Cl **0**   *SC* **0**   *P*   *L*   # R1-13

Ran, Adee   Cisco Systems, Inc.

Comment Type   **G**   *Comment Status*   **R**

The draft does not include change bars; it is impossible to see what areas have been changed without going to the CMP version.

SuggestedRemedy

Please generate the next draft with change bars.

Response   *Response Status*   **C**

REJECT.

There is no requirement to include change bars in the clean version of the draft. All changes are shown in the CMP version published along the clean version of the draft.

Cl **30**   *SC* **30.13.1.10**   *P* **22**   *L* **8**   # R1-18

Kabra, Lokesh   Synopsys, Inc.

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

Typo/copy-paste error

SuggestedRemedy

Replace "the maximum transmit path data delay" with "the minimum transmit path data delay"

Response   *Response Status*   **C**

ACCEPT.

Cl **30**   *SC* **30.13.1.11**   *P* **22**   *L* **29**   # R1-19

Kabra, Lokesh   Synopsys, Inc.

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

Typo/copy-paste error

SuggestedRemedy

Replace "the maximum transmit path data delay" with "the maximum receive path data delay"

Response   *Response Status*   **C**

ACCEPT.

Cl **30**   *SC* **30.13.1.12**   *P* **22**   *L* **50**   # R1-20

Kabra, Lokesh   Synopsys, Inc.

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

Typo/copy-paste error

SuggestedRemedy

Replace "the maximum transmit path data delay" with "the minimum receive path data delay"

Response   *Response Status*   **C**

ACCEPT.

Cl **30**   *SC* **30.13.1.13**   *P* **23**   *L* **22**   # R1-21

Kabra, Lokesh   Synopsys, Inc.

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

Cross reference is given to "register fields" and not just "registers" in the sentence

SuggestedRemedy

Replace "the registers" with "the register fields" or "the register bits";
Same correction applies for line 23, 25, 41, 43, 50, 52 in Page 23 and line #1 in Page 24

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

Replaced "the registers" with "the register bits" and applied the same correction in line 23, 25, 41, 43, 50, 52 in Page 23 and line #1 in Page 24

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **30**   Page 1 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **30.13.1.13**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **30** *SC* **30.13.1.14** *P* **24** *L* **1** # R1-22

Kabra, Lokesh   Synopsys, Inc.

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

The aTimeSyncSelectionDdmp attribute can be configured to select one of the capabilities and need not be the "same value" as the capabilities.

SuggestedRemedy

Change first sentence to
"The register bits 3.1813.13 and 5.1813.13 are expected to be set to a value that is supported by the data delay measurement point abilities in the PCS and DTE XS TimeSync capability registers (see 45.2.3.67 and 45.2.5.28);

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed the sentence to read as follows:

"If both PCS and DTE XS functions are present, the register bits 3.1813.13 and 5.1813.13 (see 45.2.3.69a.1 and 45.2.5.31.1) are expected to be set to the same value, assuming that this setting is supported by the data delay measurement point abilities in both the PCS and DTE XS TimeSync capability registers (see 45.2.3.67 and 45.2.5.28). If different values are used for the PCS and the DTE XS, error might be added to the measured path data delay;"

Cl **30** *SC* **30.13.1.16** *P* **24** *L* **17** # R1-23

Kabra, Lokesh   Synopsys, Inc.

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

Attribute name is not consistent with the renamed "capability" now

SuggestedRemedy

Change "aTimeSyncCapabilityNumBitChange" to
"aTimeSyncCapabilityDynamicPathDataDelay" for all such instances in multiple pages.

Response   *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.2** *P* **29** *L* **47** # R1-24

Kabra, Lokesh   Synopsys, Inc.

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

Typo/copy-paste error

SuggestedRemedy

replace "WIS transmit path receive delay" to "WIS receive path data delay"

Response   *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.2** *P* **29** *L* **47** # R1-52

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

Change "TimeSync WIS transmit path receive delay in sub-ns" to "TimeSync WIS receive path data delay in sub-ns"

SuggestedRemedy

Change per comment

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general *Cl* **45** Page 2 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn *SC* **45.2.2** 11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**   *SC* **45.2.3.67**   *P* **33**   *L* **42**   #   R1-8

Ran, Adee   Cisco Systems, Inc.

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

In Table 45–293, the description of bits 13 and 12 suggests that they separately indicate the support of "start of SDR" and "start of the first symbol after the SFD".

This contradicts with the text in 45.2.3.67.1 and 45.2.3.67.2 (as modified in D3.1).

For example, per 45.2.3.67.1, "when both bits 3.1800.13 and 3.1800.12 are read as a zero, the PCS supports the use of the beginning of the SFD as the data delay measurement point" - while in the table, 3.1800.13, "0 = PCS does not support the beginning of the SFD as the data delay measurement point".

From the text of the following subclauses it seems that the two bits actually form a single field with three possible options:
00 or 10 - the PCS supports only the beginning of the SFD as the data delay measurement point
01 - the PCS supports only the beginning of the first symbol after the SFD as the data delay measurement point
11 - the PCS supports either the beginning of the SFD or the beginning of the first symbol after the SFD as the data delay measurement point.

The table and the text should be changed accordingly.

Similarly in 45.2.5.28.1, except that it is a DTE XS rather than a PCS.

SuggestedRemedy

In Table 45–293, replace the rows for bits 13 and 12 with a two-bit field 3.1800.13:12, named "Data delay measurement point ability", and description as follows:
x0 = PCS support only the beginning of the SFD as the data delay measurement point
01 = PCS supports only the beginning of the first symbol after the SFD as the data delay measurement point
11 = PCS supports either the beginning of the SFD or the beginning of the first symbol after the SFD as the data delay measurement point.

Replace 45.2.3.67.1 and 45.2.3.67.2 with a single subclause:

45.2.3.67.1 Data delay measurement point ability (3.1800.13:12)
Bits 13 and 12 indicate the PCS support of the beginning of the SFD, the beginning of the first symbol after the SFD, or both, as the data delay measurement point (see 90.7).
When bit 12 is read as zero, the PCS supports only the beginning of the SFD.
When bit 12 is read as one and bit 13 is read as zero, the PCS supports only the beginning of the first symbol after the SFD.
When both bit 12 and bit 13 are read as one, the PCS supports both the beginning of the SFD and the beginning of the first symbol after the SFD. In that case, the data delay measurement point is selected by bit 3.1813.13 (see 45.2.3.69a.1).

Implement the same changes in 45.2.5.28.1 (Table 45–361) and subclauses 45.2.5.28.1

and 45.2.5.28.2, substituting "DTE XS" for "PCS".

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Table 45–293, replaced the rows for bits 13 and 12 with a two-bit field 3.1800.13:12, named "Data delay measurement point ability", and description as follows:
x0 = PCS support only the beginning of the SFD as the data delay measurement point
01 = PCS supports only the beginning of the first symbol after the SFD as the data delay measurement point
11 = PCS supports both the beginning of the SFD and the beginning of the first symbol after the SFD as the data delay measurement point.

Replaced 45.2.3.67.1 and 45.2.3.67.2 with a single subclause:

45.2.3.67.1 Data delay measurement point ability (3.1800.13:12)
Bits 13 and 12 indicate the PCS support of the beginning of the SFD, the beginning of the first symbol after the SFD, or both, as the data delay measurement point (see 90.7).
When bit 12 is read as zero, the PCS supports only the beginning of the SFD.
When bit 12 is read as one and bit 13 is read as zero, the PCS supports only the beginning of the first symbol after the SFD.
When both bit 12 and bit 13 are read as one, the PCS supports both the beginning of the SFD and the beginning of the first symbol after the SFD. In this case, the data delay measurement point is selected by bit 3.1813.13 (see 45.2.3.69a.1).

Implemented the same changes in 45.2.5.28.1 (Table 45–361) and subclauses 45.2.5.28.1 and 45.2.5.28.2, substituting "DTE XS" for "PCS".

Cl **45**   *SC* **45.2.3.67**   *P* **33**   *L* **50**   #   R1-68

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

It's good to make the definition clear, e.g., 0 means it does not support the reporting of delay per 90.7, 1 means it supports the report of delay per 90.7.

SuggestedRemedy

Change

"0 = PCS does not support the reporting of multiple PCS lane path data delay
1 = PCS supports the reporting of multiple PCS lane path data delay"

to
"0 = PCS does not support the reporting of multiple PCS lane path data delay using the method recommended in 90.7 and 90A.4
1 = PCS supports the reporting of multiple PCS lane path data delay using the method recommended in 90.7 and 90A.4"

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **45**   Page 3 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **45.2.3.67**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**   *SC* **45.2.3.67.4**   *P* **35**   *L* **4**   # R1-11

Ran, Adee   Cisco Systems, Inc.

Comment Type **TR**   *Comment Status* **R**

PDPDD is defined here as "PCS Dynamic Path Data Delay", but it also exists for the DTE XS, and is actually a measure of the whole physical layer's dynamic data path delay (for example, when the PHY includes a FEC sublayer, or when the xMII is extended by an XS). Figure 90-7 shows the path data delay inclusive of the xMII.

It is suggested to define the acronym as "Physical layer Dynamic Path Data Delay" instead, but keep it common for the PCS and the DTE XS, with different register names.

It should be understood that the value indicates the dynamic delay of all the underlying sublayers (e.g. FEC is included in the PCS PDPDD, and PCS is included in the DTE XS PDPDD).

SuggestedRemedy

Change "PCS Dynamic Path Data Delay (PDPDD)" to "Physical layer Dynamic Path Data Delay (PDPDD)", here (subclause heading and text) and in 90.4.3.1.1 and 90.4.3.2.1.

In 90.4.1.2, change "PCS dynamic transmit path data delay" to "Physical layer dynamic transmit path data delay" and change "PCS dynamic receive path data delay" to "Physical layer dynamic receive path data delay".

Change the last paragraph of 90.4.3.1.1 from:
The PCS Dynamic Path Data Delay (PDPDD) is an optional parameter that supports high accuracy dynamic transmit path data delay calculations. It provides a value ranging from -32768 to +32767 indicating the number of bit times (see 1.4.160) of dynamic transmit path data delay the DDMP experiences in the PCS within the PHY. A positive value represents an addition to the mean of the maximum and minimum PCS transmit path data delay values given by the PCS transmit path data delay registers (see 45.2.3.68). A negative value represents a reduction from the mean of the maximum and minimum PCS transmit path data delay values given by the PCS transmit path data delay registers. The PDPDD value is conveyed from the PHY to the gRS by the optional TX_NUM_BIT_CHANGE<15:0> signals. See 90.5.3.

To:
The Physical layer Dynamic Path Data Delay (PDPDD) is an optional parameter that supports high-accuracy dynamic transmit path data delay calculations. It provides a value ranging from -32768 to +32767 indicating the number of bit times (see 1.4.160) of dynamic transmit path data delay the DDMP experiences within the physical layer. A positive value represents an addition to the mean of the maximum and minimum transmit path data delay values given by the PCS transmit path data delay registers (see 45.2.3.68) or the DTE XS transmit path data delay registers (see 45.2.5.29). A negative value represents a reduction from the mean of the maximum and minimum transmit path data delay values. The PDPDD value is conveyed from the PHY to the gRS by the optional TX_NUM_BIT_CHANGE<15:0> signals. See 90.5.3.

Change the last paragraph of 90.4.3.2.1 from:

The PCS Dynamic Path Data Delay (PDPDD) is an optional parameter that supports high accuracy dynamic receive path data delay calculations. It provides a value ranging from -32768 to +32767 indicating the number of bit times (see 1.4.160) of dynamic receive path data delay the DDMP experiences in the PCS within the PHY. A positive value represents an addition to the mean of the maximum and minimum PCS receive path data delay values given by the PCS receive path data delay registers (see 45.2.3.69). A negative value represents a reduction from the mean of the maximum and minimum PCS receive path data delay values given by the PCS receive path data delay registers. The PDPDD delay is value conveyed from the PHY to the gRS by the optional RX_NUM_BIT_CHANGE<15:0> signals. See 90.5.4.

To:
The Physical layer Dynamic Path Data Delay (PDPDD) is an optional parameter that supports high-accuracy dynamic receive path data delay calculations. It provides a value ranging from -32768 to +32767 indicating the number of bit times (see 1.4.160) of dynamic receive path data delay the DDMP experiences within the physical layer. A positive value represents an addition to the mean of the maximum and minimum receive path data delay values given by the PCS receive path data delay registers (see 45.2.3.69) or the DTE XS receive path data delay registers (see 45.2.5.30). A negative value represents a reduction from the mean of the maximum and minimum receive path data delay values. The PDPDD value is conveyed from the PHY to the gRS by the optional RX_NUM_BIT_CHANGE<15:0> signals. See 90.5.4.

Response   *Response Status* **C**

REJECT.

PDPDD does not exist for the DTE XS. PDPDD is only intended for use with an intra-chip interface. A physical instantiation of these logical TX/RX_NUM_BIT_CHANGE signals, which are required to generate PDPDD, is not defined.
No change to the draft needed.

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

Cl **45**   Page 4 of 20
SC **45.2.3.67.4**   11/17/2022 6:45:48 AM

Cl **45**   *SC* **45.2.3.67.4**   *P* **35**   *L* **10**   # R1-53

Rodrigues, Silvana   Huawei Technologies Co., Ltd

Comment Type **T**   *Comment Status* **A**

The text in this paragraph is a bit different with the previous paragraph when the bit is one.
I think it is good to keep consistency with the previous paragraph.

SuggestedRemedy

Change

"When read as a zero, bit 3.1800.10 indicates that the PCS is not able to report the calculation of the TX_NUM_BIT_CHANGE and RX_NUM_BIT_CHANGE values."

to

"When read as a zero, bit 3.1800.10 indicates that the PCS is not able to report PCS Dynamic Path Data Delay (PDPDD) as TX_NUM_BIT_CHANGE and RX_NUM_BIT_CHANGE values (see 90.5.3 and 90.5.4) to the gRS."

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.3.69a.1**   *P* **38**   *L* **21**   # R1-54

Rodrigues, Silvana   Huawei Technologies Co., Ltd

Comment Type **T**   *Comment Status* **A**

The word "used" at the end is unnecessary, and it could be deleted.

SuggestedRemedy

Change

"Bit 3.1813.13 is used to select the data delay measurement point used (see 90.7)."

to

"Bit 3.1813.13 is used to select the data delay measurement point (see 90.7)."

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.3.69a.1**   *P* **38**   *L* **23**   # R1-55

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

Some editorial changes for the text starting at line 23.

SuggestedRemedy

Change

"When this bit is set to 0 the beginning of the SFD is used as the data delay measurement point.
When set to 1 the beginning of the first symbol after the SFD is used as the data delay measurement point."

to

"When this bit is set to 0, the beginning of the SFD is used as the data delay measurement point.
When this bit is set to 1, the beginning of the first symbol after the SFD is used as the data delay measurement point."

If this is accepted, do the same change for the second and third paragraph of 45.2.5.31.1 at page 46

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

This change is adding just missing "," to break sentence better. Changed

"When this bit is set to 0 the beginning of the SFD is used as the data delay measurement point.
When set to 1 the beginning of the first symbol after the SFD is used as the data delay measurement point."

to

"When this bit is set to 0, the beginning of the SFD is used as the data delay measurement point.
When this bit is set to 1, the beginning of the first symbol after the SFD is used as the data delay measurement point."

Applied the same change for the second and third paragraph of 45.2.5.31.1 on page 46

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **45**   Page 5 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **45.2.3.69a.1**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**   *SC* **45.2.3.69a.1**   *P* **38**   *L* **27**   # R1-56

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

The data delay measurement point ability bits are read-only, and they should not be set.

SuggestedRemedy

Change

"This bit has an effect only if both data delay measurement point ability bits are set to 1 in the TimeSync PCS capability register (see 45.2.3.67)."

To

"This bit has an effect only if both data delay measurement point ability bits are read as one in the TimeSync PCS capability register (see 45.2.3.67)."

If this is accepted, do the similar change for the fourth paragraph of 45.2.5.31.1 at page 47

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change

"This bit has an effect only if both data delay measurement point ability bits are set to 1 in the TimeSync PCS capability register (see 45.2.3.67)."

To

"This bit has an effect only if the data delay measurement point ability bits are read as 11 in the TimeSync PCS capability register (see 45.2.3.67)."

Made the similar change for the fourth paragraph of 45.2.5.31.1 at page 47

Cl **45**   *SC* **45.2.5.28.1**   *P* **43**   *L* **5**   # R1-25

Kabra, Lokesh   Synopsys, Inc.

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

Typo/copy-paste error

SuggestedRemedy

Replace "PCS" with "DTE XS" in line #5 & line #9

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.5.28.1**   *P* **43**   *L* **5**   # R1-57

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

This sub-clause specifies for DTE XS, and the word "PCS" at line 5 and 9 of this page should be replaced by "DTE XS".

SuggestedRemedy

Change "PCS" at line 5 and 9 of page 43 to "DTE XS".

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.5.28.1**   *P* **43**   *L* **5**   # R1-3

Tse, Richard   Microchip Technology, Inc.

Comment Type **T**   *Comment Status* **A**

There appears to have been two cut-and-paste errors in the suggested remedy for comment #I-30 for P802.3cx/D3.0 that was not caught by any reviewers.
The two occurrences of "PCS" in 45.2.5.28.1 should instead be "DTE XS".

SuggestedRemedy

Replace the two occurrences of "PCS" in 45.2.5.28.1 with "DTE XS".

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.5.28.1**   *P* **43**   *L* **5**   # R1-9

Ran, Adee   Cisco Systems, Inc.

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

DTE XS was incorrectly changed to PCS in this draft.
(may be covered by another comment)

SuggestedRemedy

Change "PCS" to "DTE XS" twice.

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **45**   Page 6 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **45.2.5.28.1**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**	*SC* **45.2.5.28.6**	*P* **43**	*L* **50**	# R1-58

Rodrigues, Silvana   Huawei Technologies Co., Ltd

Comment Type **T**   *Comment Status* **A**

This sub-clause specifies for receive path data delay with ns resolution. The two paragraphs of previous sub-clause 45.2.5.28.5 for transmit path data delay have words "in ns resolution". For this sub-clause 45.2.5.28.6, it may also have that.

SuggestedRemedy

Change

"When read as a one, bit 5.1800.0 indicates that the DTE XS supports DTE XS receive path data delay registers (5.1805 through 5.1808).
When read as a zero, bit 5.1800.0 indicates that the DTE XS does not support the DTE XS receive path data delay registers (5.1805 through 5.1808)."

to

"When read as a one, bit 5.1800.0 indicates that the DTE XS supports DTE XS receive path data delay registers, in ns resolution (5.1805 through 5.1808).
When read as a zero, bit 5.1800.0 indicates that the DTE XS does not support the DTE XS receive path data delay registers, in ns resolution (5.1805 through 5.1808)."

Response   *Response Status* **C**

ACCEPT.

Cl **90**	*SC* **90**	*P*	*L*	# R1-17

Ran, Adee   Cisco Systems, Inc.

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

As a result of comment I-1, many instances of the word "may" have been changed to "can", but in most cases the word "can" does not indicate a capability (equal to "is able to") and is thus inappropriate.

"Can" should not be used when a reader or an implementer is expected to be capable of something - only when a compliant implementation results in a capability.

The word "can" is much more frequent in this amendment than in the base document, resulting in unconventional language - the amendment looks more like a white paper than a standard.

The suggested remedy lists the offending cases I found.

SuggestedRemedy

90.3: "The path data delay in this standard is illustrated in Figure 90–7 and can be associated with the timestamping mechanisms in IEEE Std 1588 and IEEE Std 802.1AS" - it is an option for readers to associate it with these; they do not have to. The path data delay has no capability. ==> Change "can" to "may".

90.5: "an optional bundle of sixteen logical transmit signals <...> can be output" - it is an optional feature, and these are always indicated with "may". ==> Change "can" to "may".

90.7: "The use of the beginning of the SFD as the DDMP can impact the accuracy that can be achieved by a time synchronization protocol" - the first "can" is a fact, not a capability; only the second is about capability. ==> Change "can impact" to "impacts".

90.7: "A single quartet of values for the PHY path data delay can be obtained by summing together the values, if available, of each corresponding member of both quartets for each MMD. The uncertainty of the transmit and receive path data delays of the corresponding sublayer can also be determined from this quartet of values. The minimum path data delay error of the sublayer can be achieved by using the mean of its maximum and minimum path data delay values as its path data delay value." - the three instances of "can" do not describe capabilities; the first two are optional ways to use the values (it is not required and some implementations may not be capable) and the third is a fact. ==> change to "may be obtained", "may be determined", "is achieved".

90.7: "Lane skew can be present on a transmitter with multiple lanes when the PMA/PMD lanes have different static latencies such that their alignment markers appear staggered as they depart the device at the MDI output. Since transmit skew in series with medium skew is not strictly additive, transmit skew can contribute to time synchronization error by obscuring the actual latency of the medium." - the first "can" is about possibility, not capability; the second one is a statement of fact. ==> change to "Lane skew is possible on a transmitter" and "transmit skew contributes to time synchronization error".

90.7: "the path data delay for the FEC sublayer can be included in either the PCS delay

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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: Clause, Subclause, page, line

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SC **90**   11/17/2022 6:45:48 AM

registers or the PMA/PMD delay registers" - this was changed from "should" to "can" - but it is not an ability, it is a recommendation (or a choice between two options - which should be stated as "may either"). ==> change "can" back to "should".

90A.1: "This timestamping can be used for time synchronization protocols including IEEE Std 1588 and IEEE Std 802.1AS" - it is optional to use; some implementations will not. ==> change to "may be used"

90A.2: "Timestamping accuracy can be impaired when two TimeSync clients do not account for variation" and "Timestamping accuracy can also be impaired when two TimeSync clients do not use the same data delay measurement point" - these are statements of facts, not capabilities. ==> change to "is impaired", "is also impaired".

Table 90A–1, footnote a: "See Annex 90A.3 for other factors that can affect some of these values" and footnote c: "The path data delay of a packet can be affected" - these are statements of facts and not capabilities. ==> change to "other factors that affect", "is affected".

90A.5: "Each of these path data delay variations can be accounted for", "how TX_NUM_BIT_CHANGE and RX_NUM_BIT_CHANGE can be used" - these interfaces are optional to use, even if the functionality is available. ==> change to "Each of these path data delay variations may be accounted for" and "may be used".

90A.5.3: "the effect of the timestamp accuracy impairments that result from these events can be evaluated to determine if they cause significant degradation in the TimeSync system's performance" - optional. ==> change to "may".

90A.6: "the transmit skew in series with the medium skew can be additive or subtractive", "transmit skew can contribute to time synchronization error" - these are statements of facts, not capabilities. ==> change to "is either additive or subtractive", "contributes".

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

According to the IEEE Style Manual, "can is used for statements of possibility and capability".

90.3: "The path data delay in this standard is illustrated in Figure 90–7 and can be associated with the timestamping mechanisms in IEEE Std 1588 and IEEE Std 802.1AS" - it is an option for readers to associate it with these; they do not have to. The path data delay has no capability. ==> Changed "can" to "may".

90.5: "an optional bundle of sixteen logical transmit signals <...> can be output" - it is an optional feature, and these are always indicated with "may". ==> Changed "can" to "may".

90.7: "The use of the beginning of the SFD as the DDMP can impact the accuracy that can be achieved by a time synchronization protocol" - no changes needed, both instances of "can" represent possibility

90.7: "A single quartet of values for the PHY path data delay can be obtained by summing

together the values, if available, of each corresponding member of both quartets for each MMD. The uncertainty of the transmit and receive path data delays of the corresponding sublayer can also be determined from this quartet of values. The minimum path data delay error of the sublayer can be achieved by using the mean of its maximum and minimum path data delay values as its path data delay value." ==> changed the 1st instance to "may be obtained" and the 2nd instance to "may be determined". The third instance remained as is since "can be achieved" statement is a possibility, not a fact.

90.7: "Lane skew can be present on a transmitter with multiple lanes when the PMA/PMD lanes have different static latencies such that their alignment markers appear staggered as they depart the device at the MDI output. Since transmit skew in series with medium skew is not strictly additive, transmit skew can contribute to time synchronization error by obscuring the actual latency of the medium." - the first "can" is about possibility, not capability ==> changed the first instance to "Lane skew is possible on a transmitter". The second instance is a possibility and not a fact and does not need to be modified.

90.7: "the path data delay for the FEC sublayer can be included in either the PCS delay registers or the PMA/PMD delay registers" - this was changed from "should" to "can" - but it is not an ability, it is a permission ==> changed "can" back to "may".

90A.1: "This timestamping can be used for time synchronization protocols including IEEE Std 1588 and IEEE Std 802.1AS" - it is optional to use; some implementations will not. ==> changed to "may be used"

90A.2: "Timestamping accuracy can be impaired when two TimeSync clients do not account for variation" and "Timestamping accuracy can also be impaired when two TimeSync clients do not use the same data delay measurement point" ==> The "can be impaired" is a possibility, not a fact, and does not need to be changed. The "can also be impaired" is a fact so it is changed to "is impaired".

Table 90A–1, footnote a: "See Annex 90A.3 for other factors that can affect some of these values" and footnote c: "The path data delay of a packet can be affected" ==> The "that can affect some of…" changed to "that affect some of". The "can be affected" is a statement of possibility, not of fact, and was not changed.

90A.5: "Each of these path data delay variations can be accounted for", "how TX_NUM_BIT_CHANGE and RX_NUM_BIT_CHANGE can be used" - these interfaces are optional to use, even if the functionality is available. ==> changed to "Each of these path data delay variations may be accounted for" and "may be used", respectively.

90A.5.3: "the effect of the timestamp accuracy impairments that result from these events can be evaluated to determine if they cause significant degradation in the TimeSync system's performance" - optional. ==> changed to "may".

90A.6: "the transmit skew in series with the medium skew can be additive or subtractive", "transmit skew can contribute to time synchronization error" ==> The first "can" is a possibility and is valid. However, the commenter's suggested change of "is either additive or subtractive" is an improvement and was made. The second "can" is a possibility, not a fact, and the change was not made.

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COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **90**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **90**   *SC* **90.3**   *P* **51**   *L* **34**   # R1-26

Kabra, Lokesh   Synopsys, Inc.

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

Is the term "PHY RX" & "PHY TX" defined or allowed ?

SuggestedRemedy

Replace "delay of the PHY RX and the PHY TX" with "delay of the PHY receiver and the PHY transmitter"; Similar update required in other places like Figure 90-2, ,any figures in 90A

Response   *Response Status* **C**

ACCEPT.

Cl **90**   *SC* **90.4.1.2**   *P* **53**   *L* **50**   # R1-73

Law, David   Hewlett Packard Enterprise

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

Subclause 90.3 'Relationship with other IEEE standards' says that 'The definition of the TimeSync Client, its capabilities, and its functions, is outside the scope of this standard.'. As a result, I'm uncomfortable with the change from the '... TimeSync Client can use ..' to '... TimeSync Client uses the indication ...', and other equivalent changes. Implementers are free to implement the TimeSync Client in any way they choose, we are just providing guidance that may or may not be followed, hence changing 'can use' to the more definitive 'uses' seems incorrect.

SuggestedRemedy

[1] On page 53, line 50, change the text 'The TimeSync Client uses the indication ...' to read ' The TimeSync Client may use the indication ...'.

[2] On page 54, line 5, change the text 'When the TimeSync Client captures the egress time of a relevant packet at the xMII, it is used along with ...' to read 'When the TimeSync Client captures the egress time of a relevant packet at the xMII, it may be used along with ...'. Make the same changes on page 54, line 11.

[3] On page 54, line 8, change the text '... if available, is used by the TimeSync Client ...' to read '... if available, may be used by the TimeSync Client ...'. Make the same changes on page 54, line 14.

[4] On page 63, line 30, change the text 'The TimeSync capability uses egress and ingress times captured at the xMII and makes use of transmit and receive path data delay measurements ...' to read 'The TimeSync Client may use the egress and ingress times captured at the xMII and the transmit and receive path data delay measurements ...'.

As an aside, on page 63, line 30, the word 'uses' in 'The TimeSync capability uses egress and ingress ...' is newly inserted text so should have been underlined.

[5] On page 64, line 26, change the text '... the TimeSync Client adjusts the ...' to read '... the TimeSync Client may adjust the ...'.

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **90**   Page 9 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **90.4.1.2**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **90**   *SC* **90.4.1.2**   *P* **53**   *L* **53**   # R1-10

Ran, Adee   Cisco Systems, Inc.

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

The text was changed from "beyond the scope" to "outside the scope" (comment I-5).

"outside the scope" is arguably poor English. Things may be "out of scope", but not "outside the scope". Also, "beyond the scope" has 137 instances in the base document, while "outside the scope" has only 78.

SuggestedRemedy

Change to "beyond the scope".

Response   *Response Status* **C**

ACCEPT.

Cl **90**   *SC* **90.4.2**   *P* **54**   *L* **26**   # R1-2

Regev, Alon   Keysight Technologies

Comment Type **TR**   *Comment Status* **R**

The use of "symbol" and "first symbol after SFD" is unfortunately unclear, and the latest changes make this even more so.

First of all I want to apologize for bringing up this issue relatively late, but I believe this is in scope as there have been significant changes to text discussing this.

In IEEE Std 1588-2019, A "message timestamp point" is defined in clause 73.4.1 as: "Unless otherwise specified in a transport-specific annex to this standard, the message timestamp point for a
PTP event message shall be the beginning of the first symbol after the start of frame delimiter."

This seems to match the definition used in P802.3cx D3.1.

But in IEEE Std. 802-3-2018 defines "Symbol" as
"1.4.466 symbol: Within IEEE 802.3, the smallest unit of data transmission on the medium. Symbols are
unique to the coding system employed. For example, 100BASE-T4 and 100BASE-T1 use ternary symbols;
10BASE-T uses Manchester symbols; 100BASE-X uses binary symbols or code-bits; 100BASE-T2 and
1000BASE-T uses quinary symbols. For 1000BASE-X PMDs operating at 1.25 GBd, a symbol corresponds
to a code-bit after the 8B/10B encoding operation i.e., has the duration of 0.8 ns. For 10GBASE-R PMDs
operating at 10.3125 GBd, a symbol corresponds to a code-bit after the 64B/66B encoding operation i.e., has
the duration of approximately 0.097 ns."

Note the following:
1. A single symbol may contain both the SFD and the first nibble/octet/bit/etc. after the SFD. An example is a 64B66B encoded data, where the same symbol may contain both the SFD and the first octets of the data. It is not clear if the "first symbol after the SFD" is the 64B66B symbol that includes both the SFD and the following octets or the 64B66B symbol following this symbol.
2. Not all symbols can include an entire octet. For an example, in 1000BASE-T1 (see 802.3-2018 clause 97), uses a 3B2T encoding, such that every 3 bits of data get converted to 2 PAM3 symbols. Every PAM3 symbol contains the equivalent of 1.5 bits. Let's assume we treated the 2 PAM3 symbols together as a single entity corresponding to 3 bits so that we avoid the half-bit discussion, it is possible for a single 3B2T symbol to contain both the last bit of SFD and the first bit of the octet after the SFD. Should this symbol or the next symbol be used?

The text in clause 90.4.2 of P802.3cx indicating "The term 'first symbol after the SFD' denotes the first octet after the SFD when referencing an xMII" makes this even more

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TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
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ambiguous (and potentially inconsistent with IEEE Std 1588 and IEEE Std 802.3) as the xMII may contain symbols that are 4-bits wide, 10 bits wide, 66 bits wide, etc.

To disambiguate this, I propose changing "first symbol after SFD" to "the symbol containing the first data bit after the SFD". I am sure this will be debated and better text can be written.

As this issues stems from the definition currently in IEEE Std 1588 and IEEE Std 802.1AS and I plan to bring this up to them as well.

SuggestedRemedy

change every instance of "first symbol after SFD" to "the symbol containing the first data bit after the SFD".

Add text to annex 90A explaining how to interpret this for different types of symbols (for example for a 3B2T symbol, I propose that the timing always be based on the first of the 2T symbols corresponding to the 3 bits that contain the fist bit of data). I will try to write such text in a generic fashion and present in the November 2022 plenary.

Response   *Response Status* **C**

REJECT.

There is no consensus to make this change.

Cl **90**   *SC* **90.4.2**   *P* **54**   *L* **27**   # R1-27

Kabra, Lokesh   Synopsys, Inc.

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

The reference is given for register bits and not registers.

SuggestedRemedy

Replace "selected by registers" with "selected by the register bits"

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replaced "selected by registers" with "selected by register bits"

Cl **90**   *SC* **90.4.2**   *P* **54**   *L* **28**   # R1-75

Law, David   Hewlett Packard Enterprise

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

As noted in my previous 'must be satisfied' comment I-43, it is normal to permit the implementation of features without requiring the implementation of the related Clause 45 registers. After all, Clause 45 is optional. As an example, why would not allow an alternative register interface to a PHY so long as the feature was correctly supported.

SuggestedRemedy

See suggested remedy in comment I-43.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed the existing text in 90.6, i.e.,

The Management Data Input/Output (MDIO) capability described in Clause 45 defines many register bits several variables that provide TimeSync status information for the PMD, as shown in Table 90–1:

to read as follows

TimeSync status information for the PMD, as shown in Table 90-1, may be accessible through the management interface defined in Clause 45, or equivalent.

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SORT ORDER: Clause, Subclause, page, line

Cl **90**   *SC* **90.4.2**   *P* **54**   *L* **28**   # R1-1

Regev, Alon   Keysight Technologies

Comment Type   **T**   *Comment Status*   **R**

xMII does not necessarily use octets. MII uses nibbles. Some xMII interfaces may be serial. Some interfaces encode I suggest that we refer to the "MII data containing the first bit after the SFD" instead of the "first octet after the SFD" to avoid ambiguity

SuggestedRemedy

Change
"The term 'first symbol after the SFD' denotes the first octet after the SFD when referencing an xMII."
To
"The term 'first symbol after the SFD' denotes the MII data containing the first bit after the SFD when referencing an xMII."

Response   *Response Status*   **C**

REJECT.

The sentence being commented on is only valid when referring to an xMII. Other references to "the first symbol after the SFD" might apply to the MDI. The structure of the original sentence has this distinction. The structure of the suggested remedy does not keep this distinction.

The intent of this comment is already covered in the current draft.

* Even if an MII is nibble-based, octets are still passed through it. Thus, it is not inappropriate to reference octets in the sentence.
* Serial MIIs are not defined by 802.3 (as far as I know) so it is not necessary to consider them.
* SGMII/USXGMII require a PCS function in the MAC to convert to/from to an 802.3 GMII/XGMII.
* Throughout 802.3cx, we always include "the beginning of" when we discuss the DDMP's association with the SFD or the symbol after the SFD. The beginning of the first bit is the same as the beginning of the octet. Thus, no change seems to be needed.

Cl **90**   *SC* **90.4.2**   *P* **57**   *L* **31**   # R1-74

Law, David   Hewlett Packard Enterprise

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

The addition of the text 'The term 'first symbol after the SFD' denotes the first octet after the SFD when referencing an xMII' to subclause 90.4.2 does not fully address my previous 'must be satisfied' comment I-42. I still believe that this addition needs to define the scope of the terminology as local to the whole of Clause 90.

SuggestedRemedy

Suggest that this text is moved to subclause 90.4 and that 'The term ...' be changed to read 'Within the scope of this clause, the term ...'.

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

Changed
"The term 'first symbol after the SFD' denotes the first octet after the SFD when referencing an xMII"
to
"Within the scope of this clause, the term 'first symbol after the SFD' denotes the first octet after the SFD when referencing an xMII"
but kept the text where it is in D3.1, i.e., in 90.4.2.

Cl **90**   *SC* **90.4.3.1.1**   *P* **55**   *L* **8**   # R1-70

Law, David   Hewlett Packard Enterprise

Comment Type   **T**   *Comment Status*   **A**

Subclause 90.4.3.1.1 says that '... the DDMP requires consistent configuration of both the gRS and the PCS (see 45.2.3.69a) for correct operation.' If a PHY includes a DTE XS subclause, the subclause 45.2.5.31 Data Delay Measurement Point bit (5.1813.13) will also need to be configured consistently.

SuggestedRemedy

Suggest that the text '... requires consistent configuration of both the gRS and the PCS (see 45.2.3.69a) for correct operation.' should be changed to read '... requires consistent configuration of both the gRS and the PHY (see 45.2.3.69a and 45.2.5.31) for correct operation.' in both subclause 90.4.3.1.1 (page 55, line 8) and 90.4.3.2.1 (page 56, line 8).

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: Clause, Subclause, page, line

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SC **90.4.3.1.1**

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Cl **90**   *SC* **90.4.3.1.1**   *P* **55**   *L* **12**   # R1-28

Kabra, Lokesh   Synopsys, Inc.

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

Incomplete sentence

SuggestedRemedy

Add "value" after "SMD-E (SFD)"; Same comment applies for line #12 in Page 56

Response   *Response Status* **C**

ACCEPT.

Cl **90**   *SC* **90.4.3.1.1**   *P* **55**   *L* **17**   # R1-29

Kabra, Lokesh   Synopsys, Inc.

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

The TS_TX.indication is not generated for continuation fragment irrespective of whether the DDMP = SFD or FIRST_SYMBOL; This sentence specifies for only one of the cases implying that it is possible in the other case?

SuggestedRemedy

Change "DDMP=FIRST_SYMBOL" to " MM=PMAC" in this sentence. Same comment applies for line #17 in Page 56.

Response   *Response Status* **C**

ACCEPT.

Cl **90**   *SC* **90.4.3.1.1**   *P* **55**   *L* **21**   # R1-59

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

It seems that the reference clause 1.4.160 for bit time is based on 802.3-2018. However, 802.3cx is based on 802.3-2022, and the correct number is 1.4.215.

SuggestedRemedy

Change "see 1.4.160" to "see 1.4.215"

Response   *Response Status* **C**

ACCEPT.

Cl **90**   *SC* **90.4.3.2.3**   *P* **56**   *L* **36**   # R1-60

Rodrigues, Silvana   Huawei Technologies Co., Ltd

Comment Type   **T**   *Comment Status* **A**

It is correct that the behavior of the receiptof this primitive by the TimeSync Client is not defined by 802.3cx, and it could state "outside the scope of this standard"

SuggestedRemedy

Change

"The receipt of this primitive by the TimeSync Client is undefined."

to

"The receipt of this primitive by the TimeSync Client is outside the scope of this standard."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change

"The receipt of this primitive by the TimeSync Client is undefined."

to

"The receipt of this primitive by the TimeSync Client is beyond the scope of this standard."

Cl **90**   *SC* **90.5**   *P* **56**   *L* **51**   # R1-30

Kabra, Lokesh   Synopsys, Inc.

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

Figure 90-2 is referenced first in this page but is placed in page 59

SuggestedRemedy

Move Figure 90-2 just before 90.5.1

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **90**   Page 13 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **90.5**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **90**   *SC* **90.5.1**   *P* **57**   *L* **21**   # R1-4

Tse, Richard   Microchip Technology, Inc.

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

"Begiinning of" is missing for SMD-E and for SMD-S in the sentence.

SuggestedRemedy

Change

"The TS_TX.indication primitive shall be generated only when the SMD-E for an express packet or the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

to

"The TS_TX.indication primitive shall be generated only when the beginning of the SMD-E for an express packet or the beginning of the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"The TS_TX.indication primitive shall be generated only when the SMD-E for an express packet or the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

to

"The TS_TX.indication primitive shall be generated only when the beginning of the SMD-E for an express packet or the beginning of the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

and updated PICS to match the new text.

Cl **90**   *SC* **90.5.1**   *P* **57**   *L* **21**   # R1-61

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

The "of certain Start mPacket Delimiters (SMD)" is unclear, and what is the meaning of "certain"? If the text wants to refer only to the SMD-E and SMD-S, then this text should be replaced by "SMD-E and SMD-S"

SuggestedRemedy

Change

"When the MAC Merge sublayer is instantiated and the beginning of the SFD is selected as the DDMP, the TS_DDMP_Detect_TX function detects the occurrence of the beginning of certain Start mPacket Delimiters (SMD)."

to

"When the MAC Merge sublayer is instantiated and the beginning of the SFD is selected as the DDMP, the TS_DDMP_Detect_TX function detects the occurrence of the beginning of SMD-E or SMD-S."

If this is accepted, do similar replacement for "certain SMDs" with "SMD-E or SMD-S" at lines 27 and 53 of page 57, and line 6 of page 58.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"When the MAC Merge sublayer is instantiated and the beginning of the SFD is selected as the DDMP, the TS_DDMP_Detect_TX function detects the occurrence of the beginning of certain Start mPacket Delimiters (SMD)."

to

"When the MAC Merge sublayer is instantiated and the beginning of the SFD is selected as the DDMP, the TS_DDMP_Detect_TX function detects the occurrence of the beginning of SMD-E or SMD-S."

and replaced "certain SMDs" with "SMD-E or SMD-S" at lines 27 and 53 of page 57, and line 6 of page 58.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
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Cl **90**
SC **90.5.1**

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Cl **90**   *SC* **90.5.1**   *P* **57**   *L* **28**   # R1-5

Tse, Richard   Microchip Technology, Inc.

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

"begiinning of the first symbol after" is missing for SMD-S in the sentence.

SuggestedRemedy

Change

"The TS_TX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

to

"The TS_TX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the beginning of the first symbol after the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"The TS_TX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

to

"The TS_TX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the beginning of the first symbol after the SMD-S for a preemptable packet (see 99.3.3) is detected on the transmit signals of the xMII."

and updated PICS with the new text.

Cl **90**   *SC* **90.5.1**   *P* **57**   *L* **37**   # R1-31

Kabra, Lokesh   Synopsys, Inc.

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

This caveat is already specified in previous section. Moreover, the previous paragraph already contains a "shall be generated only when SMD-E or SMD-S is detected"

SuggestedRemedy

Delete sentence/paragraph startiing with "When DDMP= …"; Same comment applies for line #16 in Page 58

Response   *Response Status* **C**

ACCEPT.

Cl **90**   *SC* **90.5.2**   *P* **57**   *L* **53**   # R1-6

Tse, Richard   Microchip Technology, Inc.

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

"Begiinning of" is missing for SMD-E and for SMD-S in the sentence.

SuggestedRemedy

Change

"The TS_RX.indication primitive shall be generated only when the SMD-E for an express packet or the SMD-S for a preemptable packet is detected on the receive signals of the xMII."

to

"The TS_RX.indication primitive shall be generated only when the beginning of the SMD-E for an express packet or the beginning of the SMD-S for a preemptable packet is detected on the receive signals of the xMII."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changed

"The TS_RX.indication primitive shall be generated only when the SMD-E for an express packet or the SMD-S for a preemptable packet is detected on the receive signals of the xMII."

to

"The TS_RX.indication primitive shall be generated only when the beginning of the SMD-E for an express packet or the beginning of the SMD-S for a preemptable packet is detected on the receive signals of the xMII."

and updated PICS with the new text.

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

Cl **90**
SC **90.5.2**

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Cl **90**   *SC* **90.5.2**   *P* **58**   *L* **6**   # R1-7

Tse, Richard   Microchip Technology, Inc.

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

"begiinning of the first symbol after" is missing for SMD-S in the sentence.

SuggestedRemedy

Change

"The TS_RX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the SMD-S for a preemptable packet (see 99.3.3) is detected on the receive signals of the xMII."

to

"The TS_RX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the beginning of the first symbol after the SMD-S for a preemptable packet (see 99.3.3) is detected on the receive signals of the xMII."

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

Changed

"The TS_RX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the SMD-S for a preemptable packet (see 99.3.3) is detected on the receive signals of the xMII."

to

"The TS_RX.indication primitive shall be generated only when the beginning of the first symbol after the SMD-E for an express packet or the beginning of the first symbol after the SMD-S for a preemptable packet (see 99.3.3) is detected on the receive signals of the xMII."

and updated PICS with the new text.

Cl **90**   *SC* **90.5.2**   *P* **58**   *L* **18**   # R1-32

Kabra, Lokesh   Synopsys, Inc.

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

Incorrect instruction

SuggestedRemedy

Change to "Replace Figure 90-2 with Figure 90-2 as shown below"

Response   *Response Status*   **C**

ACCEPT.

Cl **90**   *SC* **90.5.3**   *P* **60**   *L* **16**   # R1-12

Ran, Adee   Cisco Systems, Inc.

Comment Type   **T**   *Comment Status*   **A**

Figure 90-4 is about xMIIs with active rising and falling TX_CLK edges; GMII is not one of these cases, so the label "(GTX_CLK for GMII)" is redundant in this figure.

SuggestedRemedy

Delete "(GTX_CLK for GMII)".

Response   *Response Status*   **C**

ACCEPT.

Cl **90**   *SC* **90.6**   *P* **62**   *L* **16**   # R1-69

Law, David   Hewlett Packard Enterprise

Comment Type   **T**   *Comment Status*   **A**

The last paragraph of subclause 90.6 says that Clause 45 registers '... provide TimeSync status information for the PMD, as shown in Table 90–1'. While correct, Clause 45 (as illustrated by Table 90-1) also provides TimeSync capability, and configuration information, and not just for the PMD.

SuggestedRemedy

Suggest that the text '... provide TimeSync status information for the PMD, as shown in Table 90–1' should be changed to read '... provide TimeSync status, capability, and configuration information for the PHY, as shown in Table 90–1'.

Response   *Response Status*   **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **90**   Page 16 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **90.6**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **90**　　　*SC* **90.7**　　　　　*P* **63**　　　*L* **28**　　　# R1-14

Ran, Adee　　　　　　　　Cisco Systems, Inc.

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

Subclause 90.7 in this draft includes some amended text with interspersed deleted and inserted words and sentences; the result is extremely difficult to read, until this text is integrated into a new revision.

It is quite different from the original content of 90.7, and is practically a rewrite.

SuggestedRemedy

Preferably, mark the whole text of the original subclause with strikethrough (in one block), and add the new text with underline after it.

If this is not considered appropriate, make the following changes as an alternative

In paragraph 1 (P63 L30) and NOTE 2 (P64 L43), mark the entire paragraph as strikethrough and add the new content as a new underlined paragraph.

Elsewhere in this subclause, make the deleted words and the newly inserted words separated by spaces and grouped as full expressions or phrases; as an example, change the paragraph following NOTE 3 from
"For a PHY that includes an FEC <s>function</s><u>and/or a PCS lane distribution function</u>, the transmit and receive path data delays <s>may</s><u>can</u> show significant variation depending <s>upon the position of the within the FEC</s><u>on how the packet's DDMP aligns to an FEC codeword and/or to a PCS lane distribution sequence</u>"
To
"For a PHY that includes <s>an FEC function </s><u>an FEC and/or a PCS lane distribution function</u>, the transmit and receive path data delays <s>may show significant variation depending upon the position of the within the FEC </s><u>can show significant variation depending on how the packet's DDMP aligns to an FEC codeword and/or to a PCS lane distribution sequence</u>"

Apply elsewhere in this clause where readability can be improved.

Response　　　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.

Marked the whole text of the original subclause with strikethrough (in one block), and added the new text with underline after it.

Cl **90**　　　*SC* **90.7**　　　　　*P* **63**　　　*L* **29**　　　# R1-16

Ran, Adee　　　　　　　　Cisco Systems, Inc.

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

90.7 is a very long and wordy subclause, and the content and NOTEs alternate between topics. It would benefit the reader if it were broken to subclauses dealing with specific aspects of the path data delay measurement (as was done in 90A).

SuggestedRemedy

Create a new subclause 90.7.1, titled "PCS and FEC dynamic delay", to hold the content starting in NOTE 3 (P64 L51) and ending in the paragraph "The dynamic delay variance of alignment marker <...>" (P65 L33), and NOTE 6; these are about delay changes caused by PCS and FEC functionality. NOTE 3 and NOTE 6 should be at the end of this subclause.

Create a new subclause 90.7.2, titled "Multi-lane PHYs", to hold the content starting in "The receiver of a PHY with multiple lanes" (P65 L35) and ending in NOTE 5.

Response　　　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.

The content is already well organized (see the content list below), except for NOTES 3, 5 and 6, which were moved as indicated below.

Applied subclause headings are also given below:

Paragraphs 1 to 4 discuss basics about path data delay measurement (DDMP, measurement planes, calculations)
　　NOTE 1 remained after the 1st paragraph
　　NOTE 5 was moved to follow the 3rd paragraph
　　NOTE 2 remained after the 4th paragraph
　Subclause heading: FEC and PCS lane distribution functions
　　5th paragraph discusses FEC and PCS lane distribution delays
　　NOTE 3 was moved to follow the 5th paragraph
　Subclause heading: Alignment marker, codeword marker, and idle insertion/removal functions
　　6th, 7th, and 8th paragraphs discuss effects from alignment marker, codeword marker, and idle insertion/removal
　　NOTE 6 was moved to follow the 8th paragraph
　Subclause heading: Lane skew
　　9th and 10th paragraphs discuss the effects of lane skew
　　NOTE 4 remained after the 10th paragraph

Individual NOTEs were renumbered as needed to maintain sequential numbering.

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

Cl **90**
SC **90.7**

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Cl **90** *SC* **90.7**   *P* **63**   *L* **33** # R1-72

Law, David   Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **A**

Since subclause 90.7: [1] includes the text 'The choice of the DDMP ...'; [2] references the subclause 45.2.3.69a TimeSync PCS configuration and subclause 45.2.5.31 TimeSync DTE XS configuration registers; and [3] has a note that says '... the first symbol after the SFD is used as the DDMP ...' and 'The use of the beginning of the SFD as the DDMP can ...', wouldn't it be better to the say that the path data delay measurements are based on the 'selected' or 'configured' Data Delay Measurement Point.

SuggestedRemedy

Suggest that 'The path data delay measurements are based on the DDMP in the packet.' should be changed to read ' The path data delay measurements are based on the selected DDMP.'.

Response   *Response Status* **C**

ACCEPT.

Cl **90** *SC* **90.7**   *P* **63**   *L* **38** # R1-71

Law, David   Hewlett Packard Enterprise

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

I'm not sure that the text '... and does not change until PHY is reset or powered down.' in relation to the DDMP is correct. I don't see any restriction in the specification of the subclause 45.2.3.69a Data Delay Measurement Point bit (3.1813.13) or the subclause 45.2.5.31 Data Delay Measurement Point bit (5.1813.13) that says they can't be change at any time, and as many times as desired.

In addition, the default for both of these bits is 0, setting the DDMP to the beginning of the SFD. As a result, if the PHY is reset or powered down the DDMP is always set to the beginning of the SFD.

Finally, as noted in subclause 90.4.3.1.1 and subclause 90.4.3.2.1 'Semantics', 'The use of the beginning of the SFD, or the beginning of the first symbol after the SFD, as the DDMP requires consistent configuration of both the gRS and the PCS (see 45.2.3.69a) for correct operation.'.

SuggestedRemedy

Suggest that the last sentence of the first paragraph of subclause 90.7 be changed to read 'The choice of the DDMP is implementation-dependent but requires consistent configuration of both the gRS and the PHY for correct operation.'.

Response   *Response Status* **C**

ACCEPT.

Cl **90** *SC* **90.7**   *P* **64**   *L* **28** # R1-15

Ran, Adee   Cisco Systems, Inc.

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

The parentheticals "if available" and "if supplied" appear twice in this paragraph. They create a distraction and make the text hard to read.

SuggestedRemedy

Delete "if available" and "if supplied" (and the enclosing commas) in the last sentence.

Response   *Response Status* **C**

ACCEPT.

Cl **90** *SC* **90.7**   *P* **64**   *L* **40** # R1-33

Kabra, Lokesh   Synopsys, Inc.

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

The sentence starting with "The minimum path data delay error … " looks incorrect; The mean does not give the "minimum error" but only reduces the peak value of absolute error.

SuggestedRemedy

Change the sentence to " The path data delay error of the sublayer can be minimised by using the mean of its maximum and minimum path data delay values as its path data delay value."

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **90**   Page 18 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn *SC* **90.7**   11/17/2022 6:45:48 AM
SORT ORDER: Clause, Subclause, page, line

Cl **90**   *SC* **90.7**   *P* **65**   *L* **7**   # R1-62

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

The multilane ability (3.1800.11) is read-only, and cannot be set. Propose a few changes for the sentence.

SuggestedRemedy

Change

"it is recommended that the transmit and receive path data delays be reported as if the DDMP is at the start of the FEC codeword and/or at the start of the PCS lane distribution sequence (when the multilane ability (3.1800.11) bit is set - see 45.2.3.67.3)."

To

"it is recommended that the transmit and receive path data delays be reported as if the DDMP is at the start of the FEC codeword and/or at the start of the PCS lane distribution sequence (when the multilane ability (3.1800.11) bit is read as one - see 45.2.3.67.3)."

Response   *Response Status*   **C**

ACCEPT.

Cl **90**   *SC* **90.7**   *P* **65**   *L* **35**   # R1-63

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

For "multiple lanes" in the paragraph from line 35 to line 40, it's better to clarify whether it's for PCS lane or PMA/PMD lane.

SuggestedRemedy

Replace "multiple lanes" with "multiple PCS lanes" in the paragraph from line 35 to line 40

Response   *Response Status*   **C**

ACCEPT.

Cl **90**   *SC* **90.7**   *P* **65**   *L* **35**   # R1-64

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

For "multiple lanes" in the paragraph from line 41 to line 50, my understanding is it's PMA/PMD lanes.

SuggestedRemedy

Change

"Lane skew can be present on a transmitter with multiple lanes when the PMA/PMD lanes have different static latencies ..."

To

"Lane skew can be present on a transmitter with multiple PMA/PMD lanes when the PMA/PMD lanes have different static latencies ..."

Response   *Response Status*   **C**

ACCEPT.

Cl **90**   *SC* **90.7**   *P* **65**   *L* **42**   # R1-65

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

The paragraph from line 41 to line 50 and the note 4 are specified for the transmitter, which requires the transmit skew to be minimized, ideally to zero. The previous paragraph from line 35 to line 40 is for the receiver. I would like to firstly specify for the transmitter, then the receiver.

SuggestedRemedy

Propose to move the texts from line 41 to 52 at before the previous paragraph

Response   *Response Status*   **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **90**   Page 19 of 20

COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **90.7**   11/17/2022 6:45:48 AM

SORT ORDER: Clause, Subclause, page, line

Cl **90**   *SC* **90.7**   *P* **66**   *L* **9**   # R1-66

Rodrigues, Silvana   Huawei Technologies Co., Ltd

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

The NOTE 6 is relevant to TX_NUM_BIT_CHANGE and RX_NUM_BIT_CHANGE, and it may be better to move NOTE 6 after the paragraph of line 31 to line 33 of page 65.

SuggestedRemedy

Propose to move NOTE 6 at page 66 after the paragraph of line 31 to line 33 of page 65.

If this is accepted, the NOTE 6 should be revised as the NOTE 4, and renumber the current NOTE 4 and 5.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Moved NOTE 6 at page 66 after the paragraph of line 31 to line 33 of page 65 and renumbered the NOTEs as needed.

Cl **90**   *SC* **90.7**   *P* **66**   *L* **11**   # R1-67

Rodrigues, Silvana   Huawei Technologies Co., Ltd

Comment Type **T**   *Comment Status* **A**

"to reduce the number of timestamping accuracy impairments (see Annex 90A).", the word "the number of" may be unnecessary, propose to delete it.

SuggestedRemedy

Change

"to reduce the number of timestamping accuracy impairments (see Annex 90A)"

To

"to reduce timestamping accuracy impairments (see Annex 90A)"

Response   *Response Status* **C**

ACCEPT.

Cl **90A**   *SC* **90A.5.2**   *P* **72**   *L* **29**   # R1-34

Kabra, Lokesh   Synopsys, Inc.

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

Adjusted arrival time shold be T2 - PDPDD

SuggestedRemedy

Change "T2 + " to "T2 - "

Response   *Response Status* **C**

ACCEPT.

Cl **90A**   *SC* **90A.7**   *P* **74**   *L* **38**   # R1-76

de Koos, Andras   Microchip Technology

Comment Type **T**   *Comment Status* **A**

The characteristics of the varying intrinsic delays when multiple PHY functions are cascaded may be incomplete. Thinking about the 802.3df/dj idea of concatenated FECs for 800GE over 200Gbps physical links, it is possible that the phase of the cascaded functions may play a part. The example in 90A.7 shows the functions being completely in-phase, i.e. their minima and maxima coincide. If the minima and maxima never coincide, then I believe the conclusion still holds, i.e. that the total delay is a constant : [sum(function Tx delays) + sum(function Rx delays)] = [sum(function Tx delay + Rx delay)].

HOWEVER, it will look strange, as the variation of the sum of functions may no longer be equal to the sum of the variations observed for each function. The peak-to-peak delay variation would thus depend on the relative phase of the delay functions. It becomes difficult to distinguish intrinsic PHY delay from variable PHY delay in such a case.

SuggestedRemedy

The PHY function delay example should be updated to show that the maxima and minima of the delay functions need not ever coincide.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Applied changes as shown in
https://www.ieee802.org/3/cx/public/nov22/dekoos_3cx_01_1122.pdf (subclause 90.7) and
https://www.ieee802.org/3/cx/public/nov22/dekoos_3cx_02_1122.pdf (annex 90A), with the following changes:
====> "2)The functions' periods are relatively prime, i.e. the maxima (and minima) of the functions' latency are guaranteed to coincide eventually" to "2)The functions' periods are unrelated, i.e. the maxima (and minima) of the functions' latency are guaranteed to coincide eventually"
====> "In a non-ideal variation of scenario 2), the period of a function is a near-prime of the other functions in-stead of an actual prime. For example, if the ratio of the functions' periods is 17/18, then the maxima (and minimal) of the function's variable latency will coincide to within one 18th of the second function's period." to "In a non-ideal variation of scenario 2), the period of one function is a non-integer multiple of the period of the other function. For example, if the ratio of the functions' periods is 17/18, then the maxima (and minimal) of the function's variable latency will coincide to within one 18th of the second function's period."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **90A**   Page 20 of 20
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **90A.7**   11/17/2022 6:45:48 AM
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