<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>55.4.6.5</td>
<td>217</td>
<td>34</td>
<td>1</td>
<td>E</td>
<td>A</td>
<td>Comment 9 against D 2.3 was not fully implemented</td>
<td>In the editing instruction &quot;Insert a new subclause 55.4.6.5, containing Figure 55-27b, after subclause 55.3.6.4, , as shown below&quot; there is a double comma and the last subclause number is wrong. Change &quot;subclause 55.3.6.4, , as&quot; to &quot;subclause 55.4.6.4, as&quot;</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>78.1</td>
<td>256</td>
<td>15</td>
<td>2</td>
<td>T</td>
<td>R</td>
<td>It should be stated clearly that EEE does not support optical PHYs.</td>
<td>Add a sentence after second paragraph with the following text: 'EEE does not support operation over multimode or singlemode optical cabling'.</td>
<td>REJECT.</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>78.1</td>
<td>246</td>
<td>33</td>
<td>3</td>
<td>T</td>
<td>A</td>
<td>'LPI signaling also informs the LPI Client when the link partner' - it is better to focus on the time aspect of the signalling rather than the fact that signalling was sent. In this way, you emphasize the timely exchange of such information. This additionally goes well with the statements in 78.1.1.2</td>
<td></td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>78.1.2.2.1</td>
<td>248</td>
<td>28</td>
<td>4</td>
<td>E</td>
<td>R</td>
<td>Strike 'has' from this sentence. Other sentences are written in past simple tense.</td>
<td></td>
<td>REJECT.</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>78.1.3</td>
<td>249</td>
<td>30</td>
<td>5</td>
<td>TR</td>
<td>A</td>
<td>xMII is used as 'any of the family of medium independent interfaces' yet Figure 78-2 makes assumptions on the number of transmit/receive lanes. Suggest to indicate that the number of lanes might be different.</td>
<td></td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
</tr>
</tbody>
</table>
**IEEE P802.3az D3.0 Energy Efficient Ethernet comments**

**Comment responses**

**Cl 78 SC 78.1.4**  
Hajduczenia, Marek  
ZTE Corporation  
**Comment Type T**  
**Comment Status A**

Table 78-1 caption should be changed to read '802.3 PHY optionally supporting EEE'.
Table does not specify anything

**Suggested Remedy**

per comment

**Response**  
**Response Status C**  
**Accept in principle.**

**Cl 78 SC 78.2**  
Hajduczenia, Marek  
ZTE Corporation  
**Comment Type E**  
**Comment Status A**

'Duration PHY ...' > 'Period during which PHY ...:<CR>'Transmitter shrinkage time. Defined as the absolute time difference between the following two timing parameters:' >
'Transmitter shrinkage time is defined as the absolute time difference between the following two timing parameters:'<CR>'Receiver shrinkage time. Defined as the absolute time difference between the following two timing parameters:' > 'Receiver shrinkage time is defined as the absolute time difference between the following two timing parameters:'

**Suggested Remedy**

Language improvements offered per comment

**Response**  
**Response Status C**  
**Accept.**

**Cl 78 SC 78.3**  
Hajduczenia, Marek  
ZTE Corporation  
**Comment Type E**  
**Comment Status A**

'Parameter employed by the system which corresponds to the behavior of the PHY. It is' suggest to remove these words. The following words are sufficient to describe what the parameter is and what does <CR><CR>Likewise, remove 'Parameter employed by the system which corresponds to its requirements. It is' in lines 8 and 11.

**Suggested Remedy**

Per comment

**Response**  
**Response Status C**  
**Reject.**

This sentence it used to distinguish these from Tw_sys_rx which is a system level requirement as opposed to something deriving from the PHY

**Cl 78 SC 78.4.2.2**  
Hajduczenia, Marek  
ZTE Corporation  
**Comment Type TR**  
**Comment Status A**

'Integer (2 octets wide)' - other integers in 78.4.2.3 Variables do not have identifier whether they are 1 or 2 bytes wide. Either specifically mark each Integer type variable in terms of length or it is assumed that all of them have the same length. At this time, it is not clear how many bits you assume an Integer to have (16, 8, or 32 or more)

**Suggested Remedy**

Per comment

**Response**  
**Response Status C**  
**Accept in principle.**

Add a statement at the top of that section that says "Unless otherwise specified, all integers are assumed to be 2 octets wide"
What is a 'Temporary integer'? Can't you just say 'Integer used to temporarily store the value of...' or is it something altogether different?

Response
Per comment

Suggested Remedy
ACCEPT IN PRINCIPLE.

Change to "Integer used to temporarily store the value of" for TempTxVar and TempRxVar

For readability reasons, each variable should have one line separation from the previous / next definitions. Otherwise it becomes hard to read. Please fix it

Response
Per comment

Suggested Remedy
ACCEPT.

In Table 78-3, the column 'mapping' is not described and there are different options for mapping indicated i.e. left to right or right to left. What is their meaning?

Response
Per comment

Suggested Remedy
REJECT.

The direction of the mapping is introduced above the table in the introduction text. This is consistent with how we did the PoE/P L2 also.

'NEW_RX_VALUE' is located at the very bottom of the page and defined as 'Integer that indicates the value of Tw_sys_tx that the local system wants the remote system to support.' - seems like a variable rather than function. Why is it part of the Functions subclause then?

Suggested Remedy
Either change the definition to what the 'NEW_RX_VALUE' needs to represent or move to the proper location in the draft. The current location does not seem to be correct.

Response
Per comment

Suggested Remedy
REJECT.

It is not clear that the rewrite changes the technical content of the paragraph. The current text has been in place for multiple review cycles
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>78.5</td>
<td>261</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Hajduczenia, Marek</td>
<td>ZTE Corporation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment Type: T  Comment Status: A

Comment 78.5 line 3: 'In full duplex mode, predictable operation of the MAC Control PAUSE operation' > 'In the full duplex mode, predictable operation of the MAC Control PAUSE operation'<CR>line 11: 'Following IDLE code reception on the MAC interface' > 'Following the reception of an IDLE code on the MAC interface'

Suggested Remedy: per comment

Response: Response Status: C

ACCEPT.

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>78.5.1</td>
<td>262</td>
<td>54</td>
<td>18</td>
</tr>
<tr>
<td>Hajduczenia, Marek</td>
<td>ZTE Corporation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment Type: TR  Comment Status: A

Comment 78.5.1 Where are PICS for Clause 78? There is a number of shall statements which do not have associated PICS.

Suggested Remedy: Either add PICS or provide a clear statement why these are not available.

Response: Response Status: C

ACCEPT IN PRINCIPLE.

See response to comment #20

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>79.3.a.3</td>
<td>264</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Hajduczenia, Marek</td>
<td>ZTE Corporation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment Type: E  Comment Status: A

Comment 79.3.a.3 Font becomes much smaller after the first line of the paragraph. Please fix it.

Suggested Remedy: Per comment

Response: Response Status: C

ACCEPT.

----------

Page 246, line 27:
Add the following sentence to the end of the line:
Clause 78 provides an overview of EEE operation. PICS for the optional EEE capability for each specific PHY type are specified in the respective PHY clauses. Clause 78.4 contains the normative requirements for the data link layer capabilities and PICs for these will be added to clause 78. In addition, the following list of changes will be made.

---------PICS added for 78.4---------

| Feature Subclause Value/Comment Status Support | 10G | Support 10G or higher operation operation | 78.4 | 10Gb/s | O | Yes | No |
|--------------------------------------------------|---|--------------------------------|---|---|---|---|
| DLL1 | DLL | 78.4 | DLL | 10G:O | Yes | N/A |
| DLL2 | DLL | 78.4 | DLL | 110G:O | Yes | No |

Then:
| DLL1 | DLL | 78.4 | DLL | 10G:M | Yes | N/A |
| DLL2 | DLL | 78.4 | DLL | 110G:O | Yes | No |

Add this under the table:
In addition, the following predicate name is defined for use when different implementations from the set above have common parameters:

DLL = DLL1 OR DLL 2

Then for DLL requirements:
| DLL1 | 78.4.1 | DLL Timing | Timing Requirements | DLL:M | Yes | N/A |
| DLL2 | 78.4.2 | DLL Control State Diagrams | State Machines for TX and RX | DLL:M | Yes | N/A |

--------

Page 251, line 19:
Add the following sentence at the end of the line:
Normative requirements for the EEE capability for each PHY type are in the associated clauses.

Page 261, paragraph starting line 17:
IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Comment responses

Change:
"Table 78–4 summarizes critical timing parameters for supported PHYs. This should assist
the system designer in assessing the effect of LPI mode on the overall operation of the
PHY."
To:
"Table 78–4 summarizes critical timing parameters for supported PHYs. These are listed
here to assist the system designer in assessing the impact of EEE on the operation of the
link."

Page 262, line 8, Change:
"If the DTE XS XAUI stop enable bit is asserted, the RS shall defer sending data following
deassertion..."
To:
"If the DTE XS XAUI stop enable bit is asserted, the RS defers sending data following
deassertion..."

Page 262, line 13, change:
"The receiver should negotiate an additional time for the remote..."
To:
"The receiver negotiates an additional time for the remote..."

Page 262, line 8, Change:
"If the DTE XS XAUI stop enable bit is asserted, the RS shall defer sending data following
deassertion..."
To:
"If the DTE XS XAUI stop enable bit is asserted, the RS defers sending data following
deassertion..."

Page 262, line 13, change:
"The receiver should negotiate an additional time for the remote..."
To:
"The receiver negotiates an additional time for the remote..."

On page 252, line 49, replace "may" with "can"

In addition to the above changes:
A) Each PHY clause will be checked to see if there is either a "shall" and associated PICS
for the Tw_phy or if the Tw_phy can be derived from other normative items.
B) Each RS clause will add in a "shall" statement and associated PICS to call out the
Tw_sys_tx(min) value for that RS and will put a pointer to 78.2 and 78.4 for the definition
of Tw_syst_tx. See below for specific text.

46.3a.2.1 - change the definition for tw_timer

A timer that counts the time expired since the de-assertion of LPI. The terminal count of the
timer shall be the value of the resolved Tw_sys_tx as defined in 78.2 and 78.4. The
minimum value of Tw_sys_tx shall be 16.5 us for 100BASE-T and 13.26 us for 100BASE-KX. Signal tw_timer_done is asserted on reaching its terminal count.

22.6a.2.2 - change the definition for tw_timer

A timer that counts the time expired since the de-assertion of LPI. The terminal count of the
timer shall be the value of the resolved Tw_sys_tx as defined in 78.2 and 78.4. The
minimum value of Tw_sys_tx shall be 30 us for 100BASE-TX. Signal tw_timer_done is asserted on reaching its terminal count.

Add PICS items for each clause.

Cl 78 SC 78.3 P252 L 42 # 21
Diab, Wael Broadcom Corporation

Comment Type ER Comment Status A
The requirement for EEE capability to be exchanged during Auto Neg always points back to
78.3 (e.g. 28C.12 and 28D.7). The language in 78.3 can be improved to include a shall.

SuggestedRemedy
Rewrite "The EEE capability is advertised during the Auto-Negotiation stage" to "The EEE
capability shall be advertised during the Auto-Negotiation stage"

Response Response Status C
ACCEPT IN PRINCIPLE.

Follow suggested remedy and also put in a PICS entry for the new "shall"

Cl 00 SC 0 P15 L 15 # 22
Byrd, William PRIVACOM VENTUR

Comment Type G Comment Status A
The page numbers do not agree with the Table of Contents. For example: Scope is shown
in the table of contents as Page 16. It is actually shown on page 15 of the document. The
authors are looking at the computer programs page numbering instead of the actual page
numbers they have on the bottom of each page.

SuggestedRemedy
Re-page number document to match the table of contents.

Response Response Status C
ACCEPT.

Renumber the page numbers in the TOC to match the document
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 79 SC 79.3.a P263 L33 # 23
Diab, Wael
Broadcom Corporation

Comment Type ER Comment Status A
Please change the TBA in Figure 79-1a--EEE TLV format to the value in the Table 79-1

Suggested Remedy
Change TBA to 5

Response Response Status C
ACCEPT.

Cl 22 SC 22.6a.2.2 P29 L31 # 24
Turner, Edward J
Gnodal Ltd

Comment Type ER Comment Status A
The phrase 'time expired since' is confusing.

Suggested Remedy
Change to 'time since'

Response Response Status C
ACCEPT.

Cl 24 SC 24.2.2 P35 L13 # 25
Turner, Edward J
Gnodal Ltd

Comment Type E Comment Status A
Missing determiner before 'PCS'

Suggested Remedy
Add 'the' before 'PCS'.

Response Response Status C
ACCEPT.

By combining the response to comments # 25, 26, and 27, rephrase the statement

"The Receive process may support the LPI function by deactivating all or part of receive
functional blocks of PCS, PMA, and PMD to conserve energy during the low link utilization
period upon receiving proper codegroups via rx_code_bits from the link partner as
described in 24.2.2.1.5, and generate proper commands sending through MII as described
in 22.2.2.7."

to

"Upon receiving proper codegroups via rx_code_bits from the link partner as described in
24.2.2.1.5, the Receive process may support the LPI function by deactivating all or part of
receive functional blocks of the PCS, PMA, and PMD to conserve energy during the low
link utilization period, and generate commands through the MII as described in 22.2.2.7."

Cl 24 SC 24.2.2 P35 L14 # 27
Turner, Edward J
Gnodal Ltd

Comment Type E Comment Status A
Confusing wording in 'and generate proper commands sending through MII as described in
22.2.2.7'.

Suggested Remedy
Change to 'and generate commands through the MII as described in 22.2.2.7'.

Response Response Status C
ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Page</th>
<th>Line</th>
<th>Line Number</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>35</td>
<td>15</td>
<td>28</td>
<td>E</td>
<td>A</td>
<td>Missing determiners.</td>
<td>Add 'the' before 'Link Monitor' and PMA.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>35</td>
<td>26</td>
<td>29</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before PCS.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>35</td>
<td>28</td>
<td>30</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before 'remote receiver'</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>36</td>
<td>48</td>
<td>31</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before 'PMA'.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>37</td>
<td>1</td>
<td>32</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before 'PMA'.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>37</td>
<td>3</td>
<td>33</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before 'PMA'.</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>37</td>
<td>10</td>
<td>34</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before 'PMA_RXQUIET.request'</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>37</td>
<td>17</td>
<td>35</td>
<td>E</td>
<td>A</td>
<td>Missing determiner</td>
<td>Add 'the' before 'PMA_TXQUIET.request'</td>
<td>ACCEPT.</td>
<td></td>
</tr>
</tbody>
</table>

**TYPE:** TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general

**COMMENT STATUS:** D/dispatched  A/accepted  R/rejected  RESPONSE STATUS: O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn

**SORT ORDER:** Comment ID
Comment responses

Comment ID: 36
Cl: 24 SC: 24.2.3.4 P: 37 L: 36
Turner, Edward J Gnodal Ltd
Comment Type: E
Comment Status: A
Comment: Missing determiner.
Suggested Remedy: Add 'the' before 'PHY'.
Response: Response Status: C
ACCEPT.

Comment ID: 37
Cl: 24 SC: 24.2.3.4 P: 37 L: 38
Turner, Edward J Gnodal Ltd
Comment Type: E
Comment Status: A
Comment: Definition of timer period.
Suggested Remedy: Change 'to' to 'and'.
Response: Response Status: C
ACCEPT.

Comment ID: 38
Cl: 24 SC: 24.2.3.4 P: 37 L: 41
Turner, Edward J Gnodal Ltd
Comment Type: E
Comment Status: A
Comment: Missing determiners.
Suggested Remedy: Add 'the' before 'Idle state'.
Response: Response Status: C
ACCEPT.

Comment ID: 39
Cl: 24 SC: 24.2.3.4 P: 37 L: 43
Turner, Edward J Gnodal Ltd
Comment Type: E
Comment Status: A
Comment: Missing determiners.
Suggested Remedy: Add 'the' before 'Sleep state' and 'the' before 'Quiet state'.
Response: Response Status: C
ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment ID</th>
<th>Comment ID</th>
<th>Comment ID</th>
<th>Comment ID</th>
<th>Comment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI 24</td>
<td>SC 24.2.3.4</td>
<td>P 38</td>
<td>L 4</td>
<td># 44</td>
<td></td>
</tr>
<tr>
<td>Turner, Edward J</td>
<td>Gnodal Ltd</td>
<td>Comment Type: E</td>
<td>Comment Status: A</td>
<td>Definition of timer period.</td>
<td></td>
</tr>
<tr>
<td>SuggestedRemedy: Change ‘to’ to ‘and’.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response: ACCEPT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| CI 24 | SC 24.2.3.4 | P 38 | L 7 | # 45 |
| Turner, Edward J | Gnodal Ltd | Comment Type: E | Comment Status: A | Missing determiner. |
| SuggestedRemedy: Add ‘the’ before ‘Quiet’. |
| Response: Response Status C | ACCEPT. |

| CI 24 | SC 24.2.3.4 | P 38 | L 8 | # 46 |
| Turner, Edward J | Gnodal Ltd | Comment Type: E | Comment Status: A | Missing determiners. |
| SuggestedRemedy: Add ‘the’ before ‘PHY’ and ‘the’ before ‘Refresh’. |
| Response: Response Status C | ACCEPT. |

| CI 24 | SC 24.2.3.4 | P 38 | L 9 | # 47 |
| Turner, Edward J | Gnodal Ltd | Comment Type: E | Comment Status: A | Missing determiner. |
| SuggestedRemedy: Add ‘the’ before ‘Wake’. |
| Response: Response Status C | ACCEPT. |
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 24 SC 24.2.3.4 P 38 L 20 # 51
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Missing determiners.
SuggestedRemedy
Add 'the' before 'PHY', add 'the' before 'Sleep state', and add 'the' before 'Quiet state'.
Response Response Status C ACCEPT.

Cl 24 SC 24.2.3.4 P 38 L 21 # 52
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Definition of timer period.
SuggestedRemedy
Change 'to' to 'and'.
Response Response Status C ACCEPT.

Cl 24 SC 24.2.3.4 P 38 L 22 # 53
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Missing determiners throughout this paragraph.
SuggestedRemedy
Add 'the' before the following: 'PMA_RXLPI.request' (line 22), 'PMA' (line 22), 'Far-End' (line 23), 'PMA_LPILINKFAIL.request' (line 24), 'PMA' (line 25).
Response Response Status C ACCEPT.

Cl 24 SC 24.2.3.2 P 43 L 25 # 55
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Missing determiner.
SuggestedRemedy
Add 'the' before 'PCS'.
Response Response Status C ACCEPT.

Cl 24 SC 24.4.1.4 P 46 L 31 # 56
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Misplaced 'the'.
SuggestedRemedy
Change 'Process of PCS only if the EEE' to 'Process of the PCS only if EEE'.
Response Response Status C ACCEPT.

Cl 24 SC 24.4.1.4 P 46 L 32 # 57
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Missing determiner.
SuggestedRemedy
Add 'the' before 'Quiet'.
Response Response Status C ACCEPT.

Cl 24 SC 24.4.1.5.1 P 47 L 6 # 58
Turner, Edward J Gnodal Ltd
Comment Type E Comment Status A
Missing determiner.
SuggestedRemedy
Add 'the' before 'Quiet'.
Response Response Status C ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Type</th>
<th>Suggested Remedy</th>
<th>Status</th>
<th>Response</th>
<th>Status</th>
<th>Comment Type</th>
<th>Suggested Remedy</th>
<th>Status</th>
<th>Response</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>25</td>
<td>25.4a.1.1.2</td>
<td>52</td>
<td>11</td>
<td>E</td>
<td>Lower case NRZ.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Change to capitals</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>60</td>
<td>25</td>
<td>25.4a.2.1.2</td>
<td>53</td>
<td>37</td>
<td>E</td>
<td>Lower case NRZ.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Change to capitals</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>61</td>
<td>25</td>
<td>25.4a.8</td>
<td>55</td>
<td>14</td>
<td>E</td>
<td>Signal_Detect is all lower case here, whereas elsewhere there is a capital S and D.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Change to 'Signal_Detect'.</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>62</td>
<td>25</td>
<td>25.5.4.4</td>
<td>56</td>
<td>35</td>
<td>E</td>
<td>Lower case 'mv'.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Change to 'mV'</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>63</td>
<td>25</td>
<td>25.5.4.4</td>
<td>56</td>
<td>37</td>
<td>E</td>
<td>Lower case 'mv'.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Change to 'mV'</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>64</td>
<td>35</td>
<td>35.3a.2.2</td>
<td>71</td>
<td>34</td>
<td>E</td>
<td>Unnecessary word.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Delete 'expired'.</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>65</td>
<td>40</td>
<td>40.4.2.4</td>
<td>102</td>
<td>11</td>
<td>E</td>
<td>Missing an 'a'.</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>Add 'a' before 'period'.</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>66</td>
<td>00</td>
<td>0</td>
<td>4</td>
<td>22</td>
<td>E</td>
<td>TLV is misspelled</td>
<td>A</td>
<td></td>
<td>C</td>
<td>E</td>
<td>ACCEPT.</td>
<td>A</td>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

**Type:** TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

**Comment Status:** D/dispatched A/accepted R/rejected

**Response Status:** O/open W/written C/closed U/unsatisfied Z/withdrawn

**Sort Order:** Comment ID

Page 11 of 77 6/1/2010 10:17:56 AM
The document has many phrases of the form "If the EEE capability is supported, ..." Although I do not see a way to administratively disable EEE, I suspect that network designers will demand such a capability. If so, then nearly all of the clauses of the above form will need to be changed to ...

Response

"If the EEE capability is supported and administratively enabled, ..." or "If the EEE capability is enabled, ..."

Suggested Remedy

"If the EEE capability is supported and administratively enabled, ..." or "If the EEE capability is enabled, ..."

REJECT.

Considered "Technical" by editor.

There is no necessity to "enable" the EEE capability. There is negotiation to control the use of LPI, if LPI is not in use then the LPI client does not assert LPI. There is no requirement to change behavior depending on whether LPI is "in use" or not when LPI is not asserted.

Comment Type  ER  Comment Status  A

Missing underscore within 'lpiposupdate timer'

Suggested Remedy

Insert underscore before 'timer'.

ACCEPT.

Comment Type  E  Comment Status  A

Missing 'the' before 'period'.

Suggested Remedy

Insert 'the' before 'period'.

ACCEPT.

Comment Type  E  Comment Status  A

Incorrect reference to 'receive clock'. The PHY XS only has the capability to stop the transmit clock (as discussed in the previous sentence of this sub clause).

Suggested Remedy

Change 'receive' to 'transmit'.

ACCEPT.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 45 SC 45.2.4.1.3b P 121 L 34 # 74
Turner, Edward J Gnodal Ltd
Comment Type T Comment Status A
Incorrect reference to 'receive clock'. This register bit controls stopping XAUI signalling, rather than clocks.

Suggested Remedy
Change 'receive clock' to 'receive path XAUI signals'.

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.4.2.2a P 122 L 39 # 75
Turner, Edward J Gnodal Ltd
Comment Type TR Comment Status A
The first sentence is unclear, and the second sentence related to PHY behavior which is not controlled through the MMD.

Suggested Remedy
Delete second sentence completely and change first sentence to: 'If bit 4.1.6 is set to a one then the PHY XS is indicating that the attached PHY is permitted to stop the receive xMII clock whilst it is signalling LPI. If the bit is set to a zero then the PHY XS is indicating that the attached PHY is not permitted to stop the receive xMII clock whilst it is signalling LPI.' You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that an attached PHY device does not have its receive clock enable bit (3.0.10) set if this bit is cleared'.

Response Response Status C
ACCEPT IN PRINCIPLE.

Cl 45 SC 45.2.5.1.3b P 125 L 34 # 77
Turner, Edward J Gnodal Ltd
Comment Type T Comment Status A
Incorrect reference to 'receive clock'.

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.5.2 P 126 L 5 # 78
Turner, Edward J Gnodal Ltd
Comment Type TR Comment Status A
Incorrect table name and register numbers.

Suggested Remedy
Change title to 'DTE XS status 1 register bit definitions' and change all register bit numbers from 4.1 to 5.1.

Response Response Status C
ACCEPT.
IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Comment responses

**Comment**

Cl 45  SC 45.2.5.2.2a  P 126  L 39  # 79
Turner, Edward J  Gnodal Ltd

**Comment Type**  TR  **Comment Status**  A
The first sentence is unclear, and the second sentence discusses MAC functionality.

**Suggested Remedy**
Delete the second sentence and change the first sentence to: 'If bit 5.1.6 is set to a one then the DTE XS is indicating that the attached MAC is permitted to stop the transmit xMII clock whilst it is signalling LPI. If the bit is set to a zero then the DTE XS is indicating that the attached MAC is not permitted to stop the transmit xMII clock whilst it is signalling LPI.'.

You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that the attached RS does not stop the transmit xMII clock if this bit is cleared'.

**Response**

ACCEPT IN PRINCIPLE.

Change the first sentence as proposed, except that RS is substituted for MAC.

Change the second sentence to:

If the RS does not support EEE capability or is not able to stop the transmit direction xMII clock then this bit has no effect.

See comment #160

---

**Comment**

Cl 45  SC 45.2.5.8a.2  P 127  L 28  # 80
Turner, Edward J  Gnodal Ltd

**Comment Type**  TR  **Comment Status**  A
The first sentence is unclear, and the second sentence discusses a receive clock.

**Suggested Remedy**
Delete second sentence completely, and change the first sentence to: 'If bit 5.20.0 is set to a one then the DTE XS is indicating that the attached PHY XS is permitted to stop the XAUI signalling in the receive direction during LPI. If the bit is set to a zero then the DTE XS is indicating that the attached PHY XS is not permitted to stop the XAUI signalling on the receive direction during LPI.' You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that an attached PHY XS device does not have it's XAUI stop enable bit (4.0.9) set if this bit is cleared.'

**Response**

ACCEPT IN PRINCIPLE.

Change the first sentence as proposed.

Change the second sentence to:

If the PHY XS does not support EEE capability or is not able to stop the receive direction XAUI then this bit has no effect.

---

**Comment**

Cl 46  SC 46.3.1.5  P 136  L 25  # 81
Turner, Edward J  Gnodal Ltd

**Comment Type**  TR  **Comment Status**  A
The part of the sentence '..only if the stop clock capable bit is asserted (see 45.2.3.2.2a) only reference a PCS MMD. The device attached to the RS could be a DTE XS.

**Suggested Remedy**
Change the end of the sentence to '..only if the clock stop capable bit of the attached sublayer is asserted (see 45.2.3.2.2a and 45.2.5.2.2a).

**Response**

ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Response</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>70.6.10.1.3</td>
<td>227</td>
<td>16</td>
<td>E</td>
<td>A</td>
<td>C</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>70</td>
<td>70.7.1.5</td>
<td>227</td>
<td>53</td>
<td>E</td>
<td>A</td>
<td>C</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>71</td>
<td>71.1</td>
<td>230</td>
<td>13</td>
<td>T</td>
<td>A</td>
<td>C</td>
<td>ACCEPT IN PRINCIPLE.</td>
</tr>
</tbody>
</table>

**Comment 82**

Comment Type: T
Comment Status: A

Response: ACCEPT.

Suggested Remedy:
- Change the start of sentence to 'The PHY or DTE XS may halt RX_CLK ..' and change the end to '(see 45.2.3.1.3a and 45.2.5.1.3a).

**Comment 83**

Comment Type: E
Comment Status: A

Response: ACCEPT.

Suggested Remedy:
- Delete 'expired'.

**Comment 84**

Comment Type: T
Comment Status: A

Response: ACCEPT.

Suggested Remedy:
- Change to 'The signal tw_timer_done is asserted when tw_timer reaches its terminal count.'

**Comment 85**

Comment Type: E
Comment Status: A

Response: ACCEPT.

Suggested Remedy:
- Add 'the' before 'PCS' and 'the' before 'local PMD'.

**Comment 86**

Comment Type: E
Comment Status: A

Response: ACCEPT.

Suggested Remedy:
- Add space before 'mV' and 'ns'.

**Comment 87**

Comment Type: T
Comment Status: A

Response: ACCEPT.

Suggested Remedy:
- Insert 'functions' after 'deactivates transmit'

Will rewrite paragraph similar to that in proposed resolution to comment #129.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 71 SC 71.6.6 P 231 L 17 # 88
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Two occurrences of 'specified in' one after another.

Suggested Remedy
Delete one occurrence.

Response Response Status C
ACCEPT.

Cl 71 SC 71.6.12 P 231 L 29 # 89
Turner, Edward J Gnodal Ltd

Comment Type ER Comment Status A
Incorrect reference to backplane auto-neg.

Suggested Remedy
Change 'Clause 45' to 'Clause 73'

Response Response Status C
ACCEPT IN PRINCIPLE.
Change the sentence that currently reads:
"EEE capabilities and parameters will be advertised during the Backplane Auto-negotiation, as described in Clause 45."
To:
"EEE capabilities and parameters, as described in 45.2.7, will be advertised during the Backplane Auto-negotiation."

Cl 71 SC 71.6.12 P 231 L 31 # 90
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing apostrophe before 's' of 'link partners'.

Suggested Remedy
Insert apostrophe.

Response Response Status C
ACCEPT.

Cl 71 SC 71.6.12.1.3 P 232 L 7 # 91
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing determiners.

Suggested Remedy
Insert 'the' before 'PCS' and 'the' before 'local receiver'.

Response Response Status C
ACCEPT.

Cl 71 SC 71.7.1.4 P 232 L 41 # 92
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing spaces before units.

Suggested Remedy
Insert spaces before 'mV' (two instances) and 'ns' (two instances).

Response Response Status C
ACCEPT.

Cl 72 SC 72.6.2 P 236 L 10 # 93
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing determiner.

Suggested Remedy
Insert 'the' before 'PMD'.

Response Response Status C
ACCEPT.

Cl 72 SC 72.6.10.1 P 237 L 29 # 94
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing apostrophe before 's' of 'link partners'.

Suggested Remedy
Insert apostrophe.

Response Response Status C
ACCEPT.
Comment responses

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Type</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>E</td>
<td>Missed space</td>
<td>A</td>
<td>Insert space before 'mV' and 'ns' (two instances).</td>
<td>ACCEPT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Type</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>96</td>
<td>E</td>
<td>Use of 'usec'</td>
<td>A</td>
<td>Change to 'us'. Also on line 17.</td>
<td>ACCEPT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Type</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>TR</td>
<td>The definition of Ts is ambiguous.</td>
<td>A</td>
<td>Change to 'The period of time that the PHY transmits sleep before turning all transmitters off.'</td>
<td>ACCEPT IN PRINCIPLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Type</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>E</td>
<td>Missing words.</td>
<td>A</td>
<td>Add 'the' before 'MIRROR UPDATE', add 'the' before 'SYSTEM', add 'state' after 'REALLOCATION', add 'the' before 'TX UPDATE', add 'the' before 'UPDATE MIRROR'</td>
<td>ACCEPT</td>
</tr>
</tbody>
</table>

Turner, Edward J
Gnodal Ltd
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 78 SC 78.4.3.2 P 260 L 16 # 101
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Need to change 'lesser than' to 'less than either'.

Suggested Remedy
Apply change.

Response
Response Status C
ACCEPT.

Cl 78 SC 78.4.3.2 P 260 L 17 # 102
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing determiners.

Suggested Remedy
Add 'the' before 'SYSTEM', add 'the' before 'RX UPDATE', add 'the' before 'SYSTEM REALLOCATION', add 'the' before 'CHANGE'.

Response
Response Status C
ACCEPT.

Cl 79 SC 79.3.a.2 P 264 L 16 # 103
Turner, Edward J Gnodal Ltd

Comment Type E Comment Status A
Missing 'a'.

Suggested Remedy
Add 'a' before 'longer'.

Response
Response Status C
ACCEPT.

Cl 00 SC 0 P 4 L 30 # 104
Law, David 3Com Corporation

Comment Type E Comment Status A
'IEEE Std 802.3-2008(TM)/Cor 1-200X' should read 'IEEE Std 802.3-2008(TM)/Cor 1-2009' now that the corrigendum has been published.

Suggested Remedy
See comment.

Response
Response Status C
ACCEPT.

Cl 46 SC 46.3.1.5 P 136 L 25 # 105
Turner, Edward J Gnodal Ltd

Comment Type TR Comment Status A
Additional qualification required regarding the halting of the TX_CLK (this is an extension of the comment regarding an additional reference to the DTE XS stop clock capable bit being required in this sub clause).

Suggested Remedy
Add the sentence: 'It is the responsibility of the management entity to ensure that the RS does not halt the TX_CLK if the attached device does not have its stop clock capable bit set'.

Response
Response Status C
ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>Page</th>
<th>Line</th>
<th>Status</th>
<th>Type</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>45</td>
<td>45.2.4.1.3a</td>
<td>121</td>
<td>26</td>
<td></td>
<td>TR</td>
<td>The text is a bit confusing. &quot;If bit 4.0.10 is set to 1 then the PHY XS may stop the transmit xMII clock while it is signaling LPI otherwise it shall keep the clock &quot;active. If the PHY XS does not support EEE capability or is not able to stop the receive clock then this bit has no effect&quot;. Is this to stop TX_CLK or RX_CLK @ XGMII interface?</td>
</tr>
</tbody>
</table>
| 107        | 45 | 45.2.4.1.3b | 121 | 32   |        | TR   | In the statement: "If bit 4.0.9 is set to 1 then the PHY XS may stop signaling on the XAUI in the receive direction during LPI 
...", is the bit 4.0.9 to stop XAUI signaling going out from the PHY? How would this correlates to XAMII clock? Disabling the interface clock does not guarantee that the low power mode is entered for all applications. |
| 108        | 45 | 45.2.4.2.2a | 122 | 39   |        | TR   | If bit 4.1.6 is set to 0, bit 4.0.10 and 4.0.9 have no effect? |
| 109        | 49 | 49.2.13.3.1 | 173 | L    |        | TR   | In Figure 49-17, Transition priority from RX_SLEEP state is ambiguous |

**Comment Type:** TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general

**Comment Status:** D/dispatched  A/accepted  R/rejected  C/closed  U/unsatisfied  Z/withdrawn

**Sort Order:** Comment ID

**Response Status:** O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn

---

**Comment 106**

The text is a bit confusing. "If bit 4.0.10 is set to 1 then the PHY XS may stop the transmit xMII clock while it is signaling LPI otherwise it shall keep the clock "active. If the PHY XS does not support EEE capability or is not able to stop the receive clock then this bit has no effect". Is this to stop TX_CLK or RX_CLK @ XGMII interface?

**Suggested Remedy**

Change the text for better clarity.

**Response**

Add: "The PHY XS only has control of the RX_CLK on its XGMII interface, however this is connected to the TX_CLK on the PHY. Hence causing confusion."

Add: "Change "transmit xMII clock" to "transmit direction xMII clock""

See also comment #73 - fixes incorrect reference to "receive clock"

---

**Comment 107**

In the statement: "If bit 4.0.9 is set to 1 then the PHY XS may stop signaling on the XAUI in the receive direction during LPI 
...", is the bit 4.0.9 to stop XAUI signaling going out from the PHY? How would this correlates to XAMII clock? Disabling the interface clock does not guarantee that the low power mode is entered for all applications.

**Suggested Remedy**

Suggest to remove the correlation between clock disable and data disable during LPI mode.

**Response**

Accept in principle.

---

**Comment 108**

If bit 4.1.6 is set to 0, bit 4.0.10 and 4.0.9 have no effect?

**Suggested Remedy**

The bits are orthogonal but the current definitions are incorrect - causing confusion.

See comments: 158, 75, 74, 73, 157, 156

---

**Comment 109**

The transition from RX_SLEEP to RX_SLEEP should be qualified with signal_ok. i.e. :

−rx tq_timer_done * R_TYPE(rx_coded)=LI * signal_ok.

The transition from RX_SLEEP to RX_ACTIVE should also be based on signal_ok. i.e. :

rx_block_clock * −rx tq_timer_done * R_TYPE(rx_coded)=IDLE * signal_ok.

**Response**

Accept in principle.
In Figure 49-17, Transition from RX_WTF is ambiguous

Suggested Remedy

The transition from RX_WTF to either RX_LINK_FAIL or RX_SLEEP or RX_ACTIVE should also be based on energy detect to give energy_detect highest priority. The transition from RX_WTF to RX_SLEEP should be based on energy_detect. i.e.

!rx_wf_timer_done * rx_block_lock * R_TYPE(rx_coded) = LI * energy_detect

The transition from RX_WTF to RX_ACTIVE should be based on energy_detect. i.e.

!rx_wf_timer_done * rx_block_lock * R_TYPE(rx_coded) not equal LI * energy_detect

The transition from RX_WTF to RX_LINK_FAIL should be based on energy_detect. i.e.

rx_wf_timer_done * energy_detect

ACCEPT IN PRINCIPLE. Change by response to comment #123 eliminates the ambiguity.

Horner, Rita Avago Technologies

Comment responses

Horner, Rita Avago Technologies

Timers

one_us_timer is approximately 4.9 FEC frames long.

Suggested Remedy

Change the one_us_timer value to be 32 * 5 66-bit blocks. This ensures reception of 4 FEC frames containing unscrambled data.

ACCEPT IN PRINCIPLE.

See response to comment #138

Gustlin, Mark Cisco Systems, Inc.

The scrambler equation does not show clearly in the pdf.

Suggested Remedy

Fix it.

ACCEPT.

Horner, Rita Avago Technologies

One of the five or six types

Suggested Remedy

Change: one of the following types

ACCEPT IN PRINCIPLE.

Gustlin, Mark Cisco Systems, Inc.
Comment Type: E  Comment Status: A
New_TX_VALUE should be: NEW_TX_VALUE
Suggested Remedy: 
ACCEPT.

Comment Type: T  Comment Status: A
In Figure 49-4, the block diagram explicitly provides for a PMA, FEC, or WIS sublayer below the PCS. It also provides for the rx_lpi_active signal to be sent to that sublayer when it is a FEC sublayer. Therefore, it should also be stated FEC_SIGNAL.indication primitive is passed to the PCS when the sublayer below it is the FEC sublayer.
Suggested Remedy: 
Update the block diagram accordingly.
Response: Response Status: C
ACCEPT IN PRINCIPLE.
Change the diagram to show signal_ok instead of xxx_SIGNAL.indication

Comment Type: E  Comment Status: A
Equation (49-1) appears to be cropped in the PDF.
Suggested Remedy: 
Correct the issue.
Response: Response Status: C
ACCEPT.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 22 SC 22.6a.3.1 P 30 L 8 # 122
Healey, Adam LSI Corporation

Comment Type E Comment Status A

Extraneous period in the transition from LPI_DEASSERTED to LPI_ASSERTED.

SuggestedRemedy

Change to "LPI_REQUEST = ASSERT"

Response Response Status C

ACCEPT.

Cl 49 SC 49.2.13.1 P 174 L 37 # 124
Healey, Adam LSI Corporation

Comment Type TR Comment Status A

In Figure 49-17, there is a problem with the mechanism described to recover from a wake time fault. The variable energy_detect is used to determine if the transmitter has returned to the quiet state. This requires capabilities beyond what is otherwise assumed for 10GBASE-KR energy_detect. Per 72.6.4 (page 236, line 26), the value of PMD signal_detect is determined by the 10GBASE-KR training state diagram (in other words, it is set to TRUE) when rx_mode is DATA. Since rx_mode is set to DATA in the RX_WAKE state, and not changed upon a transition to the RX_WTF state, the branch to the RX_QUIET state can never be taken. Also note energy_detect has been defined as a mechanism to detect the transmitter's transition from TX_QUIET to TX_ALERT (it is only enabled during rx_mode = QUIET) and a special alert signal has been defined to facilitate this. The energy_detect variable should not be assumed to be a general indication of signal presence (or absence). If there is no robust means to distinguish between a quiet and an active line, then this transition has little value. It may be more reasonable to extend the refresh time to give the receiver a reasonable chance to recover before the line goes quiet again. If the receiver is unable to recover, then it is likely the link needs to fully retrained and therefore be taken down.

SuggestedRemedy

Remove the transition from RX_WTF to RX_QUIET. Consider extending the refresh time to give the receiver a longer opportunity to recover from a wake time fault during refresh.

Response Response Status C

ACCEPT IN PRINCIPLE.

There is no need to extend refresh as multiple refresh intervals should be seen before the wf_timer expires.

The values for TWR (for both scr_bypass_enable = FALSE are TRUE) are too large. The values significantly exceed minimum MAC transmit deferral time Tw_sys_tx defined in Table 78-4. This implies that the packet (or packets) transmitted immediately follow the minimum deferral time will disappear and no error will be recorded to account for their absence. Note that rx_lpi_active remains TRUE until the wake is successful (i.e. a transition to the RX_ACTIVE state). As long as rx_lpi_active is TRUE, the PCS receive state diagram cannot leave the RX_LI state which means any data received while the PHY is in the process of waking will be swallowed by the PHY and only LPI will be presented at the receive XGMII. Because of this, it is critical that the PHY count wake errors to account for any disappearance of packets. The times were initially extended to provide for the case of a WAKE directly from refresh. This is a non-issue when the FEC sublayer is not included in the PHY stack (the receiver will either transition to RX_ACTIVE directly or via RX_SLEEP and there will be no wake time fault). When FEC is included, it may be an issue since entry into x_SCR_BYPASS may delayed which will in turn delay rx_block_lock. This issue is readily addressed by a simplification of the Transmit LPI state diagram where a refresh is rendered as the sequence TX_ALERT -> TX_WAKE -> [TX_SCR_BYPASS] -> TX_SLEEP. The existing transition from TX_SLEEP to TX_ACTIVE addresses "wake from refresh" events. Such a change greatly simplifies the state diagram, allows the definition of T_WR values that enable the correct counting of wake errors, and ensures that entry into TX_SCR_BYPASS occurs on a consistent schedule for any series of refresh, wake, or wake from refresh events.

SuggestedRemedy

A presentation will be submitted that proposed a new Transmit LPI state machine that addresses the core issue and revises the TWR values.

Response Response Status C

ACCEPT IN PRINCIPLE.

Adopt proposal in healey_02_0510.pdf, slides 4 and 14

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID

Comment ID # 124

6/1/2010 10:17:56 AM
### Comment Type: TR/technical required

**Comment Status:** A

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>49</td>
<td>49.2.13.3.1</td>
<td>174</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Healey, Adam</td>
<td>LSI Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type:** TR

**Comment:** For the case where signal_ok is generated by the PMA sublayer (i.e. no FEC sublayer in the stack), it seems that more is being read into the meaning of this variable than what is actually defined. In the RX_SLEEP state, rx_mode is set to DATA which means that, per 72.6.4, signal_detect is determined by the 10GBASE-KR training state diagram (e.g. it is TRUE). Per 51.4.1, the PMA qualifies this signal with the optional PMA loopback signal (irrelevant) or the optional Sync_Err function. Even when implemented, the Sync_Err function is defined to report TRUE when there is a synchronization error but it is also stated that a value of FALSE does not guarantee synchronization. Therefore, the PMA signal_ok signal does not appear to be a sufficiently robust indicator of the absence of an input signal.

**Suggested Remedy:**

Change the condition for the transition from RX_SLEEP to RX_QUIET to be !rx_timestamp_done || rx_block_lock.

Since !signal_ok also forces rx_block_lock to be FALSE, the intended behavior is preserved if signal_ok behaves as assumed by the current state diagram. If signal_ok is not a robust indicator of the absence of the signal, then loss of block lock provides a failsafe to ensure the receiver enters the RX_QUIET state. This works equally well when the FEC sublayer is included.

**Response:

ACCEPT.

### Comment Type: ER/editorial required

**Comment Status:** A

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>127</td>
<td>74</td>
<td>74.4.1</td>
<td>241</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Healey, Adam</td>
<td>LSI Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type:** ER

**Comment:** The editor's note indicates that Draft 2.3 of IEEE P802.3ba was used as the base document for the proposed changes. Update the changes to be consistent with the most recent draft of IEEE P802.3ba or the approved standard when available. Update the editor's note accordingly.

**Suggested Remedy:**

Scrub the clause to ensure that the guidelines for editing instructions have been satisfied.

**Response:

ACCEPT IN PRINCIPLE.

**Response Status:** C

### Comment Type: ER/editorial required

**Comment Status:** A

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>74</td>
<td>74.5.1</td>
<td>242</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Healey, Adam</td>
<td>LSI Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type:** ER

**Comment:** Editorial instructions are sparse and there appears to be numerous sections of changed (actually inserted) text that are not underlined. Erroneously marked items include page 242, line 22, (item f should be underlined), page 22, line 24, ("Items d, e, . . ." should be underlined), page 242, line 31 (entire paragraph should be underlined or preceded by an insert instruction), page 242 line 38 (the instruction is insert 74.5.1.4 so the inserted content should not be underlined), and page 244, line 27 (the whole sentence should be underlined as it is all changed text).

**Suggested Remedy:**

Scrub the clause to ensure that the guidelines for editing instructions have been satisfied.

**Response:

ACCEPT.

**Response Status:** C
It was decided that the "low power state" should be referred to as "low power idle (LPI) mode." The GMII signal is labeled "Assert LPI" and not "Assert Low Power Idle" or "Assert PMD_LPI". There is no clear definition of what "sleep symbols" are.

Suggested Remedy

Change paragraph as follows. "A 10GBASE-KR PHY with the optional Energy Efficient Ethernet (EEE) capability may optionally enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization. The "Assert LPI" request at the XGMII is encoded in the transmitted symbols. Detection of LPI signaling in the received symbols is indicated as "Assert LPI" at the XGMII. Upon the detection of "Assert LPI" at the XGMII, an Energy Efficient 10GBASE-KR PHY continues transmitting for a pre-defined period, then ceases transmission and deactivates transmit functions to conserve energy. The PHY periodically transmits during this quiet period to allow the remote PHY to refresh its receiver state (e.g. timing recovery, adaptive filter coefficients) and thereby track long term variation in the timing of the link or the underlying channel characteristics. If, during the quiet or refresh periods, normal inter-frame is asserted at the XGMII, the PHY re-activates transmit functions and initiates transmission. This transmission will be detected by the remote PHY, causing it to also exit the LPI mode.* In addition, scrub the rest of the clause for instances of "low power mode" and replace them with "LPI mode".

Note to editor, also examine clause 70 & 71 to keep it consistent.

Will also replace inconsistencies with "LPI mode" where necessary in clauses 69-72 as suggested here and in comment #265.

Suggested Remedy

A 10GBASE-KR PHY with the optional Energy Efficient Ethernet (EEE) capability may optionally enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization. The "Assert LPI" request at the XGMII is encoded in the transmitted symbols. Detection of LPI signaling in the received symbols is indicated as "Assert LPI" at the XGMII. Upon the detection of "Assert LPI" at the XGMII, an Energy Efficient 10GBASE-KR PHY continues transmitting for a pre-defined period, then ceases transmission and deactivates transmit functions to conserve energy. The PHY periodically transmits during this quiet period to allow the remote PHY to refresh its receiver state (e.g. timing recovery, adaptive filter coefficients) and thereby track long term variations in the timing of the link or the underlying channel characteristics. If, during the quiet or refresh periods, normal inter-frame is asserted at the XGMII, the PHY re-activates transmit functions and initiates transmission. This transmission will be detected by the remote PHY, causing it to also exit the LPI mode.* In addition, scrub the rest of the clause for instances of "low power mode" and replace them with "LPI mode".

Suggested Remedy

Incidentally, a cross-reference to 72.6.10.2.3.1 would directly lead the reader to a better definition of the preset state than the currently referenced 72.6.10.3.4.

Note to editor, also examine clause 70 & 71 to keep it consistent.

Will also replace inconsistencies with "LPI mode" where necessary in clauses 69-72 as suggested here and in comment #265.

Suggested Remedy

* The "LPI mode" is not capitalized. In addition, a cross-reference to 72.6.10.2.3.1 would directly lead the reader to a better definition of the preset state than the currently referenced 72.6.10.3.4.

Note to editor, also examine clause 70 & 71 to keep it consistent.

Will also replace inconsistencies with "LPI mode" where necessary in clauses 69-72 as suggested here and in comment #265.
Comment responses

The definition of the transmitter wake signal is flawed. It specifies that the transmitter's differential peak-to-peak amplitude shall be greater than 90% of trained peak-to-peak value within 500 ns of tx_mode being set to ALERT. However, 72.6.2 specifies that the transmitter will be placed in the preset state (c(0) is maximum, c(-1) and c(+1) are zero) when tx_mode = ALERT. Referencing the amplitude of the preset waveform to the amplitude of the post-training waveform adds a degree of uncertainty with respect to what amplitude will actually be delivered to the receiver. Furthermore, a receiver will be required to accommodate the worst-case (lowest) amplitude that a link partner will deliver. In light of this, it makes sense to simply define an absolute minimum output voltage that must be achieved within 500 ns. Per Table 72-8, we know that the amplitude v2 must be within 400 to 600 mV (zero-to-peak differential) for the preset condition. In this case 90% of the minimum value would be 360 mV. This is an equivalent yet unambiguous threshold.

Suggested Remedy
Change the requirement as follows. "Furthermore, the transmitter's differential peak-to-peak output voltage shall be greater than 700 mV within 500 ns of tx_mode being set to ALERT." [Rounded down from 720 mV.] Include a row in Table 72-6 for this value and the transmitter partial activation time.

Response
ACCEPT IN PRINCIPLE.

The requirements of 72.7.1.4 ensure that the transmitter will provide a signal with sufficient amplitude to alert the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

Suggested Remedy
Define the maximum time the transmitter is allowed, following the assertion of tx_mode = ALERT, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 72-6 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 72-6 for this value.

Response
ACCEPT IN PRINCIPLE.

This sentence would read better if broken into two separate sentences.

Suggested Remedy
Change as follows. "PMD_SIGNAL.indication is used by 10GBASE-KR to indicate the successful completion of the start-up protocol. When the PHY supports the optional EEE capability, PMD_SIGNAL.indication is also used to indicate when the ALERT signal is detected which corresponds to the beginning of a refresh or a wake."

Response
ACCEPT.

The primitives should be defined as part of the PMD service interface (72.2).

Suggested Remedy
Strike lines 32 through 36. Move 72.6.11.2 and 72.6.11.2 to 72.2.
The behavior of the PMD signal detect function for the optional EEE capability is not completely defined. While the alert pattern and transmitter state are defined in 72.6.2, the electrical properties of the signal are not defined. The transmitter output properties of 72.7.1.4 should be combined with some notion of a channel in order to completely define the requirements. In addition, the signal detect activation and deactivation times are sequestered in Table 72-9. The cross-reference from Table 72-9 incorrectly points to 72.6.5 which pertains the PMD transmit disable function. There is no reference in 72.6.4 to Table 72-9. This information should be more closely associated with the definition of signal detect.

**Suggested Remedy**

Change the paragraph as follows. "The value of the SIGNAL_DETECT is defined by the training state diagram shown in Figure 72–5. When the PHY supports the optional EEE capability, SIGNAL_DETECT is set to FAIL following a transition from rx_mode = DATA to rx_mode = QUIET. When rx_mode = QUIET, signal Detect shall be set to OK within 500 ns following the application of a square wave pattern with a period of 16 unit intervals and peak-to-peak differential output amplitude of TBD mV to the receiver input." A presentation will be provided with the proposed value for the square wave amplitude "TBD". Update Table 72-9 with the defined square wave amplitude and signal detect activation time, correcting the cross-reference to be 72.6.4. Remove the requirement for signal detect de-assertion time from Table 72-9 since as it is irrelevant.

**Response**

ACCEPT IN PRINCIPLE.

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Healey, Adam</th>
<th>LSI Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The sleep (Ts), quiet (Tq), and refresh times (Tr) do not appear to be consistent with timers defined in Clause 49. For example, the sleep time is based on TSL (Table 49-2) is assigned a value 5 microseconds +/- 1%. Somehow this appears in Table 78-2 at 4.5 to 5.5 microseconds whereas it should be 4.95 to 5.05 microseconds.

**Suggested Remedy**

Update the timers. A presentation will be provided that proposes the correct values.

**Response**

ACCEPT IN PRINCIPLE.

Adopt the timer related changes from slides 12-15 of healey_02_0510.pdf

This also introduces changes to clauses 36, 48 and 49

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Healey, Adam</th>
<th>LSI Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>138</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I think the bits referred to in the first column of 45-125 are incorrect.

4.X should be 5.X

**Suggested Remedy**

Change the first column of the table to refer to 5.X

**Response**

ACCEPT.

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Parnaby, Gavin</th>
<th>Solarflare Communicat</th>
</tr>
</thead>
<tbody>
<tr>
<td>139</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Comment Type: GR  Comment Status: A  presentation

loc_lpi_en does not control the PHY as intended.
loc_lpi_en was intended to inhibit transitions to the transmit low power mode if the PHY had not reached the PCS data mode (i.e. during PCS Test).
In the PCS 64B/65B state machine, Figure 55-15, the loc_lpi_en variable is used to inhibit transitions to TX_LI. However, when lpi_loc_en is asserted the tx state machine will stay in the TX_C state, which still encodes the XGMII data into the transmit signal. Therefore LPI codewords will be sent to the link partner, which will interpret them as a SLEEP command, and begin the transition into low power signaling. Since the transmit side is prevented from entering the TX_L state until PCS_data, the low power signaling will not be sent and the link will likely fail.

SuggestedRemedy
Use a different mechanism to prevent transitions to LPI during PCS_Test e.g. hold the transmitter in TX_INIT until the PCS_Data state.

Response
Response Status: C
ACCEPT IN PRINCIPLE.
See response to #361

Comment Type: E  Comment Status: A  ALERT)

ALERT) should be ALERT

SuggestedRemedy
As comment

Response
Response Status: C
ACCEPT.

Comment Type: T  Comment Status: A

The text should clarify whether scrambler reinitialization can be used for fast retrain.

SuggestedRemedy
State that scrambler reinitialization is not used for fast retrain.

Response
Response Status: C
ACCEPT IN PRINCIPLE.

See #366
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>146</td>
<td>G</td>
<td>55</td>
<td>200</td>
<td>3</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Parnaby, Gavin Solarflare Communicat</td>
<td>Add a note to this state diagram (or elsewhere) stating that rx_lpi_active and rx_lpi_wake are both set to FALSE if the EEE capability is not supported.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suggested Remedy</td>
<td>As comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>C</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add text to the description of rx_lpi_active in 55.3.5.2.2; 'when the EEE capability is not supported rx_lpi_active is set false'.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add text to the description of rx_lpi_wake in 55.3.5.2.2; 'when the EEE capability is not supported rx_lpi_wake is set false'.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>147</td>
<td>E</td>
<td>45</td>
<td>115</td>
<td>6</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Parnaby, Gavin Solarflare Communicat</td>
<td>The description for bits 10 to 6 should come before the description for bit 0.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suggested Remedy</td>
<td>As comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>C</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move LD fast retrain count (1.147.10:6) description before the Fast retrain enable (1.147.0) description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>148</td>
<td>TR</td>
<td>45</td>
<td>115</td>
<td>6</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Parnaby, Gavin Solarflare Communicat</td>
<td>We made a modification on line 50, but the same modification needs to be made on line 52.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suggested Remedy</td>
<td>As comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>C</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change 'the RS stops sending MAC data' to 'the RS stops sending MAC data or LPI'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>149</td>
<td>E</td>
<td>45</td>
<td>115</td>
<td>39</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Parnaby, Gavin Solarflare Communicat</td>
<td>The scrambler polynomial is unreadable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suggested Remedy</td>
<td>As comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>C</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fix the text. [this is unchanged text from the base clause]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TYPE: TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general
COMMENT STATUS: D/dispatched  A/accepted  R/rejected  RESPONSE STATUS: O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn
SORT ORDER: Comment ID

Page 28 of 77  6/1/2010  10:17:56 AM
Comment responses

### Comment #152

**Cl 49 SC 49.2.13.3.1**  
**P 173 L 40**  
**# 152**

Parnaby, Gavin  
Solarflare Communications

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

The transitions from RX_WTF to RX_QUIET and RX_LINK_FAIL are not exclusive.

**Suggested Remedy**

Add logic to make the transitions exclusive.  
e.g. change the transition to RX_QUIET to  
!energy_detect * !rx_wf_timer_done

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

ACCEPT IN PRINCIPLE.

Transition has been removed by response to comment #123

### Comment #153

**Cl 55 SC 55.4.5.1**  
**P 211 L 15**  
**# 153**

Parnaby, Gavin  
Solarflare Communications

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

The sentence says there are four variables.  
There are six variables listed.

**Suggested Remedy**

Change the text to say 'The following six variables...'

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

ACCEPT.

### Comment #154

**Cl 55 SC 55.4.6**  
**P 213 L 46**  
**# 154**

Parnaby, Gavin  
Solarflare Communications

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

The transition from PCS_Data due to a fast retrain should be qualified with minwait_timer_done, in the same manner as a normal retrain.

**Suggested Remedy**

Change the transition from PCS_Data to PMA_INIT_FR to  
fast_retrain_flag * minwait_timer_done

Also note that in several places in Figure 55-24 minwait_timer_done is shown as minwait_timer_done; this should be corrected.

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

ACCEPT.

Change the transition from PCS_Data to PMA_INIT_FR to fast_retrain_flag * minwait_timer_done  
In Figure 55-24 change minwait_timer_done to minwait_timer_done in 4 places
Comment responses

Comment ID # 158

Cl 45 SC 45.2.4.2.2a P 122 L 39 # 158
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

I assume that this is the PHY XS transmit clock (TX_CLK) which attaches to the PCS transmit clock (TX_CLK). Make this clear.

SuggestedRemedy

Change "the PHY XS is capable to allow the attached PHY to stop the receive xMII clock" to "the PHY XS is capable of stopping the PHY_XS transmit (or PCS receive) xMII clock". Change "stop the receive clock" to "stop the PHY_XS transmit clock". Need statement in Clause 48.

Response Response Status C

ACCEPT IN PRINCIPLE.

See comment #75

Clauses 47 and 48 are already modified to describe this capability

Comment ID # 159

Cl 45 SC 45.2.5.1.3a P 125 L 26 # 159
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status R

I assume that this is the DTE XS transmit clock (TX_CLK) which attaches to the RS transmit clock (RX_CLK). Make this clear.

SuggestedRemedy

Change "the DTE XS may stop the transmit xMII clock" to "the DTE XS may stop the DTE transmit (or RS transmit) xMII clock". Change "stop the transmit clock" to "stop the DTE XS transmit clock". Need statement in Clause 48.

Response Response Status C

REJECT.

The XGMI receive clock is an output of the XGXS, so the terminology and directions are correct in this subclause (unlike others!).

Clauses 47 & 48 are modified to indicate this function.

Comment ID # 160

Cl 45 SC 45.2.4.2.2a P 126 L 39 # 160
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

The DTE XS transmit xMII clock is driven by the RS not the MAC.

SuggestedRemedy

Change "the DTE XS is capable to allow the MAC to stop the transmit xMII clock" to "the DTE XS is capable of stopping the RS transmit xMII clock". Change "stop the transmit clock" to "stop the DTE XS transmit clock". Need statement in Clause 48.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change references from MAC to RS. The wording in comment #79 makes a better description of the function.

See comment #79

Comment ID # 161

Cl 45 SC 45.2.5.2 P 126 L 43 # 161
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

Table 45-125 refers to incorrect MDIO register 4.1; should be 5.1.

SuggestedRemedy

Change 4.1 to 5.1.

Response Response Status C

ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>164</td>
<td>46</td>
<td>136</td>
<td>49</td>
<td>164</td>
</tr>
</tbody>
</table>

**Brown, Matthew**<br>Applied Micro (AMCC)<br><br>**Comment Type** GR<br>**Comment Status** A<br><br>Sub-clauses for each of the link partner ability bits are missing.<br><br>**Suggested Remedies**<br>1. Add sub-clauses for each of the link partner ability bits listed in Table 44-157b. Suggest copying entire contents of 45.2.7.13 and restating as link partner abilities, etc.<br><br>**Response**<br><br>**Response Status** C<br>**ACCEPT IN PRINCIPLE.**<br><br>It would be redundant to repeat the definitions already in the ability register subclause.<br><br>Add the following text:<br><br>The definitions for the contents of the EEE LP ability register is given by the definition of the contents of the link partner's EEE advertisement register, 7.60 (see 45.2.7.13).

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>163</td>
<td>46</td>
<td>135</td>
<td>24</td>
<td>163</td>
</tr>
</tbody>
</table>

**Brown, Matthew**<br>Applied Micro (AMCC)<br><br>**Comment Type** TR<br>**Comment Status** A<br><br>Sub-clause 46.1.7.3 (from 802.3-2008) says that PLS_CARRIER is not used. 46.1.7.3 must be modified to reflect the usage of PLS_CARRIER.indication in LPI mode and link fault states on EEE capable PHYs.<br><br>**Suggested Remedies**<br>Add a change instruction.<br><br>Change the text in 46.1.7.3 from<br><br>"10 Gb/s operation supports full duplex operation only. The RS never generates this primitive."<br><br>to<br><br>"10 Gb/s operation supports full duplex operation only. The RS never generates this primitive for PHYs that do not support EEE."<br><br>For PHYs that support EEE, CARRIER_STATUS is set in response to LPI_INDICATION as shown in Figure 46-10a. If the EEE capability is not supported then CARRIER_STATUS is set false.<br><br>This change does not address the use of deferral for fast retrain.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Response</th>
<th>Response Status</th>
<th>Brown, Matthew</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>165</td>
<td>46</td>
<td>46.3.1.5</td>
<td>136</td>
<td>26</td>
<td></td>
<td>GR</td>
<td>A</td>
<td>Need to specify when the clock must be turned back on.</td>
<td>Add sentence: &quot;If TX_CLK is halted during LPI mode, TX_CLK must be restarted when LPI mode ends.&quot;</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>Add sentence: &quot;The RS shall restart TX_CLK so that at least one positive transition occurs before it deasserts LPI.&quot;</td>
<td>Adjust PICs if necessary.</td>
</tr>
<tr>
<td>166</td>
<td>46</td>
<td>46.3.1.5</td>
<td>136</td>
<td>25</td>
<td></td>
<td>ER</td>
<td>A</td>
<td>One if is enough.</td>
<td>Change &quot;if and only if&quot; to &quot;if&quot;.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>46</td>
<td>46.3.2.4</td>
<td>136</td>
<td>21</td>
<td></td>
<td>ER</td>
<td>A</td>
<td>Change IDLE to match value in table.</td>
<td>Change &quot;IDLE&quot; to &quot;Idle&quot;.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>168</td>
<td>46</td>
<td>46.3.1.6</td>
<td>137</td>
<td>26</td>
<td></td>
<td>GR</td>
<td>A</td>
<td>Need to specify when the clock must be turned back on.</td>
<td>Add sentence: &quot;If RX_CLK is halted during LPI mode, RX_CLK must be restarted when LPI mode ends.&quot;</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>Add sentence: &quot;The PHY shall restart RX_CLK so that at least one positive transition occurs before it deasserts LPI.&quot;</td>
<td>Adjust the PICs if necessary.</td>
</tr>
<tr>
<td>169</td>
<td>46</td>
<td>46.3.1.6</td>
<td>137</td>
<td>25</td>
<td></td>
<td>ER</td>
<td>A</td>
<td>One if is enough.</td>
<td>Change &quot;if and only if&quot; to &quot;if&quot;.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>170</td>
<td>46</td>
<td>46.3.a</td>
<td>138</td>
<td>42</td>
<td></td>
<td>TR</td>
<td>A</td>
<td>CRS is not a XGMII signal. Instead map LP_IDLE.request, local fault, and remote fault to PLS_CARRIER.indication.</td>
<td>Replace sentence with &quot;PLS_CARRIER.indication(CARRIER_STATUS) will be set to CARRIER_ON when the link is in LPI mode or if the link is in a fault state. See sub-clause 47.1.7.3.&quot;</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>Replace sentence with &quot;PLS_CARRIER.indication(CARRIER_STATUS) will be set to CARRIER_ON when the link is in LPI mode. See sub-clause 47.1.7.3.&quot;</td>
<td></td>
</tr>
</tbody>
</table>
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 46 SC 46.3a P 138 L 13 # 171
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
XGMII not MII

SuggestedRemedy
Change "MII" to "XGMII"

Response Response Status C
ACCEPT.

Cl 46 SC 46.3a.3.1 P 140 L 29 # 172
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
XGMII not MII

SuggestedRemedy
Change "MII" to "XGMII". Two instances.

Response Response Status C
ACCEPT.

Cl 47 SC 47.1 P 142 L 13 # 173
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

Cl 48 SC 48.2.4.2 P 148 L 19 # 175
Brown, Matthew Applied Micro (AMCC)

Comment Type TR Comment Status A
||LPIDLE|| and ||I|| are mutually exclusive, ||LPIDLE|| is not a special case of ||I||.

SuggestedRemedy
Change the first sentence as follows: ”||LPIDLE|| and ||I|| are mutually exclusive, ||LPIDLE|| is not a special case of ||I||."

Response Response Status C
ACCEPT.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Comment Type GR Comment Status A

The terminal count description wording makes it unclear of the intent and is written differently than for other timers.

Suggested Remedy
Change "shall not exceed the maximum value of TWR" with "shall be set to a value no larger than the maximum value given for TWR".

Response Response Status C
ACCEPT.

Comment Type GR Comment Status A

A quiescent state is not defined.

Suggested Remedy
Change "quiescent" to "QUIET".

Response Response Status C
ACCEPT.

Comment Type TR Comment Status A

Table 48-9. Tolerance on TSL and TUL are too tight (100 ns) and will preclude implementations that control EEE through firmware.

Suggested Remedy
Change tolerance to +/- 1 us.

Response Response Status C
ACCEPT IN PRINCIPLE.

See response to comment #138

Comment Type GR Comment Status A

EEE is an option not LPI. If a PHY supports EEE it must support LPI. Note: There is a general problem that it is unclear in this section what is always required if implemented (whether or not resolved by AN) vs what is required if supported (AN resolves EEE).

Language needs to be precise.

Suggested Remedy
Change sentence to "The ability to transmit or receive Low Power Idle is required for PHYs that support EEE."

Response Response Status C
ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID

Comment ID # 181  6/1/2010  10:17:56 AM
### Comment responses

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>#182</td>
<td>GR</td>
<td>A</td>
<td>Let's be clear as to what is or is not supported. In this case, the intent is to say that if EEE is not supported (whether because its not implemented or because it was not resolved during AN) that LPI shall not be transmitted. In other words, PHY without EEE support treat LPI control characters are errors.</td>
<td>SuggestedRemedy</td>
<td>Change &quot;If this option is not supported...&quot; to &quot;If EEE is not supported...&quot;</td>
</tr>
<tr>
<td>#183</td>
<td>GR</td>
<td>A</td>
<td>For PHYs that do not support EEE, LI characters are always treated as errors. Make this clear.</td>
<td>SuggestedRemedy</td>
<td>Add sentence, &quot;A PCS that does not support EEE, will classify vectors containing one or more /LI/ control characters as type E.&quot;</td>
</tr>
<tr>
<td>#184</td>
<td>GR</td>
<td>A</td>
<td>Refer to &quot;EEE support&quot; rather than &quot;LPI implementation&quot;.</td>
<td>SuggestedRemedy</td>
<td>Change &quot;optional LPI function is implemented&quot; to &quot;EEE is supported&quot;.</td>
</tr>
</tbody>
</table>

---

**Comment ID # 187**

**Comment Type**: General required

**Comment Status**: Accepted

**Response Status**: Accepted

**Type:** TR/Technical required  ER/Editorial required  GR/General required  T/Technical  E/Editorial  G/General

**Comment Status:** D/dispatched  A/accepted  R/rejected  RESPONSE STATUS: O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn

**Sort Order:** Comment ID

---

**Key Details**

- **IEEE P802.3az D3.0 Energy Efficient Ethernet comments**
- **Brown, Matthew**
- **Applied Micro (AMCC)**

---

**Comment ID # 185**

**Comment Type**: General required

**Comment Status**: Accepted

**Response Status**: Accepted

**Key Details**

- **IEEE P802.3az D3.0 Energy Efficient Ethernet comments**
- **Brown, Matthew**
- **Applied Micro (AMCC)**

---

**Comment ID # 186**

**Comment Type**: General required

**Comment Status**: Accepted

**Response Status**: Accepted

**Key Details**

- **IEEE P802.3az D3.0 Energy Efficient Ethernet comments**
- **Brown, Matthew**
- **Applied Micro (AMCC)**

---

**Comment ID # 187**

**Comment Type**: General required

**Comment Status**: Accepted

**Response Status**: Accepted

**Key Details**

- **IEEE P802.3az D3.0 Energy Efficient Ethernet comments**
- **Brown, Matthew**
- **Applied Micro (AMCC)**
Comment Type: GR  Comment Status: A
What does "synchronizes the receive state diagram with the end of LPI" mean?

Suggested Remedy
Clarify.

Response  Response Status: C  ACCEPT IN PRINCIPLE.
Change "synchronizes the receive state diagram with the end of LPI" to "signals the end of LPI to the receive state diagram"

Comment Type: GR  Comment Status: A
In RX_LINK_FAIL, assignment of rx_mode is redundant since it always gets set in the next state.

Suggested Remedy
In RX_LINK_FAIL, delete "rx_mode = DATA".

Response  Response Status: C  ACCEPT.

Comment Type: GR  Comment Status: R
In RX_LINK_FAIL, assignment to block lock is somewhat ambiguous since the se states are timeless and block_lock takes on the value of rx_block_lock in the following state.

Suggested Remedy
A clarification of the intended behavior is requested.

Response  Response Status: C  REJECT.
Assigning block_lock to FALSE in this state forces the Receive state diagram to go through the RX_INIT state - effectively re-initializing the receiver following a wake fault.
Comment responses

| Comment ID | Page | Line | Commenter | Email | Comment Type | Comment Status | Suggested Remedy | Response | Response Status |
|------------|------|------|-----------|-------|--------------|----------------|------------------|----------|----------------|---|
| #194       | 178  | 33   | Brown, Matthew | Applied Micro (AMCC) | GR | A | If talking about the PMD must also talk about ALERT signalling. Suggest leaving details to subsequent sub-clauses. | Change "to indicate ... see 49.3.6.6" to "to invoke the appropriate PMA and PMD transmit EEE states". | ACCEPT IN PRINCIPLE. |
| #195       | 178  | 48   | Brown, Matthew | Applied Micro (AMCC) | GR | A | Only the transmitter is affected. | Change "the PMA is" to "the PMA transmit is". | ACCEPT. |
| #196       | 179  | 11   | Brown, Matthew | Applied Micro (AMCC) | GR | A | energy_detect reflects changes in SIGNAL_OK | Change "of the energy detect parameter" to "of the SIGNAL_OK parameter". | ACCEPT. |
| #197       | 179  | 15   | Brown, Matthew | Applied Micro (AMCC) | GR | A | Sub-clause 51.8a is redundant and obsolete. | Delete 51.8a. | ACCEPT. |

TYPE: TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>55</td>
<td>182</td>
<td>1</td>
<td>000</td>
</tr>
<tr>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment Type  ER  Comment Status  A
Consistent terminology throughout Clause 55 for LPI control characters. Use either "/LI/" or "LPI control characters".

Suggested Remedy
As a minimum change the following (Page 184 / line 36) replace "LP_IDLE characters" with "LPI control characters"; (191/8) replace title with "LPI (/LI/)"; (191/10) replace "Low power idle control" with "Low power idle (LPI) control"; (191/11) replace "LPI control characters" with "LPI characters"; (191/41) replace "LP_IDLE characters" with "LPI control characters"; (192/12) replace "LP_IDLE codewords" with "LPI control characters"; (192/19) replace "LP_IDLE" with "LPI"; (193/15) replace "LP_IDLE" with "LPI control". Consider generally replacing "LPI control characters" globally and above with "/LI/" or "/LI/ characters".

Response  Response Status  C
ACCEPT IN PRINCIPLE.
Follow the specific changes identified (by page/line numbers) in the suggested remedy;
No global change beyond these will be made; commenter can provide more specific changes for consideration in the next cycle.

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>55.1</td>
<td>182</td>
<td>11</td>
<td>202</td>
</tr>
<tr>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment Type  TR  Comment Status  A
Last sentence of paragraph implies that fast retrain is available only if EEE capability is supported, whereas subsequent sub-clauses implies that support for fast retrain is independent. I believe that the intent that EEE and fast retrain support are independent. In other words, either or both may be implemented and if both are implemented then neither, either, or both may be resolved through AN.

Suggested Remedy
Clarify which is the case: (a) fast retrain may be supported only if EEE is supported or (b) fast retrain may be supported independent of EEE.

Response  Response Status  C
ACCEPT IN PRINCIPLE.
Fast retrain may be supported independent of EEE.
See #353.
There is no reason to prevent fast retrain if EEE is not supported.

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>49.1.5</td>
<td>182</td>
<td>47</td>
<td>203</td>
</tr>
<tr>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment Type  GR  Comment Status  A
A statement is required to make it clear what is meant by EEE is supported. As I understand it, EEE is supported only if both local device and link partner advertise the EEE capability. This means that it is implemented on both devices and both devices have been programmed via ability bits to support EEE.

Suggested Remedy
Add the following sentence... "EEE is supported only if during auto-negotiation both the local device and link partner advertise the EEE capability. If EEE is not supported all EEE functionality, if implemented, will be disabled. For instance, LPI control characters will not be sent and LPI control characters received will be treated as errors."

Response  Response Status  C
ACCEPT IN PRINCIPLE.
See response to comment #174
Comment responses

Cl 55 SC 55.1.3 P 183 L 24 # 204
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
Presentation
Line for loc_lpi_en should be dashed to indicate that it is intend for EEE only.

SuggestedRemedy
Change loc_lpi_en line to dashed.

Response Response Status C
ACCEPT IN PRINCIPLE.

See response to #361. This variable has been deleted.

Cl 55 SC 55.1.3.3 P 184 L 54 # 205
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
Incorrect figure #.

SuggestedRemedy
Change Figure 55-16 to Figure 55-16b.

Response Response Status C
ACCEPT.

This seems to be a framemaker issue. The editors will resolve it.

Cl 55 SC 55.1.4 P 185 L 33 # 206
Brown, Matthew Applied Micro (AMCC)

Comment Type G Comment Status R
Some primitive names use underscore to separate joined words while others are not. For readability modify all new (EEE) primitives names to include underscores.

SuggestedRemedy
Change PMA_ALERTDETECT to PMA_ALERT_DETECT. Change "PMA_LOCLIPIEN" to "PMA_LOC_LPI_EN". Make changes through Clause 55.

Response Response Status C
REJECT.

This seems unnecessary.

As noted in the comment, the names from the original version of clause 55 are not consistent.
Comment responses

Brown, Matthew Applied Micro (AMCC)

**Comment Type** ER **Comment Status** A
consistent (with clause 48) terminology

**SuggestedRemedy**
Replace "idle and lp_idle ordered sets" with either "||I|| and ||LPIDLE||" or "idle and LPI ordered sets."

**Response** **Response Status** C
ACCEPT IN PRINCIPLE.

Replace "idle and lp_idle ordered sets" with "idle and LPI ordered sets."

Brown, Matthew Applied Micro (AMCC)

**Comment Type** GR **Comment Status** A
LPI is requested by the LPI client not the MAC.

**SuggestedRemedy**
Replace "MAC" with "LPI client"

**Response** **Response Status** C
ACCEPT.

Brown, Matthew Applied Micro (AMCC)

**Comment Type** GR **Comment Status** A
Which characters is referred to by "These characters".

**SuggestedRemedy**
Change "LP_IDLE codewords are no longer detected" to "codewords other than LP_IDLE are detect". Change "These characters" to "These codewords".

**Response** **Response Status** C
ACCEPT IN PRINCIPLE.

Change "LP_IDLE codewords are no longer detected" to "codewords other than LP_IDLE are detected". Change "These characters" to "These codewords"

Brown, Matthew Applied Micro (AMCC)

**Comment Type** ER **Comment Status** A
spelling

**SuggestedRemedy**
Change "lpiTx_mode" variables to "lpi Tx_mode variable".

**Response** **Response Status** C
ACCEPT.

Change "lpi Tx_mode" variables to "lpi_tx_mode variable".

Type: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
Comment Status: D/dispatched A/accepted R/rejected Response Status: O/open W/written C/closed U/unsatisfied Z/withdrawn
Sort Order: Comment ID
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>215</td>
<td>55</td>
<td>55.3.2.2.21</td>
<td>P192 L32</td>
<td><strong>GR</strong> Refer to reference in Clause 78. It seems redundant to have the wake times specified in three locations. Consider consolidating.</td>
<td><strong>R</strong> Suggested Remedy To title of columns 3 and 4 add &quot;10GBASE-T Case-1 in Table 78.4&quot;. To title in columns 4 and 5 add &quot;10GBASE-T Case-2 in Table 78-4&quot;.</td>
</tr>
<tr>
<td>216</td>
<td>55</td>
<td>55.3.4a.1</td>
<td>P194 L21</td>
<td><strong>GR</strong> &quot;Low power mode&quot; specifically refers to &quot;low power idle mode&quot; or &quot;LPI mode&quot;. Note that a &quot;low power&quot; mode is defined for all 802.3 PHYs and is invoked by setting MDIO bit 1.0.11 to 1.</td>
<td><strong>A</strong> Suggested Remedy Replace &quot;low power mode&quot; with &quot;LPI mode&quot;.</td>
</tr>
<tr>
<td>217</td>
<td>55</td>
<td>55.3.4a.1</td>
<td>P194 L14</td>
<td><strong>GR</strong> By definition, in order for a PHY to support EEE the other must as well. No need for new terminology here.</td>
<td><strong>A</strong> Suggested Remedy Change &quot;When both PHYs support the EEE capability, the slave&quot; to &quot;A EEE-capable PHY in slave mode&quot; or &quot;A SLAVE PHY with EEE capability&quot;.</td>
</tr>
<tr>
<td>218</td>
<td>55</td>
<td>55.3.4a.1</td>
<td>P194 L37</td>
<td><strong>GR</strong> Table 55-1b and 55-1c. When are tx_refresh_active and rx_refresh_active set FALSE?</td>
<td><strong>R</strong> Suggested Remedy Add sentence on page 194 line 30 stating &quot;rx_refresh_active and tx_refresh_active are set FALSE except where set true in the tables.&quot;</td>
</tr>
<tr>
<td>219</td>
<td>55</td>
<td>55.3.4a.3</td>
<td>P195 L46</td>
<td><strong>GR</strong> Need to specify ALERT precedence for SLAVE PHY as well.</td>
<td><strong>A</strong> Suggested Remedy Change &quot;If lpi_tx_mode=REFRESH_A&quot; to &quot;If lpi_tx_mode=REFRESH_A on a MASTER PHY or lpi_tx_mode=REFRESH_C on a SLAVE PHY&quot;,</td>
</tr>
<tr>
<td>220</td>
<td>55</td>
<td>55.3.4a.3</td>
<td>P196 L49</td>
<td><strong>TR</strong> !tx_lpi_active should be !tx_lpi_qr_active.</td>
<td><strong>A</strong> Suggested Remedy Change !tx_lpi_active to !tx_lpi_qr_active.</td>
</tr>
</tbody>
</table>

---

**Comment ID # 220**

---

**Comment ID # 220**

---

**Comment ID # 220**

---

**Comment ID # 220**

---

**Comment ID # 220**

---

**Comment ID # 220**

---

**Comment ID # 220**

---

**Comment ID # 220**
Comment responses

### CI 55 SC 55.3.4a.3 P197 L10 #221
Brown, Matthew Applied Micro (AMCC)

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

Indicate that tx_refresh_active is to FALSE outside of period indicated in tables.

**Suggested Remedy**
Append the sentence with "and is set FALSE otherwise"

**Response** REJECT.
This is unnecessary.

### CI 55 SC 55.3.5.2.4 P198 L35 #224
Brown, Matthew Applied Micro (AMCC)

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

EEE terminology.

**Suggested Remedy**
Change the "EEE function" to "EEE capability". Two instances.

**Response** ACCEPT.

### CI 55 SC 55.3.5.2.4 P197 L50 #222
Brown, Matthew Applied Micro (AMCC)

**Comment Type** GR  **Comment Status** A

EEE terminology.

**Suggested Remedy**
Change the "EEE function" to "EEE capability". Two instances.

**Response** ACCEPT.

### CI 55 SC 55.3.5.2.4 P198 L52 #225
Brown, Matthew Applied Micro (AMCC)

**Comment Type** GR  **Comment Status** A

EEE terminology.

**Suggested Remedy**
For I, LI, and LII, change "the optional LPI function is supported" and "the optional EEE function is supported" to "the EEE capability is supported".

**Response** ACCEPT.

### CI 55 SC 55.3.5.2.5 P199 L22 #226
Brown, Matthew Applied Micro (AMCC)

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

The tx_ldpc_frame_cnt counter must be reset after every training event, normal or fast retrain, not just the first one.

**Suggested Remedy**
Change "initial training" to "normal training or fast retraining".

**Response** ACCEPT.
Comment responses

Comment Type GR  Comment Status A
Brown, Matthew  Applied Micro (AMCC)

The rx_ldpc_frame_entry counter must be reset after every training event, normal or fast retrain, not just the first one.

Suggested Remedy
Change "initial training" to "normal training or fast retraining".

Response Response Status C
ACCEPT.

Comment Type G  Comment Status R
Brown, Matthew  Applied Micro (AMCC)

It would be more definitive to use variables to delineate the period during which LFER may not be updated.

Suggested Remedy
Change end of sentence to "during LPI receive operation while (!rx_lpi_active * !rx_lpi_wake)."

Response Response Status C
REJECT.

This does not improve the draft.

Comment Type TR  Comment Status A
Brown, Matthew  Applied Micro (AMCC)

Figure 55-15.

Suggested Remedy
Three arrow ends need to be fixed.

Response Response Status C
ACCEPT.

See #144
Comment Type: GR  Comment Status: A
Figure 55-16b. Initialization of tx_i_pi_initial_quiet is not required in SEND_SLEEP since this variable is only effective when tx_i_pi_qr_active is TRUE.

Suggested Remedy
Delete "tx_i_pi_initial_quiet=TRUE" in SEND_SLEEP state.

Response
ACCEPT.

---

Comment Type: ER  Comment Status: A
missing underscore

Suggested Remedy
change "lpi_wake_timer done" to "lpi_wake_timer_done".

Response
ACCEPT.

---

Comment Type: ER  Comment Status: A
Figure 55-17. missing connection of scr_status/pcs_status signal to LINK MONITOR block. This is an error in the base specification that 802.3az already corrected in Figure 55.3.

Suggested Remedy
Add line from scr_status/pcs_status line to LINK MONITOR block.

Response
ACCEPT.

---

Comment Type: GR  Comment Status: A
spelling

Suggested Remedy
change "start" to "starts"

Response
ACCEPT IN PRINCIPLE.

---

Comment Type: GR  Comment Status: A
The receive is under control of link partner and transmit is under control of local LPI client.

Suggested Remedy
Change sentence to "After reaching the PCS_Data state, PHYs with the EEE capability can transition the receiver to LPI mode under control of the link partner and can transition the transmitter to LPI mode under control of the local LPI client."

Proposed Response
REJECT.

This comment was WITHDRAWN by the commenter.

The extra text is not necessary. The mechanism is clearly described elsewhere.
Comment responses

**Cl 55 SC 55.4.2.6a P 210 L 20 # 237**

Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

Editorial instruction for 55.4.2.6a is in wrong place.

Suggested Remedy

Move editorial instruction to above sub-clause 55.4.2.6a title.

Response: Response Status C

ACCEPT.

---

**Cl 55 SC 55.4.5.1 P 211 L 20 # 238**

Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

Since fast retrain is initiated both locally and remotely, keep local and remote entities clear.

Suggested Remedy

Change "the receiver" to "the local receiver".

Response: Response Status C

ACCEPT.

---

**Cl 55 SC 55.4.5.1 P 211 L 22 # 239**

Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status R

Since fast retrain is initiated both locally and remotely, keep local and remote entities clear.

Suggested Remedy

Change "the receiver" to "the local receiver".

Response: Response Status C

REJECT.

The distinction is not necessary. The variable is contained within the local receiver.

---

**Cl 55 SC 55.4.5.4 P 212 L 16 # 240**

Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

Indicate that counter is reflected in register...

Suggested Remedy

Add "This counter is reflected in MDIO register 1.147.10:6 specified in sub-clause 45.2.76a.2."

Response: Response Status C

ACCEPT.

---

**Cl 55 SC 55.4.5.4 P 212 L 21 # 242**

Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A

Indicate that counter is reflected in register...

Suggested Remedy

Add "This counter is reflected in MDIO register 1.147.15:11 specified in sub-clause 45.2.76a.3."

Response: Response Status C

ACCEPT.
During a fast retrain, a new PBO is not exchange so PBO_next is not explicitly defined. Statement is required to indicate the intended value for PBO_next for fast retrain.

**Suggested Remedy**

In sub-clause 55.4.5.1 modify the definition for PBO_next by adding the following statement. "When fast retrain is invoked PBO_next will have the same value as resolved during normal training."

**Response**

REJECT.

The variable was not reassigned and therefore the value persists. The assignment to is defined in the description of the variable in the base standard therefore a change is not necessary.

**Suggested Remedy**

Specify that THP coefficients, THP_tx are set to zero at the beginning of fast. In PMA_INIT_FR states add "THP_tx = zeros". Add the following in 55.4.2.5.14. During fast retrain, prior to entering the PMA_Coeff_Exch state, the THP coefficients will be set to zero." or similar text.

**Response**

ACCEPT IN PRINCIPLE.

In Figure 55-24 add "THP_tx = zeros" to the SILENT state. Add the following after the second paragraph of 55.4.2.5.14. 'During normal training, prior to enabling the transmitter, the THP coefficients are set to zero.'

**Suggested Remedy**

Change "transition_count <= 2^9" to "transition_count<=mtc" in three states. In section 55.4.2.5.14. During fast retrain, prior to entering the PMA_Coeff_Exch state, the THP coefficients will be set to zero." or similar text.

**Response**

ACCEPT IN PRINCIPLE.

See response to comment #365
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

**Comment ID # 247**

Cl 55 SC 55.4.6.2 P 215 L 15
Brown, Matthew
Applied Micro (AMCC)

**Comment Type TR**

**Comment Status A**

Figure 55-26. Target value for transition count should be better defined. For normal retrain a value of 2^6 should always be used and for fast retrain a value of 2^4 should always be used. The note at the bottom says that if fast retrain is enabled the value should be 2^4, however a normal train can occur with fast retrain enabled. The intent is that the counter should be set to 2^4 if fast retrain is occurring.

**SuggestedRemedy**

Change "master_transition_count > 2^6" to "master_transition_count > stc" in two state transitions. In section 55.4.5.1 specify a new variable stc defined as: "stc is the target transition count for a SLAVE PHY during normal training and fast retraining. stc shall be equal to 2^6 for normal training and 2^4 for fast retrain."

**Response**

**Response Status C**

ACCEPT.

**Comment ID # 248**

Cl 55 SC 55.4.6.5 P 218 L 22
Brown, Matthew
Applied Micro (AMCC)

**Comment Type GR**

**Comment Status R**

Figure 55-27b and Figure 55-24. For consistency all timers should be in figure 55-24. Starting of the fr_maxwait_timer should be placed in the PHY control state machine Figure 55-24.

**SuggestedRemedy**

In figure 55-27b delete "start fr_maxwait_timer" in FR_START_TIMER state. Rename FR_START_TIMER state to FR_START. In figure 55-24, add "start fr_maxwait_timer" to PMA_INIT_FR state.

**Response**

**Response Status C**

REJECT.

This change is not necessary and does not improve the draft.

**Comment ID # 249**

Cl 55 SC 55.6.1 P 219 L 9
Brown, Matthew
Applied Micro (AMCC)

**Comment Type GR**

**Comment Status A**

Definition of next page attributes is WRT local PHY.

**SuggestedRemedy**

Change "link partner is advertising" to "Advertising", change "link partner is not advertising" to "Not advertising."

**Response**

**Response Status C**

ACCEPT IN PRINCIPLE.

Change "link partner is advertising.." to "Advertise.." for bits U24-U22.

Also fix the typo on line 14, which mentions 10000BASE-T.

Change "10000BASE-T" to "1000BASE-T".

Change the references to '45.2.7.13.4', '45.2.7.13.5' and '45.2.7.13.6'.

**Comment ID # 250**

Cl 55 SC 55.6.1 P 219 L 28
Brown, Matthew
Applied Micro (AMCC)

**Comment Type GR**

**Comment Status R**

Consistent terminology.

**SuggestedRemedy**

change "advertise phy as supporting fast retrain" to "Advertise fast retrain capability."

change "advertise phy as not supporting fast retrain" to "Not advertise fast retrain."

**Response**

**Response Status C**

REJECT.

This change does not seem to improve the text.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 69 SC 69.2.3 P223 L 31 # 251
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
Table 69-1. Clause 78 not listed.

SuggestedRemedy
Add clause 78 to Table 69-1.

Response Response Status C
ACCEPT IN PRINCIPLE.
Replace Table 69-1 with the table on slide 5 of dambrosia_01_0510.pdf
Frame source for this is in dambrosia_02_0510.fm

Cl 70 SC 70.2 P225 L 40 # 252
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A
"PMD receive" used elsewhere

SuggestedRemedy
change PMD's to PMD.

Response Response Status C
ACCEPT.

Cl 70 SC 70.6.4 P226 L 3 # 253
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
Consistent EEE support terms.

SuggestedRemedy
Replace "EEE is not implemented" with "EEE is not supported".

Response Response Status C
ACCEPT.

Cl 70 SC 70.6.10.1 P227 L 1 # 255
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
Consistent EEE support terms.

SuggestedRemedy
"LPI mode is not implemented" with "EEE is not supported"

Response Response Status C
ACCEPT.
# 256
**Cl 70**  SC 70.6.10.2  **P 227**  L 24  # 256
Brown, Matthew  Applied Micro (AMCC)

**Comment Type**  GR  **Comment Status**  A
Consistent EEE support terms.

**SuggestedRemedy**
"LPI mode is not implemented" with "EEE is not supported"

**Response**  

---

# 257
**Cl 70**  SC 70.6.10.2.2  **P 227**  L 35  # 257
Brown, Matthew  Applied Micro (AMCC)

**Comment Type**  GR  **Comment Status**  A
clarify sentence

**SuggestedRemedy**
replace "quiet state of low power transmit state" with "LPI QUIET state".

**Response**  

---

# 258
**Cl 70**  SC 70.6.10.2.3  **P 227**  L 40  # 258
Brown, Matthew  Applied Micro (AMCC)

**Comment Type**  ER  **Comment Status**  A
spelling

**SuggestedRemedy**
replace "block" with "blocks".

**Response**  

---

# 259
**Cl 70**  SC 70.10.4.1  **P 229**  L 35  # 259
Brown, Matthew  Applied Micro (AMCC)

**Comment Type**  GR  **Comment Status**  A
PICS for receive signal detect assert and de-assert times from 70.7.2 and 70.6.4 is missing.

**SuggestedRemedy**
Add PICS for signal detect assert and de-assert times.

**Response**  

---

# 260
**Cl 70**  SC 70.10.4.1  **P 229**  L 35  # 260
Brown, Matthew  Applied Micro (AMCC)

**Comment Type**  GR  **Comment Status**  A
PICS for transmit enable/disable times/amplitudes from 70.7.1.5 is missing.

**SuggestedRemedy**
Add PICS for transmit enable/disable times.

**Response**  

---
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 70 SC 70.6.10 P 231 L 45 # 261
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

service primitives are listed in the wrong section. move to 70.2.

Suggested Remedy

On page 225 line 48, delete sentence starting with "These messages...". Move primitives (page 226 line 45 to page 227 line 41) to the end of section 70.2.

Response Response Status C

ACCEPT IN PRINCIPLE.

Not adding shall to section 70.2 as no other PMD Interface definition has a PICS.

Move section 70.6.10.1 on to 70.2 as follows and replace 70.2 as follows:

70.2 Physical Medium Dependent (PMD) service interface

Insert the following text at the end of section 70.2:

The PMD provides the following service interface signals if EEE is supported:

- PMD_RXQUIET.request(rx_quiet)
- PMD_TXQUIET.request(tx_quiet)

These messages are define for the PCS in 36.2.5.1.6.

70.2.1 PMD_RXQUIET.request

This primitive is generated by the PCS Receive Process when EEE is supported to indicate that the input signal is quiet and the PMA and PMD receiver may go into a low power mode. When EEE is not supported, the primitive is never invoked and the PMD behaves as if rx_quiet = FALSE.

70.2.1.1 Semantics of the service primitive

PMD_RXQUIET.request (rx_quiet)

The rx_quiet parameter takes on one of two values: TRUE or FALSE.

70.2.1.2 When generated

The PCS generates this primitive to control the power saving function of local PMD receiver. The 1000BASE-KX PHY receiver should put unused functional blocks into a lower power state to save energy.

70.2.1.3 Effect of receipt

This variable is from the receive process of PCS to control the power saving function of local PMD receiver. The 1000BASE-KX PHY receiver should put unused functional blocks into a lower power state to save energy.

70.2.2 PMD_TXQUIET.request

This primitive is generated by the PCS Transmit Process when EEE is supported to indicate that the PMD transmitter functions may go into a low power mode and to disable the PMD transmitter. See Clause 70.6.5. When EEE is not supported, the primitive is never invoked and the PMD behaves as if tx_quiet = FALSE.

70.2.2.1 Semantics of the service primitive

PMD_TXQUIET.request (tx_quiet)

The tx_quiet parameter takes on one of two values: TRUE or FALSE.

70.2.2.2 When generated

The PCS generates this primitive to request the appropriate PMD transmit LPI state.

70.2.2.3 Effect of receipt

This primitive affects operation of the PMD Transmit disable function as described in 70.6.5. The 1000BASE-KX PHY transmitter should put unused functional blocks into a lower power state to save energy.

Also, append the following paragraph to 70.6.10

If EEE is supported, the PMD transmit function enters into a low power mode when tx_quiet is set to TRUE and exits when tx_quiet is set to FALSE. While tx_quiet is TRUE the PMD transmitter functional blocks should be deactivated to conserve energy. The PMD receive function enters into a low power mode when rx_quiet is set to TRUE and exits when rx_quiet is set to FALSE. While rx_quiet is TRUE the PMD receiver functional blocks should be deactivated to conserve energy.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 71 SC 71.6.12 P 231 L 37 # 062
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

service primitives are listed in the wrong section. move to 71.2.

Suggested Remedy
Move primitives (page 231 line 37 to page 232 line 31) to the end of section 71.2.

Response
ACCEPT IN PRINCIPLE.

Move section 71.6.12. primitive definitions to 71.2 as follows and replace 71.2 as follows:

71.2 Physical Medium Dependent (PMD) service interface

Insert the following text at the end of section 71.2:

The following primitives are defined on the PMD Service Interface when EEE is supported:

PMD_RXQUIET.request
PMD_TXQUIET.request

These messages are defined for the PCS in 48.2.6.1.6.

71.2.2 PMD_TXQUIET.request

This primitive is generated by the PCS Transmit Process when LPI mode is supported to indicate that the PMA and PMD transmit functions should go into a low power mode and to disable the PMD transmitter. See subclause 71.6.6. When LPI mode is not supported, the primitive is never invoked and the PMD behaves as if tx_quiet = FALSE.

71.2.2.1 Semantics of the service primitive

PMD_TXQUIET.request (tx_quiet)

The tx_quiet parameter takes on one of two values: TRUE or FALSE.

71.2.2.2 When generated

The PCS generates this primitive to request the appropriate PMD transmit LPI state..

71.2.2.3 Effect of receipt

This primitive affects operation of the PMD Transmit disable function as described in 71.6.6. The 10GBASE-KX4 PHY transmitter should put unused functional blocks into a low power mode to save energy.

Append the following paragraph to 71.6.12

If EEE is supported, the PMD transmit function enters into a low power mode when tx_quiet is set to TRUE and exits when tx_quiet is set to FALSE. While tx_quiet is TRUE the PMD transmitter functional blocks should be deactivated to conserve energy. The PMD receive function enters into a low power mode when rx_quiet is set to TRUE and exits when rx_quiet is set to FALSE. While rx_quiet is TRUE the PMD receiver functional blocks should be deactivated to conserve energy.

71.2.1 PMD_RXQUIET.request

This primitive is generated by the PCS Receive Process when EEE is supported to indicate that the input signal is quiet and the PMA and PMD receiver may go into a low power mode. When LPI mode is not supported, the primitive is never invoked and the PMD behaves as if rx_quiet = FALSE.

71.2.1.1 Semantics of the service primitive

PMD_RXQUIET.request (rx_quiet)

The rx_quiet parameter takes on one of two values: TRUE or FALSE.

71.2.1.2 When generated

The PCS generates this primitive to request the appropriate PMD receive LPI state.

71.2.1.3 Effect of receipt

This variable is from the Receive process of PCS to control the power saving function of local receiver. The 10GBASE-KX4 PHY receiver should put unused functional blocks into a low power state to save energy.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC 71.10.4.2</th>
<th>P 234</th>
<th>L 35</th>
<th># 263</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl 71 SC 71.10.4.2</td>
<td>P 234</td>
<td>L 35</td>
<td># 264</td>
<td></td>
</tr>
</tbody>
</table>

Brown, Matthew
Applied Micro (AMCC)

Comment Type: GR  Comment Status: A

PICS for receive signal detect assert and de-assert times from 71.7.1.4 is missing.

Suggested Remedy:
Add PICS for signal detect assert and de-assert times.

Response: Response Status: C

ACCEPT IN PRINCIPLE.

Delete the timing from the table and append the following text to the end of 71.6.4:

"If IEEE is supported, the signal energy from a compliant transmitter shall set SIGNAL_DETECT to OK within 750ns when transitioning from LPI quiet to active and set SIGNAL_DETECT to FAIL within 750ns when transitioning from active to LPI quiet.

Also, Add the following PIC to 71.10.4.2:

Item: FS9b Feature: Signal Detect for EEE Subclause: 71.6.4 Value: Transition timing to set SIGNAL_DETECT. Status: LPI:M Supported: Yes [ ], N/A [ ]

Comment Status: A
Response Status: C

Brown, Matthew
Applied Micro (AMCC)

Comment Type: GR  Comment Status: A

PICS for transmit enable/disable times/amplitudes from 71.7.2 is missing.

Suggested Remedy:
Add PICS for transmit enabled/disabled times.

Response: Response Status: C

ACCEPT IN PRINCIPLE.

Add the following 2 rows to the PICS table in 71.10.4.4:

Item: TC6a Feature: Output Amplitude LPI voltage Subclause: 71.7.1.4 Value/Comment: Less than 30mV within 500ns of tx_quiet = TRUE Status: LPI:M Supported: Yes [ ], N/A [ ]

Item: TC6b Feature: Output Amplitude ON voltage Subclause: 71.7.1.4 Value/Comment: Greater than 720mV within 500ns of tx_quiet = FALSE Status: LPI:M Supported: Yes [ ], N/A [ ]

Comment Status: A
Response Status: C

Brown, Matthew
Applied Micro (AMCC)

Comment Type: GR  Comment Status: A

Throughout Clause 72 "low power mode" is used to refer to what is more technically "low power idle mode" or "LPI mode". Note that a "low power" mode is defined for all 802.3 PHYs and is invoked by setting MDIO bit 1.0.11 to 1.

Suggested Remedy:
Change all references to "low power mode" to "LPI mode".

Response: Response Status: C

ACCEPT IN PRINCIPLE.

Editor will make changes across all backplane PHYs to be more consistant with LPI mode.

Also see response to comment # 129.

Comment ID # 265
6/1/2010 10:17:57 AM
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P235</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>72.2</td>
<td>235</td>
<td>47</td>
<td>266</td>
</tr>
<tr>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type**: ER

**Comment Status**: A

**Suggested Remedy**

- change "conserver" to "conserve"

**Response**

**Response Status**: C

**ACCEPT.**

---

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P235</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>72.2</td>
<td>235</td>
<td>48</td>
<td>267</td>
</tr>
<tr>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type**: GR

**Comment Status**: A

**EEE terminology.**

**Suggested Remedy**

- change "EEE is implemented" to "EEE is supported".

**Response**

**Response Status**: C

**ACCEPT.**

---

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P235</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>72.2</td>
<td>235</td>
<td>42</td>
<td>268</td>
</tr>
<tr>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment Type**: ER

**Comment Status**: A

**Paragraph on EEE behavior seems out of place here.**

**Suggested Remedy**

- Move paragraph lines 42 to 48 to end of sub-clause 72.1.

**Response**

**Response Status**: C

**ACCEPT IN PRINCIPLE.**

**Change 72.2 to the following:**

The PMD service interface is summarized as follows:

a) PMD_UNITDATA.request (as defined in 52.1.1)
b) PMD_UNITDATA.indication (as defined in 52.1.1)
c) PMD_SIGNAL.indication

The PMD provides the following service interface primitives if EEE is supported:

- PMD_RX_MODE.request(rx_mode)
- PMD_TX_MODE.request(tx_mode)

72.2.1 PMD_RX_MODE.request

This primitive is generated by the PCS Receive Process when EEE is supported to indicate that the input signal is quiet and the PMA and PMD receiver may go into LPI mode. See Clause 49.2.13.2.6. When EEE is not supported, the primitive is never invoked and the PMD behaves as if rx_mode = DATA.

72.2.1.1 Semantics of the service primitive

- PMD_RX_MODE.request(rx_mode)

The rx_mode parameter takes on one of two values: QUIET or DATA.

72.2.1.2 When generated

The PCS generates this primitive to indicate the LPI Receive state diagram is in the QUIET state.

72.2.1.3 Effect of receipt

When rx_mode is QUIET, the PMD receive function may deactivate functional blocks to conserve energy. When rx_mode is DATA, the PMD receive function operates normally.

72.2.2 PMD_TX_MODE.request

This primitive is generated by the PCS Transmit Process when EEE is supported to indicate that the PMA and PMD transmit functions may go into a LPI mode and to disable the PMD transmitter. See subclause 72.6.5. When EEE is not supported, the primitive is never invoked and the PMD behaves as if tx_mode = DATA.

72.2.2.1 Semantics of the service primitive

- PMD_TX_MODE.request(tx_mode)
The tx_mode parameter takes on one of three two values: QUIET, ALERT, or DATA.

72.2.2.2 When generated
The PCS generates this primitive to indicate that LPI Transmit state diagram is in the QUIET and ALERT states.

72.2.2.3 Effect of receipt
When tx_mode is QUIET, the PMD Transmit function may deactivate functional blocks to conserve energy. When tx_mode is ALERT, the PMD Transmit function transmits the alert pattern. And when it is DATA, the PMD Transmit function operates normally.

Note to editor: Also similar corrections clauses 70 & 71.

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>SCI</th>
<th>Page</th>
<th>Line</th>
<th>Suggested Remedy</th>
<th>Comment Status</th>
<th>Response Status</th>
<th>Reviewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>269</td>
<td>72</td>
<td>72.6.4</td>
<td>23</td>
<td>change &quot;EEE is implemented&quot; to &quot;EEE is supported&quot;.</td>
<td>A</td>
<td>C</td>
<td>Brown, Matthew</td>
</tr>
<tr>
<td>270</td>
<td>72</td>
<td>72.6.4</td>
<td>35</td>
<td>change &quot;EEE is implemented&quot; to &quot;EEE is supported&quot;.</td>
<td>A</td>
<td>C</td>
<td>Brown, Matthew</td>
</tr>
<tr>
<td>271</td>
<td>72</td>
<td>72.6.5</td>
<td>45</td>
<td>Transmitter output is not specified during LPI QUIET period.</td>
<td>R</td>
<td></td>
<td>Brown, Matthew</td>
</tr>
<tr>
<td>272</td>
<td>72</td>
<td>72.6.11</td>
<td>28</td>
<td>That section references table 7-6 which show the TX disable as 30 mV.</td>
<td>R</td>
<td></td>
<td>Brown, Matthew</td>
</tr>
<tr>
<td>273</td>
<td>72</td>
<td>72.6.11</td>
<td>32</td>
<td>PMD service interface parameters belong in 72.2</td>
<td>A</td>
<td>C</td>
<td>Brown, Matthew</td>
</tr>
</tbody>
</table>

See response to comment #268.
Comment responses

// Comment ID: #274
Brown, Matthew  Applied Micro (AMCC)

**Comment Type:** GR  **Comment Status:** A

Sentence does not make sense.

**Suggested Remedy:**
Replace with: "The PCS generates this primitive to indicate the current receive LPI state"

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

ACCEPT.

// Comment ID: #275
Brown, Matthew  Applied Micro (AMCC)

**Comment Type:** GR  **Comment Status:** A

definition isn't clear, also is a request

**Suggested Remedy:**
Change definition to "The PCS generates this primitive to request the appropriate PMD receive LPI state."

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

ACCEPT.

// Comment ID: #276
Brown, Matthew  Applied Micro (AMCC)

**Comment Type:** GR  **Comment Status:** A

maximum voltage level during QUIET mode is not specified

**Suggested Remedy:**
Add sentence "While in LPI QUIET mode, the PMD output voltage shall be no larger than the maximum specified for TX disabled in Table 72-6." Add PICs statement in 72.10.

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

ACCEPT IN PRINCIPLE.

Change "For EEE capability, the transmitter's differential peak-to-peak output voltage shall be less than 30mV within 500ns of tx_mode being set to QUIET."

To "For EEE capability, the transmitter’s differential peak-to-peak output voltage shall be less than 30mV within 500ns of tx_mode being set to QUIET and remain so while tx_mode is set to QUIET."

// Comment ID: #277
Brown, Matthew  Applied Micro (AMCC)

**Comment Type:** GR  **Comment Status:** A

PICS for receive signal detect assert and de-assert times from 72.7.1.4 is missing.

**Suggested Remedy:**
Add PICS for signal detect assert and de-assert times.

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

ACCEPT IN PRINCIPLE.

Delete the LPI timing from Table 72-9

Insert the following text after the 2nd paragraph on 72.6.4:

"If EEE is supported, the signal energy from a compliant transmitter shall set SIGNAL_DETECT to OK within 500ns when transitioning from LPI quiet to active and set SIGNAL_DETECT to FAIL within 500ns when transitioning from active to LPI quiet."

Also, Add the following PIC to 72.10.4.2

**Item:** FS5c  **Feature:** Signal Detect for EEE  **Subclause:** 70.6.4  **Value:** Transition timing to set SIGNAL_DETECT.

**Status:** LPI/M  **Supported:** Yes[ ], N/A [ ]
Comment responses

**Comment ID # 279**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>72.10.4.2</td>
<td>240</td>
<td>35</td>
<td>279</td>
</tr>
</tbody>
</table>

Brown, Matthew  
Applied Micro (AMCC)

**Comment Type**: GR  
**Comment Status**: A

PICS for transmit enable/disable times/amplitudes from 72.7.2 is missing.

**Suggested Remedy**

Add PICS for transmit enabled/disabled times.

**Response Status**: C

**Response**

ACCEPT IN PRINCIPLE.

Add the following 2 rows to the PICS table in 72.10.4.4

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Subclause</th>
<th>Value/Comment</th>
<th>Status</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC6a</td>
<td>Output Amplitude LPI voltage</td>
<td>72.7.1.4</td>
<td>Less than 30mv within 500ns of tx_quiet</td>
<td>LPI:M</td>
<td>Yes[], N/A []</td>
</tr>
<tr>
<td>TC6b</td>
<td>Output Amplitude ON voltage</td>
<td>72.7.1.4</td>
<td>Greater than 90% of previous level within 500ns of tx_quiet de-asserted</td>
<td>LPI:M</td>
<td>Yes[], N/A []</td>
</tr>
</tbody>
</table>

**Comment ID # 280**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>74.4.1</td>
<td>241</td>
<td>39</td>
<td>280</td>
</tr>
</tbody>
</table>

Brown, Matthew  
Applied Micro (AMCC)

**Comment Type**: GR  
**Comment Status**: A

Figure 74-2. FEC_LPI_ACTIVE is not required between PMA and FEC.

**Suggested Remedy**

Delete FEC_LPI_ACTIVE signal between PMA and FEC.

**Response Status**: C

**Response**

ACCEPT.

**Comment ID # 281**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>74.4.1</td>
<td>241</td>
<td>29</td>
<td>281</td>
</tr>
</tbody>
</table>

Brown, Matthew  
Applied Micro (AMCC)

**Comment Type**: GR  
**Comment Status**: A

Figure 74-2. Primitives between FEC and PCS should be prefixed with FEC not PMA.

**Suggested Remedy**

On LPI primitives between FEC and PCS, replace "PCS_*" with "FEC_*".

**Response Status**: C

**Response**

ACCEPT.

**Comment ID # 282**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>74.4.1</td>
<td>241</td>
<td>29</td>
<td>282</td>
</tr>
</tbody>
</table>

Brown, Matthew  
Applied Micro (AMCC)

**Comment Type**: GR  
**Comment Status**: A

Figure 74-2. Primitives between FEC and PMA should be prefixed with PMA not FEC.

**Suggested Remedy**

On LPI primitives between FEC and PMA replace "FEC_*" with "PMA_*".

**Response Status**: C

**Response**

ACCEPT.

**Comment ID # 283**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>74.5.1</td>
<td>242</td>
<td>21</td>
<td>283</td>
</tr>
</tbody>
</table>

Brown, Matthew  
Applied Micro (AMCC)

**Comment Type**: ER  
**Comment Status**: A

**Suggested Remedy**

underline "FEC_ENERGY.indication(energy_detect)"

**Response Status**: C

**Response**

ACCEPT.
Comment responses

Cl 74 SC 74.5.1.4 P 242 L 43 # 285
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
Remove details of signal detection as this not properly defined here and is already specified in the PMD.

Suggested Remedy
Delete end of sentence "is set to ... otherwise".

Response Response Status C
ACCEPT IN PRINCIPLE.

The sentence will now be:
A boolean variable that reflects the value of the energy detection primitive PMA_ENERGY.indication

Cl 74 SC 74.5.1.8 P 243 L 54 # 286
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
spelling

Suggested Remedy
change "FEC_UNIDATA" to "FEC_UNITDATA"

Response Response Status C
ACCEPT.

Cl 74 SC 74.5.1.8 P 243 L 54 # 287
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A
spelling

Suggested Remedy
change "block" to "blocks"

Response Response Status C
ACCEPT IN PRINCIPLE.

Page 244, line 1

Cl 74 SC 74.5.1.8 P 244 L 10 # 288
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A
space

Suggested Remedy
add space in "standard.FEC"

Response Response Status C
ACCEPT.

Cl 74 SC 74.5.1.8 P 244 L 10 # 289
Brown, Matthew Applied Micro (AMCC)

Comment Type GR Comment Status A
preclude is the wrong word

Suggested Remedy
change to "The FEC sub-layer will hold off asserting SIGNAL_OK..."

Response Response Status C
ACCEPT IN PRINCIPLE.

change to "The FEC sub-layer shall hold off asserting SIGNAL_OK..."

Add in corresponding PICS

Cl 74 SC 74.5.1.8 P 244 L 10 # 290
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status A
unnecessary word

Suggested Remedy
Replace "the 10GBASE-T" with "10GBASE-T"

Response Response Status C
ACCEPT IN PRINCIPLE.

Leave "the" in there and put in a "the" in front of 1000BASE-T for consistency.
Comment responses

### Comment #291

**Cl 78 SC 78.1**  
**P 246 L 22**  
Brown, Matthew  
Applied Micro (AMCC)

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

**Suggested Remedy:**  
Replace "also met" with "also be met"

**Response Status:** C

**Response:**  
ACCEPT.

### Comment #292

**Cl 78 SC 78.1.2.1.2**  
**P 248 L 15**  
Brown, Matthew  
Applied Micro (AMCC)

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

**Suggested Remedy:**  
Add "e) The PHY is receiving REMOTE_FAULT."

**Response Status:** Z

**Response:**  
REJECT.

This comment was WITHDRAWN by the commenter.

### Comment #293

**Cl 78 SC 78.1.3.3.1**  
**P 250 L 23**  
Brown, Matthew  
Applied Micro (AMCC)

**Comment Type:** GR  
**Comment Status:** A

**Suggested Remedy:**  
Change "...of a start of shell delimiter (SSD) ..."  
with:  
"a given unit of data"

**Response Status:** C

**Response:**  
ACCEPT IN PRINCIPLE.

### Comment #294

**Cl 78 SC 78.2**  
**P 251 L 44**  
Brown, Matthew  
Applied Micro (AMCC)

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

**Suggested Remedy:**  
I'm not sure what the right answer is.

**Response Status:** C

**Response:**  
ACCEPT IN PRINCIPLE.

**Response:**  
Replace:

"...of a start of shell delimiter (SSD) ..."  
with:  
"a given unit of data"

### Comment #295

**Cl 78 SC 78.2**  
**P 251 L 44**  
Brown, Matthew  
Applied Micro (AMCC)

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

**Suggested Remedy:**  
SSD is not defined for 10G PHYs. What should be used in its place?

**Response Status:** C

**Response:**  
ACCEPT IN PRINCIPLE.

**Response:**  
Replace:

"...of a start of shell delimiter (SSD) ..."  
with:  
"a given unit of data"

### Comment #296

**Cl 78 SC 78.1.3.3.2**  
**P 251 L 5**  
Brown, Matthew  
Applied Micro (AMCC)

**Comment Type:** GR  
**Comment Status:** A

**Suggested Remedy:**  
Change "the local system is entering" to "the local transmitter is entering".

**Response Status:** C

**Response:**  
ACCEPT.

### Comment #297

**Cl 78 SC 78.1.3.3.2**  
**P 251 L 5**  
Brown, Matthew  
Applied Micro (AMCC)

**Comment Type:** GR  
**Comment Status:** A

**Suggested Remedy:**  
Change "When the Link partner has ceased transmission," to "When the receiver detects  
the SLEEP signal,".

**Response Status:** C

**Response:**  
ACCEPT.
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 78  SC 78.3  P252  L 47  # 297
Brown, Matthew  Applied Micro (AMCC)

Comment Type  GR  Comment Status  A

What is "link establishment process"? I assume this is auto-negotiation.

SuggestedRemedy
Replace "link establishment process" with "auto-negotiation".

Response  Response Status  C
ACCEPT.

Cl 78  SC 78.3  P252  L 49  # 298
Brown, Matthew  Applied Micro (AMCC)

Comment Type  TR  Comment Status  R

Some PHYs do not permit asymmetric LPI nor is it necessary to state this here.

SuggestedRemedy
Delete "independently in either direction".

Response  Response Status  C
REJECT.

1000BASE-T allows asymmetric operation at the system level.

Cl 74  SC 74.5.1.8  P244  L 4  # 299
Healey, Adam  LSI Corporation

Comment Type  TR  Comment Status  A

A hold-off of 30 microseconds seems too long. For a normal wake (not a wake from refresh) the FEC rapid block lock mechanism will receive the deterministic frames approximately 12 microseconds following the start of wake. If the rapid block lock mechanism fails to achieve lock during the 1 microsecond transmission of deterministic frames, it will be inhibited from setting signal_ok = TRUE for an additional 17 microseconds even if it has an alternate mechanism to obtain lock during that period. During this period, received frames are simply consumed by the PHY. The purpose of the hold-off is to prohibit the FEC sublayer from setting signal_ok prior to the deterministic frames being received so that those frames are never passed to the PCS for further processing. A hold-off of 13 microseconds would appear to be sufficient. With respect to the variable arrival of deterministic frames for the wake from refresh scenario, a separate comment has been submitted to alter to the transmitter behavior to make schedule for deterministic frame transmission to be deterministic. This proposal should be considered in conjunction with the proposed changes to the LPI state diagram.

SuggestedRemedy
Per comment.

Response  Response Status  C
ACCEPT IN PRINCIPLE.

Change the timer from 30usec to 13.7 usec.

Cl 70  SC 70.7.1.5  P227  L 49  # 300
Healey, Adam  LSI Corporation

Comment Type  TR  Comment Status  A

The requirements of 70.7.1.5 ensure that the transmitter will provide a signal with sufficient amplitude to trigger the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

SuggestedRemedy
Define the maximum time the transmitter is allowed, following the assertion of tx_quiet = FALSE, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 78-4 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 70-4 for this value.

Response  Response Status  C
ACCEPT IN PRINCIPLE.

Append to 70.7.1.5 the following sentence:

"The transmitter output shall be fully compliant within 5 us after tx_quiet is set to FALSE."
Comment responses

IEEE P802.3az D3.0 Energy Efficient Ethernet comments

Cl 70 SC 70.7.1.5 P 227 L 51 # 301
Healey, Adam LSI Corporation

Comment Type TR Comment Status A

The transmitter is required to transmit a differential peak-to-peak output greater than 800 mV within 500 ns following a tx_quiet being set to false. However, the output voltage during normal operation is allowed to be as low as 800 mV (per Table 70-6). It makes no sense to force the voltage at the start of wake to be greater than the minimum.

Suggested Remedy
Moreover, the output amplitude should only only be as large as needed to trigger the receiver signal detect function. In other clauses, this is less than the minimum value during normal operation. Suggest that the value be 700 mV peak-to-peak differential.

Response Response Status C
ACCEPT IN PRINCIPLE.

I propose making it 720 mV peak-to-peak differential as that is consistent with the 90% that is in Clause 72.

Cl 71 SC 71.7.1.4 P 232 L 43 # 303
Healey, Adam LSI Corporation

Comment Type TR Comment Status A

The transmitter is required to transmit a differential peak-to-peak output greater than 800 mV within 500 ns following a tx_quiet being set to false. However, the output voltage during normal operation is allowed to be as low as 800 mV (per Table 71-4). It makes no sense to force the voltage at the start of wake to be greater than the minimum.

Suggested Remedy
Moreover, the output amplitude should only only be as large as needed to trigger the receiver signal detect function. In other clauses, this is less than the minimum value during normal operation. Suggest that the value be 700 mV peak-to-peak differential.

Response Response Status C
ACCEPT IN PRINCIPLE.

Change "800mV" to "720mV"

Cl 00 SC 00 P 12 L 42 # 304
Dambrosia, John Force10 Networks

Comment Type ER Comment Status A TOC

The requirements of 71.7.1.4 ensure that the transmitter will provide a signal with sufficient amplitude to trigger the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

Suggested Remedy
Define the maximum time the transmitter is allowed, following the assertion of tx_quiet = FALSE, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 78-4 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 71-4 for this value.

Response Response Status C
ACCEPT IN PRINCIPLE.

Add in subclause heading into Clause 55 where necessary.

Cl 00 SC 00 P 12 L 44 # 305
Dambrosia, John Force10 Networks

Comment Type ER Comment Status A TOC

The requirements of 71.7.1.4 ensure that the transmitter will provide a signal with sufficient amplitude to trigger the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

Suggested Remedy
Define the maximum time the transmitter is allowed, following the assertion of tx_quiet = FALSE, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 78-4 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 71-4 for this value.

Response Response Status C
ACCEPT.

Comment ID # 305

6/1/2010 10:17:57 AM
Comment responses

CI 00   SC 00   P12   L43   #306
Dambrosia, John   Force10 Networks

Comment Type ER   Comment Status A
ToC for Clause 55 is totally wrong, and needs to be completely reviewed. Subclauses are not under appropriate subclauses
SuggestedRemedy
do total review of all headings and relations of subclause headings, so that it is correct.
Response   Response Status C
ACCEPT.

CI 69   SC 69.2.3   P223   L46   #309
Dambrosia, John   Force10 Networks

Comment Type TR   Comment Status A
Clause 82 is mandatory - not optional for 40GBASE-KR4
SuggestedRemedy
Change optional entry to mandatory entry for Clause 82 (40GBASE-R PCS) for 40GBASE-KR4
Response   Response Status C
ACCEPT IN PRINCIPLE.
See response to comment #251

CI 69   SC 69.2.3   P223   L42   #308
Dambrosia, John   Force10 Networks

Comment Type TR   Comment Status A
Clause 81 has nothing to do with 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR
SuggestedRemedy
Delete optional entry for Clause 81 RS to 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR.
Response   Response Status C
ACCEPT IN PRINCIPLE.
See response to comment #251

CI 69   SC 69.2.6   P224   L3   #310
Dambrosia, John   Force10 Networks

Comment Type TR   Comment Status A
The statement -"With the optional EEE feature, described in Clause 78, the Backplane Ethernet PHYs can achieve lower is not accurate for EEE, as EEE only applies to Backplane Ethernet PHYs for 10Gbs or lower power consumption
SuggestedRemedy
Modify statement to read -"With the optional EEE feature, described in Clause 78, Backplane Ethernet PHYs for 10Gbs or lower can achieve lower power consumption.
Response   Response Status C
ACCEPT.

TYPE: TR/technical required   ER/editorial required   GR/general required   T/technical   E/editorial   G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Comment ID   Page 61 of 77
Comment responses

Cl 14  SC 14.10.4.7.1  P 22  L 7  # 311
Dambrosia, John  Force10 Networks

Comment Type  TR  Comment Status  A

Stated parameter for LS4 is for a type 10BASE-T MAU but this does not agree with the text in 14.4.2.1 which states for a 10BASE-T MAU that is not a 10BASE-Te MAU.

Suggested Remedy
Change parameter for LS4 to agree with text in 14.4.2.1

Response  Response Status  C
ACCEPT IN PRINCIPLE.

Change Parameter for LS4 in section 14.10.4.7.1 from:
"Insertion loss, 5.0 to 10 MHz for a type 10BASE-T MAU" to:
"Insertion loss, 5.0 to 10 MHz for a type 10BASE-T MAU that is not a type 10BASE-Te MAU"

Change Value/Comment for LS4 in section 14.10.4.7.1 from:
"Conditional on whether it is a type 10BASE-T MAU. <= 11.5db" to:
"Conditional on whether it is a type 10BASE-T MAU that is not a type 10BASE-Te MAU. <= 11.5db"

Make a similar change to parameter TS1 in section 14.10.4.5.12.

Change Parameter for TS1 in section 14.10.4.5.12 from:
"Peak differential output voltage on TD circuit for a type 10BASE-T MAU" to:
"Peak differential output voltage on TD circuit for a type 10BASE-T MAU that is not a type 10BASE-Te MAU"

Change Value/Comment for TS1 in section 14.10.4.5.12 from:
"Conditional on whether it is a type 10BASE-T MAU. 2.2 to 2.8 V" to:
"Conditional or whether it is a type 10BASE-T MAU that is not a type 10BASE-Te MAU. 2.2 to 2.8 V"

Cl 22  SC 22.7.3.2a  P 31  L 24  # 312
Dambrosia, John  Force10 Networks

Comment Type  TR  Comment Status  A

Feature for L2 reads - RX_CLK max high/low time transitioning to START_RX_SLEEP state, but there is no mention of START_RX_SLEEP state in identified subclause 22.2.2.2.

Suggested Remedy
Change parameter for L2 to agree with text in 22.2.2.2

Response  Response Status  C
ACCEPT IN PRINCIPLE.

Change to:
RX_CLK max high/low time while the PHY is asserting LPI

Cl 22  SC 22.7.3.2a  P 31  L 30  # 313
Dambrosia, John  Force10 Networks

Comment Type  TR  Comment Status  A

no SHALLS for L4 and L6

Suggested Remedy
add appropriate SHALL statements

Response  Response Status  C
ACCEPT IN PRINCIPLE.

The L4 option is indicated in the clause using "may"
L6 should have been deleted following an earlier change to the draft - delete L6

Cl 22  SC 22.7.3.2a  P 31  L 33  # 314
Dambrosia, John  Force10 Networks

Comment Type  TR  Comment Status  A

L5 parameter should refer to RX-CLK restarting which is what the shall statement refers to

Suggested Remedy
change I5 parameter text to Restat of RX_CLK before LPI deasserted

Response  Response Status  C
ACCEPT IN PRINCIPLE.

Change to:
RX_CLK restart before LPI deasserted
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>Page</th>
<th>Line</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
<th>Comment Status</th>
<th>Response Status</th>
<th>Comment Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>#315</td>
<td>25</td>
<td>25.4a.5</td>
<td>54</td>
<td>45</td>
<td>ER</td>
<td>A</td>
<td>Signal Detect output shall be asserted within 5 micro sec instead of 1000 micro sec. why is instead of 1000 microsec necessary?</td>
<td>delete instead of 1000 micros</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#316</td>
<td>25</td>
<td>25.4a.6</td>
<td>54</td>
<td>52</td>
<td>ER</td>
<td>A</td>
<td>Signal_Detect output shall be asserted within 5 micros instead of 350 micros. why is instead of 350 micros necessary?</td>
<td>delete &quot;instead of 350 micros&quot;</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#317</td>
<td>25</td>
<td>25.5.4.4</td>
<td>56</td>
<td>44</td>
<td>TR</td>
<td>A</td>
<td>Value states The scrambler and transmit functions continue to operate for at least 5 micros following tx_quiet = TRUE, but the cited text says it shall operate for the first 5 micros, not at least 5 micros</td>
<td>change value field to read - The scrambler and transmit functions continue to operate for the first 5 micros following tx_quiet = TRUE.</td>
<td>ACCEPT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#318</td>
<td>35</td>
<td>35.5.3.3a</td>
<td>73</td>
<td>7</td>
<td>TR</td>
<td>A</td>
<td>Referenced subclause is incorrect, and there is no corresponding SHALL statement</td>
<td>change subclause to 35.2.2.6, change feature to assertion of LPI in RX direction. Change value to as defined in Table 35-2. Add corresponding SHALL statement</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#319</td>
<td>35</td>
<td>35.5.3.3a</td>
<td>73</td>
<td>5</td>
<td>ER</td>
<td>A</td>
<td>Feature includes value statement</td>
<td>Change feature to assertion of LPI in TX Direction change value to &quot;as defined in Table 35-1.</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This changes the base text that refers to the legacy gigabit RS operation and may affect the installed base of PHYs however these changes will not affect the operation of the PHYs. Make the following changes: Change reference as described Change feature as described Change the paragraph on p.68, l.32 to read: Table 35-2 specifies the permissible encoding of RXD<7:0>, RX_ER, and RX_DV, along with the specific indication that shall be interpreted by the RS.

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Cl</th>
<th>SC</th>
<th>Page</th>
<th>Line</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
<th>Comment Status</th>
<th>Response Status</th>
<th>Comment Status</th>
</tr>
</thead>
</table>

Make the suggested change for L1 and L2.
no shall statements for L3.

Suggested Remedy:
add appropriate SHALL statement

Response
Response Status C
REJECT.

The L3 option is indicated in the clause using "may".

---

no shall or PIC for lpi_mode

Suggested Remedy:
add shall statement and appropriate PIC

Response
Response Status C
REJECT.

The wording was chosen specifically to avoid adding a redundant item to the PICS Proforma.

The variable in question is set by the PMA PHY Control function and passed to the PCS Receive function. It is stated that the PMA PHY control function shall operate as if the value of this variable is FALSE (40.4.5.1, page 103, line 28) and the PCS Receive function inherits this value. As this is behavior covered by PICS Proforma item PMF27, an additional item would be redundant.

---

There is no variable defined for PMF28

Suggested Remedy:
add a variable definition. In value field Poperate should be changed to Operate

Response
Response Status C
ACCEPT IN PRINCIPLE.

Change Value/Comment for PMF28 to:
"Operate as if the value of rem_lpi_req is FALSE."

---

shouldn't there be a SHALL and associated PIC

Suggested Remedy:
add appropriate SHALL and PIC

Response
Response Status C
REJECT.

The editor assumes the comment refers to the definition of the rem_lpi_req variable.

The wording was chosen specifically to avoid adding a redundant item to the PICS Proforma.

The variable in question is set by the PCS Receive function and passed to the PMA PHY Control function. It is stated that the PCS Receive function shall operate as if the value of this variable is FALSE (40.3.3.1, page 99, line 4) and the PMA PHY Control function inherits this value. As this is behavior covered by PICS Proforma item PCR5, an additional item would be redundant.
Comment responses

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>00</td>
<td>114</td>
<td>20</td>
<td>324</td>
<td>327</td>
</tr>
</tbody>
</table>

Dambrosia, John
Force10 Networks

**Comment Type**: TR/technical required
**Comment Status**: A/accepted

**Comment**: The following statement is made - When the PHY supports the optional EEE capability, it is required to transmit Idle symbols while in the WAKE state (see the PHY Control state diagram, Figure 40-15b). If it is required there should be a corresponding SHALL statement.

**Suggested Remedy**: Add corresponding SHALL statement.

**Response**: ACCEPT IN PRINCIPLE.

The word "shall" was avoided specifically to avoid adding a redundant item to the PICS Proforma.

The required behavior is embodied by the PHY Control state diagram (tx_mode is set to SEND_I in the WAKE state) as referenced by the cited text and compliance to this state diagram is required per PMF24.

However, use of the phrase "is required to" is unnecessary. Change the text as follows.

"When the PHY supports the optional EEE capability, it transmits Idle symbols while in the WAKE state (see the PHY Control state diagram, Figure 40-15b)."

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>00</td>
<td>108</td>
<td>35</td>
<td>325</td>
<td>327</td>
</tr>
</tbody>
</table>

Dambrosia, John
Force10 Networks

**Comment Type**: TR/technical required
**Comment Status**: A/accepted

**Comment**: When the PHY supports the optional EEE capability, it is required to transmit Idle symbols while in the WAKE state (see the PHY Control state diagram, Figure 40-15b).

**Suggested Remedy**: Add corresponding SHALL statement.

**Response**: ACCEPT IN PRINCIPLE.

The word "shall" was avoided specifically to avoid adding a redundant item to the PICS Proforma.

The required behavior is embodied by the PHY Control state diagram (tx_mode is set to SEND_I in the WAKE state) as referenced by the cited text and compliance to this state diagram is required per PMF24.

However, use of the phrase "is required to" is unnecessary. Change the text as follows.

"When the PHY supports the optional EEE capability, it transmits Idle symbols while in the WAKE state (see the PHY Control state diagram, Figure 40-15b)."

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>00</td>
<td>114</td>
<td>20</td>
<td>327</td>
<td>327</td>
</tr>
</tbody>
</table>

Dambrosia, John
Force10 Networks

**Comment Type**: TR/technical required
**Comment Status**: A/accepted

**Comment**: Bookmark for 40.5.1 is under 40.4

**Suggested Remedy**: Correct bookmark for 40.5.1 so it is not under 40.4

**Response**: ACCEPT.

This will require insertion of a heading for 40.5 in the draft.
Comment responses

Comment ID # 328
Dambrosia, John Force10 Networks

Comment Type ER Comment Status A
Bookmark for 40.6.1.x.x is under 40.5.1.2
SuggestedRemedy
Correct bookmarks
Response Response Status C
ACCEPT.
Add heading for 40.6 into the draft to fix this problem.

Comment ID # 329
Dambrosia, John Force10 Networks

Comment Type TR Comment Status A
No corresponding SHALL statements for L1, L2, L3
SuggestedRemedy
add corresponding shall statement
Response Response Status C
ACCEPT IN PRINCIPLE.

The "shall" for item L1 (first) is on p.135 l.52
Add the following at the end of the first paragraph of 46.3.2.4 (p.137 l.22) to provide a "shall" for L1 (second):

The RS shall interpret the LPI coding as shown in Table 46-4
Optional items L2 & L3 are designated by "may" in the clauses referenced.

Comment ID # 331
Dambrosia, John Force10 Networks

Comment Type TR Comment Status A
no corresponding SHALL statements for LP-04
SuggestedRemedy
add corresponding shall statement
Response Response Status C
ACCEPT IN PRINCIPLE.
Add a new subclause:

Insert the following after 47.3.4.6
47.3.4.7 EEE receiver timing
For EEE capability, the receiver shall meet the timing requirements shown in Table 47-3 for Signal_Detect activation and deactivation.

Comment ID # 332
Dambrosia, John Force10 Networks

Comment Type TR Comment Status A
no corresponding SHALL statements for LP-01
SuggestedRemedy
add corresponding shall statement
Response Response Status C
ACCEPT IN PRINCIPLE.
Insert a new subclause in the draft: 48.2.6.2.4:

Change the first paragraph of 48.2.6.2.4
The PCS shall implement its Receive process as depicted in Figure 48-9, including compliance with the associated state variables as specified in 48.2.6.1 and including the optional EEE capability.
Cl 49 SC 49.2.13.2.3 P 163 L 24 # 333
Dambrosia, John Force10 Networks
Comment Type ER Comment Status A
subclauses are out of order with 49.2.13.2.2 on Page 166
SuggestedRemedy reorder subclauses
Response Response Status C
ACCEPT.

Cl 49 SC 49.3.6.6 P 176 L 32 # 334
Dambrosia, John Force10 Networks
Comment Type TR Comment Status A
no corresponding shall statements for LP-04, LP-05, and LP-06
SuggestedRemedy add corresponding shall statements
Response Response Status C
ACCEPT IN PRINCIPLE.
The "shall" for LP-04 is on p.166, l.51.
Modify the change instruction for 49.2.13.3.
Change Figure 49-14 for LPI transmit state diagram and 49-15 for LPI receive state diagram; change the final paragraph of 49.2.13.3
Insert the following paragraph in the draft, with appropriate change markers.
"The PCS shall perform the functions of Lock, BER Monitor, Transmit and Receive as specified in these state diagrams, including the optional EEE capability if implemented."

Cl 51 SC 51.10.4.5 P 181 L 22 # 335
Dambrosia, John Force10 Networks
Comment Type TR Comment Status A
no corresponding shall statements for LP-01
SuggestedRemedy add corresponding shall statement
Response Response Status C
ACCEPT IN PRINCIPLE.
This subclause is deleted by comment #199
Delete the subclause with this PICS entry.

Cl 70 SC 70.6.5 P 226 L 21 # 336
Dambrosia, John Force10 Networks
Comment Type TR Comment Status A
no PICS for SHALL statements for bullets a and D
SuggestedRemedy add corresponding PIC statements
Response Response Status C
ACCEPT IN PRINCIPLE.
Propose the following two PICS be added to 70.10.4.1
Item: FS5d
Feature: Transmitter Disable
Subclause: 70.6.5
Value/Comment: Disables Transmitter when PMD_Transmit_disable set to ONE
Status: TD:M
Support: Yes [], N/A[]

Item: FS7a
Feature: tx_quiet disabled transmitter
Subclause: 70.6.5
Value/Comment: Disables Transmitter when tx_quiet is asserted as specified in 70.7.1.5.
Status: LPI:M
Support: Yes [], N/A []
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL 70</th>
<th>SC 70.10.4.1</th>
<th>P 229</th>
<th>L 31</th>
<th># 337</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>TR</td>
<td>Comment Status</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SuggestedRemedy</td>
<td>add corresponding shall statement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Response Status</td>
<td>W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delete FS10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL 71</th>
<th>SC 71.10.4.2</th>
<th>P 234</th>
<th>L 31</th>
<th># 338</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>TR</td>
<td>Comment Status</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SuggestedRemedy</td>
<td>add corresponding shall statement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Response Status</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For 71.6.12, change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;The following primitives are defined on the PMD Service Interface when EEE is supported:&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;If EEE is supported, the following PMD Service Interface primatives shall be supported.&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL 72</th>
<th>SC 72.10.4.2</th>
<th>P 240</th>
<th>L 35</th>
<th># 339</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>TR</td>
<td>Comment Status</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SuggestedRemedy</td>
<td>add corresponding shall statement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Response Status</td>
<td>W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delete FS12 from the PICS table</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Also see response to comment # 131</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL 74</th>
<th>SC 74.8.4</th>
<th>P 244</th>
<th>L 27</th>
<th># 540</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>TR</td>
<td>Comment Status</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SuggestedRemedy</td>
<td>add corresponding shall statement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Response Status</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item: FEM4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feature: FEC Error Monitoring during EEE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub clause: 74.8.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value/Comment: Disables FEC Error Monitoring during EEE as specified in 74.8.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Status: EEE:MSupport: Yes[]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>CL 78</th>
<th>SC 0</th>
<th>P 262</th>
<th>L 20</th>
<th># 541</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment Type</td>
<td>TR</td>
<td>Comment Status</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SuggestedRemedy</td>
<td>create PICs section and add pics for all appropriate SHALLs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Response Status</td>
<td>W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>See response to comment #20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TYPE: TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general
COMMENT STATUS: D/dispatched  A/accepted  R/rejected  RESPONSE STATUS: O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn
SORT ORDER: Comment ID
<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>Section</th>
<th>P</th>
<th>L</th>
<th>Comment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>79.5.a</td>
<td>P266</td>
<td>L27</td>
<td>342</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>55.12.3</td>
<td>P220</td>
<td>L27</td>
<td>343</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>55.12.3</td>
<td>P220</td>
<td>L53</td>
<td>345</td>
<td></td>
</tr>
</tbody>
</table>

**Comment responses**

**IEEE P802.3az D3.0 Energy Efficient Ethernet comments**

**Response**

**Comment ID # 342**

**Cl 79 SC 79.5.a P266 L27**

**Author:** Dambrosia, John

**Networks:** Force10 Networks

**Comment Type:** TR/technical required

**Comment Status:** A/accepted

**Response:**

**Suggested Remedy:**

There are no corresponding SHALL statements for EET1 - EET5.

- Add corresponding SHALL statements.

**Comment ID # 343**

**Cl 55 SC 55.12.3 P220 L27**

**Author:** Dambrosia, John

**Networks:** Force10 Networks

**Comment Type:** TR/technical required

**Comment Status:** A/accepted

**Response:**

**Suggested Remedy:**

PCT2 subclause reference 55.3.2.2.4 does not exist. PCT3 subclause reference 55.3.2.2.6 does not exist in this amendment. PCT4a subclause reference 55.3.2.2.10 does not exist in this amendment. Subclause references for PCT5 - PCT10 do not exist in this amendment. Therefore there are no appropriate SHALL statements for these PICs.

Add appropriate proper subclauses with appropriate SHALL statements.

**Comment ID # 344**

**Cl 55 SC 55.12.3 P220 L53**

**Author:** Dambrosia, John

**Networks:** Force10 Networks

**Comment Type:** TR/technical required

**Comment Status:** A/accepted

**Response:**

**Suggested Remedy:**

PCT1a value comment field refers to Fig 55-16, but there is no reference in 55.3.2.2 to Fig 55-16.

- Delete reference to Fig 55-16.

**Comment ID # 345**

**Cl 55 SC 55.12.3 P220 L53**

**Author:** Dambrosia, John

**Networks:** Force10 Networks

**Comment Type:** TR/technical required

**Comment Status:** A/accepted

**Response:**

**Suggested Remedy:**

Subclauses references for PCT11 - PCT15 are incorrect.

Change 55.3.3 for PCT11 to 55.3.3a.1. Change 55.3.4 for PCT12 PCT15 to 55.3.4a.1.

REJECT.

See #344

The instructions to the editor are to make changes to the table in 55.12.3 and the cited PICs are from the base document and are not changed and hence the reference is to subclauses in the base document.
PCT15c, PCT15d, PCT15j-PCT15p, and PCT17 subclause references do not exist in this amendment, therefore there are no corresponding SHALL statements for these pics.

SuggestedRemedy
Add appropriate proper subclauses with appropriate SHALL statements

Response Response Status C
ACCEPT IN PRINCIPLE.

Change the references as follows:

PCT15c: 55.3.4a.1
PCT15d: 55.3.4a.2
PCT15j-15p: 55.3.4a.3
PCT17: N/A / base standard reference [no change needed]

PMF16a comment to Table 55-6A is incorrect, as this is for Recommended fast retrain sequence timing

SuggestedRemedy
Move reference in comment field to PMF16B

Response Response Status C
ACCEPT IN PRINCIPLE.

PMF16a is part of the base standard. It can be removed from this table, which lists rows that are to be inserted.

Remove the row containing PMF16a.

There is no corresponding SHALL statement related to a start up sequence

SuggestedRemedy
add shall statement for appropriate text related to start up sequence.

Response Response Status C
ACCEPT IN PRINCIPLE.

See response to #348
The definitions of the feature for PMF16c and PMF16d include text that is appropriate for Value comment field.

Suggested Remedy
Correct text in Feature and Value / Comment fields accordingly.

Response
ACCEPT IN PRINCIPLE.

Change PMF16c 'Feature' text to 'Behavior after fast retrain request'.
Change 'Value/Comment' text to 'Transmit PAM2 within 9 LDPC frame periods following fast retrain request'.
Change PMF16d 'Feature' text to 'Behavior after fast retrain signal detection'.
Change 'Value/Comment' text to 'Transmit PAM2 within 9 LDPC frame periods following fast retrain signal detection'.

There is no corresponding SHALL statement related to seeing Table 55-6A. In the text following the timing in this table is defined as should.

Suggested Remedy
Replace text on Line 5 Page 210 from "To ensure interoperability the training times in Table 55–6a should be observed during the fast retrain." to "To ensure interoperability the training times in Table 55–6a shall be observed during the fast retrain."

Response
REJECT.

The text matches what is used to describe Table 55-6 which is part of the base standard and has identical PICS text. That table is analogous to 55-6A, but for normal training.
Comment Type ER  Comment Status A
Provide reference to subclause where the fast retrain option is specified.

Suggested Remedy
Add subclause reference to PICS items FR and EEE

Response Response Status W
ACCEPT IN PRINCIPLE.

Add 55.4.2.5.15 as a reference for fast retrain.
Add 55.1.3.3 as a reference for EEE

Comment Type ER  Comment Status R
The "Value/Comment" column should be after the subclause column to match the PICS tables in the base standard.

Suggested Remedy
Move the "Value/Comment" column to match the base standard. Make this change in this clause and and in other clauses as applicable

Response Response Status W
REJECT.

The table reflects the ordering used in clause 55 in 802.3-2008.

This can only be fixed in a revision and the commentor may submit it as a maintenance request.

Comment Type E  Comment Status A
Only 10GBASE-T PHYs with EEE capability may optionally support Fast Retrain mechanism, so change sentence as suggested

Suggested Remedy
10GBASE-T PHYs with EEE capability may optionally support a fast retrain mechanism.

Response Response Status C
ACCEPT IN PRINCIPLE.

Comment was considered "Technical" by editor

Text changed in response to comments
#353 and #202

Comment Type E  Comment Status A
Change sentence as follows "A 10GBASE-T PHY may optionally support EEE capability"

Suggested Remedy
As per comment

Response Response Status C
ACCEPT IN PRINCIPLE.

"A 10GBASE-T PHY may optionally support the EEE capability." seems better than either option.
The effect Clause 55 Fast Retrain on the Reconciliation Sublayer & MAC is unclear. Fast Retrain mechanism should be specified in such a way that it does not indicate link down/link failure to the higher layers and also does not cause any data loss (that may cause packet drops). When the PHY Control State Diagram exits the PCS Data state to enter PMA_INIT_FR, it is unclear what action the PHY will take with respect to the XGMII path to the MAC. If PHY sends Local Fault up to the XGMII (i.e., if block_lock is lost, forcing the Local Fault ordered set) then the MAC will see this as a loss of link and this will be very disruptive to the System. The Fast Retrain mechanism is 'fast' enough to allow for recovery without sending alarms to higher functions. However, if the fast retrain is not signaled to the MAC, then the MAC may continue to send data that will be lost. It is also undesirable to drop 30msec of data without notification.

Suggested Remedy
Fast Retrain mechanism should be specified in such a way that it does not cause a Local Fault (or signal link down to higher layers). The mechanism should also prevent the MAC from transmitting data during the retrain period to avoid any data loss or packet drops.

Response
ACCEPT IN PRINCIPLE.
See motion in diab_01_0510.pdf
Also make the following changes to Clause 45:
Define a new register bit:
1.147.1 : Fast retrain signal type : 1 = send IDLE during fast retrain, 0 = send local fault during fast retrain
Insert 45.2.1.76a.2 Fast retrain signal type (1.147.1)
For PHYs that support fast retrain, this bit maps to lpi_fr_sigtype as defined in 55.4.5.1.
When Fast retrain signal type is set to one, the PMA sends IDLE characters on the receive path during fast retrain. When Fast retrain signal type is set to zero, the PMA sends local fault on the receive path during fast retrain.
See parnaby_03_0510.pdf for the changes to clause 55
Also see response to comment #164 for data loss or packet drops.

Submitted on behalf of Michael Grimwood. It is possible for the PCS 64B/65B transmit state diagram to encode LP_IDLE but not transition into TX_L, resulting in the transmitter and receiver being out-of-sync. This can occur during PCS_Test when loc_lpi_en is false and the transmitter encodes tx_raw of type LI resulting in the receiver decoding rx_raw of type LI.

Suggested Remedy
In Figure 55-15, add a transition into TX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. Eliminate all dependence on the variable loc_lpi_en. In Figure 55-16, add a transition into RX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. A presentation will be submitted showing the required changes to Figures 55-15 and 55-16.

Response
ACCEPT IN PRINCIPLE.
See response to #361

Submitted on behalf of Michael Grimwood. loc_lpi_en is used to signal from the PMA to the PCS that the PHY Control state diagram is in PCS_Test. This can be generalized to communicate when the PHY Control is in PCS_Data in order to hold the PCS state diagrams in INIT when not in PCS_Data. Replace loc_lpi_en with the variable, pcs_data_mode, and the primitive PMA_LOCLPIEN with PMA_PCSDATAMODE.

Suggested Remedy
A presentation will be submitted showing the required detailed changes to the text and state diagrams 55-15 and 55-24.

Response
ACCEPT.
Implement the changes shown in grimwood_01_0510.pdf
### Comment #362

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

55.3.5.4 The EEE transmit state diagram conflicts with the fast retrain state diagram. The fast retrain state diagram should take precedence. This can be resolved by holding the EEE transmit state diagram in state TX_NORMAL when a fast retrain is occurring.

**Suggested Remedy:**
- Change the condition to enter state TX_NORMAL from pcs_reset to (pcs_reset + !pcs_data_mode).

**Response:** ACCEPT IN PRINCIPLE.  
See response to #361

---

### Comment #363

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

Submitted on behalf of Michael Grimwood. 55.3.5.4 The expected behavior of the PCS 64/65B Transmit state diagram during fast retraining is not clear. Propose to hold the diagram in TX_INIT when a fast retrain is occurring.

**Suggested Remedy:**
- In Figure 55-15, change the condition to enter state TX_INIT from pcs_reset to (pcs_reset + !pcs_data_mode). Note that this has a common resolution with an issue in which the transmit and receive PCS state diagrams can get out of sync.

**Response:** ACCEPT IN PRINCIPLE.  
See response to #361

---

### Comment #364

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

Submitted on behalf of Michael Grimwood. Clarify that the transition to PCS_Test serves as the fixed timing reference for LPI refresh signaling in fast retraining (as well as initial training and normal retraining).

**Suggested Remedy:**
- In initial training, normal retraining, and fast retraining, with or without the EEE capability being supported, the master and slave signal when they will transition to PCS_Test using the transition counter following the procedure described in 55.4.2.5.14.

**Response:** ACCEPT.

---

### Comment #365

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

Submitted on behalf of Michael Grimwood. In initial training the THP is turned off at the beginning of state PMA_Coeff_Exch. During PCS_Data, the THP is on. During a fast retrain in PMA_Coeff_Exch, is the THP on or off?

**Suggested Remedy:**
- Change: "After completing the link failure signal the PHY shall transition to the PMA_Coeff_Exch state and send PAM2 signaling within a time period equivalent to 9 LDPC frame periods." To: "After completing the link failure signal the PHY shall transition to the PMA_Coeff_Exch state, keep its THP turned on with its previously-exchanged coefficients, and send PAM2 signaling within a time period equivalent to 9 LDPC frame periods."

**Response:** ACCEPT IN PRINCIPLE.  
In the fast retrain, THP coefficients are retained when entering the the PMA_Coeff_Exch state  
Yes: 6  
No: 2  
Abstain: 4
Comment responses

Comment ID: 366

Submitted on behalf of Michael Grimwood. LPI uses a training sequence based on scramblers that are free running from PCS Reset or if scrambler re-initialization is used for initial training, from PCS_Test. In order to ensure that fast retraining is compatible with LPI, the scrambler should not be re-initialized by fast retraining events. To accomplish this, constrain fast retraining to use a training sequence without periodic re-initialization and establish that it be free running from PCS reset or from the first entry to PCS_Test if scrambler re-initialization is used for initial training. (similar to the specifications for LPI).

Suggested Remedy
Add this paragraph after line 52: The PAM2 symbols are generated using the PMA side-stream scrambler polynomials shown in Figure 55-13. The training sequence without periodic re-initialization described in 55.3.4 shall be used during fast retraining, with the scramblers free-running from PCS Reset. If scrambler re-initialization is used for initial training, it shall be disabled and the scramblers shall begin free-running when the PHY Control state diagram enters the PCS_Test state and the variable fr_active is FALSE.

Response
ACCEPT.

Comment ID: 367

Submitted on behalf of Michael Grimwood. The fast retrain status and control register (1.147) is in the PMA and should be reset by PMA reset, not PCS reset.

Suggested Remedy
Change: "These bits shall be reset to all zeros when read or upon execution of the PCS reset." To: "These bits shall be reset to all zeros when read or upon execution of the PMA reset."

Response
ACCEPT.

Comment ID: 369

Submitted on behalf of Paul Langner Paul.Langner@aquantia.com Currently the IEEE fast-retrain mechanism being proposed does not implement a mechanism to inform the MAC that the link is temporarily unavailable. As a result, the MAC will continue to send data during a fast-retrain (for up to 30 ms). This data will all be lost. In order to prevent this from occurring, a mechanism is needed to inform the MAC that the link is temporarily unavailable, so that the data will not be lost, and can be buffered until the link is available.

Suggested Remedy
Create a control code (similar to Local Fault) that indicates that the link is temporarily unavailable, and this control code would be sent continuously to the MAC until the retrain is completed.

Response
ACCEPT IN PRINCIPLE.

See responses to comment #359 and #164
It is possible for the PCS 64B/65B transmit state diagram to encode LP_IDLE but not transition into TX_L, resulting in the transmitter and receiver being out-of-sync. This can occur during PCS_Test when loc_lpi_en is false and the transmitter encodes tx_raw of type LI resulting in the receiver decoding rx_raw of type LI.

**Suggested Remedy**
In Figure 55-15, add a transition into TX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. Eliminate all dependence on the variable loc_lpi_en.
In Figure 55-16, add a transition into RX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. A presentation will be submitted showing the required changes to Figures 55-15 and 55-16.

**Response**
ACCEPT IN PRINCIPLE.

THIS IS A DUPLICATE OF COMMENT #360.

See response to #361

---

*lpi_wake_timer used in Figure 55-16b conflicts with the lpi_wake_timer that represents Tw_PHY and is described on page 192 line 25. Rename the instance of lpi_wake_timer that is used in Figure 55-16b to lpi_tx_wake_timer.*

**Suggested Remedy**
On page 197, line 36 change:

"lpi_wake_timer: This timer defines the time the local transmitter transmits the wake signal.
Values: The condition lpi_wake_timer_done becomes true upon timer expiration.
Duration: This timer shall have a period equal to lpi_wake_time LDPC frame periods."

To:

"lpi_tx_wake_timer: This timer defines the time the local transmitter transmits the wake signal.
Values: The condition lpi_tx_wake_timer_done becomes true upon timer expiration.
Duration: This timer shall have a period equal to lpi_wake_time LDPC frame periods."

On page 205 line 42, change "start lpi_wake_timer" to "start lpi_tx_wake_timer"
On page 205 line 46, change "lpi_wake_timer done" to "lpi_tx_wake_timer done"

**Response**
ACCEPT.

This was a comment submitted from the floor by Mike Bennett on behalf of Mike Grimwood.
Comment responses

Healey, Adam

Comment Type T
Comment Status A

There is a fault (and an editorial issue) in the state diagram in figure 36-7c.

Suggested Remedy

Replace the diagram in figure 36-7c with the diagram in healey_03_0510.pdf. Delete all references to timer rx_ts_timer (including the definition in 36.2.5.1.7).

Change the definition of rx_tq_timer:
This timer is shall be started each time the /LI/ ordered set is received, as indicated by sequence SUDI[(K28.5)] immediately followed by SUDI[(D6.5)+[D26.4]], and rx_lpi_active is TRUE. The timer terminal count is set to TQR. When the timer reaches terminal count it will set rx_tq_timer_done = TRUE.

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement changes in healey_03_0510.pdf

Diab, Wael

Comment Type T
Comment Status A

The definition of PHY WAKE VALUE is incorrect.

Suggested Remedy

Change section 78.4.2.2 under the definition of PHY WAKE VALUE from "representing the Tw_phy" to "representing the Tw_sys_tx (min)"

Response Response Status C

ACCEPT.

Based on motion #3 recorded in minutes