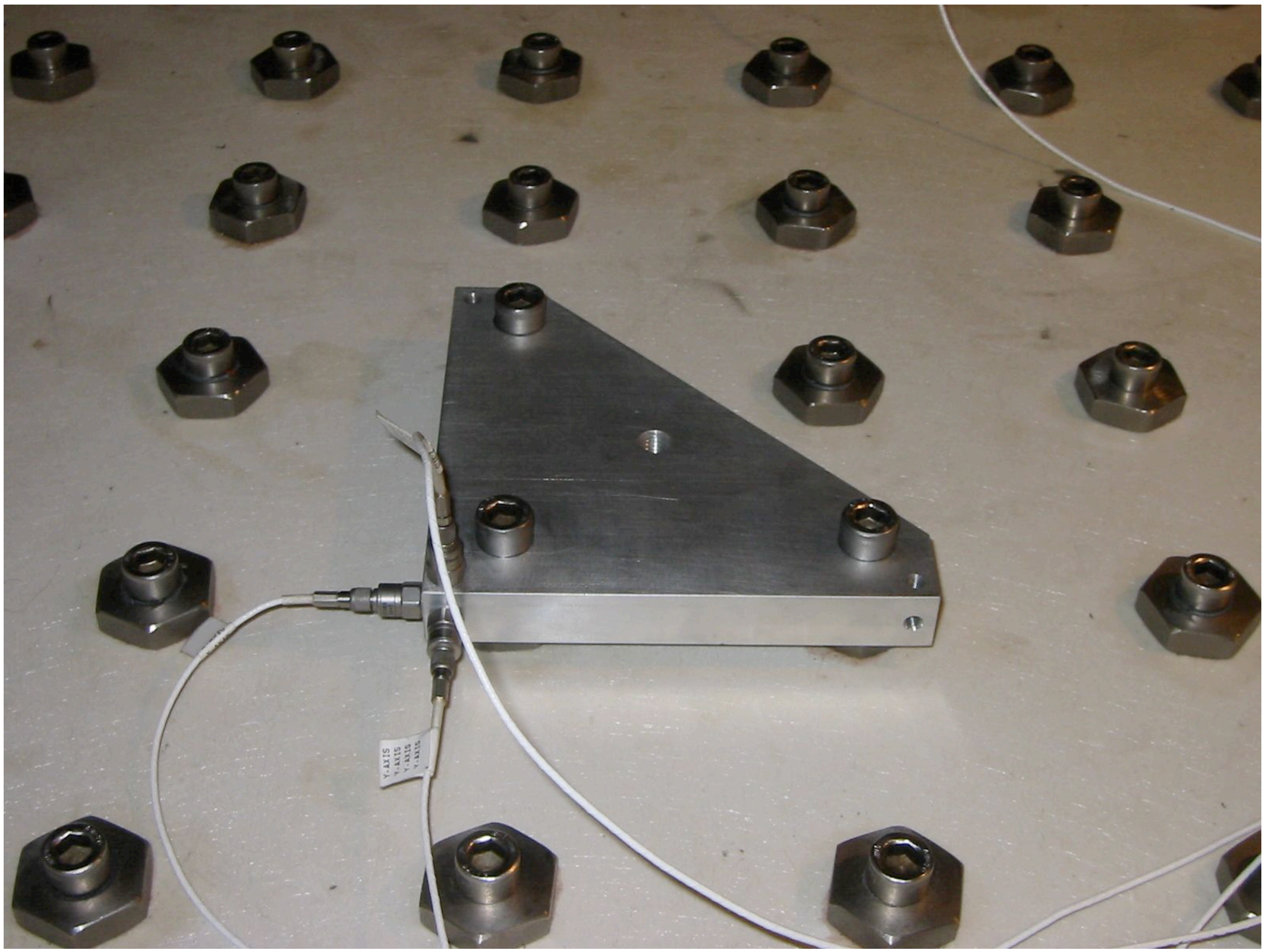
4ft by 4ft Map

Center Control

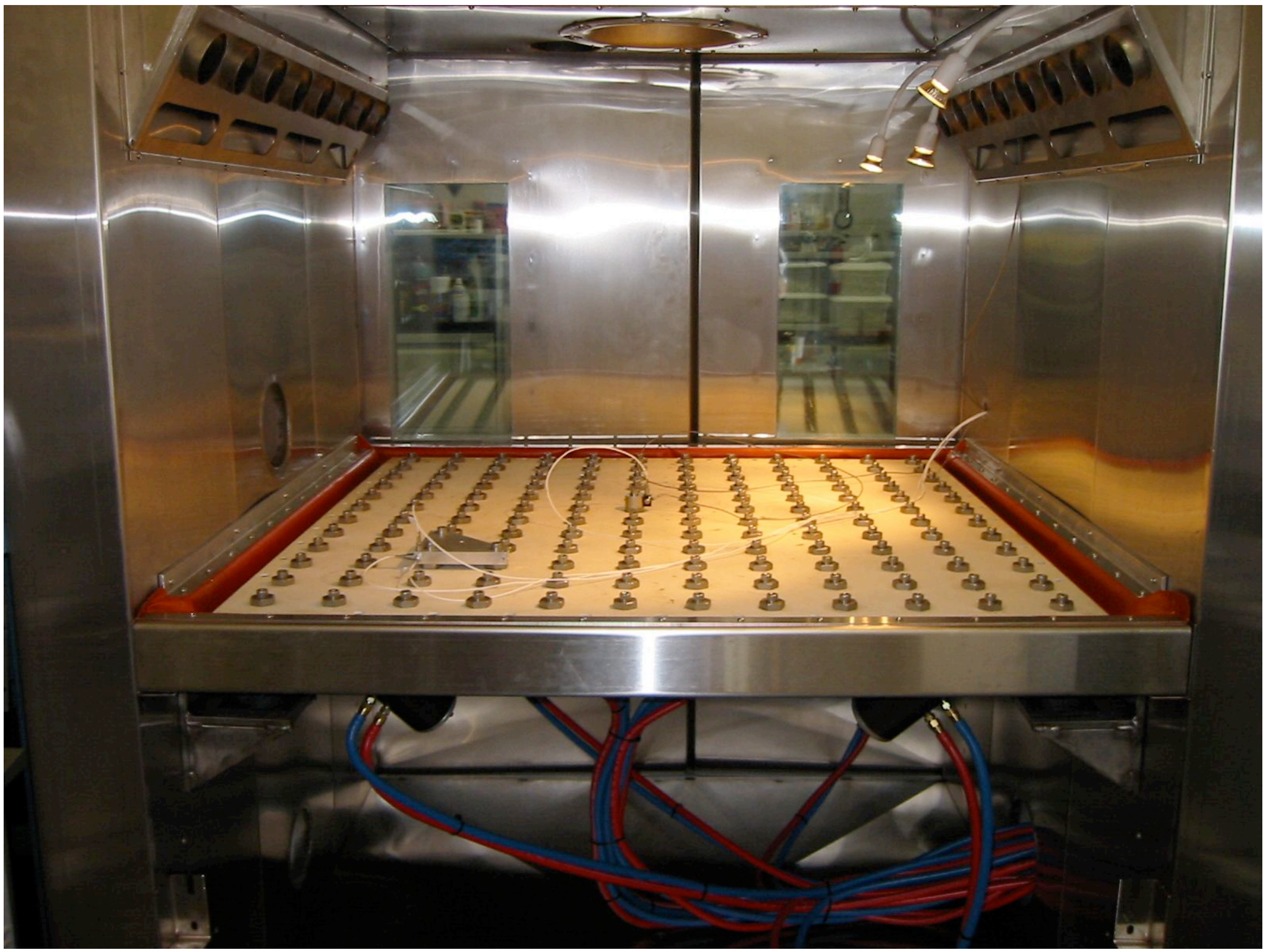
General Test

- Divide Table into 4 quadrants
- Use standard aluminum block in center of each quadrants
- Using Standard Accel block in center top of table as control.

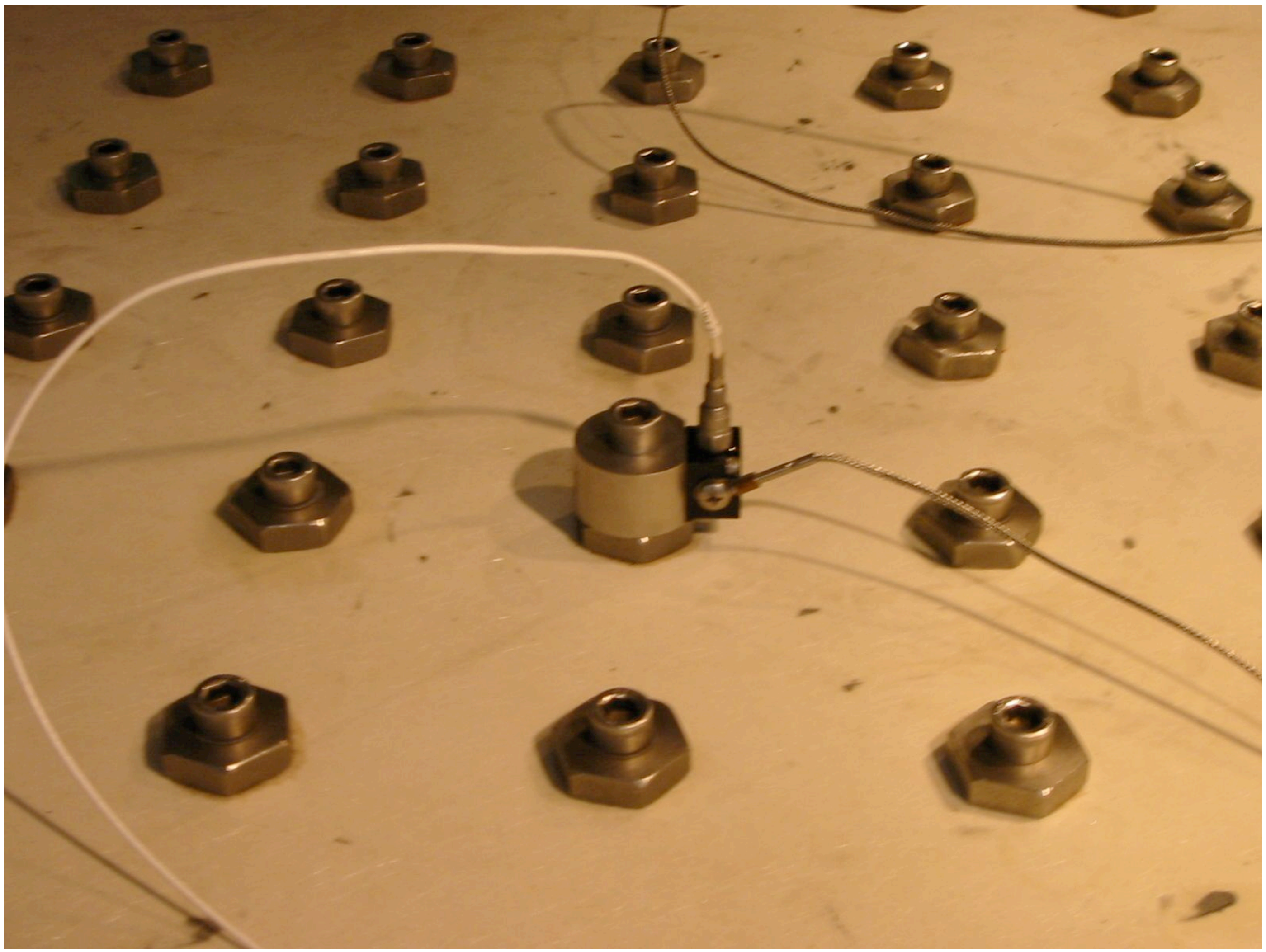
Vibration UOT



Vibration Overview



Vibration Center Block



Vibration Mapping Procedure Test out notes

Accelerometers:

Label	Channel	Serial Number	Calibration Date	mV/g
Z-Axes	2	12451	7/20/2005	10.0
X-Axes	3	12447	7/20/2005	10.2
Y-Axes	4	12460	7/20/2005	10.2
Table Z	1	12438	7/20/2005	10.2

Note: In spot 2 and 4 Channel 3 (X-Axes) and Channel 4 (Y-Axes) require swapping to maintain channel Labels and work piece orientation. Only the wire going to the accelerometer was swapped to minimize accelerometer removal from fixture.

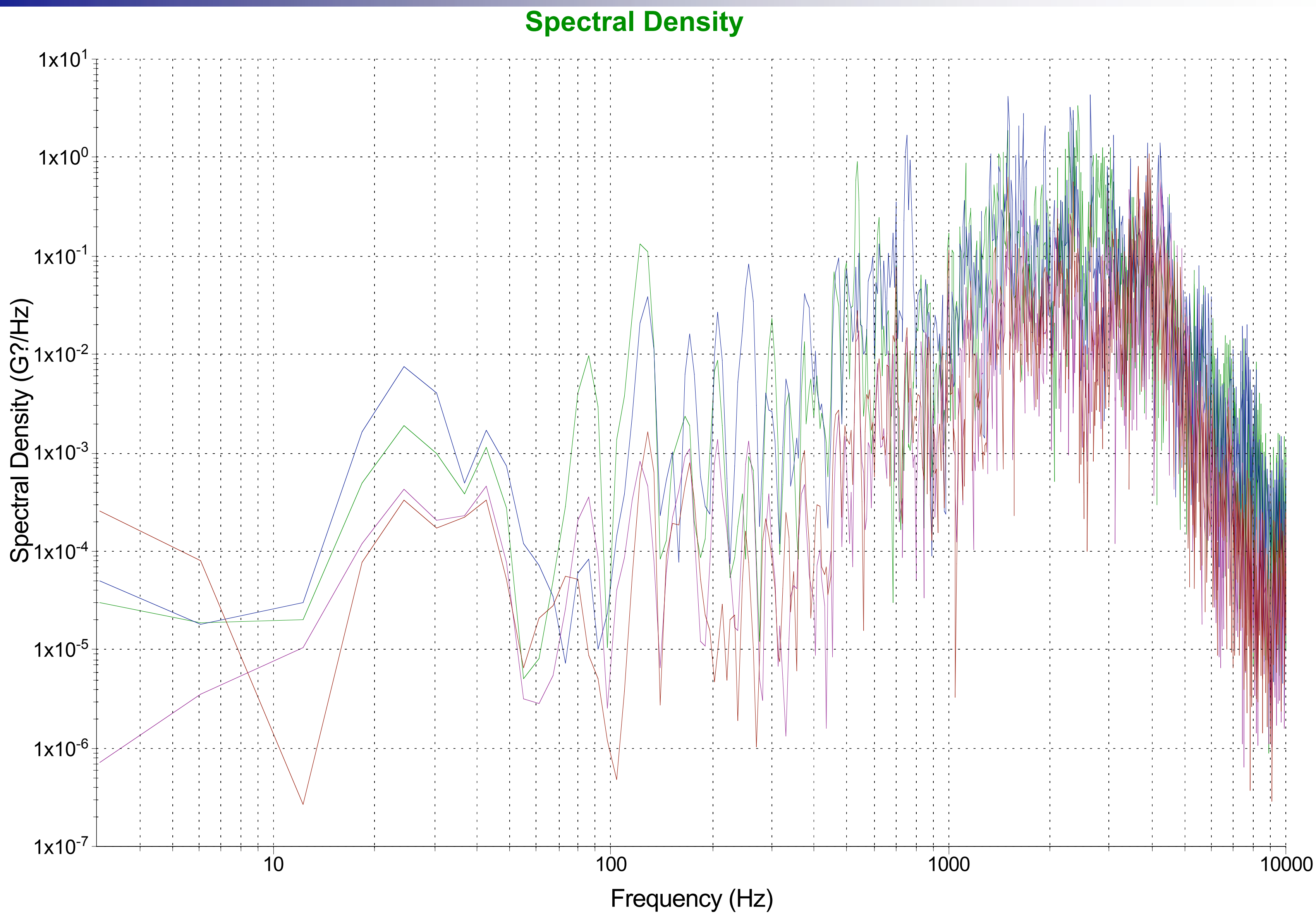
All accelerometers are in calibration and attached using new cables. Table is the control accelerometer and does not move during the test.

Jc Systems 704GRMS Converter:
The Jc Systems 704-GRMS is a 4 current source calibrated on June 07, 2005 at the Jc factory. Attached is a copy of its calibration sheet, schematics, and manual.

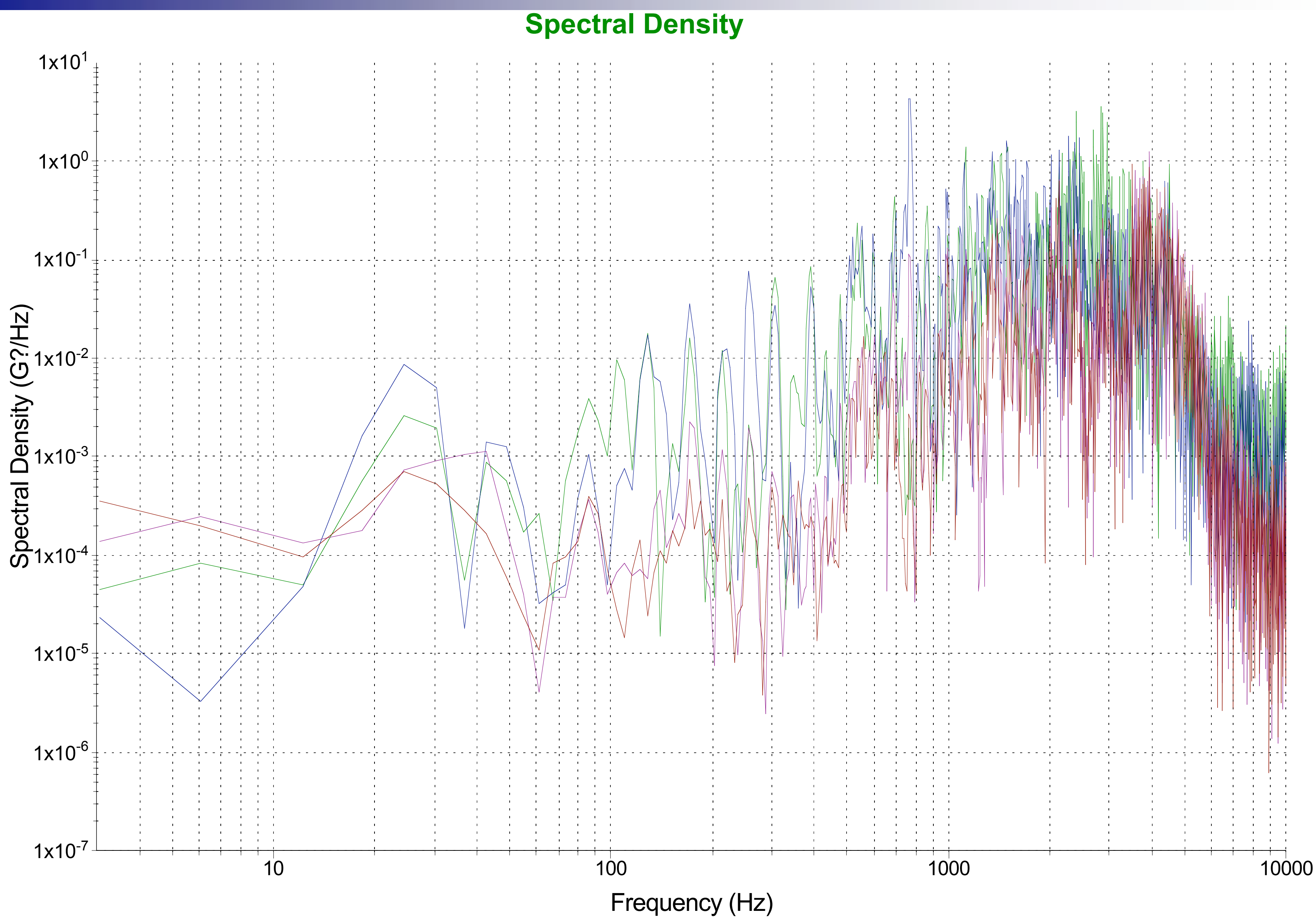
Hanse View Analyzer:
The calibration certificates for the IO tech hardware used for this test are attached to this the final report. The IO Tech DaqBoard/2000 was factory calibrated on August 5, 2005 with the serial number 258285. This calibration certificate copy is attached to this report

Work Piece Placement (UOT):
The work piece is placed as per document provided to Hanse Enviromental Inc. on August 3, 2005. Pictures provided with this report validate this placement.

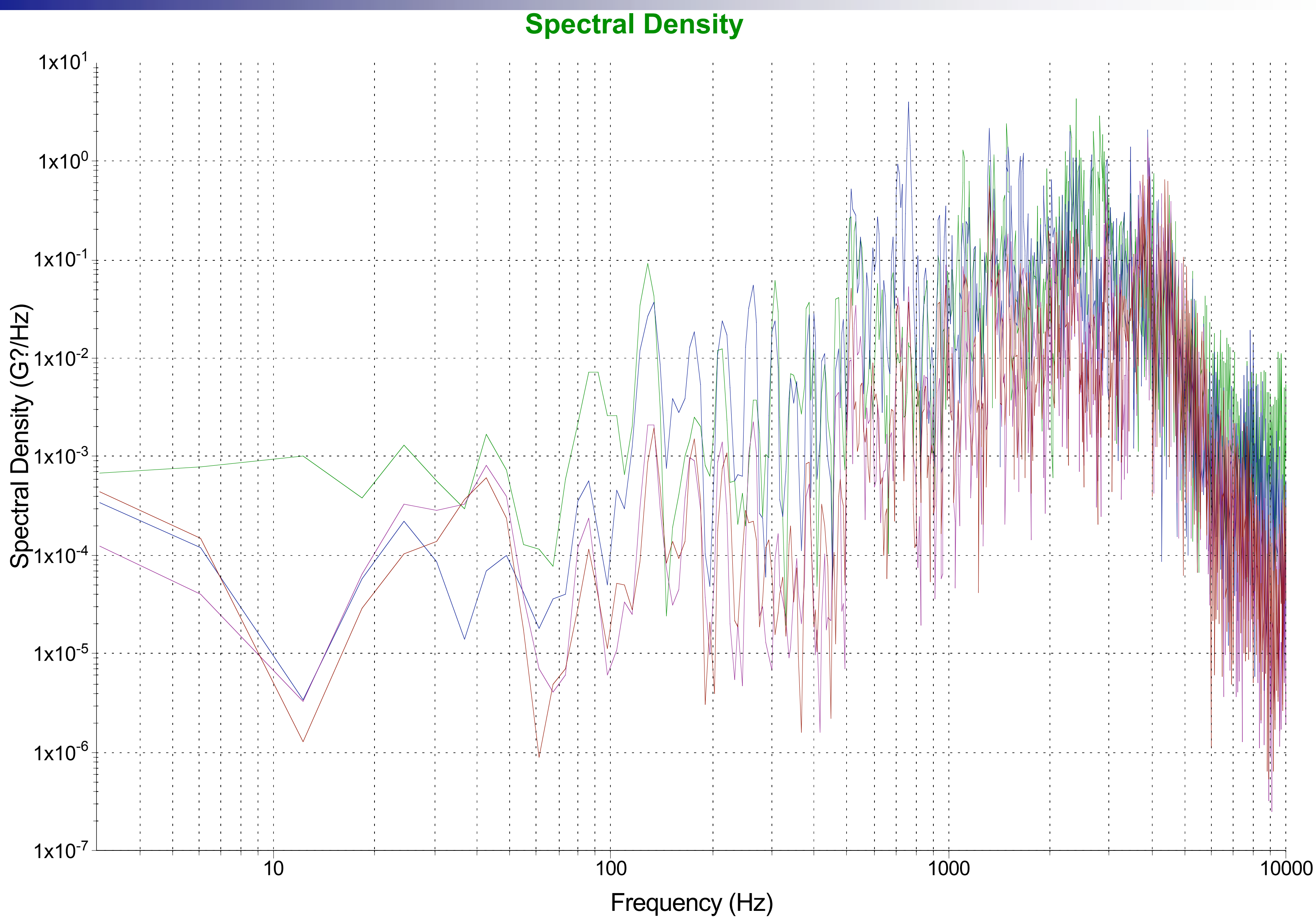
Vibration Table and Hammers:
Vibration Table is 4 ft x 4 ft metric table. There is 8 pneumatic hammers attached to the bottom of the table 4 large and 4 medium. The 4 large hammers have the following serial numbers 792, 791,793,794. The 4 medium hammers have the following serial numbers 839, 840, 841, 843.



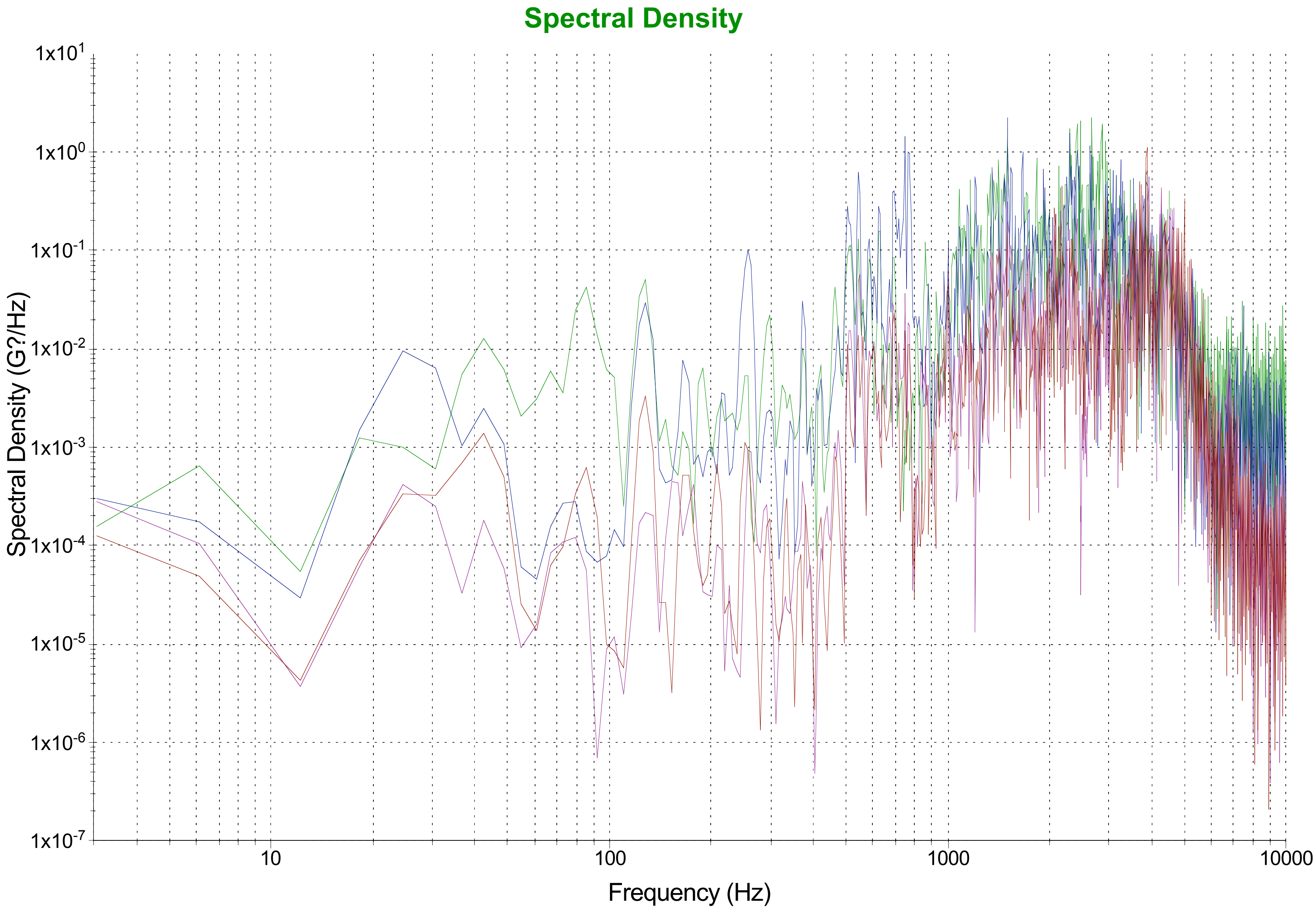
Spot 1 Spectral Density



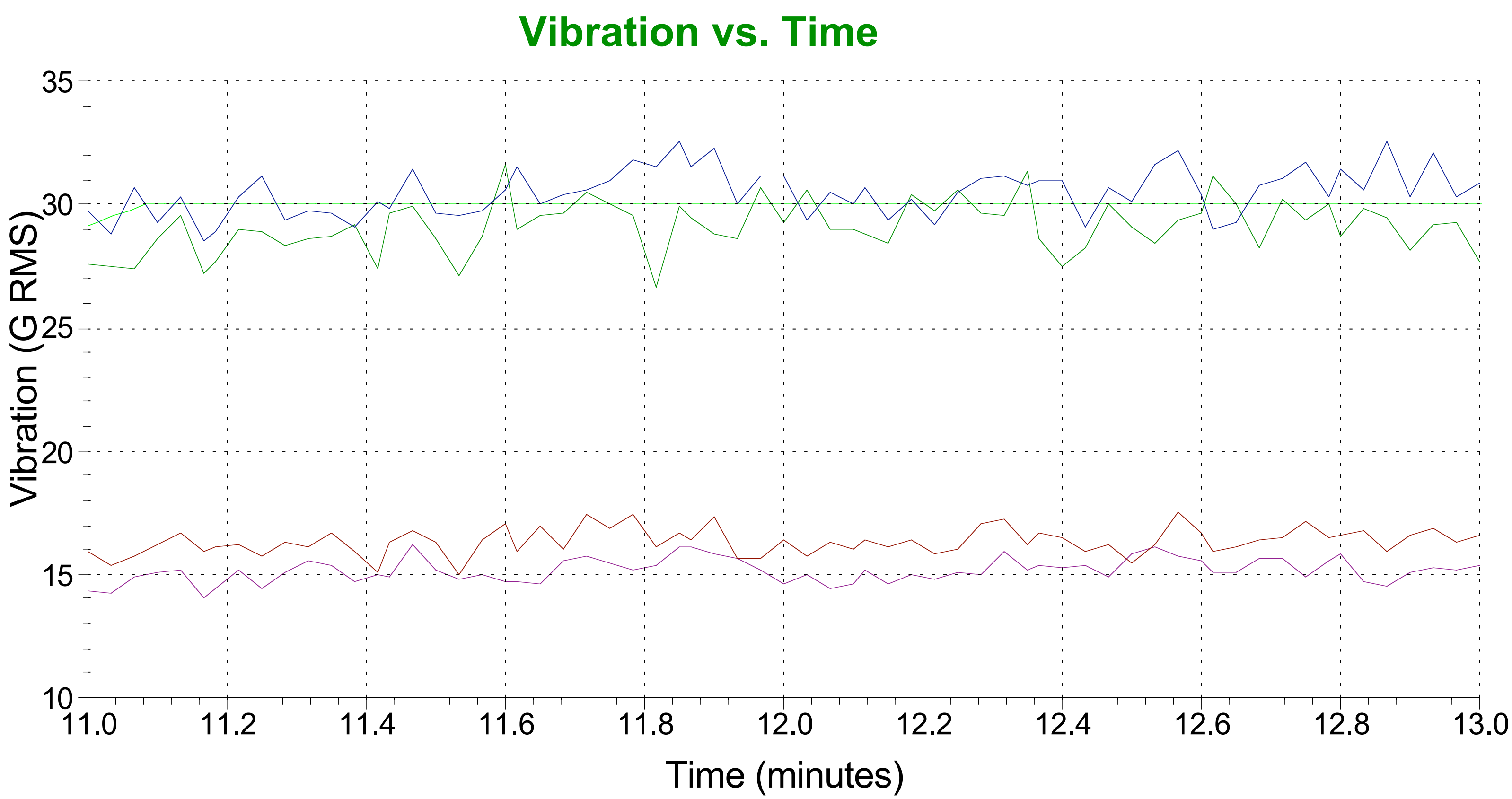
Spot 2 Spectral Density



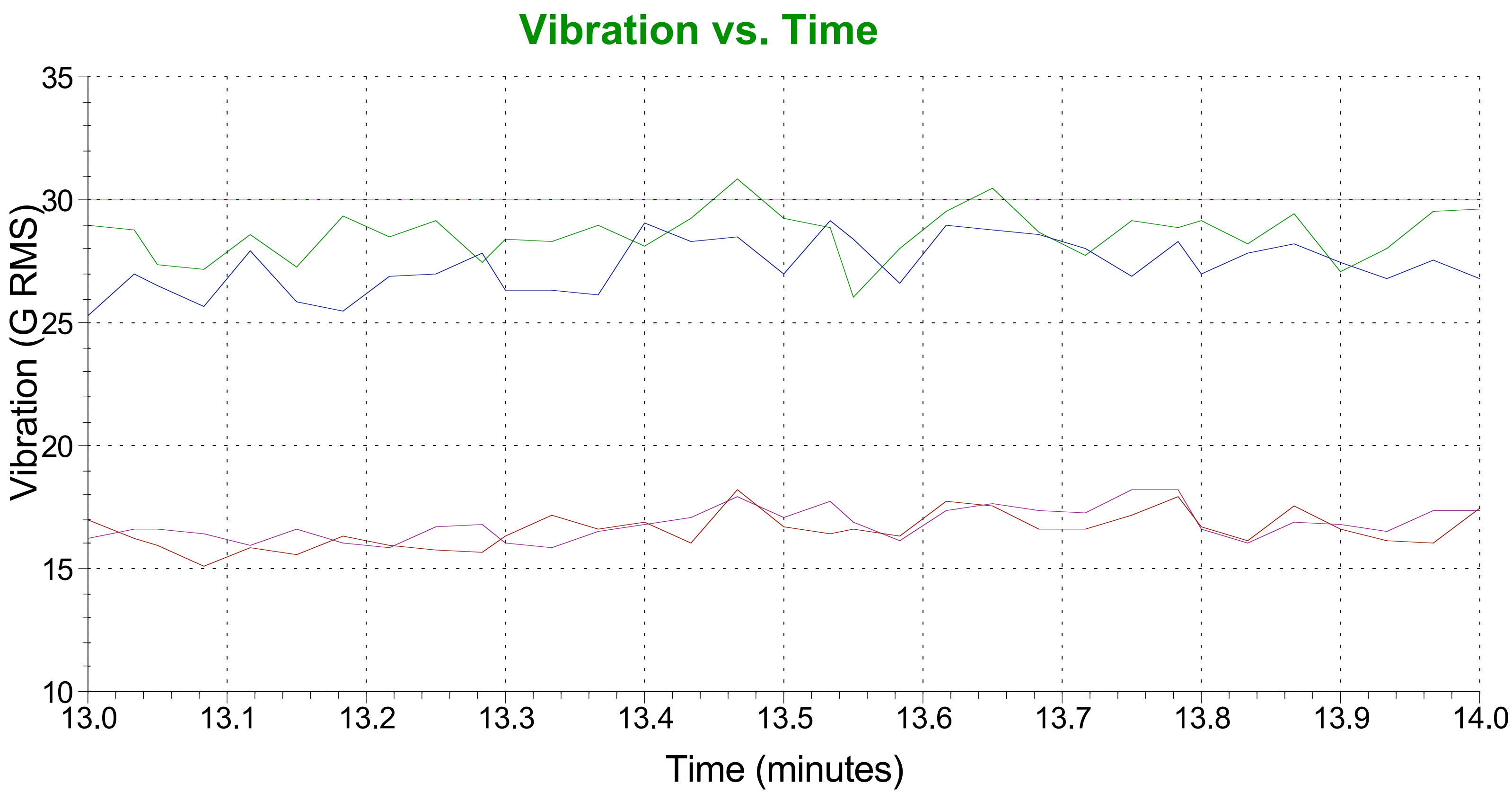
Spot 3 Spectral Density



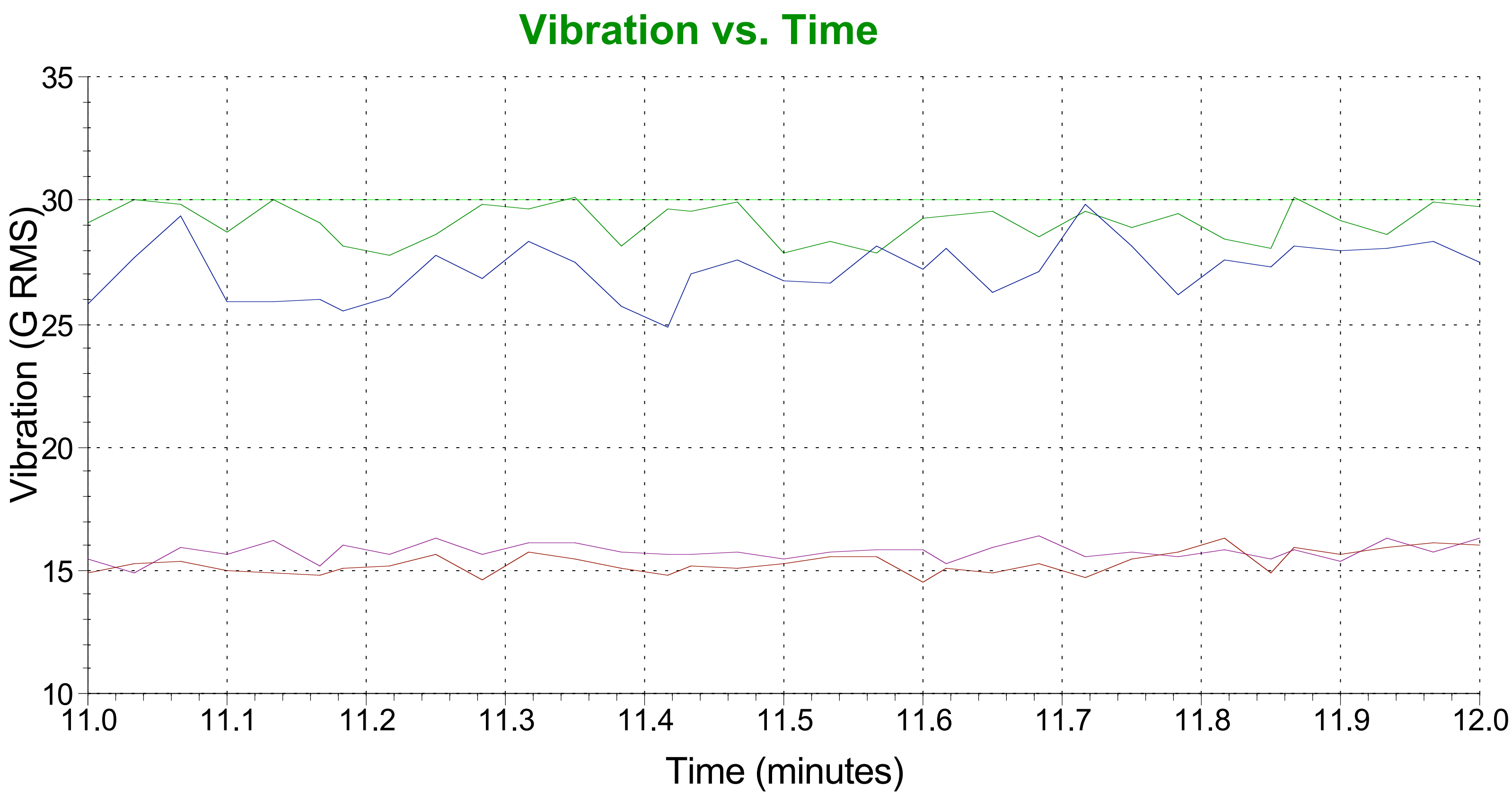
Spot 4 Spectral Density



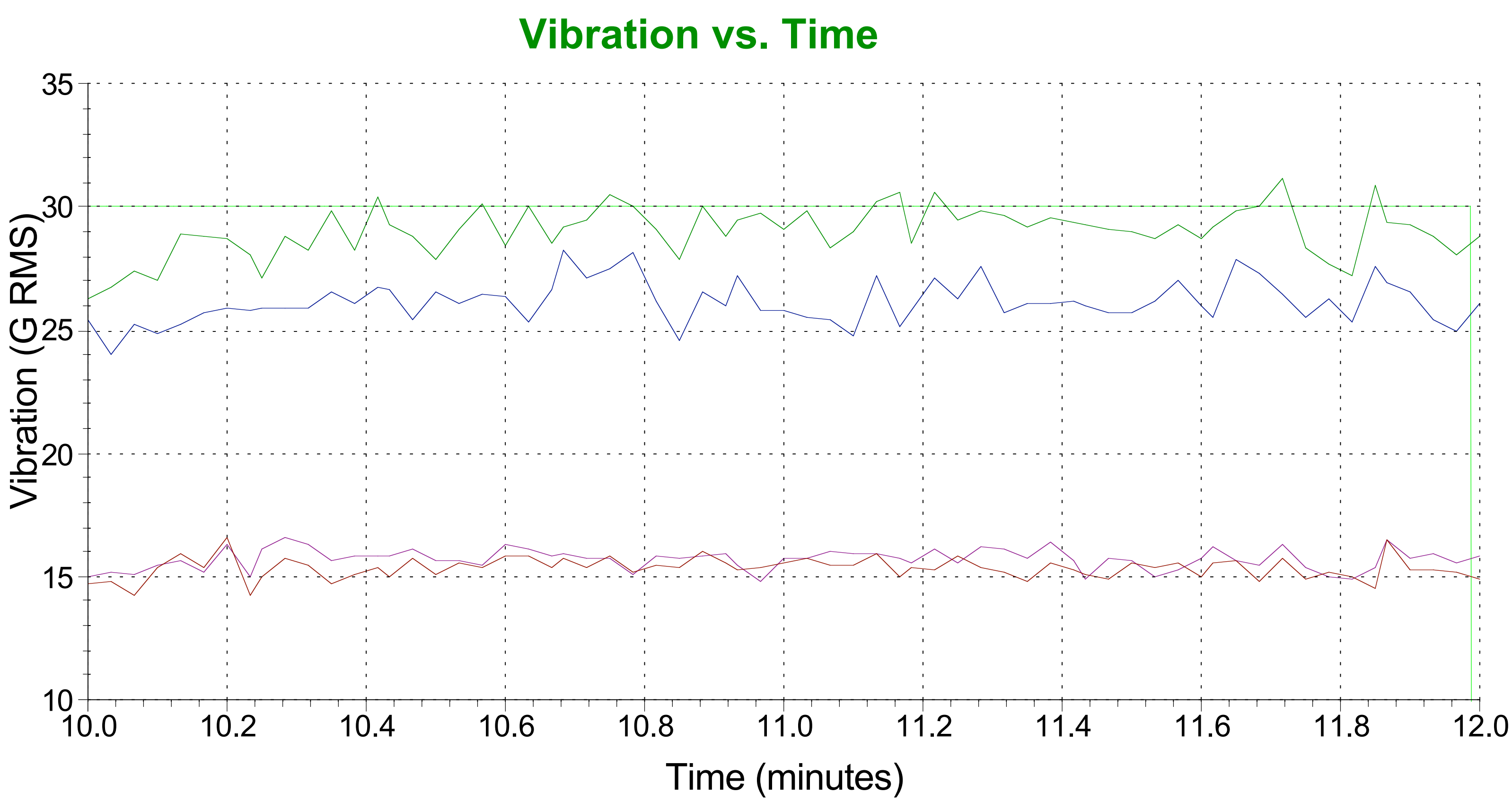
Spot 1 Vibration vs. Time



Spot 2 Vibration vs. Time



Spot 3 Vibration vs. Time



Spot 4 Vibration vs. Time

Vibration Comparison

Spot 1

10 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	9.886	8.9	4.404
Part Z	9.996	8.18	5.827
Part X	4.931	3.153	3.827
Part Y	5.235	3.147	4.207

30 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	28.65	24.65	15.15
Part Z	31.2	25.89	18
Part X	14.16	8.722	11.38
Part Y	16.14	9.329	13.29

Spot 2

10 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	10.47	9.595	4.295
Part Z	9.395	8.426	4.218
Part X	5.513	3.518	4.362
Part Y	5.439	3.287	4.403

30 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	30.39	26.8	15.33
Part Z	27.3	23.86	13.78
Part X	17.3	10.14	14.67
Part Y	17.43	9.467	15.1

Spot 3

10 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	9.061	8.056	4.35
Part Z	9.587	7.937	5.433
Part X	5.011	3.339	3.795
Part Y	4.535	3.174	3.349

30 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	29.56	26.69	13.55
Part Z	27.53	23.22	15.18
Part X	16.6	9.531	13.83
Part Y	14.9	9.006	12.25

Spot 4

10 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	10.31	9.17	5.024
Part Z	9.082	7.849	4.676
Part X	5.632	3.584	4.421
Part Y	5.326	3.619	4.008

30 GRMS	0 - 5 KHz	10 Hz - 3 KHz	3 KHz - 10 KHz
Table Z	28.33	24.97	14.47
Part Z	25.84	21.35	15.08
Part X	15.55	8.515	13.39
Part Y	14.41	8.475	12.21

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