

Report Date: 31 March 2011

Customer P.O.: 03B8236DB

Test Period: 21 through 28 March 2011

Security Classification: NA

**TEST REPORT**

FOR

ENVIRONMENTAL TESTING OF THE P/N PG800UPS UPS

TESTING PERFORMED BY:

FOR:

**QUALTEST, INC.**  
5325 Old Winter Garden Road  
Orlando, Florida 32811-1520

**AJ'S POWER SOURCE, INC.**  
6931 Land O' Lakes Boulevard  
Land O' Lakes, Florida 34638

Website: [www.qualtest.com](http://www.qualtest.com)

TEST REPORT PREPARED BY:

  
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APPROVED BY:

  
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Mary Webb, Project Manager

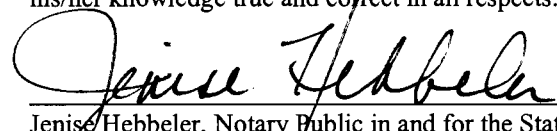
QUALITY ASSURANCE:

  
\_\_\_\_\_  
Ross Blanco, Deputy Quality Assurance Manager

subscribed and being duly sworn before me this  
31<sup>ST</sup> day of March 2011 in the State  
of Florida, County of Orange, and who is personally  
known to me, deposes and says: The information  
contained in this report is the result of a complete  
and carefully conducted test and is to the best of  
his/her knowledge true and correct in all respects.

"CQA Performed IAW Contractual Requirements"

Not Required  
\_\_\_\_\_  
Paul Harrison, DCMA Orlando QAR, S1002A

  
\_\_\_\_\_  
Jenise Hebbeler, Notary Public in and for the State of  
Florida at Large

**NOTARY PUBLIC-STATE OF FLORIDA**  
**Jenise Hebbeler**  
Commission #DD848006  
Expires: MAR. 10, 2013  
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**REPORT REVISION RECORD**

**REVISION    DESCRIPTION OF CHANGE**

INITIAL RELEASE

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## STATEMENT OF QUALITY

*Qualtest operates under the relevant quality system requirements of ISO-9001:2008 for providing testing services as recognized by TRC Registration Certificate #00018. This laboratory also maintains A2LA and NVLAP accreditation to ISO/IEC 17025 for the specific tests listed in A2LA Certificate # 1805.01. However, the testing included in this report is not covered by the accreditations.*

## INTRODUCTION

The objective of this test program was to apply a simulated environment to the customer provided test hardware in compliance with customer stated specifications, including any authorized modifications, deviations or concessions to the original requirements. The Table of Contents lists the chronological order of testing. Test hardware consisted of the items identified in the corresponding sections of this report.

## METHODS, ASSUMPTIONS, and PROCEDURES

In addition to test hardware identification, each section contains information that describes the associated test equipment and test performance. Qualtest measuring instruments used in testing were calibrated according to the requirements of ANSI/NCSL Z540 and/or ISO 10012, and are NIST traceable. Calibration records are on file and available for inspection by request. Because the test methods are well established and are qualitative or semi-quantitative in nature, Qualtest does not apply measurement uncertainty except when obligated by contract. Measured value relative to the corresponding tolerance requirement is used to decide whether a test meets the requirements of the specification.

## RESULTS and DISCUSSION

Any test hardware operational setups and resulting evaluations or inspections performed by the customer are not included in this report, unless they were explicitly requested. While observations and/or specification compliance statements may be reported, no interpretations or opinions regarding customer product performance are intended. Such judgments are considered best left to those with intricate knowledge of the test hardware and the associated top level agreements. Precluding other arrangements, the test hardware was returned to the customer after test completion.

## CONCLUSION

Unless otherwise indicated in the appropriate report section, all contract obligations were met and the test objective achieved.

**SECTION 1****COMPOSITE WHEELED VEHICLE VIBRATION TEST SUMMARY**

Test Start-Finish Dates: 21 March 2011

Responsible Test Conductor: Don Henderson

**1-1 TEST HARDWARE**

One (1) P/N PG800UPS UPS, Marked 1

**1-2 TEST REQUIREMENTS WITH TOLERANCES**

Perform two hours of random vibration as described in Tables 1-1 thru 1-3.

**TABLE 1-1: 514.6C-VI COMPOSITE WHEELED VEHICLE VERTICAL AXIS**

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
5	0.1759	39	0.0347	123	0.0069
8	0.5120	43	0.0073	128	0.0055
11	0.0660	45	0.0141	164	0.0031
12	0.0585	49	0.0084	172	0.0035
13	0.0348	52	0.0089	215	0.0133
15	0.1441	57	0.0045	264	0.0056
16	0.1237	67	0.0160	276	0.0096
20	0.0241	80	0.0037	292	0.0032
23	0.0536	90	0.0077	348	0.0044
26	0.0124	93	0.0053	417	0.0031
27	0.0118	98	0.0065	500	0.0008
30	0.0331	99	0.0063	GRMS: 2.24	
34	0.0086	111	0.0046		

**TABLE 1-2: 514.6C-VI COMPOSITE WHEELED VEHICLE TRANSVERSE AXIS**

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
5	0.0998	38	0.0065	185	0.0010
7	0.0799	44	0.0033	191	0.0007
9	0.1115	55	0.0024	206	0.0008
10	0.0577	57	0.0042	273	0.0035
14	0.0294	59	0.0019	300	0.0016
15	0.0651	76	0.0012	364	0.0074
16	0.0646	79	0.0021	374	0.0022

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
17	0.0436	83	0.0010	395	0.0051
18	0.0393	114	0.0006	500	0.0012
19	0.0622	135	0.0017	GRMS: 1.48	
24	0.0100	142	0.0010		
37	0.0045	158	0.0018		

**TABLE 1-3: 514.6C-VI COMPOSITE WHEELED VEHICLE LONGITUDINAL AXIS**

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
5	0.0441	40	0.0040	122	0.0015
7	0.0390	41	0.0044	132	0.0013
8	0.0576	45	0.0023	206	0.0033
9	0.0430	47	0.0047	247	0.0226
10	0.0293	50	0.0016	257	0.0041
13	0.0221	54	0.0017	264	0.0054
15	0.0558	64	0.0010	276	0.0040
16	0.0585	69	0.0030	303	0.0073
18	0.0160	77	0.0007	332	0.0092
20	0.0099	85	0.0015	353	0.0172
23	0.0452	90	0.0012	382	0.0071
25	0.0110	97	0.0015	428	0.0157
35	0.0036	104	0.0036	500	0.0016
37	0.0098	114	0.0040	GRMS: 1.90	

Tolerance:

Standard Ambient: 25±10°C, 20 - 80% Relative Humidity, Site Pressure

Random Vibration Amplitude: ±3 dB; G<sub>RMS</sub>: ±10%

**1-2.1 Test Specification:**

MIL-STD-810G, Method 514.6, Category 20, Figure 514.6C-3, Table 514.6C-VI

**1-3 TEST SETUP****TABLE 1-4: QUALTEST FURNISHED MEASUREMENT & TEST EQUIPMENT**

Asset #	Item	Manufacturer	Model Number	Calibration Due
100353	Shaker Controller	LDS Dactron	Laser USB	14-Jun-2011
100353-1	Dactron Shaker Software	LDS Dactron	Version 6.30	NA
100433	Accelerometer	Endevco	2256A-10	05-Jul-2011
100434	Accelerometer	Endevco	2256A-10	27-Apr-2011
100686	Thermo-Hygrometer	Fisher Scientific	14-648-53	10-Sep-2011
101036	Vibration Exciter	LDS	V9	NA
101037	Power Amplifier	LDS	SPA176K	NA

**TABLE 1-5: ACCELEROMETER SETUP**

Asset #	Amplifier ID/CH #	Controller CH #	Function	Location
100433	100353/CH #01	01	Control 1	Vibration Table
100434	100353/CH #02	02	Control 2	Vibration Table

**1-4 TEST DESCRIPTION****1-4.1 Non-Qualtest Personnel, Including Organization, Present for All or Part of the Test:**

Michael Berger, representative with AJs Power Source, Inc.

**1-4.2 Powered/Operational State of the Hardware and by Whom:**

The test item was operated by the onsite customer during the test. Results related to any functional tests performed by the customer were retained by the customer.

**1-4.3 Test Activities and Resulting Measurements from Observed/Recorded Data:**

Initial Ambient Conditions: Temp (°C): 26 Relative Humidity (%): 38 Pressure: Site ambient

**TABLE 1-6: VIBRATION TEST ACTIVITIES**

Run #	Axis	Date	End Time	Duration
1	Vertical	03/21/11	1609	2 hours
2	Longitudinal	03/22/11	1221	2 hours

The onsite customer requested to end testing following Run #2 due to a test item anomaly.'

**1-4.4 Limitations or Departures from the Test Requirements and Authorizing Source:**

None

## 1-5 SUPPORTING ENVIRONMENTAL TEST DATA

The vibration plots are located after Figure 1-2.



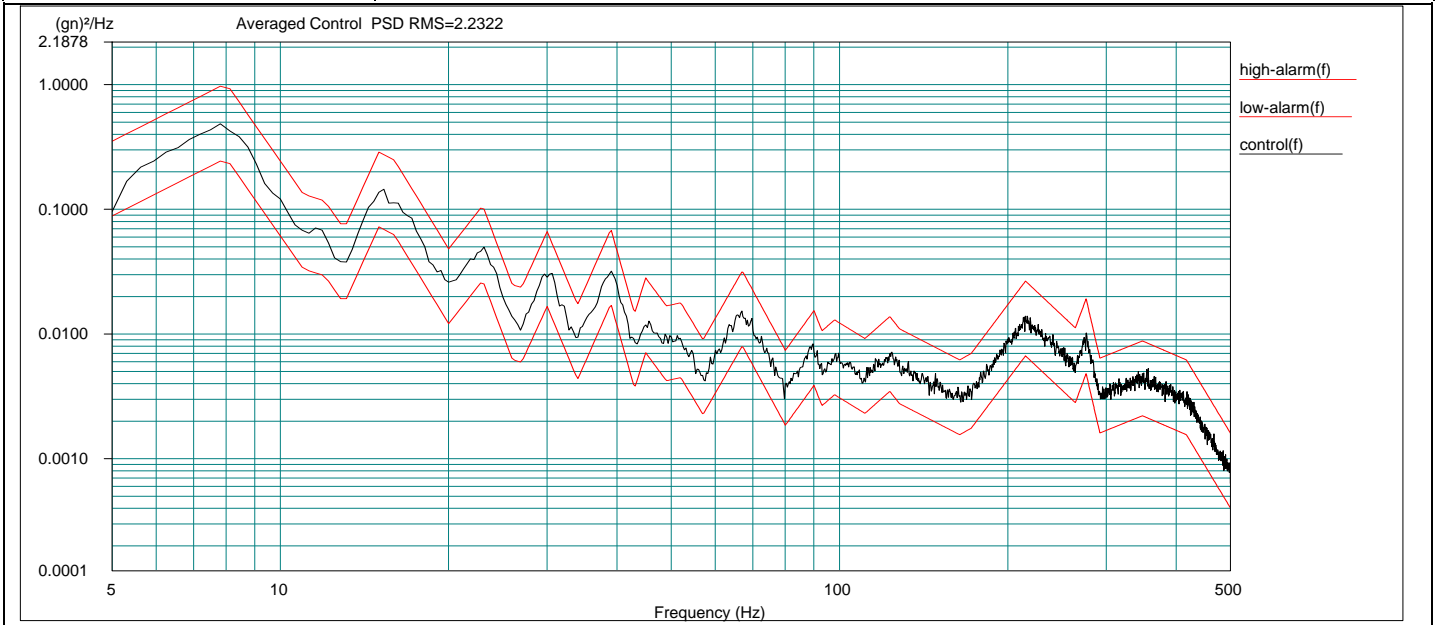
**Figure 1-1: Test setup for vertical-axis composite wheeled vehicle vibration.**



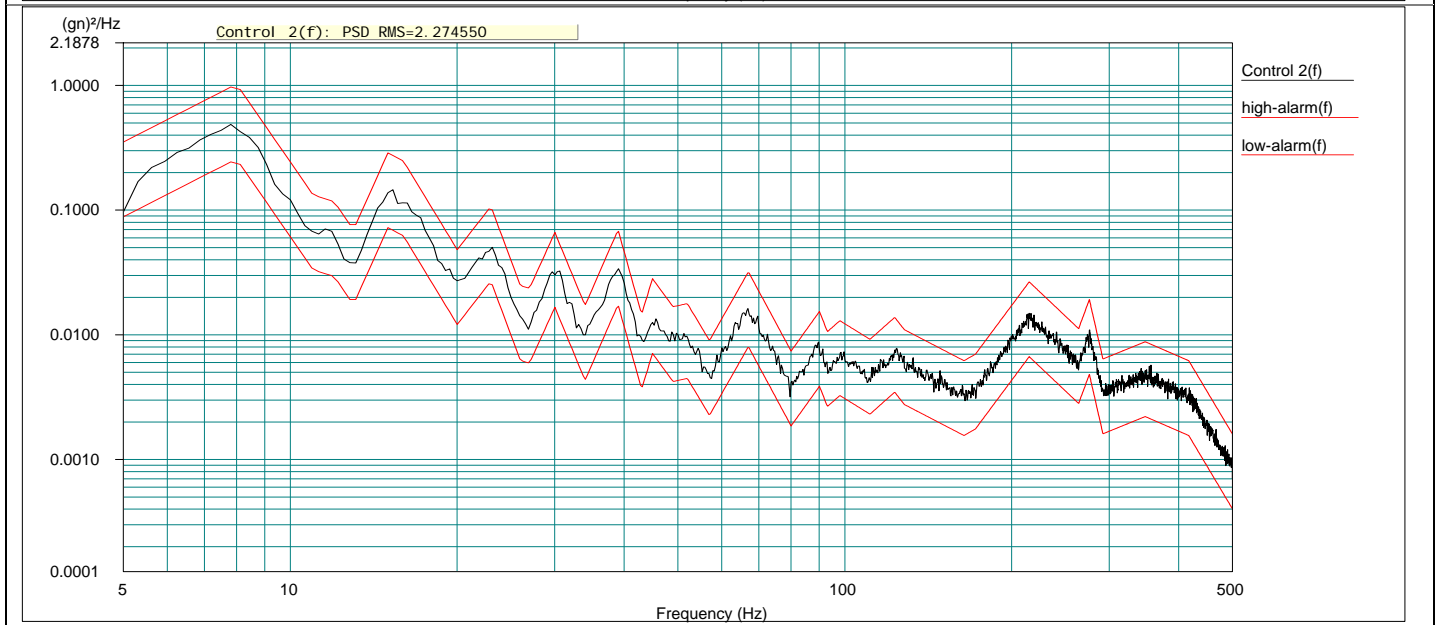
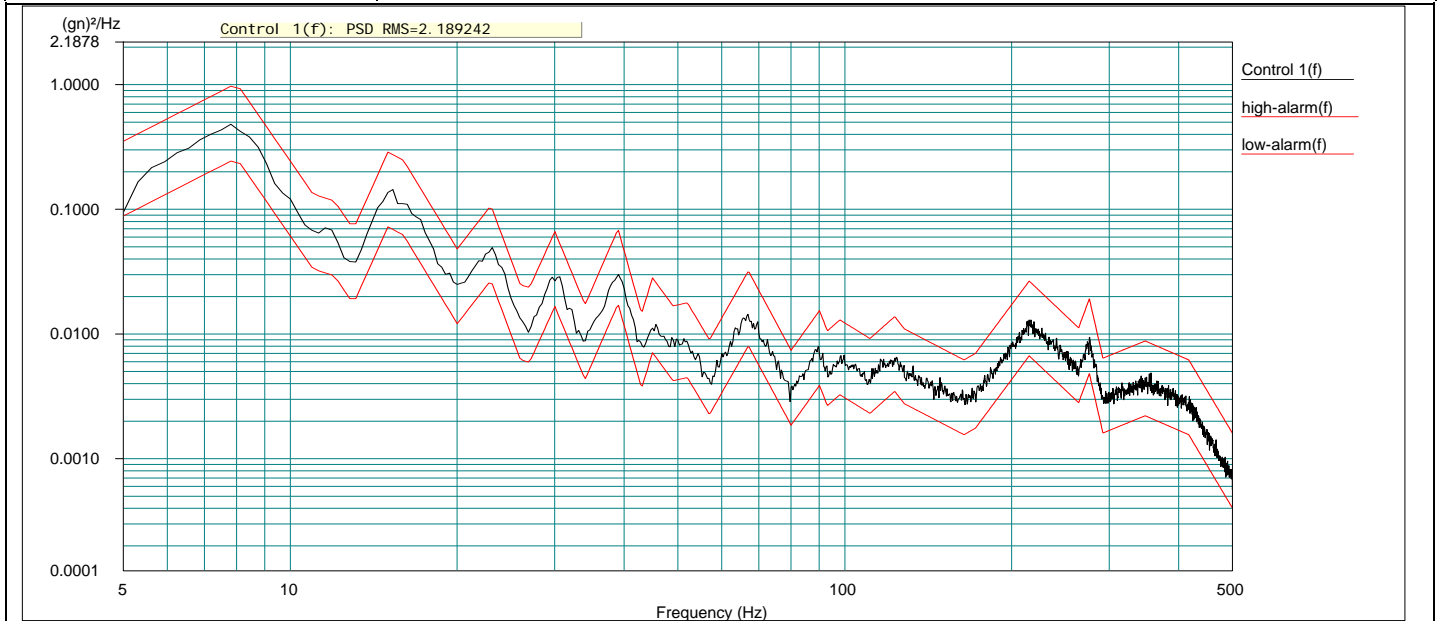


**Figure 1-2: Test setup for longitudinal-axis composite wheeled vehicle vibration.**

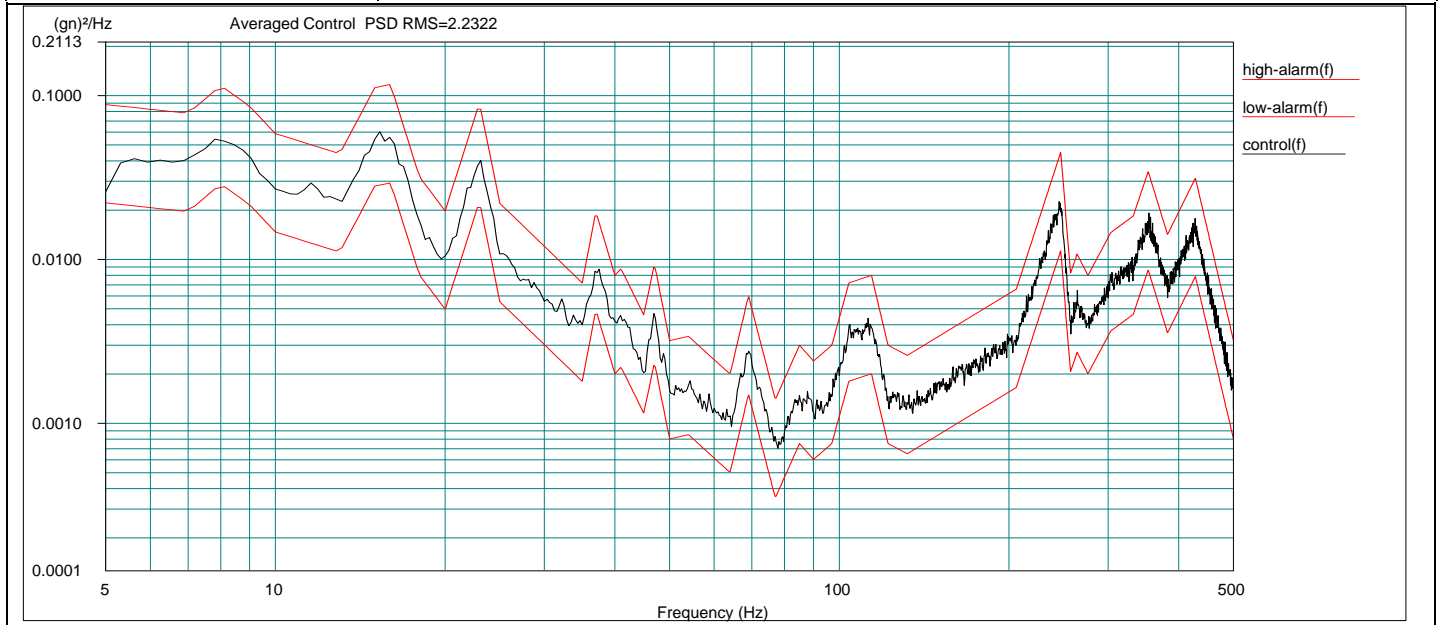
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS	Job #:	07569
	P/N:		PG800UPS	Run #:	1
	S/N:		marked "#1"	Axis:	Vertical
	Date:	21 March 2011	Time:	1609	Duration:



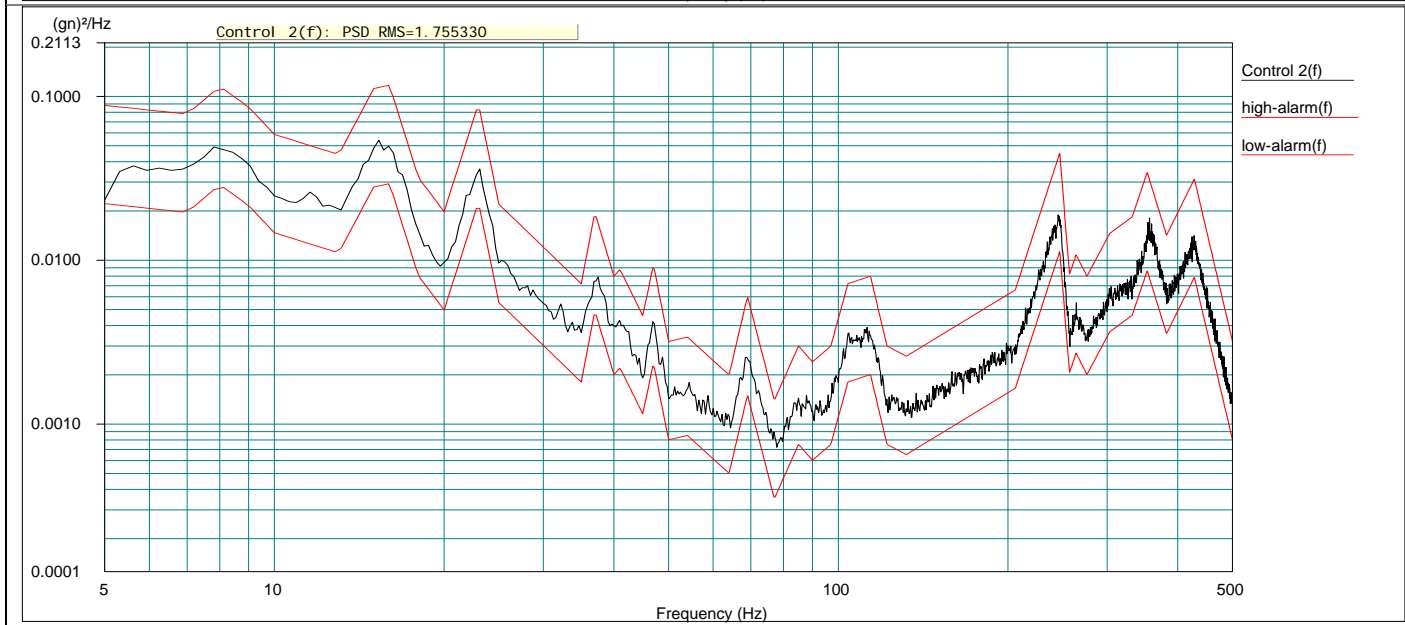
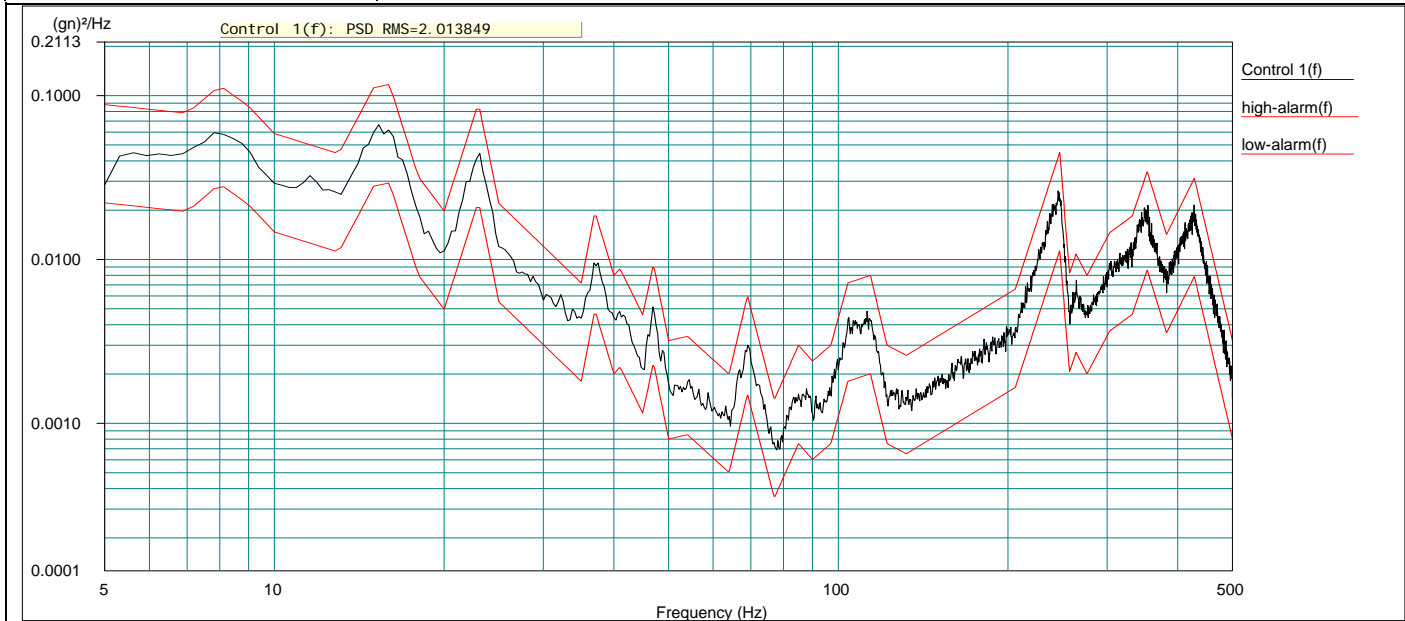
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS	Job #:	07569
	P/N:		PG800UPS	Run #:	1
	S/N:		marked "#1"	Axis:	Vertical
	Date:	21 March 2011	Time:	1609	Duration:



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.	
	Test Hardware:		UPS	Job #: 07569
	P/N:		PG800UPS	Run #: 2
	S/N:		marked "#1"	Axis: Longitudinal
	Date:	22 March 2011	Time:	1221
		Duration:	2 hours	



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS	Job #:	07569
	P/N:		PG800UPS	Run #:	2
	S/N:		marked "#1"	Axis:	Longitudinal
	Date:	22 March 2011	Time:	1221	Duration:



**SECTION 2****FUNCTIONAL SRS TEST SUMMARY**

Test Start-Finish Dates: 22 March 2011

Responsible Test Conductor: Don Henderson

**2-1 TEST HARDWARE**

One (1) P/N PG800UPS UPS, Marked 1

**2-2 TEST REQUIREMENTS WITH TOLERANCES**

Perform three (3) 40 G<sub>pk</sub> by 15 to 23 msec SRS pulses with a 45 Hz crossover in each direction of the three (3) orthogonal axes (18 pulses total)

**SRS Tolerance:**

Analysis: Maximax with 1/12 octave frequency resolution and Q = 10:  
100% within +6/-3dB, 90% within +3/-1.5dB; range of 10 to 2,000 Hz

**2-2.1 Test Specification:**

MIL-STD-810G, Method 516.6, Procedure I, Section 4.6.2.3 and Table 516.6-I, Ground Equipment

**2-3 TEST SETUP****TABLE 2-1: QUALTEST FURNISHED MEASUREMENT & TEST EQUIPMENT**

Asset #	Item	Manufacturer	Model Number	Calibration Due
100353	Shaker Controller	LDS Dactron	Laser USB	14-Jun-2011
100353-1	Dactron Shaker Software	LDS Dactron	Version 6.30	NA
100433	Accelerometer	Endevco	2256A-10	05-Jul-2011
100686	Thermo-Hygrometer	Fisher Scientific	14-648-53	10-Sep-2011
101036	Vibration Exciter	LDS	V9	NA
101037	Power Amplifier	LDS	SPA176K	NA

**TABLE 2-2: ACCELEROMETER SETUP**

Asset #	Amplifier ID/CH #	Controller CH #	Function	Location
100433	100353/CH# 01	01	Control	Shock Table

**2-4 TEST DESCRIPTION****2-4.1 Non-Qualtest Personnel, Including Organization, Present for All or Part of the Test:**

Michael Berger, representative with AJs Power Source, Inc.

**2-4.2 Powered/Operational State of the Hardware and by Whom:**

The test item was operated by the onsite customer during the test. Results related to any functional tests performed by the customer were retained by the customer.

**2-4.3 Test Activities and Resulting Measurements from Observed/Recorded Data:**

Initial Ambient Conditions: Temp (°C): 23 Relative Humidity (%): 42 Pressure: Site ambient

**TABLE 2-3: SHOCK TEST ACTIVITIES**

Shock #	Axis	Direction	Date	Time	# of Pulses
1	Vertical	Positive	03/22/11	0814	3
2	Vertical	Negative	03/22/11	0821	3

The onsite customer requested to end testing following Run #2 (vibration) due to a test item anomaly.

**2-4.4 Limitations or Departures from the Test Requirements and Authorizing Source:**

None

**2-5 SUPPORTING ENVIRONMENTAL TEST DATA**

The shock plots are located after Figure 2-1.

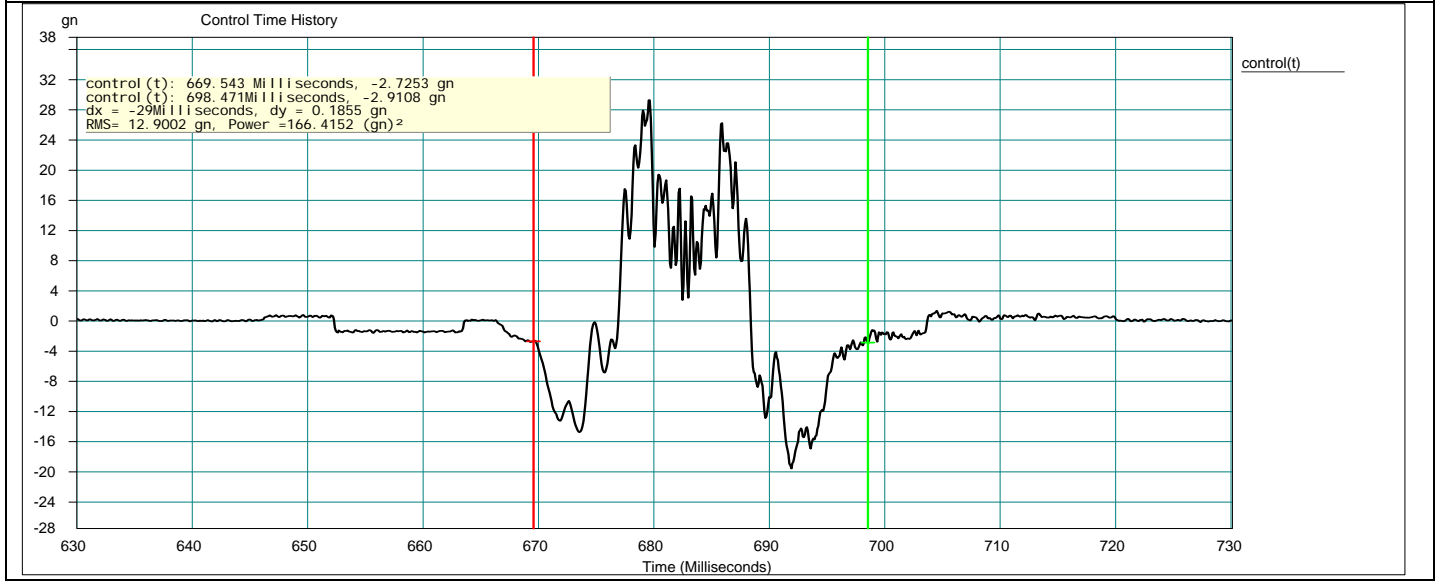
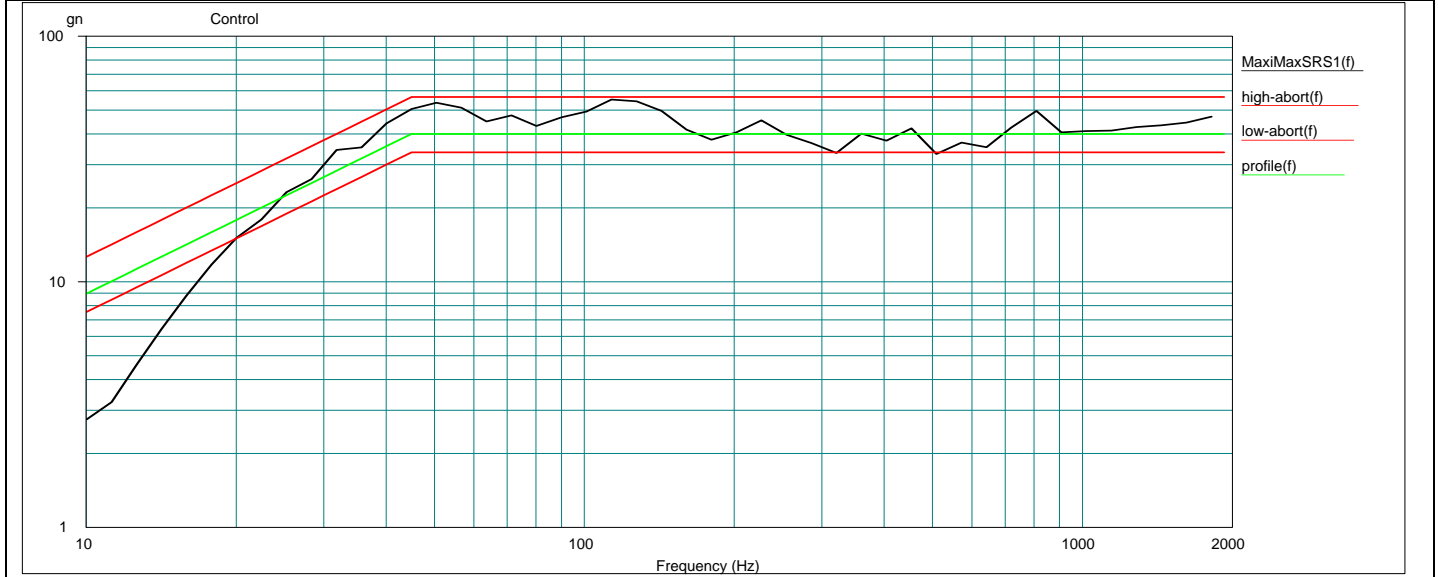
One (1) representative pulse was recorded for each shock direction.



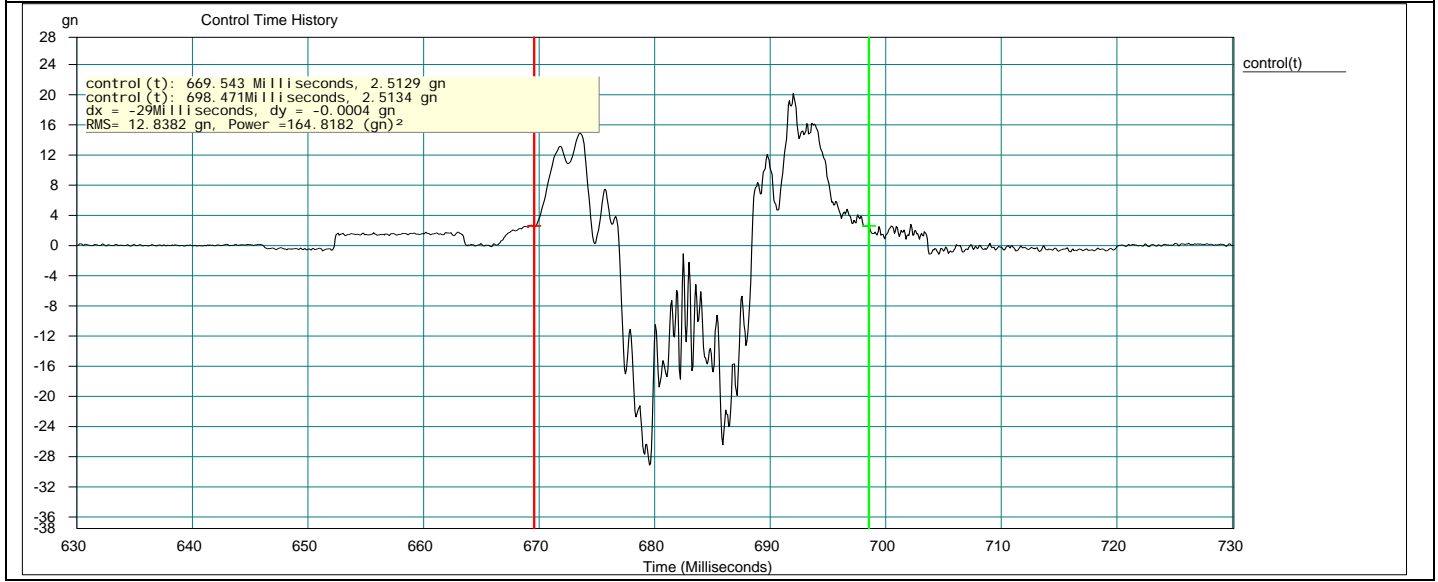
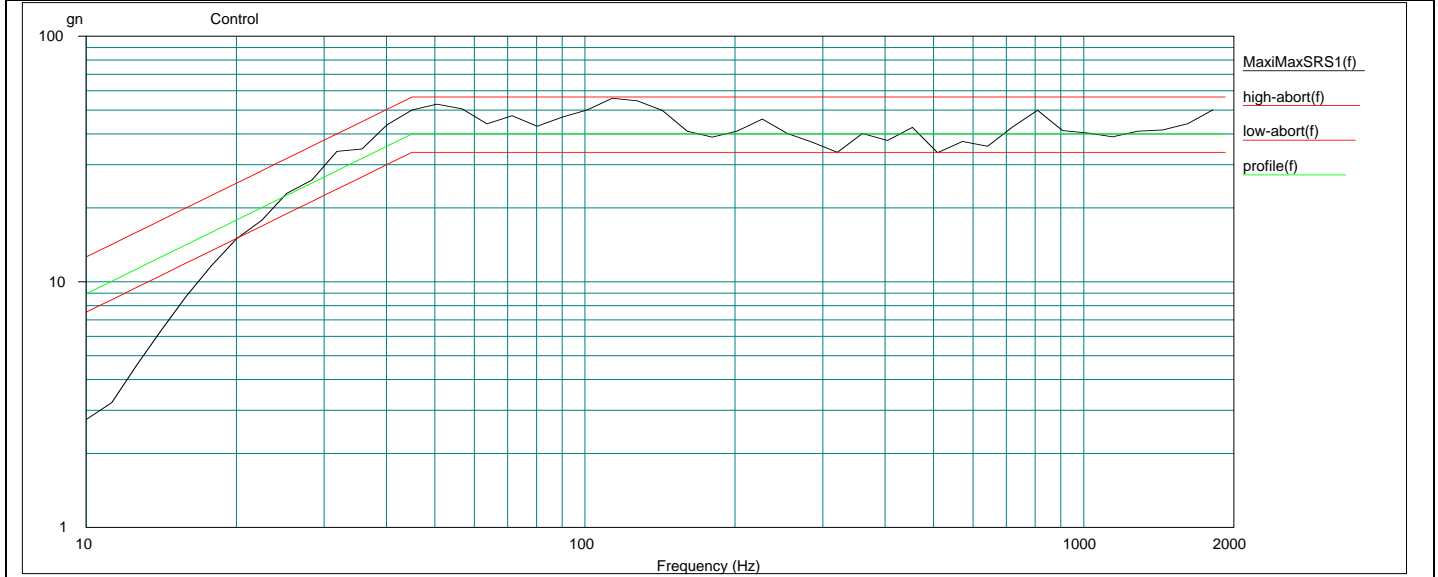
**Figure 2-1: Test setup for vertical-axis SRS shock.**



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS	Shock #:	1 Pulse 1
	P/N:	PG800UPS	Axis:	Vertical
	S/N:	marked "#1"	Direction:	Positive
	Date:	22 March 2011	Time:	0814



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS	Shock #:	2 Pulse 1
	P/N:	PG800UPS	Axis:	Vertical
	S/N:	marked "#1"	Direction:	Negative
	Date:	22 March 2011	Time:	0821



**SECTION 3****COMPOSITE WHEELED VEHICLE VIBRATION TEST SUMMARY**

Test Start-Finish Dates: 25 through 28 March 2011

Responsible Test Conductor: Ralph Lied

**3-1 TEST HARDWARE**

One (1) P/N PG800UPS UPS, Marked 1

**3-2 TEST REQUIREMENTS WITH TOLERANCES**

Perform two hours of random vibration as described in Tables 3-1 thru 3-3.

**TABLE 3-1: 514.6C-VI COMPOSITE WHEELED VEHICLE VERTICAL AXIS**

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
5	0.1759	39	0.0347	123	0.0069
8	0.5120	43	0.0073	128	0.0055
11	0.0660	45	0.0141	164	0.0031
12	0.0585	49	0.0084	172	0.0035
13	0.0348	52	0.0089	215	0.0133
15	0.1441	57	0.0045	264	0.0056
16	0.1237	67	0.0160	276	0.0096
20	0.0241	80	0.0037	292	0.0032
23	0.0536	90	0.0077	348	0.0044
26	0.0124	93	0.0053	417	0.0031
27	0.0118	98	0.0065	500	0.0008
30	0.0331	99	0.0063	GRMS: 2.24	
34	0.0086	111	0.0046		

**TABLE 3-2: 514.6C-VI COMPOSITE WHEELED VEHICLE TRANSVERSE AXIS**

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
5	0.0998	38	0.0065	185	0.0010
7	0.0799	44	0.0033	191	0.0007
9	0.1115	55	0.0024	206	0.0008
10	0.0577	57	0.0042	273	0.0035
14	0.0294	59	0.0019	300	0.0016
15	0.0651	76	0.0012	364	0.0074
16	0.0646	79	0.0021	374	0.0022

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
17	0.0436	83	0.0010	395	0.0051
18	0.0393	114	0.0006	500	0.0012
19	0.0622	135	0.0017	GRMS: 1.48	
24	0.0100	142	0.0010		
37	0.0045	158	0.0018		

**TABLE 3-3: 514.6C-VI COMPOSITE WHEELED VEHICLE LONGITUDINAL AXIS**

Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)	Frequency (Hz)	PSD (G <sup>2</sup> /Hz)
5	0.0441	40	0.0040	122	0.0015
7	0.0390	41	0.0044	132	0.0013
8	0.0576	45	0.0023	206	0.0033
9	0.0430	47	0.0047	247	0.0226
10	0.0293	50	0.0016	257	0.0041
13	0.0221	54	0.0017	264	0.0054
15	0.0558	64	0.0010	276	0.0040
16	0.0585	69	0.0030	303	0.0073
18	0.0160	77	0.0007	332	0.0092
20	0.0099	85	0.0015	353	0.0172
23	0.0452	90	0.0012	382	0.0071
25	0.0110	97	0.0015	428	0.0157
35	0.0036	104	0.0036	500	0.0016
37	0.0098	114	0.0040	GRMS: 1.90	

Tolerance:

Standard Ambient: 25±10°C, 20 - 80% Relative Humidity, Site Pressure

Random Vibration Amplitude: ±3 dB; G<sub>RMS</sub>: ±10%

**3-2.1 Test Specification:**

MIL-STD-810G, Method 514.6, Category 20, Figure 514.6C-3, Table 514.6C-VI

**3-3 TEST SETUP****TABLE 3-4: QUALTEST FURNISHED MEASUREMENT & TEST EQUIPMENT**

Asset #	Item	Manufacturer	Model Number	Calibration Due
100118	Charge Amplifier	Endevco Corp.	104	06-Oct-2011
100122	Charge Amp Power Supply	Endevco Corp.	109	06-Oct-2011
100353	Shaker Controller	LDS Dactron	Laser USB	14-Jun-2011
100353-1	Dactron Shaker Software	LDS Dactron	Version 6.30	NA
100543	Accelerometer	Endevco	7703A-50	08-Aug-2011
100573	Accelerometer	Endevco	7703A-50	15-Jun-2011
100686	Thermo-Hygrometer	Fisher Scientific	14-648-53	10-Sep-2011
101036	Vibration Exciter	LDS	V9	NA
101037	Power Amplifier	LDS	SPA176K	NA

**TABLE 3-5: ACCELEROMETER SETUP**

Asset #	Amplifier ID/CH #	Controller CH #	Function	Location
100573	100118/CH #01	01	Control 1	Vibration Table
100543	100118/CH #02	02	Control 2	Vibration Table

**3-4 TEST DESCRIPTION****3-4.1 Non-Qualtest Personnel, Including Organization, Present for All or Part of the Test:**

Michael Berger, representative with AJs Power Source, Inc.

**3-4.2 Powered/Operational State of the Hardware and by Whom:**

The test item was operated by the onsite customer during the test. Results related to any functional tests performed by the customer were retained by the customer.

**3-4.3 Test Activities and Resulting Measurements from Observed/Recorded Data:**

Initial Ambient Conditions: Temp (°C): 26 Relative Humidity (%): 38 Pressure: Site ambient

**TABLE 3-6: VIBRATION TEST ACTIVITIES**

Run #	Axis	Date	End Time	Duration
1	Vertical	03/25/11	1044	2 hours
2	Longitudinal	03/25/11	1632	2 hours
3	Transverse	03/28/11	0915	2 hours

No mechanical test item anomalies observed. The test item remained intact and installed in the fixture throughout the test.

### 3-4.4 Limitations or Departures from the Test Requirements and Authorizing Source:

None

### 3-5 SUPPORTING ENVIRONMENTAL TEST DATA

The vibration plots are located after Figure 3-3.



**Figure 3-1: Test setup for vertical-axis composite wheeled vehicle vibration.**

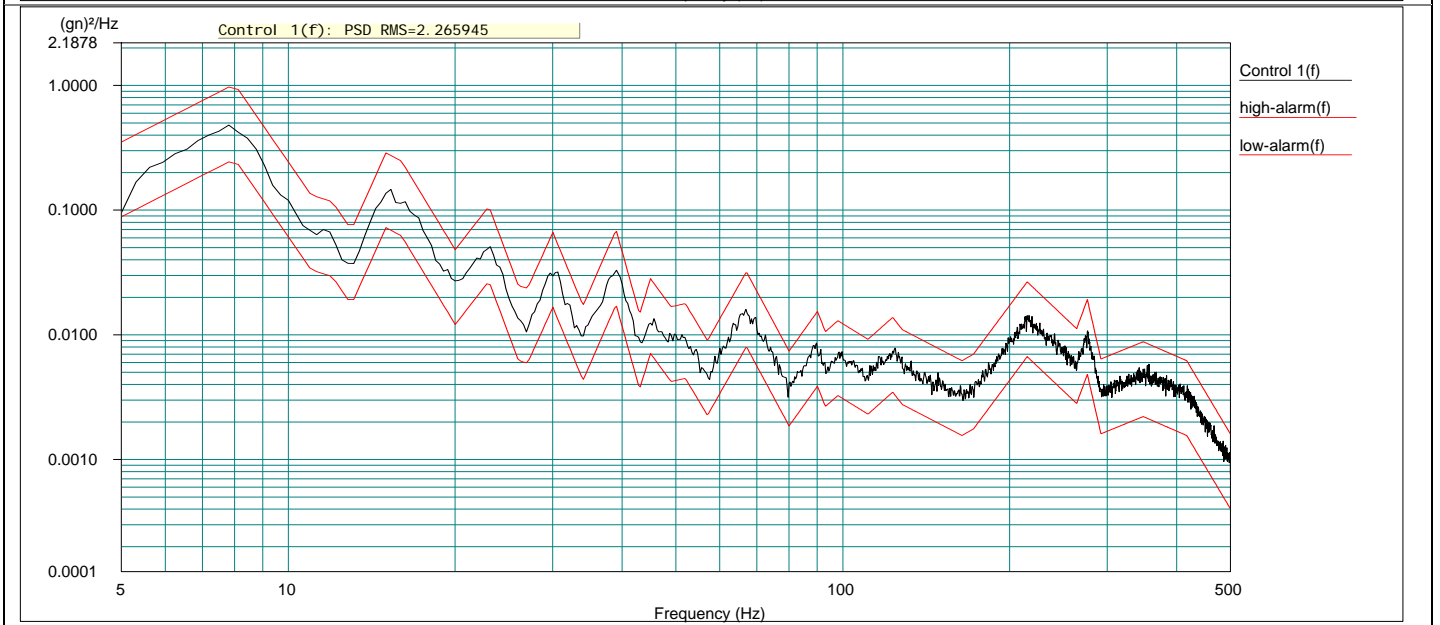
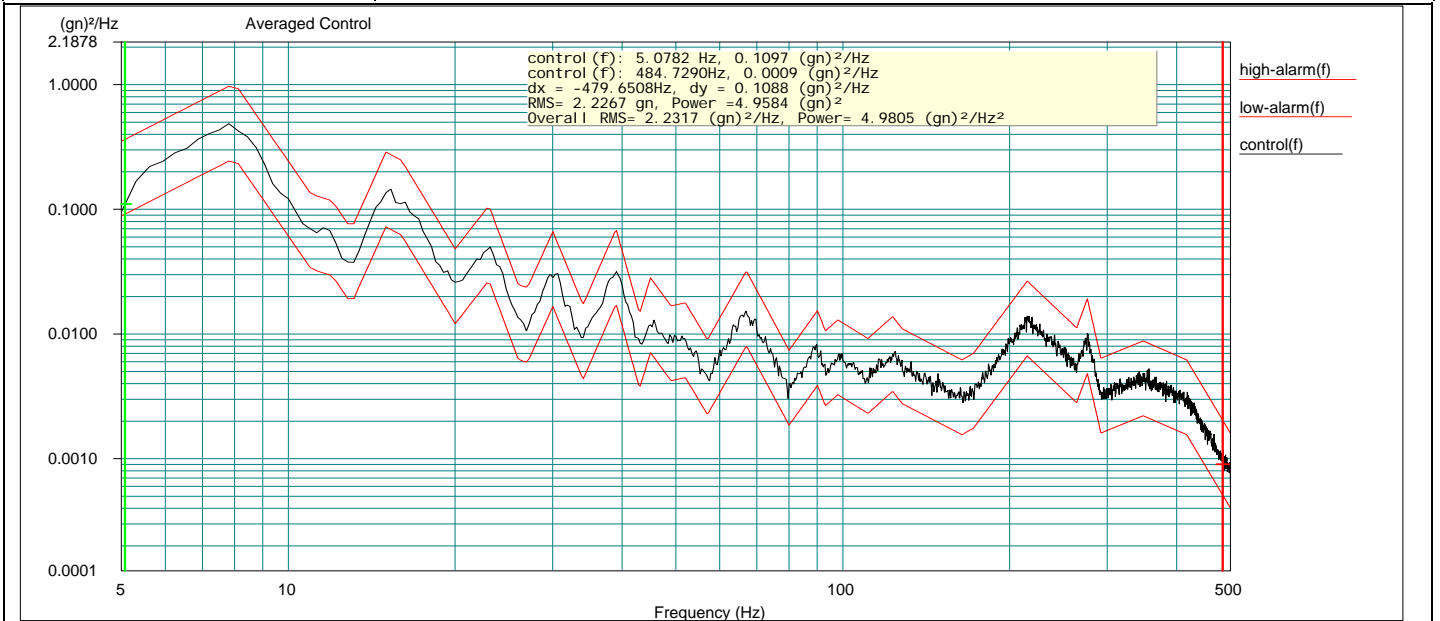


**Figure 3-2: Test setup for longitudinal-axis composite wheeled vehicle vibration.**



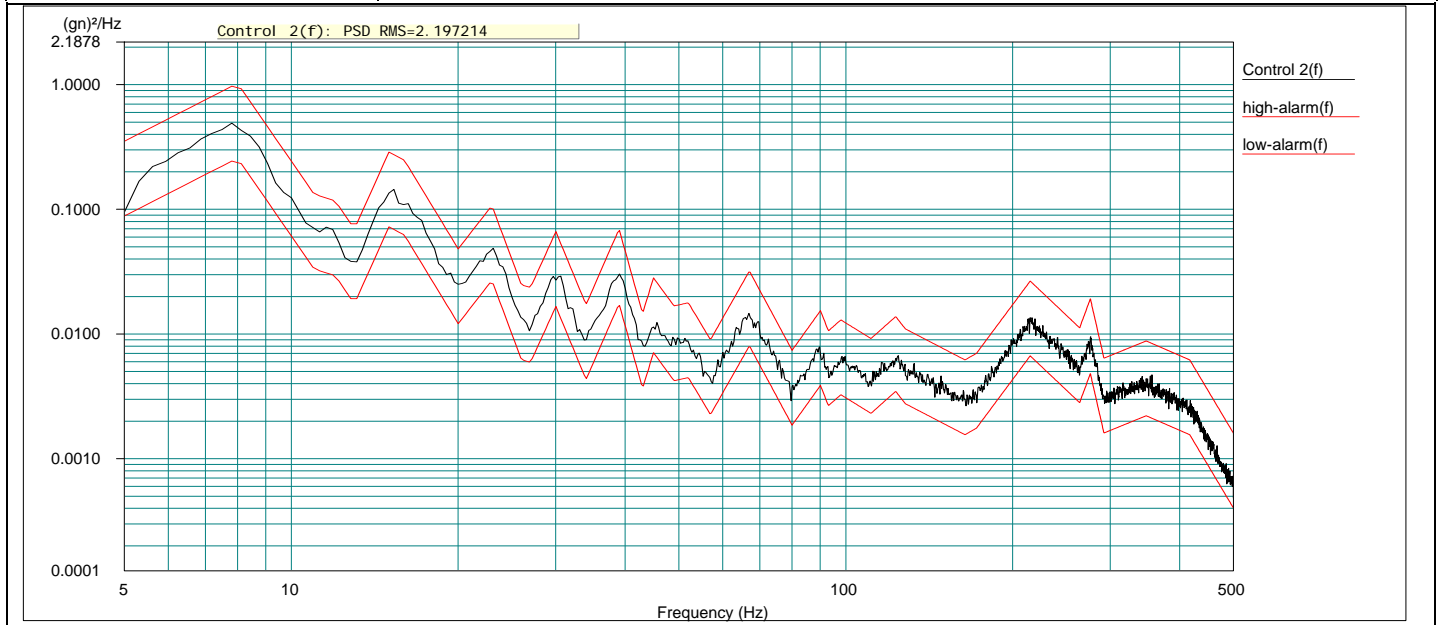
**Figure 3-3: Test setup for transverse-axis composite wheeled vehicle vibration.**

Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS (1 ea.)	Job #:	07569
	P/N:		PG800UPS	Run #:	1
	S/N:		marked "#1"	Axis:	Vertical
	Date:	25 March 2011	Time:	1044	Duration:

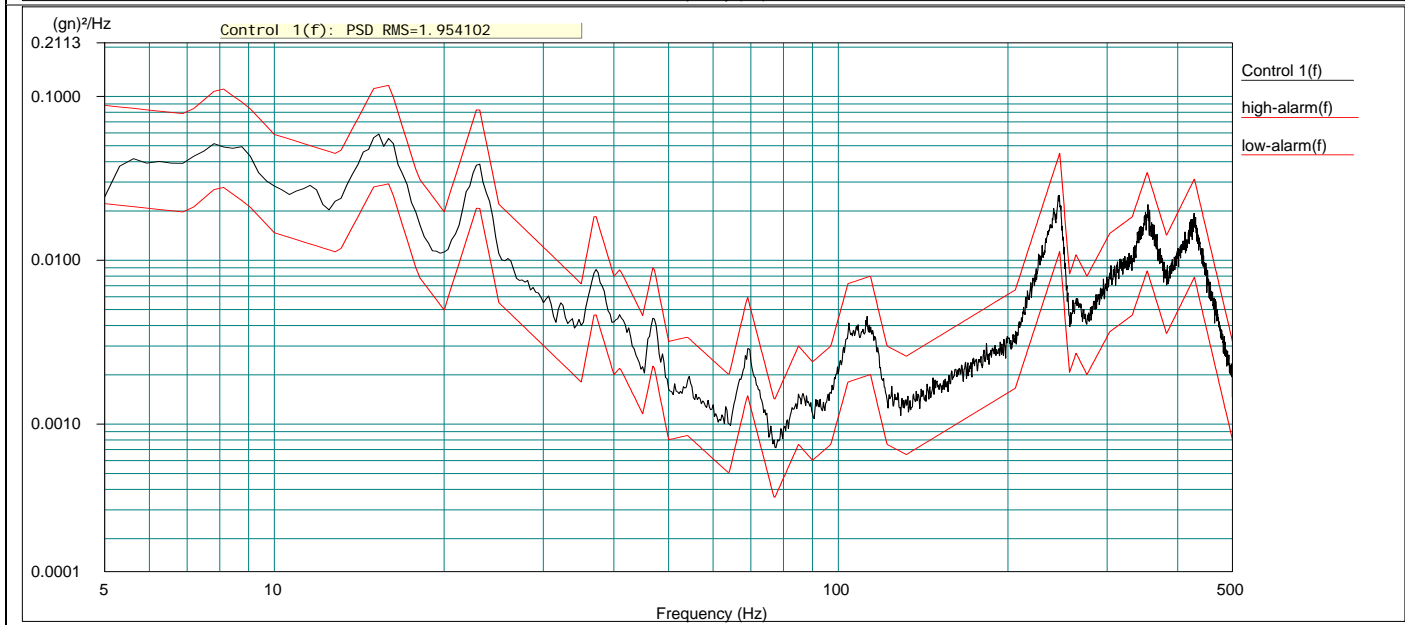
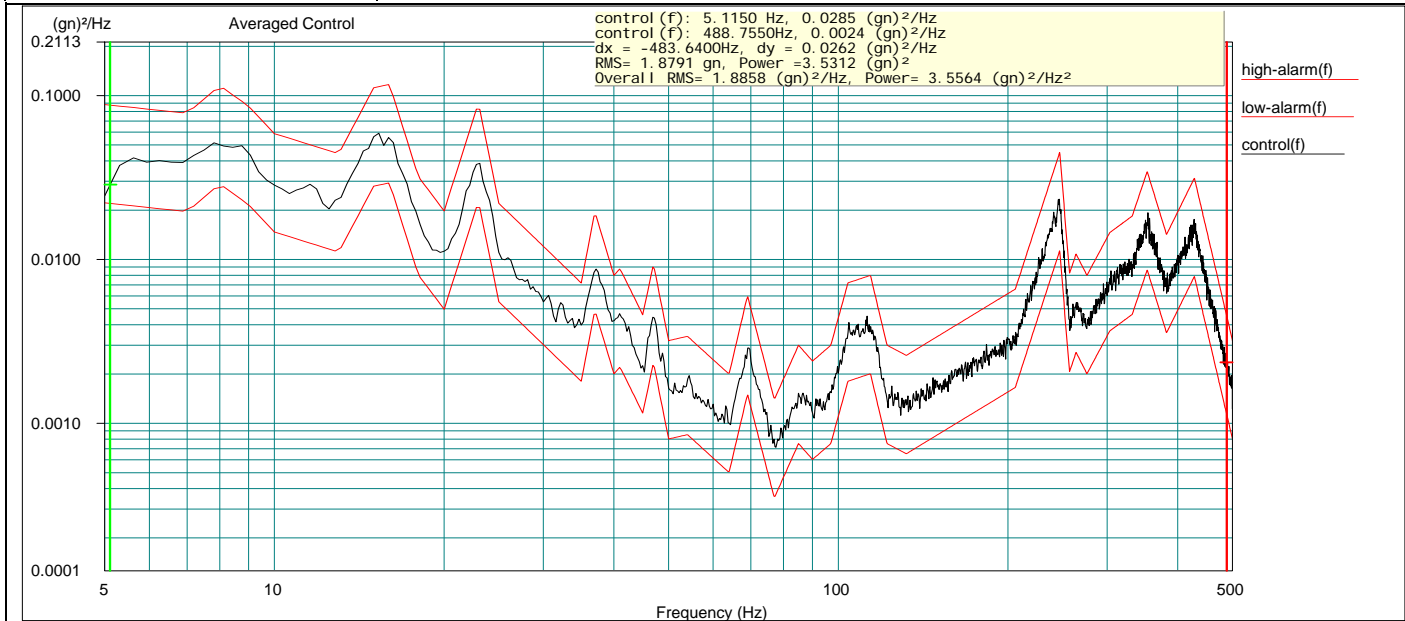




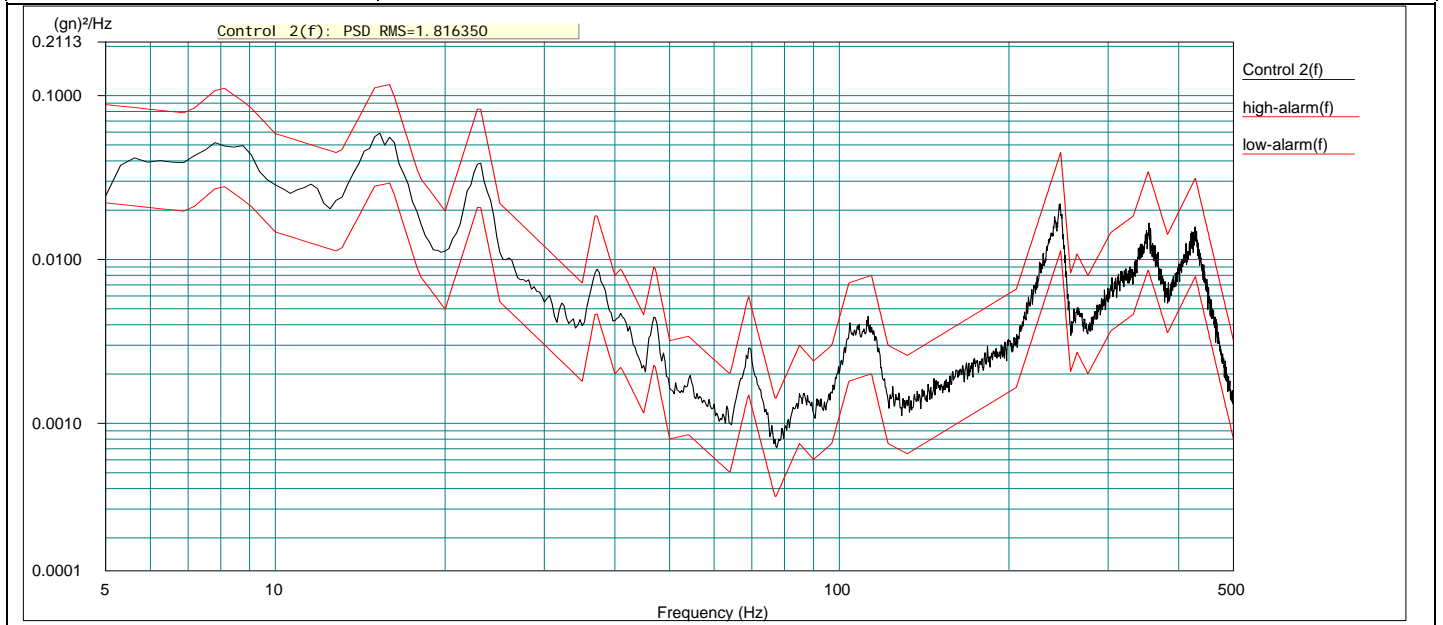
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS (1 ea.)	Job #:	07569
	P/N:		PG800UPS	Run #:	1
	S/N:		marked "#1"	Axis:	Vertical
	Date:	25 March 2011	Time:	1044	Duration:



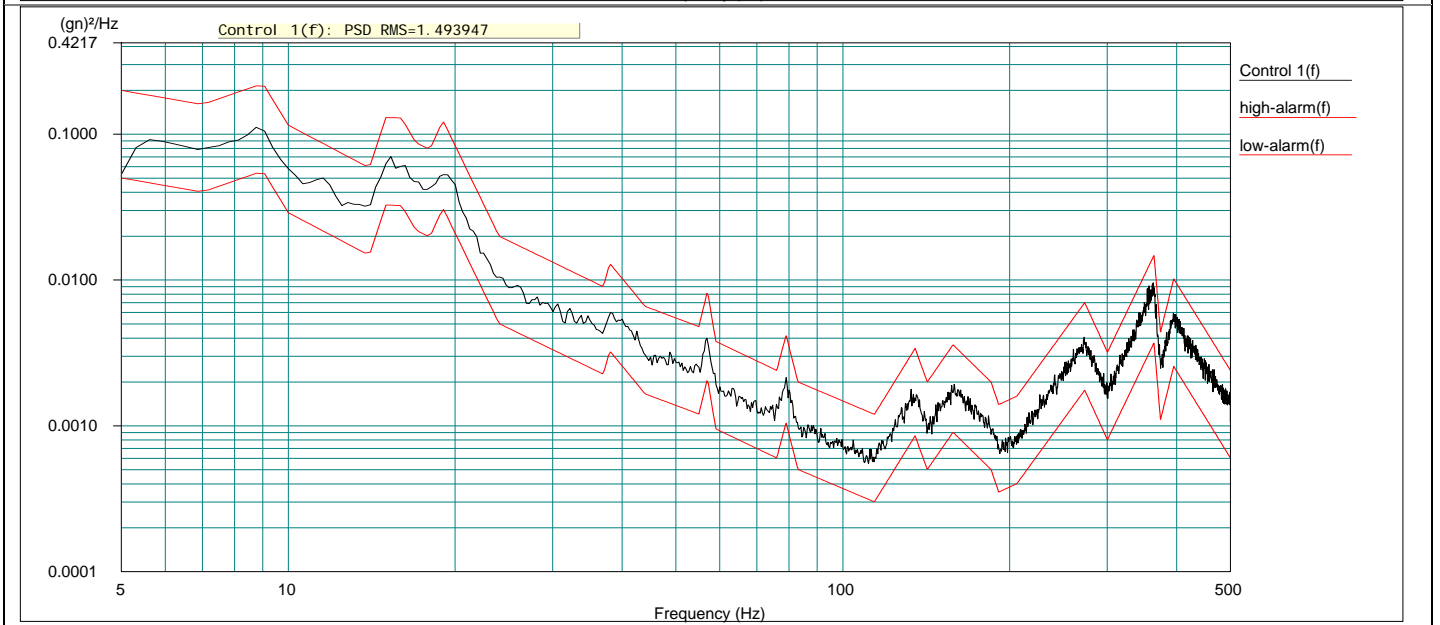
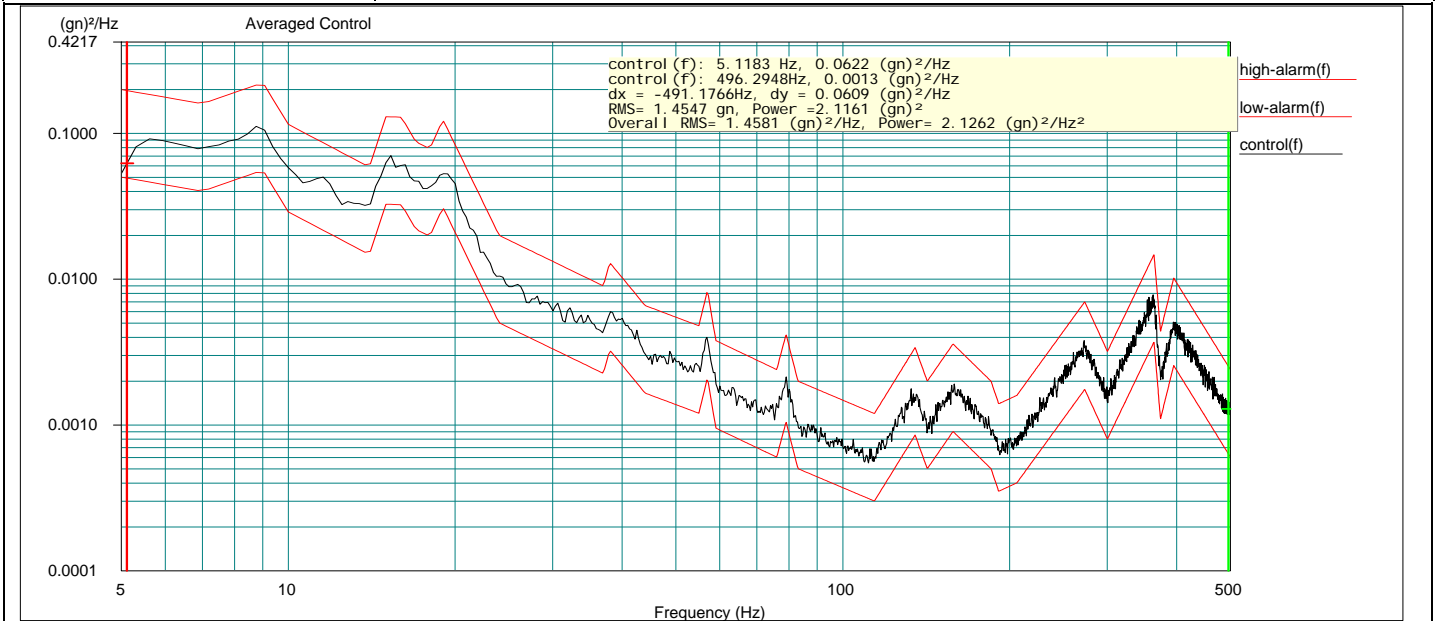
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS (1 ea.)	Job #:	07569
	P/N:		PG800UPS	Run #:	2
	S/N:		marked "#1"	Axis:	Longitudinal
	Date:	25 March 2011	Time:	1632	Duration:



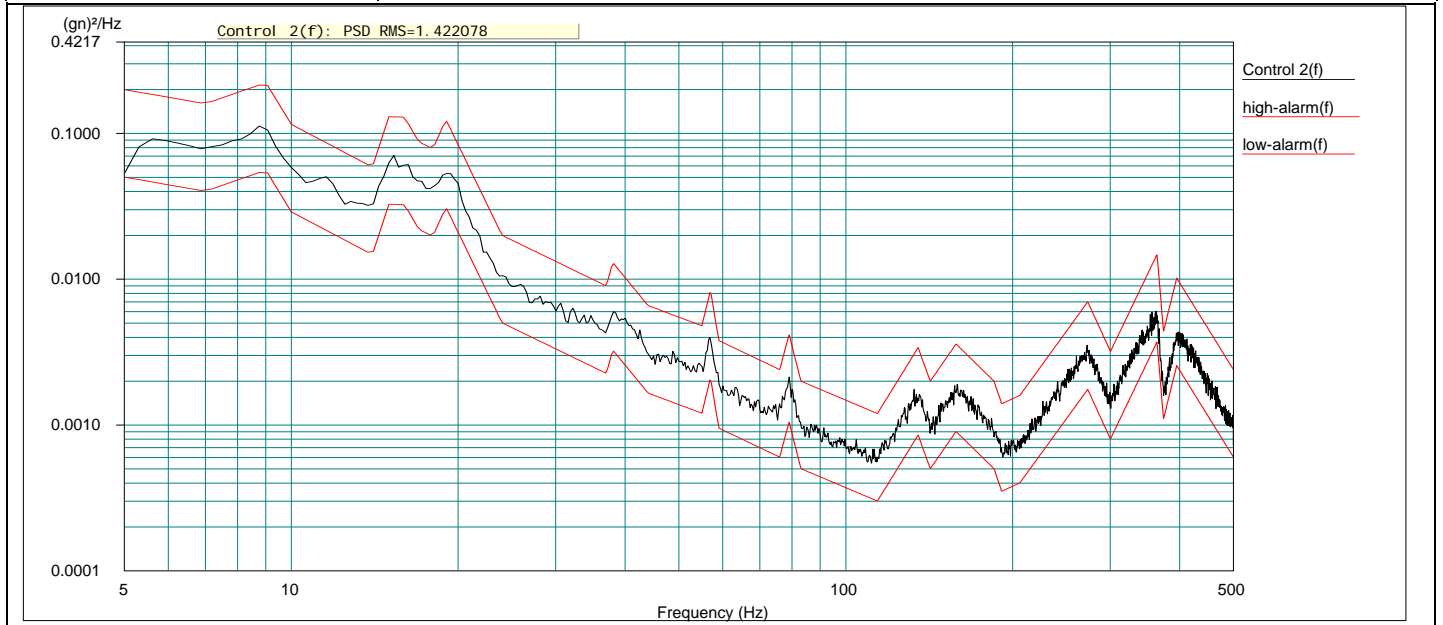
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS (1 ea.)	Job #:	07569
	P/N:		PG800UPS	Run #:	2
	S/N:		marked "#1"	Axis:	Longitudinal
	Date:	25 March 2011	Time:	1632	Duration:



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS (1 ea.)	Job #:	07569
	P/N:		PG800UPS	Run #:	3
	S/N:		marked "#1"	Axis:	Transverse
	Date:	28 March 2011	Time:	0915	Duration:



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:		AJs Power Source, Inc.		
	Test Hardware:		UPS (1 ea.)	Job #:	07569
	P/N:		PG800UPS	Run #:	3
	S/N:		marked "#1"	Axis:	Transverse
	Date:	28 March 2011	Time:	0915	Duration:



**SECTION 4****FUNCTIONAL SRS TEST SUMMARY**

Test Start-Finish Dates: 25 through 28 March 2011

Responsible Test Conductor: Ralph Lied

**4-1 TEST HARDWARE**

One (1) P/N PG800UPS UPS, Marked 1

**4-2 TEST REQUIREMENTS WITH TOLERANCES**

Perform three (3) 40 G<sub>pk</sub> by 15 to 23 msec SRS pulses with a 45 Hz crossover in each direction of the three (3) orthogonal axes (18 pulses total)

**SRS Tolerance:**

Analysis: Maximax with 1/12 octave frequency resolution and Q = 10:  
100% within +6/-3dB, 90% within +3/-1.5dB; range of 10 to 2,000 Hz

**4-2.1 Test Specification:**

MIL-STD-810G, Method 516.6, Procedure I, Section 4.6.2.3 and Table 516.6-I, Ground Equipment

**4-3 TEST SETUP****TABLE 4-1: QUALTEST FURNISHED MEASUREMENT & TEST EQUIPMENT**

Asset #	Item	Manufacturer	Model Number	Calibration Due
100122	Charge Amp Power Supply	Endevco Corp.	109	06-Oct-2011
100353	Shaker Controller	LDS Dactron	Laser USB	14-Jun-2011
100353-1	Dactron Shaker Software	LDS Dactron	Version 6.30	NA
100543	Accelerometer	Endevco	7703A-50	08-Aug-2011
100573	Accelerometer	Endevco	7703A-50	15-Jun-2011
100686	Thermo-Hygrometer	Fisher Scientific	14-648-53	10-Sep-2011
101036	Vibration Exciter	LDS	V9	NA
101037	Power Amplifier	LDS	SPA176K	NA
<sup>1</sup> 101038	Vibration Controller	Vibration Research	VR9500	16-Aug-2011
101038-1	Vibration Software	Vibration Research	Version 9.0.9	NA

<sup>1</sup> Used for Shock #6 only.**TABLE 4-2: ACCELEROMETER SETUP**

Asset #	Amplifier ID/CH #	Controller CH #	Function	Location
100573	100118/CH #01	01	Control	Vibration Table

#### 4-4 TEST DESCRIPTION

##### 4-4.1 Non-Qualtest Personnel, Including Organization, Present for All or Part of the Test:

Michael Berger, representative with AJs Power Source, Inc.

##### 4-4.2 Powered/Operational State of the Hardware and by Whom:

The test item was operated by the onsite customer during the test. Results related to any functional tests performed by the customer were retained by the customer.

##### 4-4.3 Test Activities and Resulting Measurements from Observed/Recorded Data:

Initial Ambient Conditions: Temp (°C): 26 Relative Humidity (%): 38 Pressure: Site ambient

**TABLE 4-3: SHOCK TEST ACTIVITIES**

Shock #	Axis	Direction	Date	Time	# of Pulses
1	Vertical	Positive	03/25/11	1153	3
2	Vertical	Negative	03/25/11	1205	3
3	Longitudinal	Positive	03/25/11	1640	3
4	Longitudinal	Negative	03/25/11	1648	3
5	Transverse	Positive	03/28/11	0941	3
6	Transverse	Negative	03/28/11	1402	3

No mechanical test item anomalies observed. The test item remained intact and installed in the fixture throughout the test.

##### 4-4.4 Limitations or Departures from the Test Requirements and Authorizing Source:

None

#### 4-5 SUPPORTING ENVIRONMENTAL TEST DATA

The shock plots are located after Figure 4-3.

One (1) representative pulse was recorded for each shock direction.



**Figure 4-1: Test setup for vertical-axis SRS shock.**



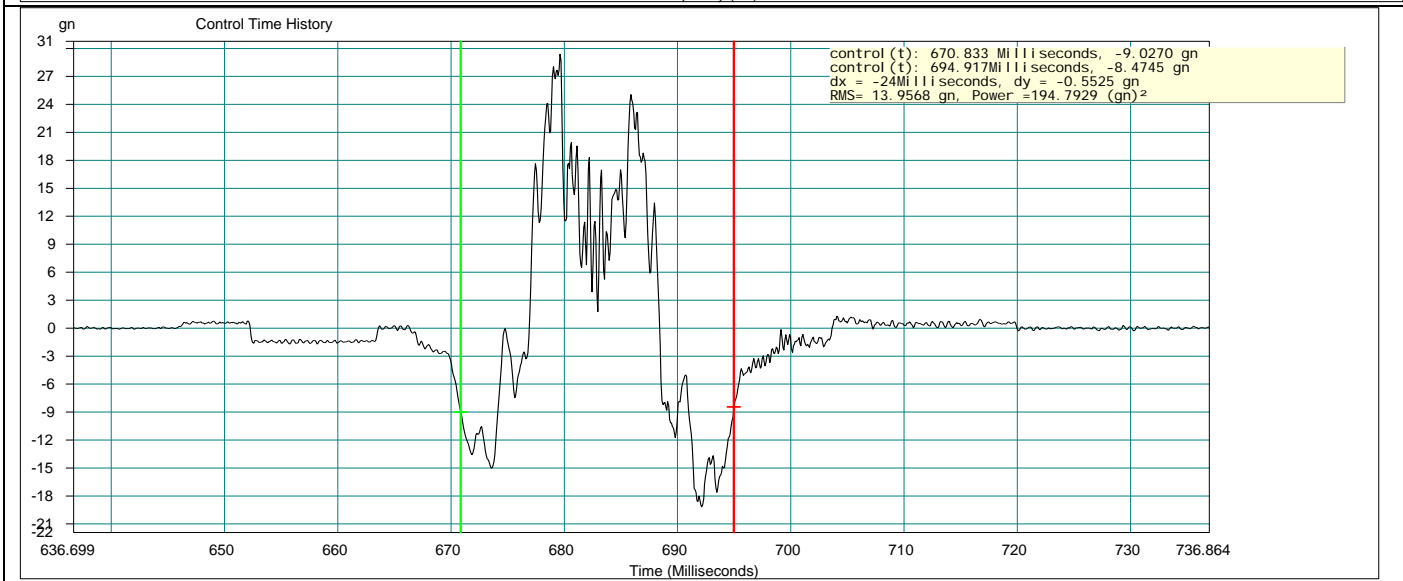
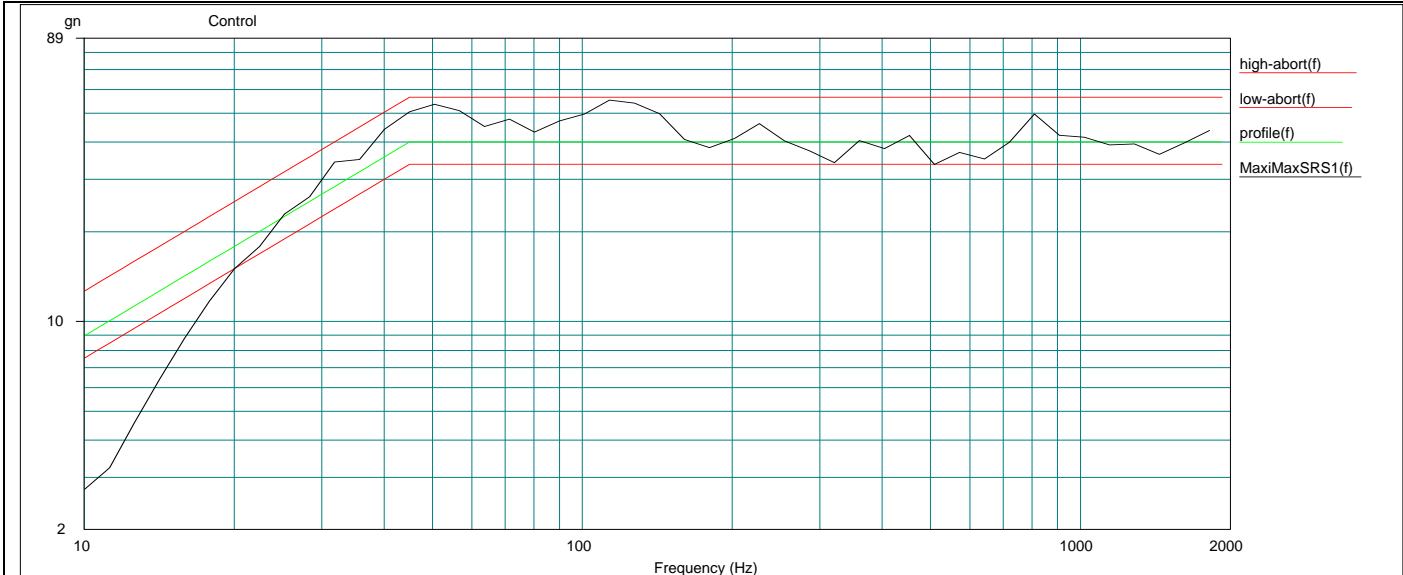
**Figure 4-2: Test setup for longitudinal-axis SRS shock.**



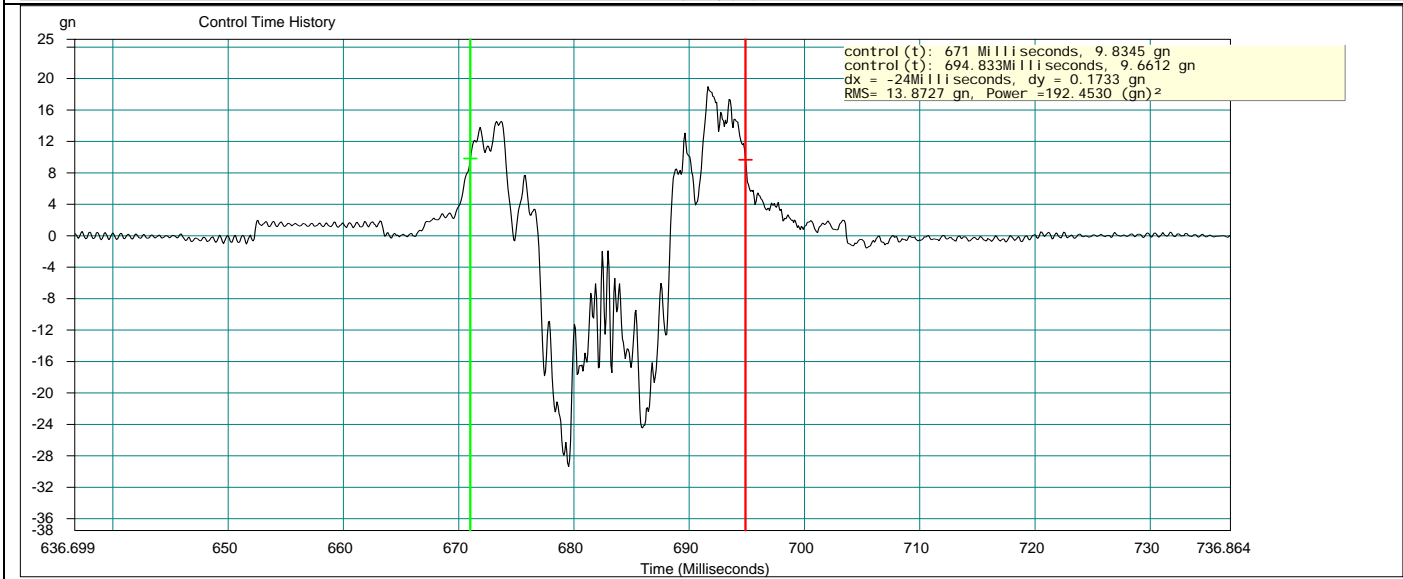
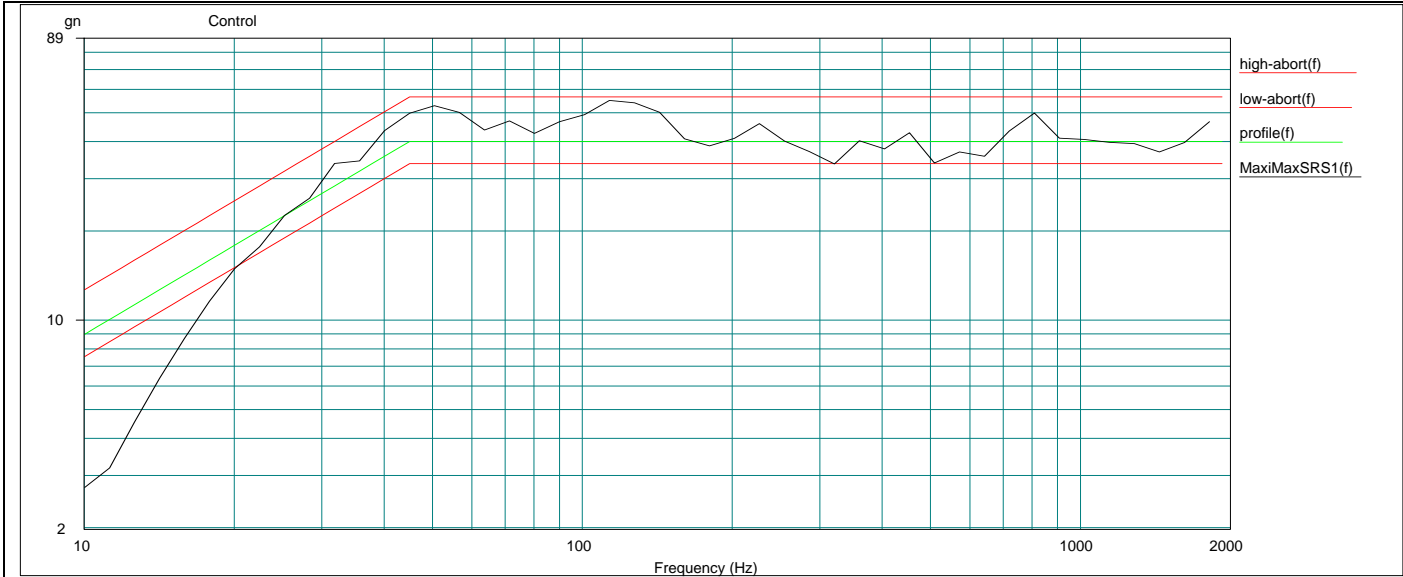


**Figure 4-3: Test setup for transverse-axis SRS shock.**

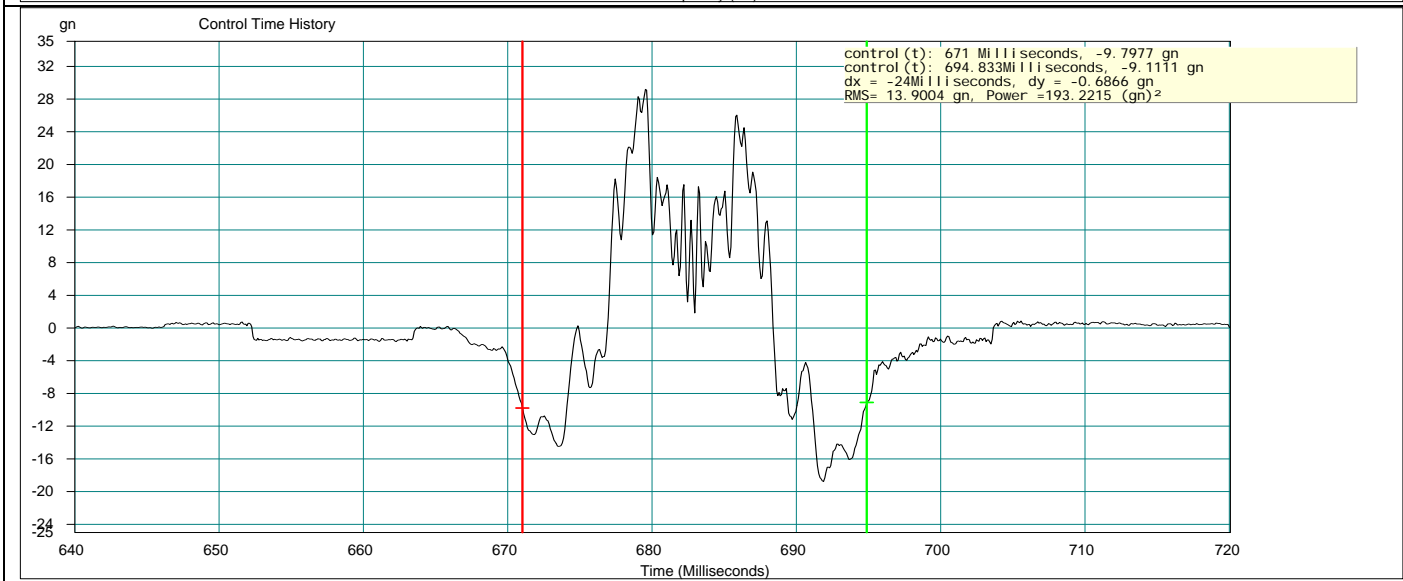
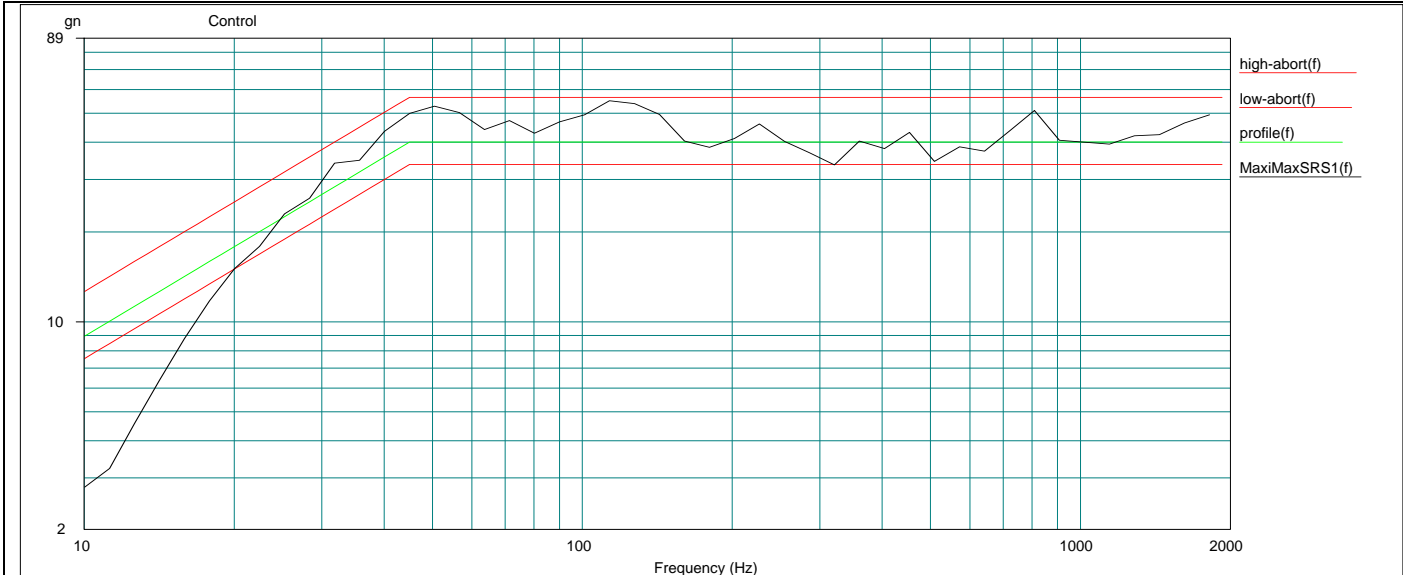
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS (1 ea.)	Shock #:	1
	P/N:	PG800UPS	Axis:	Vertical
	S/N:	marked "#1"	Direction:	Positive
	Date:	25 March 2011	Time:	1153



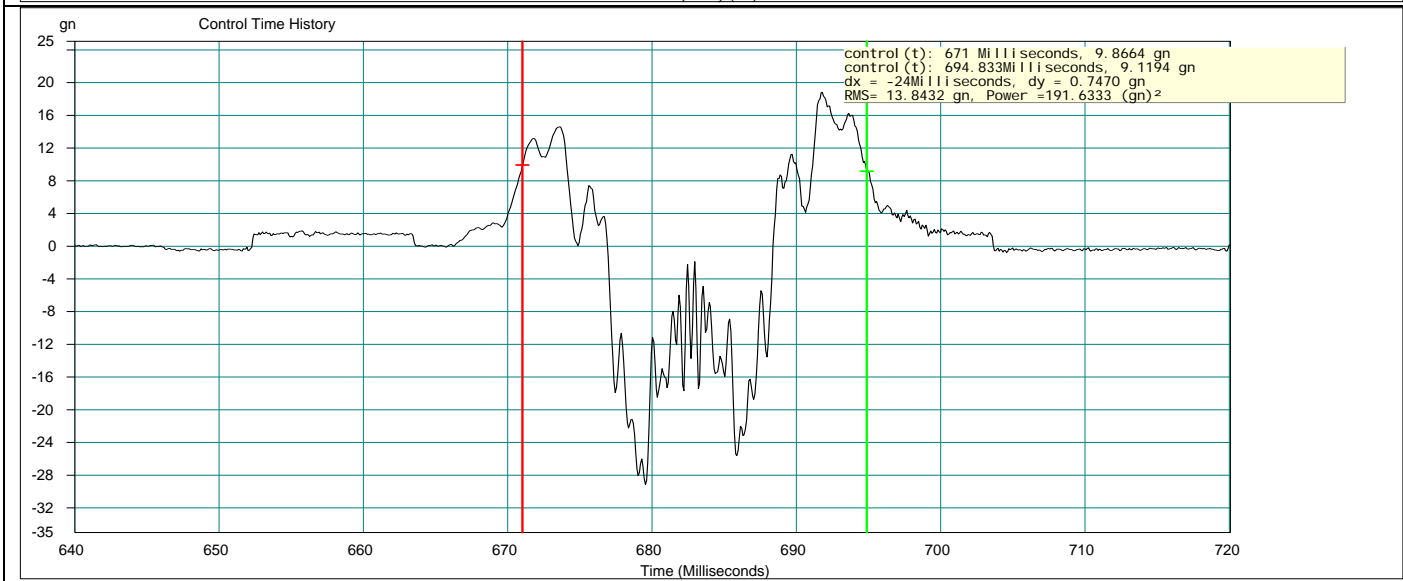
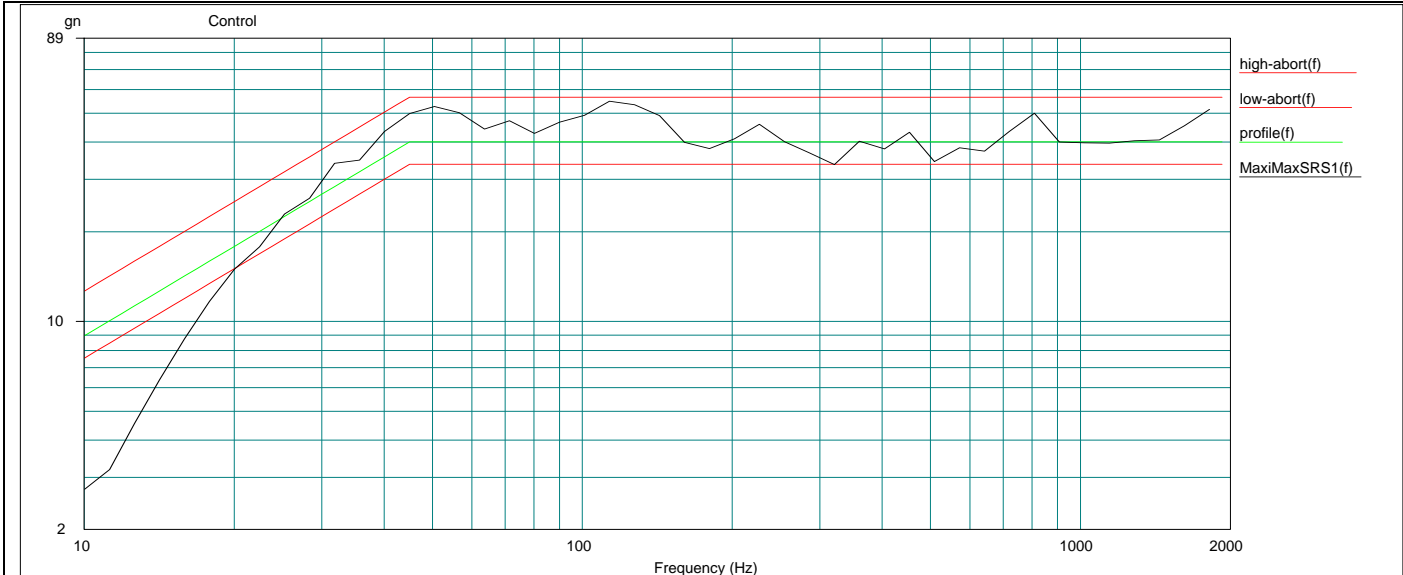
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS (1 ea.)	Shock #:	2
	P/N:	PG800UPS	Axis:	Vertical
	S/N:	marked "#1"	Direction:	Negative
	Date:	25 March 2011	Time:	1205



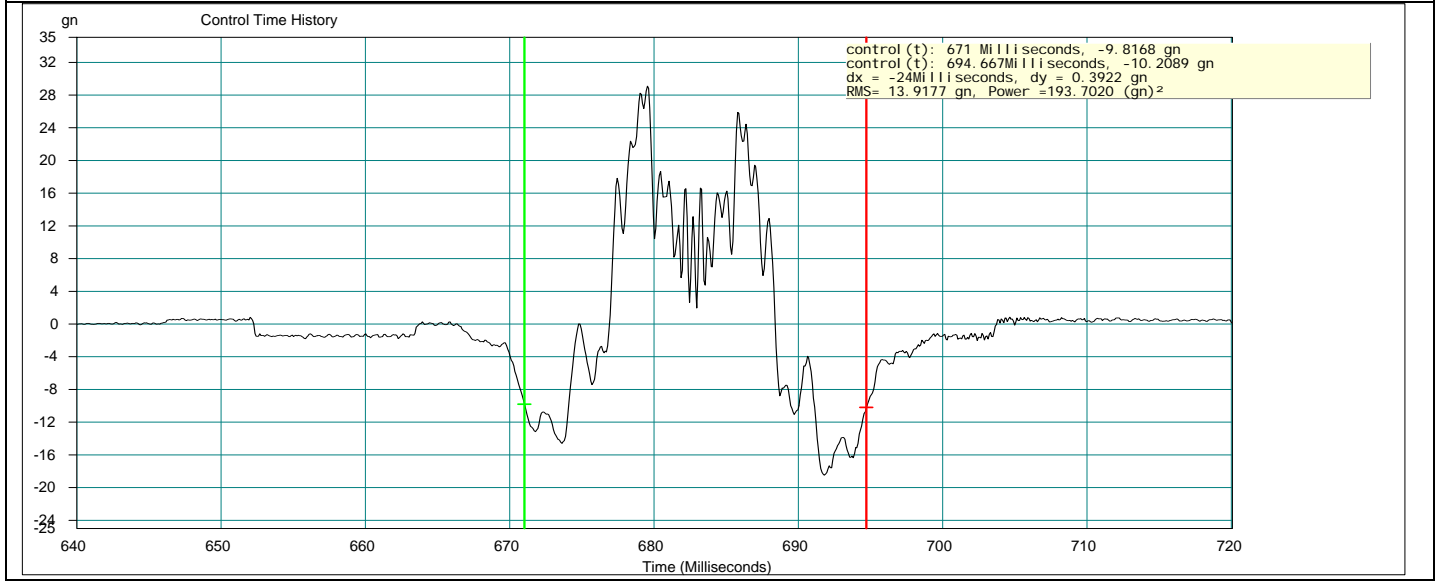
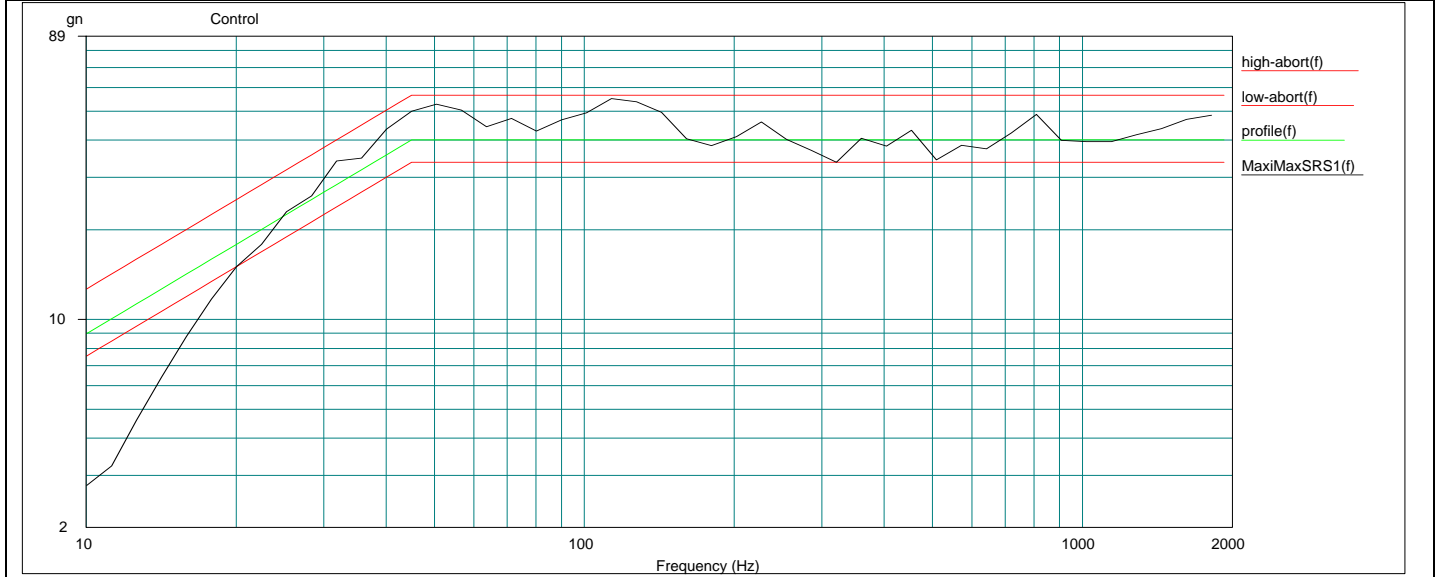
Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS (1 ea.)	Shock #:	3
	P/N:	PG800UPS	Axis:	Longitudinal
	S/N:	marked "#1"	Direction:	Positive
	Date:	25 March 2011	Time:	1640



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS (1 ea.)	Shock #:	4
	P/N:	PG800UPS	Axis:	Longitudinal
	S/N:	marked "#1"	Direction:	Negative
	Date:	25 March 2011	Time:	1648



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS (1 ea.)	Shock #:	5
	P/N:	PG800UPS	Axis:	Transverse
	S/N:	marked "#1"	Direction:	Positive
	Date:	28 March 2011	Time:	0941



Qualtest, Inc. 5325 Old Winter Garden Road Orlando, Florida 32811 Tel. (407) 293-5844 Fax (407) 297-7376	Customer:	AJs Power Source, Inc.	Job #:	07569
	Test Hardware:	UPS (1 ea.)	Shock #:	6
	P/N:	PG800UPS	Axis:	Transverse
	S/N:	marked "#1"	Direction:	Negative
	Date:	28 March 2011	Time:	1402

