802.3dj D2.3 Comment Resolution Common 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 common-topic comments.

Mask table
Comment #103

Cl **180** *SC* **180.9.15** *P* **494** *L* **14** # 103

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **D** *mask table (CO)*

The final bin is for ">=16" not for "16" test symbol errors per test block

SuggestedRemedy

Change "16" to "<=16" here and on page 639 line 23, page 805 line 31, page 833 line 53, page 396 line 48 and page 437 line 53 and page 499 line 23

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

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.

Editorial slides will be provided to address the comment.

Table 180–20—Receiver error mask

Test symbol errors per test block, k (see 174A.9.5)	Probability $H_{max}(k)$			
	$p = 1$	$p = 2$	$p = 4$	$p = 8$
11	7.1×10^{-8}	5.8×10^{-11}	3.1×10^{-14}	1.2×10^{-17}
12	7.2×10^{-9}	2.9×10^{-12}	7.5×10^{-16}	1.3×10^{-19}
13	6.7×10^{-10}	1.3×10^{-13}	1.6×10^{-17}	1.2×10^{-21}
14	5.8×10^{-11}	5.6×10^{-15}	3.3×10^{-19}	1.1×10^{-23}
15	4.7×10^{-12}	2.2×10^{-16}	6.1×10^{-21}	9.1×10^{-26}
16	3.8×10^{-13}	8.3×10^{-18}	1.1×10^{-22}	6.9×10^{-28}

The comment premise and proposal are incorrect. See next slide.

The proposed response is thus:

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.

The histogram mask (upper limit) H_max(k) is defined in 174A.9.5 where the mask value for k = 16 is defined (and calculated) as the probability of 16 test symbol errors; not greater than or equal to 16 test symbol errors as the comment purports.

The draft is correct as written.

Mask table
Comment #103

180.9.15 Receiver sensitivity

The measured receiver sensitivity is the lowest value of OMA_{outer} where the PMD receiver meets the BLER requirements in 180.2, measured at the PMA using the test method in either 174A.9.5, 174A.9.6, or 174A.9.7 with parameters provided in Table 180–19. The error mask $H_{max}(k)$ to be used in the method of 174A.9.5 is provided in Table 180–20.

The measurement method is defined in 174A.9.5.

The mask H_max(k) is calculated based on k being:
"H_max(k) is the probability of k error test symbols in a test block with given random bit errors with a BER equal to BER_max."

The confusion may be that for the actual measured histograms defined in 174A.9.3:
"H_m(i)(16) is the probability of 16 or more test symbol errors in a test block for lane i."

Given that the table defines H_max and not H_m, Table 180-20 and other similar tables are correct as written.

174A.9.5 Error mask test method using PMA measurements

This test method evaluates the performance of each physical lane in an AUI component or PMD by measuring each physical lane independently of the others using error checkers and counters in the PMA. Compliance is determined by measuring an error histogram on each lane $H_m^{(i)}(k)$ and comparing the measured histogram to a calculated limit mask $H_{max}(k)$. If this test passes for each lane, then the PHY or xMII Extender will meet the expected codeword error ratio. If this test fails, then the performance may be further verified using the method in 174A.9.6 or 174A.9.7.

For each lane i, measure the error histogram $H_m^{(i)}(k)$ (see 174A.9.3).

The upper limit for $H_m^{(i)}(k)$ is defined by the histogram $H_{max}(k)$. $H_{max}(k)$ is the probability of k error test symbols in a test block with given random bit errors with a BER equal to BER_{max}. Compute the histogram $H_{max}(k)$ using Equation (174A–5), where $n = 544 / p$ and $BER_{max} = BER_{total} - BER_{added}$.

$$H_{max}(k) = \frac{n!}{k!(n-k)!}RSSER^k(1-RSSER)^{n-k} \quad (174A–5)$$

$$RSSER = 1-(1-2BER_{max})^5 \quad (174A–6)$$

The expected BLER is met if, for each lane i, $H_m^{(i)}(k)$ is less than $H_{max}(k)$ for all $k > 0$.

174A.9.3 PMA error histogram measurement

Using the count accumulated during a test, a set of test block error histograms is calculated.

NOTE—Within this annex, the term "histogram" denotes an array that holds values normalized such that the sum of the values is one. This is sometimes referred to as a relative histogram.

$H_m^{(i)}(k)$ is a set of p measured 17-bin histograms, one histogram for each lane i, defined as follows:

- $H_m^{(i)}(k)$, where $k < 16$, is the probability of k test symbol errors in a test block for lane i.
- $H_m^{(i)}(16)$ is the probability of 16 or more test symbol errors in a test block for lane i.