

**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](mailto:test@quantalabs.com)

## *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-18-0273 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 \*\*\*



*Maris Delos Reyes*  
Quanta Laboratories

*Maris Delos Reyes*  
Quanta Laboratories

04/04/2019  
Date

*REVISION 1*

# MULTI VIBRATION & SHOCK TEST DATA



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. 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 I 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                      1 Octave/minute</p> <p>1 sweep cycle/Axis (13 min 17 sec)</p>	Multiple Vibration and Shock tests  The test completed to the specification requirement
		Y	<p>2. Random Vibration Test</p> <p>5-500Hz                      5Hz, @ 0.002g<sup>2</sup>/Hz                      10-100Hz @ 0.0064g<sup>2</sup>/Hz                      500 Hz 0.0005g<sup>2</sup>/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>	DEFINITION OF AXES

TEST ENGINEER: Allen Chen	<i>mm</i>	DATE: 03-19-2018
---------------------------	-----------	------------------

**Alpha Novatech**  
**Vibration Test**



X-axis



Y-axis

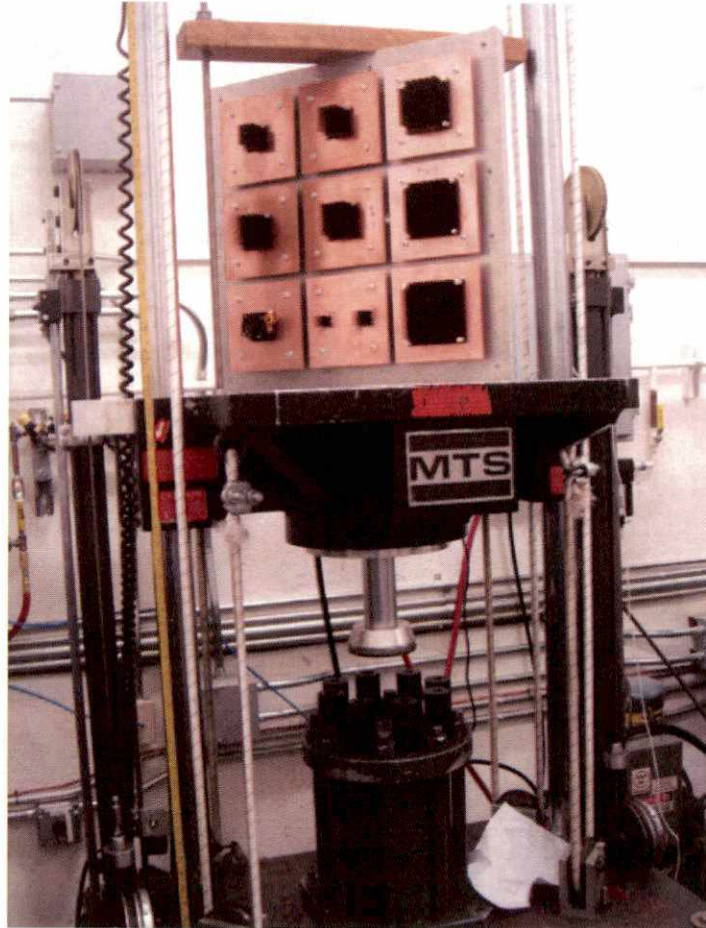


Z-axis

**JOB NO. : QL-18-0273**

**03-19-2018**

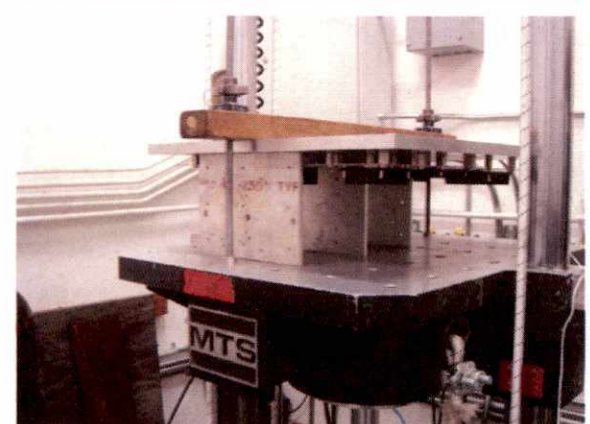
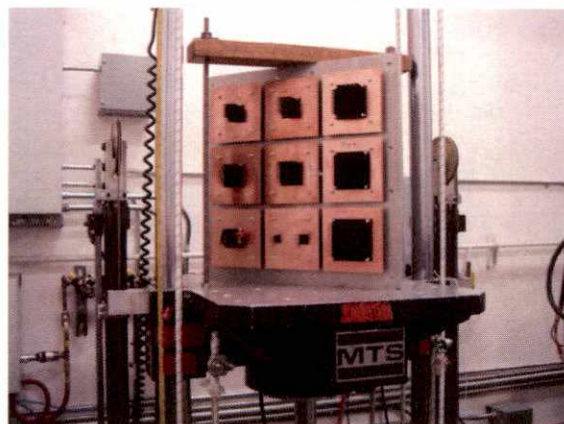
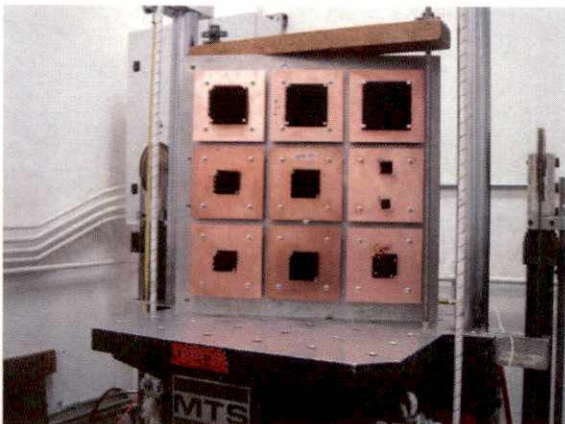
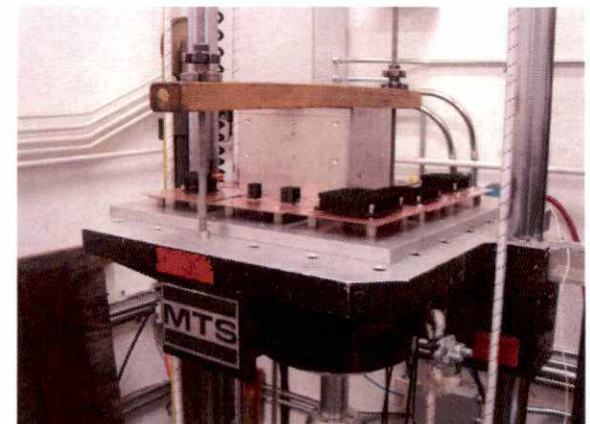
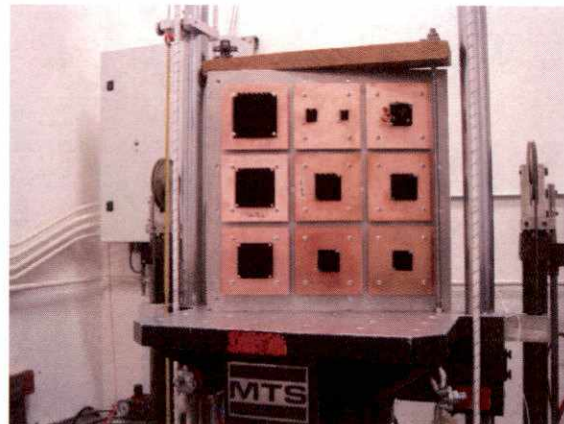
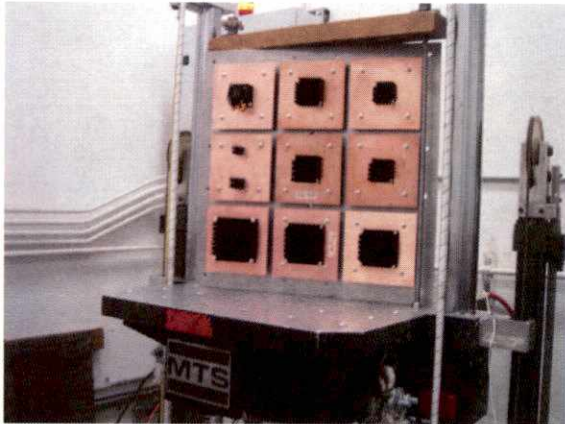
**Alpha Novatech**  
**Shock Test**



Shock test setup

# Alpha Novatech

## Shock Test



± X-axis

± Y-axis

± Z-axis (bottom/top down)

JOB NO. : QL-18-0273

03-19-2018

# QUANTA LABORATORIES EQUIPMENT LIST



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. NO:	20180319A04	
				JOB NO.:	QL-18-0273	
<b>DIGITAL SYSTEM LIST</b>						
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
<b>MECHANICAL SYSTEM LIST</b>						
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
<b>SENSOR LIST</b>						
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



**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](mailto:test@quantalabs.com)

## *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-18-0273

---

# REPORT REVISION HISTORY



**QUANTA**  
LABORATORIES

3199 DE LA CRUZ BOULEVARD • SANTA CLARA, CA 95054-2483 • (408) 988-0770 • FAX (408) 988-0762

## 1.0 REPORT REVISION HISTORY

REV. NO.	DATE	REVISED BY	DESCRIPTION OF REVISION	APRVD. INITIAL
0	3/21/08	MM	Initial Revision	MM
1	4/4/09	MM	Updated job Number to Oct/min	MM
2				
3				
4				
5				