Comment #1-1

Brown, Matthew
Alphawave

Cl 169 SC 169.1.2 P177 L41 # [R1-1]

Comment Type E Comment Status D (bucket)
Figure 169-1 is relevant to any 800GBASE PHY, not just 800GBASE-R PHY types.

SuggestedRemedy
Under the medium block change "800GBASE-R" to "800GBASE".

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment #1-2

Brown, Matthew
Alphawave

Cl 169 SC 169.4 P184 L13 # [R1-2]

Comment Type E Comment Status D (bucket)
The units bit times and pause_quanta are defined twice in this subclause. First in the opening paragraph and again in the table footnotes.

SuggestedRemedy
Change: "Table 169–4 contains the values of maximum delay (sum of transmit and receive delays at one end of the link) for each instance of a sublayer in bit times (as specified in 1.4.215) and pause_quanta (as specified in 31B.2) for 800 Gigabit Ethernet."
To: Change: "Table 169–4 contains the values of maximum delay (sum of transmit and receive delays at one end of the link) for each instance of a sublayer."

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Proposed Response Response Status W
Implement the suggested remedy with editorial license.

Comment #1-3

Brown, Matthew
Alphawave

Cl 169 SC 169.4 P184 L14 # [R1-3]

Comment Type E Comment Status D (bucket)
For a description of bit times the paragraph points to the definition in 1.4.215 while the description of pause_quanta points to a reference in 31B.2, even though there is a definition for pause_quantum in 1.4.459 which refers to 31B.2.

SuggestedRemedy
Change the reference for pause_quanta description from 31B.2 to 1.4.459.

Proposed Response Response Status W
PROPOSED ACCEPT.
Comment Type: T  Comment Status: D  tables

There were errors for AM portion in tx_scrambled_am<i:j> tables for both flows. To be more precise, row 2-8 (<257:2055>) of Table 172A-1 and 172A-4.

Suggested Remedy
Change the AM portion in rows 2-8 of Table 172A-1 and Table 172A-4 to the correct values as shown in the contribution discussed during the .3dj & .3df joint ad hoc on Nov. 2.

Proposed Response  Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using updated values from contribution:

Also, add a reference to the following text files using the same approach used in 172.2.4.6:
<URL>.

Comment Status: D  Response Status: W

Slavick, Jeff  Broadcom Inc

Comment Type: T  Comment Status: D  (bucket)

The PHY 800GXS is the same as the 800GMII that is defined in Clause 170, so the wording is a bit odd. Follow the wording used in 172.1.5.1

Suggested Remedy
Change "The service interface below the PHY 800GXS is defined as the 800GMII in Clause 170, with some exceptions and additional signals as follows:"

To:
"The service interface below the PHY 800GXS is the 800GMII defined in Clause 170, with the following exceptions and additional signals:"

Proposed Response  Response Status: W

PROPOSED ACCEPT.
In 173.4.3 we state that the Tx and Rx bit multiplexing function is restricted for the 8:8 PMA. In 173.5.2.3 we state the PMA provides bit-multiplexing for Tx and Rx and then state transmit bit-multiplex is done over these lanes and then magically convert from general bit-multiplexing phrase to "restricted bit multiplexing".

**Suggested Remedy**
In the third paragraph. Change "The restricted bit-level multiplexing function is identical" To: "This is a restricted bit-level multiplexing function that is identical"

**Proposed Response**

Implement suggested remedy with editorial license.

[Editor's note: page was changed from 238 to 243]

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Just before "the" 257-bit block was scrambled is not quite correct since it doesn't truly specify which of the 32 257-bit blocks in each flow the seeds applies to, but it is the first one

**Suggested Remedy**
Change: "just before the 257-bit block was scrambled" To: "prior to scrambling the first 257-bit block"

**Proposed Response**

PROPOSED ACCEPT.

[Editor's note: page was changed from 282 to 287]
Comment Type: T
Comment Status: D
Comment ID: R1-20

Proposed Response

There are errors in the "tx_scrambled_am i:j Flow <>" table values.

My understanding is that the values in the tables incorrectly used the following coding:

For all k=0 to 11
For all j=0 to 7
if even(k)
    am_mapped<160k+20j+ 9:160k+20j   > = am_{2j  }<10k+9:10k>
    am_mapped<160k+20j+19:160k+20j+10> = am_{2j+1}<10k+9:10k>
else
    am_mapped<160k+20j+ 9:160k+20j   > = am_{2j+1}<10k+9:10k>
    am_mapped<160k+20j+19:160k+20j+10> = am_{2j  }<10k+9:10k>

when it should have used the following coding:

For all k=0 to 11
For all j=0 to 7
if even(k)
    am_mapped<160k+20j+ 9:160k+20j   > = am_{2j }<10k+9:10k>
    am_mapped<160k+20j+19:160k+20j+10> = am_{2j+1}<10k+9:10k>
else
    am_mapped<160k+20j+ 9:160k+20j   > = am_{2j+1}<10k+9:10k>
    am_mapped<160k+20j+19:160k+20j+10> = am_{2j }<10k+9:10k>

Suggested Remedy

Please correct the example coding tables in Annex 172A

PROPOSED ACCEPT IN PRINCIPLE.

Response Status: W

Comment Type: E
Comment Status: D
Comment ID: R1-21

Proposed Response

"The PCS service interface is the 800GMII in Clause 170"
(twice, line 47 and line 50)

Similar references to xGMII clauses in the base document use the word "defined". For example see 149.3.1.

Suggested Remedy

Change to "The PCS service interface is the 800GMII defined in Clause 170", twice.

PROPOSED ACCEPT IN PRINCIPLE.

Adding the word "defined" is a good change. However, It is not necessary to say "defined in Clause 170" twice in consecutive sentences.

Change the two sentences to the following:

"When the client sublayer is the Reconciliation Sublayer, the PCS service interface is the 800GMII defined in Clause 170.
When the client sublayer is the PHY 800GXS, the PCS service interface is the 800GMII with additional signals TXRD, TXLD, RXRD, RXLD and PCS_status."

Comment Type: E
Comment Status: D
Comment ID: R1-22

Proposed Response

"The TXRD and TXLD status signals indicate..."

These are not referred to as "status signals" elsewhere. The subsequent two paragraphs describe RXRD and RXLD without the word "status".

The last paragraph has "The PCS_status signal indicates..." but in this case "status" is part of the signal name - this adds confusion.

Suggested Remedy

Change to "The TXRD and TXLD signals indicate..."

PROPOSED ACCEPT.
Comment ID R1-23

Proposed Response  
PROPOSED ACCEPT IN PRINCIPLE.

172.2.6.2.2...
Change "where FEC_degraded_SER and rx_local_degraded are defined in 172.2.6.2.2" to "where FEC_degraded_SER and rx_local_degraded are defined in 172.2.6.2.2 and + denotes logical OR"

In 171.6.1, add the following statement:
"where FEC_degraded_SER and rx_local_degraded are defined in 172.2.6.2.2 and + denotes logical OR"
after tx_am_sf<2:0> = {FEC_degraded_SER + rx_local_degraded,0,0}
Implement with editorial license.

Comment ID R1-24

Proposed Response  
PROPOSED REJECT.

The text is accurate as written. The data is broken into two streams, one for each FEC decoder.
Comment Type T  Comment Status D  (bucket)

"The 8:32 and 8:8 PMAs may optionally provide signal status information to the PMA client by disabling (squelching) one or more of the PAM4 symbol streams sent to the PMA client (PMA:IS_UNITDATA_0:7.indication), see 173.5.8.2 and 173.5.8.3.

This sentence is technically inaccurate - it is the output lane (AUI transmitter) that is squelched, not the PAM4 symbol streams; a squelched transmitter does not correspond to any PAM4 symbol stream. Indeed, the text in 173.5.8.2 and 173.5.8.3 uses different wording.

It is also not directly related to the subject of this subclause, PMA service interface. Since signal detect is defined in other subclauses, this level of detail is not necessary here.

Similarly for the 4th paragraph in 173.3.

Suggested Remedy
In 173.2, change the quoted sentence to
"The 8:32 and 8:8 PMAs may optionally provide signal status information to the PMA client as described in 173.5.8.2 and 173.5.8.3" and make it a separate paragraph.

In the 4th paragraph of 173.3, change
"the 8:8 PMA may optionally provide signal status information by disabling (squelching) one or more of the PAM4 symbol streams sent to the sublayer below via PMA:IS_UNITDATA_0:7.request (see 173.5.8.3)" to
"the 8:8 PMA may optionally provide signal status information to the sublayer below as described in 173.5.8.3".

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

In Clause 173.2...
Change "The 8:32 and 8:8 PMAs may optionally provide signal status information to the PMA client by disabling (squelching) one or more of the PAM4 symbol streams sent to the PMA client (PMA:IS_UNITDATA_0:7.indication), see 173.5.8.2 and 173.5.8.3."
To "The 8:32 and 8:8 PMAs may optionally provide signal status information to the PMA client as described in 173.5.8.2 and 173.5.8.3."
And make this a new paragraph.

In Clause 173.3...
Change "For the 8:8 PMA, if the sublayer below the PMA is another PMA, the 8:8 PMA may optionally provide signal status information by disabling (squelching) one or more of the PAM4 symbol streams sent to the sublayer below via PMA:IS_UNITDATA_0:7.request (see 173.5.8.3)."

To "The 8:8 PMA may optionally provide signal status information to the sublayer below as described in 173.5.8.3."

Implement with editorial license.
The changes to the entries for 200GBASE PHYs are not within the scope of this project, which is "for 400 Gb/s and 800 Gb/s Operation".

The changes to the entries for existing 400GBASE PHYs (400GBASE-DR4, 400GBASE-SR4, 400GBASE-SR4.2, 400GBASE-SR8, 400GBASE-SR16, and 400GBASE-VR4) should be reconsidered as they may affect existing implementations.

**Suggested Remedy**
Delete the changes related to 200GBASE PHYs.

Consider deleting the changes to existing 400GBASE PHYs and making appropriate changes to the descriptions of new 400GBASE PHYs to distinguish them from existing ones instead.

**Proposed Response**
PROPOSED ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3df D3.0 and D3.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Although, technical changes to 200GBASE PHYs are not within the scope of this project, changing the test descriptions for the MAUI types does not affect interoperability.

The changes to the definitions were deemed to be important to remove ambiguity in the description in line with similar changes to similar 400GBASE PHYs.

However, in the descriptions for the 200GBASE PHYs the term "400GBASE-R" should be "200GBASE-R".

For 200GBASE-DR4, 200GBASE-SR2, 200GBASE-SR4, and 200GBASE-VR2 descriptions change "400GBASE-R" to "200GBASE-R".
IEEE P802.3df D3.1 1st Sponsor recirculation ballot comments

Ran, Adee  
Cisco Systems, Inc.

Comment Type: T  Comment Status: D  (bucket)

The PHY type 400GBASE-DR4-2 introduced by this amendment is not listed in clause 116.

The following seem to require updates:
116.1.2: Table 116-2
116.1.4: Table 116-5

Suggested Remedy
Add Clause 116 into the amendment and add 400GBASE-DR4-2 in the locations listed in the comment, and elsewhere if required.

PROPOSED ACCEPT IN PRINCIPLE.

Clause 116 was in Draft 3.0 with the suggested amendments. However, Clause 116 was inadvertently deleted from the FrameMaker book for D3.1.
Restate Clause 116 as it was in D3.0.

Dawe, Piers J G  
NVIDIA

Comment Type: E  Comment Status: D

This sentence needs more work. At present, it says that if something is not good enough to achieve an end, something else has to be better than what's needed to achieve that unachievable end.
However, clarifying this may be out of scope.
pdf page 100, printed page 105

Suggested Remedy
If the error statistics are not sufficiently random to meet the specified frame loss ratio for 64-octet frames with minimum interpacket gap *when the BER is at the limit*, then the BER shall be less than the value required to meet that frame loss ratio.

PROPOSED ACCEPT IN PRINCIPLE.

The referenced paragraph is difficult to parse as written.
Change the text as proposed on slide 5 of the following presentation.
<URL for brown_3df_03_2311>

Implement with editorial license.
At present an OMA-based signal detect is required to say OK for a signal at -6.9 dBm regardless of its extinction ratio, so a signal with -6.9-4.2+3 = -8.1 dB OMA must be shown as OK when the intended minimum OMA at the receiver is -0.1-4 = -4.1 dBm. (4.2 dB is the extinction ratio penalty for 3.5 dB). ("compliant 400GBASE-R or 800GBASE-R signal" is about signalling rate, scrambling and so on.)

The proposed remedy is based on -7.1 dB average power (see another comment). Notice that "The PMD receiver is not required to verify whether a compliant 400GBASE-DR4 signal is being received", so the receiver may reject a signal that fails any of the three criteria without checking the other two.

Suggested Remedy
For 400GBASE-DR4-2 and 800GBASE-DR8-2, SIGNAL_DETECT should be OK when:
- Optical power at TP3 >= -7.1 dBm;
- OMA at TP3 >= -4.3 dBm; and
- compliant 400GBASE-R or 800GBASE-R signal input.

PROPOSED REJECT.

This comment does not apply to the substantive changes between IEEE P802.3df D3.0 and D3.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Each interface specification has its own limits, quite established by existing in-force specifications for 400GBASE-DR4, 100GBASE-DR and 100GBASE-FR1. The requirements in D3.1 are completely consistent with these. The implementer may choose to implement several specifications in one design and there is no need to create a specification applicable to all potential implementations. See also response to comment R1-32.

The word propagate here is referring to passing the detected FEC degrade condition through multiple sublayers.

The text correctly describes the specified behavior and intent.

Suggested Remedy
Change "and informing" to "and, optionally, informing"

PROPOSED ACCEPT IN PRINCIPLE.

Implementing MDIO is optional. However, reporting the status to management is required. Change
"Determining when a functional link has been established and informing the management entity via the MDIO when the PHY is ready for use" To:
"Determining when a functional link has been established and informing the management entity when the PHY is ready for use"
IEEE P802.3df D3.1 1st Sponsor recirculation ballot comments

**Comment ID**: R1-36

**Cl 172 SC 172.2.4.6 P216 L49**

Dawe, Piers J G  
NVIDIA  

**Comment Type**: E  
**Comment Status**: D  
(basket)

**Suggested Remedy**  
Fix

**Proposed Response**:  
**Response Status**: W  
PROPOSED REJECT.

The text formatting is correct as is using the paragraph format for a note, which is intentionally different from regular paragraph text, as provided in the 802.3 FrameMaker template.

**Comment ID**: R1-37

**Cl 172A SC 172A P287 L11**

Dawe, Piers J G  
NVIDIA  

**Comment Type**: E  
**Comment Status**: D  
(basket)

**Suggested Remedy**  
Change cross-reference from Clause 172 to 172.2.4

**Proposed Response**:  
**Response Status**: W  
PROPOSED ACCEPT.

**Comment ID**: R1-38

**Cl 172A SC 172A P287 L50**

Dawe, Piers J G  
NVIDIA  

**Comment Type**: E  
**Comment Status**: D  
(tables)

These valuable tables are easier to use in plain text format. D3.0 comment 107 "Please prepare a plain-text file with the large tables for convenient reading into a program, and post it on the project web site for review with future drafts". Files have been made available.

**Suggested Remedy**  
Upload the text files, eventually to https://standards.ieee.org/downloads/802.3/ , and include a NOTE here bringing them to the reader's attention.

**Proposed Response**:  
**Response Status**: W  
PROPOSED ACCEPT IN PRINCIPLE.

Resolve using response to comment R1-13.

**Comment ID**: R1-39

**Cl 172A SC 172A P282 L51**

Dawe, Piers J G  
NVIDIA  

**Comment Type**: TR  
**Comment Status**: D  
(basket)

**Suggested Remedy**  
Experience with Annex 172A shows us how valuable it is. But more complexity follows: twice "Mux and 10-bit symbol distribution" as in 119.2.4.8 Figure 119-11 (with an order reversal that doesn't seem to be mentioned in the text), then 32.8 bit mux as in 173.5.2.1 where the two flows get interleaved, which is a new thing and worth an example.

**Proposed Response**:  
**Response Status**: W  
PROPOSED REJECT.

The example patterns are provided to help the implementer confirm correct interpretation of the encoding functionality which is complex. Whereas the 10-bit symbol multiplexing is easy to interpret correctly. Therefore adding the suggested additional patterns is not necessary.

**Comment ID**: R1-40

**Cl 172A SC 172A P288 L10**

Dawe, Piers J G  
NVIDIA  

**Comment Type**: TR  
**Comment Status**: D  
(tables)

Improved tx_scrambled_am tables and text files are available.

**Suggested Remedy**  
Use the improved tables and text files.

**Proposed Response**:  
**Response Status**: W  
PROPOSED ACCEPT IN PRINCIPLE.

Resolve using response to comment R1-13.
<table>
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<th>Cl 171</th>
<th>SC 171.8</th>
<th>P202</th>
<th>L44</th>
<th># R1-41</th>
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<td>SuggestedRemedy</td>
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**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment R1-28.

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<th>SC 169.5</th>
<th>P187</th>
<th>L33</th>
<th># R1-42</th>
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<td>Comment Type</td>
<td>T</td>
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</table>

**Proposed Response**

I suspect that the "N/A" here was copied from Table 116-9 and dates from a time when there were 26.5625 GBd (50G) AUIs but not 53.125 GBd AUIs. Now that there are, the missing numbers should be filled in.

**SuggestedRemedy**

Change the three N/A to approx 11, 202, 213.

This should be done in Table 116-9 also, and a 53.125 GBd column should be added to Table 80-9 (both out of scope).

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

In Table 169-6 in the UI column, change the three "N/A" to 11, 202, and 213 with each value preceded by the approximation symbol like other rows in this column.
IEEE P802.3df D3.1 1st Sponsor recirculation ballot comments

Cl 169 SC 169.5 P185 L34 # R1-44
Dawe, Piers J G NVIDIA

Comment Type T Comment Status D skew point
D2.0 comment 96: 0.2 ns Skew Variation. This dates back to SFI-5 when it was 1.5 UI of "relative wander at up to 11.1 Gbps" (per lane, so 0.14 ns). It got rounded up to 0.2 ns or just over 2 UI "dynamic skew" (giannakopoulos_01_1108) which was unfortunate. At 53.125 Gbd this is 11 UI and "dynamic skew buffer per input lane Size is 2x the max dynamic skew", so over 21 UI, very roughly four times the length of the 4-tap or 6-tap AUI equaliser.

Suggested Remedy
Define SP0 as the first exposed AUI interface (nearest the PCS or PHY 800GXS). Recommend a max Skew Variation 0.1 ns or about 5 UI at 53.125 Gbd there. Modify 173.5.3 accordingly.

Proposed Response Response Status W PROPOSED REJECT.

This comment does not apply to the substantive changes between IEEE P802.3df D3.0 and D3.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

The comment does not explain what the issue is that needs to be resolved. It appears that it is asking for a skew variation limit at the input to the first AUI where there are two AUIs and define a new skew point SP0 for this purpose.

The current specification is consistent with multiple generations of Ethernet where this point was not explicitly specified. A PMA is required to tolerate the skew variation at SP1. The skew variation at the proposed SP0 point would be no higher than the value specified at SP1.

The comment does not sufficiently justify why this new skew point and an associated skew variation value is required for 800BASE PHYs.

Cl 173 SC 173.4.1 P239 L1 # R1-46
Dawe, Piers J G NVIDIA

Comment Type ER Comment Status D (bucket)
Possibly, removing the blank line 1 and reducing the figure at lines 9-10...

Suggested Remedy
would let it fit on the previous page with its subclause text.

Proposed Response Response Status W PROPOSED REJECT.

It is not necessary to retain an entire subclause on a single page. When the draft is prepared for publication by the publication editors the entire draft will be updated as required. The suggested changed does not improve the technical accuracy or clarity of the draft.