

Approved Responses

IEEE P802.3bp D3.1 1000BASE-T1 PHY 3rd Sponsor recirculation ballot comments

CI 97 SC 97.1.2.3 P 66 L 21 # r03-17  
 McClellan, Brett Marvell Semiconducto

Comment Type T Comment Status A

"The quiet-refresh cycle continues until the PCS function detects a condition that is not Assert Low Power Idle on the GMII. This condition signals to the PHY that the LPI transmit mode should end. At the next PHY frame the PCS transmits a wake frame composed of an entire PHY frame containing only Idle. On the next PHY frame normal power mode shall resume."  
 The text doesn't match the state machine requirement that the wake frame is sent only during a wake frame window.

SuggestedRemedy

Change the text to follow the state machine.  
 Change "At the next PHY frame"  
 to "At the next PHY frame aligned to the wake window"

Response Response Status C  
 ACCEPT.

CI 97 SC 97.3.2.2.15 P 88 L 7 # r03-16  
 McClellan, Brett Marvell Semiconducto

Comment Type T Comment Status A

"At the next PHY frame the PCS transmits a wake frame composed of an entire PHY frame containing only Idle. The wake frame shall be sent only during alternating PHY frame counts."  
 These two sentences appear to contradict each other, and the first sentence is not consistent with the state machine.

SuggestedRemedy

Change the text to follow the state machine.  
 Change "At the next PHY frame"  
 to "At the next wake frame window"

Response Response Status C  
 ACCEPT.

CI 97 SC 97.3.6.2.2 P 94 L 26 # r03-15  
 McClellan, Brett Marvell Semiconducto

Comment Type T Comment Status A

"rx\_lpi\_active  
 This variable is set true upon detection of LP\_IDLE. Set false upon wake\_detection."  
 wake\_detection appears to be an undefined variable, but is only meant to indicate detection of the wake frame.

SuggestedRemedy

Change "Set false upon wake\_detection."  
 to "Set false upon detection of the wake frame."

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Change "Set false upon wake\_detection."  
 to "Set false upon detection of >>a<< wake frame."

CI 97 SC 97.3.6.2.2 P 94 L 45 # r03-12  
 McClellan, Brett Marvell Semiconducto

Comment Type T Comment Status A

"tx\_lpi\_active  
 This variable is set false at the next wake frame if any of the conditions is true:"  
 A "wake frame" will be transmitted if tx\_lpi\_active is set false at the next "wake frame window". To avoid circular logic about "wake frame" We should use the term "wake frame window" in this definition.

SuggestedRemedy

change to  
 "tx\_lpi\_active  
 This variable is set false at the next wake frame window if any of the conditions is true:"

Response Response Status C  
 ACCEPT IN PRINCIPLE.

change to  
 "tx\_lpi\_active  
 This variable is set false at the next wake frame window if any of the >>following<< conditions is true:"

Approved Responses

IEEE P802.3bp D3.1 1000BASE-T1 PHY 3rd Sponsor recirculation ballot comments

Cl 97 SC 97.3.6.2.2 P 95 L 10 # r03-13  
 McClellan, Brett Marvell Semiconducto

Comment Type T Comment Status A

"tx\_wake\_frame\_complete  
 This variable is set true at the end of the RS WAKE frame, otherwise false."  
 "RS WAKE" is not defined.  
 tx\_wake\_frame\_complete is set true after encoding a complete wake frame ( idle frame  
 from the PCS) during the wake sense window.

SuggestedRemedy

change to  
 "tx\_wake\_frame\_complete  
 This variable is set true at the end of a complete wake frame, otherwise false."

Response Response Status C

ACCEPT IN PRINCIPLE.

change to  
 "tx\_wake\_frame\_complete  
 This variable is set to true at the end of a complete wake frame. This variable is set to false  
 otherwise."

Cl 97 SC 97.3.6.4 P 97 L 20 # r03-14  
 McClellan, Brett Marvell Semiconducto

Comment Type T Comment Status A

Fig 97-12 PCS Receive state diagram.  
 "rx\_raw <= DECODE(LPBLOCK\_R)"  
 typo and LPBLOCK\_R does not need to be decoded.

line 26 IPBLOCK\_R does not need to be decoded.

SuggestedRemedy

line 20 change "rx\_raw <= DECODE(LPBLOCK\_R)" to "rx\_raw <= LPBLOCK\_R" Note the  
 typo fix ( LPBLOCK\_R)  
 line 26 change "rx\_raw <= DECODE(IBLOCK\_R)" to "rx\_raw <= IBLOCK\_R"

Response Response Status C

ACCEPT.

Cl 97 SC 97.3.6.4 P 99 L 1 # r03-3  
 Chini, Ahmad Broadcom Corporation

Comment Type TR Comment Status A

\*\*\* Comment submitted with the file 89133300003-wang\_3bp\_01\_0416.pdf attached \*\*\*

Figure (97-14)- PCS Transmit state diagram is not complete and has some typo.

SuggestedRemedy

Suggested changes for figure (97-14) is shown in red in the attached  
 wang\_3bp\_01\_0416.pdf

Also add the following variable definition in sub clause 97.3.6.2.2

tx\_sleep\_frame\_complete  
 This variable is set true when PHY is transitioning to the LPI mode and sleep signal  
 transmission is completed. The variable is set false when transitioning out of LPI mode.

Response Response Status C

ACCEPT IN PRINCIPLE.

Changes per comment except definition of tx\_sleep\_frame\_complete as shown below:

tx\_sleep\_frame\_complete  
 This variable is set to true when PHY is transitioning to the LPI mode and the sleep signal  
 transmission is completed. This variable is set to false when the PHY is transitioning out of  
 the LPI mode.

Cl 97 SC 97.3.6.4 P 99 L 16 # r03-8  
 McClellan, Brett Marvell Semiconducto

Comment Type E Comment Status A

Figure 97-14 PCS Transmit state diagram. typo "BLOCK\_T" should be "IBLOCK\_T"

SuggestedRemedy

change "BLOCK\_T" to "IBLOCK\_T"

Response Response Status C

ACCEPT.

Resolved per r03-3.

Approved Responses

IEEE P802.3bp D3.1 1000BASE-T1 PHY 3rd Sponsor recirculation ballot comments

**Cl 97**      **SC 97.3.6.4**                      **P 99**                      **L 35**                      # **r03-9**  
 Mcclellan, Brett                                      Marvell Semiconducto  
**Comment Type**    **T**                      **Comment Status**    **A**  
 Figure 97-14 PCS Transmit state diagram. missing condition of TX\_AGGREGATE in multiple paths  
*SuggestedRemedy*  
 change "!tx\_data\_mode" to "TX\_AGGREGATE \* !tx\_data\_mode" in multiple paths:  
 SEND\_ENTER\_LPI to SEND\_IDLEES,  
 SEND\_LPI to SEND\_IDLEES, and SEND\_WAKE to SEND\_IDLEES  
**Response**                      **Response Status**    **C**  
 ACCEPT.  
 Resolved per r03-3.

**Cl 97**      **SC 97.3.6.4**                      **P 99**                      **L 38**                      # **r03-10**  
 Mcclellan, Brett                                      Marvell Semiconducto  
**Comment Type**    **T**                      **Comment Status**    **A**  
 Figure 97-14 PCS Transmit state diagram. The path from SEND\_ENTER\_LPI to SEND\_LPI requires another condition to ensure that a complete phy frame containing LP\_IDLE is encoded before entering SEND\_LPI.  
*SuggestedRemedy*  
 change "TX\_AGGREGATE \* tx\_data\_mode \* tx\_lpi\_active"  
 to "TX\_AGGREGATE \* tx\_data\_mode \* tx\_lpi\_active \* tx\_sleep\_frame\_complete"  
 in path from SEND\_ENTER\_LPI to SEND\_LPI  
 Page 95 line 10  
 add a definition in 97.3.6.2.2 for tx\_sleep\_frame\_complete  
 "tx\_sleep\_frame\_complete  
 This variable is set true at the end of a complete sleep frame, otherwise false."  
**Response**                      **Response Status**    **C**  
 ACCEPT IN PRINCIPLE.  
 Resolved per comment # r03-3

**Cl 97**      **SC 97.3.6.4**                      **P 99**                      **L 38**                      # **r03-11**  
 Mcclellan, Brett                                      Marvell Semiconducto  
**Comment Type**    **T**                      **Comment Status**    **A**  
 Figure 97-14--PCS Transmit state diagram. There is a typo and missing condition in path from SEND\_WAKE to SEND\_DATA  
*SuggestedRemedy*  
 change "TX\_AGGREGATE \* tx\_wake\_rame\_complete"  
 to "TX\_AGGREGATE \* tx\_data\_mode \* tx\_wake\_frame\_complete" Note the typo fix ( frame)  
**Response**                      **Response Status**    **C**  
 ACCEPT.  
 Resolved per r03-3.

**Cl 97**      **SC 97.4.2.2**                      **P 117**                      **L 19**                      # **r03-19**  
 Mcclellan, Brett                                      Marvell Semiconducto  
**Comment Type**    **T**                      **Comment Status**    **A**  
 "PMA Transmit shall continuously transmit onto the MDI pulses modulated by the symbols given by tx\_symb when sync\_link\_control = false, or the sync\_tx\_symb output by the PHY Link Synchronization function when sync\_link\_control = true,"  
 This text does not match the definition for sync\_link\_control in 97.4.2.6.1  
*SuggestedRemedy*  
 change text to:  
 "PMA Transmit shall continuously transmit onto the MDI pulses modulated by the symbols given by tx\_symb when sync\_link\_control = ENABLE, or the sync\_tx\_symb output by the PHY Link Synchronization function when sync\_link\_control = DISABLE"  
**Response**                      **Response Status**    **C**  
 ACCEPT.  
 Update PICS as well.

Cl 97 SC 97.6.1.4 P 145 L 1 # r03-4  
Moffitt, Bryan CommScope, Inc.

Comment Type E Comment Status D

This calls for LCL and LCTL while 97A.1 says "link segment differential to common mode conversion loss" which are TCL and TCTL.

SuggestedRemedy

For consistency change: For compliance to the specification measurements of LCL and LCTL are sufficient as LCL and TCL are considered reciprocal and LCTL and TCTL are considered reciprocal. To: Note that LCL and TCL are considered reciprocal and LCTL and TCTL are considered reciprocal. For compliance to the specification, measurements of either LCL or TCL and either LCTL or TCTL are sufficient. Or change 97A.1 p 205 L 12 "link segment differential to common mode conversion loss" to "link segment mode conversion loss"

Proposed Response E Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The current draft already recognizes the equivalency of the mode conversion specifications, see P802.3bp, D3.3, Page 144, Lines 42-52

Cl 97 SC 97.6.3.1 P 147 L 46 # r03-5  
Moffitt, Bryan CommScope, Inc.

Comment Type E Comment Status D

This section states that pair to pair ANEXT is "specified" but it is not.

SuggestedRemedy

Change: In order to limit the alien crosstalk at the near end of a type A link segment, the differential pair-to-pair near-end crosstalk (NEXT) loss between the disturbed type A link segment and the disturbing type A link segment is specified to meet the bit error ratio objective. To: In order to meet the bit error ratio objective, the differential pair-to-pair near-end alien crosstalk (ANEXT) loss between the disturbed type A link segment and the disturbing type A link segment must be limited.

Proposed Response E Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The PSANEXT loss (the requirement) is determined by summing the power of the individual pair-to-pair differential alien NEXT loss values; they are specified to be used in 97-21.

CI 97 SC 97.6.3.3 P 149 L 3 # r03-6  
 Moffitt, Bryan CommScope, Inc.

Comment Type E Comment Status D

Multiple issues with this paragraph; 1) AFEXT is not "specified" 2) Most aspects of this PSAACRF parameter were developed based on the TIA and ISO 4 pair cabling standards, which specify an alien FEXT "insertion loss normalization" calculation that is not included in this standard, but might be a point of confusion since ACRF is not clearly defined here. 3) MDACRF is worded but not given (also irrelevant) so that text should be cleaned 4) ALSO "IS LIMITED" IS MISSING

SuggestedRemedy

Change: In order to limit the alien crosstalk at the far-end of a type A link segment, the differential pair-to-pair alien far-end crosstalk (FEXT) loss between the disturbed type A link segment and the disturbing type A link segment is specified to meet the bit error ratio objective. To ensure the total alien FEXT coupled into a type A link segment, multiple disturber attenuation to crosstalk ratio far-end ACRF is specified as the power sum of the individual alien ACRF disturbers. To: In order to meet the bit error ratio objective, the differential pair-to-pair far-end alien crosstalk (alien FEXT) loss between the disturbed type A link segment and the disturbing type A link segment must be limited. To ensure the total alien FEXT coupled into a type A link segment is limited, the attenuation to crosstalk ratio far-end (ACRF) from all disturbing links is combined as the power sum of the individual alien ACRF disturbers. See Equation (113-23) for ACRF.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Add "is limited": Page 149, Line 6

To ensure the total alien FEXT coupled into a type A link segment "is limited", multiple disturber attenuation to crosstalk ratio far-end ACRF is specified as the power sum of the individual alien ACRF disturbers.

CI 97 SC 97.7.2.1 P 151 L 51 # r03-7  
 Moffitt, Bryan CommScope, Inc.

Comment Type E Comment Status D

1) figure has nothing to do with impedance 2) there is only a single given channel (or link?) for "the MDI" 3) fix with to from 4) simplify the excess in the sentence for clarity

SuggestedRemedy

Change: The differential impedance at the MDI (see Figure 97-43) for each transmit/receive channel shall be such that any reflection (due to differential signals incident upon the MDI with a test port having a differential impedance of 100  $\Omega$ ) is attenuated relative to the incident signal per Equation (97-29). TO: The differential impedance of the MDI shall be such that any reflection of differential signals incident upon the MDI from a test port having a differential impedance of 100  $\Omega$  is attenuated per Equation (97-29) (see Figure 97-43).

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 97 SC 97.11.9 P 164 L 45 # r03-2  
 RAN, ADEE Intel Corporation

Comment Type T Comment Status A

Acknowledging comment is against an unchanged portion of the draft.

Several PICS items have status "PME28:M". I read this as "dependent on the support marked for PME28", but PME28 (jitter measurement) is mandatory.

Other jitter-related items have status "M".

What does this status mean? is the jitter measurement supposed to be optional?

Also, PME28 has no subclause reference.

SuggestedRemedy

Assuming this is not optional: in items PME20, PME21, , PME22, , PME23, , PME25, PME25a, , PME25b: change status to "M"

In PME28 "Subclause", add reference to 97.5.3.3.

Response Response Status C

ACCEPT.

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**Cl 97**      **SC 97.11.10**                      **P 168**      **L 14**                      # **r03-1**  
RAN, ADEE                                      Intel Corporation

**Comment Type G**                      **Comment Status A**

Optional features that create conditions for PICS items are usually placed in the general "Major Capabilities/options" subclause.

I assume fixing that would be a non-substantial change.

**SuggestedRemedy**

Move PMI5 to 97.11.3, label it "\*\*LSTB". Change status of PMI6 to "LSTB:M".

**Response**                                      **Response Status C**

ACCEPT.

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**Cl 98**      **SC 98.3**                                      **P 183**      **L 16**                      # **r03-18**  
McClellan, Brett                                      Marvell Semiconducto

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

There was a comment on draft 1.5 to remove bit 7.513.0 (Link partner Auto-Negotiation ability), however, the remedy was incomplete.

mr\_lp\_autoneg\_able is still defined and used in the Arbitration state diagram.

Table 98-7 still refers to bit 7.513.0: mr\_lp\_autoneg\_able 7.513.0 Link partner Auto-Negotiation ability

**SuggestedRemedy**

page 183 line 16 98.3 State diagram variable to Auto-Negotiation register mapping  
delete row entry for "mr\_lp\_autoneg\_able" in Table 98-7--State diagram variable to Single twisted-pair Auto-Negotiation MDIO register mapping

delete definition for "mr\_lp\_autoneg\_able" in 98.5.1 State diagram variables page 188 line 1

In Figure 98-7--Arbitration state diagram page 193,

line 12 delete mr\_lp\_autoneg\_able <= false in ABILITY DETECT

line 22 delete mr\_lp\_autoneg\_able <= true in ACKNOWLEDGE DETECT

**Response**                                      **Response Status C**

ACCEPT.