Diab, Wael Broadcom Corporation

Comment Type: TR  Comment Status: A

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 normative text for each PHY. Note that in some cases this does exist like in C40 so its worthwhile to make it consistent throughout.

Suggested Remedy:
- Remove the PICs entry for AN from C78
- Adjust the text around the PICs to only reflect DLL 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)

Response  Response Status: C

ACCEPT IN PRINCIPLE.

Remove the PICs entry for AN from C78
- Adjust the text around the PICs to only reflect DLL requirements
- Remove the corresponding shall from 78.3

Autoneg has already been mandated as required in the EEE PHY clauses.

In Clause 24:
In Figure 24-1 change the Note that currently says: AUTONEG is optional to: AUTONEG is mandatory for EEE capability and optional otherwise.

Add a new subclause after 24.1.4.3
24.1.4.4 Auto-Negotiation
Auto-Negotiation shall be implemented for EEE capability. See Clause 28.

Change the NWY row in 24.8.2.3 by adding adding 24.1.4.4 in the Subclause column and "LPC: M" to the Status column

Change "24.8.2.4" to "24.8.2.3"

In Clause 55:
Add item MF6a under feature EEE advertisement subclause 55.6.1.2 status EEE:M value comment as defined in table 55-11

Add item MF6b under feature fast retrain ability advertisement subclause 55.6.1.2 status FR:M value comment as defined in table 55-11

In Clause 70:
Page 233, line 27, change the reference from Clause 45 to 45.2.7.13

Page 238, line 34, change "will be advertised" to "is advertised"

In Clause 72:
Page 244, lines 15 and 16, change the reference from Clause 73 to 45.2.7.13

In Clause 73, add a change instruction to 73.11.4.9:
Add item AN13:
AN13 | AN message code 10 | Subclause 73A.4 | Value entry is EEE technology message code [status M]

In Clause 73.11.4.9, add a change instruction to 73.11.4.9:
Add item AN13:
AN13 | AN message code 10 | Subclause 73A.4 | Value entry is EEE technology message code [status M]

Anslow, Peter Ciena Corporation

Comment Type: E  Comment Status: A

*** Field CommentType updated on 7/13/2010 from ER to E ***

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.xx

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.

Response  Response Status: C

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

In Clause 70:
Page 233, line 27, change the reference from Clause 45 to 45.2.7.13

In Clause 72:
Page 238, line 34, change "will be advertised" to "is advertised"

In Clause 72:
Page 244, lines 15 and 16, change the reference from Clause 73 to 45.2.7.13

In Clause 73, add a change instruction to 73.11.4.9:
Add item AN13:
AN13 | AN message code 10 | Subclause 73A.4 | Value entry is EEE technology message code [status M]
Responses to comments

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

D3.1 of 802.3az

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<td><strong>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.</strong></td>
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<td><strong>On page 259 line 44 diff document (or page 237 line 37 in clean document) we have &quot;PCS requirements for Auto-Negotiation (AN) service interface&quot; 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 clean version is ok.</strong></td>
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<td>Either make changes to 71.3 &quot;PCS requirements for Auto-Negotiation (AN) service interface&quot; or remove this text.</td>
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IEEE P802.3az D3.1 Energy Efficient Ethernet comments

Response #9

Cl 72 SC 72.6.4 P266 L 12
Anslow, Peter Ciena Corporation

Comment Type  E  Comment Status  A
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:"

Response  Response Status  C
ACCEPT.

Response #10

Cl 74 SC 74 P276 L 22
Anslow, Peter Ciena Corporation

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

Suggested Remedy
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"

Response  Response Status  C
ACCEPT.

Response #11

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

Comment Type  E  Comment Status  A
The editing instruction says "Change Figure 74-2 as shown below using the title from 802.3ba D2.3:4", but 802.3ba is now approved. Also, 802.3ba changed the title of Figure 74-2 to "Functional block diagram for 10GBASE-R PHYs"

Suggested Remedy
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"

Response  Response Status  C
ACCEPT.

Response #12

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

Comment Type  E  Comment Status  A
The editing instruction is "Change 74.10.2.3 as shown below:" but only one of the three functions is shown.

Suggested Remedy
Show the two unmodified functions in normal font.

Response  Response Status  C
ACCEPT IN PRINCIPLE.

Several versions back the decision was to show only the changes.

But the editor will change the editing instruction to "Change the third paragraph of 74.10.2.3 as shown below:"
IEEE P802.3az D3.1 Energy Efficient Ethernet comments  

Cl 74 SC 74.11 P279 L 1 # 15  
Anslow, Peter Ciena Corporation  
Comment Type E Comment Status A  
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"  
Response Response Status C  
ACCEPT.  

Cl 46 SC 46.3.2.4 P142 L 52 # 16  
Turner, Edward J Gnodal Ltd  
Comment Type T Comment Status A  
There's no PICS entry for the shall in "The PHY shall restart RX_CLK so that at least one positive transition occurs before it deasserts LPI."
SuggestedRemedy  
Add PICS entry.  
Response Response Status C  
ACCEPT IN PRINCIPLE.  
The "shall" at this point refers to the PHY that is attached to this sublayer, therefore the PICS entry would be inappropriate. This is similar to numerous other examples in RS clauses.  
No PICS entry will be made for this but the spelling of "deasserts" will be corrected.  

Cl 55 SC 55.4.5.1 P218 L 34 # 17  
Turner, Edward J Gnodal Ltd  
Comment Type E Comment Status A  
Use '2 superscript 9' rather than '2^9'. Also apply to '2^5' and '2^6' and '2^4' on line 38.  
SuggestedRemedy  
As per comment.  
Response Response Status C  
ACCEPT.  

Cl 70 SC 70.2.1 P231 L 48 # 18  
Turner, Edward J Gnodal Ltd  
Comment Type E Comment Status A  
Too much deletion has led to '.may go into w power mode ..'  
SuggestedRemedy  
Change to '.may go into low power mode ..'  
Response Response Status C  
ACCEPT.  

Cl 72 SC 72.7.1.4 P244 L 31 # 19  
Bennett, Michael Lawrence Berkeley Na  
Comment Type T Comment Status A  
Submitted on behalf of Iain Robertson  
This sub-clause discusses output amplitude requirements during LPI but makes no mention of common mode requirements. It should stipulate the amount by which the common mode can deviate from the non-LPI value.  
SuggestedRemedy  
Add a sentence, plus a spec in table 72-6. Suggested wording:  
"During LPI, the common mode shall be maintained to within +/- TBDmV of the pre-LPI value"  
Suggested spec in table 7-6:  
"Common mode voltage deviation (max) during LPI: TBDmV"  
Need discussion on the TBD value. For reference, PCI-E specs this as 100mV.  
Response Response Status C  
ACCEPT IN PRINCIPLE.  
Add a sentence, plus a spec in table 72-6:  
"During LPI, the common mode shall be maintained to within +/- 150mV of the pre-LPI value"  
Add entry in table 7-6:  
"Common mode voltage deviation (max) during LPI: 150mV"  
Make the same changes in 70 and 71.
IEEE P802.3az D3.1 Energy Efficient Ethernet comments

Response #20
Healey, Adam
LSI Corporation

Comment Type TR
Comment Status A
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.

SuggestedRemedy
Change the transition condition from SUDI to UCT.

Response Response Status C
ACCEPT.

Response #21
Healey, Adam
LSI Corporation

Comment Type TR
Comment Status A
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.

SuggestedRemedy
Change the definition of one_us_timer to: "This timer is used to count approximately 1 microsecond intervals. The timer terminal count is set to T1U. When the timer reaches terminal count it will set the one_us_timer_done = TRUE."

Response Response Status C
ACCEPT.

Response #22
Healey, Adam
LSI Corporation

Comment Type T
Comment Status A
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.

SuggestedRemedy
Change the first sentence to: "When rx_lpi_active is TRUE and rx_mode is set to DATA, start a hold-off timer whose duration is greater than or equal to 13.7 microseconds and enable...". Also change item b (page 278, line 7) to: "Expiration of the hold-off timer."

Response Response Status C
ACCEPT.
Response to comments
IEEE P802.3az D3.1 Energy Efficient Ethernet comments
D3.1 of 802.3az

Cl 78 SC 78.3 P258 L50 # 25
Brown, Matthew
Applied Micro (AMCC)

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

Suggested Remedy
Implement Draft 3.0 Comment #174.

Response Response Status C
 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 L15 # 26
Brown, Matthew
Applied Micro (AMCC)

Comment Type ER
Comment Status A
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.

Response Response Status C
ACCEPT IN PRINCIPLE.

Add a note in Figure 55-4 saying:
NOTE: PMA_PCIE_DATAMODE.indication is
required only for the EEE or fast retrain capabilities PMA_ALERTDET.indication and
PCS_RX_LPI_STATUS.request are only required for the EEE capability
PMA_FR_ACTIVE.indication is only required for the fast retrain capability

Cl 55 SC 55.2.2.3.1 P191 L51 # 27
Brown, Matthew
Applied Micro (AMCC)

Comment Type E
Comment Status A
New sentence is not indicates.

Suggested Remedy
Add underline to sentence "For EEE, ... during LPI."

Response Response Status C
ACCEPT.

Cl 55 SC 55.2.2.3.1 P192 L5 # 28
Brown, Matthew
Applied Micro (AMCC)

Comment Type E
Comment Status R
Clean up list.

Suggested Remedy
Create list starting each item i and ii on new line.
Alternately, but less favored, change "training ii) " "training and ii)".

Response Response Status C
REJECT.
It is not clear that the remedy is an improvement.
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.

Proposed Response

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

Suggested Remedy

REJECT. This comment was WITHDRAWN by the commenter.

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.

Comment Type  TR  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.”

Response  Response Status  C

ACCEPT.

Comment Type  E  Comment Status  A

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.”

Response  Response Status  C

REJECT.

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

Comment Type  E  Comment Status  A

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.

Response  Response Status  C

ACCEPT IN PRINCIPLE.

Add heading 55.3.2 after 55.3 and move diagram to occur after 55.3.2 however actual figure location in Frame may change depending on how the pages get laid out.
IEEE P802.3az D3.1 Energy Efficient Ethernet comments

Response #34

Cl 55 SC 55.3.2 P 194 L 26 # 34
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

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.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a note in Figure 55-4 saying:

NOTE- pcs_data_mode is required only for the EEE or fast retrain capabilities alert_detect and rx_lpi_active are only required for the EEE capability fr_active is only required for the fast retrain capability

Comment Status A

Response Status C

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

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

Responses to comments

CI  55  SC  55.3.4a.1  P  199  L  27  #  39
Brown, Matthew  Applied Micro (AMCC)

Comment Type  E  Comment Status  R
Make sure that active is associated with pair, not pair and refresh_active.

SuggestedRemedy
Change "active pair" to "active-pair".
Response  Response Status  C
REJECT.
It's not clear what problem this is fixing.

CI  55  SC  55.3.4a.3  P  199  L  36  #  40
Brown, Matthew  Applied Micro (AMCC)

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

SuggestedRemedy
Change "used for initial training" to "used for normal training". Alternately, "used for initial training or normal retraining".
Response  Response Status  C
ACCEPT IN PRINCIPLE.
Comment is intended to be on line 36 of page 200.
change: "used for initial training"
to: "used for normal training"

CI  55  SC  55.3.5.2.2  P  201  L  29  #  42
Brown, Matthew  Applied Micro (AMCC)

Comment Type  E  Comment Status  A
LPI is indicated by LPI client and RS not MAC

SuggestedRemedy
Change "MAC indicates" to "LPI client indicates".
Response  Response Status  C
ACCEPT.

CI  55  SC  55.3.5.2.2  P  201  L  44  #  43
Brown, Matthew  Applied Micro (AMCC)

Comment Type  E  Comment Status  A
Convention in this Clause is to use receiver not RX.

SuggestedRemedy
Replace "RX" with "receiver".
Response  Response Status  C
ACCEPT.

CI  55  SC  55.3.5.2.2  P  201  L  49  #  44
Brown, Matthew  Applied Micro (AMCC)

Comment Type  T  Comment Status  A
Grammar.

SuggestedRemedy
Replace comma at end of sentence with period.
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
Brown, Matthew  Applied Micro (AMCC)

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

Introduction of pcs_data_mode variable in state diagrams permits us to reduce alert_detect to simply indicated detection of the alert signal.

**SuggestedRemedy**
Reduce definition to include only detection of alert signal.

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

ACCEPT IN PRINCIPLE.

Change definition of alert_detect:

alert_detect

Indicates that an alert signal from the link partner has been received at the MDI as indicated by PMA_ALERTDETECT.indication(alert_detect).

---

Brown, Matthew  Applied Micro (AMCC)

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

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.

**SuggestedRemedy**
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 "alert Detect = FALSE" in states RX_INIT and RX_W. Define alert Detect as being set to TRUE by ALERT Detect process.

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

REJECT.

This comment was WITHDRAWN by the commenter.

---

See #29. The description is clear.

---

Brown, Matthew  Applied Micro (AMCC)

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

Consistent terminology.

**SuggestedRemedy**
Change "that have the fast retrain" to "that support the fast retrain".

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

ACCEPT.
Responses to comments

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>SC</th>
<th>Typ</th>
<th>P</th>
<th>L</th>
<th>Type</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>55</td>
<td>ER</td>
<td>202</td>
<td>32</td>
<td></td>
<td>Given that lpi_fr_sigtype is defined in the previous line to exist only for PHYs that support FR, it is unnecessary and somewhat confusing to qualify the IDLE state with support of fast retrain.</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td>Change first sentence to: &quot;This variable is set to IDLE if 1.147.1 is set to 1.&quot;</td>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
</tr>
<tr>
<td>51</td>
<td>55</td>
<td>E</td>
<td>203</td>
<td>31</td>
<td></td>
<td>Grammar.</td>
<td>Change &quot;to the eight types&quot; to &quot;one of the eight types&quot;</td>
<td>As stated by the text, a vector may simultaneously belong to C and I, so the suggested remedy is not accurate.</td>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
</tr>
<tr>
<td>52</td>
<td>55</td>
<td>E</td>
<td>203</td>
<td>36</td>
<td></td>
<td>Edit instruction.</td>
<td>Add underline to &quot;and /LI/.&quot;</td>
<td>It is not clear why this is necessary, and the suggested remedy appears to be incorrect.</td>
<td>Brown, Matthew</td>
<td>Applied Micro (AMCC)</td>
</tr>
</tbody>
</table>
Comment Type: E
Comment Status: A
Figure 55-15. Transition from TX_E to TX_L must be indicated as EEE only.

Suggested Remedy:
Add dashed rectangle around transition from TX_E to TX_L.

Response: Response Status: C
ACCEPT.

---

Comment Type: TR
Comment Status: R
Figure 55-16. Last term in transition criteria on open transition to RX_INIT is incorrect. When not in PCS_Data mode send LF either if not in fast re-train or if in fast re-train only if lpi_fr_sigtype is not IDLE.

Suggested Remedy:
Change last term to: "((!(lpi_fr_sigtype==IDLE) * lpi_fr_active) + !lpi_fr_active) * !pcs_data_mode"

Response: Response Status: C
ACCEPT IN PRINCIPLE.

In addition to suggested remedy:
Change lpi_fr_sigtype to fr_sigtype
change lpi_fr_active to fr_active
change lpi_fr_en to fr_enable

Also make the same name changes in Clause 45.

---

Comment Type: E
Comment Status: A
Grammar.

Suggested Remedy:
Change "indicates that current" to "indicates the current".

Response: Response Status: C
ACCEPT.
Responses to comments

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

Cl 55 SC 55.4.1 P213 L 8 # 61
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

Figure 55-17. fr_active parameter is not required for EEE nor for normal operation.

SuggestedRemedy

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 are relevant to FR.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a note in Figure 55-17 saying:
NOTE: pcs_data_mode is required only for the EEE or fast retrain capabilities alert_detect and rx_lpi_active are only required for the EEE capability fr_active is only required for the fast retrain capability.

Cl 55 SC 55.4.2.2 P213 L 52 # 62
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status A

lower power operation is not commonly used term

SuggestedRemedy

Change "normal and lower power operation" to "normal and LPI operation".

Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.2.1 P214 L 20 # 63
Brown, Matthew Applied Micro (AMCC)

Comment Type E Comment Status A

LDPC frames not being sent

SuggestedRemedy

Change "LPDC frames" to "LDPC frame periods".

Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.2.1 P214 L 25 # 64
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

Use normal form for primitive/parameter.

SuggestedRemedy

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

Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.2.2 P215 L 2 # 65
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status A

Use normal form for primitive/parameter.

SuggestedRemedy

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

Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.2.1 P215 L 22 # 66
Brown, Matthew Applied Micro (AMCC)

Comment Type ER Comment Status R

The alert signal is not properly defined here. Either fix or refer to official definition.

SuggestedRemedy

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

Response Response Status C

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

Response

# 67
Cl 55 SC 55.4.2.2.2 P215 L37
Brown, Matthew
Applied Micro (AMCC)

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

SuggestedRemedy
Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

Response Response Status C
ACCEPT.

# 68
Cl 55 SC 55.4.2.2.2 P215 L42
Brown, Matthew
Applied Micro (AMCC)

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

SuggestedRemedy
Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

Response Response Status C
ACCEPT.

# 69
Cl 55 SC 55.4.2.5.14 P216 L29
Brown, Matthew
Applied Micro (AMCC)

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

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

Response Response Status C
REJECT.

The fast retrain requirement is in the next subclause and adding a cross reference is not required.

# 70
Cl 55 SC 55.4.2.5.14 P216 L39
Brown, Matthew
Applied Micro (AMCC)

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

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

Response Response Status C
REJECT.

The fast retrain requirement is in the next subclause and adding a cross reference is not required.

# 71
Cl 55 SC 55.4.2.5.14 P216 L44
Brown, Matthew
Applied Micro (AMCC)

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

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

Response Response Status C
ACCEPT.

# 72
Cl 55 SC 55.4.2.5.15 P216 L53
Brown, Matthew
Applied Micro (AMCC)

Comment Type E Comment Status A
Grammar.

SuggestedRemedy
Change "THP turn" to "THP turns".

Response Response Status C
ACCEPT.
<table>
<thead>
<tr>
<th>Comment ID</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>#73</td>
<td>ER</td>
<td>A</td>
<td>Reference to incorrect figure.</td>
<td>ACCEPT.</td>
<td></td>
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<tr>
<td>#74</td>
<td>TR</td>
<td>A</td>
<td>Relevant to initial or subsequent normal retrain.</td>
<td>ACCEPT.</td>
<td></td>
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<tr>
<td>#75</td>
<td>E</td>
<td>A</td>
<td>lower power mode is not commonly used term</td>
<td>ACCEPT IN PRINCIPLE.</td>
<td></td>
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<tr>
<td>#76</td>
<td>E</td>
<td>A</td>
<td>What does it mean to disable this bit?</td>
<td>ACCEPT.</td>
<td></td>
</tr>
</tbody>
</table>

**Brown, Matthew Applied Micro (AMCC)**

**Comment ID # 73**
Reference to incorrect figure.  
**Suggested Remedy**  
Reference to incorrect figure.  
**Response**  
ACCEPT.  

**Comment ID # 74**
Relevant to initial or subsequent normal retrain.  
**Suggested Remedy**  
Relevant to initial or subsequent normal retrain.  
**Response**  
ACCEPT.  

**Comment ID # 75**
lower power mode is not commonly used term  
**Suggested Remedy**  
lower power receive mode to "LPI receiver mode".  
**Response**  
ACCEPT IN PRINCIPLE.  

**Comment ID # 76**
What does it mean to disable this bit?  
**Suggested Remedy**  
Change "disabling this bit" to "setting this bit to 0".  
**Response**  
ACCEPT.
IEEE P802.3az D3.1 Energy Efficient Ethernet comments

Responses to comments

Cl 45  SC 45.2.1.76a.3  P120  L 36  # 79
Brown, Matthew  Applied Micro (AMCC)

Comment Type  TR  Comment Status  A
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.

SuggestedRemedy
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".

Response

ACCEPT IN PRINCIPLE.

Comment ID # 79

Cl 55  SC 55.4.6.1  P220  L 33  # 81
Brown, Matthew  Applied Micro (AMCC)

Comment Type  TR  Comment Status  A
Figure 55-24. fr_maxwait_timer_done not defined

SuggestedRemedy
Define fr_max_wait_timer in 55.4.5.2

Response

ACCEPT IN PRINCIPAL.

Comment ID # 81

Cl 55  SC 55.4.6.1  P219  L 18  # 80
Brown, Matthew  Applied Micro (AMCC)

Comment Type  ER  Comment Status  A
Common terminology.

SuggestedRemedy
Change "low power receive mode" to "LPI mode".

Response

ACCEPT.

Comment ID # 80

Cl 55  SC 55.4.6.1  P220  L 33  # 82
Brown, Matthew  Applied Micro (AMCC)

Comment Type  TR  Comment Status  A

SuggestedRemedy
Define fr_max_wait_timer in 55.4.5.2

Response

ACCEPT IN PRINCIPAL.

See response to comment #81

Comment ID # 82

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Response # 83

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

Comment Type TR Comment Status A fastretrain

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.

SuggestedRemedy

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.

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment #96

Response # 84

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

Comment Type T Comment Status A

CARRIER status has values CARRIER_ON and CARRIER_OFF.

SuggestedRemedy

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

Response Response Status C

ACCEPT.

Response # 85

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

Comment Type T Comment Status A

CARRIER status has values CARRIER_ON and CARRIER_OFF.

SuggestedRemedy

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

Response Response Status C

ACCEPT.

Response # 86

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

Comment Type T Comment Status A

CARRIER status has values CARRIER_ON and CARRIER_OFF.

SuggestedRemedy

Change "CARRIER_STATUS = ON" to "CARRIER_STATUS= CARRIER_ON".

Response Response Status C

ACCEPT.

Response # 87

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

Comment Type T Comment Status A

TX_REFRESH state no longer exists.

SuggestedRemedy

remove the tx_tr_timer

Response Response Status C

ACCEPT.

Response # 88

Cl 49 SC 49 P 178 L 1 # 88
Horner, Rita Avago Technologies

Comment Type T Comment Status A

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

SuggestedRemedy

Remove the tx_ts_timer done from the state transition TX_SLEEP to TX_ACTIVE

Response Response Status C

ACCEPT.
<table>
<thead>
<tr>
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<th>Suggested Remedy</th>
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<tr>
<td>49</td>
<td>49</td>
<td>178</td>
<td>L</td>
<td>89</td>
<td>89</td>
<td>T</td>
<td>A</td>
<td>The exit from TX_QUIET should be tx_timer_done or tx_raw != LI</td>
<td>Remove the requirement of !tq_timer_done on the exit from TX_QUIET</td>
<td>ACCEPT IN PRINCIPLE. As per the comment, change the transition to: tx_tq_timer_done + T_TYPE(tx_raw) != LI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>L</th>
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<th>Suggested Remedy</th>
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<td>49</td>
<td>49</td>
<td>180</td>
<td>L</td>
<td>90</td>
<td>90</td>
<td>T</td>
<td>A</td>
<td>Correct the definition for rx_fault</td>
<td>Remove rx_fault should be changed to “receive fault” as it is referred to in the MDIO definition and in 49.2.14.1. PCS_status</td>
<td>ACCEPT.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Response</th>
<th>Response Status</th>
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<td>46.3a</td>
<td>144</td>
<td>L</td>
<td>91</td>
<td>91</td>
<td>E</td>
<td>A</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>
<td>ACCEPT.</td>
<td></td>
</tr>
</tbody>
</table>
Comment Type: T  Comment Status: A

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 &#8727; SUDI("member of set of" [D]*[D21.5]*[D2.2])) to xmit ≠ DATA &#8727; SUDI("member of set of" [D]*[D21.5]*[D2.2])) to xmit ≠ DATA &#8727; SUDI("member of set of" [D]*[D21.5]*[D2.2])) to xmit ≠ DATA from the transition from LPI_K to IDLE_D (via "C").

Response

ACCEPT IN PRINCIPLE.

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]))

(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").
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.

**Change clauses 45, 46, 48 and 55 as per 8023az-45_Proposed_2.pdf 8023az-46_Proposed_2.pdf 8023az-48_Proposed.pdf 8023az-55_Proposed.pdf**

The above files are posted on the task force website and were reviewed at the task force meeting.

---

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 highavailability/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.

**Change clauses 45, 46, 48 and 55 as per 8023az-45_Proposed_2.pdf 8023az-46_Proposed_2.pdf 8023az-48_Proposed.pdf 8023az-55_Proposed.pdf**

The above files are posted on the task force website and were reviewed at the task force meeting.
### Responses to comments

<table>
<thead>
<tr>
<th>Comment ID</th>
<th>SC</th>
<th>P</th>
<th>L</th>
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<th>Comment Status</th>
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<th>Suggested Remedy</th>
<th>Response Status</th>
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<tbody>
<tr>
<td>#98</td>
<td>46</td>
<td>140</td>
<td>41</td>
<td>TR</td>
<td>A</td>
<td>C</td>
<td>Change LPI_INDICATION to LPI_REQUEST</td>
<td>ACCEPT.</td>
<td></td>
</tr>
<tr>
<td>#99</td>
<td>45</td>
<td>120</td>
<td>20</td>
<td>TR</td>
<td>A</td>
<td>C</td>
<td>Accept in principle.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#100</td>
<td>55</td>
<td>187</td>
<td></td>
<td>TR</td>
<td>R</td>
<td>C</td>
<td>fastretrain</td>
<td>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.</td>
<td>ACCEPT.</td>
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<tr>
<td>#101</td>
<td>78</td>
<td>256</td>
<td>8</td>
<td>TR</td>
<td>R</td>
<td>C</td>
<td>fastretrain</td>
<td>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.</td>
<td>REJECT.</td>
</tr>
</tbody>
</table>

**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  

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**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  

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**IEEE P802.3az D3.1 Energy Efficient Ethernet comments**  
**D3.1 of 802.3az**
IEEE P802.3az D3.1 Energy Efficient Ethernet comments

Responses to comments

Cl 78 SC 78.1.4 P257 L 26 # 103
Brown, Matthew

Comment Type: E Comment Status: A

Table 78-1. All relevant clauses should be listed here. In particular, for 100BASE-TX clause 25 should be listed.

Suggested Remedy

For 100BASE-TX list 24 and 25. For 1000BASE-KX list 70, 35. For 10GBASE-KX4 list 71, 48. For 10GBASE-KR list 72, 51, 49.

Response: Response Status: C
ACCEPT.

Cl 36 SC 36.2.5.1.7 P 81 L 28 # 104
Sela, Oren

Comment Type: T Comment Status: A

The tx_tq_timer definition is incorrect and doesn’t take into account the change done in the 3.1 draft.

Current text: This timer is started when the PCS receiver enters the RX_SLEEP state.

Suggested Remedy

Should be: This timer is started when the PCS receiver enters the START_TQ_TIMER state.

Response: Response Status: C
ACCEPT.

Cl 49 SC 49.2.13.3.1 P 179 L # 105
Sela, Oren

Comment Type: T Comment Status: R

in LPI Receiver state diagram 49-17: Arch from RX_SLEEP to RXQUIET is 

lrx_tq_timer_done * lrx_block_lock* lrx_block_lock is not a strong enough condition for
detecting idleness. Should be: lrx_tq_timer_done * (lrx_block_lock + hi_ber).

Suggested Remedy

Per comment

Response: Response Status: C
REJECT.

No consensus to make the change.

Cl 30 SC 30 P63 L # 106
Barrass, Hugh

Comment Type: T Comment Status: A

LD Fast retrain count and LP fast retrain count need to be added as Clause 30 objects

Suggested Remedy

Add to Table 30-1b

aLDFastRetrainCount
alaLPFastRetrainCount

(both ATTRIBUTE, GET).

Add 30.3.1.1.42

aLDFastRetrainCount

ATTRIBUTE

APPROPRIATE SYNTAX:

Generalized nonresetable counter. This counter has a maximum increment rate of 1 000 counts per second

BEHAVIOUR DEFINED AS:

A count of the number of 10GBASE-T fast retrains initiated by the local device. The indication reflects the state of the PHY event counter (see 45.2.1.76a.2 and 55.4.5.1.).

Add 30.3.1.1.43

aLPFastRetrainCount

ATTRIBUTE

APPROPRIATE SYNTAX:

Generalized nonresetable counter. This counter has a maximum increment rate of 1000 counts per second

BEHAVIOUR DEFINED AS:

A count of the number of 10GBASE-T fast retrains initiated by the link partner. The indication reflects the state of the PHY event counter (see 45.2.1.76a.2 and 55.4.5.1.).

Response: Response Status: C
ACCEPT.

Cl 74 SC 74 P248 L 52 # 107
Slavik, Jeff

Comment Type: T Comment Status: R

Incorrect usage of state

Suggested Remedy

Change LPI mode is active to LPI mode is asserted

Response: Response Status: C
REJECT.
Responses to comments

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

Cl 74 SC 74 P249 L 51 # 108

Slavik, Jeff

Comment Type E Comment Status A
Restating definition of EEE for 2nd time in the clause

Suggested Remedy
Change "Energy Efficient Ethernet (EEE) capability" to "EEE capability"

Response
Response Status C
ACCEPT.

Cl 74 SC 74 P249 L 7 # 109

Slavik, Jeff

Comment Type E Comment Status A
It's rapid block lock not fast block lock

Suggested Remedy
Change fast to rapid (two occurrences, second occurrence on line 9)

Response
Response Status C
ACCEPT.