Link Segment related Text for STP and COAX Media

IEEE 802.3dm

April 17, 2025

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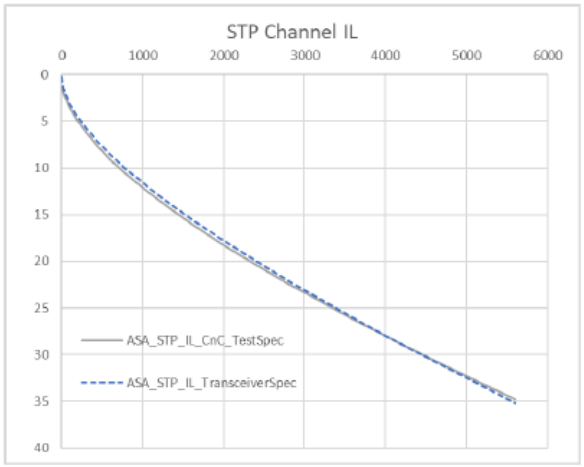
Topic at hand….

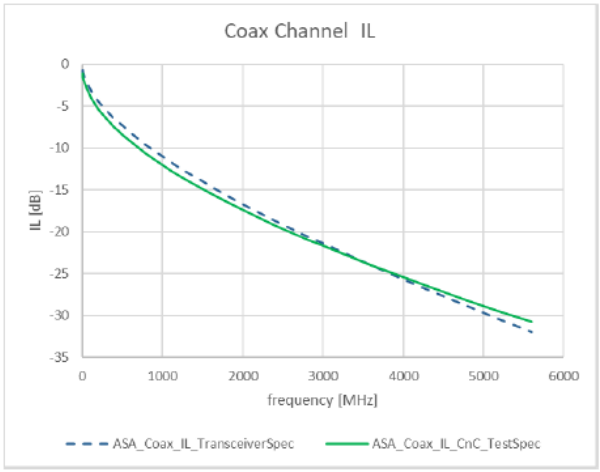
Approved Objectives

- Define performance characteristics of link segments suitable for use with automotive balanced-pair cabling and automotive unbalanced coaxial cabling supporting use of up to 4 inline connectors and up to at least 15m reach on at least one type of automotive cabling.

- When we approved the objectives back in Jan’24, the wording above was agreed upon.
- We postponed the exact number of meters for STP vs COAX cables to a later stage
- Lot of presentations have been made on IL and RL proposals for STP and COAX
- However, we have not yet picked the “meters” for each of the cable types

Proposed cable reach for STP and COAX

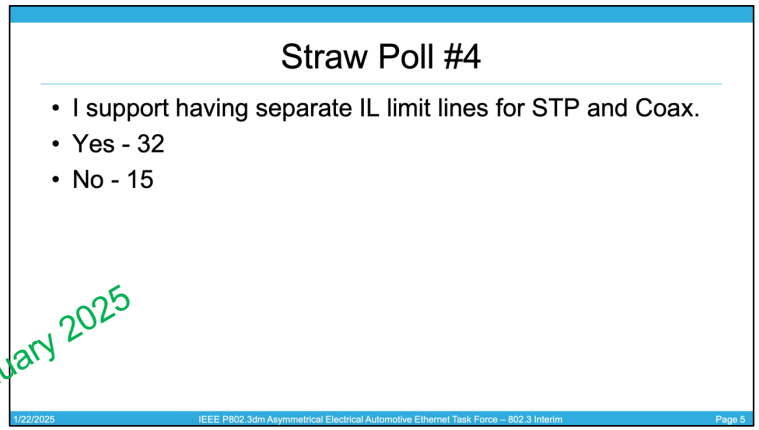




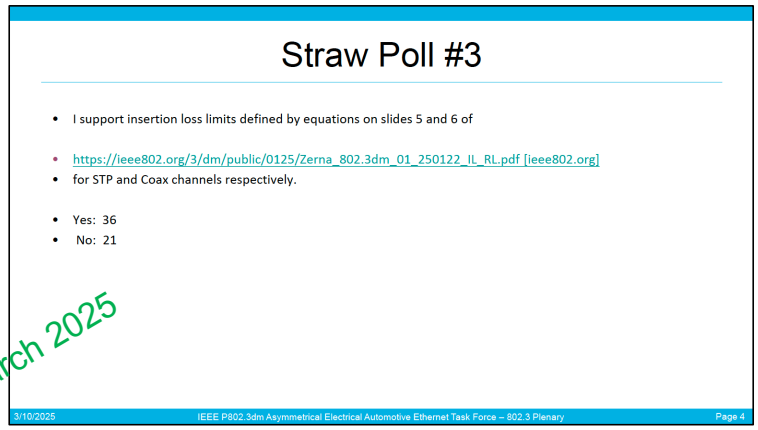
- Proposed STP limit line is derived using 10 meters as a target
- Proposed COAX limit line is derived using 15 meters as a target

Source: https://www.ieee802.org/3/dm/public/0125/Zerna_802.3dm_01_250122_IL_RL.pdf

Other related information



January 2025



March 2025

- ASA supports 10m STP and 15m COAX
  - https://auto-serdes.org/wp-content/uploads/2022/08/ASA-tutorial-Sep-2021.pdf
- A-PHY supports 10m STP and 15m COAX
  - https://2384176.fs1.hubspotusercontent-na1.net/hubfs/2384176/Webinars/MIPI-Webinar-Advancing-In-Vehicle-Connectivity.pdf
- Proprietary – varies by vendor and speed - but Coax is normally longer reach than STP

Proposed text for 802.3dm

Section 200.1.4 (according to draft 0.4)

The MultiG+100M/100M+MultiGBASE-T1 PHYs, each, operate using TBD-duplex communications over a single balanced pair of conductors with an effective rate described in 200.1.2 while meeting the requirements (EMC, temperature, etc.) of automotive environments. These PHY supports operation on an automotive link segment supporting up to four in-line connectors using a single balanced pair of conductors for up to at least 10 m.

The MultiG+100M/100M+MultiGBASE-V1 PHYs, each, operate using TBD-duplex communications over a *single unbalanced pair of conductors* with an effective rate described in 200.1.2 while meeting the requirements (EMC, temperature, etc.) of automotive environments. These PHY supports operation on an automotive link segment supporting up to four in-line connectors using a coaxial medium for up to at least 15 m.

200.11 Link segment characteristics, -T1

MultiG+100M/100M+MultiGBASE-T1 PHYs are designed to operate over a single shielded balanced pair of conductors that meet the requirements specified in this subclause. The single shielded balanced pair of conductors supports an effective data rate of 2.5 Gb/s, 5 Gb/s, and 10 Gb/s in one direction and 100 Mb/s data rate in the other direction as defined in 200.1.2 . The term *link segment* used in this clause refers to a single balanced pair of conductors (cable or backplane).

200.12 Link segment characteristics, -V1

MultiG+100M/100M+MultiGBASE-V1 PHYs are designed to operate over a single coaxial medium that meet the requirements specified in this subclause. The coaxial medium supports an effective data rate of 2.5 Gb/s, 5 Gb/s, and 10 Gb/s in one direction and 100 Mb/s data rate in the other direction as defined in 200.1.2. The term *link segment* used in this clause refers to a coaxial medium (cable ~~or backplane~~).

Thank You!