

Proposal for the MTF ILdd Mask

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Motivation

- Get rid of TBDs in D1P4, Annex 179B

179B.4.1 Mated test fixtures insertion loss

The insertion loss of the mated test fixtures shall meet Equation (179B-3) and Equation (179B-4).

$$ILdd(f) \leq ILdd_{MTFmax}(f) = \begin{cases} TBD & 0.01 \leq f < TBD \\ TBD & TBD \leq f \leq 67 \end{cases} \quad (179B-3)$$

$$ILdd(f) \geq ILdd_{MTFmin}(f) = TBD \quad (179B-4)$$

for $0.01 \leq f \leq 67$

where

$ILdd(f)$	is the measured insertion loss in dB at frequency f
$ILdd_{MTFmax}(f)$	is the maximum mated test fixtures insertion loss in dB at frequency f
$ILdd_{MTFmin}(f)$	is the minimum mated test fixtures insertion loss in dB at frequency f
f	is the frequency in GHz

Test Fixture References

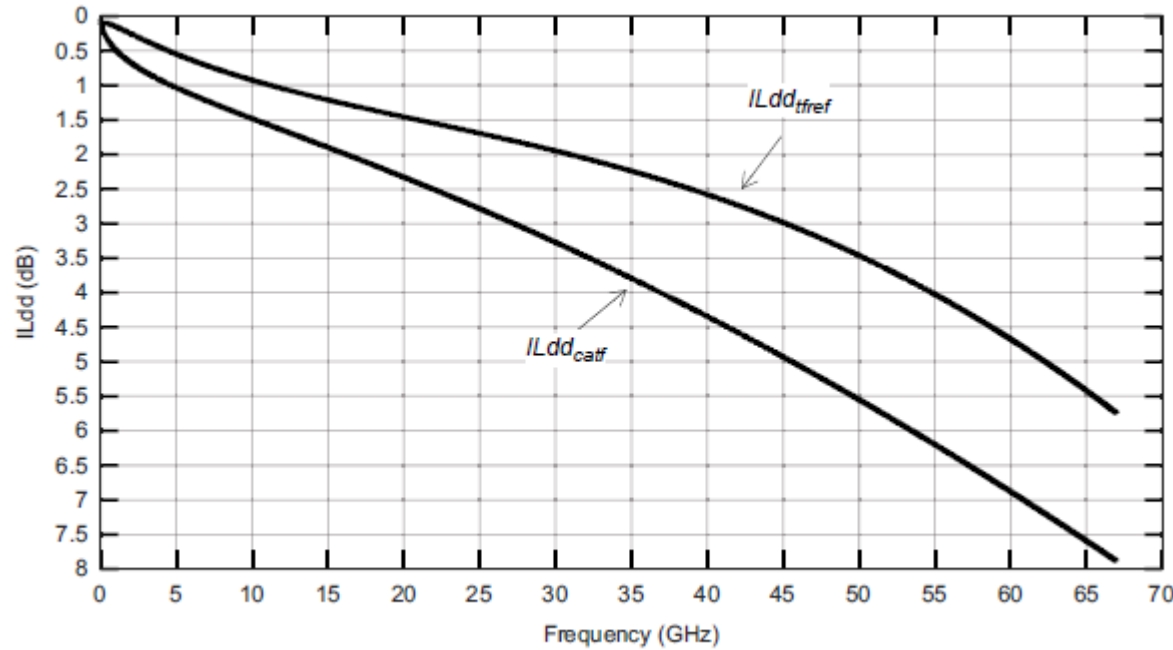
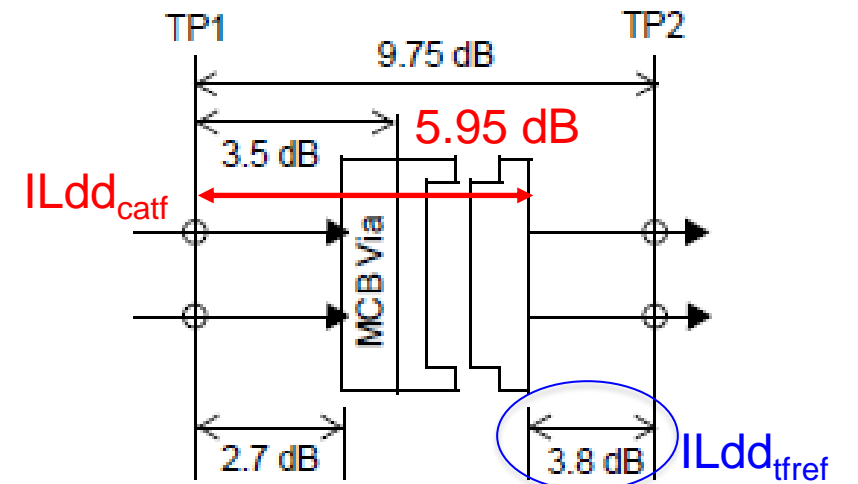


Figure 179B-1—Test fixtures PCB reference insertion losses



Mated test fixtures

$$ILdd_{tref}(f) = 0.0051f^2 - 0.0669f^{1.5} + 0.322f - 0.2676\sqrt{f} + 0.1567 \quad (179B-1)$$

$$ILdd_{catfref}(f) = 0.016f^{1.5} - 0.0841f + 0.5829\sqrt{f} - 0.0269 \quad (179B-2)$$

for $0.01 \leq f \leq 67$

Mated Test Fixture Reference

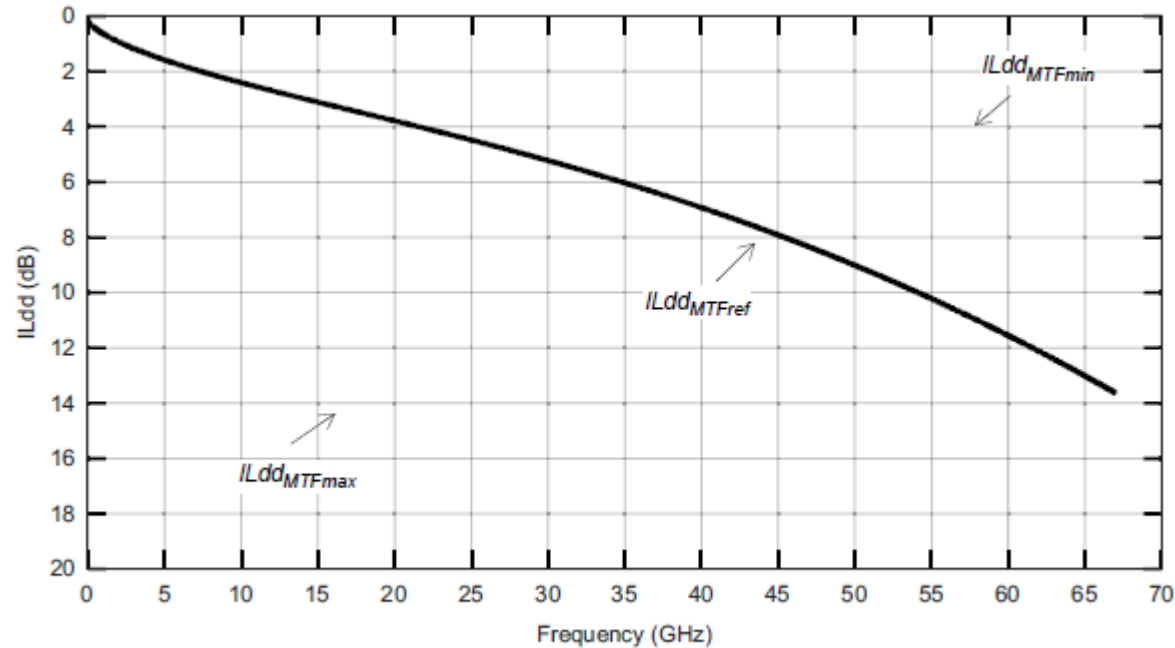
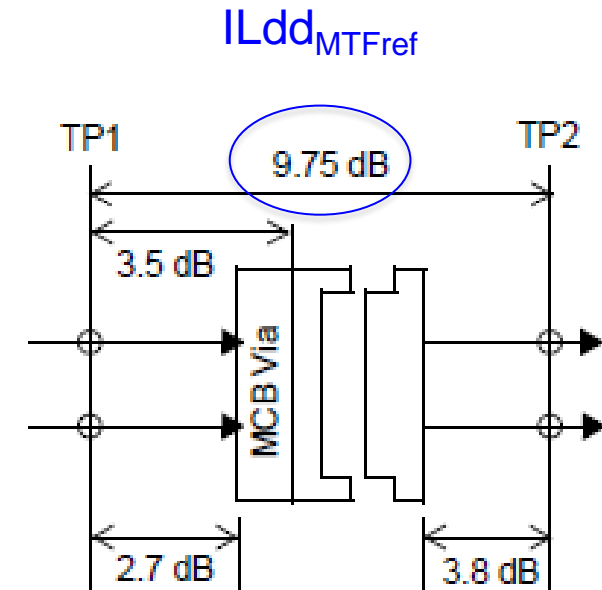


Figure 179B-2—Mated test fixtures insertion loss



Mated test fixtures

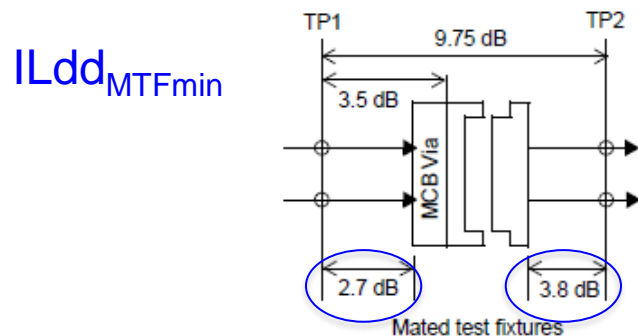
$$IL_{dd_MTFref}(f) = 0.0051f^2 - 0.0509f^{1.5} + 0.2379f + 0.3153\sqrt{f} + 0.1298$$

(179B-5)

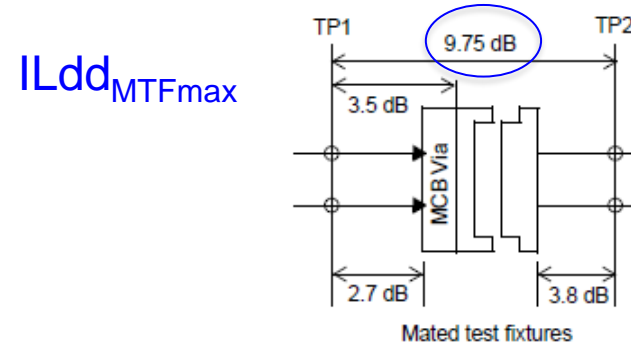
for $0.01 \leq f \leq 67$

Mated Test Fixture Data

- Contributions
 - sekel_3dj_01_2407
 - mellitz_3dj_01_2501
- FOM_ILD limit is set to 0.15dB
- Precedence from prior projects (802.3ck)

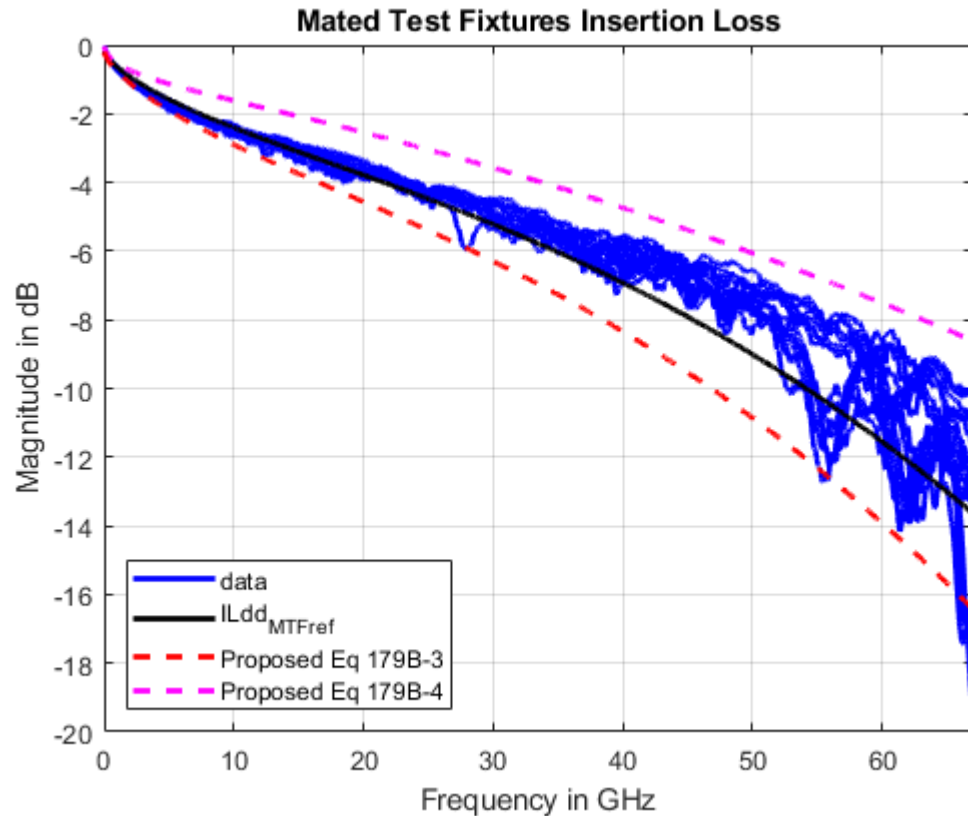


Derived from PCB-based fixtures with no MDI connector



Extrapolated from factors above

Proposed Mated Test Fixture ILdd Mask



179B.4.1 Mated test fixtures insertion loss

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$$ILdd(f) \geq ILdd_{MTFmin}(f) = TBD \quad (179B-4)$$

for $0.01 \leq f \leq 67$

where

$ILdd(f)$ is the measured insertion loss in dB at frequency f
 $ILdd_{MTFmax}(f)$ is the maximum mated test fixtures insertion loss in dB at frequency f
 $ILdd_{MTFmin}(f)$ is the minimum mated test fixtures insertion loss in dB at frequency f
 f is the frequency in GHz

Proposed Mated Test Fixture ILdd Mask

$$0.0061f^2 - 0.0613f^{1.5} + 0.2867f + 0.3799\sqrt{f} + 0.1564$$

$$0.0175f^{1.5} + 0.0918f + 0.5166\sqrt{f} - 0.0294$$

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for $0.01 \leq f \leq 67$

where

- $ILdd(f)$ is the measured insertion loss in dB at frequency f
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- f is the frequency in GHz