

GHI RVM-3 Rotary Vibration Table Test Report

Results from unofficial Dell “Q” Spectrum Testing

- Objective:
 - Determine performance capabilities on RVM Table Test Equipment
- Procedure:
 - Run the enclosed RV Profile from Slide #4
 - Locate the control accelerometers (2) where best results are obtained
 - Show data window out to 2000Hz
 - RV responses ($(\text{rad}/\text{sec}^2)^2/\text{Hz}$) are provided
 - Place accelerometers on the table in the orientation as called out in Slide #3
 - L1 and L2 accelerometers should be 1 inch from the edge of the table
 - Provide distance from center of rotation to L1 through L2 locations
 - L3 and L4 are located on the HD Rails
 - Provide distance from center of rotation to L3 and L4 locations
 - 4 table responses are provided; 1 responses from each table location L1 – L4
- Data Requirements:
 - Pictures of RV Table / Table Setup with L1 through L4 Accelerometer Locations / Control Accelerometers Locations
 - Response plots of the RV Table including
 - Control Accelerometers
 - Location 1-4 Accelerometers
 - Table information chart filled out on Slide#5

RVM-3 Table Setup

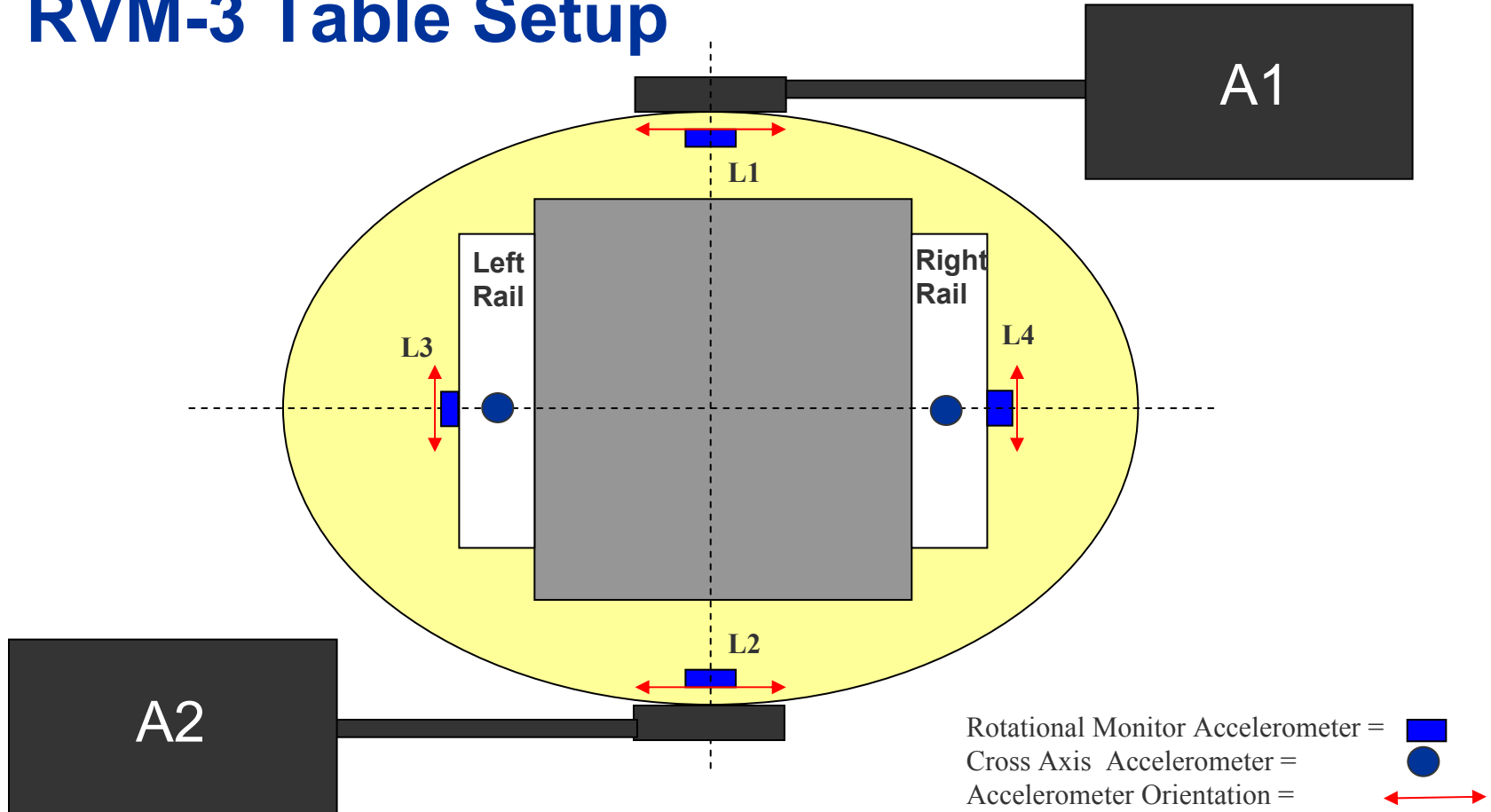
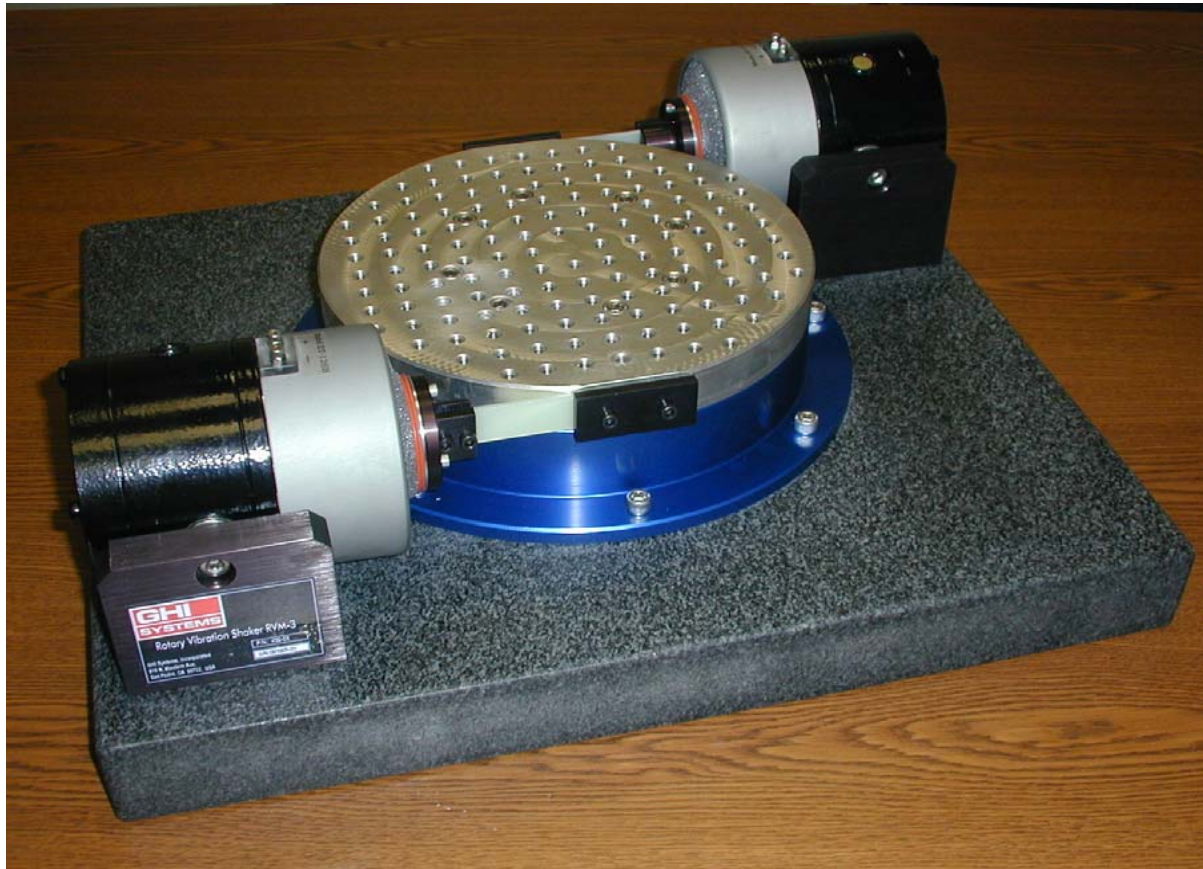


Figure 1: Table Locations Monitored

Shaker System Photograph



Dual Series Actuators, 20"x18"x2" granite base, 10" diameter x 1" thick Table.

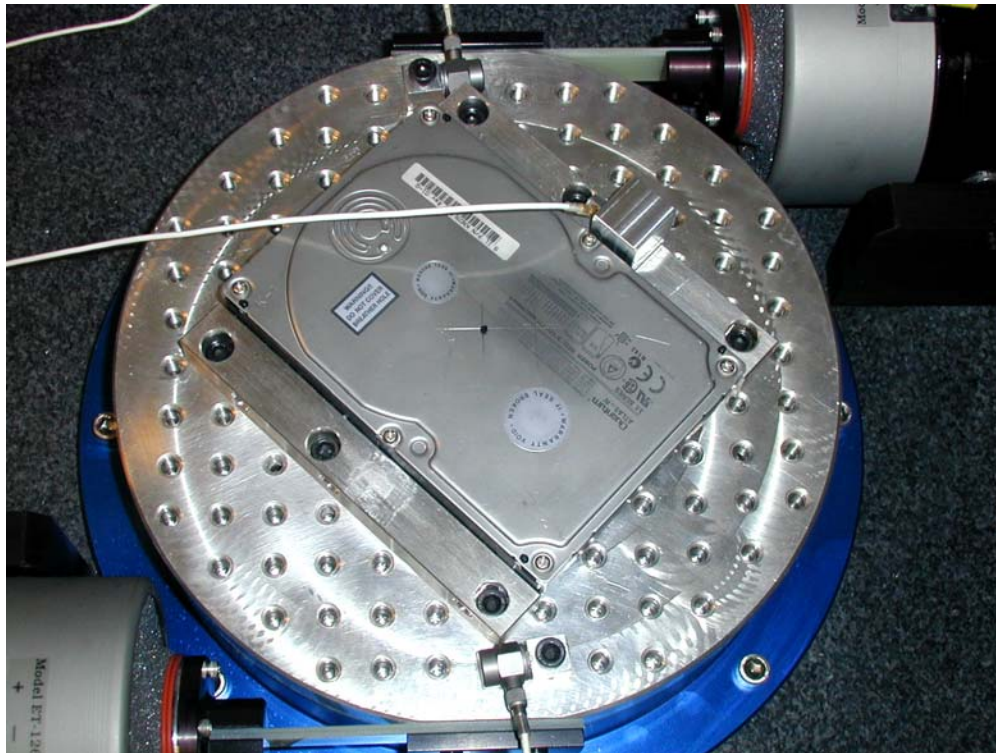
Test Spectrum “Q” – 23.2 Rad/Sec² rms

| Frequency: | Rad ² /s ⁴ /Hz |
|------------|--------------------------------------|
| 20 Hz | 0.0027 |
| 100 Hz | 0.0027 |
| 400 Hz | 0.9359 |
| 800 Hz | 0.9359 |
| 1200 Hz | 0.0270 |

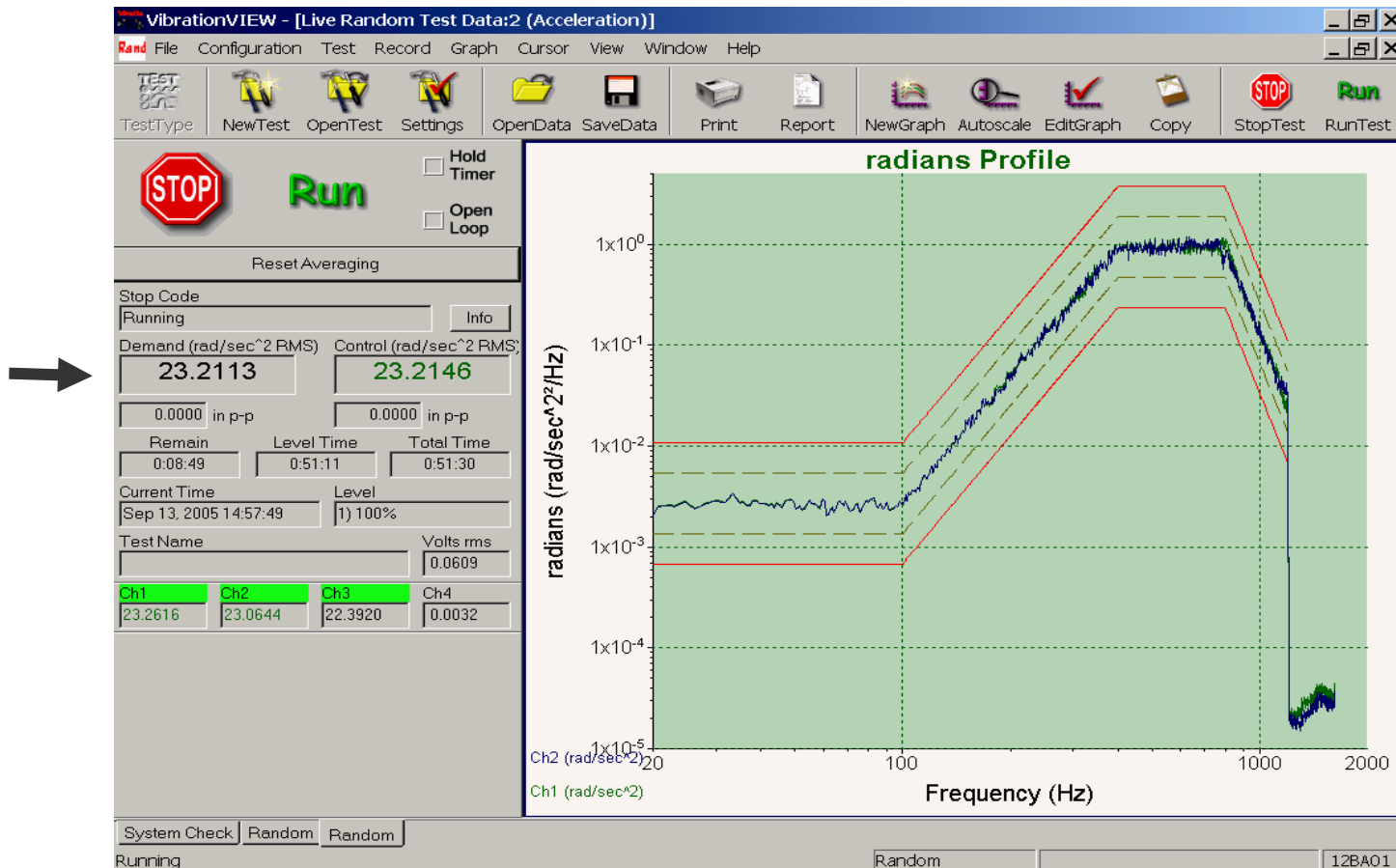
Table Manufacturer and Accel Location

| | |
|---|---|
| Table Manufacturer: | RVM-3 GHI Systems, Inc. 916 N. Western Ave San Pedro, CA 90732 |
| Table Fixture Head Size (inches): | 10 inches |
| Distance from L1, L2, L3, L4 to Center of Table: Distance Control Accelerometers to COT | L1= 4.25 IN; L2= 4.25 IN; L3= 2.25 IN, L4 =2.25 IN CTL = 4.25 IN |

Table with Control Accels



Demand & Control Outputs Avg 2 Ch



Demand and Control values during operation are seen at upper left center – 23.2113 RMS and 23.2146 RMS

Control Plots, L1, co plotted with L2

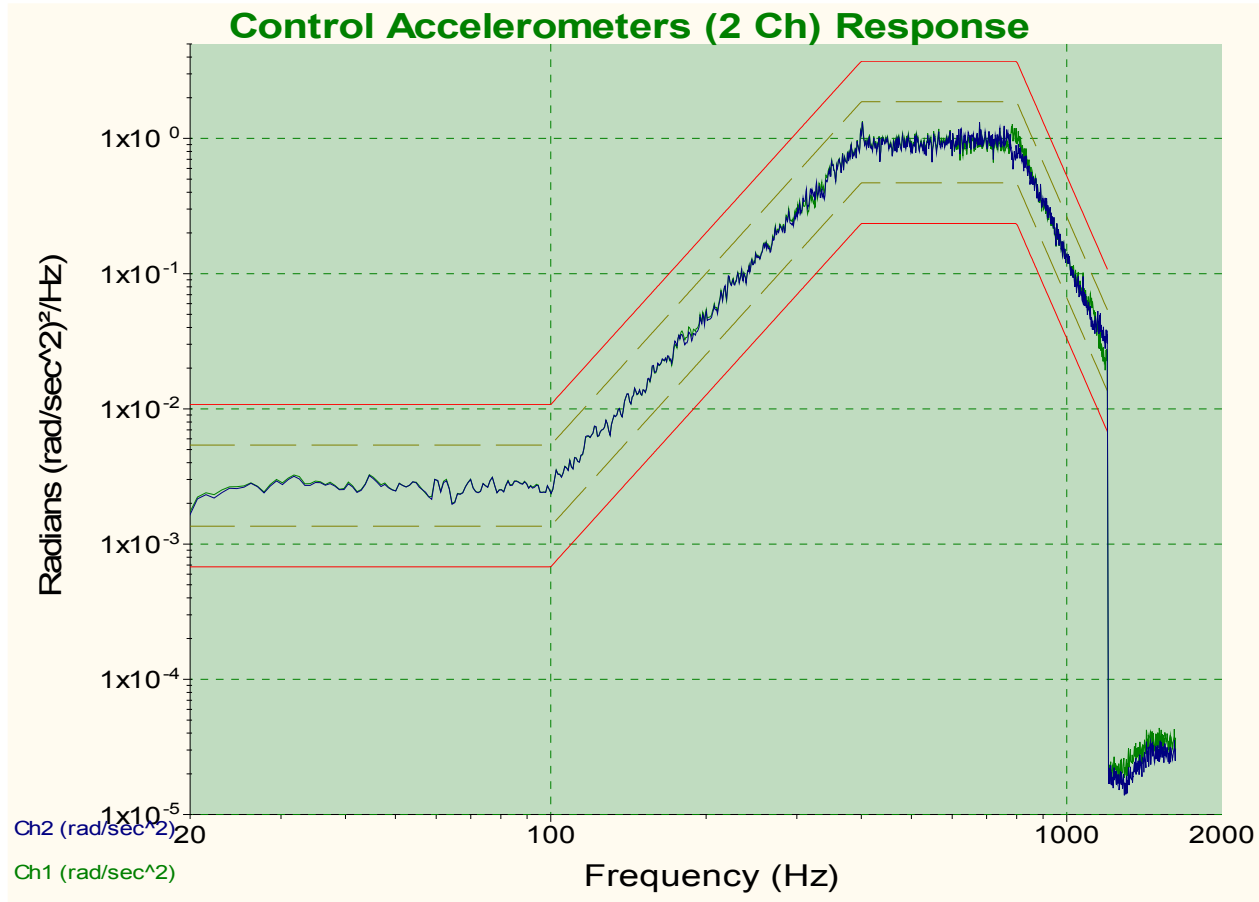
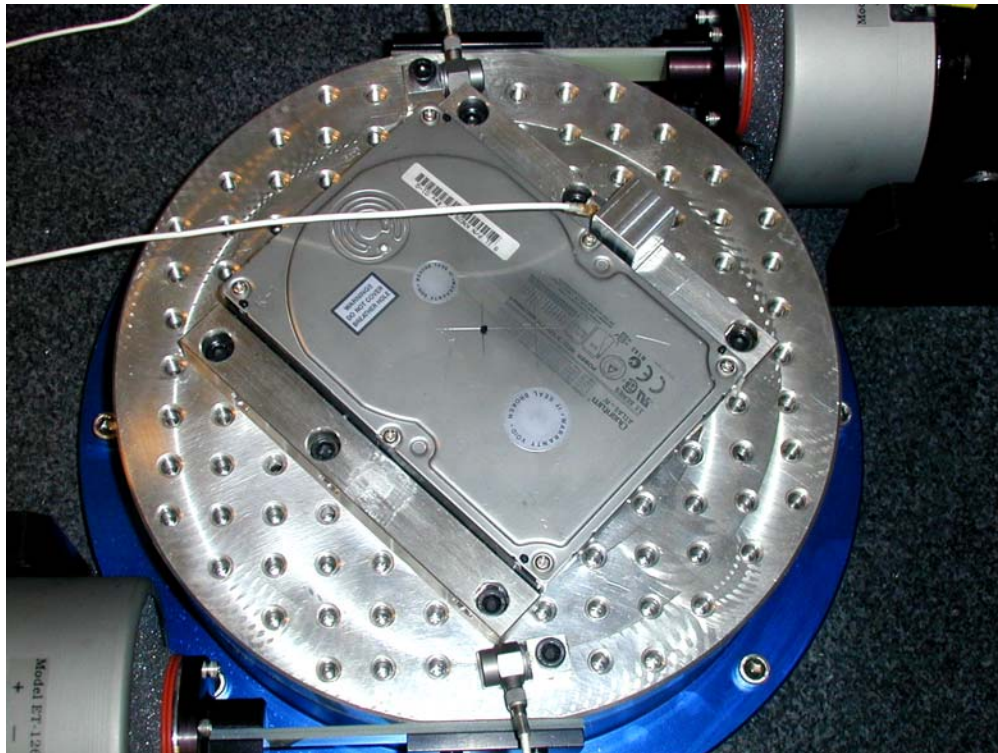
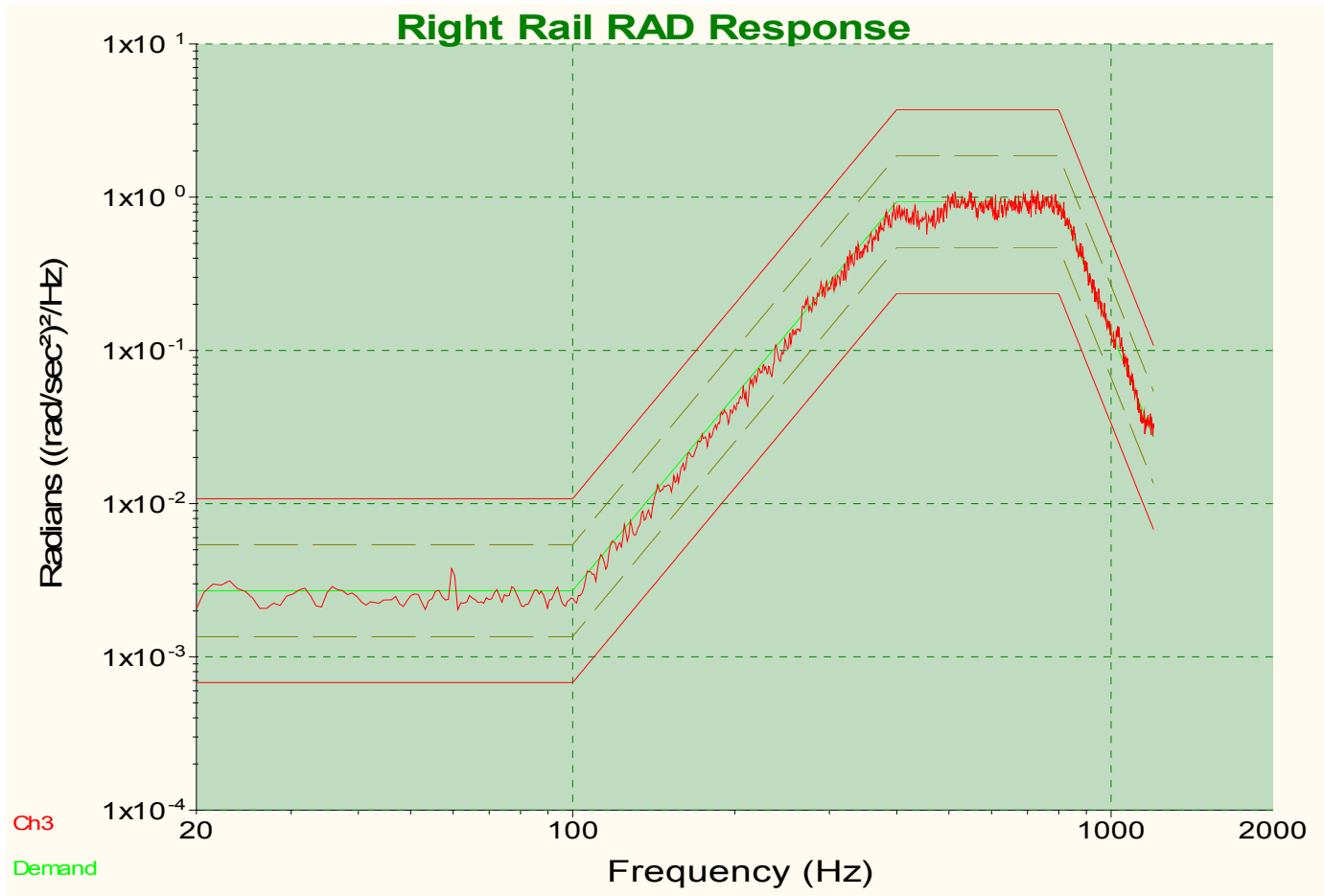


Table with Right Rail Response L4 Accelerometer

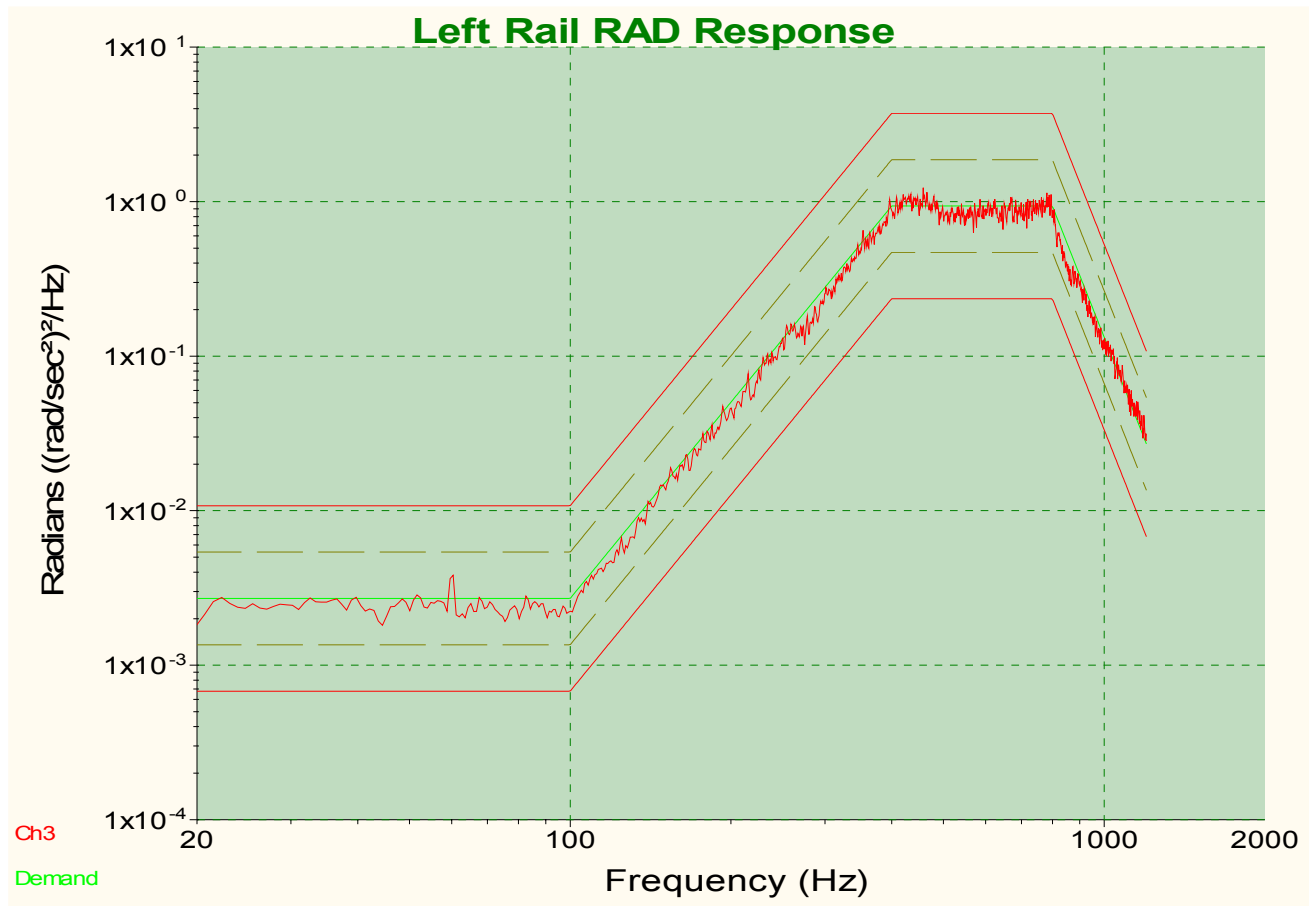
Location on Left Rail L3 is Mirror Image



Right Rail Response L4



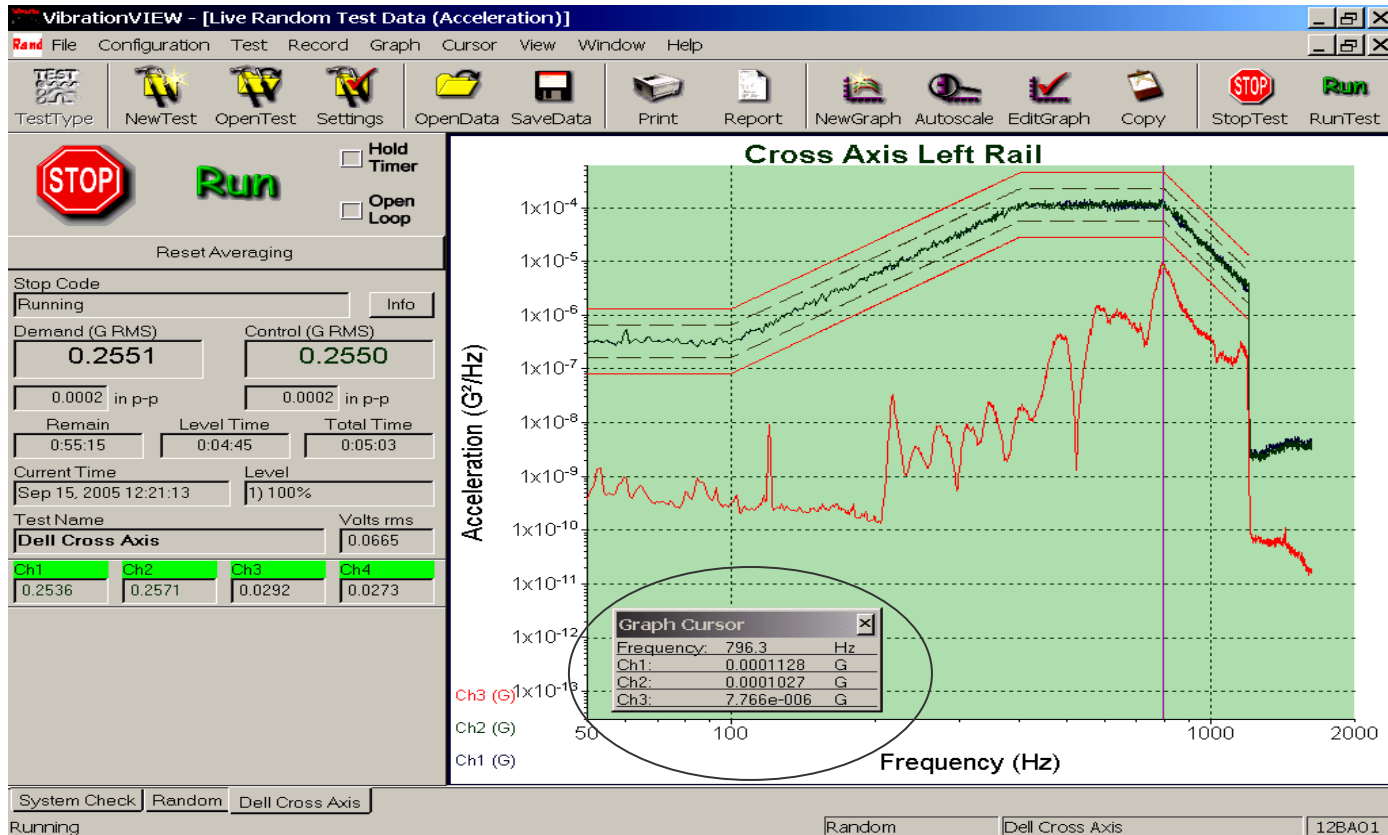
Left Rail Response L3



Cross-Axis Setup Photograph

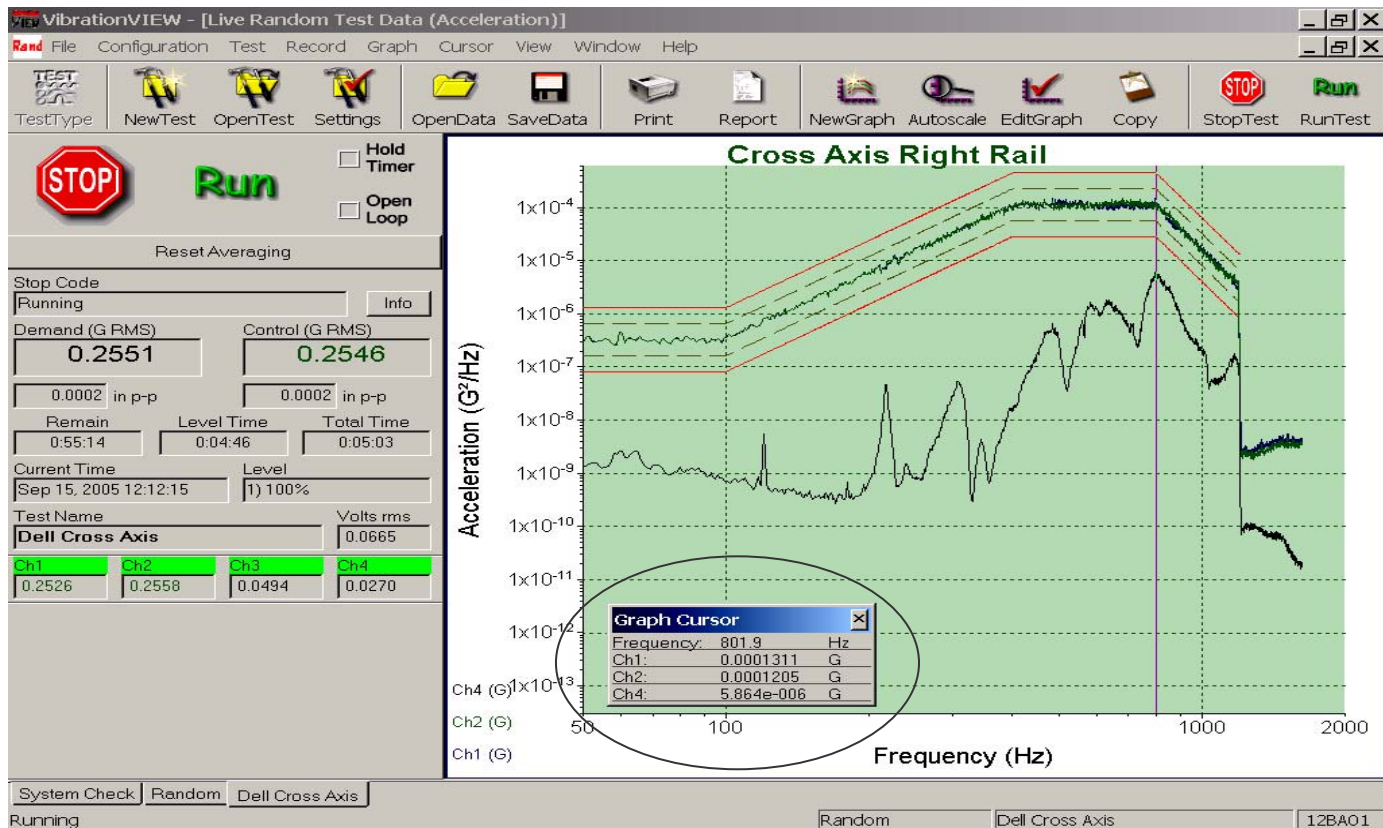


Cross-Axis Left Rail Z & L3



Cross-axis is shown to be less than 7% - Ch 1-2 to Ch 3.

Cross-Axis Right Rail Z & L4



Cross-axis is shown to be less than 6%- CH 1 or 2 to CH 3.

Test Objectives

- These tests were made using the Dell “Q” Vibration Spectrum defined in Dell OEM/Third Party Lab Certification Procedure – SV-0313 Revision A-03. A report for the “R” spectrum is also available, as are reports on the 2.5” format drive under consideration.
- The tests were made for a RVM-3 buyer to prove conformity with the above requirements.
- The RVM-3 used the Vibration Research 8500 4 channel controller with 2 averaged table Channels.
- As GHI is not an authorized OEM supplier of hard disk drive products, this report is not recognized by Dell Computers. Each OEM vendor is required to perform their own certifications.
- For additional information, or quotations, please contact:
 - Sales @ ghisys.com or see our web site www.ghisys.com