When we structured the PICs on the last draft we did that after closing the comment on having a PICs for AN. There needs to be a PICs for AN, however, it should match the way we did the other requirements like timing, where it is against the appropriate clauses with the normative text for each PHY. Note that in some cases this does exist like in C40 so its worthwhile to make it consistant throughout.

**Suggested Remedy**
- Remove the PICs entry for AN from C78
- Adjust the text around the PICs to only reflect DDL requirements
- Remove the corresponding shall from 78.3
- In appropriate clauses like 28C, 28D, 73A, 24, 40, 55, 73 and/or other appropriate clauses.
- In 78.3 point to the appropriate clauses from the step above.
- Check that this is not consistent for all PHY types (e.g. right now there is a PICs in 78.3 and 40 - AN15 - that would affect 1000BASE-T for instance. Should really be in one place)

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

Specific changes in 28C, 28D, 73A, 24, 40, 55, 73 and/or other appropriate clauses.

---

On page 49, line 47 (diff document) there is a reference to 25.4a.2 (link does not work) but 25.4a.2 does not exist in the draft.

In page 50, line 14 there is a reference to 25.4a.1 (link does not work) but 25.4a.1 does not exist in the draft.

On page 53, line 47 is "Insert 25.4a at the end of 25.4 as shown below.". However, below this is subclause 25.5, followed by 25.50.1 etc. with no other editing instructions. These subclause numbers should presumably all be 25.4a.xxx.

The clause numbering below this is also wrong, e.g. the PICs for clause 25 is 25.5 not 25.6.

**Suggested Remedy**
Correct clause numbering currently shown as 25.5 and 25.50 to 25.4a.
Change "Insert 25.4a at the end of 25.4 as shown below:" to "Insert 25.4a after 25.4 as shown below:".
Make sure links in 24.4.1.4.3 and 24.4.1.5.3 remain correct and work properly.
Also correct the clause numbering for the PICs section to 25.5 as per the editing instructions there.

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

P.55, L.47: Change "Insert 25.4a at the end of 25.4 as shown below:" to "Insert 25.4a after 25.4 as shown below:"

P.56, L.1: Change Subclause number 25.5 to 25.4a
Change all subsequent Subclause number from 25.50.xx to 25.4a.xx

P.61, L.1: Change Subclause number 25.6 to 25.5
Change all subsequent Subclause number from 25.6.xx to 25.5.xx

P.61, L.12: Change the reference of Subclause number in item LPI from 25.5 to 25.4a

---

The editing instruction says "Insert new variables into 49.2.13.2.2, ..." but the heading beneath this is "49.2.9.2.2 Variables"

**Suggested Remedy**
Change clause number in heading to 49.2.13.2.2

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.
IEEE P802.3az D3.1 Energy Efficient Ethernet comments

Proposed Responses

<table>
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<td>Anslow, Peter</td>
<td>Ciena Corporation</td>
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<td></td>
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</tbody>
</table>

Comment Type: E
Comment Status: D

The editing instruction says "Insert the following row into table 51.7.3.", but table 51.7.3 does not exist.

Suggested Remedy

Change "Insert the following row into table 51.7.3:" to "Insert the following row at the end of the table in 51.10.3:

Proposed Response: Response Status W

PROPOSED ACCEPT.

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<td>231</td>
<td>P</td>
<td>L</td>
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<td>Ciena Corporation</td>
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</table>

Comment Type: E
Comment Status: D

2^9, 2^5 and 2^6, 2^4 on line 45 aren't in the same format as powers of two in the transition_count paragraph above.

Suggested Remedy

change to using superscript for the power

Proposed Response: Response Status W

PROPOSED ACCEPT.

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<td>71.3</td>
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<td>259</td>
<td>P</td>
<td>L</td>
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<tr>
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<td>Anslow, Peter</td>
<td>Ciena Corporation</td>
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</table>

Comment Type: E
Comment Status: D

On page 259 line 44 diff document (or page 237 line 37 in clean document) we have "PCS requirements for Auto-Negotiation (AN) service interface" clause 71.7 or 71.3 in the two docs respectively, but there are no editing instructions for clause 71.3 Also, the numbering above this in the diff document is 71.6 instead of 71.2. However the cen version is ok.

Suggested Remedy

Either make changes to 71.3 "PCS requirements for Auto-Negotiation (AN) service interface" or remove this text.

Proposed Response: Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Will delete section 71.3

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<tr>
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<td>72.6.4</td>
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<td>266</td>
<td>P</td>
<td>L</td>
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<td>Ciena Corporation</td>
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</table>

Comment Type: E
Comment Status: D

The editing instruction says "Change the text in the 1st paragraph of section 72.6.4 to read a follows:" but there are 4 paragraphs of changed text.

Suggested Remedy

change editing instruction to "Change 72.6.4 as follows:

Proposed Response: Response Status W

PROPOSED ACCEPT.
Proposed Responses

IEEE P802.3az D3.1 Energy Efficient Ethernet comments

D3.1 of 802.3az

Cl 74 SC 74 P272 L 1 # 10
Anslow, Peter
Ciena Corporation

Comment Type E Comment Status D
802.3ba changed the title of clause 74 and also the title of 74.4.1

SuggestedRemedy
Change the title of 74 to "Forward Error Correction (FEC) sublayer for BASE-R PHYs" and the title of 74.4.1 to "Functional block diagram for 10GBASE-R PHYs"

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 74 SC 74.4.1 P272 L 5 # 11
Anslow, Peter
Ciena Corporation

Comment Type E Comment Status D
The editing instruction says "Change Figure 74--2 as shown below using the title from 802.3ba D2.3.1", but 802.3ba is now approved. Also, 802.3ba changed the title of Figure 74-2 to "Functional block diagram for 10GBASE-R PHYs"

SuggestedRemedy
Change editing instruction to "In 74.4.1 as modified by IEEE Std 802.3ba, replace Figure 74--2 as shown below." Also, change the title of Figure 74-2 to "Functional block diagram for 10GBASE-R PHYs"

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 74 SC 74.5.1 P276 L 18 # 12
Anslow, Peter
Ciena Corporation

Comment Type E Comment Status D
The text starting "If the optional Energy Efficient Ethernet (EEE) capability is supported ..." has been added, but is not shown in underline font. Also, the font size (9 pt) is wrong.

SuggestedRemedy
Show the inserted text in underline and the correct size.

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 74 SC 74.10.2.3 P278 L 27 # 14
Anslow, Peter
Ciena Corporation

Comment Type E Comment Status D
Subclauses 74.5.1.4 through 74.5.1.7 have been added with the insert instruction, so none of the text should be shown in underline font. However some is and some isn't underlined.

SuggestedRemedy
Remove the underline from subclauses 74.5.1.4 through 74.5.1.7

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 74 SC 74.11 P279 L 1 # 15
Anslow, Peter
Ciena Corporation

Comment Type E Comment Status D
802.3ba changed the title of clause 74.11

SuggestedRemedy
In the title of 74.11 change "sublayer for 10GBASE-R PHYs" to "sublayer for BASE-R PHYs"

Proposed Response Response Status W
PROPOSED ACCEPT.
<table>
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<th>SC</th>
<th>P</th>
<th>L</th>
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<th>Commenter</th>
<th>Proposed Response</th>
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<tbody>
<tr>
<td>46</td>
<td>46.3.2.4</td>
<td>142</td>
<td>52</td>
<td>16</td>
<td>Turner, Edward J</td>
<td>There's no PICS entry for the shall in &quot;The PHY shall restart RX_CLK so that at least one positive transition occurs before it deasserts LPI.&quot;</td>
</tr>
<tr>
<td>55</td>
<td>55.4.5.1</td>
<td>218</td>
<td>34</td>
<td>17</td>
<td>Turner, Edward J</td>
<td>Use '2 superscript 9' rather than '2^9'. Also apply to '2^6' and '2^4' on line 38.</td>
</tr>
<tr>
<td>70</td>
<td>70.2.1</td>
<td>231</td>
<td>48</td>
<td>18</td>
<td>Turner, Edward J</td>
<td>Too much deletion has led to '. may go into w power mode ..'</td>
</tr>
<tr>
<td>72</td>
<td>72.7.1.4</td>
<td>244</td>
<td>31</td>
<td>19</td>
<td>Bennett, Michael</td>
<td>Submitted on behalf of Iain Robertson. Need discussion on the TBD value. For reference, PCI-E specs this as 100mV. Need to supply TBD mV. To be voted on by Task Force.</td>
</tr>
<tr>
<td>36</td>
<td>36.2.5.2.2</td>
<td>88</td>
<td>48</td>
<td>20</td>
<td>Healey, Adam</td>
<td>The transition from RX_WAKE_DONE to LPI_K in the PCS Receive state diagram (Figure 36-7c, the second one) should be UCT (unconditional transition) and not SUDI. SUDI will cause to PCS Receive state diagram to be out of synchronization.</td>
</tr>
<tr>
<td>Comment ID</td>
<td>SC</td>
<td>Page</td>
<td>Line</td>
<td>Healey, Adam</td>
<td>Proposed Response</td>
<td>Response Status</td>
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<tr>
<td>21</td>
<td>SC 49.2.13.2.5</td>
<td>P175</td>
<td>L52</td>
<td>LSI Corporation</td>
<td>The definition of one_us_timer needs reference the parameter T_1U defined in Table 49-3 (which really should be replacing Table 49-2) in order to establish the bounds on the timer terminal count.</td>
<td>W PROPOSED ACCEPT.</td>
</tr>
<tr>
<td>22</td>
<td>SC 74.7.4.8</td>
<td>P277</td>
<td>L47</td>
<td>LSI Corporation</td>
<td>I believe the actual requirement here is that the hold-off timer not expire before 13.7 microseconds have passed. It could be longer since the FEC would set signal_ok to TRUE after detecting two scrambled blocks.</td>
<td>W PROPOSED ACCEPT.</td>
</tr>
<tr>
<td>23</td>
<td>SC 45.2.1.76a</td>
<td>P120</td>
<td>L50</td>
<td>LSI Corporation</td>
<td>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.</td>
<td>W PROPOSED ACCEPT.</td>
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<tr>
<td>24</td>
<td>SC 79.3.a</td>
<td>P271</td>
<td>L28</td>
<td>Cisco Systems, Inc.</td>
<td>Duplicated period at the end of the line delete it.</td>
<td>W PROPOSED ACCEPT.</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
Proposed Response

Cl 78  SC 78.3  P258  L 50  # 25
Brown, Matthew  Applied Micro (AMCC)

Comment Type  TR  Comment Status  D
Draft 3.0 Comment #174 was not implemented.

Suggested Remedy
Implement Draft 3.0 Comment #174.

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Response to Comment #174 on D3.0 is shown below:
ACCEPT IN PRINCIPLE.

Change the paragraph starting on line 47 of 78.3 to read:

"During the link establishment process, both link partners indicate their EEE capabilities. EEE is supported only if during auto-negotiation both the local device and link partner advertise the EEE capability for the resolved PHY type. If EEE is not supported, all EEE functionality is disabled and the LPI client shall not assert LPI."

All EEE PHY clauses need to add a reference to 78.3 where EEE support is first mentioned.

Cl 55  SC 55.1.4  P191  L 5  # 26
Brown, Matthew  Applied Micro (AMCC)

Comment Type  ER  Comment Status  D
Figure 55-4. PMA_FR_ACTIVE primitive is not required for EEE nor for normal operation.

Suggested Remedy
Re-draw dashed rectangle to include only EEE signals. Employ another means to differentiate FR signals from normal and EEE signals. Add a note to indicate the signals relevant to FR.

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 55  SC 55.2.2.3.1  P192  L 28  # 29
Brown, Matthew  Applied Micro (AMCC)

Comment Type  TR  Comment Status  D
When is alert_detect, set to NOT_DETECTED? Though the event DETECTED is obvious, it is not clear when alert_detect would be set to NOT_DETECTED. In fact, all of the definitions talk about the DETECTED event and the state machine really only requires the DETECTED event. Fixing this is somewhat complicated by the composite nature of the variable definition in 55.3.5.22.

Suggested Remedy
Re-define alert_detect to have single value DETECTED sent when alert signal is detected, otherwise parameter value is undefined.

Proposed Response  Response Status  W
PROPOSED REJECT.

There are only two values that alert_detect can be set to. If, as the comment states, it is clear when the first value is used, then it should be equally clear when the second value is used. Whether the second value is not_detected, false, or undefined is moot since it is not used/detected elsewhere.
Proposed Responses

Cl 55 SC 55.2.2.10.1 P 193 L 4
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status D
Not clear what rx_lpi_active is.

Suggested Remedy
Change end of sentence to: “change in the rx_lpi_active variable as determined by the receive state diagram in Figure 55-16.”

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 55 SC 55.2.2.11.1 P 193 L 19
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status D
Not clear what pcs_data_mode parameter is.

Suggested Remedy
Add sentence... “The pcs_data_mode parameter reflects the value of the pcs_data_mode variable as specified in 55.3.5.2.2.”

Proposed Response Response Status W
PROPOSED REJECT.

The text states clearly that the variable is set by the PMA PHY control state machine. This change is unnecessary.

Cl 55 SC 55.2.2.12 P 193 L 42
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status D
Not clear what fr_active parameter is.

Suggested Remedy
Add sentence... “The fr_active parameter reflects the value of the fr_active variable specified in 55.3.5.2.2.”

Proposed Response Response Status W
PROPOSED REJECT.

The text states clearly that the variable is set by the PMA PHY control state machine. This change is unnecessary.

Cl 55 SC 55.3.2 P 194 L 10
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status D
Figure 55-5 is part of 55.3.2 and so should be placed appropriately.

Suggested Remedy
Add heading 55.3.2 after 55.3 and move diagram to occur after 55.3.2.

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 55 SC 55.3.2 P 194 L 26
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status D
Figure 55-5. fr_active parameter is not required for EEE nor for normal operation.

Suggested Remedy
Re-draw dashed rectangle to include only EEE signals. Employ another means to differentiate FR signals from normal and EEE signals. Add a note to indicate the signals relevant to FR.

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 55 SC 55.3.2.2 P 194 L 42
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status D
Figure 55-15 does not include states for EEE only and Figure 55-15a does not include dashed rectangles.

Suggested Remedy
Restate as follows: State transitions within dashed rectangles in Figure 55-15 and all states and transitions in Figure 55-15a shall be supported by PHys with the EEE capability. PHys without the EEE capability do not support these transitions.

Proposed Response Response Status W
PROPOSED REJECT.

It is not clear what is incorrect in the current labeling.

Figure 55-15 notes that transitions inside dashed rectangles are required for EEE operation. Figure 55-15a notes that the entire diagram is required for EEE operation.

The suggested remedy does not improve the diagrams.
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<td>36</td>
<td>ER</td>
<td>D</td>
<td>Be clear about what is meant by &quot;normal mode of operation&quot;.</td>
<td>Proposed REJECT.</td>
</tr>
<tr>
<td>37</td>
<td>ER</td>
<td>D</td>
<td>Change start of sentence to: &quot;After reaching the normal mode of operation (pcs_data_mode = TRUE), ...&quot;</td>
<td>Proposed ACCEPT.</td>
</tr>
<tr>
<td>38</td>
<td>ER</td>
<td>D</td>
<td>Sentence almost sounds like LPI is triggered by completion of training. Also, successful training is indicated by pcs_data_mode.</td>
<td>Proposed REJECT.</td>
</tr>
<tr>
<td>39</td>
<td>TR</td>
<td>D</td>
<td>Relevant to initial or subsequent normal retrain.</td>
<td>Proposed ACCEPT IN PRINCIPLE.</td>
</tr>
<tr>
<td>40</td>
<td>TR</td>
<td>D</td>
<td>&quot;used for normal training&quot;</td>
<td>Proposed ACCEPT.</td>
</tr>
<tr>
<td>41</td>
<td>E</td>
<td>D</td>
<td>Sentence fragment.</td>
<td>Proposed REJECT.</td>
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Proposed Responses

Comment Type: TR/technical required, ER/editorial required, GR/general required
Comment Status: D/dispatched, A/accepted, R/rejected
Response Status: O/open, W/written, C/closed, U/unsatisfied, Z/withdrawn
Sort order: Comment ID
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<th>Comment</th>
<th>Suggested Remedy</th>
<th>Proposed Response</th>
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<th>Comment Status</th>
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<tbody>
<tr>
<td>42</td>
<td>E</td>
<td>D</td>
<td>LPI is indicated by LPI client and RS not MAC</td>
<td>Change &quot;MAC indicates&quot; to &quot;LPI client indicates&quot;.</td>
<td>PROPOSED ACCEPT.</td>
<td>W</td>
<td>D</td>
</tr>
<tr>
<td>43</td>
<td>E</td>
<td>D</td>
<td>Convention in this Clause is to use receiver not RX.</td>
<td>Replace &quot;RX&quot; with &quot;receiver&quot;.</td>
<td>PROPOSED ACCEPT.</td>
<td>W</td>
<td>D</td>
</tr>
<tr>
<td>44</td>
<td>T</td>
<td>D</td>
<td>Grammar.</td>
<td>Replace comma at end of sentence with period.</td>
<td>PROPOSED ACCEPT.</td>
<td>W</td>
<td>D</td>
</tr>
<tr>
<td>45</td>
<td>TR</td>
<td>D</td>
<td>Introduction of pcs_data_mode variable in state diagrams permits us to reduce alert_detect to simply indicated detection of the alert signal.</td>
<td>Reduce definition to include only detection of alert signal.</td>
<td>PROPOSED REJECT.</td>
<td>W</td>
<td>D</td>
</tr>
<tr>
<td>46</td>
<td>TR</td>
<td>D</td>
<td>The portion of the definition relating to detection of alert signal is not really clear. It is clear that alert_detect is set TRUE when the alert signal is detected. The definition of the alert detection function on page 216 only specifies when alert_detect is set. It is not clear when (or if) the alert_detect variable is ever set to FALSE. This variable is more of an event, than a state. What is the right unambiguous way to specify this.</td>
<td>Provide a mechanism or description that explains how the alert_detect variable is set to FALSE after being set TRUE. One way to resolve this is as follows. (a) In Figure 55-16, add &quot;alert_detect = FALSE&quot; in states &quot;RX_INIT&quot; and &quot;RX_W&quot;. Define alert_detect as being set to TRUE by ALERT detect process.</td>
<td>PROPOSED REJECT.</td>
<td>W</td>
<td>D</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
Proposed Responses

55 SC 55.2.2.9.1
Brown, Matthew
Applied Micro (AMCC)

Cl
55
SC
55.2.2.9.1
P 192
L 26
# [47]

Comment Type TR Comment Status D
alert_detect parameter values do not match alert_detect variable.

SuggestedRemedy
Either change values to match or explain that alert_detect parameter is DETECTED when alert_detect variable is TRUE and NOT_DETECTED with alert_detect variable is FALSE.

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Change DETECTED to TRUE, change NOT_DETECTED to FALSE in 55.2.2.9.1.

55 SC 55.3.5.2.2
Brown, Matthew
Applied Micro (AMCC)

Cl
55
SC
55.3.5.2.2
P 202
L 2
# [48]

Comment Type E Comment Status D
For clarity, for a table for various definitions of lpi_tx_mode.

SuggestedRemedy
Create table for defining lpi_tx_mode. Two columns: value and condition. One row is used for each value.

Proposed Response Response Status W
PROPOSED REJECT.

This does not seem necessary.

Also the comment is out of scope; this text has not been changed for several drafts.

55 SC 55.3.5.2.4
Brown, Matthew
Applied Micro (AMCC)

Cl
55
SC
55.3.5.2.4
P 203
L 31
# [49]

Comment Type E Comment Status D
Grammar.

SuggestedRemedy
Change "to the eight types" to "one of the eight types"

Proposed Response Response Status W
PROPOSED REJECT.

As stated by the text, a vector may simultaneously belong to C and I, so the proposed remedy is not accurate.

55 SC 55.3.5.2.4
Brown, Matthew
Applied Micro (AMCC)

Cl
55
SC
55.3.5.2.4
P 203
L 36
# [50]

Comment Type E Comment Status D
Edit instruction.

SuggestedRemedy
Add underline to "and /LI/".

Proposed Response Response Status W
PROPOSED ACCEPT.
Proposed Responses

**Proposed Response**

**Comment Type** E  **Comment Status** D  **Suggested Remedy**

Grammar.

Change "to the eight types" to "one of the eight types".

**Proposed Response**  **Response Status** W

PROPOSED REJECT.

As stated by the text, a vector may simultaneously belong to C and I, so the proposed remedy is not accurate.

**Proposed Response**  **Response Status** W

No states are unique to EEE.

**Suggested Remedy**

Change "States and transitions" to "transitions".

**Proposed Response**  **Response Status** W

PROPOSED ACCEPT.

**Proposed Response**  **Response Status** W

It appears that the existing equation is correct.

The editor believes that the suggested change is equivalent to the existing transition condition.

**Proposed Response**  **Response Status** W

PROPOSED ACCEPT.

**Proposed Response**  **Response Status** W

PROPOSED REJECT.

It is not clear why this is necessary. It would help if the commenter gave more details on why this change is justified.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Proposed Response</th>
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<td>55</td>
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<td>D</td>
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<td>55</td>
<td>ER/editorial required</td>
<td>D</td>
<td>Proposed ACCEPT.</td>
<td></td>
</tr>
</tbody>
</table>

Brown, Matthew
Applied Micro (AMCC)

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  RESPONSE STATUS: O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn
SORT ORDER: Comment ID

Page 12 of 20 7/8/2010 8:31:37 PM
The wake signal is not properly defined here. Either fix or refer to official definition.

Suggested Remedy
Change sentence to: "The alert signal is followed by a wake signal as specified in 55.3.2.2.9a."

Proposed Response  Response Status  W
PROPOSED REJECT.

The description seems adequate. The reference in the suggested remedy does not give details of the wake signal so would be a poorer choice.

Comment Type  ER  Comment Status  D
Use normal form for primitive/parameter.

Suggested Remedy
Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

Proposed Response  Response Status  W
PROPOSED ACCEPT.

The requirements for fast retrain do not affect normal training.

Comment Type  T  Comment Status  D
Similar requirements exist for fast retrain.

Suggested Remedy
Add sentence, "For PHYs that support fast retrain, further requirements for this transition are described in 55.4.2.5.15."

Proposed Response  Response Status  W
PROPOSED REJECT.

The requirements for fast retrain do not affect normal training.

Comment Type  T  Comment Status  D
Can also go to the LPI transmit mode.

Suggested Remedy
Add the following "... and to the LPI transmit mode under control of the local LPI client.".

Proposed Response  Response Status  W
PROPOSED ACCEPT.
Comment Type: E  Comment Status: D  Grammar.

Suggested Remedy:
Change "THP turn" to "THP turns".

Proposed Response: Response Status: W  PROPOSED ACCEPT.

---

Comment Type: ER  Comment Status: D  Reference to incorrect figure.

Suggested Remedy:
Change 55-13a to 55-13.

Proposed Response: Response Status: W  PROPOSED ACCEPT.

---

Comment Type: TR  Comment Status: D  Relevant to initial or subsequent normal retrain.

Suggested Remedy:
Change "used for initial training" to "used for normal training". Alternately, "used for initial training or normal retraining".

Proposed Response: Response Status: W  PROPOSED ACCEPT.

"used for normal training"
Proposed Responses

Cl  45 SC 45.2.1.76a.3 P 121 L 4 # 78
Brown, Matthew  Applied Micro (AMCC)

Comment Type TR  Comment Status D
What does it mean to disable this bit?

Suggested Remedy
Change "disabling this bit" to "setting this bit to 0".

Proposed Response  Response Status W
PROPOSED ACCEPT.

Cl  45 SC 45.2.1.76a.3 P 120 L 36 # 79
Brown, Matthew  Applied Micro (AMCC)

Comment Type TR  Comment Status D
A RO status bit is not provided to indicate whether fast retrain was negotiated or not.
1.147.0 does not suffice, since it may be overwritten by the station manager.

Suggested Remedy
Provide a RO status bit to indicate whether fast retraining was successfully negotiated or not. 1.147.1 is suggested. Name "Fast Retrain Negotiated". Description: "1 = Fast retrain was negotiated; 0 Fast retrain was not negotiated." R/W: "RO".

Proposed Response  Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Define a new register bit:

1.147.2 : Fast retrain negotiated : 1 = PHY has negotiated fast retrain, 0 = PHY has not negotiated fast retrain : read only

Insert 45.2.1.76a.4 Fast retrain ability (1.147.2)

This bit indicates that the PHY has negotiated fast retrain as defined in 55.4.5.1.

Cl  55 SC 55.4.6.1 P 220 L 33 # 80
Brown, Matthew  Applied Micro (AMCC)

Comment Type ER  Comment Status D
Common terminology.

Suggested Remedy
Change "low power receive mode" to "LPI mode".

Proposed Response  Response Status W
PROPOSED ACCEPT.
Proposed Responses

IEEE P802.3az D3.1 Energy Efficient Ethernet comments

#83

Cl 55 SC 55.4.2.5.14 P 216 L 49 # 83
Brown, Matthew Applied Micro (AMCC)

Comment Type TR Comment Status D

The is a pile-on comment for Draft 3.0 comment #359. The response to comment #359 addresses incorrectly detecting a failed link by optionally replacing the local fault signal with the idle signal during fast retrain. The response did not address loss of data during a fast retrain. To prevent loss of data, a mechanism is required which informs the MAC to defer transmission; while not indicating a link failure, avoiding adverse effects on MAC clients.

Suggested Remedy

Provide a mechanism to signal from the PHY to the RS a temporary interruption during fast retrain. Provide a mechanism in the RS to cause the MAC to defer transmission of packets while fast retrain is active, particular for a MAC which is connected to a PHY through a XAUI interface. To accomplish this create a new character, similar to /LI/, call tentatively /CRS/ (carrier sense). Send /CRS/ continuous to the RX XGMII while fast retrain is active. In the RS, while receiver /CRS/ from the RX XGMII set PLS_CARRIER.indication(CARRIER_STATUS) to CARRIER_ON.

Proposed Response Response Status W

PROPOSED REJECT.

For discussion by the task force.

See also #100.

This is out of scope for clause 55.

Cl 46 SC 46.1.7.3 P 140 L 42 # 84
Brown, Matthew Applied Micro (AMCC)

Comment Type T Comment Status D

CARRIER status has values CARRIER_ON and CARRIER_OFF.

Suggested Remedy

Change "CARRIER_STATUS = OFF" to "CARRIER_STATUS= CARRIER_OFF".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 46 SC 46.3a.2.2 P 145 L 28 # 85
Brown, Matthew Applied Micro (AMCC)

Comment Type T Comment Status D

CARRIER status has values CARRIER_ON and CARRIER_OFF.

Suggested Remedy

Change "CARRIER_STATUS = OFF" to "CARRIER_STATUS= CARRIER_OFF".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 46 SC 46.3a.2.2 P 145 L 36 # 86
Brown, Matthew Applied Micro (AMCC)

Comment Type T Comment Status D

CARRIER status has values CARRIER_ON and CARRIER_OFF.

Suggested Remedy

Change "CARRIER_STATUS = OFF" to "CARRIER_STATUS= CARRIER_OFF".

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 49 SC 49 P 174 L 1 # 87
Horner, Rita Avago Technologies

Comment Type T Comment Status D

TX_REFRESH state no longer exists

Suggested Remedy

reomve the tx_tr_timer

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 49 SC 49 P 178 L # 88
Horner, Rita Avago Technologies

Comment Type T Comment Status D

There is a potential dead-lock definition if the timer expires at the same time as tx_raw transitions from LI to LI

Suggested Remedy

Remove the tx_ts_timer done from the state transition TX_SLEEP to TX_ACTIVE

Proposed Response Response Status W

PROPOSED ACCEPT.
### Proposed Responses

<table>
<thead>
<tr>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Proposed Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>D</td>
<td>Remove the requirement of !tq_timer_done on the exit from TX QUIET.</td>
</tr>
<tr>
<td>T</td>
<td>D</td>
<td>Correct the definition for rx_fault.</td>
</tr>
<tr>
<td>E</td>
<td>D</td>
<td>Change &quot;PLS_Service Primitives&quot; to &quot;PLS Service Primitives&quot; and move to a location within the set of PLS primitives. Add dashed rectangle around PLS service primitives to differentiate from the LPI client service primitives.</td>
</tr>
</tbody>
</table>

#### Cl 49 SC 49 P 178 L 99

- **Comment Type**: T
- **Comment Status**: D
- **Proposed Response**: The exit from TX QUIET should be tx_timer_done or tx_raw !=LI.
- **Response Status**: W
- **Comment Status**: D
- **Response Status**: W

#### Cl 46 SC 46.3a P 144 L 37

- **Comment Type**: T
- **Comment Status**: D
- **Proposed Response**: Until 1 second after link_status is OK, effect of primitive is undefined regardless of its value.
- **Response Status**: W
- **Proposed Accept**: PROPOSED ACCEPT.

#### Cl 49 SC 49 P 180 L 34

- **Comment Type**: T
- **Comment Status**: D
- **Proposed Response**: As per the comment, change the transition to:
  
  `tx_tq_timer_done + T_TYPE(tx_raw) !=LI`
- **Response Status**: W
- **Proposed Accept**: PROPOSED ACCEPT.

#### Cl 46 SC 46.3a.1 P 144 L 30

- **Comment Type**: T
- **Comment Status**: D
- **Proposed Response**: While LPI INDICATION is DEASSERT, all behavior is normal.
- **Response Status**: W
- **Proposed Accept**: PROPOSED REJECT.

- **Comment Type**: T
- **Comment Status**: D
- **Proposed Response**: Delete "or if LPI_REQUEST=ASSERT".
- **Response Status**: W
- **Proposed Accept**: PROPOSED ACCEPT.

- **Comment Type**: T
- **Comment Status**: D
- **Proposed Response**: Delete "inter-frame".
- **Response Status**: W
- **Proposed Accept**: PROPOSED REJECT.

- **Comment Status**: D

- **Response Status**: W

- **Response Status**: W

- **Response Status**: W

- **Response Status**: W
The transition from LPI_K back to LP_IDLE_D is inconsistent with the equivalent legacy transition (RX_K to IDLE_D) when xmit != DATA. If xmit != DATA and SUDI((K5.6)+,(D16.2)), the state diagram would get stuck into the LPI_K state indefinitely. However, this is highly unlikely. What is more likely is that auto-negotiation is restarted while the receiver is detecting LPI. In this case, the state diagram would remain in the LPI_K state during the data code-group reception, and would transition into the RX_INVALID state (via “F”) when the next /K28.5/ is received. At worst, this would force an Auto-Negotiation restart (via RUDI(INVALID)) but this seems like an unnecessary glitch with a straightforward work-around.

**Suggested Remedy**

For the transition from LPI_K to LPI_IDLE_D, change the term xmit != DATA ∗ SUDI("member of set of" /D/ * !/D21.5/ * !/D2.2/) to xmit != DATA ∗ SUDI("member of set of" /D/ * !/D21.5/ * !/D2.2/ * !/D5.6/ * !/D16.2/). Also remove the term xmit = DATA from the transition from LPI_K to IDLE_D (via "C").

**Proposed Response**

Rewriting to clarify the problems in the comment tool:

For the transition from LPI_K to LPI_IDLE_D, change the term

xmit != DATA ∗ SUDI("member of set of" /[D]/ * /[D21.5] * /[D2.2])

to

xmit != DATA ∗ SUDI("member of set of" /[D]/ * /[D21.5] * /[D2.2] * /[D5.6] * /[D16.2]).

(i.e. 2 elements added to the set of terms)

Also remove the term xmit = DATA from the transition from LPI_K to IDLE_D (via "C").

In order to advertise the fast retrain ability (45.7.10), the management needs to know if the PHY is capable of fast retrain. Also the management may choose not to advertise fast retrain ability, to the link partner, even if the local PHY is fast retrain capable. So define a bit to fast retrain ability bit to fast retrain control/status register. This bit will be set to one for PHYS that implement fast retrain capability.

**Suggested Remedy**

Add a bit to 1.147, 10GBASE-T fast retrain status & control register, to indicate PHY fast retrain capability

**Proposed Response**

Proposed ACCEPT IN PRINCIPLE.

Define a new register bit:

1.147.3 : Fast retrain ability : 1 = PHY supports fast retrain, 0 = PHY does not support fast retrain : read only

Insert 45.2.1.76a.3 Fast retrain ability (1.147.3)

This bit indicates that the PHY supports fast retrain as defined in 55.4.5.1.
Proposed Responses

IEEE P802.3az D3.1 Energy Efficient Ethernet comments

D3.1 of 802.3az

---

**Comment ID #96**

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

Ganga, Ilango  
Intel Corporation

**Proposed Response**

The spirit of the EEE objectives is not to drop or corrupt frames; however fast retrain mechanism, as defined, has the potential to drop frames. Some of the upper layer protocols expect no packet drop characteristics and certain reliability at link level. Fast retrain condition may cause frame loss up to several ms. So implement a mechanism that has ability to defer frame transmission during fast retrain.

**Suggested Remedy**

Set the PLS_CARRIER.indication primitive when the PMA indicates fr_active (PMA_FR_ACTIVE.indication) to defer transmission during fast retrain. This will ensure no packet drop during fast retrain.

**Response Status:** W

PROPOSED REJECT.

See also comment #100, #97, #83

---

**Comment ID #97**

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

Ganga, Ilango  
Intel Corporation

**Proposed Response**

As per D3.1, either IDLE or Local Fault is generated during fast retrain. Currently local fault may be used to trigger link failure condition to the higher layers. At a system level such link failure conditions may be used to initiate link failover mechanisms for high availability. Asserting local fault does not unambiguously indicate if the local fault is due to link failure or fast retrain. Any timeout mechanisms to delay signaling link failure to higher layers may delay the high availability/failover features to take effect. So it is best to define a separate control code to indicate fr_active (PMA_FR_ACTIVE.indication) to the RS sublayer. This could be used to signal a fast retrain condition.

**Suggested Remedy**

1. Define a separate control code to indicate fast retrain condition to the higher layers (RS sublayer). Providing fr active signal allows systems flexibility to implement failover/lossless characteristics. 2. For the PHYs that support fast retrain, specify an option to assert PLS_CARRIER.indication during fast retrain active that allows tx deferral.

**Proposed Response**

PROPOSED REJECT.

This was discussed at the previous meeting and the taskforce could not reach agreement on making this change.

For further discussion by the taskforce.

---

**Comment ID #98**

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

Ganga, Ilango  
Intel Corporation

**Proposed Response**

Assertion of CARRIER_STATUS by the RS should be based upon LPI_REQUEST not LPI_INDICATION, i.e., it is based upon the transmit LPI state, not the receive side. This statement in 46.1.7.3 is inconsistent with the reference state diagram (46-10a) and the description in 78.1.3.1.

**Suggested Remedy**

Change LPI_INDICATION to LPI_REQUEST

**Proposed Response**

PROPOSED ACCEPT.
Proposed Response

It appears that the response to Comment #359 has not been fully implemented. Implement the changes to Clause 45 as per response to #359.

Suggested Remedy

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_sigtyle 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.

PROPOSED ACCEPT IN PRINCIPLE.

Accept the proposed response except that the subclause number will be 45.2.1.76a.5 (if comments #95 and #79 are accepted).

As per D3.1, there is an option in the PMA to either send IDLE or Local Fault during fast retrain. However it is possible for one link partner to enable IDLE and other link partner may enable to send Local Fault condition. So the link partners may have different settings at either end of the link and this may cause inconsistent behaviour at the link/system level.

Suggested Remedy

One possibility is to provide a mechanism to advertise the fast retrain signal type along with fast retrain ability, so both link partner can enable this feature consistently. Alternatively do not provide an optional feature, just specify one mechanism to signal fast retrain active condition. This will ensure consistent behavior at the either end of the link.

PROPOSED REJECT.

The host system decides whether it wishes to receive local fault or idles during a fast retrain. It is not clear why the system behaviour needs to be symmetric.

There are several other comments addressing XGMII signaling during fast retrain and this response may be be changed by those responses.

(see . . . . . )