

P802.3z Draft 3.0 Comments

Comment ID	88	Topic	
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CI 35 **SC** 35.2.2 **P** 35.7 thro **L**

Comment Type TR **Comment Status** D

The format and content of the GMII signal definitions is inconsistent. If the definitions are incremental to the MII definitions as suggested in 35.1.1.e, page 3, then redundant information should be removed from the GMII definitions. If the GMII definitions are standalone, then complete definitions are needed.

In addition, the order in which information is presented in the definitions is inconsistent which makes them harder to use.

SuggestedRemedy

I will assist Bob Grow with remedy once the question of incremental or standalone definitions is answered.

Proposed Response **Response Status** Z

This comment will be resubmitted as a WG ballot comment

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CI 35 **SC** 35.2.2.2 **P** 35.7 **L** 34-37

Comment Type TR **Comment Status** A

GTX_CLK is defined as the timing reference for certain signals, but there is no statement as to when the value of those signals is sampled by the GMII receiver.

SuggestedRemedy

Add the sentence

"The values of TX_EN, TX_ER and TXD are sampled by the PHY on the rising edge of GTX_CLK."

Proposed Response **Response Status** C

Replace first paragraph of 35.2.2.2 with:
GTX_CLK is a continuous clock, used for operation at 1000 Mb/s. GTX_CLK provides the timing reference for the transfer of the TX_EN, TX_ER, and TXD signals from the Reconciliation sublayer to the PHY. The values of TX_EN, TX_ER and TXD are sampled by the PHY on the rising edge of GTX_CLK. GTX_CLK is sourced by the Reconciliation sublayer.

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CI	35	SC	35.2.2.3	P	35.8	L	2
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Comment Type	TR	Comment Status	D
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How does this definition of the frequency of RX_CLK interact with the MII definitions, i.e. bit_rate/8 versus bit_rate/4?

SuggestedRemedy

Proposed Response		Response Status	Z
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This is covered in 35.2.

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CI	35	SC	35.2.2.3	P	35.7	L	45-48
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Comment Type	TR	Comment Status	A
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RX_CLK is defined as the timing reference for certain signals, but there is no statement as to when the value of those signals is sampled by the GMII receiver.

SuggestedRemedy

Add the sentence

"The values of RX_DV, RX_ER and RXD are sampled by the reconciliation layer on the rising edge of RX_CLK."

Proposed Response		Response Status	C
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Replace the first and second paragraphs of 35.2.2.3 with:

RX_CLK is a continuous clock which provides the timing reference for the transfer of the RX_DV, RX_ER and RXD signals from the PHY to the Reconciliation sublayer. RX_DV, RX_ER and RXD are sampled by the Reconciliation sublayer on the rising edge of RX_CLK. RX_CLK is sourced by the PHY.

The frequency of RX_CLK may be derived from the received data or it may be that of a nominal clock (e.g., GTX_CLK). When derived from the received data RX_CLK shall have a frequency equal to one-eighth of the data rate of the received signal, which is nominally 125 MHz.

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CI 35 **SC** 35.2.2.3 **P** 35.8 **L** 1-2

Comment Type TR **Comment Status** A

The statement that "While RX_DV is asserted, RX_CLK shall be synchronous with the recovered data and ..." is curious. By definition RXD is synchronous with RX_CLK. And if the "recovered data" reference is not to RXD, then I doubt that there is a way of enforcing the shall.

SuggestedRemedy
Delete the phrase.

Proposed Response **Response Status** C
See response to comment 91.

Comment ID 89 **Topic**

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CI 35 **SC** 35.2.2.3 **P** 35.7 **L** 46-47 46-

Comment Type TR **Comment Status** A

The issue in lines 47-48 is the frequency of RX_CLK. There is no need to discuss the "RX_CLK reference".

SuggestedRemedy
Replace the sentence beginning on line 47 with

"The frequency of RX_CLK may be derived from the received data or it may be that of a nominal GTX_CLK."

Proposed Response **Response Status** C
See response to comment 91.

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CI 35 **SC** 35.2.2.5 **P** 35.9 **L** 13-29

Comment Type TR **Comment Status** A

There is no explicit indication that values of TXD in table 35-1 are in hex.

SuggestedRemedy
Explicitly indicate that the values of TXD in table 35-1 are in hex.

Proposed Response **Response Status** C

Move last sentence of the last paragraph of 35.2.2.5 to the end of the preceding paragraph (to 35.9L7) for topical consistency. Add new sentence to last paragraph (35.9L9):

The encodings of TXD<7:0> in the table are in hexadecimal.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.2.2.8 **P** 35.13 **L** 3-20

Comment Type TR **Comment Status** A

There is no explicit indication that values of TXD in table 35-2 are in hex.

SuggestedRemedy
Explicitly indicate that the values of TXD in table 35-2 are in hex.

Proposed Response **Response Status** C

(Assume comment refers to RXD not TXD.) Move last sentence of the last paragraph of 35.2.2.8 to the end of the fourth paragraph (to 35.12L14) for topical consistency. Add new sentence to last paragraph (35.12L53):

The encodings of RXD<7:0> in the table are in hexadecimal.

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CI 35 **SC** 35.2.3.2.1 **P** 35.16 **L** 44

Comment Type TR **Comment Status** A

The phrase "and when originally generated by the MAC" is curious. The MAC I believe generates one version of the preamble and never changes it. The word "originally" is not needed.

SuggestedRemedy
Remove the word "originally"

Proposed Response **Response Status** C

Accept.

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CI 35 **SC** 35.2.3.2.1 **P** 35.17 **L** 1-4

Comment Type TR **Comment Status** A

LSB of SFD is not identified.

SuggestedRemedy
Identify LSB of SFD.

Proposed Response **Response Status** C

Move the second paragraph 35.16L49 to follow the SFD example and edit to read:

In the preceding example, the preamble and SFD are displayed using the bit order they would have if transmitted serially. This means that for each octet the leftmost bit represents the LSB of the octet, and the rightmost bit the octet MSB.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.4.1 **P** 35.20 **L** 42-54

Comment Type TR **Comment Status** A

Much of the material in these three paragraphs is redundant and the rest needs reorganization.

SuggestedRemedy

Replace the 3 paragraphs with the following:

"All AC timing measurements are made at the GMII receiver input pins and use the Vil_ac_max and Vih_ac_min thresholds."

Setup and hold time measurements are made with both the "data" and the "clock" supplied to the GMII receiver inputs through the test circuits shown in Figure 35-21. One copy of the circuit is used to supply the "clock" and a second copy is used to supply the "data". The transmission lines in the two circuits shall be matched in delay.

The setup and hold time specifications shall be met under all combinations of worst case GMII driver supply potential and ambient temperature variation, worst case GMII driver process variation and worst case transmission line impedance variation.

The GTX_CLK and RX_CLK signal timing parameters are illustrated in Figure 35-17.

Figure 35-18 shows the timing relationship for the signals at the input of a GMII receiver."

Proposed Response **Response Status** C

Accept with modification. Accepted text also requires addition of PICs items for matched delay and setup and hold times. Text:

All AC timing measurements are made at the GMII receiver input pins and use the VIL_AC(max) and VIH_AC(min) thresholds.

Setup and hold time measurements are made with both the "data" and

the "clock" supplied to the GMII receiver inputs through the test circuits shown in Figure 35-20. One copy of the circuit is used to supply the "clock" and a second copy is used to supply the "data". The transmission lines in the two circuits shall be matched in delay.

The setup and hold time specifications shall be met under all combinations of worst case GMII driver supply potential and ambient temperature variation, worst case GMII driver process variation, worst case transmission line impedance variation and worst case termination network component impedance variation.

The GTX_CLK and RX_CLK signal timing parameters are illustrated in Figure 35-17. Figure 35-18 shows the timing relationship for the signals at the input of a GMII receiver.

at the end of the last sentence of the third paragraph of the Suggested Remedy "and worst case termination component impedance variation."

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CI 35 **SC** 35.4.1 **P** 35.21 **L** 1-40

Comment Type TR **Comment Status** A

Figures need corrections.

SuggestedRemedy

Delete Figure 35-19 as it is no longer needed.

Correct the labels on the thresholds in Figures 35-17 and 35-18 to read Vih_ac_min and Vil_ac_max.

Proposed Response **Response Status** C

Accept

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.4.2.1 **P** 35.23 **L** 21-34

Comment Type TR **Comment Status** A

Propose changes to Tpd, Tsetup, Thold and notes 1 and 2 of Table 35-8.

SuggestedRemedy

Delete Tpd.
Change Thold from 1.00 ns max to 1.50 ns min.
change Tsetup from 2.00 ns max to 2.5 ns min.
Add the following note

"GMII receivers shall require setup and hold times not exceeding 2.00 ns and 1.00 ns respectively for correct operation.

Proposed Response **Response Status** C

Accept with modification. Delete tPD, change tSETUP to 2.50 and tHOLD to 0.50. Replace note 2 with: "GMII receivers require setup and hold times not exceding 2.00 ns and 0.00 ns respectively for correct operation.

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CI 35 **SC** 35.4.2.1 **P** 35.22 **L** 13-23

Comment Type TR **Comment Status** A

Change template 0.500 V. and 1.900 Volt limits to Vil_ac_max and Vih_ac_min respectively for consistency.

SuggestedRemedy

See comment.

Proposed Response **Response Status** C

Accept with modification. Voltages in comment are modified because of other changes, and editorial presentation of names is changed (subscript and capatilize IL_AC and put max in parenthesis).

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CI 35 **SC** 35.4.2.1 **P** 35.23 **L** 2-13

Comment Type TR **Comment Status** A

Propose that data rise and fall time specifications and note 1 be deleted from Table 35-7 and that Vil_ac and Vih_ac be added.

SuggestedRemedy

Delete data rise and fall time specs and note 1.
Add Vil_ac with a max value of 0.500 Volts.
Add Vih_ac with a min value of 1.900 Volts.

Proposed Response **Response Status** C

Accept with modifications. Vil_ac(max) Input Low Voltage AC of 0.70 V, Vih_ac(min) Input High Voltage of 1.90 V. Change condition description in other entries to refer to these names instead of voltage levels, and change "data path" to "clock" (two occurances) in the third paragraph.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.4.2.1 **P** 35.22 **L** 32

Comment Type TR **Comment Status** A
Text does not clearly state that test must be passed under worst case conditions of several parameters.

SuggestedRemedy
Insert after ""GMII Receiver Input Potential Template""

under all combinations of worst case GMII driver supply potential and ambient temperature variation, worst case GMII driver process variation and worst case transmission line impedance variation.

Proposed Response **Response Status** C
Accept. Add to end of last sentence "and worst case termination component impedance variation.

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CI 35 **SC** 35.4.2.1 **P** 35.23 **L** 38-51

Comment Type TR **Comment Status** A
Propose changes to Tpd, Tsetup, Thold and notes 1 and 2 of Table 35-9.

SuggestedRemedy
Delete Tpd.
Change Thold from 1.00 ns max to 1.50 ns min.
change Tsetup from 2.00 ns max to 2.5 ns min.
Add the following note

"GMII receivers shall require setup and hold times not exceeding 2.00 ns and 1.00 ns respectively for correct operation.

Proposed Response **Response Status** W
Accept with modification. Delete tPD, change tSETUP to 2.50 and tHOLD to 0.50. Replace note 2 with: "GMII receivers require setup and hold times not exceeding 2.00 ns and 0.00 ns respectively for correct operation.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.4.2.1 **P** 35.23 **L** 27-28, 43

Comment Type TR **Comment Status** A

Tables 35-8, 35-9.

The tHIGH and tLOW times in these two tables compute to a duty cycle of approx. 30-70%. Draft D2.1 had the duty cycles specified at 40-60%. Couldn't find a comment in D2.1 comment database mentioning this change. Why did it change? Not sure whether I agree or disagree, would like to know justification.

SuggestedRemedy

Proposed Response **Response Status** W

The numbers were discussed and selected during 802.3z working group meetings. The 40-60% numbers in D2.1 were primarily an artifact from MII definitions where the 40-60% was driven by nibble wide operation with the 4b/5b code.

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CI 35 **SC** 35.4.2.1 **P** 35.22 **L**

Comment Type T **Comment Status** A

The "GMII Point to Point Transmission Line Test Topology" differs from that proposed in the interim meeting. Specifically, the GMII receiver load is shown as a lumped 5 pf capacitor. Given that the template only bounds edge rates on the slow end, edge rates can be as fast as technology/design allows.

The presentation which Bill Quackenbush made in the interim meeting showed that signal integrity was extremely dependent upon the actual receiver loading characteristics and the measurement point.

SuggestedRemedy

1. Modify Figure 35-21 to include a representation of the receive parasitics (the presentation had an L - C representation. Show the measurement point at the same point that a receiver would sample the waveform.
2. Add wording indicating that manufacturers shall disclose their receiver electrical parasitic models to be considered GMII compliant.

Proposed Response **Response Status** Z

Withdrawn. May resubmit with another Remedy.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.4.2.1 **P** 35.22 **L**

Comment Type T **Comment Status** A

This one is a bit of a nit...The GMII Receiver Input Potential Template shows a window of permissible edge rates; there is no statement about mandating monotonicity in the transition region. Since the template is valid for clocks, this is requisite for proper system operation.

SuggestedRemedy

Add a disclaimer that indicates that the template is for bounding the edge transition times, nonmonotonic behavior in the transition region is not permissible for clocks.

Proposed Response **Response Status** C

Accept in principle. Add a slew rate specification to the AC Specifications for transition region of $\geq 0.6v/ns$.

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CI 35 **SC** 35.4.2.1 **P** 35.22 **L**

Comment Type T **Comment Status** A

The "GMII point-to-point transmission line test topology" shows that all signal integrity measurements will be made in an environment of a uniform 1 ns transmission line. Most system implementors will try to keep this length to a minimum. There is no explicit statement that the GMII interconnects can be other than 1 ns.

SuggestedRemedy

Add wording to indicate that while the test topology is a 1 ns transmission line, actual implementations are not mandated to adhere strictly to this delay/length.

Proposed Response **Response Status** C

Accept. add SuggestedRemedy from "The test topology..." as new paragraph.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.4.2.2 **P** 35.24 **L** 18

Comment Type T **Comment Status** R

Vcc conditions should be removed from the table.
 - Reason: Vcc not used previously and specified levels should not be a function of Vcc.

SuggestedRemedy

Remove the two "Vcc=Min" and two "Vcc=Max" from the Conditions columns of the table.

Proposed Response **Response Status** W

Refers to the driver Vcc specifications set by the vendor.

Comment ID 112 **Topic**

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CI 35 **SC** 35.1.3 **P** 35.3 **L** 27

Comment Type E **Comment Status** A

Remove "-" before "Rates".

SuggestedRemedy

Proposed Response **Response Status** W

The hyphen is a strikethrough. No change necessary.

Comment ID 2 **Topic**

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CI 35 **SC** 35.2.1.1.1 **P** 35.4 **L** 47

Comment Type E **Comment Status** A

add: TX_ER and TX_CLK to list.

SuggestedRemedy

"Map the primitive PLS_DATA.request to the GMII signals TXD<7:0>, TX_EN, TX_ER, TX_CLK, and GTX_CLK."

Proposed Response **Response Status** W

It is appropriate to add TX_ER but not TX_CLK. TX_CLK is not used in GMII mode, only in MII mode, which is specified by clause 22 and its PLS service primitive mappings. Replace 35.2.1.1.1 with:

Map the primitive PLS_DATA.request to the GMII signals TXD<7:0>, TX_EN, TX_ER, and GTX_CLK."

Comment ID 153 **Topic**

Name Maui GMII meeting

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CI 35 **SC** 35.2.2.2 **P** 35.7 **L** 39

Comment Type E **Comment Status** A

Second sentence of second paragraph is redundant

SuggestedRemedy

Delete it.

Proposed Response **Response Status** C

Accept.

P802.3z Draft 3.0 Comments

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CI 35 **SC** 35.2.2.8 **P** 35.12 **L** 52-53

Comment Type E **Comment Status** A

The sentence "These signals shall transition synchronously with ..."
is redundant.

SuggestedRemedy
Remove it.

Proposed Response **Response Status** C
Accept.

Comment ID 96 **Topic**

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CI 35 **SC** 35.2.2.8 **P** 35.12 **L** 1-14

Comment Type E **Comment Status** A

The specification of the value of RXD in certain instances is inconsistent.
In line 2, a specific value is given; in line 13, a specific value is not given.

SuggestedRemedy
Remove specific values for RXD and refer to the appropriate table.

Proposed Response **Response Status** C
35.12L2 -- ... signal while driving the specific value listed in Table 35-2 onto RXD<7:0>.

Comment ID 154 **Topic**

Name Maui GMII meeting

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CI 35 **SC** 35.2.2.8 **P** 35.13 **L** 10

Comment Type E **Comment Status** A

Remove "indication" from False Carrier description.

SuggestedRemedy
See comment.

Proposed Response **Response Status** C
Accept.

Comment ID 155 **Topic**

Name Maui GMII meeting

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CI 35 **SC** 35.2.2.9 **P** 35.13 **L** 41

Comment Type E **Comment Status** A

The break mark on CRS is not in line with others.

SuggestedRemedy
Move it.

Proposed Response **Response Status** C
Accept.

P802.3z Draft 3.0 Comments

Comment ID 115 **Topic**

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CI 35 **SC** 35.2.3.2.1 **P** 35.16 **L** 54

Comment Type E **Comment Status** A

Reference 7.2.3.3 pertains to AUI and is not a good reference for SFD.

SuggestedRemedy

Replace "7.2.3.3" with "4.2.6".

Proposed Response **Response Status** C

Accept.

Comment ID 113 **Topic**

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CI 35 **SC** 35.2.5 **P** 35.19 **L** 34

Comment Type E **Comment Status** A

Wrong reference for 37.2.4,

SuggestedRemedy

Replace "37.2.4" with "37.2.6".

Proposed Response **Response Status** W

Accept.

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CI 35 **SC** 35.4.2 **P** 35.22 **L** 5

Comment Type E **Comment Status** A

The clause heading 35.4.2 "General Electrical Characteristics" does not seem needed.

SuggestedRemedy

Delete it.

Proposed Response **Response Status** C

Accept. Renumber 35.4.2.1 to 35.4.2 and 35.4.2.2 to 35.4.3.

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CI 35 **SC** 35.4.2.1 **P** 35.23 **L** 46

Comment Type E **Comment Status** A

The wrong clock signal is referenced for the setup and hold times.

SuggestedRemedy

Replace "GTX_CLK" with "RX_CLK" in tSETUP and tHOLD descriptions.

Proposed Response **Response Status** W

Accept, duplicate of 108.

P802.3z Draft 3.0 Comments

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CI	35	SC	35.4.2.2
		P	35.24
		L	1-27
Comment Type	E	Comment Status	A
The DC characteristics are the last section in 35.4. They should be at the beginning.			
SuggestedRemedy			
Move 35.4.2.2 to follow immediately after the first paragraph of 35.4 and before the subclause "Signal Timing Characteristics".			
Proposed Response		Response Status	C
Accept, correct all references to tables and figures in 35.4.			

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		P	35.24
		L	5
Comment Type	E	Comment Status	R
The phrase "data path signal" is used but I don't find a definition of this term in the draft. The specific signals should be listed.			
SuggestedRemedy			
Add a sentence, "These specifications apply to TXD<7:0>, TX_EN, TX_ER, GTX_CLK, TX_CLK, COL, RXD<7:0>, RX_ER, RX_CLK, CRS, RX_DB, MDC, MDIO."			
Proposed Response		Response Status	W
Remedy needs modification. MDC and MDIO are management path signals specified in clause 22.			

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		P	35.24
		L	3-10
Comment Type	E	Comment Status	R
The wording refers to "Physical layer" only but specifications apply to link layer also.			
SuggestedRemedy			
On page 35.24 lines 4, 5, and 7: Change "Physical layer" to "physical or link layer".			
Proposed Response		Response Status	W
Reject. The DC specifications are only related to the PHY, which includes PMD per figure 35-1.			

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CI	35	SC	35.2.2.7
		P	35.11
		L	22
Comment Type		Comment Status	R
Statement "that data on RXD<7:0> is synchronous to RX_CLK" is true by definition and redundant.			
SuggestedRemedy			
Remove clause.			
Proposed Response		Response Status	C
Reject. Some redundancy is good.			

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CI 35 **SC** 35.2.3.2.1 **P** 35.16 **L** 53

Comment Type **Comment Status** A

Insert the word "immediately" before the phrase "follows the preamble" for greater precision.

SuggestedRemedy

See suggestion.

Proposed Response **Response Status** C

Accept.

Comment ID 108 **Topic**

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Co. cisco systems, inc.

CI 35 **SC** 35.4.2.1 **P** 35.23 **L** 45-47

Comment Type **Comment Status** A

Setup and hold times should be relative to RX_CLK.

SuggestedRemedy

Change GTX_CLK to RX_CLK in Tsetup and Thold specs.

Proposed Response **Response Status** W

Accept.