Analysis of Rpeak for 200G/L AUI-C2M

Related Comment: 412

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Introduction

- Rpeak is introduced to the module output electrical specification of 212G/L AUI-C2M, examined at TP4.The lower bound limit is currently set to 0.567, which seems a placeholder.
- We used the MTF channel provided to 802.3dj to calculate Rpeak as a starting point.

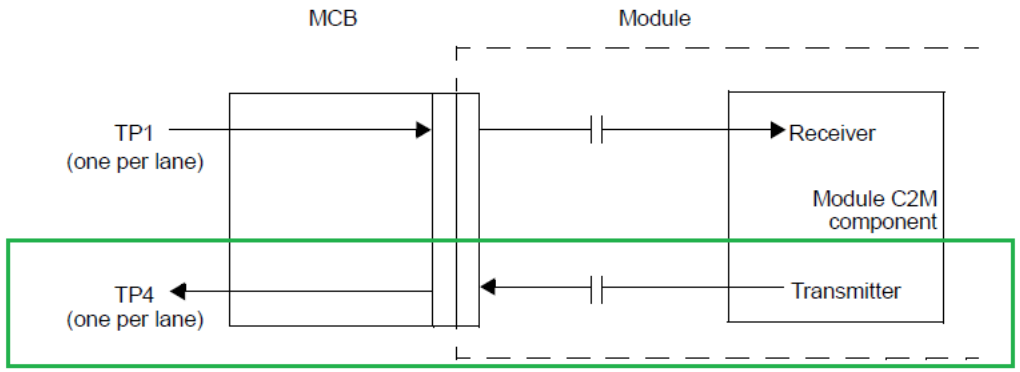
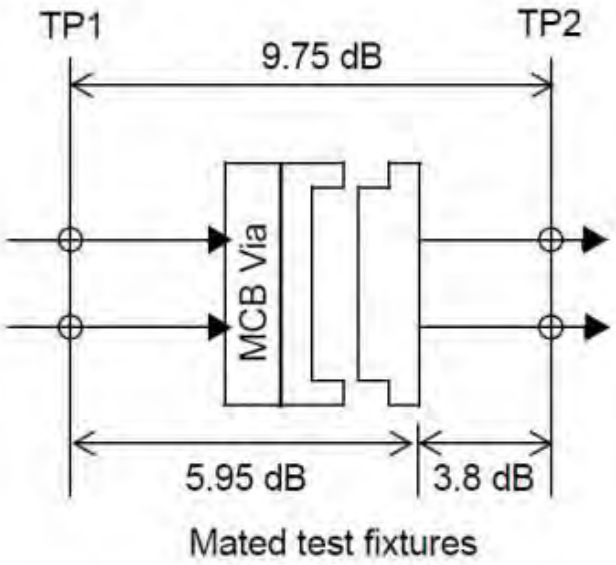
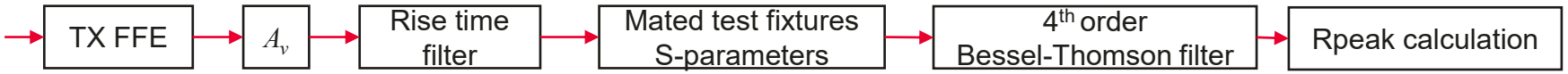


Figure 176D–5—Module compliance points



Preliminary simulation for Rpeak value



FIR = [0,0,1,0]
Preset 1

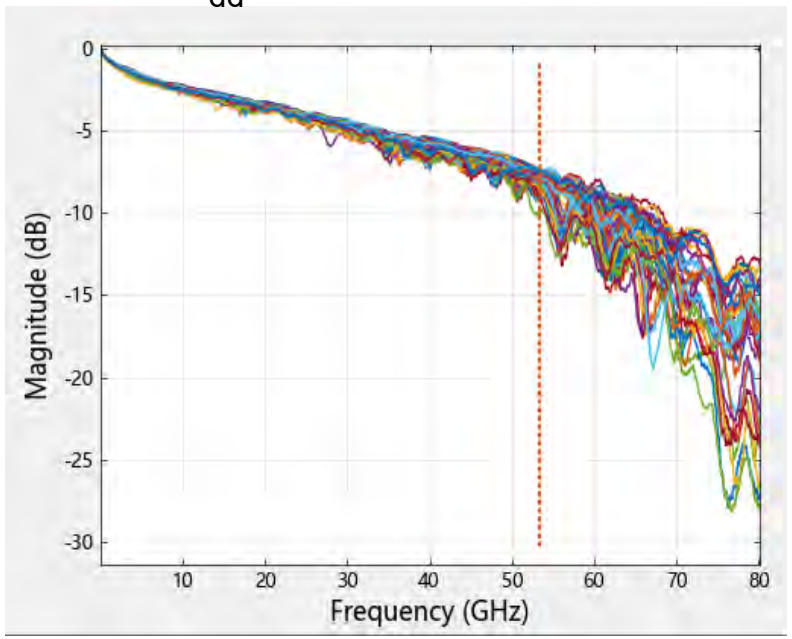
Tr = 0.004ns

$H_t(f) = \exp(-2(\pi f T_r/1.6832)^2)$

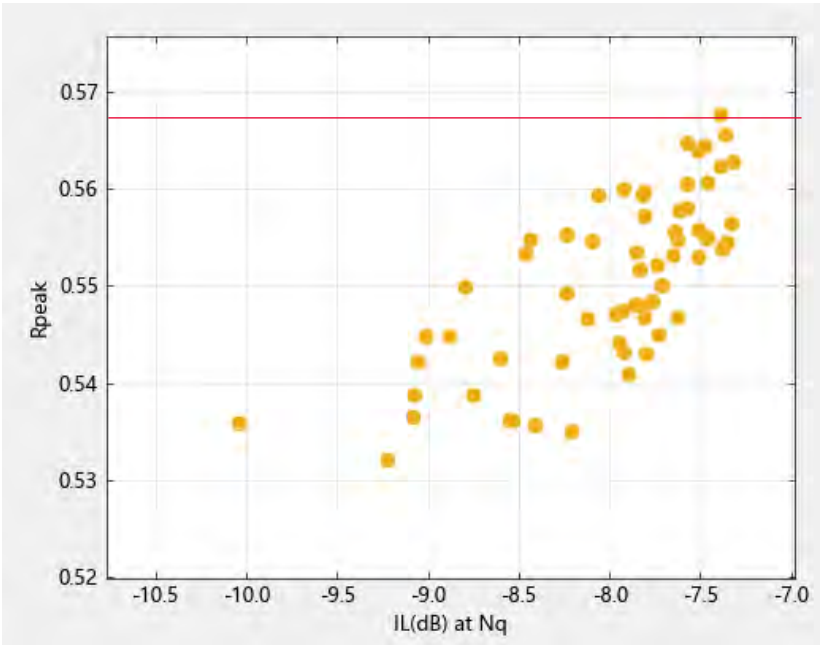
3dB BW = 60GHz

Linear fit pulse peak ratio, R_{peak} (min)	176D.8.4	0.567	—

MTF Il_{dd} used in the simulation



Calculated Rpeak



Channel source :

Suggested MTF ILdd fitted reference line, limit lines and associated equations for Annex 179B
(Note 91M file)
06-Mar-2025
Supporting Presentation

Kevin Mammenga
Ray Schmelzer
Steve Sekel

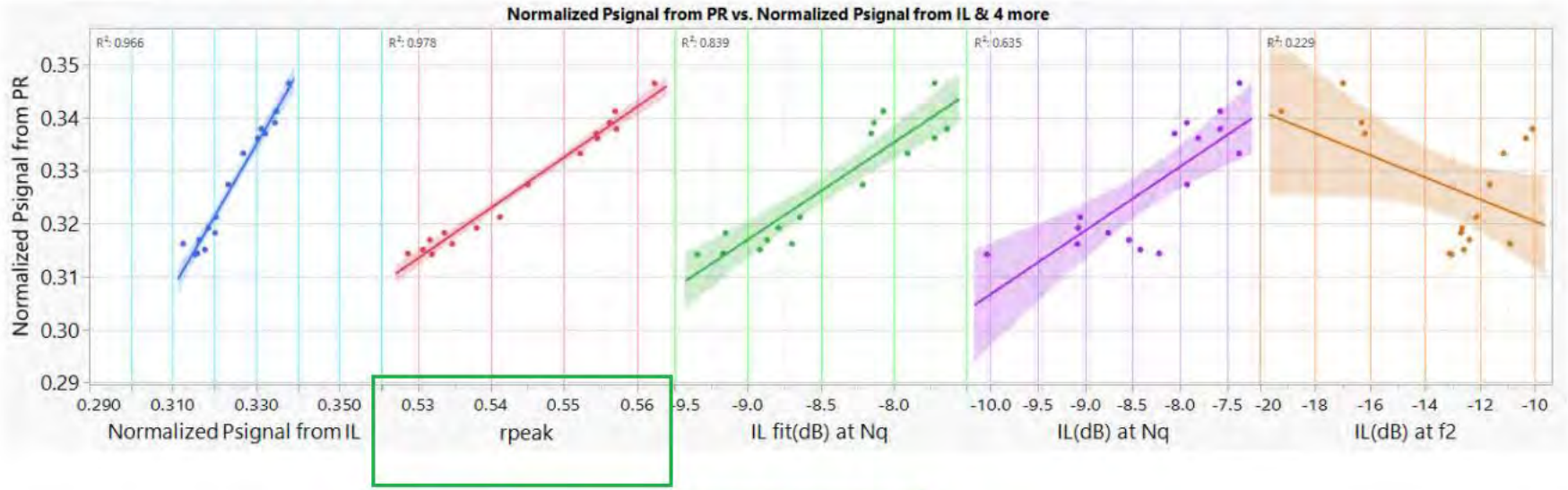
Wilder Technologies

In mellitz_3dj_03_2505

- The contribution was not about Rpeak, but the Rpeak range considered for the analysis was 0.5~0.57
- The range is below the current min. Rpeak requirement.

An Interesting look at correlations

$\hat{P}_{signal}$ is highly correlated to rPeak and "IL fit at Nyquist"

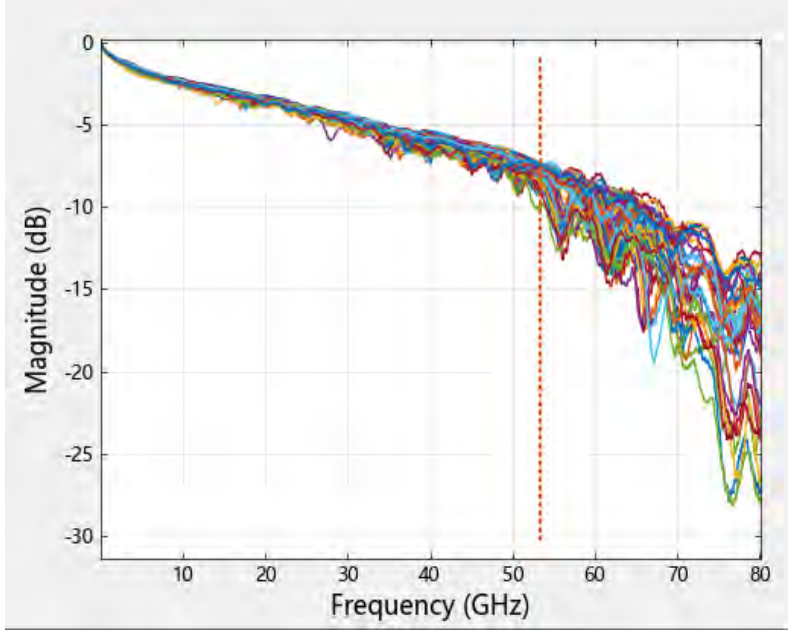


$\hat{P}_{signal}$ ranges between 0.31 and 0.34

$\hat{P}_{signal}$ specification will take care of IL shape deviations

Is 0.5 good enough?

- Probably not.
- Some margin is needed for implementation w/ higher losses, and manufacturing variations.



Minimum IL of these data set <10dB

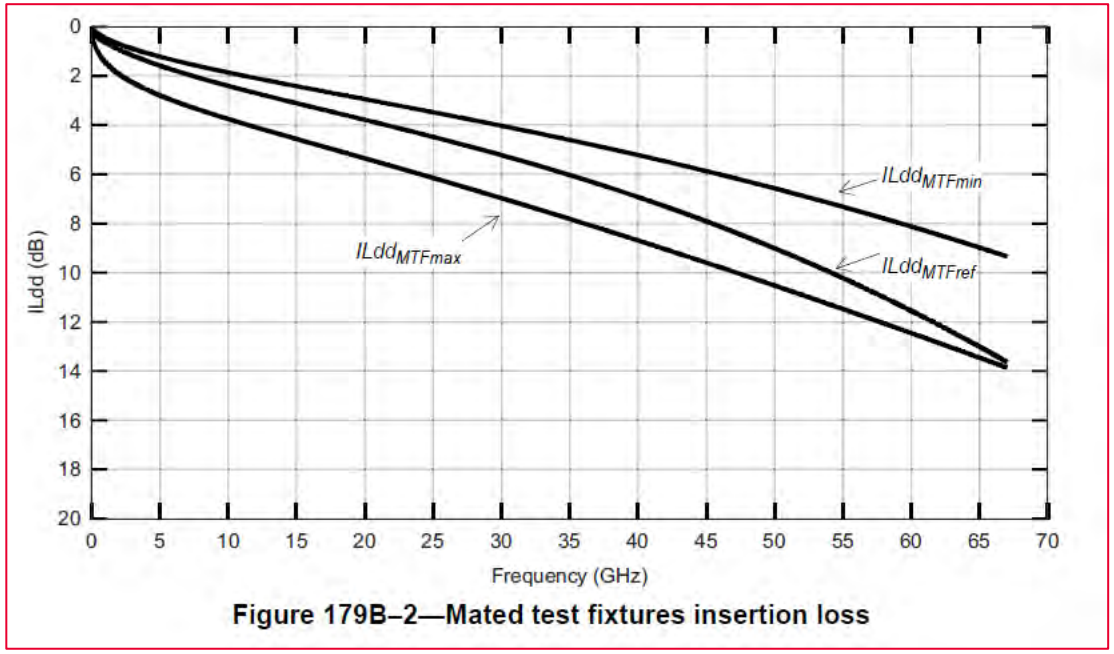


Figure 179B–2—Mated test fixtures insertion loss

Minimum IL allowed ~11dB

Summary

- Current Rpeak min for AUI C2M seems an unreachable target.
- Further analysis w/ more channel data is needed to arrive at a solid number.
- Updating the current value of Rpeak min, if we need a place holder for now,

0.567 → 0.456

Thank you.

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