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COMMENT STATUS: D/dispatched  A/accepted  R/rejected     RESPONSE STATUS: O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn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: Clause, Subclause, page, line
The editing instruction is specifically for the first paragraph in 90.2.

Suggested Remedy
Delete the second paragraph and lettered list.

Response
ACCEPT IN PRINCIPLE.

There is also a small change in the lettered list, so changed the editorial instructions to read "Change the first paragraph and the lettered list in 90.2 as shown below."

---

In an editing instruction for the replace instruction, only the new text, figure, etc. is shown, otherwise use the change instruction should be used.

Suggested Remedy
Delete the old version of Figure 90-1 as shown with a red X through it.

Response
ACCEPT.

In an editing instruction for the replace instruction, only the new text, figure, etc. is shown, otherwise use the change instruction should be used.

Suggested Remedy
Delete the old version of Figure 90-2 as shown with a red X through it.

Response
ACCEPT.

---

The language "the beginning of the SFD or the beginning of the first symbol after the SFD" is ambiguous on all interfaces other than xMII (for example, the MDI). There are symbols that may include both part of the SFD and part of the destination address. There are cases where in-between the SFD and the DA we have symbols related to control or overhead associated with the encoding and it's not clear which symbol to use. I am attaching a presentation introducing the issue

Suggested Remedy
Richard Tse has proposed an approach and a draft text. I support the approach in his submission.

Response
ACCEPT IN PRINCIPLE.

Addressed by comment R2-22

In 90.7.3 changed "Lane skew is possible on a transmitter with multiple PCS and PMA/PMD lanes when these lanes have different static latencies such that their alignment markers appear staggered as they depart the device at the MDI output." to "Lane skew is possible on a transmitter with multiple PCS and PMA/PMD lanes when these lanes have different static latencies such that their alignment markers appear staggered as they depart the device at the MDI output."

in 90.7.3 in the second paragraph, replaced all instances of "PCS lanes" with "lanes".
Tse, Richard  
Microchip Technology, Inc.

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

**Suggested Remedy**

Mark the changes in changing TS_T2 to TS_TX_MM1

**Response**  ACCEPT.

---

Tse, Richard  
Microchip Technology, Inc.

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

**Suggested Remedy**

1. To keep the ordering of having DDMP=SFD before DDMP=symbol after SFD, rename TS_TX_MM3 to TS_TX_MM4.

2. Change the previous TS_T3 PICS item into TS_TX_MM3, with change bars and with the following Feature and Description:
   
   **Feature:** The value of MM parameter of the TS_TX.indication primitive, the beginning of the SFD is selected as the DDMP
   
   **Description:** When the MAC Merge sublayer is instantiated and the beginning of the SFD is selected as the DDMP, the value of the MM parameter of the TS_TX.indication primitive is set to EMAC if an SMD-E is detected and to PMAC if an SMD-S is detected.

3. Change the Feature and Description of the newly named TS_TX_MM4 with a qualification of DDMP = beginning of symbol after SFD::
   
   **Feature:** The value of MM parameter of the TS_TX.indication primitive, the beginning of the symbol after the SFD is selected as the DDMP
   
   **Description:** When the MAC Merge sublayer is instantiated and the beginning of the symbol after SFD is selected as the DDMP, the value of the MM parameter of the TS_TX.indication primitive is set to EMAC if an SMD-E preceded the DDMP and to PMAC if an SMD-S preceded the DDMP.

4. To support item 2 above, add the following text after the 2nd paragraph in 90.5.1:
   
   "The value of the MM parameter of the TS_TX.indication primitive shall be set to EMAC if an SMD-E is detected and to PMAC if an SMD-S is detected."

5. For the last sentence in the the last paragraph in 90.5.1, eliminate the qualifying condition of MM instantiation since this was already established at the beginning of this paragraph and its inclusion in this sentence implies that the other qualifying condition of the paragraph, that DDMP = beginning of symbol after SFD, is no longer valid. The modified sentence is as shown below:
   
   "The value of the MM parameter of the TS_TX.indication primitive shall be set to EMAC if an SMD-E preceded the DDMP and to PMAC if an SMD-S preceded the DDMP."

**Response**  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:** Clause, Subclause, page, line
**Comment Type:** ER

**Comment Status:** A

**Suggested Remedy:**

- TS_RX_MM1 is a replacement of TS_R2.

---

**Comment Type:** TR

**Comment Status:** A

**Suggested Remedy:**

- The description for TS_RX_MM3 is only valid for when the DDMP = beginning of symbol after SFD. An additional PICS item, which is a modification of TS_R3, is needed for when the DDMP = beginning of SFD.

---

**Response:**

- Mark the changes in changing TS_R2 to TS_RX_MM1

---

**Response:**

- Accept.

---

**Response:**

- Accept.
### Approved Responses

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**Brown, Matthew**
Huawei Technologies Canada

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

This statement (copied below) appears to be a normative statement. Normative statements are not permitted in an informative clause or annex.

"If a PHY does not perform insertion or removal of alignment markers, codeword markers, or Idles, then the TX/RX NUM_BIT_CHANGE signals are not needed and are fixed to the value zero."

#### Suggested Remedy
If this is specified normatively in a normative clause then reference the subclause. If not, add a normative statement in a normative clause.

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

ACCEPT IN PRINCIPLE.

Removed "and are fixed to the value zero." from the sentence as it is not needed, but appears to make the statement normative.

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**Rodrigues, Silvana**
Huawei Technologies Co., Ltd

#### Comment Type: **G**
**Comment Status: A**

The labels of Figure 90A-1 seems not fully consistent, I propose to revise them.

#### Suggested Remedy
1. Change "PCS transmitter (TX) lane delay" to "PCS transmitter lane delay"
2. Change "Lane delay through the medium PMD" to "Lane delay through the medium"
3. Change "PMA/FEC/deskew receiver (RX) lane" to "PMA/PMD receiver lane delay"
4. Change "delay PCS receiver lane delay" to "PCS receiver lane delay"

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

ACCEPT IN PRINCIPLE.

1. Change "PCS transmitter (TX) lane delay" to "PCS transmitter lane delay"
2. Change "Lane delay through the medium PMD" to "Lane delay through the medium"
3. Change "PMA/FEC/deskew receiver (RX) lane" to "receiver and deskew lane delay"
4. Change "delay PCS receiver lane delay" to "post-deskew lane delay"

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

In Figure 90A-3, Figure 90A-4, and Figure 90A-5 there is no description/label or units on either x or y axis.

#### Suggested Remedy
Add description and units to x and y axes for each figure.

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

ACCEPT IN PRINCIPLE.

Added the following labels to axes:

- **X:** time
- **Y:** delay

Since actual units (seconds, ms, etc.) are not relevant (figures are only explaining the concept, nothing else), units were NOT added.
Comment Type: G  Comment Status: A

The labels of Figure 90A-5 seems not fully consistent, I propose to revise them.

Suggested Remedy
1. Change the second label with "total delay" to "total receiver delay"
2. Change the third label with "total delay" to "sum of total transmitter delay and receiver delay"

Response: ACCEPT IN PRINCIPLE.

Changed the second label with "total delay" to "total receiver delay". No changes to the third label.

----

Comment Type: TR  Comment Status: A

Per the discussion in the comment resolution meeting on Nov 15, 2022, corrections and improvements to the newly text at the end of 90A.7 are given in this comment.

An acknowledgement is given to Andras de Koos for his contribution to this comment.

Suggested Remedy
A). In the first paragraph, rearrange "transmit" and "receive" so the terms "transmit function" and "receive function" are used. This keeps it consistent with the rest of 90A.7.

The example shown in Figure 90A–3, Figure 90A–4, and Figure 90A–5 have the maximum delays of all transmit functions and the minimum delays of all receive functions aligned at the beginning of time. This ideal alignment will occur periodically if at least one of the following scenarios is true:

B). Delete list item 3). It is just an example of list item 2).
Also, per A), continue use of the terms "transmit functions and "receive functions".

1) The alignment of the transmit (or receive) functions is enforced by a specified relationship between them
2) The transmit (or receive) functions’ periods are unrelated, i.e. the maxima (and minima) of the transmit (or receive) functions’ latency are guaranteed to coincide eventually.

C). The concepts discussed in the last 2 paragraphs can be described together. Continue using the terms "transmit functions" and "receive functions". Replace those 2 paragraphs with the following::

When there is no fixed alignment between transmit (or receive) functions, and the functions’ periods are related by a simplified ratio of N/M, where N ≤ M, the maximum (or minimum) aggregated delay of the functions is not the simple sum of their individual maximum (or minimum) delays. Instead, the maximum (or minimum) aggregated delay depends on the in-situ alignment of the functions. How this aggregated delay is determined and accounted for in the transmit (or receive) path data delay value is beyond the scope of this standard. Note, however, that the maximum potential difference between the actual aggregated delay and the summation of the individual delays of the functions can be calculated. In this scenario, the maxima (or minima) of the first functions’ variable latency coincides to the maxima (or minima) of the second function’s variable latency to within 1/(2N) of the shorter function’s period. Whether the potential delay difference between the aggregated delay and the sum of the individual function delays is small enough to satisfy the timing requirements is up to the individual application

Response: ACCEPT IN PRINCIPLE.
Approved Responses

IEEE P802.3cx D3.2 ITSA Task Force 2nd Sponsor recirculation ballot comments

A). In the first paragraph, rearranged "transmit" and "receive" so the terms "transmit function" and "receive function" are used. This keeps it consistent with the rest of 90A.7. The new text is shown below:

The example shown in Figure 90A–3, Figure 90A–4, and Figure 90A–5 have the maximum delays of all transmit functions and the minimum delays of all receive functions aligned at the beginning of time. This ideal alignment will occur periodically if at least one of the following scenarios is true:

B). Deleted list item 3). It is just an example of list item 2). Also, per A), continue use of the terms "transmit functions and "receive functions". The new text is shown below:

1) The alignment of the transmit (or receive) functions is enforced by a specified relationship between them
2) The transmit (or receive) functions' periods are unrelated, i.e. the maxima (and minima) of the transmit (or receive) functions' latency are guaranteed to coincide eventually.

C). The concepts discussed in the last 2 paragraphs can be described together. Continue using the terms "transmit functions" and "receive functions". Replaced those 2 paragraphs with the following new text:

When there is no fixed alignment between transmit (or receive) functions, and the functions' periods are related by a simplified ratio of N/M, where N ≤ M, the maximum (or minimum) aggregated delay of the functions is not the simple sum of their individual maximum (or minimum) delays. Instead, the maximum (or minimum) aggregated delay depends on the in-situ alignment of the functions. How this aggregated delay is determined and accounted for in the transmit (or receive) path data delay value is beyond the scope of this standard. Note, however, that the maximum potential difference between the actual aggregated delay and the summation of the individual delays of the functions can be calculated. In this scenario, the maxima (or minima) of the first functions' variable latency coincides to the maxima (or minima) of the second functions' variable latency to within 1/(2N) of the shorter function's period. Whether the potential delay difference between the aggregated delay and the sum of the individual function delays is small enough to satisfy the timing requirements is up to the individual application