802.3dj D2.3 Comment Resolution Logic Topics

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Introduction

- This slide package was assembled by the 802.3dj editorial team to provide background and detailed resolutions to aid in comment resolution.
- Specifically, these slides are for the various logic-topic comments.

Hi_SER Calculation

Comments #3

Hi_SER Calculation - 1
Comment #3

Cl **175** *SC* **175.2.5.3** *P* **298** *L* **32** # 3

Maniloff, Eric Ciena

Comment Type **TR** *Comment Status* **D** *hi_ser (L)*

Currently hi_ser is defined as being calculated based on the number of symbol errors detected in consecutive non-overlapping blocks of 8192 codewords for 1.6TBASE-R.

In 400GbE, hi_ser was based on 8192 codewords. In 800GbE, hi_ser was based on 8192 codewords per 400G flow with the output of the two flows OR'd to report hi_ser. 100GE and 200GE hi_ser is calculated over 2 AM periods. For 400GbE & 800GbE the interval for measurement is equal to an AM period, hence no counter is required. 100GbE and 200GbE have hi_ser intervals = 2 times the AM period.

Currently 1.6TbE has changed the interval to be less than the AM period. The hi_ser measurement window should be aligned with an AM period, this will maintain the 104.8576 µs time interval used in previous the PCS of 400 & 800GbE.

SuggestedRemedy

Two resolutions are possible:

Option 1: Change the hi_ser measurement interval to 32768 codewords (4x8192) to be consistent with the AM period, with the threshold for declaring hi_ser scaled by a factor of 4.

Option 2: Follow the approach of 800GbE, and calculate hi_ser individually in each FEC decoder over 8192 codewords with the results OR'd.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment does not apply to the substantive changes between IEEE P802.3dj D2.2 and D2.3 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

In addition, the comment makes a connection between the alignment marker insertion period and the hi_ser computation period that does not actually exist. There is no logical connection between the AM period and the hi_ser calculation.

The hi_ser calculation has been consistently performed over a block of 8192 codewords from 50GbE through 1.6TbE port speeds. The important metric for asserting the hi_ser indication is the percentage of RS-FEC symbols in error, and both options given in the suggested remedy do not change this value.

The comment does not provide sufficient justification to support the suggested remedy.

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Comment #3

Port Speed	Hi_ser window (codewords)	Hi_ser threshold (symbols)	Hi_ser window (ns)	AM interval (CWs)	AM interval (ns)
50GbE	8192	6380	838860.8	1k	104857.6
100GbE (1x100)	8192	5560	419430.4	4k	209715.2
200GbE	8192	5560	209715.2	4k	104857.6
400GbE	8192	5560	104857.6	8k	104857.6
800GbE (per flow)	8192	5560	104857.6	8k	104857.6
1.6TbE	8192	5560	26214.4	32k	104857.6

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Comment #3

Editorial suggestion: No change

- The draft is technically correct as written.
- The hi_ser window (8192 codewords) and threshold (5560 symbols) are consistent with 100/200/400/800GbE standards.
- The suggested remedy has no technical benefit.
  - The suggested remedy makes no change to the percentage of symbol errors to set hi_ser.
  - A wider window delays setting hi_ser and increases probability of false packet acceptance.
- The potential implementation savings of the suggested remedy are insignificant and do not justify a change at this time in the process.
  - Implementations must have a counter to determine the expected AM spacing. This same counter can be used to indicate quarter AM periods.

Thank you