COMMENT # 142

MTF FOM ILD

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Overview

- Comment Overview
- Channel set-up
- Proposed limit
- Questions

Comment Overview

- Comment addresses existing MTF FOM_ILD limit of 0.13 dB

The FOM_{ILD} is calculated according to 93A.4 with f_b=53.125 GHz, T_t=8.5 ps, and f_r=0.75 × f_b. The fitted insertion loss and insertion loss deviation are computed over the range f_{min}=0.05 GHz to f_{max}=40 GHz. FOM_{ILD} shall be less than or equal to 0.13 dB.

32
33
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35
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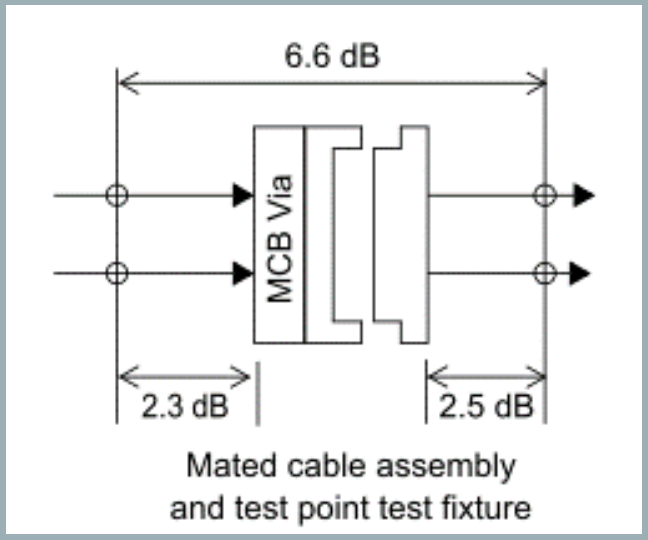
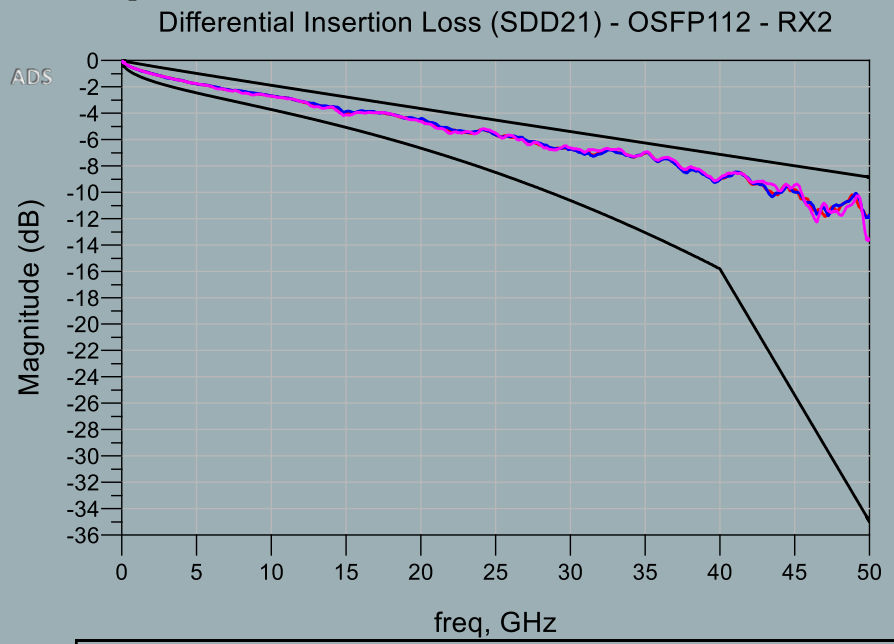
Channel Set-up

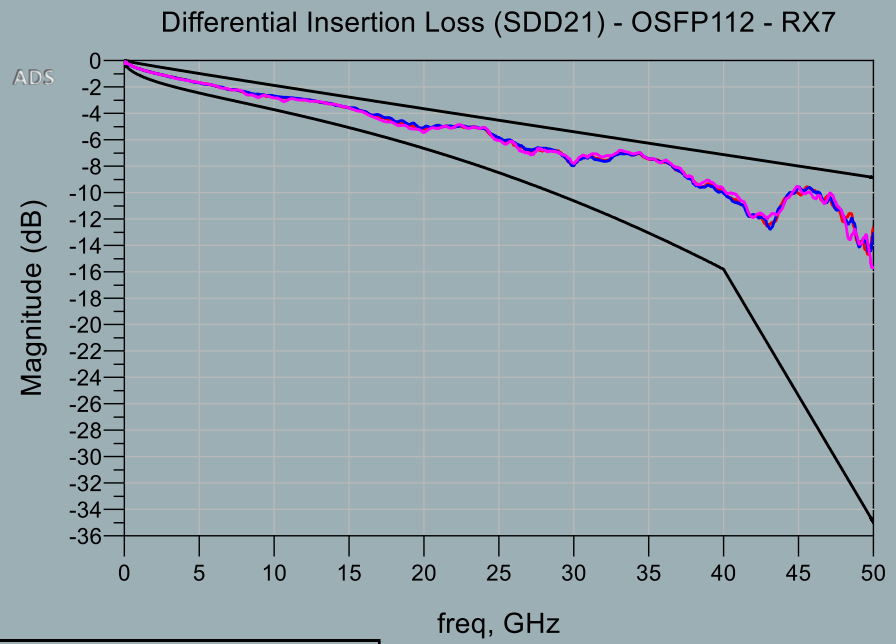
- Connector only data concatenated with simulated test points and PCB trace for MCB and HCB
- MCB T-line and HCB T-line modeled at
  - 100 ohms
  - 95 ohms
  - 105 ohms
  - In each case of MTF impedance each side is equal (e.g. in the 100ohm case, the HCB & MCB are both 100ohm
- The simulates realistic PCB trace impedance tolerances (5%)



****In each case of MTF impedance – Each side is equal. That is, in the 100ohm case, the HCB & MCB are both 100ohm. Same for the 95 & 105 ohm cases.

Proposed Limit





RED - 100Ω MTF
BLUE - 95Ω MTF
PINK - 105Ω MTF

OSFP ILD					
Pair	100 Ohm	95 Ohm	105 Ohm	Diff 95/100	Diff 105/100
RX1	0.1282	0.116	0.1559	-0.0122	0.0277
RX2	0.0763	0.07	0.0995	-0.0063	0.0232
RX3	0.1126	0.1025	0.1406	-0.0101	0.028
RX4	0.0696	0.0655	0.0891	-0.0041	0.0195
RX5	0.1212	0.111	0.1476	-0.0102	0.0264
RX6	0.0734	0.0692	0.0881	-0.0042	0.0147
RX7	0.1324	0.1218	0.1608	-0.0106	0.0284
RX8	0.0731	0.069	0.0904	-0.0041	0.0173

- Existing limit of 0.13 dB for FOM_ILD is too stringent to allow for realistic PCB trace impedance variation
- RF test point variation was not included in this study, but can be another contributor
- To allow for various types of manufacturing variation a limit of 0.18 dB is proposed

Summary

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