Next Generation Enterprise Access BASE-T PHY Objectives

• Support full duplex operation only
• Preserve the 802.3 / Ethernet frame format utilizing the 802.3 MAC
• Preserve minimum and maximum Frame Size of current 802.3 standard
• Support Auto-Negotiation (Clause 28)
• Support optional Energy Efficient Ethernet (Clause 78)
• Support local area networks using point-to-point links over structured cabling topologies
• Do not preclude meeting FCC and CISPR EMC requirements
• Support PoE (Clause 33)
  – including amendments made by 802.3bt “DTE Power via MDI over 4-Pair Task Force”
• Support MAC data rates of 2.5 Gb/s and 5 Gb/s
• Support a BER better than or equal to $10^{-12}$ at the MAC/PLS service interface (or the frame loss ratio equivalent)
• Select copper media from ISO/IEC 11801:2002, with any appropriate augmentation to be developed through work of 802.3 in conjunction with ISO/IEC JTC 1/SC 25/WG3 and TIA TR42
• Define a 2.5 Gb/s PHY for operation over
  • Up to at least 100m on four-pair Class D (Cat5e) balanced copper cabling on defined use cases and deployment configurations
• Define a 5 Gb/s PHY for operation over
  • Up to at least 100m on four-pair Class E (Cat6) balanced copper cabling on defined use cases and deployment configurations
  • Up to 100m on four-pair Class D (Cat5e) balanced copper cabling on defined use cases and deployment configurations