



**QUANTA
LABORATORIES**

3199 De La Cruz Boulevard • Santa Clara, CA 95054-2483

TEL: (408) 988-0770

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Certificate of Conformance

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

Alpha Novatech

are on file under

Quanta Laboratories Job No. QL-17-0273 and conform

to the specification(s) stated in P.O. No. 20180319A04

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

Model No: QT Series, 4 Pushpin Heat Sink

S/N: 10 pcs (9 boards)

*** Sine Sweep, Random Vibration and Shock Tests ***

*** Alpha Novatech's specification ***



Julius Jeong
Quanta Laboratories

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Quanta Laboratories

3/21/2018
Date

MULTI VIBRATION & SHOCK TEST DATA



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CLIENT: Alpha Novatech	P.O. NO: 20180319A04
SPECIMEN: QT Series 4 Pushpins Heat Sink	JOB NO: QL-18-0273
SPECIFICATION: Client's Specification	PAGE 1 OF 1

DATE	S/N	AXIS	VIBRATION AND SHOCK SEQUENCE	REMARKS
03-16-2018 03-19-2018	10 pcs 9 boards	X	<p><u>Non-Operational Test</u></p> <p>1. Sine Sweep Vibration Test 5-500 Hz 5Hz @0.5g 10-500Hz @ 2g 0.5 Octave/minute</p> <p>1 sweep cycle/Axis (13 min 17 sec)</p>	<p>Multiple Vibration and Shock tests</p> <p>The test completed to the specification requirement</p>
		Y	<p>2. Random Vibration Test</p> <p>5-500Hz 5Hz, @ 0.002g²/Hz 10-100Hz @ 0.0064g²/Hz 500 Hz 0.0005g²/Hz</p> <p>30min/axis Overall: 1.12 Grms</p>	
		Z	<p>3. Trapezoid Shock Test</p> <p>40g/18ms</p> <p>3 Shock/axis Total 18 shocks</p>	<p>DEFINITION OF AXES</p>

TEST ENGINEER: Allen Chen	<i>MM</i>	DATE: 03-19-2018
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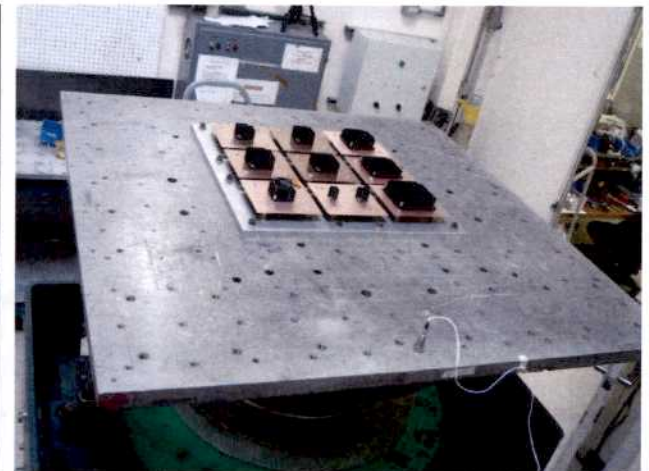
Alpha Novatech
Vibration Test



X-axis



Y-axis



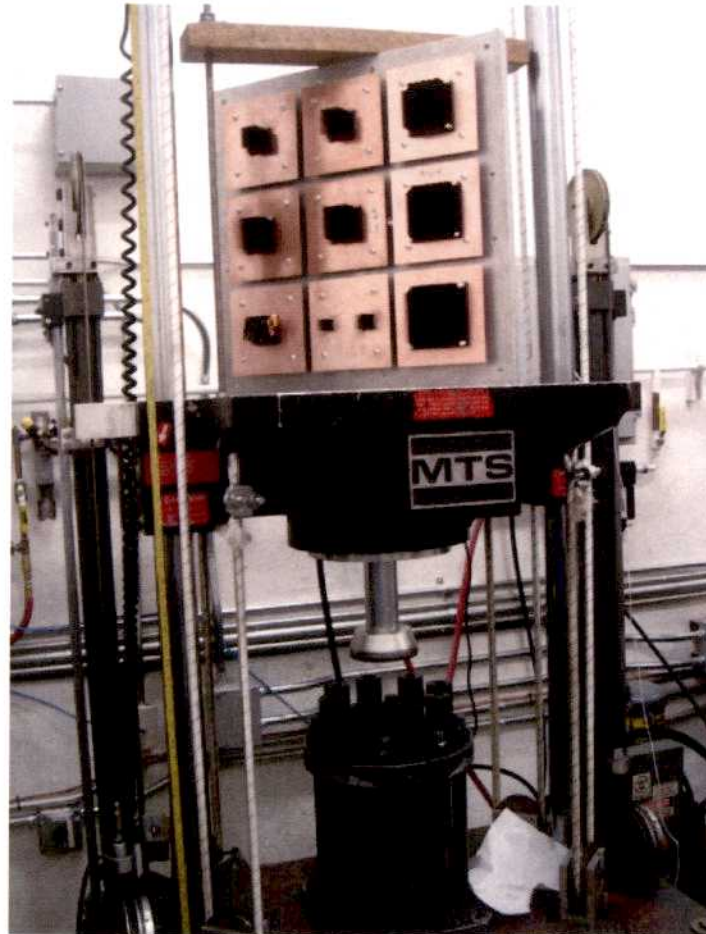
Z-axis

JOB NO. : QL-18-0273

03-19-2017

Alpha Novatech

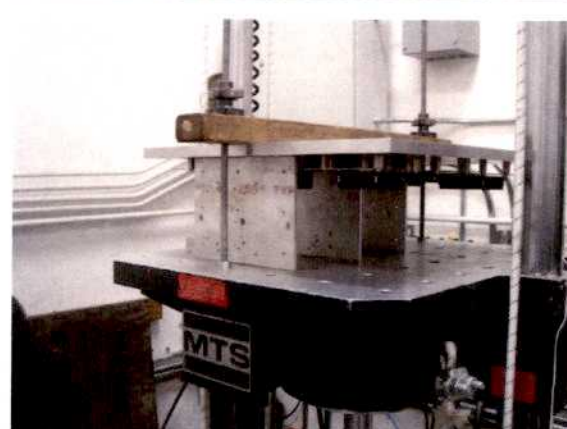
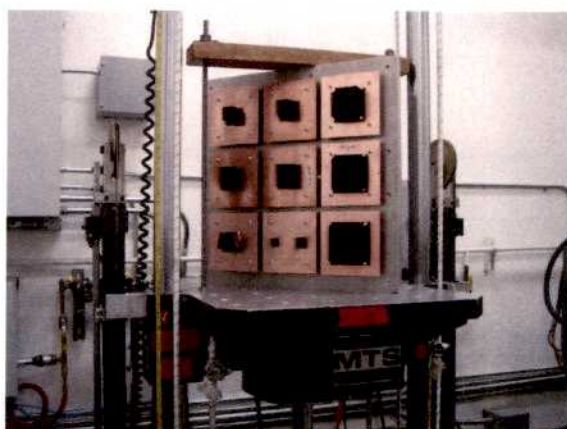
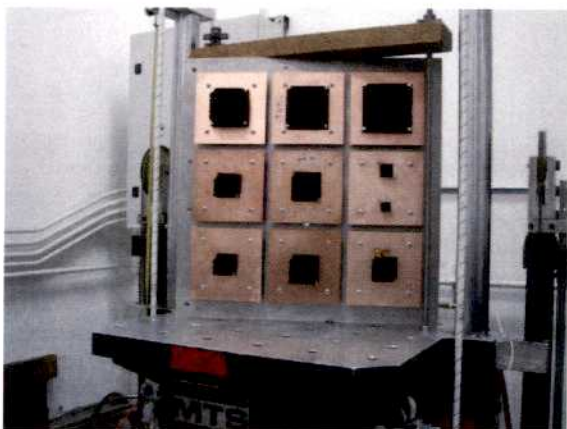
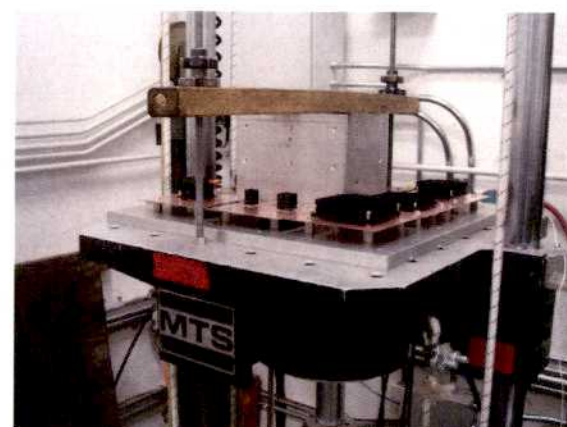
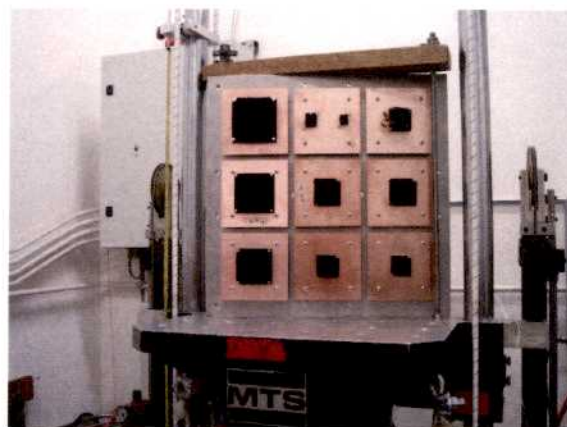
Shock Test



Shock test setup

Alpha Novatech

Shock Test



± X-axis

± Y-axis

± Z-axis (bottom/top down)

JOB NO. : QL-18-0273

03-19-2017

QUANTA LABORATORIES EQUIPMENT LIST



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Client:	Alpha Novatech			P.O. NO:	21080319A04	
				JOB NO.:	QL-18-0273	
DIGITAL SYSTEM LIST						
Device Type	Description	Make & Model	Range	Asset #	Series #	Due Date
Shaker Control System	VC-05	Dactron LDS Laser USB	0.1Hz - 3 KHz RES. 0.1dB	QL-0465	11618909	05/23/2018
Current Source	VC-05	Dytran 4123 8 Inputs		QL-0217	118	04/10/2018
Data Acquisition System	DAS-4	ECON		QL-0332	HW128992257	08/02/2018
MECHANICAL SYSTEM LIST						
Device Type	Description	Make & Model	Range	Asset #	Series #	Due Date
Shaker Amplifier	Red/Green	Ling DMA-48		QL-0504	46	Time of Test
Electrodynamic Shaker	Red/Green	Ling B-335 (Red)	5Hz - 3 KHz	QL-0256	3	Time of Test
Electrodynamic Shaker	Red/Green	Ling B-335 (Green)	5Hz - 3 KHz	QL-0253	91	Time of Test
Shock Machine	MTS Shock Table	MTS 846.24	70" Drop	QL-0009	1077	Time of Test
SENSOR LIST						
Device Type	Description	Make & Model	Range	ASSET #	SERIAL #	DUE DATE
Accelerometers	Single-Axial	DYTRAN 3200B5T	20-2000 Hz 5000 G	QL-0676	6086	05/18/2018
Accelerometers	Single-Axial	DYTRAN 3256A2	5~2000 Hz 50 G	QL-0645	10359	02/04/2019



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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-17-0273
