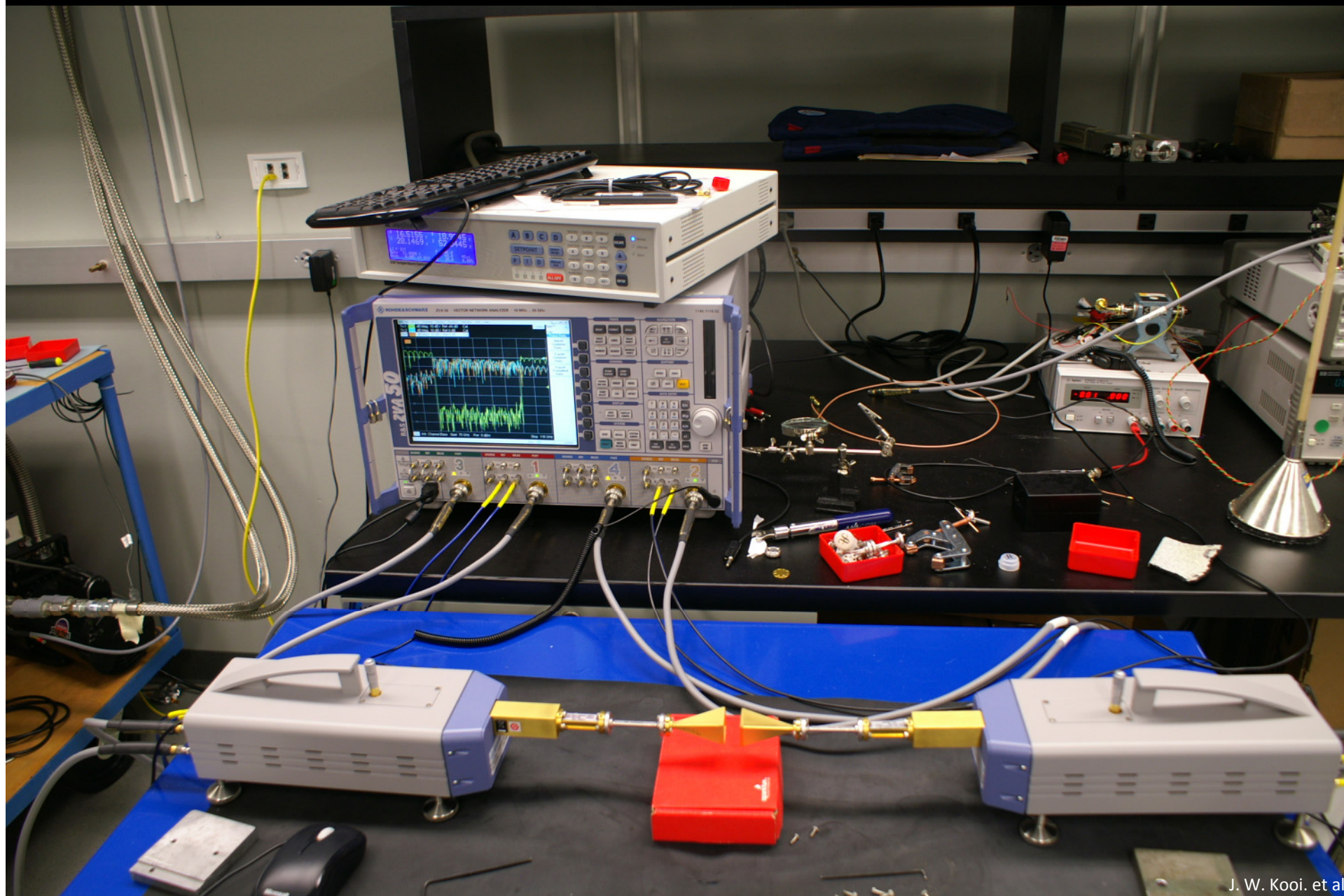


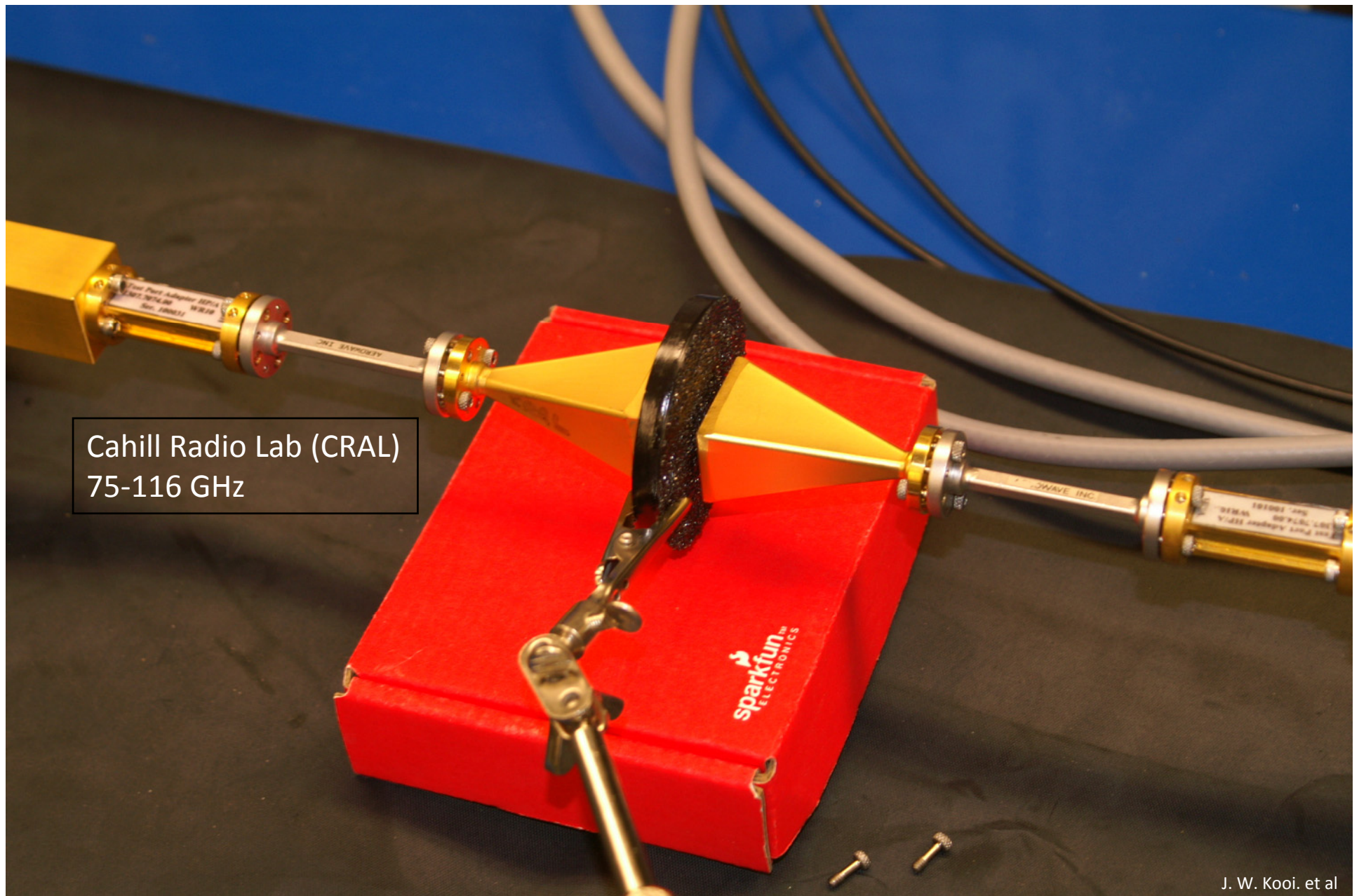
Stycast 2850 Load Measurements in Cahill Radio Lab (CRAL)

23 Jan 2012



Setup

One side of all samples was smooth walled, the other covered with SiC



Smooth side (S11)



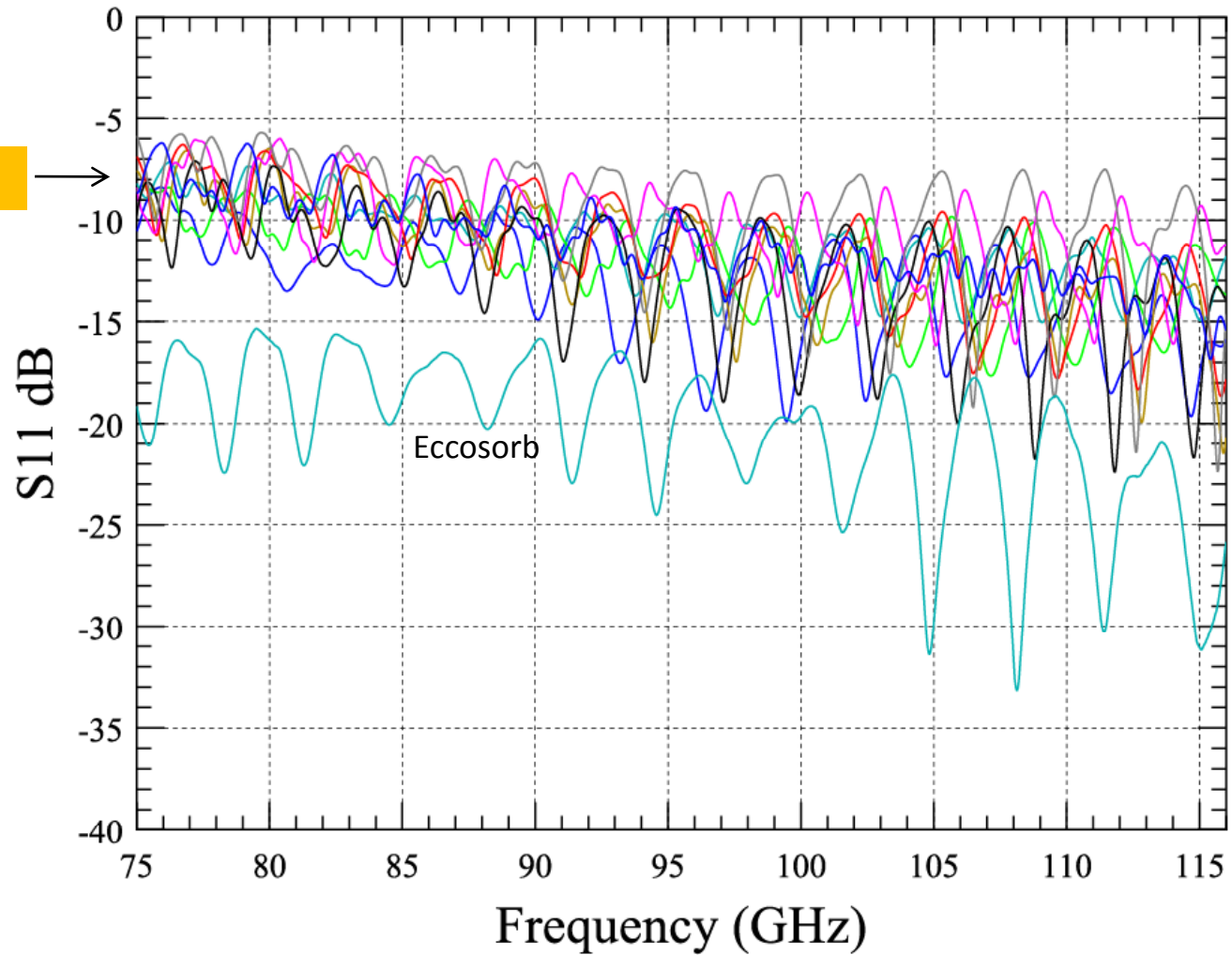
Rough SiC side (S22)



Sample	Stycast	Lampblack	SS*	Thickness	Comments
1	2850	0 %	0 %	6.40 mm	SiC one side
2	2850	5%	0%	5.80 mm	SiC one side 'Bock black'
3	2850	5%	5%	6.40 mm	SiC one side *Stainless Steel Powder 325 mesh
4	2850	5%	10 %	6.45 mm	SiC one side *Stainless Steel Powder 325 mesh
5	2850	10 %	0 %	5.50 mm	SiC one side
6	2850	10 %	10 %	5.50 mm	SiC one side *Stainless Steel Powder 325 mesh
7	2850	7 %	20%	6.55 mm	SiC one side *Carpenter "Micro Melt" 316L, 16 um
8	2850	7 %	20%	2.70 mm	SiC one side *Carpenter "Micro Melt" 316L, 16 um
9	2850	7 %	20%	2.70 mm	SiC one side *Carpenter "Micro Melt" 316L, 16 um
10	AN-72 Eccosorb			6.35 mm	Both sides rough

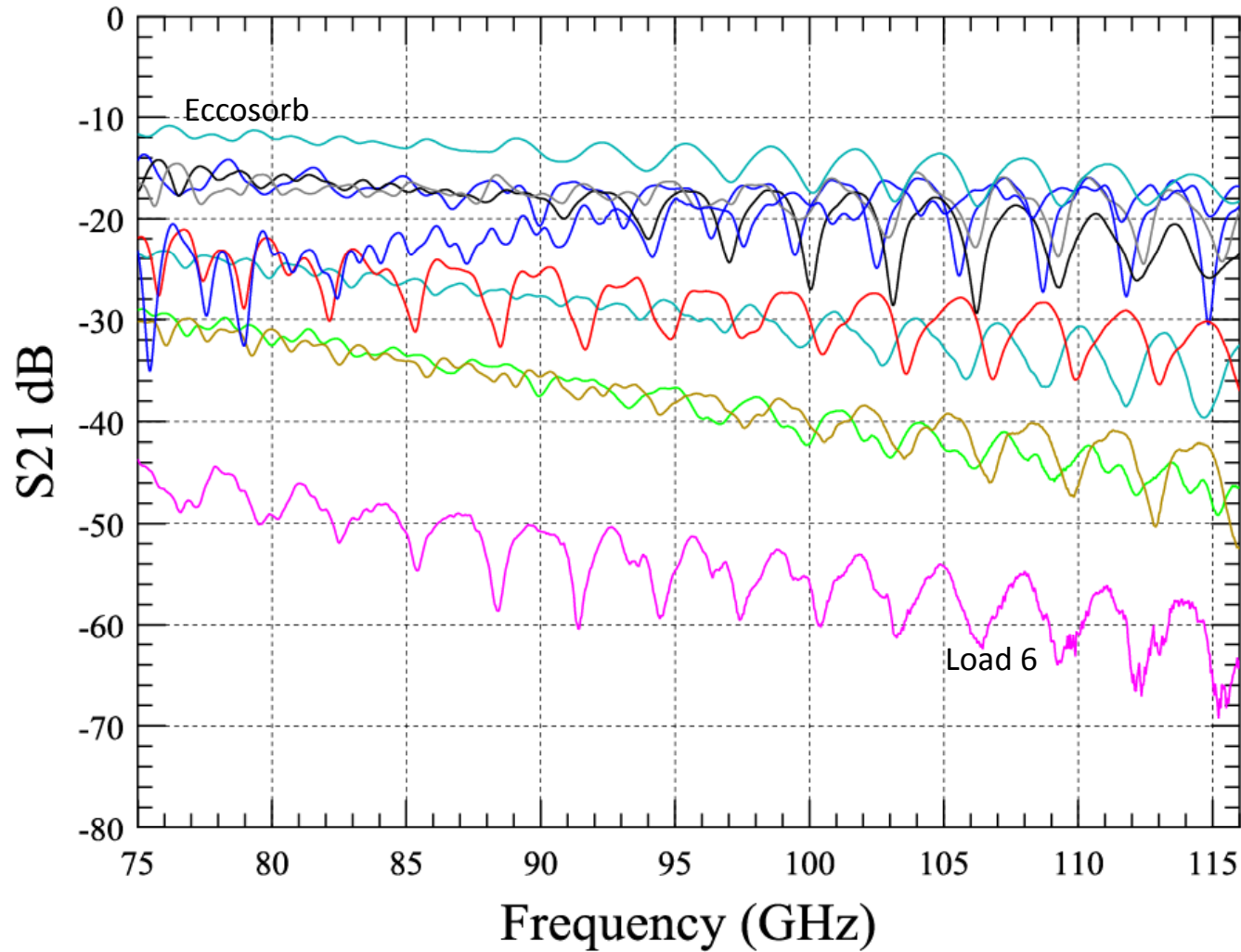
Corrected S11 (shiny side)

Surface too smooth



load1.s2p(< -16.41 > dB)	load2.s2p(< -14.04 > dB)
load3.s2p(< -15.04 > dB)	load4.s2p(< -14.77 > dB)
load5.s2p(< -14.19 > dB)	load6.s2p(< -13.31 > dB)
load7.s2p(< -15.51 > dB)	load8.s2p(< -12.77 > dB)
load9.s2p(< -14.02 > dB)	eccosorb-72.s2p(< -23.49 > dB)

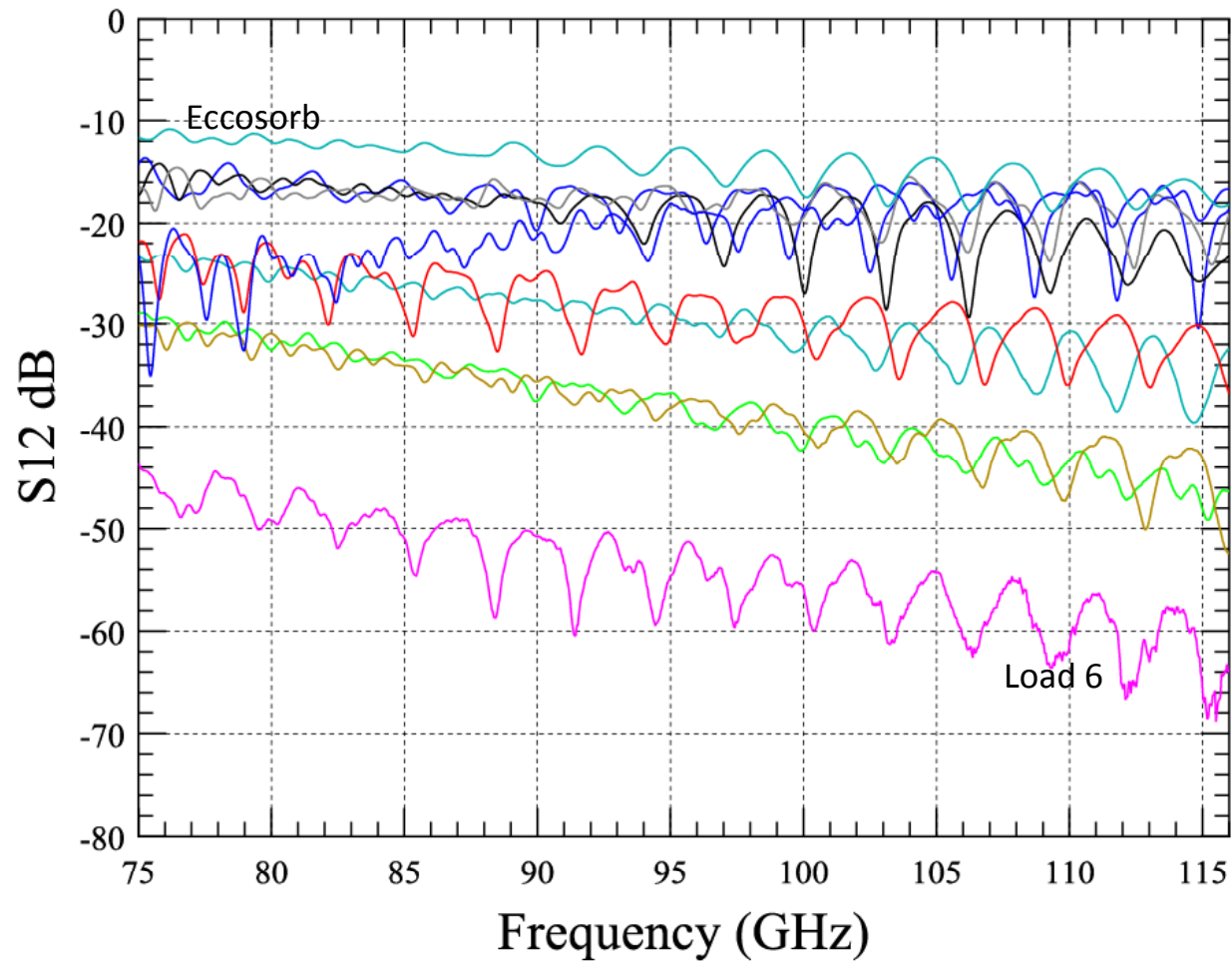
Corrected Through (S21) Loss



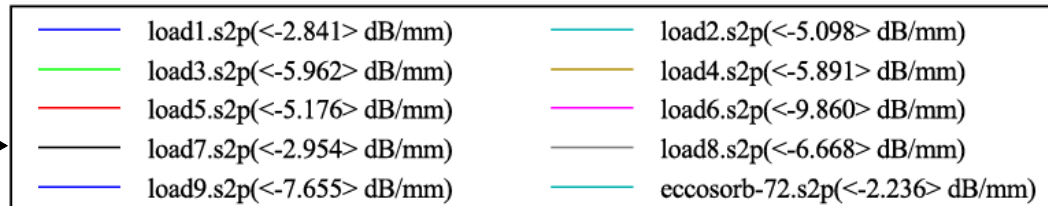
#7 Inhomogeneous mixture!! Be aware

load1.s2p(< -2.838 > dB/mm)	load2.s2p(< -5.094 > dB/mm)
load3.s2p(< -5.958 > dB/mm)	load4.s2p(< -5.887 > dB/mm)
load5.s2p(< -5.171 > dB/mm)	load6.s2p(< -9.855 > dB/mm)
load7.s2p(< -2.951 > dB/mm)	load8.s2p(< -6.654 > dB/mm)
load9.s2p(< -7.642 > dB/mm)	eccosorb-72.s2p(< -2.233 > dB/mm)

Corrected 'Reverse' Through (S12) Loss

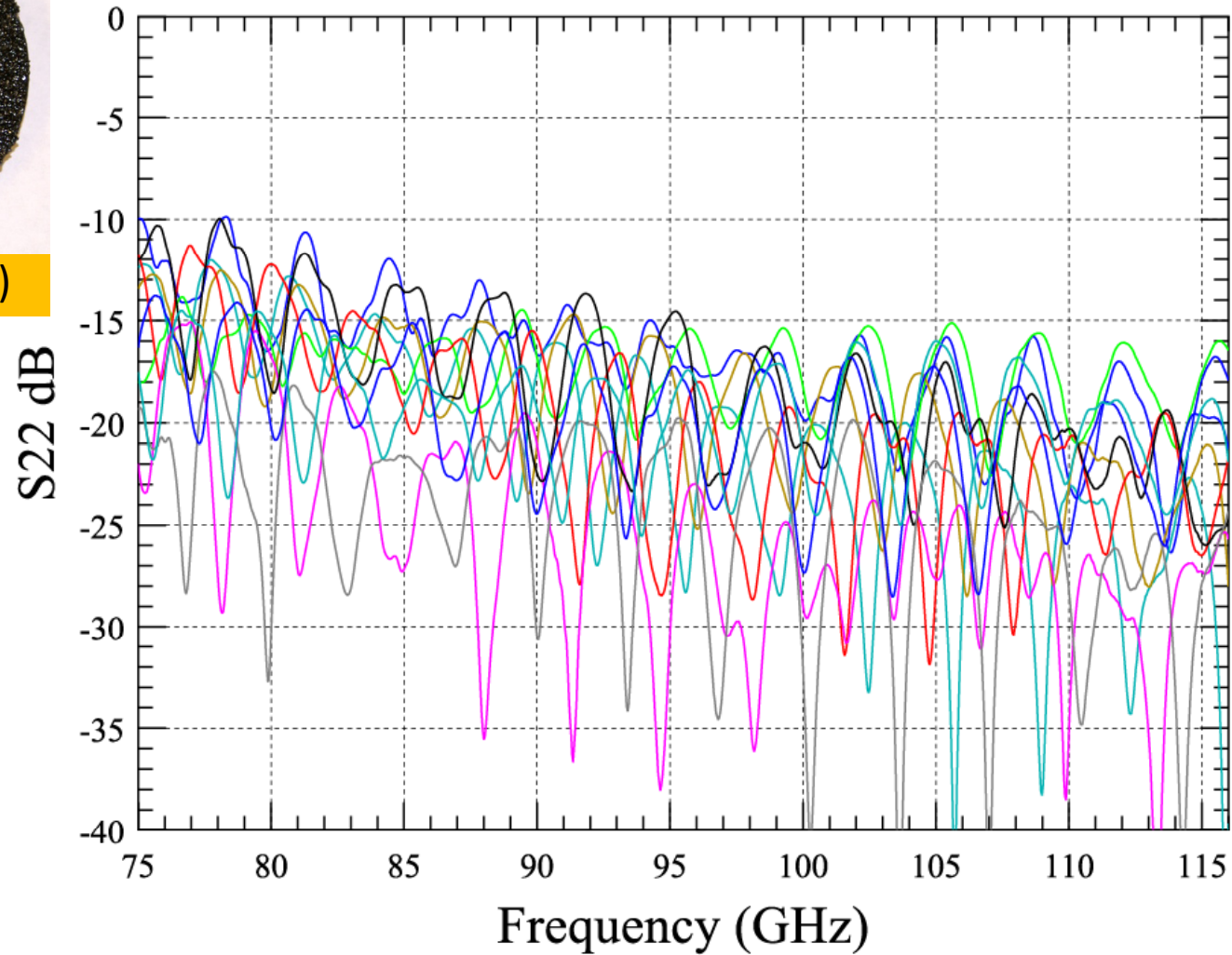


#7 Inhomogeneous mixture!! Be aware





Corrected S22 (SiC)



load1.s2p(< -19.71 > dB)	load2.s2p(< -24.14 > dB)
load3.s2p(< -20.45 > dB)	load4.s2p(< -22.29 > dB)
load5.s2p(< -23.33 > dB)	load6.s2p(< -28.62 > dB)
load7.s2p(< -21.18 > dB)	load8.s2p(< -27.82 > dB)
load9.s2p(< -22.79 > dB)	eccosorb-72.s2p(< -22.57 > dB)

Summary

Sample	Stycast	Lampblack	SS*	Thickness	Comments (values are mean <75-116 GHz>)
1	2850	0 %	0 %	6.40 mm	dBS11= -16.4 dB, S21= -2.8 dB/mm, dBS22=-19.7 dB
2	2850	5%	0%	5.80 mm	dBS11= -14.0 dB, S21=-5.1dB/mm, dBS22=-24.1 dB 'Bock black'
3	2850	5%	5%	6.40 mm	dBS11= -15.0 dB, S21=-6.0 dB/mm, dBS22= -20.5 dB *Stainless Steel Powder 325 mesh
4	2850	5%	10 %	6.45 mm	dBS11= -14.8 dB, S21=- 5.9 dB/mm, dBS22= -22.3 dB *Stainless Steel Powder 325 mesh
5	2850	10 %	0 %	5.50 mm	dBS11= -14.2 dB, S21=-5.2 dB/mm, dBS22=-23.3 dB
6	2850	10 %	10 %	5.50 mm	dBS11= 13.3 dB, S21=-9.8 dB/mm, dBS22= -28.6 dB *Stainless Steel Powder 325 mesh
7	2850	7 %	20%	6.55 mm	dBS11= -15.5 dB, S21=-2.95 dB/mm, dBS22= -21.2 dB *Carpenter "Micro Melt" 316L, 16 um (anomalous, poor mixing, e.g. pure Stycast = sample 1)
8	2850	7 %	20%	2.70 mm	dBS11= 12.8 dB, S21=-6.7 dB/mm, dBS22= -27.8 dB *Carpenter "Micro Melt" 316L, 16 um
9	2850	7 %	20%	2.70 mm	dBS11= -14.0 dB, S21=-7.64 dB/mm, dBS22= -22.8 dB *Carpenter "Micro Melt" 316L, 16 um
10	AN-72 Eccosorb			6.35 mm	dBS11= -23.5 dB, S21=-2.2 dB/mm, dBS22= -22.6 dB Both sides rough