IEEE P802.3da Objectives

1. Define performance characteristics of a mixing segment for 10Mb/s multidrop single balanced pair networks supporting up to at least 16 nodes, for up to at least 50m reach.

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

3. Specify an optional PLCA node ID allocation method

4. ~~Support interoperability with Clause 147 multidrop~~ Define a physical layer specification which maintains compatibility with Clause 147 multidrop PHYs on some specified mixing segments.

5. Support optional Time Synchronization Service Interface (TSSI)

6. ~~Select a single MDI connector~~ Delete (candidate to delete or replace with a softer requirement)

IEEE P802.3da Objectives - continued

7. ~~Specify improvements for Energy Efficient Ethernet compared to current 10Mb/s multidrop single balanced pair networks~~ Support energy efficient operation for 10Mb/s multidrop networks
8. Support operation in the noise environments for building, industrial, and transportation applications
9. Specify optional plug-and-play power distribution over the mixing segment
10. ~~PSE shall only energize the mixing segment when at least one PD is connected~~ Delete
11. ~~Support addition and removal of a node or set of nodes to a continuously operating powered mixing segment~~ Specify device characteristics necessary to enable addition and removal of a DTE to a powered mixing segment with a quantified power interruption

IEEE P802.3da Objective 4

Was: Support interoperability with Clause 147 multidrop

Change to: Define a physical layer specification which maintains compatibility with Clause 147 multidrop PHYs on some specified mixing segments.

Reason: original is vague and our work has shown that we can't support all mixing segments.

IEEE P802.3da Objective 6

Was: Select a single MDI connector

Delete (or replace with a softer requirement)

Reason: A single connector won't cover all the desired use cases. For example, some industrial applications want screw terminals not a connector.

IEEE P802.3da Objective 7

Was: Specify improvements for Energy Efficient Ethernet compared to current 10Mb/s multidrop single balanced pair networks

Change to: Support energy efficient operation for 10Mb/s multidrop networks

Reason: original was vague and EEE as we know it does not apply to SPE links. New one simply states to support energy efficient operation.

IEEE P802.3da Objective 10

Was: PSE shall only energize the mixing segment when at least one PD is connected

Delete

Reason: This places a burden on the devices that only applies for the first connected PD. Once one is connected, the "outbound port" has power as this is a multidrop mixing segment. Additionally, it is proposed to have minimal power on the cable to power the PHY within a multipair cable where other conductors carry power. This necessitates many different connectors.

IEEE P802.3da Objective 11

Was: Support addition and removal of a node or set of nodes to a continuously operating powered mixing segment

Change to: Specify device characteristics necessary to enable addition and removal of a DTE to a powered mixing segment with a quantified power interruption

Reason: Our work has demonstrated that it's not cost effective to guarantee continuous power on a mixing segment for addition and removal. Also, removal of a PD in the middle guarantees that all the PDs after lose power. The new objective states that the TF will quantify the power interruption, enabling PDs that need to ride through disruptions to have energy storage. This allows cost optimization for PDs that don't need perpetual up time.