<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Note:</th>
<th>Proposed Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>32.5.3.4</td>
<td>E</td>
<td>A</td>
<td>Comment is against Clause 32 but I cannot select this. I cannot find a subclause 32.5.3.4 in 100BASE-T2 but by the looks of the change it should be 32.5.4.4 that is being renumbered here.</td>
<td>Suggest text ‘Renumber 32.5.3.4 as 32.5.4.3’ should read ‘Renumber 32.5.4.4 as 32.5.4.3’</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>00</td>
<td>32.6.1.2.1</td>
<td>E</td>
<td>A</td>
<td>Note: Comment is against Clause 32 but I cannot select this.</td>
<td>Typo.</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>00</td>
<td>32.6.1.2.2</td>
<td>E</td>
<td>A</td>
<td>Note: Comment is against Clause 32 but I cannot select this. I cannot find a reference to 100BASE-T2 Control Register in subclause 32.6.1.2.2 but I can find a reference in 32.6.1.3.2 and yet there is not change called out for this in 802.3ab. Could this be what this change should be referring to. Also we have the same spurious 7 as we had in 32.6.1.2.1 above.</td>
<td>Suggest text ‘32.6.1.2.1 7’ should read ‘32.6.1.2.1’</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>00</td>
<td>34.3</td>
<td>E</td>
<td>A</td>
<td>Note: Comment is against Clause 34 but I cannot select this. Please add the Note to the bottom of this table explaining the meaning of ‘I’. This note should be formatted as in the published 802.3-1998 Table 34-1.</td>
<td>Please add the following note to Table 34-2 ‘NOTEI denotes that there is information in the International Standard regarding operation on this media.’</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>00</td>
<td>34.4</td>
<td>E</td>
<td>A</td>
<td>Note: I do not believe that 1000BASE-T is PDAM 26.</td>
<td>Please correct this reference.</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>00</td>
<td>42.2</td>
<td>E</td>
<td>A</td>
<td>Note: Comment is against Clause 34 but I cannot select this.</td>
<td>Typo.</td>
<td>ACCEPT.</td>
</tr>
</tbody>
</table>
Comment Type: E  Comment Status: A

Suggested Remedy: pattern

Proposed Response: ACCEPT.

---

Comment Type: E  Comment Status: A

Suggested Remedy: control mode is incorrectly defined. Currently defined only for the case when carrier extend or carrier extend error is indicated.

Proposed Response: ACCEPT.

---

Comment Type: T  Comment Status: A

Suggested Remedy: This definition seems to be out of date as reference to the GMII has been removed or is missing. Please align with definition for PHY found in 802.3-1998.

Proposed Response: ACCEPT.
This definition seems to be out of date and therefore incorrect as it states that only the 1000BASE-T4 PMA performs clock recovery. I believe both the 100BASE-T2 and 1000BASE-T PMA’s also perform clock recovery (See figure 40-3). Suggest the text be changed to match that of 802.3-1998 as this is more generic.

Suggested Remedy
Suggest the text ‘... (in the case of 100BASE-T4) ...’ should read ‘...(depending on the PHY) ...’.

Proposed Response Response Status C
ACCEPT.

Is it correct that the Technology Ability Field can indicate 100BASE-T2 and 1000BASE-T ability, it does not look like it can according to the definition of this field found in Table 28B-1 of 802.3.

Suggested Remedy
Remove mention of both 100BASE-T2 and 1000BASE-T from this definition if they are not carried in the Technology Ability Field.

Proposed Response Response Status C
ACCEPT.

Within the published 802.3-1998 the encoding is already called 4D-PAM5 (see 30.3.2.1.3 aPhyTypeList for example). If it is now going to be called 8B/1Q4 we need to do a search and replace for 4D-PAM5 throughout the published document and add these changes to the change pages in 802.3ab.

Suggested Remedy
Perform a global search and replace for 4D-PAMS throughout the published document (802.3-1998) and add these changes to the change pages in 802.3ab.

Places where 4D-PAMS appears include:-
30.3.2.1.2 aPhyType
30.3.2.1.3 aPhyTypeList
30B.2 ASN.1 module for CSMA/CD managed objects.

Proposed Response Response Status C
ACCEPT IN PRINCIPLE.

Will use 4D-PAMS universally in Clause 40. Do global change on 8B/1Q4
Since a PHY is defined as the portion of the physical layer between the MDI and the MII or the MDI and the GMII, doesn't this mean that a 100/1000 capable device with only one RJ45 connector has, in strict 802.3 terms, two PHYs and is hence a Multi-port device by this definition. Would it not be better to use the number of MDI's to define a Single/Multi-port device rather than the number of PHYs.

Suggested Remedy
Suggest that PHY be replaced by MDI in both the Single and Multi-port device definitions.

Proposed Response
Response Status C
ACCEPT.
Cl 28B SC 28.2.4.1.7 P28-1 L 26 # 30

David Law 3Com

Comment Type  E  Comment Status  A

Note: Comment is against Clause 28 but I cannot select this.

It is not usual to include the register number in the table title, see existing 28.2.4.1.6 for an example.

SuggestedRemedy

Suggest the text 'Table 28-8Link Partner Next Page Ability register bit definitions (MII Management register 8)' should read 'Table 28-8Link Partner Next Page Ability register bit definitions'.

Proposed Response  Response Status  ACCEPT.

Cl 28D SC 28D.5 P28D-1 L 35 # 38

David Law 3Com

Comment Type  T  Comment Status  A

The change listed here for 28.3.1 does not match the actual change to 28.3.1 specified on page 28-1 of this 802.3ab draft. 1GigT is added, not 1000BASE-T.

SuggestedRemedy

Suggest the text '... for "x" in 28.3.1 (e.g., link_status_1000BASE-T.) 1000BASE-T represents that ...' should read '... for "x" in 28.3.1 (e.g., link_status_1GigT.) 1GigT represents that ...'.

Proposed Response  Response Status  ACCEPT.

Use 1GigT

Cl 30B SC 30B P30B-1 L 5 # 59

David Law 3Com

Comment Type  E  Comment Status  A

Typo.

SuggestedRemedy

Suggest '... oin ...' should read '... in ...'.

Proposed Response  Response Status  ACCEPT.

Robert Campbell Lucent Technologies

Cl 40 SC 40-B P40-126 L 5 # 5

Comment Type  E  Comment Status  A

Add sub-clause for cable clamp validation test as request at the Austin meeting.

SuggestedRemedy

Cable Clamp Validation

In order to ensure the cable clamp described above is operating correctly the following test procedure is provided. Prior to conducting the following test shown in Figure 40B-3 the clamp should be tested to ensure the insertion loss and return loss are as specified above. The cable clamp validation test procedure uses a well-balanced 4-pair Category 5 unshielded test cable or better that meets the specifications of 40.7. The test hardware consists of the following.

1. Resistor Network
   - Network consists of three 50 +/-0.1% ohm resistors; two resistors are connected in series as a differential termination for cable pairs and the other resistor is connected between the two and the ground plane as a common mode termination.
2. Balun
   - Laboratory quality with a 100 ohm differential input, 50 ohm differential output and a 50 ohm common mode output (B&H Electronics 040-0055 or equivalent)
3. Test Cable
   - 4-pair 100 ohm UTP category 5 balanced cable at least 30 meter long.
4. Chokes (2)
   - Fair-Rite ferrite type 0443164251, or equivalent.
5. Ground Plane
   - Copper sheet or equivalent
6. Signal Generator
   - Hewlett Packard 8648B Signal Generator with Mini-Circuit RF Power Amplifier (Model TIA-1000-1R8)
7. Oscilloscope
8. Receiver
   - Tektronix Digital Oscilloscope Model 11402

FIGURE 40B-3: Cable Clamp Validation Test Configuration

With the test cable inserted in the cable clamp, a signal generator with a 50 ohm output impedance is connected to one end of the cable clamp and an oscilloscope with a 50 ohm input impedance is connector to the other end. The signal generator shall be capable of providing a sine wave signal of 1 MHz to 250 MHz. The output of the signal generator is adjusted for a voltage of 2.0 Vrms (5.65 Vpp) at 20 MHz on the oscilloscope. The remainder of the test is conducted without changing the signal generator voltage. The cable pairs not connected to the balun shall be terminated in a resistor network, although...
when possible it is recommended that each cable pair be terminated in a balun. It very important that the cable clamp, balun, receiver, and resistor networks has good contact with the ground plane. The 2 chokes, which are located next to each other, shall be located approximately 2.0 cm from the clamp. The cable between the clamp and the balun should be straight and not in contact with the ground plane.

The differential mode and common mode voltage outputs of the balun shall meet the limits shown in Table 40B-1 over the frequency range 1 to 250 MHz for each cable pair. The differential mode voltage at the output of the hybrid must be increased by 3 dB to take into account the 100-to-50 impedance matching loss of the balun.

TABLE 40B-1 Common and Differential Mode Output Voltages

NOTE 1: Prior to conducting the validation test the cable clamp should be tested without the cable inserted to determine the variation of the signal generator voltage with frequency at the output of the clamp. The signal generator voltage shall be adjusted to 2 rms (5.65 Vpp) at 20 MHz on

Proposed Response Response Status C
ACCEPT IN PRINCIPLE.
Use 1.0 Vrms and 1.414 Vpp(2 instances)
Tune table 40B-1
Modify equipment list to use equivalent generic test equipment specs
Geoff Thompson  Nortel Networks

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

**ORIGINAL COMMENT**
The actual requirements in 40.7 are for 11801 not 568

**RECIRC COMMENT**
Is not quite fixed to my satisfaction. You deleted the reference which was a good idea. But now we are a little on the lean side. I will settle for a forward reference to the cabling spec in 40.11. That is, change: 40-2, Line 42 (start of line) to read: "...cabling as precisely defined in 40.11."

**Suggested Remedy**
see above

**Proposed Response**  
**Response Status**  U

ACCEPT.

---

David Law  3Com

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

The Service Primitive PMA_SCRSTATUS.request(scr_status) seems to be missing from this figure.

**Suggested Remedy**
Add the Service Primitive PMA_SCRSTATUS.request(scr_status) to the Figure.

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

ACCEPT.

---

David Law  3Com

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

Suggest that PMA_LINK.indicate(link_status) should also be shown as a signal going to Auto-Negotiation to the right of the figure.

**Suggested Remedy**
See comment.

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

ACCEPT.

---

Geoff Thompson  Nortel Networks

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

**ORIGINAL COMMENT**
In order to meet the requirements of this "shall" I will be required to test for "compatibility" with every other transceiver on the market. In addition, I don't know what constitutes "compatibility. In the famous words of Lloyd Oliver: "My grandmother is compatible."

The closer that I look at this the less that it seems to say. I'm not sure what the goal is.

**ORIGINAL REMEDY**
Change the wording to something that is meaningful.

**RECIRCULATION COMMENT:**
Well, you did take the shall out but the result is rather nonsensical. I would request that the committee spend some time on editorial repair of the new text.

**Suggested Remedy**
see above

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

ACCEPT.

---

The offending text has been plucked from the draft.
We will break up the last sentence in 40.1.5.1 by putting a period after optional and creating a new last sentence that reads:

The behavior of all systems is identical to that of a system with a full GMII implementation.
Cl 40 SC 40.1.4.3 P 40-7 L 25 #102
Geoff Thompson Nortel Networks

Comment Type T
Comment Status A

ORIGINAL COMMENT
What is this sub-clause trying to say? It does not seem to say anything useful. Can we fix it so it has a higher purpose than just killing tree?

Also the business about the exposed GMII being optional has already been covered in the sub-clause above (for DTEs at least)

ORIGINAL REMEDY
Perhaps we could say here that 1000BASE-T needs no special cabling for DTE to DTE connection

RECIIRCULATION COMMENT:
You blew it away completely. I still think it would have been useful to just put my new text in.

Suggested Remedy
see above

Proposed Response Response Status C
ACCEPT.
We will add the following sentence to the end of 40.1.5.1.

1000BASE-T needs no special cabling for DTE to DTE connection.

Cl 40 SC 40.11.2.1 P 40-134 L 37 #111
Robert Love IBM

Comment Type E
Comment Status R

Change "at all frequencies from 1 MHz to 100MHz." to "at all frequencies (measured in MHz) from 1 MHz to 100 MHz."

Suggested Remedy
see above

Proposed Response Response Status C
REJECT.

Cl 40 SC 40.11.2.3 P 134 L 8 #109
Robert Love IBM

Comment Type E
Comment Status A

Change "The return loss for each duplex segment shall be" to read "The return loss for each duplex segment shall meet or exceed"

Suggested Remedy
See above

Proposed Response Response Status C

Cl 40 SC 40.11.1.1 P 40-135 L 45 #112
Terry Cobb Lucent

Comment Type T
Comment Status A

Start frequency for delay inconsistent with previous standards and TIA.

Suggested Remedy
Change from 1 to 2 Mhz.

Proposed Response Response Status C
ACCEPT.

Cl 40 SC 40.11.4.2 P 40-135 L 51 #113
Terry Cobb Lucent

Comment Type T
Comment Status A

Start frequency for delay skew inconsistent with previous standards and TIA.

Suggested Remedy
Change from 1 to 2 Mhz.

Proposed Response Response Status C
ACCEPT.
Comment Type: E  Comment Status: A
The table entries were calculated from those in Clause 36 (Table 36-9a). It appears that the first entry, TX_EN sampled to MDI Output, was miscalculated. It is 80BT, but it should be (192+136-240)BT = 88BT.

Suggested Remedy
Change 80BT to 88BT. Correspondingly, change page 40-99, line 8 from 80BT to 88BT and page 40-99, line 27 from 128BT to 136BT.

Proposed Response:  Response Status: C
ACCEPT IN PRINCIPLE.

Comment Type: E  Comment Status: A
the word "receiving" appears erroneously above "PCS"

Suggested Remedy
delete

Proposed Response:  Response Status: C
ACCEPT.

Comment Type: E  Comment Status: A
The Service Primitive PMA.TXENSTATUS.request(tx_enable) defined in 40.2.9 appears to be missing from this summary list.

Suggested Remedy
Add the Service Primitive PMA.TXENSTATUS.request(tx_enable) to this summary list.

Proposed Response:  Response Status: C
ACCEPT.
P802.3ab Draft 4.1 Comments

**Comment 1**

**Comment Type**: T

**Comment Status**: A

**Suggested Remedy**

Typo.

**Proposed Response**: ACCEPT.

**Response Status**: C

---

**Comment 2**

**Comment Type**: E

**Comment Status**: A

The Service Primitive PMA_SCRSTATUS.request(scr_status) seems to be missing from this figure.

**Suggested Remedy**

Add the Service Primitive PMA_SCRSTATUS.request(scr_status) to the Figure.

**Proposed Response**: ACCEPT.

**Response Status**: C

---

**Comment 3**

**Comment Type**: T

**Comment Status**: X

Comment 6 of 6 Concerning the Transmit State Machine: (refer to Comment 1 for reasoning.)

This comment makes the necessary changes to the textual definitions of the "Encoding of End-of-Stream Delimiter" Note, these definitions disagreed with D4.1 Fig 40-9 as well.

**Suggested Remedy**

Change sentence on lines 47-48 beginning "If carrier extend..." to:

"If carrier extend error is indicated during ESD, that is, when tx_error(n)*tx_error(n-1)*tx_error(n-2)*(TXD(n)=0x0F)=1, the symbols corresponding to ESD_Ext_Err row shall be used."

delete (!tx_error(n)) from definition of ESD2_Ext_0 on page 40-23 line 2.

change definition of ESD2_ext_1 on line 5, after "when the condition" to:

"(!tx_enable(n-3))*(!tx_enable(n-4))*(!tx_error(n))*tx_error(n-1)*tx_error(n-2)*tx_error(n-3)=1"

change definition of ESD2_ext_2 on line 8, after "when the condition" and before ", in the absence of" to:

"(!tx_enable(n-3))*(!tx_enable(n-4))*tx_error(n)*tx_error(n-1)*tx_error(n-2)*tx_error(n-3)*(TXD(n)=0x0F)=1"

**Proposed Response**: O

**Response Status**: O
Comment Type: E  Comment Status: R

40.3.1.4 and 40.3.1.4.1 refer to (RAn, RBn, RCn, RDn), defined in 40.3.4.1. However, nothing ever sets these variables.

The rest of the standard refers to the 4 channels as BI_DA, BI_DB, BI_DC, BI_DD, with the exception of 40.3.1.3 which clearly maps these channels to the transmit code group (An, Bn, Cn, Dn).

COMMENT WITHDRAWN 11/9/98

Suggested Remedy

Possible solution:

Replace second paragraph of 40.3.1.4 with

"In each symbol period, the PCS receive function receives a code-group of four quinary symbols (RAn, RBn, RCn, RDn) from the PMA via the PMA_UNITDATA.indicate primitive. The symbols RAn, RBn, RCn, RDn are received from wirepairs BI_DA, BI_DB, BI_DC, and BI_DD respectively. The received code-group is processed to generate the signals RXD<7:0>, RX_DV, and RX_ER, which are presented to the GMII. To achieve correct operation, PCS Receive uses the knowledge of the encoding rules that are employed in the idle mode. PCS Receive detects the transmission of a stream of data from the remote station and conveys this information to the PCS Carrier Sense function via the parameter receiving."

Proposed Response: REJECT.

Suggested Remedy

Subclauses 40.3.1.5 and 40.3.1.6 are unnecessary and conflict with proposed changes to the PCS.

Proposed Response: withdrawn

Comment Type: E  Comment Status: A

The parameter loc_rcvr_status is provided by the PMA_RXSTATUS.request (loc_rcvr_status) primitive (see 40.2.7.1), not PMA_RXSTATUS.indicate as suggested in this variable definition.

Suggested Remedy

Suggest the text '... via the PMA_RXSTATUS.indicate primitive ...' should read '... via the PMA_RXSTATUS.request primitive ...'.

Proposed Response: Response Status C

ACCEPT.

See response to comment 91
Concerning the Receive State Diagram:

The check_end function is inadequately specified. This function is used by the PCS Receive State Diagram (Figure 40-10a) to detect the end of a data mode, however, the definition of the function uses a circular reference to Fig 40-10 to specify what the function considers "valid"

"returns a boolean value indicating whether these two consecutive vectors contain symbols corresponding to a valid End-of-Stream Delimiter encoding or not, as specified in 40.3.1.3 and Figure 40-10"

Should clearly specify under what conditions the function returns "TRUE" and what conditions cause the function to return "FALSE"

Suggested Remedy

Functionality seems redundant with existing state machine specification, thus, delete check_end function entirely.

as a result, two different remedies could be performed

1- change transition from RECEIVE state to 1st CSExtend_Err VECTOR (branch D) to simply:

"Rx(n-1) 'E' CSExtend_Err"

where 'E' represents the inclusive set symbol

or

2- changing transition from RECEIVE to PREMATURE END from "ELSE" to "Rx(n-1) 'E' IDLE" where 'E' represents the inclusive set symbol change transition from RECEIVE to 1st CSExtend_Err VECTOR to simply: "ELSE"

I believe option "2" is the better solution, as any errored termination of a single frame would not force the corruption of an entire received frame-burst. Option "1" would result in the loss of the entire burst, as would the current D4.1 state machine (assuming that the "corrupted frame end" caused check_end=FALSE)

Proposed Response

Response Status W

Covered in bulk resolution of PCS changes as per Bobs comments

Comment Type T

Comment Status X
Comment 5 of 6 Concerning the Transmit State Machine: (refer to Comment 1 for reasoning.)

This comment makes the necessary changes to Figure 40-8 PCS Data Transmission Enabling State Diagram

Suggested Remedy
due to changes made to Figure 40-9, Figure 40-8 can be simplified.
Specifically, the atomic expressions in state ENABLE DATA TRANSMISSION can be simplified to:

```
    tx_enable <= TX_EN
    tx_error <= TX_ER
```

Proposed Response

<table>
<thead>
<tr>
<th>Proposed Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
</tr>
</tbody>
</table>
carrier extension error is indicated. If [tx_enable=FALSE * tx_error=TRUE * TXD<7:0>!=0x0F], then return TRUE; else return FALSE. NOTE - send_ext_err is set by this function definition; it is not explicitly set by the state diagrams.

where != is the 'not equal' symbol

```

Proposed Response
Response Status O
```

P802.3ab Draft 4.1 Comments

Bob Noseworthy
UNH InterOperability L

Comment Type T Comment Status X

Comment 3 of 6 Concerning the Transmit State Machine: (refer to Comment 1 for reasoning.)

This comment makes the necessary changes to Figure 40-9 PCS Transmit State Diagram

Suggested Remedy

If possible, refer to accompanying graphic. In case of discrepancies between graphic and text, the graphic should be correct.

All "D4.1 state" references below are in regards to the circulated D4.1 Figure 40-9. If not expressly stated, all PUDR<=xxxx expressions should be changed to tx_symb_vector<=xxxx as a previous comment mentioned.

In place of the D4.1 stateSEND IDLE/CARRIER EXTENSION, substitute a state entitled SEND IDLE whose atomic expressions are "COL <= FALSE tx_symb_vector <= IDLE"

Exit conditions are unchanged.

One Entry condition is added, the labeled transition "A".

For the D4.1 state SSD1 VECTOR, add one Entry condition, the labeled transition "C".

For the D4.1 state SSD1 VECTOR, ERROR, add one entry condition, the labeled transition "D".

Delete D4.1 states: 1st CSExtend_Err VECTOR, 1st CSExtend VECTOR, 2nd CSExtend_Err VECTOR, 2nd CSExtend VECTOR, 1st ESD_Ext_Err VECTOR, ESD1 VECTOR with Extend, 2nd ESD_Ext_Err VECTOR, and ESD2_ext_2 VECTOR

Add states:

state: 1st CS Extension VECTOR
entry: from ERROR CHECK: "send_ext=TRUE + send_ext_err=TRUE"
exit: to 2nd CSReset VECTOR: "PUDR*tx_error=FALSE"
   to 2nd CS Extension VECTOR: "PUDR*tx_error=TRUE"
expressions: "COL<=receiving
   IF (send_ext=TRUE)
   THEN tx_symb_vector<=CSExtend
   ELSE tx_symb_vector<=CSExtend_Err"
state: 2nd CS Extension VECTOR
exit: to ESD1 VECTOR: "PUDR*tx_error=FALSE"
   to ESD1 VECTOR with Extension: "PUDR*tx_error=TRUE"
expressions: "COL<=receiving
   IF (send_ext=TRUE)
   THEN tx_symb_vector<=CSExtend
   ELSE tx_symb_vector<=CSExtend_Err"
state: ESD1 VECTOR with Extension
exit: to ESD2_ext_1 VECTOR: "PUDR\text{tx_error=FALSE}"
to ESD2 VECTOR with Extension: "PUDR\text{tx_error=TRUE}"
expressions: "COL\text{<receiving}"
\text{IF (send_ext=TRUE)}
\text{THEN tx_symb_vector<=ESD1}
\text{ELSE tx_symb_vector<=ESD\_Ext\_Err}"
state: ESD2 VECTOR with Extension
exit: to label "A": "PUDR\text{tx_error=FALSE}"
to label "B": "PUDR\text{tx_error=TRUE}"
expressions: "COL\text{<receiving}"
\text{IF (send_ext=TRUE)}
\text{THEN tx_symb_vector<=ESD2\_ext\_2}
\text{ELSE tx_symb_vector<=ESD\_Ext\_Err}"
state: CARRIER EXTENSION
entry: from label "B"
exit: to label "A": "PUDR\text{tx_enable=FALSE*tx_error=FALSE}"
to label "C": "PUDR\text{tx_enable=TRUE*tx_error=FALSE}"
to label "D": "PUDR\text{tx_enable=TRUE*tx_error=TRUE}"
to CARRIER EXTENSION: "PUDR\text{tx_enable=FALSE*tx_error=TRUE}"

For the D4.1 state ERROR CHECK, the exit condition to 1st CSReset VECTOR should be changed to simply "ELSE"
Also, the arrows between ERROR CHECK and TRANSMIT ERROR should be reversed.

With care, I believe this state machine can still be represented on a single page.

\textbf{Proposed Response}

\textbf{Response Status} \textbf{O}

\begin{tabular}{|l|l|l|l|}
\hline
\textbf{Cl} & \textbf{40} & \textbf{SC} & \textbf{40.3.5} \\
\hline
\textbf{P} & \textbf{40-39} & \textbf{L} & \textbf{2-4} \\
\hline
\end{tabular}

\textbf{Comment Type} \textbf{T} \quad \textbf{Comment Status} \textbf{A}

Concerning the Receive State Machine:

both asynchronous entries to state machine use the \text{loc\_rcvr\_status} \neq \text{ok} term. These should be changed to \text{link\_status} \neq \text{ok} for two reasons. First, to be consistent with other 802.3 receive state machines use of the \text{link\_status} variable. Second, while \text{loc\_rcvr\_status}=\text{ok} should always coincide with \text{link\_status}=\text{ok}, it is not necessarily true that \text{link\_status}=\text{ok} coincides with \text{loc\_rcvr\_status}=\text{ok}. For example, referring to Figure 40-15, \text{loc\_rcvr\_status} could be \text{OK}, and yet, \text{link\_control\_[HCD]=DISABLE} could force \text{link\_status}=\text{FAIL}, which should also prevent frame reception from occurring.

\textbf{Suggested Remedy}

In figure 40-10a,

change async entry to IDLE state to:
"\text{pcs\_reset=ON + (link\_status} \neq \text{ok} * \text{receiving = FALSE)*"
where \neq represents the not-equal symbol.
Additionally, note that \text{BEGIN} is redundant with the definition of \text{pcs\_reset} in 40.3.1.1.

change async entry to LINK FAILED to:
"\text{link\_status} \neq \text{ok} * \text{receiving = TRUE}"

\textbf{Proposed Response}

\textbf{Response Status} \textbf{C}

ACCEPT IN PRINCIPLE.

For both ASYNC transitions add

\text{
(loc\_rcvr\_status} \neq \text{OK + link\_status} = \text{FAIL} ) * \text{receiving = FALSE}
\text{.................} * \text{receiving = TRUE}
Concerning the Receive State Diagram:

The SSD2 VECTOR state does not explicitly pass the second byte of received preamble to the GMII. Perhaps this is to be assumed as the preceding state (SSD1 VECTOR) sets "RXD<7:0> <= 0x'55", however, no precedent for this assumption is known to me, and at least for clarity, this same statement should be copied to SSD2 VECTOR.

**Suggested Remedy**

Add atomic condition to SSD2 VECTOR state of:

"RXD<7:0> <= 0x'55"

**Proposed Response**

REJECT.

Concerning the Receive State Diagram, part b:

Various states do not explicitly pass the carrier extend or carrier extend error byte to the GMII. Perhaps this is to be assumed as the preceding states set "RXD<7:0> <= 0x'0F" or 1F, however, no precedent for this assumption is known to me, and at least for clarity, the statements should be copied to the appropriate states.

**Suggested Remedy**

Add atomic condition to 2nd CSExtend VECTOR state of:

"RXD<7:0> <= 0x'0F"

Add atomic condition to ESD_Ext to IDLE state of:

"RXD<7:0> <= 0x'0F"

Add atomic condition to ESD to CEXT1 state of:

"RXD<7:0> <= 0x'0F"

Add atomic condition to ESD to CEXT2 state of:

"RXD<7:0> <= 0x'0F"

Add atomic condition to ESD to CEXT_Err2 state of:

"RXD<7:0> <= 0x'1F"

**Proposed Response**

REJECT.

Concerning the Transmit State Machine: (refer to Comment 1 for reasoning.)

This comment adds the "transmitting" variable, and the resulting modifications to the PCS Transmit State Diagram and Carrier Sense state diagram. This is done primarily to ensure that CRS <= TRUE is never improperly asserted.

**Suggested Remedy**

Modifications to Carrier Sense State Diagram:

- to simplify the carrier sense diagram, the following variable should be defined and added to 40.3.4.1
  - transmitting
    - A boolean set by the PCS Transmit process to indicate that packet transmission is in progress. Used by the Carrier Sense process.
      - Values: TRUE; The PCS is transmitting a packet.
      - FALSE; The PCS is not transmitting a packet.

As a result, to support this new variable, add:

"transmitting=TRUE" to new PCS transmit state diagram states

SSD1 VECTOR
SSD1 VECTOR, ERROR
and "transmitting=FALSE" to new PCS transmit state diagram states

SEND IDLE
1st CSReset VECTOR
2nd CSReset VECTOR
ESD1 VECTOR
ESD2_ext_0 VECTOR
ESD2_ext_1 VECTOR

Finally, Figure 40-11 can be simplified. Specifically, the transition from CARRIER SENSE OFF to CARRIER SENSE ON can be changed to:

"(repeater_mode = FALSE * transmitting = TRUE) + receiving=TRUE"

also, the transition from CARRIER SENSE ON to CARRIER SENSE OFF can be changed to:

"[repeater_mode = TRUE + transmitting = FALSE] * receiving = FALSE"
Concerning the PCS Carrier Sense State Diagram:

The implementation of the resolution to comment #332 against D4.0, made by Andy Castellano, was made incorrectly in D4.1.

The transition from CARRIER SENSE ON to CARRIER SENSE OFF is errored.

**Suggested Remedy**

Change transition from CARRIER SENSE ON to CARRIER SENSE OFF to:

```
((repeater_mode = TRUE + (tx_enable = FALSE * tx_error = FALSE)) * receiving = FALSE
```

**Proposed Response**

Withdrawn

**Comment Type**

T

**Comment Status**

X

**NOTE:** this comment would be made obsolete by acceptance of my:

"Comment 4 of 6 Concerning the Transmit State Machine"

"transmitters are disabled" occurs twice.

**Suggested Remedy**

delete second sentence in paragraph.

change ending of 1st sentence from "the transmitters are disabled." to "the 1000Base-T transmitters are disabled."

**Proposed Response**

ACCEPT.

**Comment Type**

T

**Comment Status**

A

**Suggested Remedy**

“Sate” should be “State”

**Proposed Response**

ACCEPT.

**Comment Type**

E

**Comment Status**

A

**Suggested Remedy**

"link_control" only used to communicate to Auto-Negotiation.

clarify definition as follows.

**Proposed Response**

ACCEPT.

**Comment Type**

T

**Comment Status**

A

**Suggested Remedy**

in the current definition of "link_status", strike the sentence

"Communicated to Clause 28 (Auto-Negotiation.)"

add definition for

"link_status_[1GigT]

The link_status parameter as communicated by the PMA_LINK.indicate primitive to Clause 28 (Auto-Negotiation) via the Technology-Dependent Interface (see Figure 28-13).

Values: ... "

where ... are the unchanged Values currently defined.

**Proposed Response**

ACCEPT.
Cl 40 SC 40.4.4.1 P 40-46 L 49 # 46
David Law 3Com

Comment Type T  Comment Status A

The loc_rcvr_status parameter can also take the value SCR_OK as defined in 40.4.2.4.

SuggestedRemedy
Add the value SCR_OK to the list of values that the loc_rcvr_status variable can take.

Proposed Response  Response Status C
ACCEPT IN PRINCIPLE.
Should be scr_status = OK not loc_rcvr_status=SCR_OK

Cl 40 SC 40.4.5.1 P 40-48 L 29-31 # 88
Bob Noseworthy UNH InterOperability L

Comment Type T  Comment Status A
Concerning the Phy Control State Diagram:

The transition from SEND IDLE OR DATA back to SLAVE SILENT ends "TX_EN". Should be "TX_EN=FALSE".
referring to page 40-44 line 40:
"If unsatisfactory receiver operation is detected ... Transmission of the current packet is completed and PHY Control enters the SLAVE SILENT state".

SuggestedRemedy
Change transition from SEND IDLE OR DATA to SLAVE SILENT to:
"minwait_timer_done * PMA_RXSTATUS.indicate(NOT_OK) * TX_EN = FALSE"

Proposed Response  Response Status C
ACCEPT.

Cl 40 SC 40.4.5.2 P 40-49 L 25-26 # 82
Bob Noseworthy UNH InterOperability L

Comment Type T  Comment Status A

link_status_1000Base-T is undefined. Assuming the definitions of link_status_ [1GigT] and link_control_ [1GigT] are accepted, then the entire second sentence of this footnote is unnecessary.

SuggestedRemedy
Delete second sentence of footnote.

Proposed Response  Response Status C
ACCEPT.

Cl 40 SC 40.4.5.2 P 40-49 L 3-5 # 79
Bob Noseworthy UNH InterOperability L

Comment Type T  Comment Status A
Concerning the Link Monitor State Diagram:

HCD is not defined or applicable in this clause.
The modifications made to 28.3.1 specify that "1GigT" should be used to identify a 1000Base-T PMA in the auto-negotiation mechanism.

SuggestedRemedy
Change the async entry to LINK DOWN to:
"pma_reset = ON + link_control_ [1GigT]=DISABLE + link_control_ [1GigT]=SCAN_FOR_CARRIER"

Proposed Response  Response Status C
ACCEPT.

Cl 40 SC 40.4.6 P 40-49 L 52 # 64
David Law 3Com

Comment Type E  Comment Status A

The Service Primitive PMA.TXENSTATUS.request(tx_enable) defined in 40.2.9 appears to be missing from this summary list.

SuggestedRemedy
Add the Service Primitive PMA.TXENSTATUS.request(tx_enable) to this summary list.

Proposed Response  Response Status C
ACCEPT.
<table>
<thead>
<tr>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Proposed Response</th>
<th>Comment Status</th>
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<tbody>
<tr>
<td>E</td>
<td>A</td>
<td>The reference to the MII being defined in Clause 28 is incorrect, it is defined in Clause 22.</td>
<td>ACCEPT.</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>Suggest the text &quot;... the Media Independent Interface (Clause 28) ...&quot; should read &quot;... the Media Independent Interface (Clause 22) ...&quot;</td>
<td>ACCEPT.</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>&quot;100BASE-T&quot; should be &quot;1000BASE-T&quot;</td>
<td>ACCEPT.</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>Suggest 'Auto_Negotiation' should read 'Auto-Negotiation'.</td>
<td>ACCEPT.</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>Suggest ‘... (see Figure 40-16.’ should read ‘... (see Figure 40-16).’.</td>
<td>ACCEPT.</td>
<td>A</td>
<td>C</td>
</tr>
</tbody>
</table>

**Comment Type: E**
- **Comment Status: A**
- **Suggested Remedy:**
  - The reference to the MII being defined in Clause 28 is incorrect, it is defined in Clause 22.
  - Suggest the text "... the Media Independent Interface (Clause 28) ..." should read "... the Media Independent Interface (Clause 22) ...".
- **Proposed Response:**
  - ACCEPT.

**Comment Status: A**
- **Response Status: C**

**Comment Type: E**
- **Comment Status: A**
- **Suggested Remedy:**
  - "100BASE-T" should be "1000BASE-T".
- **Proposed Response:**
  - ACCEPT.

**Comment Status: A**
- **Response Status: C**

**Comment Type: E**
- **Comment Status: A**
- **Suggested Remedy:**
  - Suggest 'Auto_Negotiation' should read 'Auto-Negotiation'.
- **Proposed Response:**
  - ACCEPT.

**Comment Status: A**
- **Response Status: C**

**Comment Type: E**
- **Comment Status: A**
- **Suggested Remedy:**
  - Suggest ‘... (see Figure 40-16.’ should read ‘... (see Figure 40-16).’.
- **Proposed Response:**
  - ACCEPT.

**Comment Status: A**
- **Response Status: C**
P802.3ab Draft 4.1 Comments

CI 40 SC 40.6.1.3.3 P40-82 L11,32 # 8
Robert Campbell Lucent Technologies

Comment Type T Comment Status A
Figure 40-28 - Change to agree with validation test configuration.

Suggested Remedy
Figure 40-28
1. Add two chokes to the cable between the cable clamp and the transmitter. The chokes should be 2 cm from the cable clamp.
2. Change '0.2-0.3 meters' to '20 cm'.
Line 11: Change '0.2-0.3 meters' to '20 cm'.

Proposed Response Response Status C
ACCEPT.

CI 40 SC 40.6.1.3.3 P40-82 L11,32 # 7
Robert Campbell Lucent Technologies

Comment Type E Comment Status R
Figure 40-28 - Change to agree with validation test configuration.

Suggested Remedy
Figure 40-28
1. Add two chokes to the cable between the cable clamp and the transmitter. The chokes should be 2 cm from the cable clamp.
2. Change '0.2-0.3 meters' to '20 cm'.
Line 11: Change '0.2-0.3 meters' to '20 cm'.

Proposed Response Response Status C
REJECT.
Duplicate of comment 8

CI 40 SC 40.6.1.3.3 P40-82 L16,21 # 2
Robert Campbell Lucent Technologies

Comment Type E Comment Status X
Line 16 at additional text for validation procedure.
Line 25 Change Vpeak value to correspond with rms value.

Suggested Remedy
Line 16: Add 'as well as a validation procedure' after 'clamp'.
Line 21: Change '1.413' to '2.82' to agree with 2 Vrms.

Proposed Response Response Status O
apparently none

CI 40 SC 40.6.1.3.4 P40-90 L26 # 99
Geoff Thompson Nortel Networks

Comment Type E Comment Status A

ORIGINAL COMMENT
The asterisk in the resistor matching note in figure 40-27 has no root

ORIGINAL REMEDY:
Change "2000 ohms" to "2000 ohms*" 2 places
alphabetical "ohms" to be changed to an omega symbol and resistors changed to resistor
symbol to match style in immediately following diagrams

RECIRCULATION COMMENT:
I don't think there should be an asterisk on the 100 ohm resistor. There is nothing for it to
match to in the diagram.

Suggested Remedy
See above

Proposed Response Response Status C
ACCEPT.
Will delete offending asterisk attached to 100 ohms

CI 40 SC 40.7 P40-93 L4 # 100
Geoff Thompson Nortel Networks

Comment Type E Comment Status X

ORIGINAL COMMENT
You use the term "link segment". There are (unfortunately) 2 definitions for link segment in
the 802.3 standard. One derives from FOIRL and
10BASE-T. The other came over from ISO/IEC 11801. You need to figure out some way to
be clear about your intention in the face of this sticky
problem. (I have not studied the specifics of the problem in detail, see Doorstop pdf and
message forwarded on the subject).

ORIGINAL REMEDY
Add clarifying text.

RECIRCULATION COMMENT
I think I was wrong on this comment. The ambigious term is "link". In original "802-ese" it
means a link segment PLUS the MAUs
In 11801-ese it means "The transmission path between any two interfaces of generic
cabling. It excludes equipment and work area cables".
That means that an 802.3 link is longer than a link segment and an 11801link is shorter
than a link segment.
Gaack!

Suggested Remedy
apparently none

Proposed Response Response Status W
Recirculation comment suggests (but does not state) that comment was withdrawn.
Author confirms withdrawal of comment
<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Type</th>
<th>Status</th>
<th>Comment</th>
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<tbody>
<tr>
<td>40</td>
<td>40.7.5</td>
<td>40-89</td>
<td>3</td>
<td>E</td>
<td>A</td>
<td>Comment Type: E</td>
<td>SuggestedRemedy: of noise of noise</td>
<td>Proposed Response: ACCEPT.</td>
</tr>
<tr>
<td>40</td>
<td>40.8.2</td>
<td>40-98</td>
<td>3</td>
<td>TR</td>
<td>A</td>
<td>Comment Type: TR</td>
<td>SuggestedRemedy: see above</td>
<td>Proposed Response: ACCEPT IN PRINCIPLE.</td>
</tr>
<tr>
<td>40</td>
<td>40.8.3.1.4</td>
<td>40-93</td>
<td>7</td>
<td>E</td>
<td>A</td>
<td>Comment Type: E</td>
<td>SuggestedRemedy: The same is true of sample_timer. In addition Start timer_ should read start timer_ to meet 14.2.3.3.</td>
<td>Proposed Response: ACCEPT.</td>
</tr>
</tbody>
</table>
Comment Type: T, Comment Status: A

Comment: The reset state reads 'POWER_ON = TRUE RESET'. Please remove the spurious RESET and define the variable POWER_ON as is usually done (see 36.2.5.1.3 for an example). Also need to refer to the power mode control bit 0.11 in this case.

Suggested Remedy:
Change the text 'POWER_ON = TRUE RESET' to read 'power_on = TRUE'.

In addition add a definition of the power_on variable to 40.8.3.1.2 which reads as follows:-

```
power_on
Condition that is true until such time as the power supply for the device that contains the PCS has reached the operating region. The condition is also true when the device has low power mode set via Control register bit 0.11.
Values: FALSE: The device is completely powered (default), TRUE: The device has not been completely powered.
```

Proposed Response: ACCEPT IN PRINCIPLE.
Accept definition text changed to read POWER_ON=TRUE + RESET

Comment Type: E, Comment Status: A

Comment: Typo.

Suggested Remedy:
This appendix ...' should read 'This annex ...'.

Proposed Response: ACCEPT.

Comment Type: E, Comment Status: A

Comment: Incorrect reference, I believe the cable characteristics are in 40.7, not 40.8 as referred to here.

Suggested Remedy:
Suggest ‘... specified in 40.8.’ should read ‘... specified in 40.7.’

Proposed Response: ACCEPT.
### Original Comment

There is no callout as to whether or not this annex is normative or informative.

The opening text speaks recommendations but there is a "shall" requirement in line 51 so the answer is not obvious.

### Original Remedy

Pick the appropriate annex type, label the annex and reword the annex as appropriate.

### Recirculation Comment

Revision control is not accurate in this area. The old text is nowhere to be found. That makes it difficult to determine if all of the fixes were put in.

Regarding 40A in general. The revision control is all screwed up and there is disagreement between the compare version and the "clean" version. I have no idea what the actual text is. THIS WARRANTS A DISAPPROVE VOTE until things get straightened out

### Proposed Response

Withdrawn.

Missing revision control text was found

### Comment

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

Incorrect reference, I think the cable characteristics are in 40.7, not 40.8 as referred to here, see line above.

**Suggested Remedy**

'Suggest "... if the channel specification of 40.8 can not ..." should read "... if the channel specification of 40.7 can not ..."'

**Proposed Response**  **Response Status**: O

**Comment**: A

**Response Status**: C

### Comment

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

Incorrect list lettering.

**Suggested Remedy**

'\(e)\) should read \('a)\)', 'f) should read \('b)\)'.

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

**Comment**: A

**Response Status**: C

### Comment

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

Incorrect subclause number.

**Suggested Remedy**

'40.1.1.3' should read '40A.1.1.3'

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

**Comment**: A

**Response Status**: C

### Comment

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

Not sure if the sentence reads correctly, appears to be a missing a 'the'.

**Suggested Remedy**

Suggest that "The primary application for Clause 40 specification ..." should read 'The primary application for the Clause 40 specification ...'

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

**Comment**: A

**Response Status**: C
This is not the maximum configuration as specified in 568. Specifically, 568 allows another connector in the link, i.e., a transition point. I would expect that the additional cross-talk would blow us out of the water. There is no mention of that possibility and whether or not it is excluded until you get to line 26 which is weird.

Note that while a transition point is allowed in 11801 there is a requirement that the transmission characteristics of the 90 m max horizontal cable shall be maintained. It's not clear to me that this really works.

Also for style and consistency reasons I would recommend that you reduce the line weight on the figures to be more like those used elsewhere in the entire standard.

**ORIGINAL REMEDY**
1. Add a transition point to diagram 40A-1
2. Move the “patch panel” box in diagram -2 to the left so it is aligned with the incoming side of the “cross connect” in -1
3. Change the text in line 27 et seq to read more like...

An optimized channel for a 100BASE-T link segment can be achieved on links without transition points by using an interconnect rather than a cross-connect scheme in the wiring closet. This is done by running an equipment patch cord directly between the LAN equipment and the connector termination of the permanent link. This reduces the number of connectors and their associated FEXT in the link.

**Suggested Remedy**
- see above

**Proposed Response**

**Response Status** C

ACCEPT.

---

The grammar in this paragraph is horrible. Miss Kinneman is spinning in her grave or at least she will if this gets published with my name on it.

**ORIGINAL REMEDY**
Please edit.

**RECIRCULATION COMMENT**
Well it’s better but needs more work. Please change 2nd sentence to:

“In commercial buildings this application is generally referred to as the horizontal cabling subsystem.”

**Suggested Remedy**
- see above

**Proposed Response**

**Response Status** C

ACCEPT.

---

**Comment Type** E

**Comment Status** A

**Proposed Response**

**Response Status** C

ACCEPT.

---

**Comment Type** E

**Comment Status** A

**Proposed Response**

**Response Status** C

ACCEPT.

---

**Comment Type** E

**Comment Status** A

**Proposed Response**

**Response Status** C

ACCEPT.

---

**Comment Type** E

**Comment Status** A

**Proposed Response**

**Response Status** C

ACCEPT.
Robert Campbell
Lucent

Comment Type: T  Comment Status: A
Change values of return loss and insertion loss to agree with the second version of cable clamp.

Suggested Remedy:
Line 7: Change Insertion loss value from '0.6' to '0.2'.
Line 21: Change return loss value from '10.0' to '20.0'.

Proposed Response: Response Status: C
ACCEPT IN PRINCIPLE.
May need tuning as per changes.

Sanjiv K. Rao
Level One Communications

Comment Type: E  Comment Status: A
Brackets are incorrect in (receiving = FALSE) transition.

Suggested Remedy:
Change to (repeater_mode=TRUE + tx_enable=FALSE*tx_error=FALSE)*
(receiving = FALSE)

Proposed Response: Response Status: C
ACCEPT.

Bob Noseworthy
UNH InterOperability Lab

Comment Type: E  Comment Status: A
typo
"transmissin" should be "transmission"

Suggested Remedy:

Proposed Response: Response Status: C
ACCEPT.