EDISON

Electromagnetic Design of
flexIble SensOrs

FNP Team-Tech

Report 88 - SSMM MOR 2

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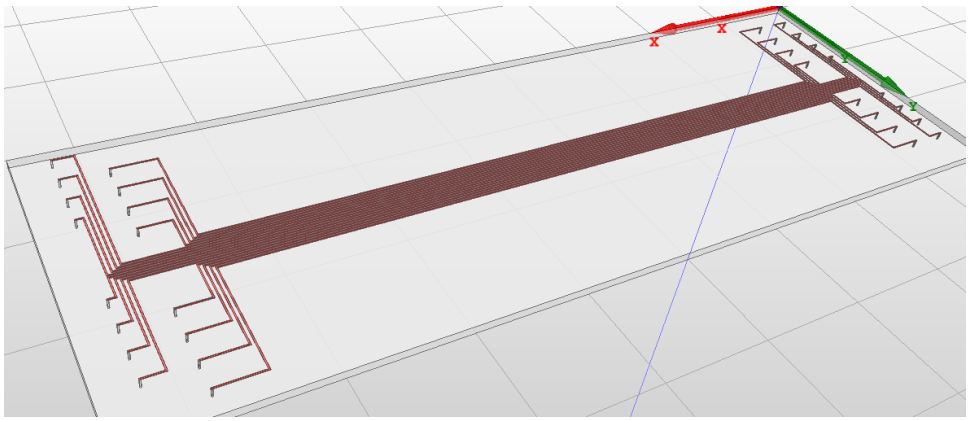

Figure 1: PCB lines

1 Test Structure

Frequency band	0.1-2 GHz
Number of variables	517150
Tol	1e-4
ncv	$1.5 \cdot nev$

2 SSMM

Reduction time	157.043
Tolerance	0.0001
ARPACK	61.79
SF/NF/Solv	0 / 1.271 / 0.6775
Solution	18.01
Orthogonalization	42.09
Local estimator	16.74
Global estimator	0
Update matrix	16.92
Final frequency sweep	0.2902
Number of vectors in the basis	343
Number of expansion freq. points	1
Number of variables	517150
Number of frequency points	101
Lossy	0
Absorbing Boundary conditions	0

3 CRBM

Reduction time	154.922
Tolerance	0.0001
ARPACK	63.09
SF/NF/Solv	0 / 1.281 / 0.7072
Solution	17.7
Orthogonalization (inside SAPOR)	32.62
Local estimator	0
Global estimator	26.21
Update matrix	12.1
Final frequency sweep	0.2613
Number of vectors in the basis	279
Number of expansion freq. points	7
Number of variables	517150
Number of frequency points	101
Lossy	0
Absorbing Boundary conditions	0

4 RBM

Reduction time	76.323
Tolerance	0.0001
Max. number of moments/freq.point	1
Initial (POD of RHS)	0.5081
SF/NF/Solv	5.881 / 1.341 / 0.64
Solution	24.51
Orthogonalization	29.21
Local estimator	0
Global estimator	9.187
Update matrix	0
Final frequency sweep	0.1643
Number of vectors in the basis	224
Number of expansion freq. points	7
Number of variables	517150
Number of frequency points	101
Lossy	0
Absorbing Boundary conditions	0

5 SAPOR

Reduction time	198.942
Tolerance	0.0001
Max. number of moments/freq.point	40
Initial (POD of RHS) **(A1, step 2)**	0.4825
SF/NF/Solv	5.79 / 1.428 / 0.7233
Solution **(A2, steps: 1,8)**	27.18
Orthogonalization (inside SAPOR) **(A2, steps 3,10)**	124.4
Local estimator **(A2, step 12)**	15.97
Global estimator **(A1, step 6)**	12.69
Update matrix **(A1 step 5; A2, steps 4, 11)**	16.24
Final frequency sweep	0.2326
Number of vectors in the basis	320
Number of expansion freq. points	1
Number of variables	517150
Number of frequency points	101
Lossy	0
Absorbing Boundary conditions	0

6 One expansion point

Expansion point	1.49 GHz
Number of **iterations**	**97**
Number of requested eigenvalues	55

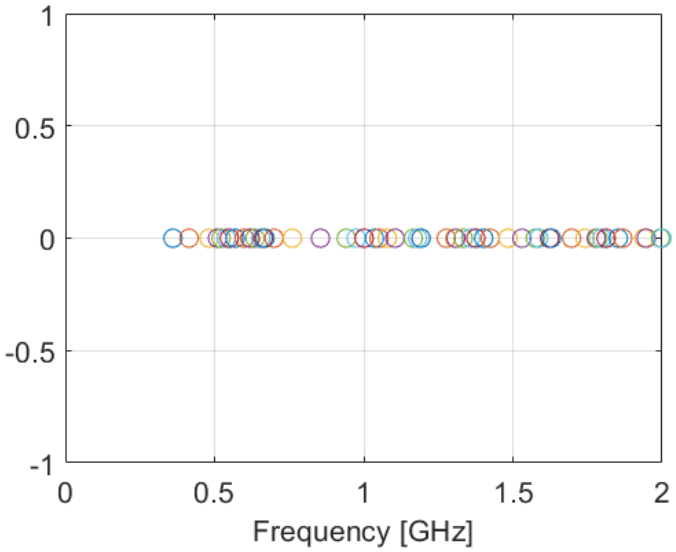

Figure 2: 55 eigenvalues in the whole frequency band.

7 Three expansion points

Expansion point #1	1.05 GHz
Number of requested eigenvalues	19
Freq. sub band	0.7118 - 1.3882 GHz
Number of **iterations**	**44**
Expansion point #2	0.3736 GHz
Number of requested eigenvalues	16
Freq. sub band	0.0050 - 0.7118 GHz
Number of **iterations**	**27**
Expansion point #3	1.7264 GHz
Number of requested eigenvalues	20
Freq. sub band	1.3882 - 2.0950 GHz
Number of **iterations**	**51**
Overall number of **iterations**	**122**