



**QUANTA
LABORATORIES**

3199 De La Cruz Boulevard • Santa Clara, CA 95054-2483
TEL: (408) 988-0770 FAX: (408) 988-0762
E-MAIL: test@quantalabs.com

Certificate of Conformance

This is to certify that the results from the test(s) requested by

ALPAHA NOVATECH are on file under

Quanta Laboratories Job No. QL-10-405 and conform

to the specification(s) stated in P.O. No. 20081

These results apply to the following equipment and are available for review upon request.

Model No: HEAT SINK SAMPLE (9 units)

S/N: N/A

***** VIBRATION AND SHOCK TESTS*****

04-16-10

Quanta Laboratories

Date

SINE SWEEP VIBRATION TEST DATA



3199 De La Cruz Blvd, Santa Clara, CA 95054
 Phone: (408) 988-0770 FAX: (408) 988-0762
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CLIENT: ALPHA NOVATECH	P.O. NO: 20100416A00
MODEL: HEAT SINK SAMPLE (9 units)	JOB NO: QL-10-405
SPECIFICATION: ALPHA NOVATECH'S SPEC.	PAGE 1 OF 1

DATE	S/N	AXIS	FREQUENCIES & LEVELS	REMARKS
04/14/2010	N/A	X	5-500-5Hz SINE SWEEP VIB. TEST: 5 Hz @ 0.5 G 10-500 Hz @ 2.0 G Sweep Rate: 1.0 Oct/Min Duration: 13 minutes/Axis	NON-OPERATIONAL TEST THE TEST COMPLETED TO THE SPECIFICATION REQUIREMENT.
		Y		
		Z		

<p>DEFINITION OF AXES</p>	TEST CONDUCTOR: <i>Smolin</i>	DATE: 04/14/2010
	TEST ENGINEER: <i>Wooden</i>	DATE: 04/14/2010
	WITNESS: <i>[Signature]</i>	DATE:
	Q. A. ENGINEER: <i>[Signature]</i>	DATE: 04/14/2010

QUANTA LABS.

QL-10-405

ALPHA NOVATECH

MODEL: HEAT SINK SAMPLES (9 UNITS), QS SERIES SINE VIB.

Project File Name:

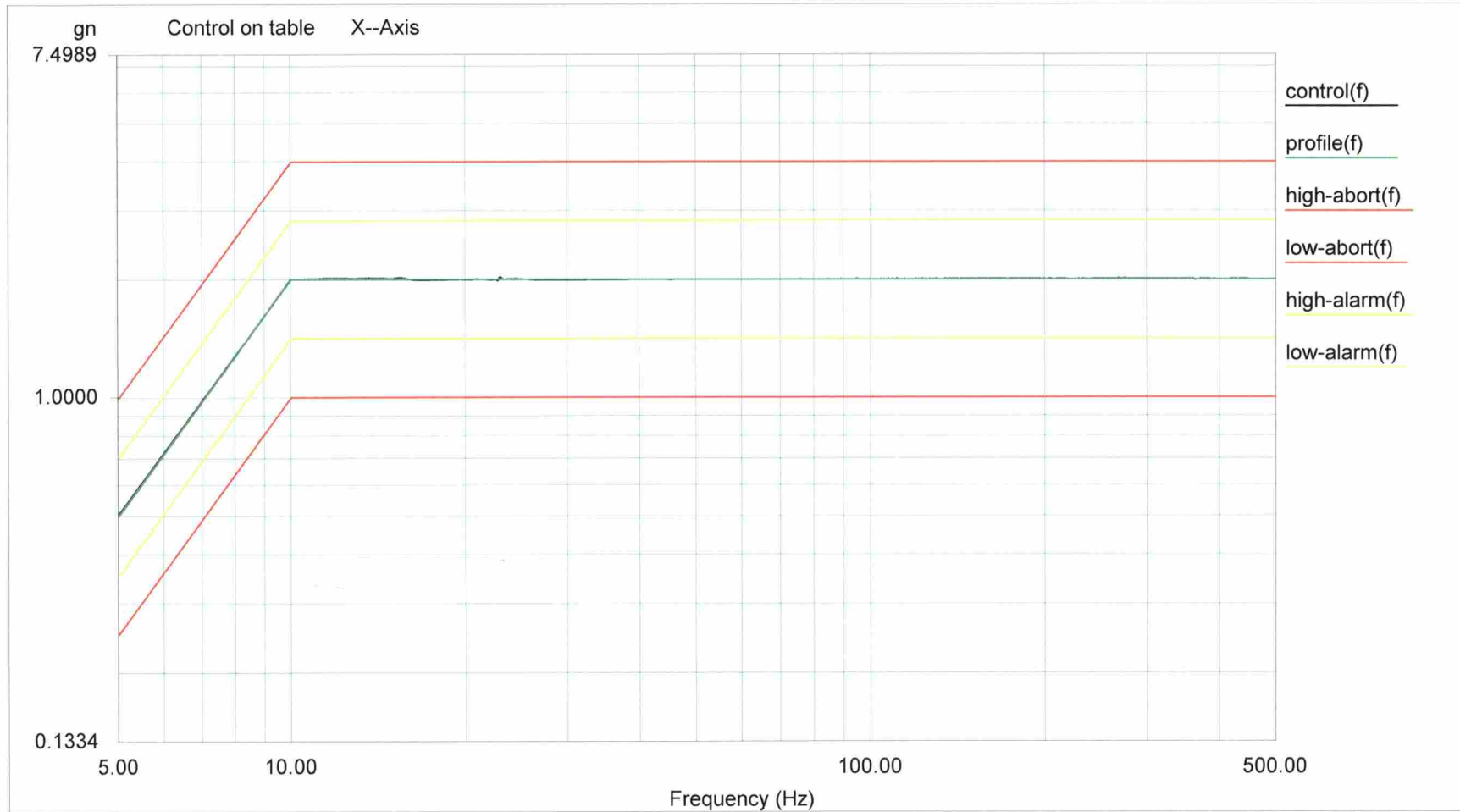
5-500 HZ SINE.prj

Profile Name: 5-500Hz @ 2.0 G

Test Type: Swept Sine

Run Folder:

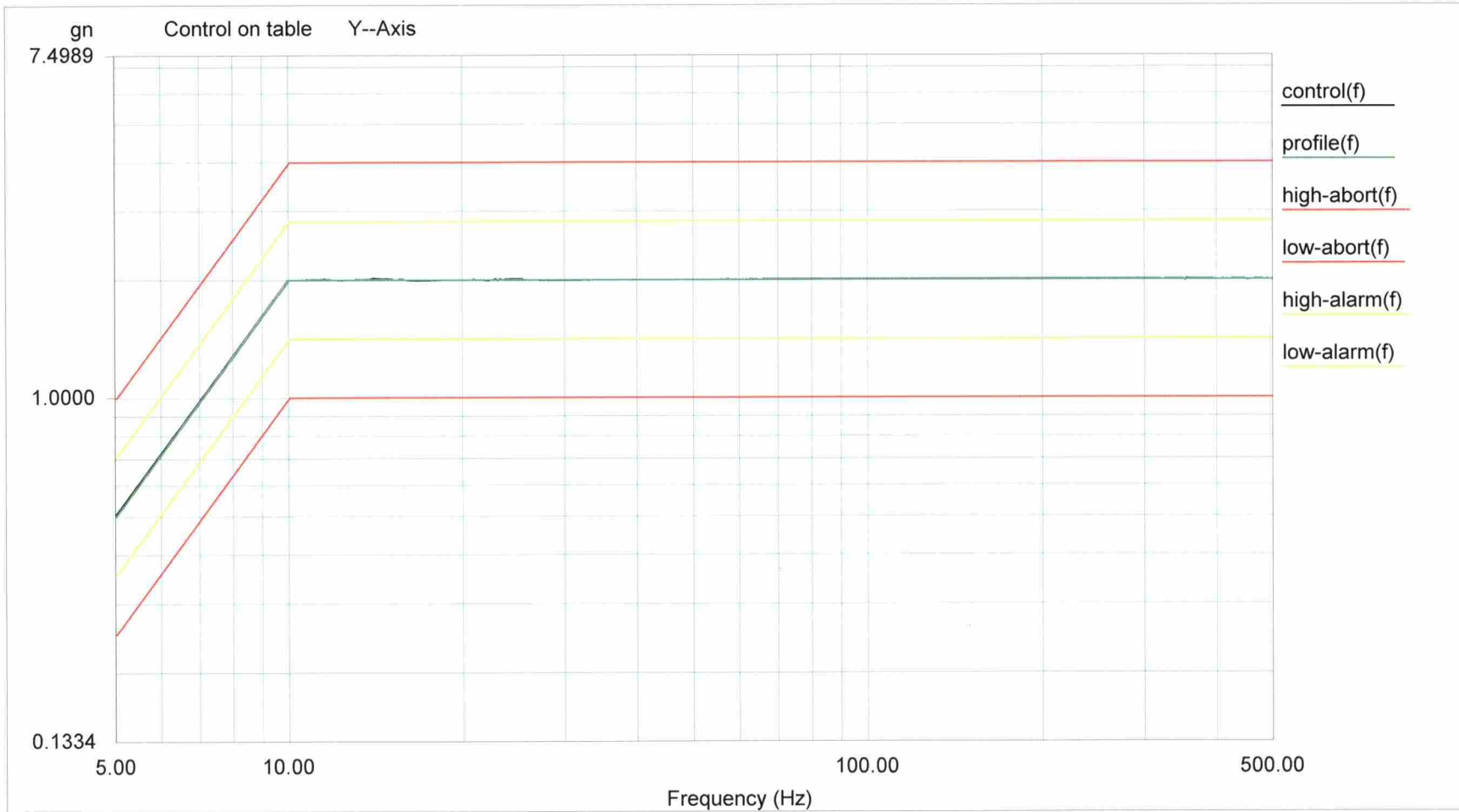
.\\RunDefault Apr 14,2010 10-22-07



Level:	100 %	Control Peak:	0.501921 gn	Full Level Time:	00:13:17	Sweep Type:	Logarithmic
Frequency:	5.000316 Hz	Demand Peak:	0.500000 gn	Time Remaining:	00:00:00	Sweep Rate:	1 Oct/Min

Data saved at 10:35:35 AM, Wednesday, April 14, 2010 Report created at 10:35:36 AM, Wednesday, April 14, 2010

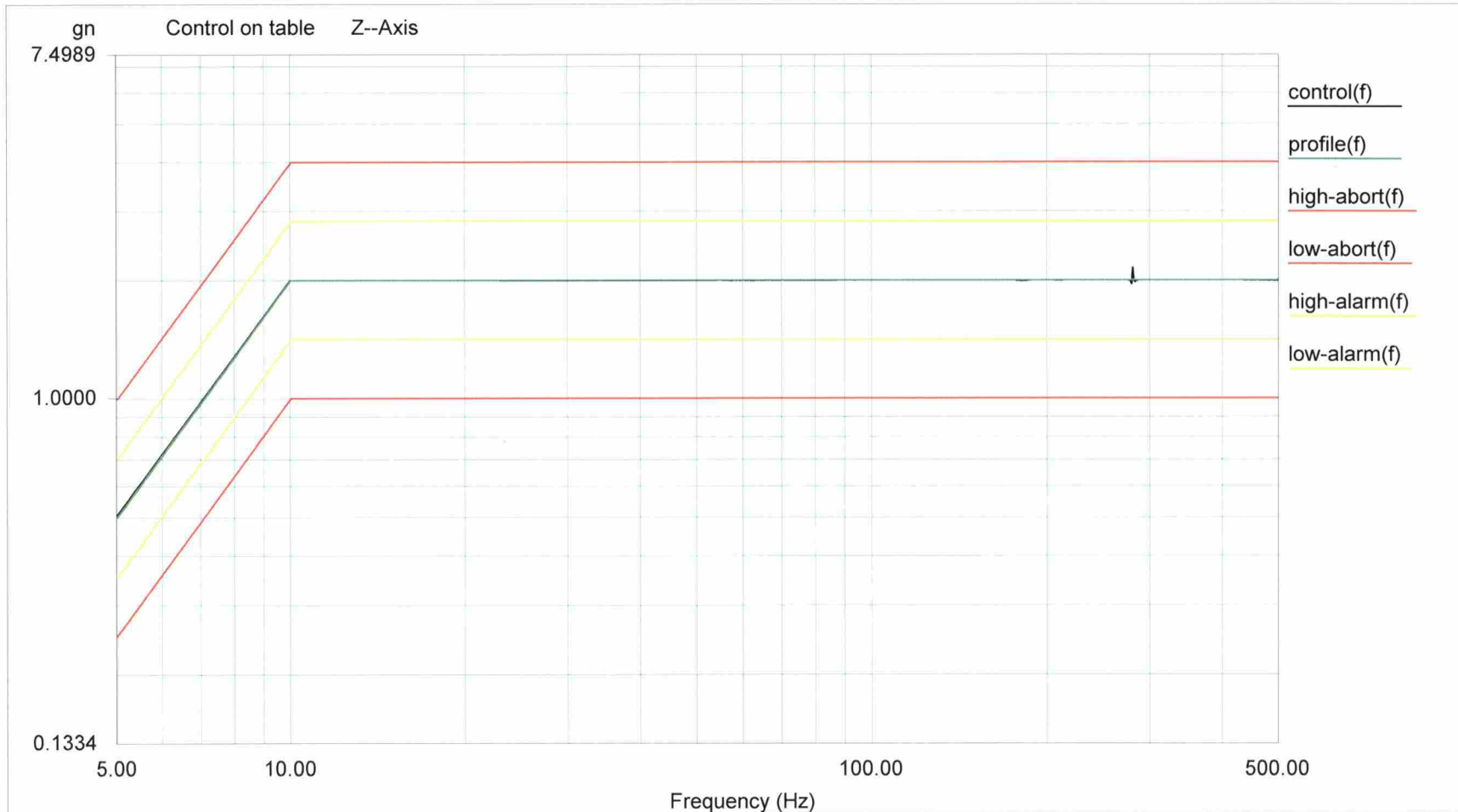
QUANTA LABS. QL-10-405
 ALPHA NOVATECH MODEL: HEAT SINK SAMPLES (9 UNITS), QS SERIES SINE VIB.
 Project File Name: 5-500 HZ SINE.prj
 Profile Name: 5-500Hz @ 2.0 G Test Type: Swept Sine Run Folder: .\RunDefault Apr 14,2010 11-17-23



Level:	100 %	Control Peak:	0.502454 gn	Full Level Time:	00:13:17	Sweep Type:	Logarithmic
Frequency:	5.000316 Hz	Demand Peak:	0.500000 gn	Time Remaining:	00:00:00	Sweep Rate:	1 Oct/Min

Data saved at 11:31:18 AM, Wednesday, April 14, 2010 Report created at 11:31:18 AM, Wednesday, April 14, 2010

QUANTA LABS. QL-10-405
 ALPHA NOVATECH MODEL: HEAT SINK SAMPLES (9 UNITS), QS SERIES SINE VIB.
 Project File Name: 5-500 HZ SINE.prj
 Profile Name: 5-500Hz @ 2.0 G Test Type: Swept Sine Run Folder: .\RunDefault Apr 14,2010 11-41-41



Level:	100 %	Control Peak:	0.503375 gn	Full Level Time:	00:13:17	Sweep Type:	Logarithmic
Frequency:	5.000316 Hz	Demand Peak:	0.500000 gn	Time Remaining:	00:00:00	Sweep Rate:	1 Oct/Min

Data saved at 11:55:10 AM, Wednesday, April 14, 2010 Report created at 11:55:10 AM, Wednesday, April 14, 2010

RANDOM VIBRATION TEST DATA



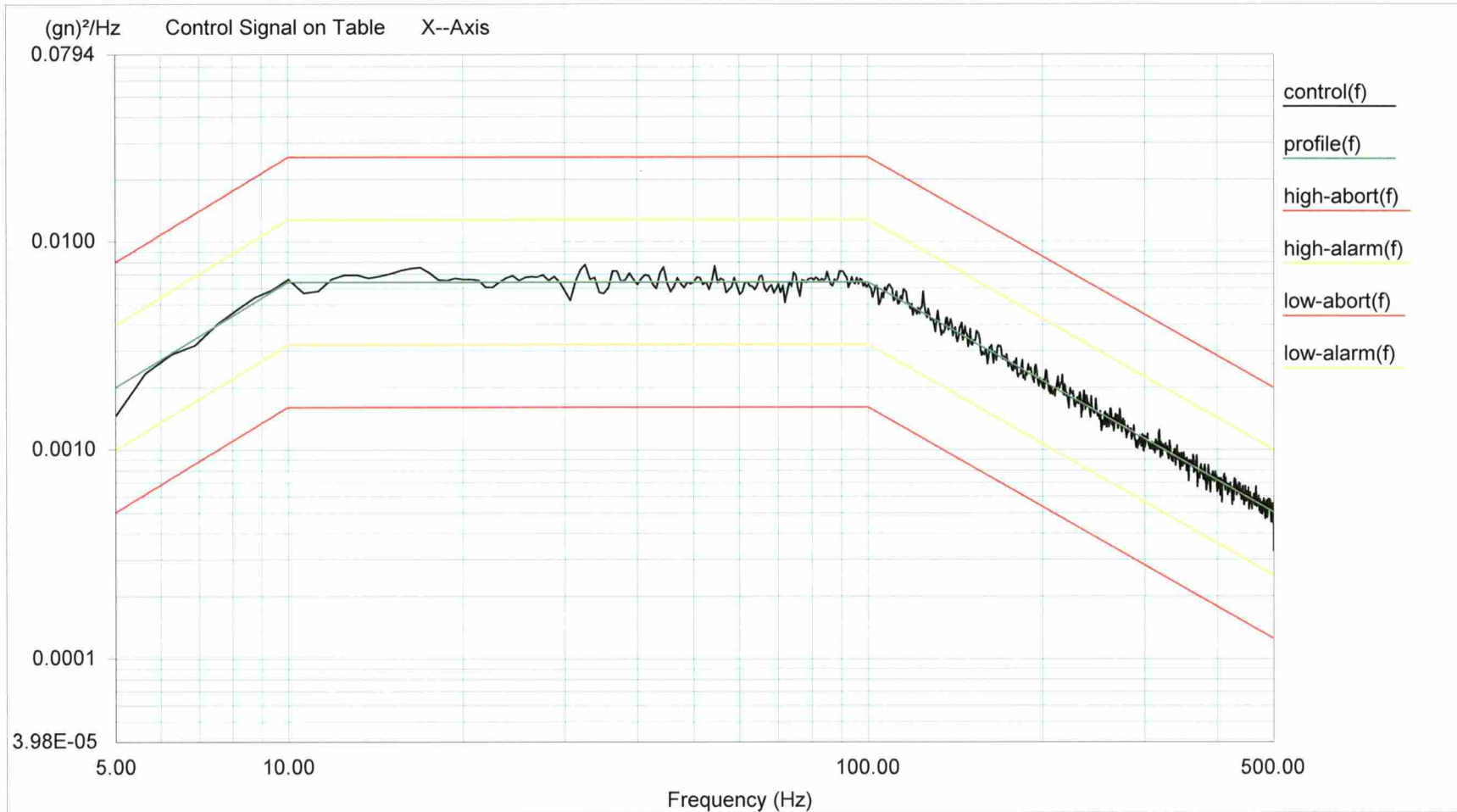
3199 De La Cruz Blvd, Santa Clara, CA 95054
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CLIENT: ALPHA NOVATECH	P.O. NO: 20100416A00
SPECIMEN: HEAT SINK SAMPLE (9 units)	JOB NO: QL-10-405
SPECIFICATION: ALPHA NOVATECH 'S SPEC.	PAGE 1 OF 1

DATE	S/N	AXIS	FREQUENCIES & LEVELS	REMARKS
04-14-2010	N/A	X	5-500 HZ RANDOM VIBRATION TEST: 5 Hz @ 0.002 G ² /Hz 10-100 Hz @ 0.0064 G ² /Hz 500 Hz @ 0.0005 G ² /Hz Overall: 1.12G rms At full level 30 Min. per axis	NON-OPERATIONAL TEST THE TEST COMPLETED TO THE SPECIFICATION REQUIREMENT
		Y		
		Z		

 DEFINITION OF AXES	TEST CONDUCTOR:	DATE: 04/14/2010
	TEST ENGINEER:	DATE: 04/14/2010
	WITNESS:	DATE:
	Q. A. ENGINEER:	DATE: 04/14/2010

QUANTA LABS. QL-10-405
 ALPHA NOVATECH MODEL: HEAT SINK SAMPLES (9 UNITS), QS SERIES RANDOM VIB.
 Project File Name: 5-500 HZ RAN.prj
 Profile Name: 5-500Hz @ 1.12 G rms Test Type: Random Run Folder: .\RunDefault Apr 14,2010 09-46-07



Level: 100 %
 Control RMS: 1.126884 gn Full Level Elapsed Time: 00:30:00 Lines: 800 Frame Time: 1.600000 Seconds
 Demand RMS: 1.124256 gn Remaining Time: 00:00:00 DOF: 154 dF: 0.625000 Hz

Data saved at 10:18:14 AM, Wednesday, April 14, 2010 Report created at 10:18:16 AM, Wednesday, April 14, 2010

QUANTA LABS.

QL-10-405

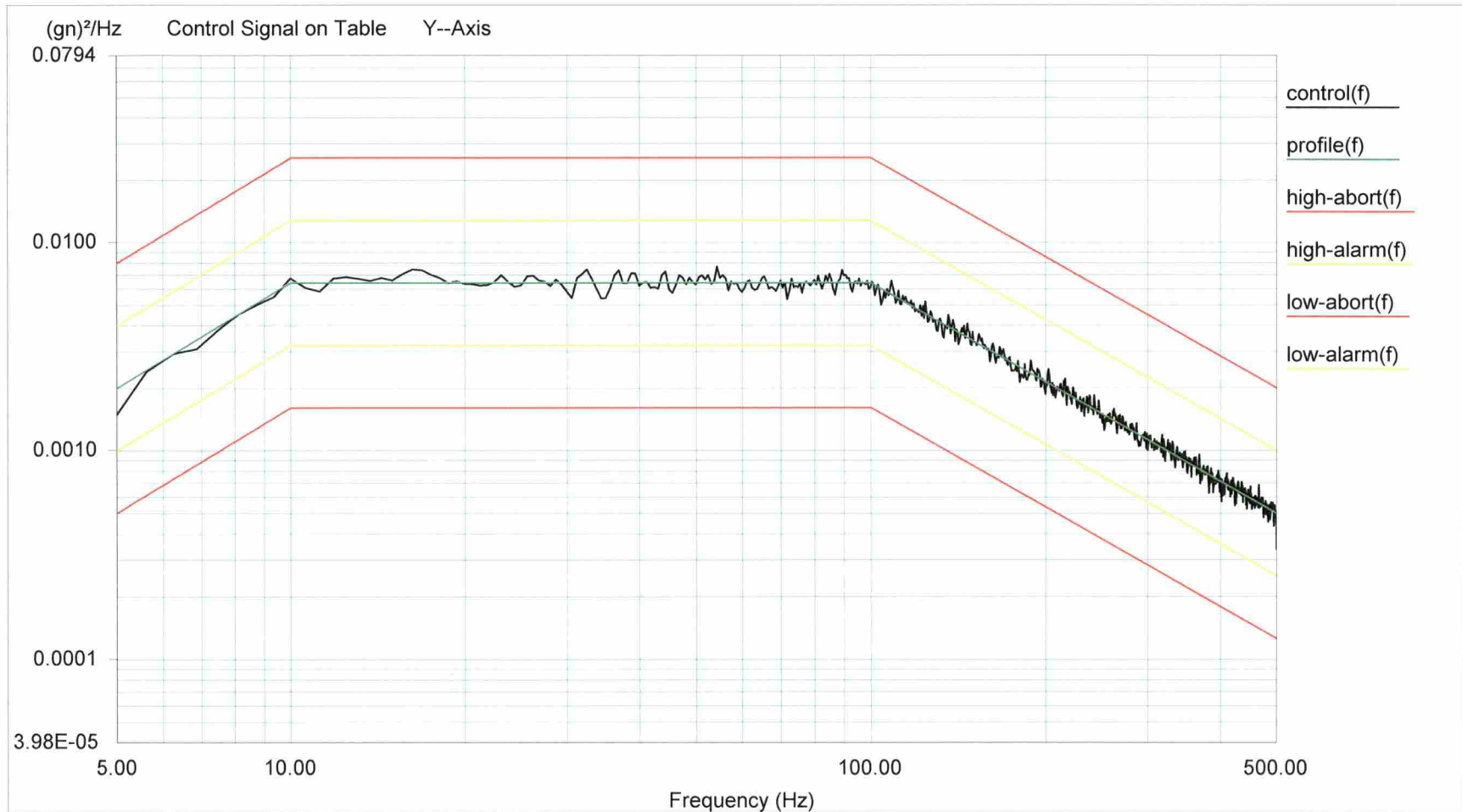
ALPHA NOVATECH MODEL: HEAT SINK SAMPLES (9 UNITS), QS SERIES RANDOM VIB.

Project File Name: 5-500 HZ RAN.prj

Profile Name: 5-500Hz @ 1.12 G rms

Test Type: Random

Run Folder: .\RunDefault Apr 14,2010 10-44-16



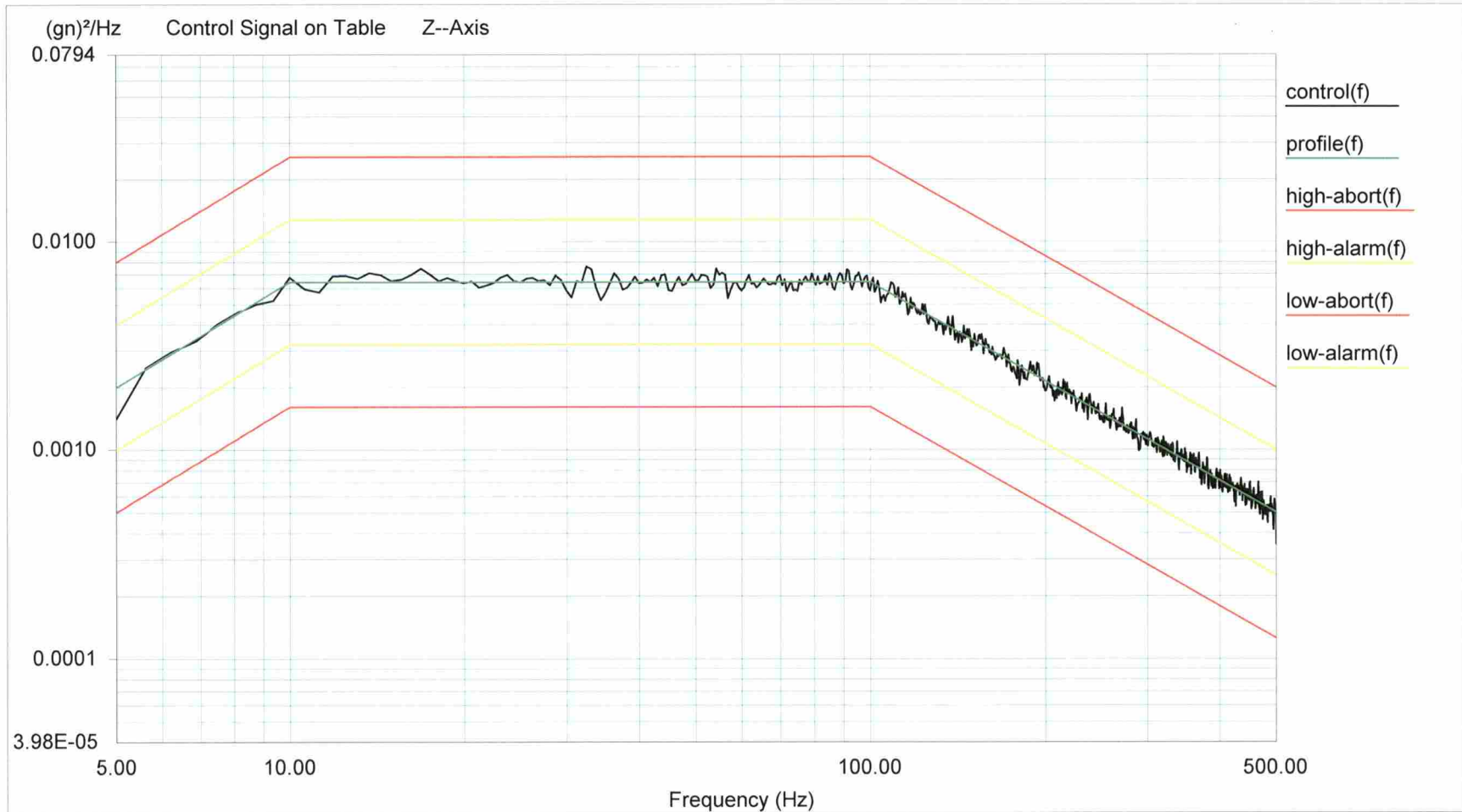
Level: 100 %

Control RMS: 1.124681 gn Full Level Elapsed Time: 00:30:00 Lines: 800 Frame Time: 1.600000 Seconds

Demand RMS: 1.124256 gn Remaining Time: 00:00:00 DOF: 154 dF: 0.625000 Hz

Data saved at 11:16:29 AM, Wednesday, April 14, 2010 Report created at 11:16:29 AM, Wednesday, April 14, 2010

QUANTA LABS. QL-10-405
 ALPHA NOVATECH MODEL: HEAT SINK SAMPLES (9 UNITS), QS SERIES RANDOM VIB.
 Project File Name: 5-500 HZ RAN.prj
 Profile Name: 5-500Hz @ 1.12 G rms Test Type: Random Run Folder: .\RunDefault Apr 14,2010 11-55-34

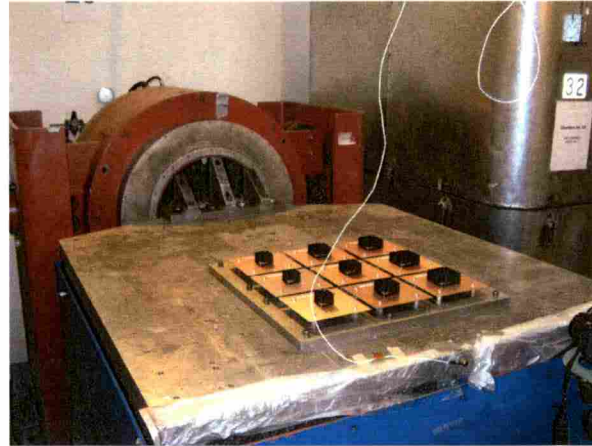


Level: 100 %
 Control RMS: 1.124863 gn Full Level Elapsed Time: 00:30:00 Lines: 800 Frame Time: 1.600000 Seconds
 Demand RMS: 1.124256 gn Remaining Time: 00:00:00 DOF: 154 dF: 0.625000 Hz

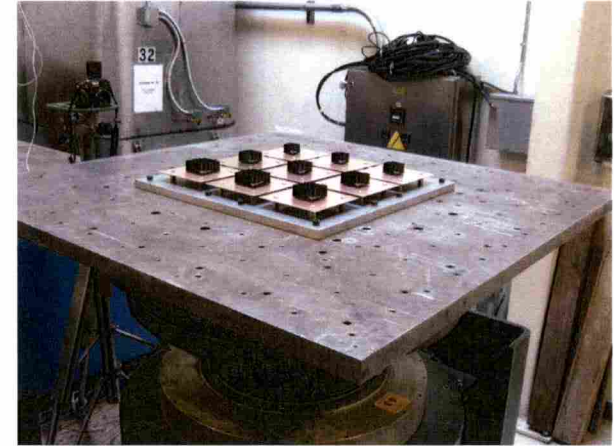
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X



Y



Z

JOB NO.: QL-10-405

04/14/2010

EQUIPMENT LIST FOR VIBRATION TEST



3199 De La Cruz Blvd, Santa Clara, CA 95054
 Phone: (408) 988-0770 FAX: (408) 988-0762
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CLIENT	ALPHA NOVATECH		JOB NO.	QL-10-405		
			P.O. NO.	20100416A00		
MFR	DESCRIPTION	RANGE	EQUIP. USED	ASSET NO.	SERIAL NO.	CALIBRATION DUE DATE
DACTRON	DSP	0.1Hz - 3 KHz RES. 0.1dB		QL-0665	5542452	
				QL-0650	8204911	
			X	QL-0659	6313890	01/04/2011
				QL-0655	7385467	
				SEISMIC QL-0517 QL-0518	8177263 6904178	
LING ELECTRONICS	5/6-1 AMPLIFIER A-175 SHAKER (SILVER)	5Hz - 3 KHz		QL-0016	1672	TIME OF TEST
	5/6-5 AMPLIFIER(AGREE)			QL-0015	67	
	20/35 AMPLIFIER B-300 SHAKER (GREEN)			QL-0511	241	
	35/70 AMPLIFIER			QL-0151	30	
	60/100 AMPLIFIER B335 SHAKER (GOLD)			QL-0013	80	
	DMA-48 SOLID STATE AMPLIFIER			QL-0150	34	
	8024-SOLID STATE AMP #2 B335 SHAKER (BLUE)			QL-0014	22	
	B-300 SHAKER (BLUE)			QL-0135	153	
	B-300 SHAKER (AGREE)			X QL-0504	46	
	B335 SHAKER (RED)			QL-0510	12	
	B335 SHAKER (GREEN)			QL-0509	92	
					QL-0512	
			QL-0216	43		
			X QL-0256	03		
			X QL-0253	91		
MTS	2456 HYDR. SHAKER 406 CONTROL UNIT 436 CONTROL UNIT	1 Hz - 500 Hz 6" MAX DIS		QL-0003	160	
				QL-0006	863	
				QL-0007	3964	
TEAM CORP	SYSTEM 7269 HYDR. SHAKER	13" MAX DIS		QL-0522	533	
DYTRAN	ACCELEROMETER 3141A	F.S. 50 g's SENS. 100 mV/G		QL- 0240		
	ACCELEROMETER 3055A2			QL-0274		
	ACCELEROMETER 3132A		X	QL-0701	457	01/19/2011
	ACCELEROMETER 3030A4	F.S. 500 g's SENS. 10 mV/G		QL-		
	ACCELEROMETER 3141A			QL-		
	ACCELEROMETER 3031AG			QL-		
	ACCELEROMETER 3101B			QL-		
	ACCELEROMETER 3093M3 (TRIAxIAL ACC)	F.S. 200 g's SENS. 50 mV/G		QL-		
ACCELEROMETER	F.S. 200 g's SENS. 50 mV/G		QL-			
ENDEVCO	ACCELEROMETER 7254-10	F.S. 500 g's SENS. 10 mV/G		QL-		
PCB	ACCELEROMETER			QL-		
				QL-		

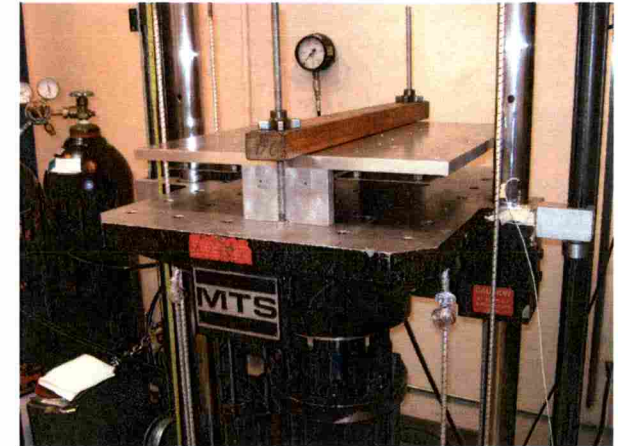
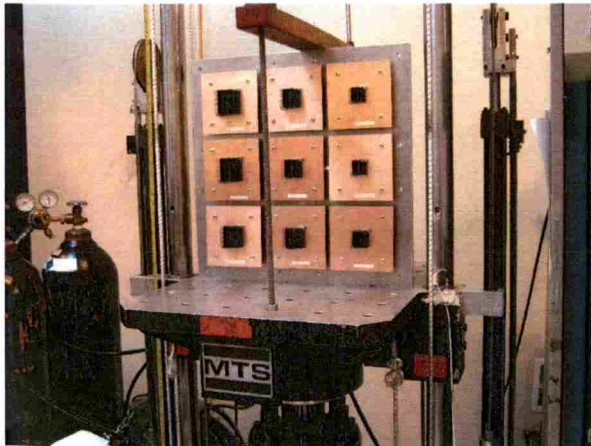
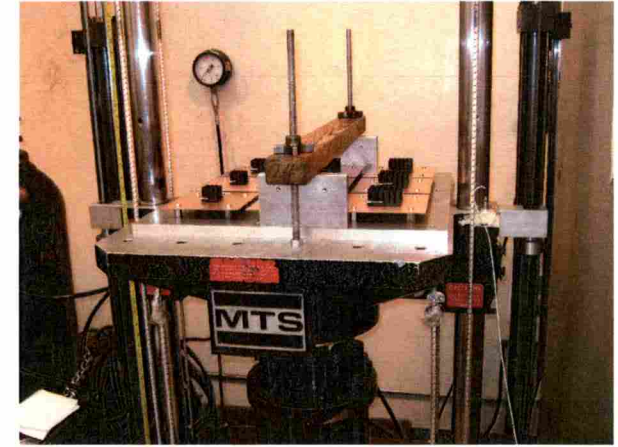
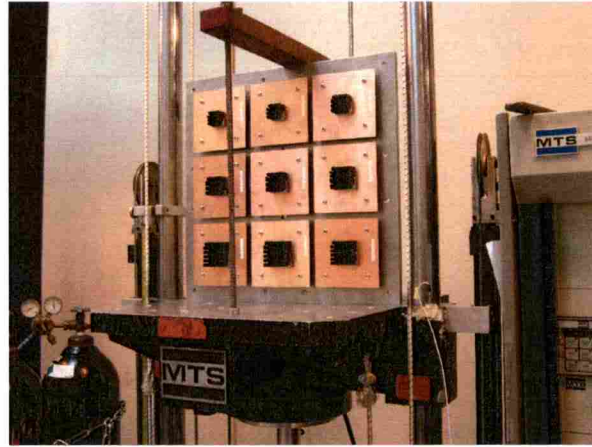
SHOCK TEST DATA



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CLIENT: ALPHA NOVATECH				P.O. NO: 20100416A00		
SPECIMEN: HEAT SINK SAMPLES (9 UNITS)				JOB NO: QL-10-405		
SPECIFICATION:			WAVE FORM: TRAPEZOIDAL		PAGE 1 OF 1	
DATE	S/N	AXIS	LEVEL (G)	DURATION(MS)	NO. OF SHOCKS	REMARKS
04-14-2010	N/A	+X	TRAPEZOIDAL SHOCK TEST: 40G, 18MS. 3 SHOCKS/DIRECTION		3	TEST COMPLETED TO SPECIFICATION REQUIREMENTS.
		- X			3	
		+Y			3	
		- Y			3	
		+Z			3	
		- Z			3	
 DEFINITION OF AXES		TEST CONDUCTOR: <i>Wooden</i>			DATE: 04/14/2010	
		TEST ENGINEER: <i>Sullivan</i>			DATE: 04/14/2010	
		WITNESS: <i>[Signature]</i>			DATE:	
		Q. A. ENGINEER: <i>[Signature]</i>			DATE: 04/14/2010	

ALPHA NOVATECH
NON-OPERATIONAL TRAPEZOIDAL
SHOCK TEST



X

Y

Z

EQUIPMENT LIST FOR SHOCK/DROP TEST



3199 De La Cruz Blvd, Santa Clara, CA 95054
 Phone: (408) 988-0770 FAX: (408) 988-0762
 test@quantalabs.com www.quantalabs.com

CLIENT:	ALPHA NOVATECH			P.O.:	20100416A00	
				JOB NO.	QL-10-405	
MFGR	DESCRIPTION	RANGE	EQUIP. USED	ASSET NO.	SERIAL NO.	CALIBRATION DUE DATE
AVCO	SM105-8 SHOCK TESTER	3000 G MAX		QL-050	1978	
MTS	SHOCK TABLE MODEL # 846.240	70" DROP MAX DV=8 m/sec	X	QL-009		TIME OF TEST
LAB	DROP TESTER MODEL: 2D-500	24" TO 68"		QL-169		
LANSMONT CORPORATION ECON	TEST PARTNER SOFTWARE VER. 2 T-05H	3000 G MAX		QL-0479		
			X	QL-0494		
	3031A ACCELEROMETER	F.S. 500 g's SENS. 10 mV/g		QL-		
	3013A ACCELEROMETER TRI-AXIAL	F.S. 500 g's SENS. 10 mV/g		QL-		
	3151A ACCELEROMETER TRI-AXIAL	F.S. 200 g's SENS. 50 mV/g		QL-		
DYTRAN	3132A ACCELEROMETER	F.S. 50 g's SENS. 100 mV/g		QL-		
	3141A ACCELEROMETER	F.S. 50 g's SENS. 100 mV/g	X	QL-0222	1383	01/18/2011
	3200A5T ACCELEROMETER	F.S. 5000 g's SENS. 1 mV/g		QL-		
	3200B5T ACCELEROMETER	F.S. 500 g's SENS. 10 mV/g		QL-		
				QL-		



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Quanta Laboratories Test Report

Quanta Laboratories submits this report with our Certificate of Conformance to the requirements of the applicable specifications and with appropriate supporting data, but with no other expressed or implied warranty. Customer assumes full responsibility when using or interpreting the data herein for evaluation and/or reporting purposes.

End of Report
QL-10-405
