

1 Twisted Pair 100 Mbit/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 valid data to be less than 100ms.
- For optional operation with run-time configuration, time from power_on=FALSE to valid data is allowed to be greater than 100 ms.

*http://www.ieee802.org/3/1TPCESG/public/BroadR_Reach_Automotive_Spec_V3.0.pdf

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- 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.