

IEEE P802.3bs D3.4 200 Gb/s & 400 Gb/s Ethernet 4th Sponsor recirculation ballot comments

CI 0 SC 0 P L # r04-1
Berger, Catherine

Comment Type G Comment Status X

This draft meets all editorial requirements.

SuggestedRemedy

Proposed Response Response Status O

CI 120D SC 120D.3.1.1 P 352 L 13 # r04-10
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

The value of AC common-mode output voltage is inconsistent between Table 120D-1 (30mV) and PICS item TC5 (12mV). They must be consistent.
In the other clauses, 30mV was used for cable PHYs and 100GBASE-KP4, and 12mV was used for C2C and backplane PHYs except 100GBASE-KP4. Cable PHYs were specified as 30mV at TP2 to take account of the effects of the host board trace. 100GBASE-KP4 was specified as 30mV at TP0a, but 100GBASE-KP4 was not used in practice. In C2M spec, 17.5mV at TP1a or TP4 is used. It is also odd to have a higher value at TP0a in C2C than the value at TP1a in C2M spec. Since this C2C spec is at TP0a, I recommend to use 12mV as the consistent value, because PAM4 is more stringent than NRZ, and 30mV is the value at TP2 including the effect of host board trace.

The value in the other clauses:
100GBASE-CR4, Clause 92, Table 92-6: 30mV (TP2)
100GBASE-KR4, Clause 93, Table 93-4: 12mV (TP0a)
100GBASE-KP4, Clause 94, Table 94-13: 30mV (TP0a)
CAUI-4 (C2C), Annex 83D, Table 83D-1: 12mV (TP0a)
CAUI-4 (C2M), Annex 83E, Table 83E-1, 83E-3: 17.5mV (TP1a, TP4)
25GBASE-CR, Clause 110, Table 92-6: 30mV (TP2)
25GBASE-KR, Clause 111, Table 93-4: 12mV (TP0a)
200GAUI-4, 400GAUI-8 (C2M), Annex 120E, Table 120E-1, 120E-3: 17.5mV (TP1a, TP4)

SuggestedRemedy

Change AC common-mode output voltage in Table 120D-1 from 30mV to 12mV.

Proposed Response Response Status O

CI 120D SC 120D.3.2.1 P 359 L 53 # r04-3
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

It says "higher amplitude values", but 93C.2 step 8 does not define higher amplitude values. The term "amplitude" is misleading, because it often implicates signal amplitude. We should be more specific which variable is referred here.

SuggestedRemedy

Change "If higher amplitude values are used"
to
"If a higher value of the channel noise voltage sigma_bnm is used".

Proposed Response Response Status O

CI 120D SC 120D.5.4.2 P 366 L 26 # r04-11
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

An item is missing in PICS in 120D.5.4.2 corresponding to "shall" in 120D.3.2.3 Transmitter equalization feedback (optional), P360, L39.

SuggestedRemedy

Add an optional item to PICS table in 120D.5.3 Major capabilities/options as follows:

Item: *TEFB
Feature: Transmitter equalization feedback capability
Subclause: 120D.3.2.3
Value/Comment: Transmitter equalization feedback is an optional capability for a 200GAUI-4 or a 400GAUI-8 chip-to-chip receiver.
Status: O
Support: Yes ☐ No ☐

Add an item to PICS table in 120D.5.4.2 Receiver as follows:

Item: RC5
Feature: Transmitter equalization feedback
Subclause: 120D.3.2.3
Value/Comment: Operates as described in 120D.3.2.3.
Status: TEFB:M
Support: Yes ☐ N/A ☐

Proposed Response Response Status O

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CI 120E SC 120E.3.1 P 371 L 20 # r04-12
Dawe, Piers J G Mellanox Technologie

Comment Type TR Comment Status X

Following up on previous comments: The host is allowed to output a signal with 900 mV peak-to-peak amplitude but only 32 mV eye height - a very bad signal. If the module is exactly like the reference receiver, that would work, but with a good but slightly different receiver the eye will collapse with not enough margin for e.g. temperature changes causing mistuning. The module can't inconvenience the host in the same way because its peak-to-peak output voltage is measured before most of the loss.
D3.0 comment 119, D3.2 r02-46, D3.3 r03-40.

SuggestedRemedy

Add a vertical eye closure spec to protect the module from such unexpected signals. VEC defined as largest of three ratios for the three sub-eyes. A reference bad signal (the module stressed input signal) could have VEC ~8 dB, a very bad low loss host to the D3.4 spec could have 16 dB, so set a limit e.g. max 12 dB. See presentation.

Proposed Response Response Status O

CI 120E SC 120E.3.1.7 P 374 L 5 # r04-5
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type E Comment Status X

In 2014 IEEE-SA Standards Style Manual, 13.3.2 Numerical values, it is written as "Digits should be separated into groups of three, counting from the decimal point towards the left and right. The groups should be separated by a space, and not a comma, period, or dash." and "In numbers of four digits, the space is not necessary, unless four-digit numbers are grouped in a column with number of five digits or more." The columns of G and Z1/2pi are not following this style. The column of P1/2pi is OK.

SuggestedRemedy

In columns of G and Z1/2pi, separate digits into groups of three by a space, counting from the decimal point toward the right.
For example, change "0.891251" to "0.891 251" in the cell of column G and row 1 dB peaking.

Proposed Response Response Status O

CI 120E SC 120E.3.1.7 P 374 L 14 # r04-4
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

In the row of 4dB peaking, the column of Z1/2pi has the value of "7.58765", that is one significant digit less than the other rows. The original proposal was "7.587650". Although the numerical values are same, it should have the same number of significant digit as the other rows.

SuggestedRemedy

Change "7.58765" to "7.587650".

Proposed Response Response Status O

CI 120E SC 120E.3.4.1.1 P 382 L 15 # r04-6
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

It says "has to be greater than or equal to 7dB". IEEE-SA Standards Style Manual says that the use of the word "must" is deprecated and shall not be used when stating mandatory requirements. Although IEEE-SA Standards Style Manual does specifically state the use of the words "have to", we should deprecate it as well.

SuggestedRemedy

Change "has to be" to "should be" in line 15 and line 19.

Proposed Response Response Status O

CI 120E SC 120E.5.4.3 P 390 L 6 # r04-8
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

An item is missing in PICS in 120E.5.4.3 corresponding to "shall" in 120E.3.3.2 Host stressed input test, P378, L7.

SuggestedRemedy

Add a row to PICS table in 120E.5.4.3 Host input as follows:

Item: RH2
Feature: Host stressed input test
Subclause: 120E.3.3.2
Value/Comment: Table 120E-5
Status: M
Support: Yes []

Proposed Response Response Status O

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CI 120E SC 120E.5.4.4 P 390 L 14 # r04-9
Hidaka, Yasuo Fujitsu Laboratories of

Comment Type T Comment Status X

An item is missing in PICS in 120E.5.4.4 corresponding to "shall" in 120E.3.4.1 Module stressed input test, P380, L37.

SuggestedRemedy

Add a row to PICS table in 120E.5.4.4 Module input as follows:

Item: RM2
Feature: Module stressed input test
Subclause: 120E.3.4.1
Value/Comment: Table 120E-8
Status: M
Support: Yes []

Proposed Response Response Status O

CI 122 SC 122.6 P 248 L # r04-2
Burrell, Gary Elenion Technologies

Comment Type T Comment Status X

IEEE 803.3.bs in Table 122-5 follows the CWDM wavelength grid defined in ITU-T G.694.2 and allows 13 nm wavelength variation within each channel. Nothing is said in the 802.3.bs about the characteristics of this variation, leading the reader to assume that all of 13 nm is random variation

As mentioned in ITU-T G.694.2 wavelength variations have two main components:

- 1.Laser variations around a nominal wavelength due to manufacture tolerances
- 2.Uncooled laser wavelength shift as a result of temperature changes

G.694.2 further states OSpecific values and allocations of this variation will be defined in individual applications.O however 802.3bs does not currently define this.

Therefore, it would be useful to specify what portion of the 13 nm is due to manufacturing random variation of the laser wavelength and which portion the variation can be expected to be similar for all of the four channel lasers.

Not specifying this could result in requiring a Reciever design that is more complex and expensive than otherwise required.

See presentation

SuggestedRemedy

Propose the random wavelength channel to channel variation shall be less than +/- 3nm and the wavelength variation due to temperature shifts shall be less than +/- 3.5 nm

This results in the same (total) Wavelength range as show in Table 122-5
No change in the Wavelength grid or (overall) tolerance from ITU G.694.2
ITU already specifies that this allocation will be defined in individual applications

Proposed Response Response Status O

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Cl 122	SC 122.7.1	P 251	L 48	# r04-7
Hidaka, Yasuo		Fujitsu Laboratories of		

Comment Type **T** *Comment Status* **X**

In the footnote a of Table 122-10, it says "the total average launch power limit has to be met". IEEE-SA Standards Style Manual says that the use of the word "must" is deprecated and shall not be used when stating mandatory requirements. Although IEEE-SA Standards Style Manual does not state the use of the words "have to", we should deprecate it as well.

SuggestedRemedy

Change "As the total average launch power limit has to be met" to "As the total average launch power limit should be met".

Proposed Response *Response Status* **O**