Proposed Text for the IL Link Requirements of IEEE 802.3dm

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Past Presentation and Discussion

- Link to proposal for text made in March Plenary in Atlanta.
- https://www.ieee802.org/3/dm/public/0325/boyer_sharma-3dm_xx_03-10-25_RevB.pdf.
- Continued collaboration with various individuals, this PPT includes additional adjustments.
- The changes from the March presentation listed above include tightening the IL at frequencies above 1 GHz and another tightening of RL in the frequency range <400 MHz.
- The stair step approach from past proposals has been abandoned based on collaboration with many individual's input.

Consideration for Proposed Text for Return Loss

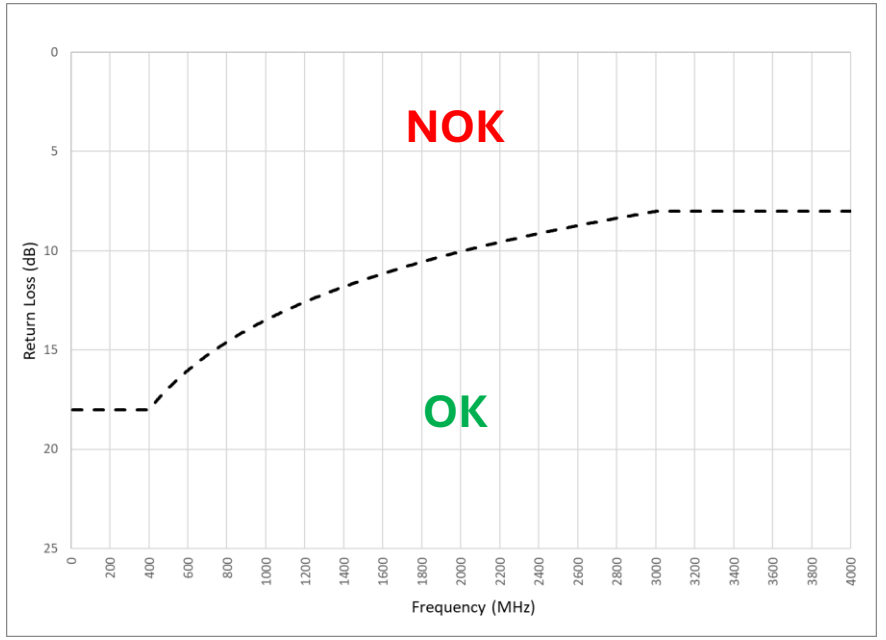
xxx.x.x.x Characteristic impedance

The nominal differential characteristic impedance of the single shielded balanced pair of conductors of the link segment is 100 Ω. The nominal characteristic impedance of the coaxial cable link segment is 50 Ω.

xxx.x.x.x.x. Link segment return loss

To limit the noise at the receiver due to impedance mismatches each of the speeds of the link segment shall meet the values listed in the table XXX-XX below. Requirements are based on data rate and modulation, see table. The reference impedance for the return loss is listed in previous section.(Note difference for balanced pair and coaxial links).

Table XXX-XX	
Return Loss (dB)	Frequency range (MHz)
18	(1 to 400)
16.5-11.5*Log10((f/550))	(400 to 3000)
8	(3000 to 4000)
Where f is frequency in MHz.	
The requirements are to be based on the data rate and modulation. For the 2.5 Gb/s PAM2 the requirements are applicable to 2.0 GHz. For the 5.0 Gb/s PAM2 and the 10 Gb/s PAM 4 the requirements are applicable to 4 GHz.	



Proposed Text for Insertion Loss

XXX.X Link Segment Characteristics

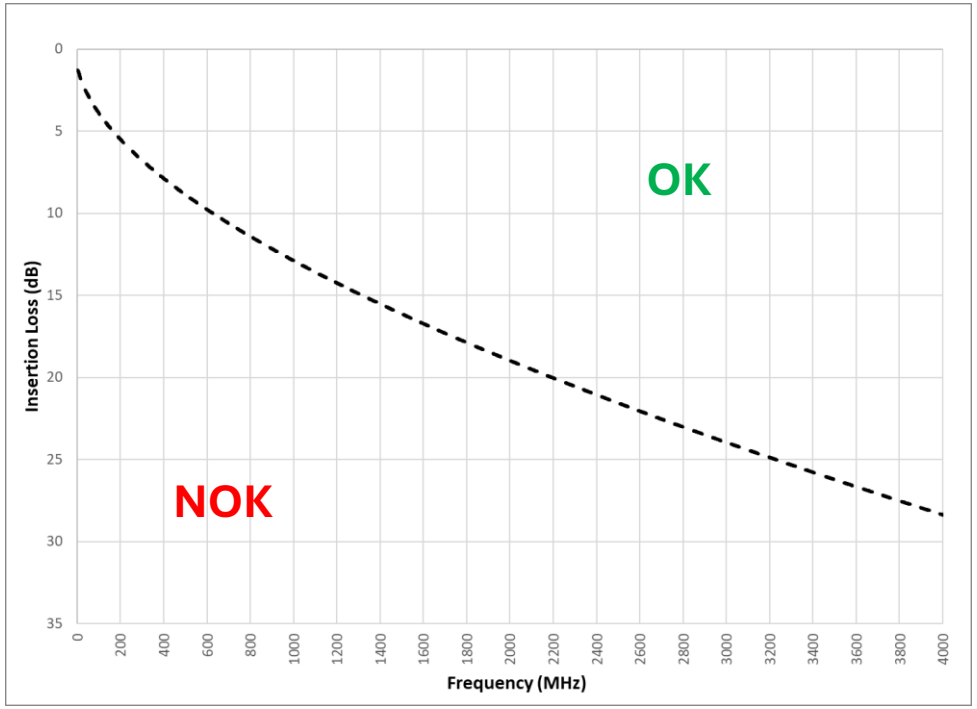
The 100M+2.5GMBASE-T1, 2.5G+100MBASE-T1, 100M+5GBASE-T1, 5G+100MBASE-T1, 100M+10GBASE-T1, 10G+100MBASE-T1 PHYs are designed to operate over a single shielded balanced pair of conductors that meet the requirements specified in this subclause. The 100M+2.5GBASE-V1, 2.5G+100MBASE-V1, 100M+5GMBASE-V1, 5G+100MBASE-V1, 100M+10GBASE-V1, 10G+100MBASE-V1 PHYs are designed to operate over a single coaxial cable that meet the requirements specified in this subclause. The term link segment used in this clause refers to a single balanced pair of conductors (cable or backplane) or a single coaxial cable.

xxx.x.x.x Link segment insertion loss

The insertion loss of each MultiG/100MBASE-T1/V1 link segment, whether single shielded balanced pair of conductors or a single coaxial cable, shall meet the values determined using Equation (2xx-TBD) .

Insertion loss(f) < -1 * (0.0015 - 0.001325*f- 0.3645*√f - 1.1785/ √f) (dB) (2xx-TBD)

Where; f is in MHz; 1 ≤ f ≤ 4000



The insertion loss is illustrated in Figure 2xx-TBD. The requirements are to be based on the data rate and modulation. For the 2.5 Gb/s PAM2 the requirements are applicable to 2.0 GHz. For the 5.0 Gb/s PAM2 and the 10 Gb/s PAM 4 the requirements are applicable to 4 GHz.

Thank You