Objectives (1 of 3) – approved by 802.3 on 3/8/18

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 single-pair Ethernet operation in automotive environments (e.g. EMC, temperature).
8. Support 10 Mb/s single-pair Ethernet operation in industrial environments (e.g. EMC, temperature).
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

11. Define performance characteristics of the following:
    a. A link segment with a single balanced pair of conductors supporting up to 4 inline connectors for up to at least 15 m reach
    b. A mixing segment with a single balanced pair of conductors supporting up to at least 8 nodes, for up to at least 25 m reach
    c. A link segment with a single balanced pair of conductors supporting up to 10 inline connectors for up to at least 1 km reach
12. Define a PHY:
    a. Supporting point-to-point half-duplex operation over the 15 m link segment
    b. Optionally supporting full-duplex operation over the 15 m link segment
    c. Optionally supporting half-duplex multi-drop operation over the 25 m mixing segment
13. Define a PHY:
    a. Supporting point-to-point full-duplex operation over the 1 km link segment

Objectives (3 of 3) – approved by 802.3 on 3/8/18

14. 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

15. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to:
    a. 10^{-10} on link segments up to at least 15m
    b. 10-10 on mixing segments up to at least 25m
    c. 10^{-9} on link segments up to at least 1000m

16. Specify one or more optional power distribution techniques for use in conjunction with 10 Mb/s single-pair Ethernet PHYs over one or more of the single-pair segments