

IEEE P802.3bj D1.4 100 Gb/s Backplane and Copper Cable 5th Task Force review comments

CI 91 SC 91.5.3.3 P 143 L 37 # 2  
 Ran, Adee Intel

Comment Type TR Comment Status D

The text in this paragraph results from resolution of comment #18 on D1.3, but the response wasn't implemented correctly.

According to ran\_3bj\_01a\_0113 slide 11, symbol errors should be counted in blocks of 2<sup>13</sup> codewords, and the threshold should be 417 errors (instead of a period of 1 ms and a threshold of 870 used in D1.4; these values were taken from an earlier version of the presentation).

The behavior of the error monitoring function is very sensitive to the number of symbols in the observation window. Specifying a period instead of an exact number of symbols might cause confusion or implementations with varying behavior (e.g. false alarm rates, "guaranteed" MTTFPA).

Using a symbol count instead is unambiguous and easy to implement.

The threshold was calculated so as to trigger at a SER of 6.6e-5, which translates to a UCR of 4.95e-17 and an MTTFPA of 1.5e9 years.

Suggested remedy includes definition of the threshold as a parameter K, to facilitate using a different value for KP4 (subject of another comment).

*SuggestedRemedy*

Change "in consecutive non-overlapping 1 ms intervals" to "in consecutive non-overlapping blocks of 8192 codewords".

Change "If the number of symbol errors in a 1 ms interval exceeds 870" to "If the number of symbol errors in a block of 8192 codewords exceeds the threshold K=417".

In PICS item RF8 (91.7.4.2), change "When the number of symbols errors in a 1 ms interval exceeds 870" to "When the number of symbols errors in a block of 8192 codewords exceeds the threshold K".

Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.

Correct the measurement interval and define K values dependent on PHY type per comment #1. Update PICS accordingly.

CI 91 SC 91.5.3.3 P 143 L 37 # 1  
 Ran, Adee Intel

Comment Type T Comment Status D

The error monitoring calculations are based on the 100GBASE-CR4/KR4 RS-FEC. Bypassing error indication is also possible in 100GBASE-KP4, but in that case a higher SER is tolerable (for the same MTTFPA and frame error rate).

To achieve MTTFPA of 15e9 years in KP4, the SER should be below 1.31e-3; with that SER, the \_expected\_ number of errors in a window of 8196 codewords is 5820 - much higher than the K=417 suggested for CR4/KR4.

For technical completeness, in order to prevent frequent disconnections of perfectly safe links, the threshold for 100GBASE-KP4 should be higher. The value in the suggested remedy was selected to have a mean-time-to-disconnect of just over a century.

*SuggestedRemedy*

Change "If the number of symbol errors in a 1 ms interval exceeds 870" to "If the number of symbol errors in a block of 8192 codewords exceeds a threshold K".

Insert a new paragraph after this one, reading "When used to form a 100GBASE-CR4 or 100GBASE-KR4 PHY, the threshold K=417 will be used. When used to form a 100GBASE-KP4, the threshold K=6380 will be used".

Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.

See comment #2.

CI 91 SC 91.5.3.3 P 143 L 39 # 3  
 Cideciyan, Roy IBM

Comment Type ER Comment Status D

Notation in rx\_coded<0:1> is not consistent with notation that has been used.

*SuggestedRemedy*

Replace rx\_coded<0:1> by rx\_coded<1:0>

Proposed Response Response Status W  
 PROPOSED ACCEPT.

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CI **93A** SC **93A.1.2.3** P **318** L **30** #   
Healey, Adam LSI Corporation

Comment Type **T** Comment Status **D**

Draft 1.3 comment #36 was not correctly implemented. In Table 93A-2, the imaginary part of rho\_2 should be -0.04093 and the imaginary part of gamma\_2 should be -0.03914.

*SuggestedRemedy*

Correct the typos.

Proposed Response Response Status **W**

PROPOSED ACCEPT.