Benjamin Blind Creek Associates

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

"Ordered set control characters shall be specified for MultiGBASE-T1 PHYs in 149.3.2.2.11" is incorrect use of "shall". As written it is declaring a requirement of the standard not the implementation of the standard. The control characters "are as" specified in 149.3.2.2.11? The control characters uses shall be those specified in 149.3.2.2.11? Are we mandating those control characters (and only those) be used or simply saying it's the same as specified in the reference clause? I'm guessing from the prior clause the later...but am probably wrong about that ;-)

SuggestedRemedy

Ordered set control characters are as specified for MultiGBASE-T1 PHYs in 149.3.2.2.11

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed the text to read "Ordered set control characters are as specified for MultiGBASE-T1 PHYs in 149.3.2.2.11" + deleted the associated PICS item.

Cl **165** *SC* **165.3.2.2.15** *P* **57** *L* **24** # I-124

Ran, Adee Cisco Systems, Inc.

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

In the expression "m_{846 × L-1}" and similar ones, the spacing in the subscript is unusual, and suggests that "L-1" is evaluated first (despite having no parentheses).

Also, a dash is used instead of a minus sign.

SuggestedRemedy

In this and all similar expressions (in 165.3.2.2.15, 165.3.2.2.16, and Figure 165–8), change the dash to a minus sign (or en dash).

Preferably, remove the spaces around the multiplication sign and add spaces around the minus sign instead.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In this and all similar expressions (in 165.3.2.2.15, 165.3.2.2.16, and Figure 165–8), changed the dash to a minus sign (or en dash).

Removed the spaces around the multiplication sign and add spaces around the minus sign instead.

Cl **165** *SC* **165.3.2.2.16** *P* **57** *L* **34** # I-61

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

There are 90 parity symbols, the index goes up to 89 not 33

SuggestedRemedy

change from p1,33 to p1,89, and from pL,33 to pL,89
needs to be updated to "m846 × L-1, m846 × L-2, …,m1, m0, P1,89, …, PL,89, …, p1,0, …, pL,0, ….."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.17** *P* **58** *L* **29** # I-125

Ran, Adee Cisco Systems, Inc.

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

The first sentence of this subclause states that "the symbol size is 10 bits".
The next sentences have three instances of "ten-bit" as an adjective of the symbol, after the number of symbols.

The initial sentence is sufficient, and there is no need to write "ten-bit" every time a symbol is mentioned; combined with the number of symbols, this does not contribute to readability.

SuggestedRemedy

Delete "ten-bit" before "RS-FEC" three times in this paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.17** *P* **58** *L* **41** # I-126

Ran, Adee Cisco Systems, Inc.

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

The primitive polynomial is x^10+x^3+1; equating it to 0x409 is confusing, and is arguably an abuse of notation.

Note that 802.3cz uses simply x^10+x^3+1 (see 166.2.2.4)

SuggestedRemedy

Delete "0x409=".

Response *Response Status* **W**

ACCEPT.

Cl **165** *SC* **165.3.2.2.17** *P* **58** *L* **43** # I-127

Ran, Adee Cisco Systems, Inc.

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

"Equation (165–2) defines the message polynomial m(x)"
m(x) is not one specific polynomial, and it cannot be defined as such. It is a representation of the data.

"Equation (165–3) defines the parity polynomial p(x) whose coefficients are the parity symbols p21 to p0"
Similarly, the parity polynomial is not defined by this equation, but by the calculation of the remainder of division of m(x) by g(x), as indicated in the subsequent text.

Also, the encoder illustrated in Figure 165-9 is not just a shift register.

(See comment R1-22 against P802.3cz D3.1)

SuggestedRemedy

Change the quoted sentences to, respectively,

"The contents of the RS-FEC message are represented by a polynomial m(x) whose coefficients are the message symbols m521 to m0 as shown in Equation (165–2)"

and

"The parity polynomial p(x) is calculated as the remainder of polynomial division of m(x) by g(x). Its coefficients p89 to p0, as shown in Equation (165–3), are the parity symbols".

Change from
"The parity polynomial is the remainder from the division of m(x) by g(x). This can be computed using the shift register implementation illustrated in Figure 165–9"
to
The calculation of the coefficients of p(x) is illustrated in Figure 165–9".

Response *Response Status* **W**

ACCEPT.

Cl **165** *SC* **165.3.2.2.17** *P* **59** *L* **19** # I-128

Ran, Adee Cisco Systems, Inc.

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

Commas should be placed before and after parentheticals.

SuggestedRemedy

Add commas after "m_845" and after "p_0".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.3.2.2.17** *P* **59** *L* **46** # I-71

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

There are two tables marked Table 165-1, one on page 59 and one on page 60.

SuggestedRemedy

Update table numbers to avoid duplicate numbering.

Response *Response Status* **C**

REJECT.

This is one and the very same table. Note that Table 165–1 on page 60 has "(continued)" marker at the end of the caption. No changes to the draft needed.

Cl **165** *SC* **165.3.2.2.17** *P* **59** *L* **50** # I-129

Ran, Adee Cisco Systems, Inc.

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

In Table 165-1, the ruling suggests that the first two columns are separate from others. This should be fixed.

The table could be improved by adding a leftmost column with heading "I" and values from 0 to 12; and change column labels to "g_{i}", "g_{13+i}", "g_{26+i}", etc., such that the content of each cell is clearly described by its row and column headings.

SuggestedRemedy

Change the column ruling to have regular line width between columns 2 and 3.

Consider improving the table as suggested in the comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In Table 165-1, changed the vertical column separation line between columns 2 and 3 (from the left) to be the same weight as the rest of the inside lines of the table.

Cl **165** *SC* **165.3.2.2.18** *P* **60** *L* **27** # I-130

Ran, Adee Cisco Systems, Inc.

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

In this subclause there is no "shall" for the reference to the corresponding clause 149 subclause, unlike the subsequent ones.

Consistency…

SuggestedRemedy

Either add "shall" here or delete it from 165.3.2.2.19 through 165.3.2.2.21.

Adjust PICS accordingly.

Response *Response Status* **C**

REJECT.

The text is correct as it is.

149.3.2.2.18 does not include a shall. 149.3.2.2.18 refers to 149.3.4 which includes the shall. 149.3.4 is referenced by 165.3.4.

Cl **165** *SC* **165.3.2.2.22** *P* **61** *L* **9** # I-131

Ran, Adee Cisco Systems, Inc.

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

The indented text seems to be a list of items, but is not formatted as such.

There are some other lists in the draft where this should be applied too.

SuggestedRemedy

Change formatting to a dashed list (DL). Apply elsewhere as necessary with editorial license.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed formatting to a dashed list (DL).

Cl **165** *SC* **165.3.2.2.22** *P* **61** *L* **41** # I-82

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Values in Table 165-2 are incorrect.

SuggestedRemedy

Change the values in Table 165-2 to: 16, 48, 15.9744, 28, and 9.3184

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.3.2.3** *P* **61** *L* **50** # I-132

Ran, Adee Cisco Systems, Inc.

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

"The PCS Receive function accepts received code-groups provided by the PMA Receive function"

SuggestedRemedy

Response *Response Status* **C**

REJECT.

No suggested remedy was provided.

Cl **165** *SC* **165.3.4** *P* **63** *L* **31** # I-133

Ran, Adee Cisco Systems, Inc.

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

The content of this subclause (Side-stream scrambler polynomials) is not helpful; the PCS scrambler is already addressed in 165.3.2.2.18 (by reference to 149.3.2.2.18, which has the required pointer to 149.3.4). There is no reference to this subclause in this draft.

SuggestedRemedy

Delete 165.3.4.

Response *Response Status* **C**

REJECT.

165.3.4 includes the required shall statement for the Side-stream scrambler.

Cl **165** *SC* **165.3.6** *P* **65** *L* **7** # I-66

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Figure 165-12 - Incorrect Valid alert start for the Master at 0?

SuggestedRemedy

The alert signal for master at location zero should be removed from Figure 165-12

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implemented changes per slide 10 in
https://www.ieee802.org/3/cy/public/jun22/jonsson_etal_3cy_01a_06_07_22.pdf

Cl **165** *SC* **165.3.6** *P* **65** *L* **7** # I-64

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

In Figure 165-11, the master is missing a valid alert starting at 92.

SuggestedRemedy

Add the missing valid alert start at 92 for master

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implemented changes per slide 10 in
https://www.ieee802.org/3/cy/public/jun22/jonsson_etal_3cy_01a_06_07_22.pdf

Cl **165** *SC* **165.3.6** *P* **65** *L* **16** # I-83

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The arrow for lpi_slave_offset is not correctly aligned in Figure 165-11.

SuggestedRemedy

Change the alignment of the arrow for lpi_slave_offset in Figure 165-11, to end at frame 42 (beginning of refresh frame).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implemented changes per slide 10 in
https://www.ieee802.org/3/cy/public/jun22/jonsson_etal_3cy_01a_06_07_22.pdf

Cl **165** *SC* **165.3.6** *P* **65** *L* **34** # I-84

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The arrow for lpi_slave_offset is not correctly aligned in Figure 165-12.

SuggestedRemedy

Change the alighment of the arrow for lpi_slave_offset in Figure 165-12, to end at frame 42 (beginning of refresh frame).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implemented changes per slide 10 in
https://www.ieee802.org/3/cy/public/jun22/jonsson_etal_3cy_01a_06_07_22.pdf

Cl **165** *SC* **165.3.6** *P* **66** *L* **9** # I-87

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The names "lpi_slave_offset" and "lpi_master_offset" can be confusing, because they ar similar to "lpi_offset" used in clause 149, but have a different meaning. They should be changed to "lpi_slave_refresh_start" and "lpi_master_refresh_start".

SuggestedRemedy

Replace all occurrences of "lpi_slave_offset" with "lpi_slave_refresh_start" and replace all occurances of "lpi_master_offset" with "lpi_master_refresh_start".

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.3.6.1** *P* **66** *L* **18** # I-134

Ran, Adee Cisco Systems, Inc.

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

"Alert, a four RS-FEC frame long sequence (alert_length), shall start four frames after the beginning of any eighth RS-FEC frame counting from the start of the QR cycle"

This is an awkwardly phrased sentence, and the "shall" seems inadequate; this is a description of the required alignment of the alert sequence.

Also, the final sentence in this paragraph (only starting at frame 92) contradicts the beginning ("any"), adding to the confusion.

This paragraph is followed by tables which seem to say the same thing in a more formal way. Perhaps it is enough to point to the tables.

SuggestedRemedy

Change to "Alert is a sequence of length alert_length RS-FEC frames (see Table 165-3) that can start only at the beginning of RS-FEC frame u for specific values of u (where u denotes the 0-based index of the RS-FEC frame counting from the start of the QR cycle).

When slow wake is 0, the valid locations for Alert are when u mod 8 = 4. When slow wake is 1, the only valid location for Alert is u=92."

Alternatively, delete the text description and use a reference to tables 165-4 and 165-5.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Changed
"Alert, a four RS-FEC frame long sequence (alert_length), shall start four frames after the beginning of any eighth RS-FEC frame counting from the start of the QR cycle. The MASTER and SLAVE shall derive the tx_refresh_active and tx_alert_start_next signals from the transmitted RS-FEC frames as shown in Table 165–4 and Table 165–5. When Slow Wake is active, alert can be transmitted in only a single QR cycle location, starting at RS-FEC frame 92."
to
"Alert is a four RS-FEC frame long sequence (alert_length). When SlowWakeRequest is set to 0, alert can be transmitted such that it ends at any eighth RS-FEC frame boundary, counting from the start of the QR cycle (see Figure 165-11). When SlowWakeRequest is set to 1, alert can only be transmitted in a single QR cycle location, starting at RS-FEC frame 92 for master and at RS-FEC frame 44 for slave (see Figure 165-12). The synchronization for the alert signaling is described in tables 165-4 and 165-5."

Cl **165** *SC* **165.3.6.1** *P* **66** *L* **21** # I-135

Ran, Adee Cisco Systems, Inc.

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

"Slow Wake" is mentioned here for the first time, and does not seem to be defined anywhere. It also appears in tables 165-4 and 165-5.

After a long search I found an InfoField bit called "SlowWakeRequest" defined in 165.4.2.4.5. But there is no variable called "Slow Wake" and it is not defined that SlowWakeRequest in the PHY capability bits is sent based on some variable that has another effect.

SlowWakeRequest and "slow wake" are not the same thing, and readers should not be expected to link them.

SuggestedRemedy

At the minimum, Change "slow wake" to "SlowWakeRequest" and add "(see 165.4.2.4.5)" in some appropriate place in the text.

Preferably, add a variable definition and a more detailed explanation of the SlowWakeRequest bit and the condition for sending alerts one way or the other; I assume is it the local SlowWakeRequest rather than the remote one that controls it?

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
•P78L39 - change "SlowWakeRequest is set to indicate to the link partner that the PHY will transmit alert only immediately following a refresh."
to
"SlowWakeRequest = 1 indicates to the link partner that the PHY will transmit alert once per QR cycle (see 165.3.6.1)"

•P65 L4 – at the end of the line add the following “The alert signal is restricted to starting at predetermined RS-FEC frame count values, where the allowed values depend on if the SlowWakeRequest PHY capability bit is set to 1.”

•P65 L21 – change “Slow Wake not active” to “SlowWakeRequest is set to 0”

•P65 L39 – change “Slow Wake active” to “SlowWakeRequest is set to 1”

•P66 L21 – change “Slow Wake is active” to “SlowWakeRequest is set to 1”

•P66 L27 – change “Slow Wake” to “SlowWakeRequest”

•P66 L27 – change “Slow Wake” to “SlowWakeRequest”

Cl **165** *SC* **165.3.6.1** *P* **66** *L* **25** # I-65

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Sentence above Table 165-4:
When Slow Wake is active, alert can be transmitted in only a single QR cycle location, starting at RS-FEC frame 92.
This is only true for the master - the slave can only transmit starting at RS-FEC frame 44.

SuggestedRemedy

Need to add starting postion for slave in the paragraph above table 165-4:
"When Slow Wake is active, alert can be transmitted in only a single QR cycle location, starting at RS-FEC frame 92 for the master and RS-FEC frame 44 for the slave, as shown in Figure 165-12."

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.3.6** *P* **66** *L* **29** # I-85

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The tx_refresh_active condition is not correct in table 165-4.

SuggestedRemedy

In Table 165-4, change "lpi_slave_offset – lpi_refresh_time ≤ mod(u, lpi_qr_time) < lpi_slave_offset" to "lpi_slave_offset ≤ mod(u, lpi_qr_time) < lpi_slave_offset + lpi_refresh_time"

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.3.6.1** *P* **66** *L* **39** # I-136

Ran, Adee Cisco Systems, Inc.

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

Why is v used in table 165-5 where u is used in table 165-4? There is only one frame count per PHY, no need for two variables.

SuggestedRemedy

Change "v" to "u" in table 165-5.

Response *Response Status* **C**

REJECT.

u and v are actually different – one for each phy (master/slave). In a phy there are 2 frame counts – one for tx and one for rx…. The phy needs to know both, hence 2 variables.
No change to draft needed.

Cl **165** *SC* **165.3.6** *P* **66** *L* **41** # I-86

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The tx_refresh_active condition is not correct in table 165-5.

SuggestedRemedy

In Table 165-5, change "lpi_master_offset – lpi_refresh_time ≤ mod(v, lpi_qr_time) < lpi_master_offset" to "lpi_master_offset ≤ mod(v, lpi_qr_time) < lpi_master_offset+ lpi_refresh_time"

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.7.2.3** *P* **67** *L* **31** # I-56

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

There is no mention of XGMII in 149.3.7.2.3 timers. (note that this edit accomodates if the rfer_timer is deleted as well)

SuggestedRemedy

Replace first sentence of 165.3.7.2.3 with "The PCS timers are as defined in 149.3.7.2.3 with the following modifications:

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **165** *SC* **165.3.7.3** *P* **70** *L* **50** # I-12

Grow, Robert RMG Consulting

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

Figure 165-14 isn't mandatory, the functionality specified in the figure can be mandatory. Also, a "NOTE" is informative text, I assume the actual normative mandatory statements about this exist somewhere in the draft.

SuggestedRemedy

NOTE—The functionality in this figure is mandatory for a PHY with the EEE capability.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.4.1** *P* **74** *L* # I-72

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Figure 165-16 - send_s_sigdet output from Link Synchronization block is missing

SuggestedRemedy

Add send_s_sigdet to Figure 165-16. Figure 149–26 can be used as reference for how to add send_s_sigdet.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.4.2.4.5** *P* **78** *L* **39** # I-92

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

With change in LPI signaling, there is 1 RS FEC frame gap between end of Refresh and Alert

SuggestedRemedy

Change "transmit alert only immediately following a refresh" to "transmit alert only in slow wake alert time slot"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.4.2.4.5** *P* **78** *L* **44** # I-137

Ran, Adee Cisco Systems, Inc.

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

"The remaining bits shall be reserved and set to 0." - reserved bits are listed in the table; "shall be reserved" is meaningless.

Also, reserved should be ignored on receipt, otherwise they can't be defined in the future.

Reserved fields are also mentioned in 165.4.2.4.7 with insufficient explanation.

SuggestedRemedy

Change the quoted sentence in 165.4.2.4.5 to "Reserved bits shall be transmitted as 0 and ignored upon receipt."

Change the last sentence in 165.4.2.4.7 to "All reserved fields are transmitted as 0 and ignored upon receipt".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.4.2.6** *P* **81** *L* **25** # I-94

Rolfe, Benjamin Blind Creek Associates

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

Since may is equivalent to "may or may not", I'm not sure what this line means:
"The receiver may not necessarily receive a continuous PN sequence between separate periods of the SEND_S signal."
It may or may not not necessarily? Figuring it out from context didn't work either, as the paragraph is an informative description of a possible implementation of the PN sequence generator, and then talking about what the receiver may or may not or may not not receive? Which isn't an optional behavior, but seems to just an observation? No idea what is intended.

SuggestedRemedy

Delete the sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.4.4.1** *P* **86** *L* **50** # I-95

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of "may". This should be "can".

SuggestedRemedy

Change "may" to "can"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.4.5** *P* **90** *L* **51** # I-18

Grow, Robert RMG Consulting

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

*** Comment submitted with the file image.png attached ***

The state diagram isn't required, the functionality is required.

SuggestedRemedy

NOTE--The functioality of this state diagram is only required when the PHY supports EEE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.5.1.1** *P* **92** *L* **18** # I-4

Boyer, Rich Aptiv - Signal and Power Solutions

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

The BALUN in Figure 165-27 is not defined. Use of BALUN and spectrum analyzer for this measurement is not required. Eliminate the use of the BALUN and spectrum analyzer for the PSD measurement. If the Balun and spectrum analyzer is eliminated, then the PSD measurement can be made with digital signal analyzer (DSA) (a.k.a. Digital Scope or capturing device) instead of a BALUN and spectrum analyzer. If this proposal is accepted, then Figure 165-27 can be removed and existing Figure 165-25 can be referenced for the PSD measurement.

SuggestedRemedy

Remove Figure 165-27 and reference Figure 165-25 for PSD mask test.

Change Figure 165-25 description from.
“Transmitter test configuration 1 for transmitter droop, transmitter linearity, and jitter measurement”
To,
“Transmitter test configuration 1 and 4 for transmitter droop, transmitter linearity, jitter and power spectral density measurement and transmit power level measurements”

Change references concerning Figure 165-27 as follows.
•Remove wording in line 18 page 92 “Figure 165-27”.
•Remove Figure 165-27 on page 93.
•Change “165-27” on page 95 line 53 to “165-25”.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Removed Figure 165-27 and reference Figure 165-25 for PSD mask test.

Changed Figure 165-25 description from.
“Transmitter test configuration 1 for transmitter droop, transmitter linearity, and jitter measurement”
To,
“Transmitter test configuration 1 for transmitter droop, transmitter linearity, jitter and power spectral density measurement, and transmit power level measurements”

Changed references concerning Figure 165-27 as follows.
• Removed wording in line 18 page 92 “Figure 165-27”.
• Removed Figure 165-27 on page 93.
• Changed “165-27” on page 95 line 53 to “165-25”.

Also on P95L52 changed "configuration 4" to "configuration 1".

In Figure 165-25 change the box with "Digital Scope / capturing device"
To only include the text "Measurement device, e.g. Digital Scope / capturing device" with no resistors.

Cl **165** *SC* **165.5.1.1** *P* **93** *L* **11** # I-5

Mcclellan, Brett Marvell Semiconductor, Inc.

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

"Figure 165–27—Transmitter test configuration 4 for power spectral density measurementand transmit power level measurement"
There are only 3 test configurations defined in this subclause. The label for this configuration should be '3'.

SuggestedRemedy

change 'configuration 4' to 'configuration 3' and associated references, ie. page 95 line 52

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The same comment disposition detail as in comment #i-4

Cl **165** *SC* **165.5.3** *P* **93** *L* **51** # I-3

Maguire, Valerie Copperopolis

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

Enclose the id est example in parenthesis to be consistent with the parent document.

SuggestedRemedy

Replace, "shall be AC-coupled, i.e., it shall present a high DC common-mode impedance at the MDI." with, "shall be AC-coupled (i.e., it shall present a high DC common-mode impedance at the MDI).".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.5.3** *P* **93** *L* **53** # I-96

Rolfe, Benjamin Blind Creek Associates

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

"There may be various methods for AC-coupling in actual implementations." is inappropriate use of "may". Should be "can" (stating a possibility, not a normative option).

SuggestedRemedy

Change "may" to "can"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.5.3** *P* **94** *L* **17** # I-19

Chang, Jae-yong Keysight Technologies

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

Unless specified otherwise, all transmitter measurements and tests defined in 165.5.3 are made at TP2 utilizing a test configuration that meets the specifications in 165.5.5.

SuggestedRemedy

Unless specified otherwise, all transmitter measurements and tests defined in 165.5.3 are made at TP2 utilizing a test system configuration that meets the specifications in 165.5.5 and a fourth-order Bessel-Thomson low-pass filter with 16 GHz @-3 dB bandwidth.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.5.3** *P* **94** *L* **22** # I-97

Rolfe, Benjamin Blind Creek Associates

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

Not sure the intent of "that may not be testable in an implemented system" - is this indicating that the test points are optional in a conforming implementation?
Then TP0 and TP5 may be omitted is what is meant? The "may not" is a clue that "may" is being used incorrectly.

SuggestedRemedy

Delete the sentence or rewrite with correct use of normative language.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Deleted "Informative Annex 165A provides information on parameters associated with test points TP0 and TP5 that may not be testable in an implemented system."

Cl **165** *SC* **165.5.3.3** *P* **94** *L* **48** # I-73

Jonsson, Ragnar Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *AI for 1/24*

The jitter requirements have become too strict, and do not strike the right balance between the complexity of the PMA implementation and the complexity of the clock generation, x-tal, etc.

SuggestedRemedy

Change "jitter relative to an unjittered reference shall be less than 0.4 ps" to "jitter relative to an unjittered reference shall be less than 0.4 ps, when measured with bandwidth from 1MHz to 100MHz, and less than 1ps when measured with bandwidth from 10kHz to 1MHz."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

==========

Change "jitter relative to an unjittered reference shall be less than 0.4 ps" to "jitter relative to an unjittered reference shall be less than 0.4 ps, when measured with bandwidth from 1MHz to 100MHz, and less than 0.6ps when measured with bandwidth from 10kHz to 1MHz."

Offline discussion for Jim and Ragnar, for 1/24

Cl **165** *SC* **165.5.3.3.1** *P* **95** *L* **13** # I-6

Mcclellan, Brett Marvell Semiconductor, Inc.

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

Figure 165–25 is not configuration 3, it is configuration 1.

SuggestedRemedy

change 'configuration 3' to 'configuration 1'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.5.5.1** *P* **98** *L* **35** # I-98

Rolfe, Benjamin Blind Creek Associates

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

As described in 6.4 of the IEEE SA Standards Board Operations Manual, a note to a figure is informative. So including normative language ("may") is wrong.
I think "can" is the correct word. BTW kudos for avoiding "should" here ;-).

SuggestedRemedy

Change "may" to "can"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.5.5.2** *P* **98** *L* **45** # I-138

Ran, Adee Cisco Systems, Inc.

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

Bad justification

SuggestedRemedy

fix it

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.6** *P* **101** *L* **3** # I-99

Rolfe, Benjamin Blind Creek Associates

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

This sentence says that 25GBASE-T1 makes extensive use of functions that may not be provided. So a conforming implementation makes extensive use of functions not present sometimes. Pretty sure that is not what is meant. Not sure what is meant though. Does it mean the optional functions may (or may not) be used WHEN they are provided? Is this an optional requirement, a recommendation, or a mandatory requirement to use these functions when they are available? I can only guess. Also not sure what "extensive use" would be in this context. Less than always and more than never. Hard to write a validation test for that!
Well one guess is given in the proposed change.

SuggestedRemedy

25GBASE-T1 may make use of the management functions provided by the optional MDIO (Clause 45), and the communication and self-configuration functions provided by the optional Auto-Negotiation (Clause 98), when those functions are available.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Removed "extensive" page 101, line 3

The functions are always provided, but the MDIO may not be instantiated as an interface.

Cl **165** *SC* **165.7.1.1** *P* **102** *L* **1** # I-139

Ran, Adee Cisco Systems, Inc.

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

Figure 165–34 does not illustrate an insertion loss - it is a limit line.

Also applies to Figure 165-35, Figure 165-36, Figure 165-37, Figure 165-38, and Figure 165-39 (different titles, but similar lack of "limit").

SuggestedRemedy

Change "The insertion loss is illustrated in Figure 165–34" to "The 25GBASE-T1 link segment insertion loss limit is illustrated in Figure 165–34".

Change the figure title to "Insertion loss calculated limit in Equation (165–19)". Add a label "meets equation constraint" above the plot in the figure.

Implement corresponding changes in the other figures listed in the comment and the text preceding them.

Response *Response Status* **W**

ACCEPT.

Cl **165** *SC* **165.7.1.3.1** *P* **102** *L* **43** # I-55

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Lower limit of specification for link segment return loss is out of step with other parameters

SuggestedRemedy

Change 30 MHz to 10 MHz

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed 30 MHz to 10 MHz. Also updated P102L51 from 30 to 10, and Figure 165-35.

Cl **165** *SC* **165.7.1.3.2** *P* **103** *L* **29** # I-20

Larsen, Wayne CommScope

Comment Type **T** *Comment Status* **X** *TBD*

Its good to have the time domain criteria in addition to the usual frequency domain. But the REM peak criteria is sufficient, and ETM is not needed. The frequency domain provides sufficient protection against broad echo.

SuggestedRemedy

Remove the ETM information from the title and table 165-15, and remove sections 165.7.1.3.4 and 165.7.1.3.6.

Proposed Response *Response Status* **O**

Cl **165** *SC* **165.7.1.3.2** *P* **103** *L* **30** # I-22

Larsen, Wayne CommScope

Comment Type **T** *Comment Status* **X** *TBD*

If I understand well, the Nyquist frequency is 7031.25 MHz, and the reader is to measure 4096 frequency points at 2.5 MHz spacing. If this is not right, please clarify it. This means there will be frequency points at 7030 and 7032.5 MHz, but not at the Nyquist frequency, yet equation 165-22 requires an adjustment based on the frequency point at the Nyquist frequency.

SuggestedRemedy

Adjust to provide a frequency point at the Nyquist frequency, or otherwise clarify.

Proposed Response *Response Status* **O**

Cl **165** *SC* **165.7.1.3.3** *P* **104** *L* **2** # I-43

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

confusing word order makes it sound like the 100 ohm resistive termination is part of the example of the plug-terminated cable.

SuggestedRemedy

change "the link segment side of the MDI, e.g., the plug if the cable is terminated in a plug, with the far end terminated in 100 \Ohm resistance." to "the link segment side of the MDI with the far end terminated in 100 \Ohm resistance. For example, if the cable is terminated in a plug, the measurement is on the cabling between the (de-embedded) plug and the far end termination."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.3** *P* **104** *L* **16** # I-23

Larsen, Wayne CommScope

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

It seems this minor phase adjustment is to be made to the natrual phase of the whole frequency response, not to the unwrapped phase, but this is not clear.

SuggestedRemedy

Clarify this is wrapped phase, if that is what is meant.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Added the following range statement on P104 L18 “for 0 < k <= K_N” for the H_k line in equation (165-22)

Cl **165** *SC* **165.7.1.3.3** *P* **104** *L* **29** # I-24

Larsen, Wayne CommScope

Comment Type **T** *Comment Status* **X** *TBD*

The procedure in step 2b effectively throws away all the frequency repsonse above the Nyquist frequency.

SuggestedRemedy

Either make use of the frequency response points from Nyquist to 10,240 MHz or don’t measure them.

Proposed Response *Response Status* **O**

Cl **165** *SC* **165.7.1.3.3** *P* **104** *L* **45** # I-67

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Equation 165-26 looks bad. The exponential is better represented as a function than a power of e. The relative size of sigma and the summation range makes the equation look strange.

SuggestedRemedy

Use exp(j*(2*pi*k_n)/(2*K_N)) and adjust the size of sigma.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.3** *P* **105** *L* **3** # I-90

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Equation 165-27 looks awkward.

SuggestedRemedy

Increase the relative size of sigma compared to the summation limits.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.3** *P* **105** *L* **9** # I-25

Larsen, Wayne CommScope

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

typo in subscript, apparently

SuggestedRemedy

In equation 165-28, change from RE(sub-k) to RE(sub-r)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* **0** *P* **105** *L* **11** # I-74

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

There is an subscript for RE in equation (165-28)

SuggestedRemedy

Change subscript for RE from k to r: "RE_r(k)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed per suggested remedy but comment is against 165.7.1.3.3

Cl **165** *SC* **165.7.1.3.3** *P* **105** *L* **12** # I-44

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

typo obscures technical meaning of the equation - there is no "r" - subscript of RE (k) should be "r", not "k"

SuggestedRemedy

Change RE sub k to RE sub r on left hand side of Equation 165-28

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **24** # I-75

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The H sequences are introduced as singular, but are always used as plural sequences in the rest of the section.

SuggestedRemedy

Change "measurement of the insertion loss which is represented as a complex sequence H_k" to "measurements of the insertion loss which are represented as complex sequences H_k,i"

Response *Response Status* **C**

ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **24** # I-76

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Confusing curly bracket in (165-30).

SuggestedRemedy

Remove the "{" in front of (165-30)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **25** # I-26

Larsen, Wayne CommScope

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

Since capital letter H is used in 165.7.1.3.3, it is confusing to use it again here with a different meaning.

SuggestedRemedy

Use a different letter.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change
"measurement of the insertion loss which is represented as a complex sequence H_k"
to
"measurements of the insertion loss which are represented as complex sequences H_k,i"

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **36** # I-27

Larsen, Wayne CommScope

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

This is an unnecessarily restrictive and fancy way of determining the delay, subject to errors and misunderstanding. Also, delay is dependant on frequency, you might consider determining it at each frequency point, instead of applying this estimate of the delay reguardless of frequency.

SuggestedRemedy

replace lines 36-50 with 'Determine the delay by any convenient method'

Response *Response Status* **C**

REJECT.

The equation may look complicated partly because of its less than desirable formatting and it is a simple linear fit to the phase. It is one of the widely used methods to estimate the delay. This delay represents the length of the cable.
No changes to the draft needed.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **40** # I-48

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Indexed term N sub k is not defined. Is this meant to just be "N"? While there is a value on line 49, there is no indication of how that variexs with the index k.

SuggestedRemedy

Change N sub k to "N" or some other variable, alternatively define a new variable, or the indexing needed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change N sub k with M in Equation 165–32 (page 105 line 42 and 49).

Cl **165** *SC* **165.7.1.3.3** *P* **105** *L* **40** # I-91

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Equation 165-32 would benefit from better formatting.

SuggestedRemedy

The subscripts and superscripts for the summation symbols need to be smaller and aligned with the respective sigma summation symbols

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **42** # I-80

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The calculations in (165-32) relay on "unwrap" in (165-31). If this unwrapping can be error prone, if it is not done carefully, especially at high frequencies on long cables. The calculations in (165-32) would benefit from some mechanism to detect incorrect unwrapping and other outliers, and make the corresponding correction to the calculations.

SuggestedRemedy

Add exception handling for outliers in equation (165-32).

Response *Response Status* **C**

REJECT.

The proposed change in the comment does not contain sufficient detail so that the task group can understand the specific changes being suggested by the commenter.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **42** # I-79

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Equation (165-32) is used to calculate delay, which is then key component of following equations. However, there is no metric to evaluate if the calculated delay is accurate or reasonable. If it is not, the metric becomes "confused", so this must be detected.

SuggestedRemedy

Add a calculation of the standard error of the line fit, and set an upper limit on the allowed standard error if the ETM metric is to be used.

Response *Response Status* **C**

REJECT.

The proposed change in the comment does not contain sufficient detail so that the task group can understand the specific changes being suggested by the commenter.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **42** # I-78

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Equation (165-32) is more complex than it has to be, since sum of k^ and sum of k can be pre-computed and replaced by function of K_S and N_S

SuggestedRemedy

Replace the sum of k and sum of k^2 with fixed terms of K_s and N_k

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **42** # I-77

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

Improper capitalization of pi in (165-32)

SuggestedRemedy

Change capitalized pi in (165-32) to lower case pi

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **43** # I-46

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

equation typo - lower case "pi" is meant in the denominator, not a product operator (upper case pi).

SuggestedRemedy

change "pi" in denominator of equation 165-32 to lower case.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **48** # I-51

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Low frequency limit of 100 MHz is much higher than specification of other link segment parameters. Likely too high for echo and seems arbitrary.

SuggestedRemedy

Change 100 MHz to 10 MHz and 4.1 GHz to 4.01 GHz.

Response *Response Status* **C**

REJECT.

The frequency range is chosen to be far away from band edges. The lower limit does not have to coincide with the lower limit used in IL measurment. It should ideally be much higher to avoid any phase variation due to effects other than latency of the channel. No change to the draft needed.

Cl **165** *SC* **165.7.1.3.4** *P* **105** *L* **49** # I-49

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

"With k_s = 40, and N_k = 1600, the linear fit is calculated…" - is this trying to say that k_s and N_k are constants used in the calculation? If so, they should be explained and added to table 165-15.

SuggestedRemedy

Add explanatory text for the meaning of k_s and N_k to Table 165-15 and add these values there (apologies, the draft provides insufficient explanation for this commenter to offer a good suggestion). Change sentence at P105 L49 to read "Using the values of k_s and N_k in Table 165-15, the linear fit…"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **165** *SC* **165.7.1.3.4** *P* **106** *L* **2** # I-45

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

Comment Type **TR** *Comment Status* **R**

IF the echo response is truncated, it should be truncated to the MAXIMUM of the two delay estimates, not the minimum, and the floor function further minimizes it.

SuggestedRemedy

change minimum to maximum and floor to ceil in equation 165-33.

Response *Response Status* **C**

REJECT.

The purpose of the delay estmate is to ensure the exclusion of the reflection from the far end termination. Hence the minimum estimate is used.

No change to the draft needed.

Cl **165** *SC* **165.7.1.3.4** *P* **106** *L* **6** # I-28

Larsen, Wayne CommScope

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

It is illogical and dangerous to throw away the part of the tail that is past the round trip delay. A short link with low IL cable, and highly reflective connectors, might have secondary reflections that might be harmful, which this ignores.

SuggestedRemedy

Delete the 3rd row of equation 165-34 and apply the second row for all m < n. An alternative would be, increase L(sub-e) to twice the RT delay, or to 1.2 times the RT delay. There are other alternatives.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **165** *SC* **165.7.1.3.4** *P* **106** *L* **13** # I-50

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

"to calculate the associated REM. The ETM(m) is this REM calculated for…" REM is not a single number, it is defined as a function of an argument in equation 165-29. (REM(k)). The definition for ETM needs to specify the value of k to which ETM(m) relates (we know that "m" varies the partial response substituted for h_n) It appears to be "Ndiscard_etm".

SuggestedRemedy

Replace text after "to calculate" in step 8 with "to calculate each ETM(m) using the value of g \sub n \sup m as the value of REM(k) in Equation 165-29 evaluated at k equal to Ndiscard_etm."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace text after "to calculate" in step 8 with "to calculate each ETM(m) using the value of g \sub n \sup m as the value of REM(k) in Equation 165-29 evaluated at k = Ndiscard_etm."

Cl **165** *SC* **165.7.1.3.4** *P* **106** *L* **13** # I-89

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

It is not clear what k value in REM(k) to use for the ETM(m)

SuggestedRemedy

Change "evaluated at Ndiscard_etm" to "evaluated at k=Ndiscard_etm"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace text after "to calculate" in step 8 with "to calculate each ETM(m) using the value of g \sub n \sup m as the value of REM(k) in Equation 165-29 evaluated at k = Ndiscard_etm."

See also comment #i-50.

Cl **165** *SC* **165.7.1.3.5** *P* **106** *L* **16** # I-21

Larsen, Wayne CommScope

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

This document specifies a particular way of obtaining a time response, then a numerical acceptance criteria based on it. It is usual to specify acceptance based on the physical phenomenon, not based on a particular way of measuring it. Also, it would benefit from a graphical illustration of the acceptance criteria like figure 165-35.

SuggestedRemedy

In 165.7.1.3.5, describe the return loss in energy returned per time interval, and the associated limits. Provide a graphical illustration. The present text can be retained as an example of determining compliance.

Response *Response Status* **C**

REJECT.

The proposed change in the comment does not contain sufficient detail so that the task group can understand the specific changes being suggested by the commenter.

Cl **165** *SC* **165.7.1.3.5** *P* **106** *L* **17** # I-29

Larsen, Wayne CommScope

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

typo in reference, apparently

SuggestedRemedy

Change the reference 165.7.3.2 to 165.7.3.3. Also on line 33, change 165.7.1.3.2 to165.7.1.3.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.4** *P* **106** *L* **30** # I-47

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

The truncation of the echo response based on delay length is fundamental to the ETM and creates the potential for missing reflections due to mismatch of short segments which can extend the resulting time delay of the echo response relative to the mean-square estimated link segment delay. Additionally, delay dispersion of low frequency echo is assumed to be minimized - complicated and enabled by the 100 MHz cutoff on the measurement of IL. All of the issues noted make the ETM less useful and more problematic than it is worth, in this commenters opinion.

SuggestedRemedy

Delete 165.7.1.3.4 and 165.7.1.3.6. Change title of 165.7.1.3.2 to Residual echo metric. Delete last row of Table 165-15 (Ndiscard_etm). Delete PICS LSC4 (P128 L24)

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Added editor's note in 165.7.1.3.4 with the following text:

"Commenters are suggested to carefully review the algorithm in 165.7.1.3.4 and 165.7.1.3.6 considering at least the error analysis and the characteristics of link segments that ETM will disqualify."

Cl **165** *SC* **165.7.1.3.5** *P* **106** *L* **37** # I-69

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The formatting of equation 165-36 needs improvement

SuggestedRemedy

The REM_Limit should be left aligned to the curly bracket, for both conditions. The range of m for the upper line should be better separated , so that it is a limit and not part of the formula.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.7.1.3.5** *P* **106** *L* **41** # I-68

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The statement "REM_Limit is the limit of REM as defined in Equation (165–35)" is confusing, because REM_Limit is not defined in 165-35.

SuggestedRemedy

Clarify the definition of REM_Limit

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The proposed change in the comment does not contain sufficient detail so that the task group can understand the specific changes being suggested by the commenter.

Cl **165** *SC* **165.7.2.1** *P* **108** *L* **24** # I-52

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Lower limit of specification for PSANEXT is impractical and out of step with other parameters

SuggestedRemedy

Change 1 MHz lower limit to 10 MHz

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed 1 MHz lower limit to 10 MHz and updated Figure 165-38

Cl **165** *SC* **165.7.2.2** *P* **109** *L* **18** # I-53

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Lower limit of specification for PSAACRF is impractical and out of step with other parameters

SuggestedRemedy

Change 1 MHz lower limit to 10 MHz

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed 1 MHz lower limit to 10 MHz and updated Figure 165-39

Cl **165** *SC* **165.8.2.1** *P* **109** *L* **21** # I-54

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

Lower limit of specification for MDI return loss is out of step with other parameters

SuggestedRemedy

Change 5 MHz lower limit to 10 MHz

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changed 5 MHz lower limit to 10 MHz on page 110 line 21 and updated Figure 165-40

Cl **165** *SC* **165.9.2.2** *P* **112** *L* # I-100

Rolfe, Benjamin Blind Creek Associates

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

"In addition, the system may need to comply with more stringent requirements for the limitation of electromagnetic interference" is using "may" in a statement of requirement that is out of scope of this standard. Don't need the state the obvious anyway.

SuggestedRemedy

Delete sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.9.2.2** *P* **112** *L* **21** # I-101

Rolfe, Benjamin Blind Creek Associates

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

This sentence uses 'may' incorrectly. This could be "can" but really this sentence contains no useful information so best to delete it.

SuggestedRemedy

Delete sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.9.2.2** *P* **112** *L* **27** # I-13

Grow, Robert RMG Consulting

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

In general, we should refer to implementations, not implementers.

SuggestedRemedy

"and PHY implementations conform"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.10** *P* **112** *L* **32** # I-140

Ran, Adee Cisco Systems, Inc.

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

"Transmit data delay is measured from the input of a given unit of data at the 25GMII to the presentation of the same unit of data by the PHY to the MDI. Receive data delay is measured from the input of a given unit of data at the MDI to the presentation of the same unit of data by the PHY to the 25GMII"

These delays cannot be measured separately in practice; the 25GMII is typically not exposed and the data presented at the 25GMII is not easy to identify on the MDI due to the encoding and scrambling operations.

In other PHY types, the specification is indeed for the sum of the transmit and receive data delays, but there is no separate definition; the reason is that the sum _is_ measurable easily, either internally or using test equipment, using a loopback configuration.

It may be acceptable to _define_ the delays in each direction, but not using the word "measured", because they cannot be measured separately.

SuggestedRemedy

Change "is measured" to "is defined", twice in the quoted sentences.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165** *SC* **165.10** *P* **112** *L* **44** # I-141

Ran, Adee Cisco Systems, Inc.

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

The delay limits specified in Table 165-16 are very large; I assume they are a result of the long RS-FEC block size with large overhead (RS-FEC(936,846)!), and the interleaving of multiple blocks, required in practice to mitigate error bursts. Therefore, it is likely that the actual delays of real implementations will not be much smaller than the specified maxima. This means the practical round-trip delay will be about 10 microseconds due to the physical layer alone. This is usually not considered attractive.

Add to that the strong receiver required for channels with insertion loss exceeding >30 dB at the fundamental frequency, with PAM4 modulation and full-duplex signaling; Has the power consumption of such receivers been assessed?

The large latency and high power, combined, raise doubts about broad market potential/technical feasibility combination for the new port type.

SuggestedRemedy

Provide an analysis of expected power.
Provide an overview of the targeted applications of 25GBASE-T1 and whether the expected power and latency are acceptable for these applications.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The proposed change in the comment does not contain sufficient detail so that the task group can understand the specific changes being suggested by the commenter.

Cl **165A** *SC* **165A.1** *P* **132** *L* **30** # I-57

Zimmerman, George Cisco Systems, Inc.,CME Consulting,CommScope,M

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

The clause 165 link segment doesn't need further definition here, and the parenthetical is confusing in context of the figure, suggesting a link longer than 11m… or that the connectors and length are requirements.

SuggestedRemedy

delete "(up to 2 in-line connectors and up to at least 11m length)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **165A** *SC* **165A.1** *P* **132** *L* **34** # I-70

Jonsson, Ragnar Marvell Semiconductor, Inc.

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

The phrase "at least" should be removed in Figure 165A-1. Otherwise, the cable can be more than 11m, which is not the intention and this would increase the echo canceler complexity

SuggestedRemedy

The words "at least" should be removed
or
replace the text in the paranthesis with "see 165.7"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Removed "at least"