MDI RL Limit Text Proposal

Contribution to 802.3dm Task Force

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Introduction

- This presentation proposes a specific text for MDI Return Loss Limits for 802.3dm
- This Return Loss Limit was first proposed in Montreal in jonsson_houck_3dm_02_07_15_24.pdf
- This Return Loss Limit was analyzed and found to be a good candidate in Chini_Tazebay_3dm_01a_0924.pdf
- This Return Loss Limit has also been discussed off-line with PoC PCB design experts that find that the limit give the designers sufficient freedom for optimized PCB design
- The intent is to offer the proposed text as a **baseline text in the Vancouver** meeting in November

Text Proposal

XXX.8 MDI specification

The MDI specifications for 2.5G/100M-BASE-T1, 5G/100M-BASE-T1, and 10G/100M-BASE-T1 are as described in Clause 149.8 with the exceptions and extensions in this sub-clause.

XXX.8.1 MDI return loss

The differential impedance at the MDI (see Figure 149–48) for each transmit/receive channel shall be such that any reflection is attenuated relative to the incident signal per Equation (XXX.8-1).

$$MDI\_Return\_Loss(f) > \left\{ \begin{array}{cc} 17 + 20log_{10}(\frac{f}{50}) & 10 \leq f < 50 \\ 17 & 50 \leq f < 250 \\ 17 - 10log_{10}(\frac{f}{250}) & 250 \leq f \leq F_{max} \end{array} \right\} (dB) \quad \text{(XXX.8-1)}$$

where f is the frequency in MHz.

For 2.5G/100M-BASE-T1, 5G/100M-BASE-T1, and 10/100M-GBASE-T1, the maximum applicable frequency, F_{max}, for the MDI return loss is 4000 × S MHz. See Table 149–1 for the definition of S.

The MDI return loss is illustrated in Figure XXX.8-1.

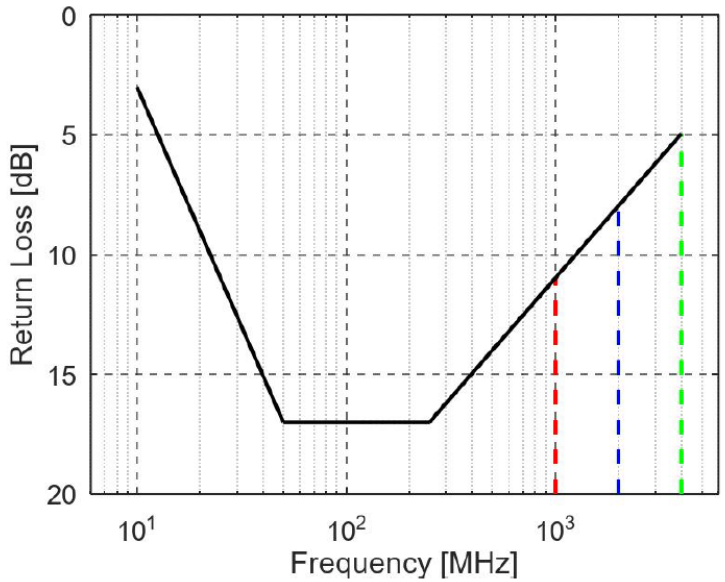

Figure XXX.8-1—MDI return loss calculated using Equation (XXX.8-1)

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