



Error in MDI RL formula

Contribution to 802.3dm Task Force

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Introduction

- In November 2024 the 802.3dm task force adopted MDI return loss limit in
 - https://www.ieee802.org/3/dm/public/1124/jonsson_chini_3dm_01_11_13_24.pdf
- There is a minor error in MDI RL limit formula adopted by the task force, but **the MDI RL plot is correct**
- This presentation points out the problem and a possible fix
- The intent is to make a motion in the next interim meeting to make the change suggested in this presentation

Error and Fix

Error:

The error is that for 10MHz to 50Mhz the limit

$$18 - 20\log_{10}\left(\frac{f}{50}\right)$$

has minus where it should have plus

The plot is correct and does not need to be changed.

Fix:

$$MDI_Return_Loss(f) > \left\{ \begin{array}{ll} 18 + 20\log_{10}\left(\frac{f}{50}\right) & 10 \leq f < 50 \\ 18 & 50 \leq f < 400 \\ 18 - 13\log_{10}\left(\frac{f}{400}\right) & 400 \leq f < F_{max} \end{array} \right\} \text{ (dB)}$$



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