QSFP-DD vs. IEEE 802.3cd D1.2: MCB/HCB Analysis

Molex Standards Group

2 March 2017

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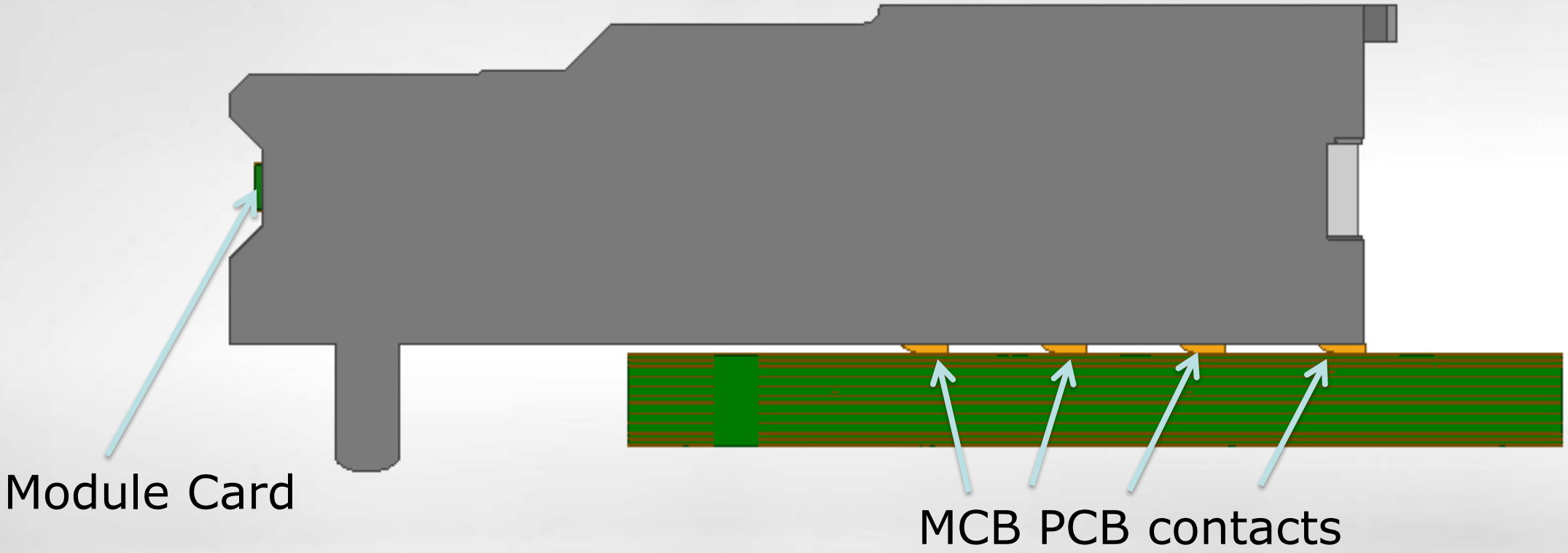
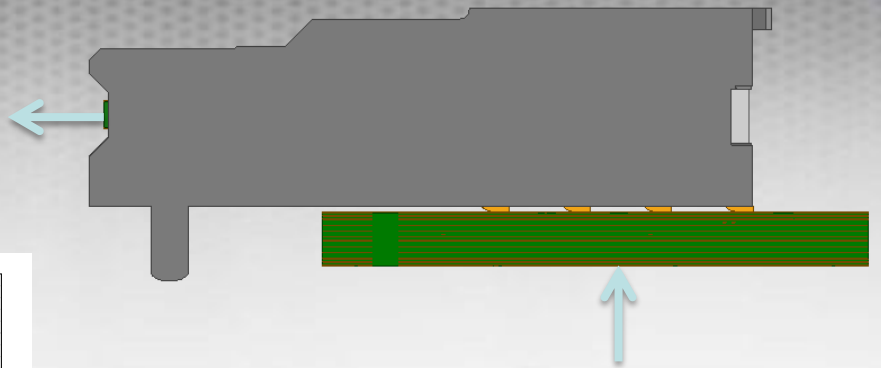
Introduction

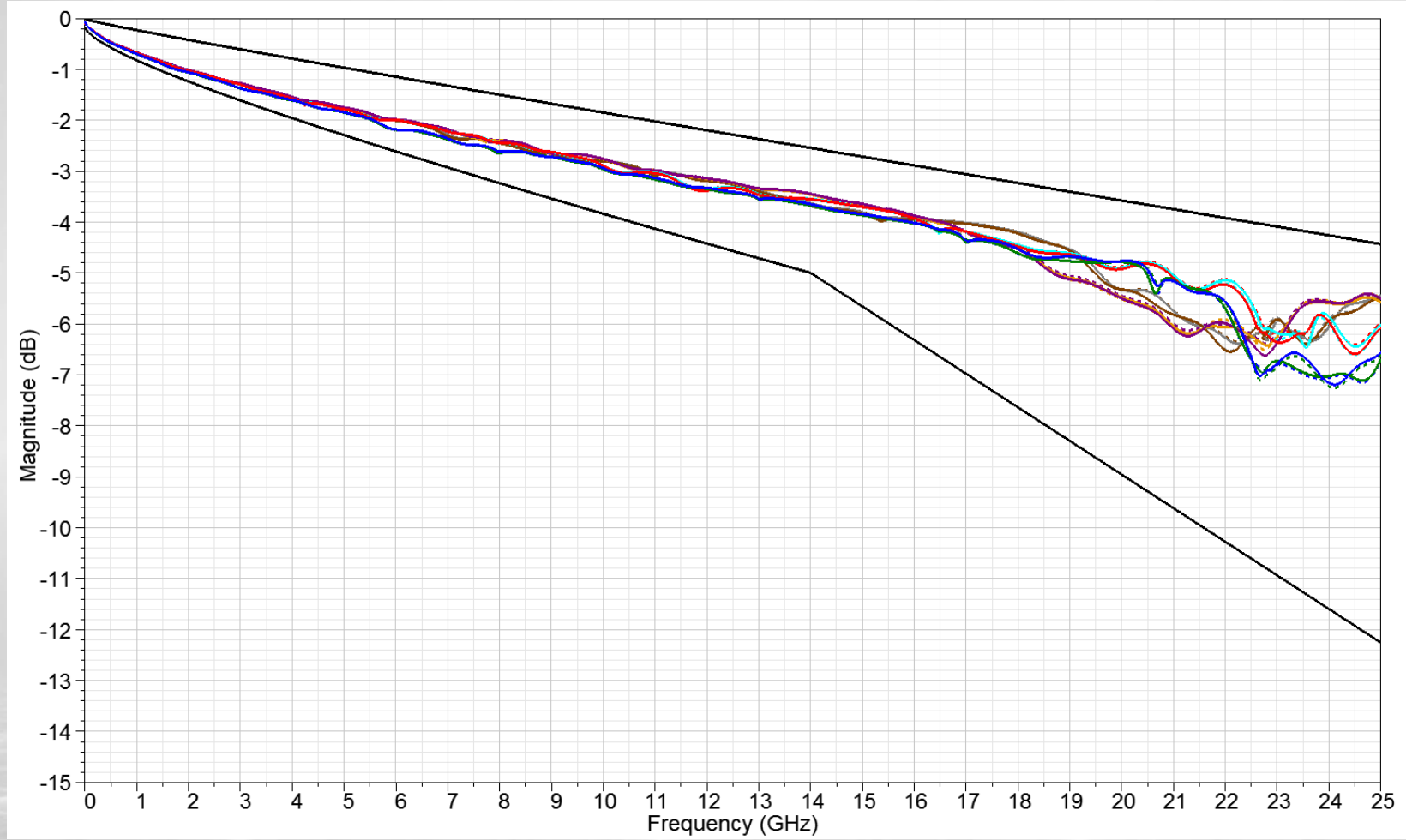
- **This presentation shows simulated S parameters for a QSFP-DD compliance board using the assumption that all traces are equivalent length, loss, crosstalk as the QSFP compliance boards**
  - Note: This is an impossible task and should only be used as a method of making connector comparisons

Illustration:



Sdd21:




Magnitude (dB)
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
-15
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

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ILDrms:

Inputs	Values
f_b	25.78125 GHz
T_{nt},T_{ft}	9.6 ps
Start frequency	0.01 GHz*
Stop frequency	25 GHz
f_r	0.75*f_b

*Due to available data, ILD was calculated from 0.05 GHz.

Limit	ILD_{rms} [dB_{rms}]
ILD_{rms}	0.13

Row	Pair #	Pair Name	ILD_{rms} [dB_{rms}]
			0.062
			0.063
			0.042
			0.038
			0.049
			0.047
			0.044
			0.042
			0.065
			0.064
			0.037
			0.040
			0.046
			0.048
			0.042
			0.044

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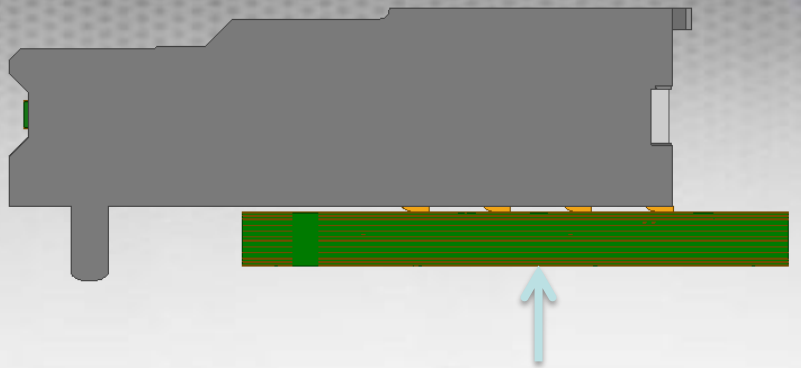
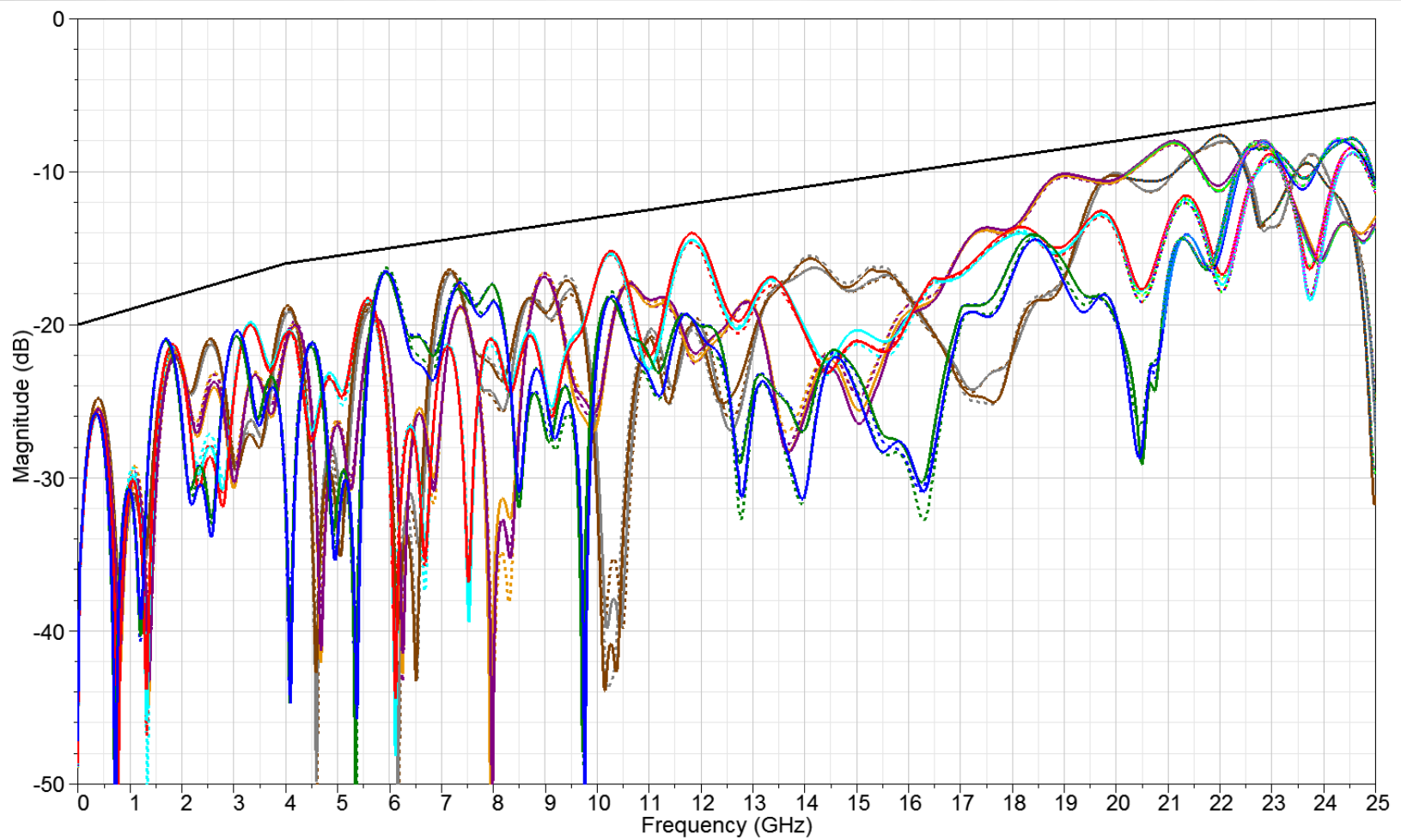
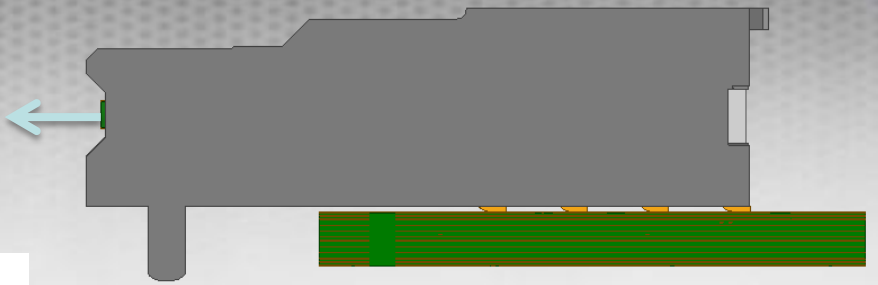
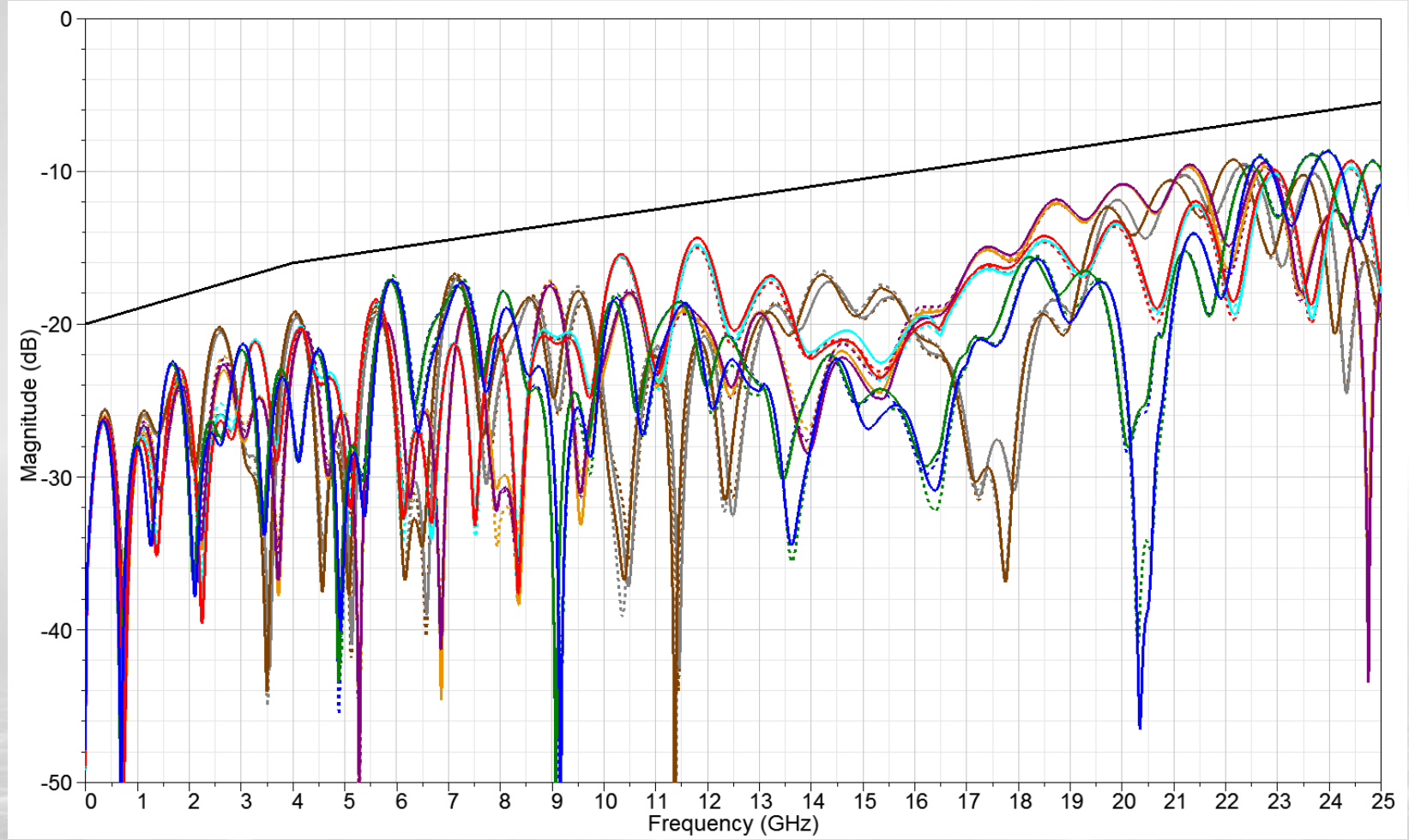
Sdd11:




0
-10
-20
-30
-40
-50
Magnitude (dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

Sdd22:




0
-10
-20
-30
-40
-50
Magnitude (dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

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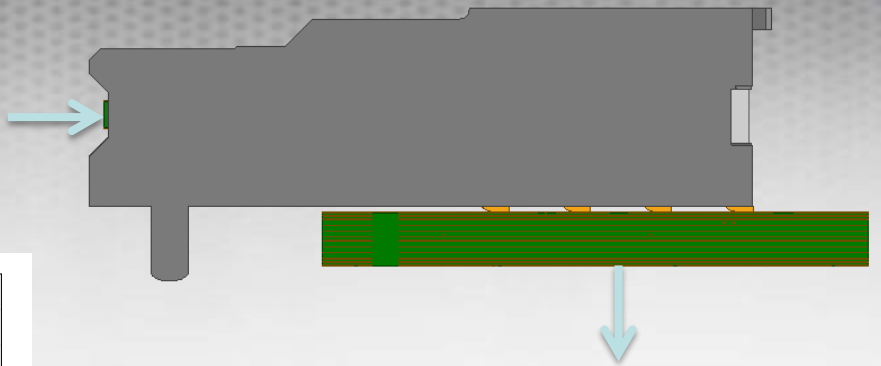
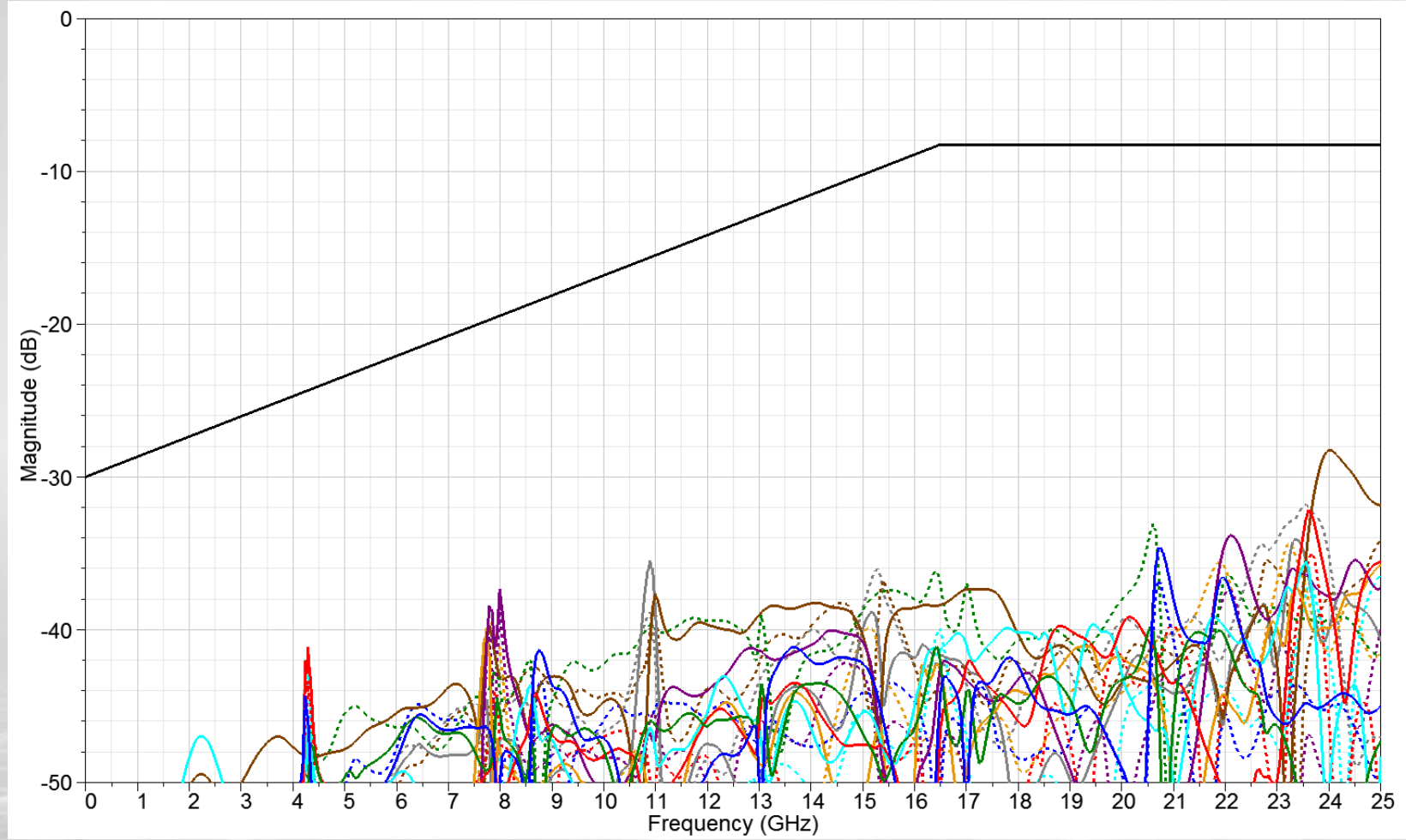
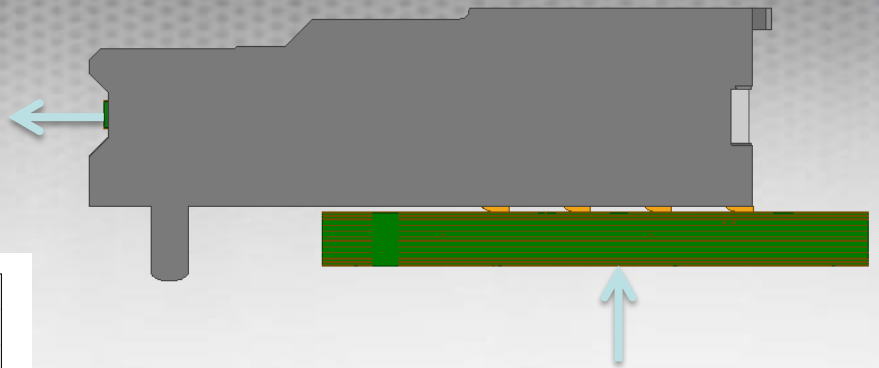
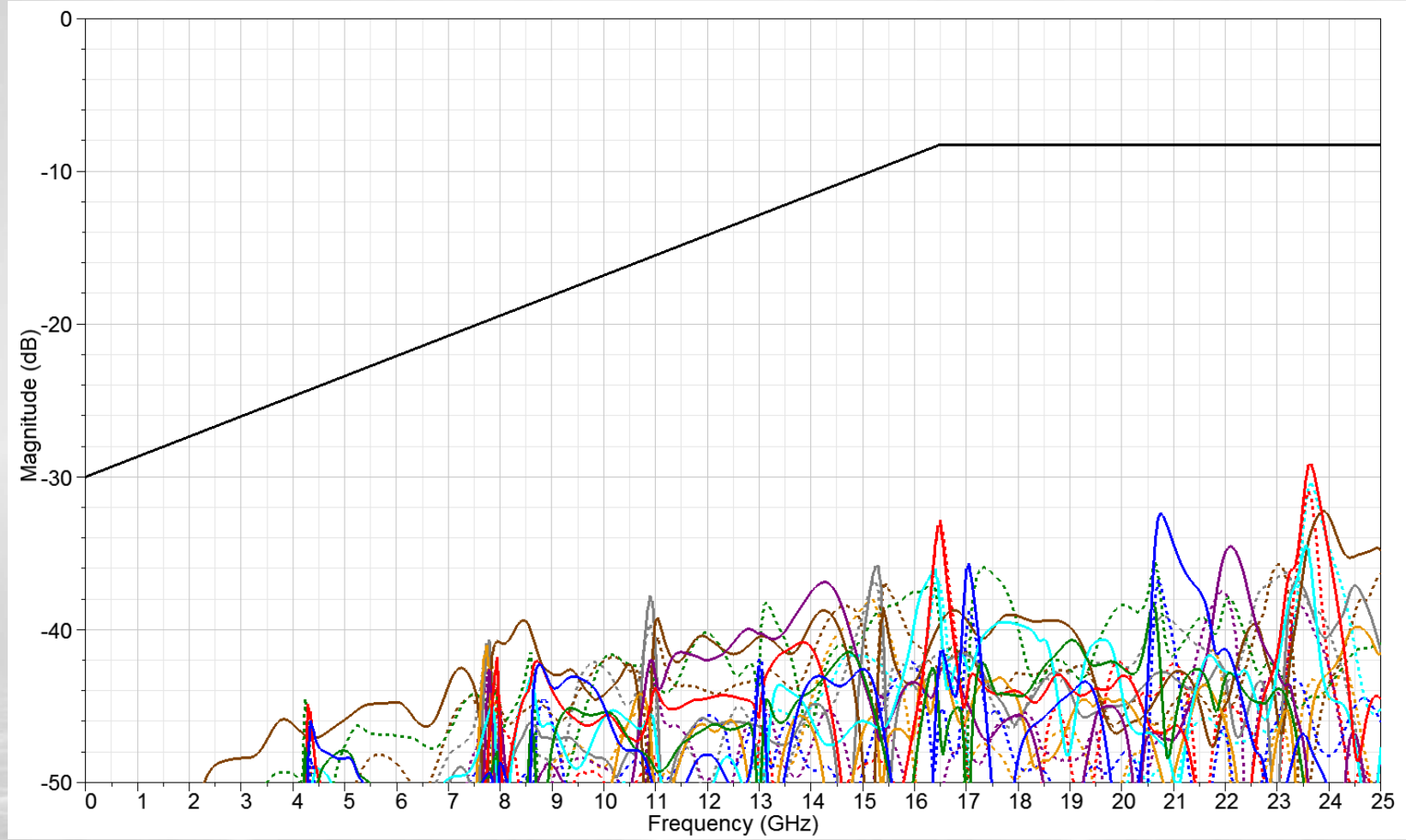
Sdc12:



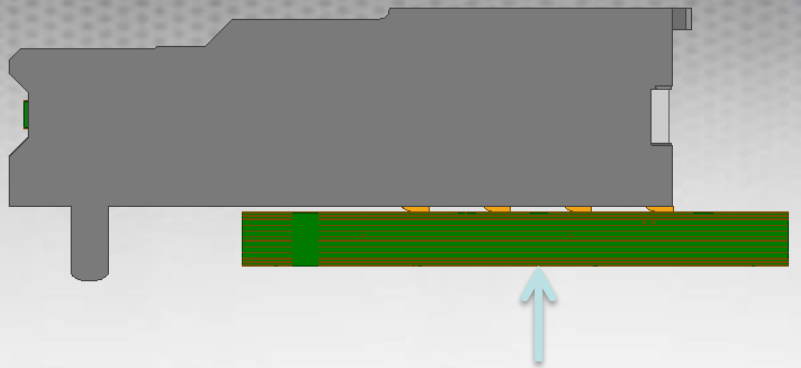

0
-10
-20
-30
-40
-50
Magnitude (dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

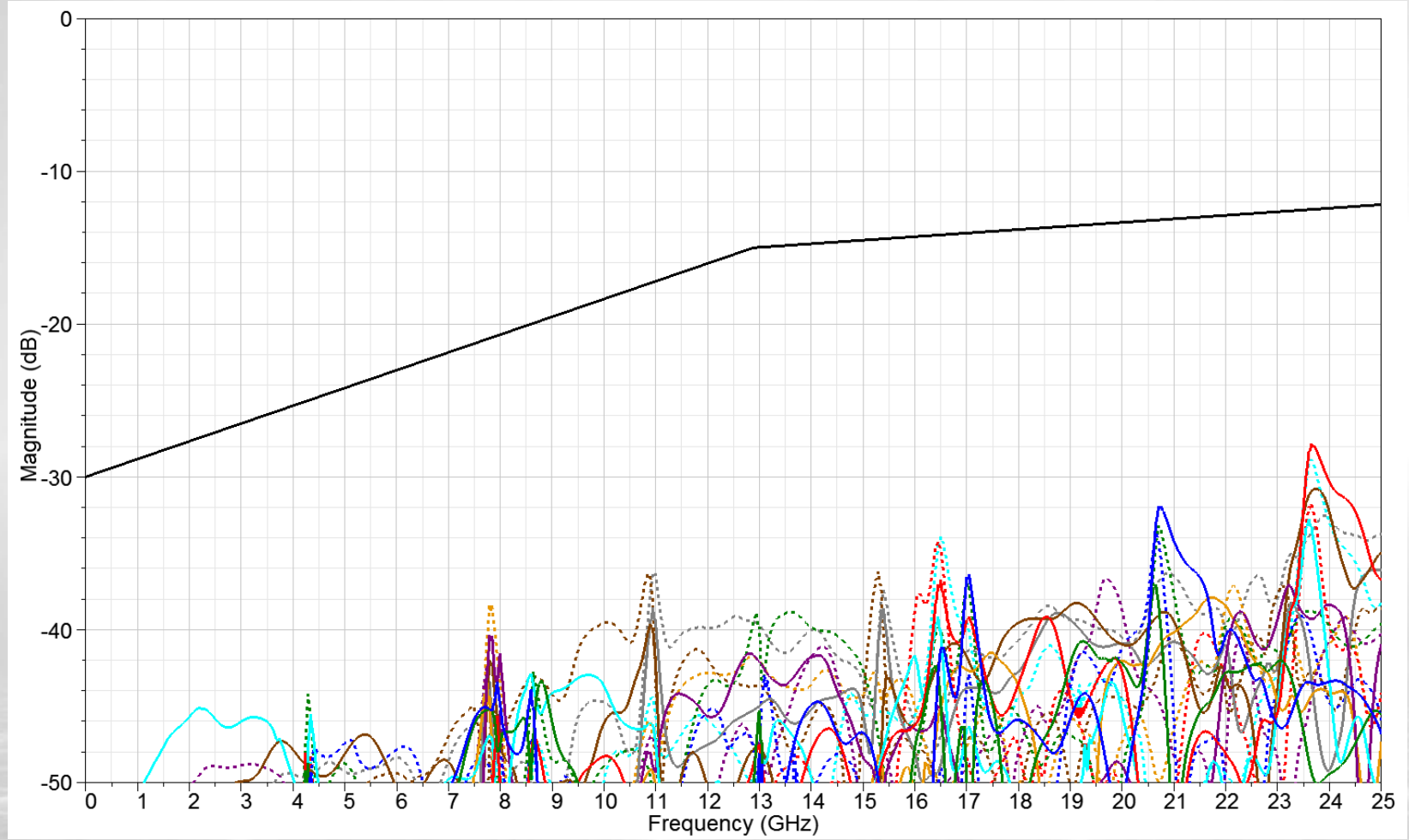
Sdc21:



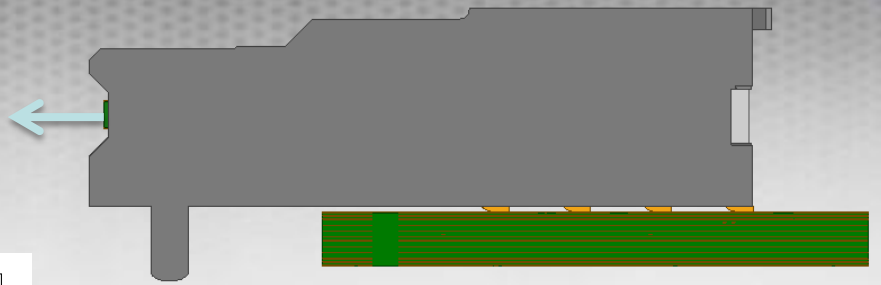

0
-10
-20
-30
-40
-50
Magnitude (dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

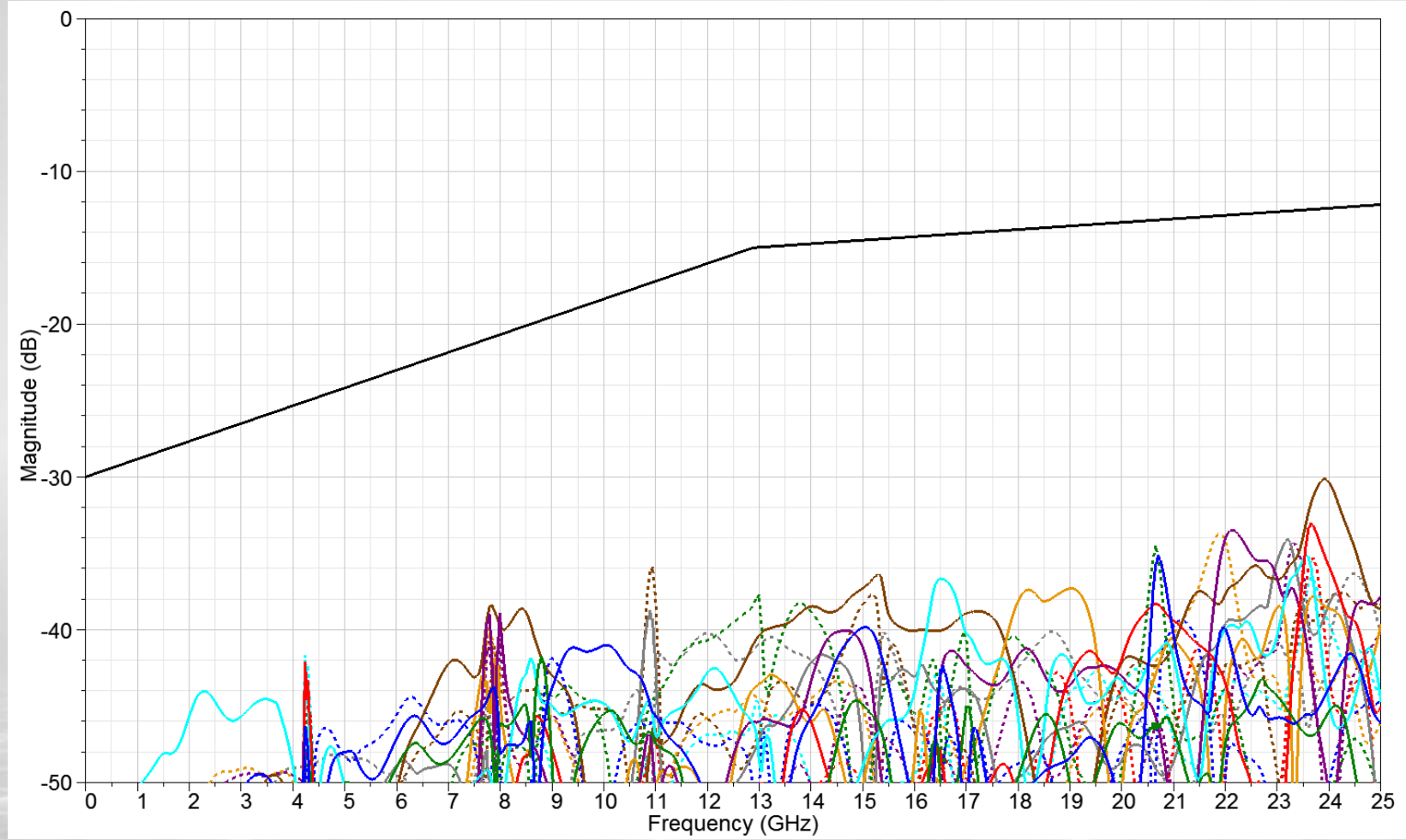
Sdc11:



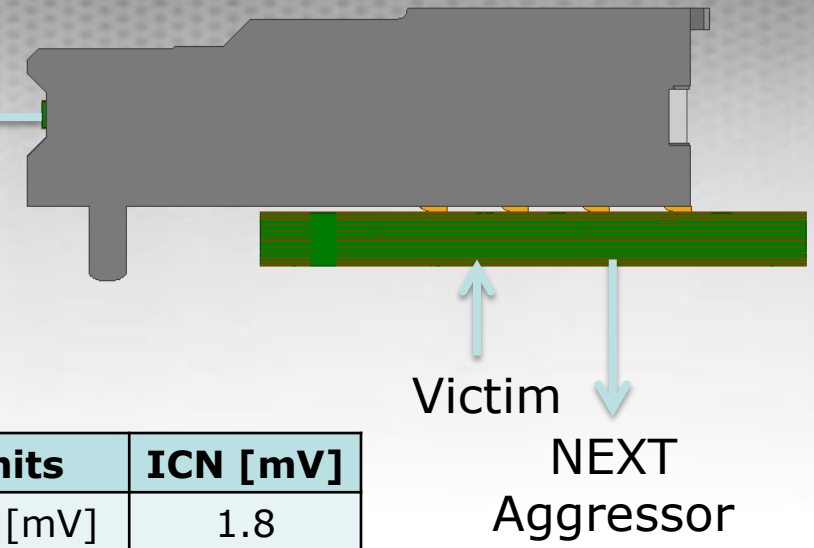

0
-10
-20
-30
-40
-50
Magnitude (dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

Sdc22:




0
-10
-20
-30
-40
-50
Magnitude (dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Frequency (GHz)

ICN:



			σ_{NEXT} [mV]	σ_{FEXT} [mV]
			0.164	1.402
			0.185	1.369
			0.232	2.034
			0.300	1.891
			0.283	2.061
			0.328	2.033
			0.237	1.139
			0.214	1.057
			0.190	1.366
			0.165	1.356
			0.316	1.879
			0.245	1.992
			0.317	2.000
			0.276	2.045
			0.200	1.074
			0.235	1.116

Limits	ICN [mV]
σ_{NEXT} [mV]	1.8
σ_{FEXT} [mV]	4.8

Inputs	Values
f_b	26.5625 GHz
f_r	19.92 GHz
A_{nt}, A_{ft} [mV; pk-pk]	1200
T_{nt},T_{ft}	9.27 ps
Start frequency	0.05
Stop frequency	19 GHz

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