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IEEE NGAUTO media proposal

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802.3ah Media and Speed Objectives

- Define the performance characteristics of an automotive link segment and an electrical PHY to support 2.5 Gb/s point-to-point operation over this link segment supporting up to four inline connectors for at least 15m on at least one type of automotive cabling (e.g., UTP, STQ, STP, SPP, Coax, or Twinax).

- Define the performance characteristics of an automotive link segment and an electrical PHY to support 5 Gb/s point- to-point operation over this link segment supporting up to four inline connectors for at least 15m on at least one type of automotive cabling.

- Define the performance characteristics of an automotive link segment and an electrical PHY to support 10 Gb/s point-to-point operation over this link segment supporting up to four inline connectors for at least 15m on at least one type of automotive cabling.

Source: http://www.ieee802.org/3/NGAUTO/0317_approved_objectives_3NGAUTO.pdf

Pursuing the STP cable option

- Shielded single twisted pair cable
- Familiar modelling, measurements, and simulations available and easy to implement
- Includes all parameters needed by PHYs for transmission characteristics and effective noise suppression
- Targeted towards automotive environments
- Designed to meet IEC 61156-11 Type B draft Specifications

Physical Specifications

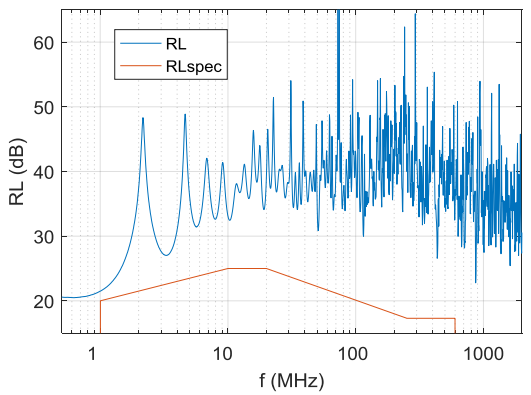
- Single balanced twisted pair
- 15 mm nominal twist length
- Foil shield with overall braid
- Outside diameter ~ 4.5 mm
- Weight 26 kg/km
- Flame test SAE J1128

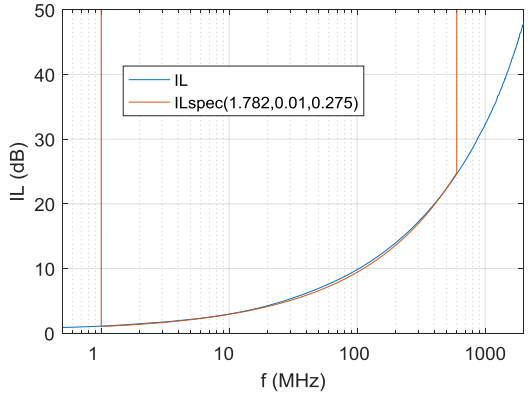
Environmental specifications

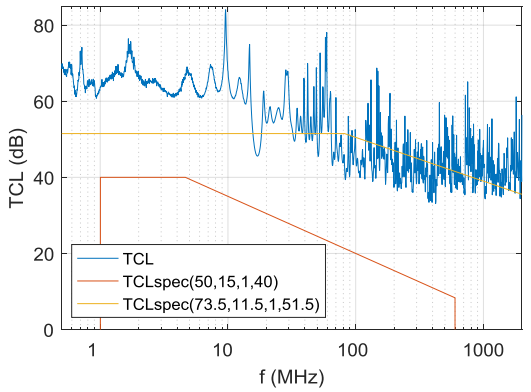
- Targeted to meet IEEE 802.3bp environmental specifications
- Temperature range of – 40 C to 125 C

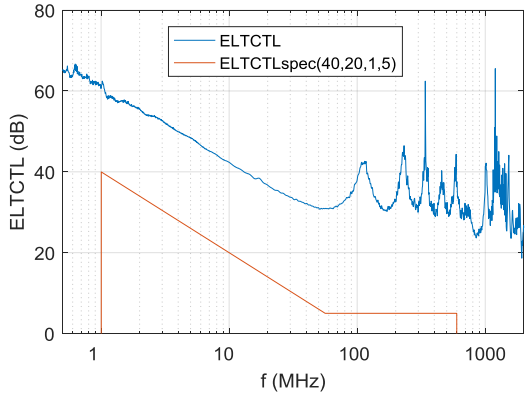
Transmission Specifications

(50 meter sample)

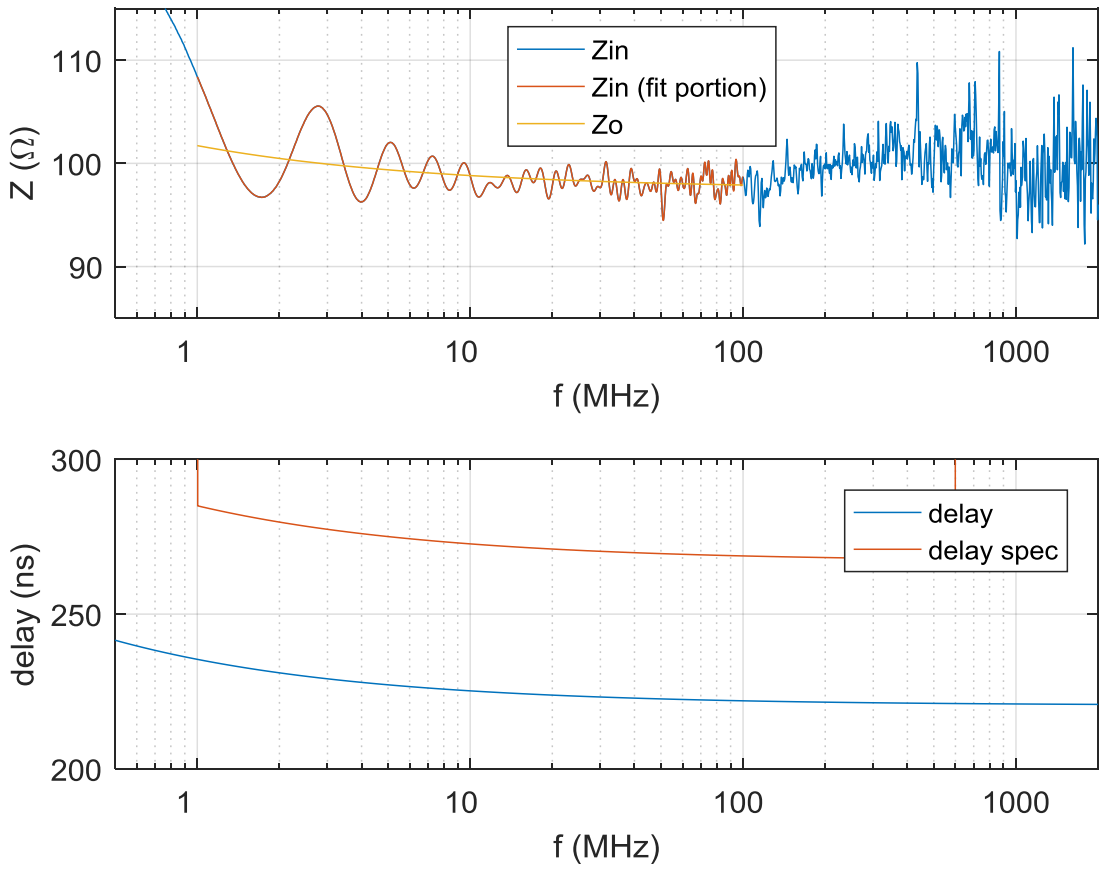




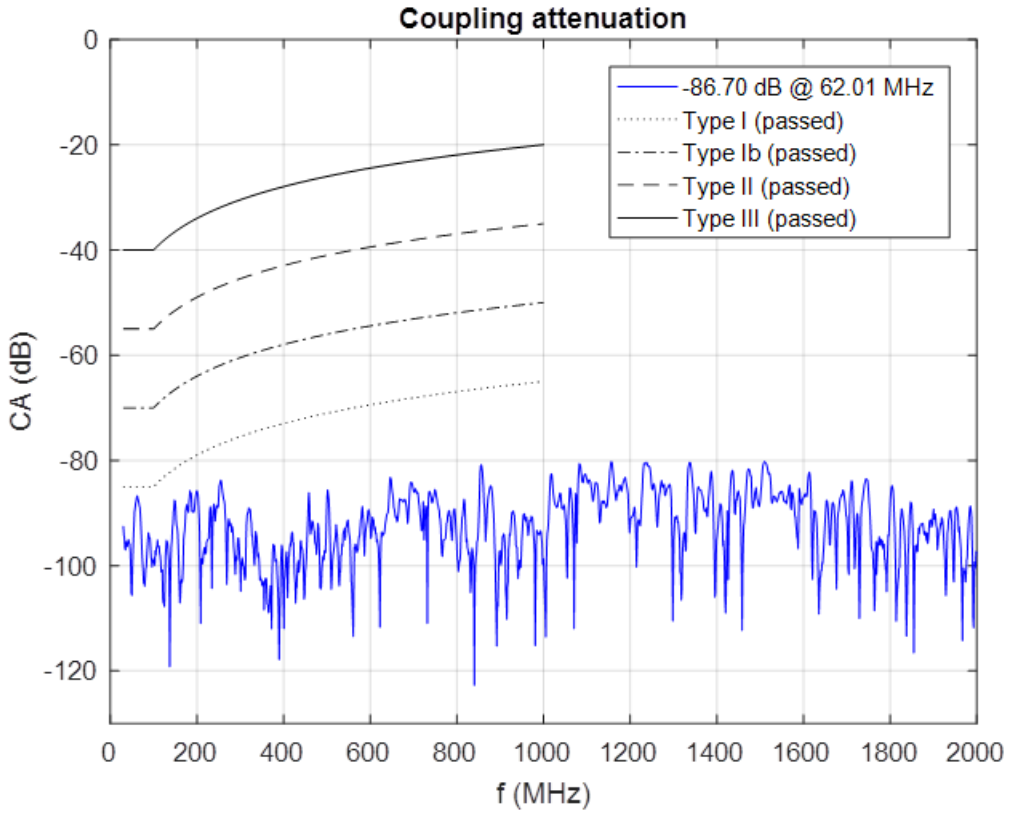




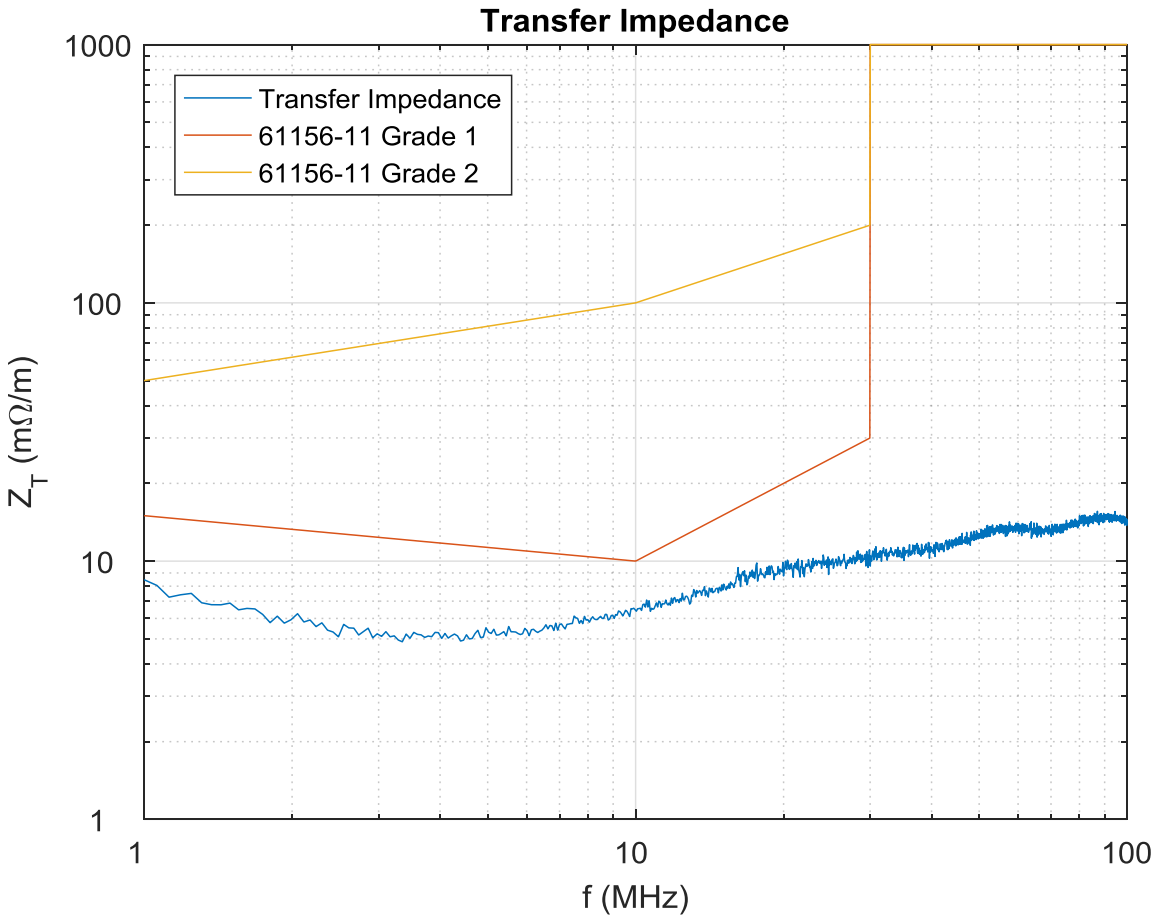
Impedance and Delay



Noise immunity



Noise immunity



Observations and Next Steps

- The IEC 61156-11 specifications up to 2 GHz are consistent with Category 8 specifications and the transmission specifications are directly applicable to 1-pair cables
- Category 8 technology has been developed over the last 6 years in TIA and ISO and includes much detailed information published in:
  - **ISO/IEC 11801-1 Generic Cabling Standard**
  - **TIA 568-C.2-1 Category 8 cabling and components specifications**
  - **TIA 1183-A Balun-less measurements up to 2 GHz**
- Automotive noise immunity will need to be studied
- Need guidance from IEEE 802.3ah if there is any other information needed to pursue in more detail

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Thank You

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