1 Twisted Pair 100 Mb/s Ethernet Objectives

→ Support 100 Mb/s operation in automotive environments (e.g. EMC, temperature) over a single balanced twisted pair.

→ Provide electrical interoperability with existing single balanced twisted pair 100 Mb/s client interface (OABR* PHY).

→ Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface.

→ Preserve minimum and maximum frame size of the current IEEE 802.3 standard.

→ Support full duplex operation only.

→ Support a speed of 100 Mbit/s at the MAC/PLS service interface.

→ Maintain a bit error ratio (BER) of less than or equal to 10^{-10} at the MAC/PLS service interface.

→ Do not preclude the ability to survive automotive fault conditions (e.g. shorts, over voltage, EMC, ISO16750)

→ 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.

→ Support optional operation with run-time configuration, that specifies a maximum allowable time from power_on** = FALSE to a state capable of transmitting and receiving valid data.

*http://www.ieee802.org/3/1TPCESG/public/BroadR_Reach_Automotive_Spec_V3.0.pdf
**Condition that is true until such time as the power supply for the device has reached the operating region

1 Twisted Pair 100 Mb/s Ethernet Objectives

➔ The resulting standard will not preclude single pair auto-negotiation.

➔ 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 four inline connectors using balanced cabling for at least 15 m reach.