

50 Gb/s Ethernet over a Single Lane
and Next Generation 100 Gb/s and
200 Gb/s Ethernet Study Groups
Adopted Objectives
(including the adopted proposed
modifications to 802.3bs objectives)

January 2016 Interim

Objectives 1 of 2

- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support optional Energy-Efficient Ethernet operation
- Provide appropriate support for OTN
- Support a MAC data rate of 50 Gb/s and 100 Gb/s
- Support a BER of better than or equal to 10^{-12} at the MAC/PLS service interface (or the frame loss ratio equivalent) for 50 Gb/s and 100 Gb/s operation
- Support a MAC data rate of 200 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) for 200 Gb/s operation

Objectives 2 of 2

- Define single-lane 50 Gb/s PHYs for operation over
 - copper twinaxial cables.
 - printed circuit board backplane.
 - MMF with lengths up to at least 100m
 - SMF with lengths up to at least 2km
 - SMF with lengths up to at least 10km
- Define 200 Gb/s PHYs for operation over
 - copper twinaxial cables.
 - printed circuit board backplane.
 - MMF with lengths up to at least 100m
- **Provide physical layer specifications which support 200 Gb/s operation over:**
 - **At least 2km of SMF**
 - **At least 10km of SMF**
- Define a two-lane 100 Gb/s PHY for operation over copper twin-axial cables.
- Define a two-lane 100 Gb/s PHY for operation over a printed circuit board backplane.
- Define a two-fiber 100 Gb/s PHY for operation over MMF with lengths up to at least 100m

Note: Objectives in red have been proposed to be handled by the P802.3bs Task Force (400 Gb/s Ethernet).

Modified objectives for P802.3bs

http://www.ieee802.org/3/50G/public/Jan16/dambrosia_50GE_NGOATH_01c_0116.pdf

- **Support a MAC data rate of 200 Gb/s**
- 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
- **Provide physical layer specifications which support 200 Gb/s operation over:**
 - **At least 2 km of SMF**
 - **At least 10 km of SMF**
- Provide physical layer specifications which support **400 Gb/s operation over:** ~~link distances of:~~
 - At least 100 m ~~of over~~ MMF
 - At least 500 m ~~of over~~ SMF
 - At least 2 km ~~of over~~ SMF
 - At least 10 km ~~of over~~ SMF
- 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