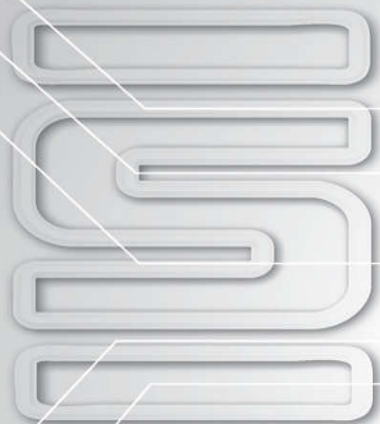


IEEE P802.3bs 200 Gb/s and 400 Gb/s Ethernet Task Force Ad Hoc

samtec



Proposed 120E IL specification impact for hosts assumed in Clause 137

Richard Mellitz, Samtec, 05-15-2017

Investigation

- Will the loss equation suggested in slide 14 mellitz_01b_042417_ad_hoc¹ be detrimental to 3 meter direct attach cable.
- Procedure. Consider computed COM for two 3 meter channel examples
 - CH1=TE_QSFP_QSFP_3m_26AWG_MaxLossExample_15p993dB\P2_TX1_P1_RX1²
 - CH2=Molex_zQSFP-zQSFP_3m_26awg\3m 26awg\THRUS\P1 T1-R1³
- Develop transmission model which represents the proposed loss equation with the delay of the 10dB flyover host⁴.
 - Create a transmission line of 6.26 dB @ 12.89Ghz loss as specified in clause 92
- Compare the computed COM with the Clause 92 transmission line and new transmission line representing the propose IL spec line

¹http://www.ieee802.org/3/bs/public/adhoc/elect/24Apr_17/mellitz_01b_042417_elect.pdf

²http://www.ieee802.org/3/by/public/channel/TE_QSFP_QSFP_3m_26AWG_MaxLossExample_15p993dB.zip

³http://www.ieee802.org/3/by/public/channel/Amphenol_NDACGJ-0003_QSFP-4SFP_3m_26AWG_APN43140033HXJ.zip

⁴http://www.ieee802.org/3/bs/public/adhoc/elect/24Apr_17/mellitz_3bs_01_041817.zip

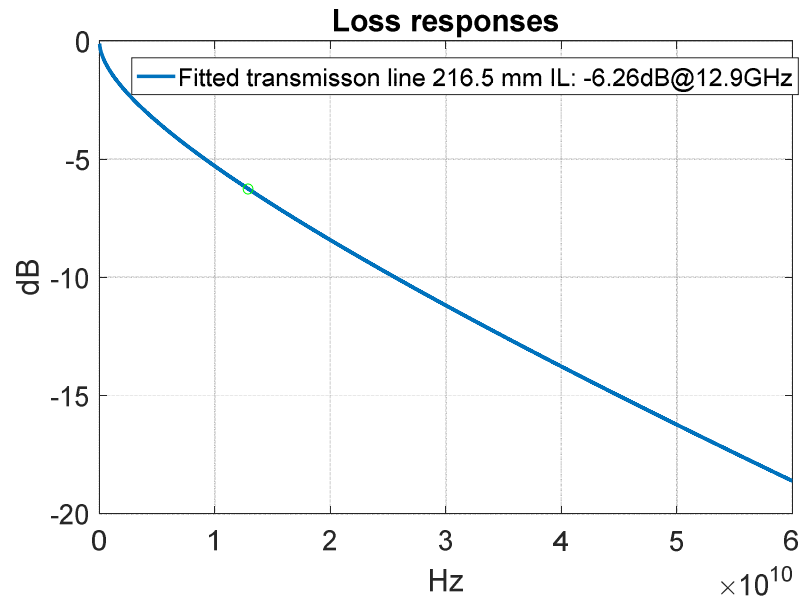
Transmission matched to proposed limit

Table 92–12—Transmission line model parameters

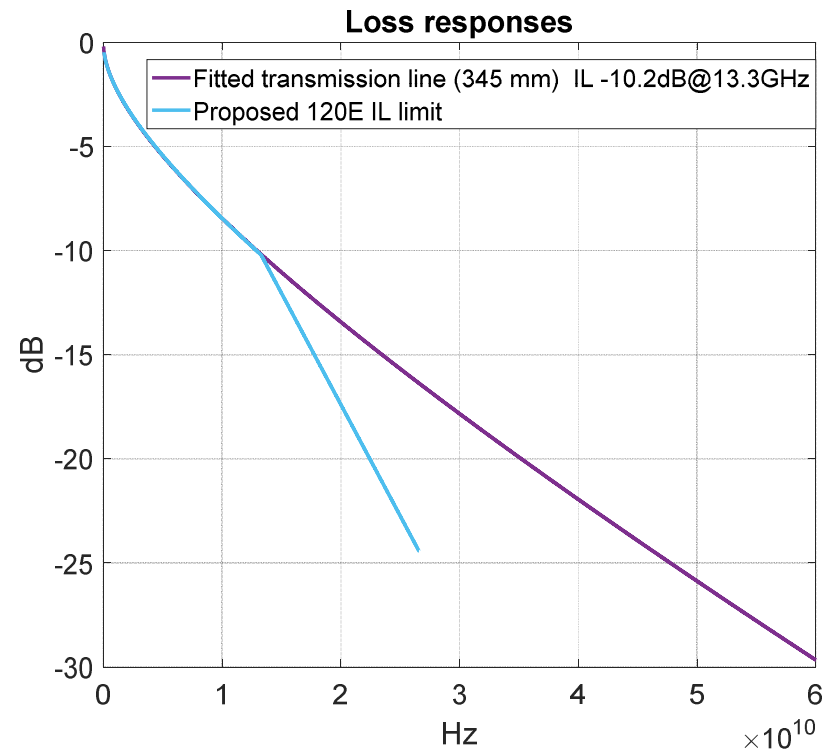
Parameter	Value	Units
γ_0	0	1/mm
a_1	4.114×10^{-4}	ns ^{1/2} /mm
a_2	2.547×10^{-4}	ns/mm
τ	6.191×10^{-3}	ns/mm
Z_c	109.8	Ω

Fitted parameters
0
6.2424E-4
8.439E-5
6.448E-3
105

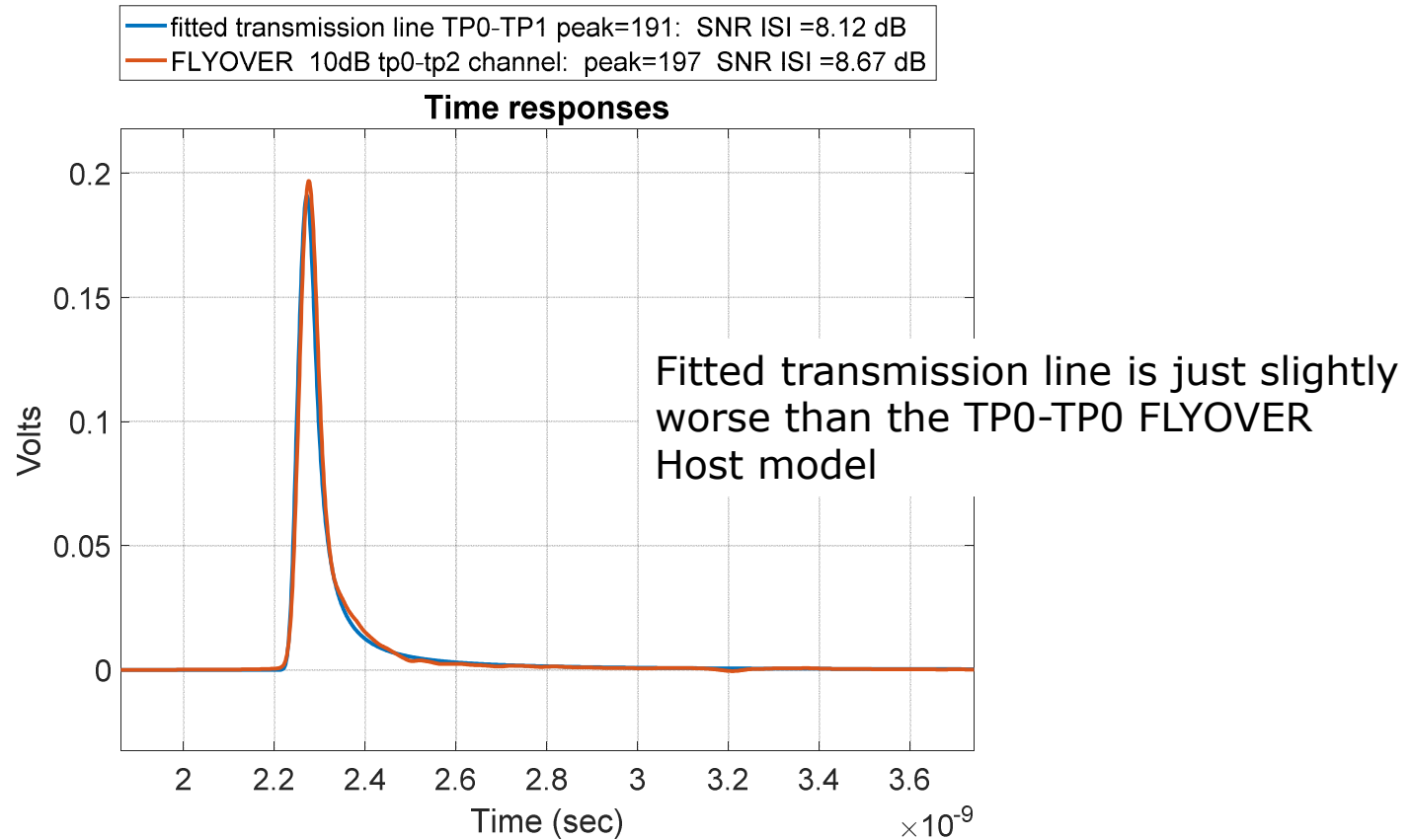
Fitted transmission line for tp0-tp2 is 10.2dB



216.6 mm of fitted transmission line is 6.26 dB at 12.98GHz as require for COM



Fitted Transmission Line is Very Close to the Tp0-Tp0 FLYOVER Host Model



Results

	COM using CL 137	COM using T-line matching IL limit	
CH1	5.53	5.84	dB
CH2	4.45	4.76	dB

Conclusion

- ▶ Hosts builds with the proposed 120E IL specification will not have a detrimental impact for hosts assumed in Clause 137