BER Requirements

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BER Requirements

- BER is defined as BER ceiling

- BER point is a high layer requirement

  - BER impacts performance of high layers as FLR

- PHY is required to maintain performance below ceiling

BER in Ethernet

- BER is defined as BER ceiling at PCS interface

- 802 requires 1E-8 BER

- 802.3 required 1E-10 BER (up to 1000BaseT)

- 1000BaseX innovated with 1E-12 BER

  - Also adopted by 802.3ae

802 Definition

- The 802O&A has an error rate requirement of 8E-8 per octet. Section 7.3a
  - "For wired or optical fiber physical media: Within a single access domain, the probability that a transmitted MAC frame (excluding any preamble) is not reported correctly at the Physical Service inter-face of an intended receiving peer MAC entity, due only to operation of the Physical layer, shall be less than 8E-8 per octet of MAC frame length"

Source of 1E-12 Requirement

- PCS in 1000BaseX adopted from FC

- FC is an unlayered standard that also deals with an application

- The BER in FC is a higher layer requirement stated as 1E-12*

- PCS in 1000BaseX adopted requirement as is

*See NCITS FC-PH-x