Objectives
IEEE 802.3 Beyond 400 Gb/s Ethernet Study Group

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B400G Adopted Objectives

See Page #5 for Adoption History
Approval by 802.3 WG Pending

- **Non-Rate Specific**
  - 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 a BER of better than or equal to 10 -13 at the MAC/PLS service interface (or the frame loss ratio equivalent) **
  - Provide support to enable mapping over OTN ***
- **200 Gb/s Related**
  - Support a MAC data rate of 200 Gb/s ##
  - Support optional single-lane 200 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ##
  - Define a physical layer specification that supports 200 Gb/s operation:
    - over 1 pair of copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - over 1 pair of SMF with lengths up to at least 500 m ##
    - over 1 pair of SMF with lengths up to at least 2 km ##
- **400 Gb/s Related**
  - Support a MAC data rate of 400 Gb/s ##
  - Support optional two-lane 400 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ##
  - Define a physical layer specification that supports 400 Gb/s operation:
    - over 2 pairs of copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - over 2 pairs of SMF with lengths up to at least 500 m ##

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- **800 Gb/s Related**
  - Support a MAC data rate of 800 Gb/s *
  - Support optional eight-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ****
  - Support optional four-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ****
  - Define a physical layer specification that supports 800 Gb/s operation:
    - over 4 pairs of copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - over eight lanes of twin axial copper cables with a reach up to at least 2 meters @
    - over eight lanes over electrical backplanes supporting an insertion loss ≤ 28dB at 26.56GHz @
    - over 8 pairs of MMF with lengths up to at least 50 m *
    - over 8 pairs of MMF with lengths up to at least 100 m *
    - over 8 pairs of SMF with lengths up to at least 500 m *
    - over 8 pairs of SMF with lengths up to at least 2 km #
    - over 4 pairs of SMF with lengths up to at least 500 m *
    - over 4 pairs of SMF with lengths up to at least 2 km *
    - over 4 wavelengths over a single SMF in each direction with lengths up to at least 2 km *
    - over a single SMF in each direction with lengths up to at least 10 km *
    - over a single SMF in each direction with lengths up to at least 40 km *

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- **1.6 Tb/s Related**
  - Support a MAC data rate of 1.6 Tb/s #
  - Support optional sixteen-lane 1.6 Tb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ###
  - Support optional eight-lane 1.6 Tb/s attachment unit interfaces for chip-to-module and chip-to-chip applications #
  - Define a physical layer specification that supports 1.6 Tb/s operation:
    - over 8 pairs of copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - over 8 pairs of SMF with lengths up to at least 500 m #
    - over 8 pairs of SMF with lengths up to at least 2 km #

Adoption History

*	Adopted by B400G SG, Apr 2021
**	Adopted by B400G SG Apr 26, 2021
***	Adopted by B400G SG May 3, 2021
****	Adopted by B400G SG May 17, 2021
#	Adopted by B400G SG Jun 3, 2021
##	Adopted by B400G SG Jul 13, 2021
###	Adopted by B400G SG Jul 20, 2021
@	Adopted by B400G SG Aug 12, 2021
^	Adopted by B400G SG Aug 26, 2021