

# BER Targets

Jeffery J. Maki

Distinguished Engineer, Optical  
Juniper Networks

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## Supporters

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Charles Moore, Avago Technologies

Scott Kipp, Brocade

Petar Pepeljugoski, IBM

Pravin Patel, IBM

Ted Sprague, Infinera

David Ofelt, Juniper Networks

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# Project Objective for BER

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Support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent)

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## Project Objectives

- Support a MAC data rate of 400 Gb/s
- Support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent)
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current Ethernet standard
- Provide appropriate support for OTN
- Specify optional Energy Efficient Ethernet (EEE) capability for 400 Gb/s PHYs
- Support optional 400 Gb/s Attachment Unit Interfaces for chip-to-chip and chip-to-module applications
- Provide physical layer specifications which support link distances of:
  - At least 100 m over MMF
  - At least 500 m over SMF
  - At least 2 km over SMF
  - At least 10 km over SMF

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## Requirements

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Router-to-router and router-to-transport applications need an operating BER much better than  $10^{-13}$

Anticipated mandatory FEC for 400G PCS should enable optical transceivers to be tested at the pre-FEC BER target

Test times at the required pre-FEC BER target will be far less burdensome than testing at  $10^{-13}$  or better BER target without FEC

The 802.3bs standard needs to be devised to support a pre-FEC BER target at the correct post-FEC BER target

The post-FEC BER target needs to support the actual or better required operating BER at the 400G MAC/PLS service interface

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## Proposal: BER Target at the 400G MAC/PLS Service Interface per Physical-Layer Specification

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Physical-Layer Specification	Proposed BER Target
SMF (At least 2 km)	$10^{-15}$
SMF (At least 10 km)	$10^{-15}$