

# Adopted Objectives

IEEE 802.3

10 Mbps Single Pair Ethernet Study Group

(as approved by IEEE 802.3 Working Group 11/10/16)

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San Antonio, Texas, USA, 10 Nov 2016

# Objectives (1)

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1. Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface.
2. Preserve minimum and maximum frame size of the current IEEE 802.3 standard.
3. Support a speed of 10 Mb/s at the MAC/PLS service interface.
4. Do not preclude meeting FCC and CISPR EMC requirements
5. Support for optional single-pair Auto-Negotiation
6. Support optional Energy Efficient Ethernet
7. Support 10 Mb/s operation in automotive environments (e.g. EMC, temperature) over single balanced twisted-pair cabling.
8. Support 10 Mb/s operation in industrial environments (e.g. EMC, temperature) over single balanced twisted-pair cabling.
9. Do not preclude the ability to survive automotive and industrial fault conditions (e.g. shorts, over voltage, EMC, ISO16750)
10. Do not preclude working within an Intrinsically Safe device and system as defined in IEC 60079

# Objectives (2)

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11. Define the performance characteristics of a link segment and a PHY to support operation over this link segment with single twisted pair supporting up to four inline connectors using balanced cabling for up to at least 15 m reach
12. Define the performance characteristics of a link segment and a PHY to support point-to-point operation over this link segment with single twisted pair supporting up to 10 inline connectors using balanced cabling for up to at least 1 km reach
13. Support fast-startup operation using predetermined configurations which enables the time from power\_on\*\*=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms
14. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to  $10^{-10}$  on link segments up to at least 15m, and  $10^{-9}$  on link segments up to at least 1km
15. Specify one or more optional power distribution techniques for use over the 10 Mb/s single balanced twisted-pair link segments, in conjunction with 10 Mb/s single balanced twisted-pair PHYs, in the automotive and industrial environments