Working Objectives – >10 Mb/s long-reach SPE

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Suggested Basic PHY Objectives

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 100 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. Do not preclude the ability to survive industrial fault conditions (e.g., shorts, overvoltage, EMC)
7. Do not preclude working within an Intrinsically Safe device and system as defined in IEC 60079
8. Support 100 Mb/s single-pair Ethernet operation in industrial environments (e.g., EMC, temperature).**
9. Define performance characteristics of a link segment with a single balanced pair of conductors supporting up to 10(TBD) inline connectors for up to at least (TBD: 1 km/500m/(TBD, > 300m) reach, and a PHY supporting point-to-point full duplex operation over the link segment. **
10. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to TBD**

- (Parallel objectives 8, 9, 10 for additional rates, reaches if justified)

** NOTE: THESE WILL NEED TECHNICAL FEASIBILITY PRESENTATIONS

POTENTIAL ADDITIONAL FEATURE OBJECTIVES

- Startup:
  - 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
- Power:
  - Specify one or more optional power distribution techniques for use in conjunction with 100 Mb/s single-pair Ethernet PHYs over one or more of the single-pair segments
- EEE:
  - Support optional Energy Efficient Ethernet