SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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MECHANICAL

Valid To: April 30, 2019 Certificate Number: 1762.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory for the following tests on aerospace, defense, automotive, battery, and any other parts/items using the test methods listed below:

Test Description/Test Capabilities[1]	Test Method(s)
Acceleration Testing[1] Up to 75g constant acceleration Connections during test: electrical / pressure Chamber size: 12' tall x 15.8' x 12.5' 36" radius wing	MIL-STD-202G (Method 212); MIL-STD-810A-G (Method 513 Centrifuge); RTCA/DO/160D-F
Altitude Testing[1] 2.92 inches Hg Connections during test: electrical / pressure (Can be conducted in conjunction with Temperature Testing)	MIL-STD-202G (Method 105); MIL-STD-810A-G (Method 520 w/o Vibration at Altitude); RTCA/DO/160D-F (Section 4); ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T1
Charge / Discharge Testing[1] Battery Forced Discharge Testing Battery Overcharge Test AC Current Measure: (0.01 to 12,000) amps DC Current Measure:(0.01 to 12,000) amps Resistance Measure (Including Insulation)[1]: (100 μΩ to 11 GΩ) Voltage Measure: (0.0001 to 1000) VDC, (0.0001 to 1000) VAC	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T7; United Nations 3090/3091 T8; UL 1642, UL 2054; SAE J2464 (Section 4.4.3); MIL-STD-202 Notice 1 (Methods 302 and 303A)

Test Description/Test Capabilities[1]	**Test Method(s)**
Force Deflection (Tensile / Compression) [1] Cylinder Stroke: 12 inches Compression Load: 100,000 lbs Tension Load: 100,000 lbs	SANDI 2005-3123
Humidity Testing[1] Temperature and Humidity Range: (10% RH @ 40C to +85C; 95% RH @ 5 C to 55 C Chamber Size (max): 3x3x3 Feet	MIL-STD-202G (Methods 103 and 106); MIL-STD-810A-G (Method 507); RTCA/DO/160D-F
Impact	United Nations 3090/3091 T6; ST/SG/ac.10/27/Add.2; UL 1642, UL 2054
Load Fatigue Testing/ Crush Testing[1] Up to 100,000 lbs Variable Platens	GMN 4634P; SAE J2464 (Section 4.2.6)
Manual Chemical Application Label Permanence	UL 2271
Mass Measure[1] (0 to 500) lbs	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T1, T2, T3, T4
Shock Testing[1]	
Mechanical Shock Up to 3500g Peak Minimum Duration: 0.5 Milliseconds	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T4; IST A-1A2001; MIL-STD-202D-G (Method 213); MIL-STD-810 A-G (Method 516); RTCA/DO/160D-F (Section 7)
Pyrotechnic (Pyro) Shock Up to 10,000 g Frequency: (20 to 10000) Hz	MIL-STD-202G (Method 213); MIL-STD-810 A-G (Procedure VII)
Short Circuit Testing[1] Down to 0.001 circuit resistance	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T5; UL 1642; UL 2054; SAE J2464 (Sections 4.4.1 and 4.4.2)

Test Description/Test Capabilities[1]	**Test Method(s)**
Temperature Testing[1]	
Temperature Measurement Capabilities (-190 to +1350) °C	UL 1642, UL 2054
Temperature Testing[1] Temperature Range: (-70 to +250) °C Ramp Rate: 10°C /minute	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T2; MIL-STD-202G (Method 108 up to +177°C); MIL-STD-810 A-G (Methods 501 and 503); NAVMAT-P-9492; RTCA/DO/160D-F (Section 4 & 5); SAE J2464 (Section 4.3.2)
Thermal Cycling (Thermal Shock) [1] Temperature Range: (-70 to +250)°C Chamber Size (max): 16"x16"x16"	MIL-STD-202G (Method 107); MIL-STD-810 A-G (Method 503); NAVMAT-P-9492; RTCA/DO/160D-F
Vibration[1]	
Random Vibration Up to 45 Grms Frequency: (5 to 4000) Hz Peak-Peak: 1 Inch	IST A-1A2001; MIL-STD-202G (Method 214), MIL-STD-810 A-G (Method 514); NAVMAT-P-9492; RTCA/DO/160D-F
Sine Vibration Up to 90g Frequency: (5 to 4000) Hz Peak-Peak: 1 Inch	MIL-STD-202G (Method 201, 204, 214), MIL-STD-810 A-G (Method 514); NAVMAT-P-9492; ST/SG/ac.10/27/Add.2 (Section 38.3.4.2); United Nations 3090/3091 T3; RTCA/DO/160D-F
Sine on Random Vibration Up to 45 Grms Frequency: (5 to 2000) Hz Peak-Peak: 1 Inch	MIL-STD-202G (Methods 201, 204, 214), MIL-STD-810 A-G (Method 514); NAVMAT-P-9492; RTCA/DO/160D-F
Random on Random Vibration Up to 45 Grms Frequency: (5 to 2000) Hz Peak to Peak: 1 Inch	MIL-STD-810 A-G (Method 514.4 Procedure I, Category 8)

Test Descriptions/Test Capabilities[1]	**Test Method(s)**
Vibration Random and Sine with Combined Environment: -40C to 120C	
Multiple Axis Vibration Testing (6 DOF MAST) [1] 6 Inch Displacement on all Cylinders (Up to 5) g's: (Up to 50) Hz	MIL-STD-810G (Method 514.6 Procedure II)
Waterproofness	
Drip Test	MIL-STD-810 A-G (Method 506.4)
Water Spray	MIL-STD-810 A-G (Method 506.4); SAE J1455
Immersion	MIL-STD-810 A-G (Method 512.4); KMVSS 48 (Section 48.6.2)
Drop Test	MIL-STD-810 A-G (Method 516.5)
Nail Penetration[1] Speed up to 3.25-in/sec Variable Nail Diameter	SAE J2464 (Section 4.2.3)
Dielectric Testing[1] Up to 5,000 VAC	MIL-STD-202 (Method 301)
Roll Over Simulation Testing	SAND2005-3123 (Section 3.5)
Projectile Testing	UL 1642

[1] This laboratory also uses customer supplied specifications and/or methods directly related to the types of tests and within the parameters listed above.

Accredited Laboratory

A2LA has accredited

MGA RESEARCH CORPORATION

Akron, NY

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 21st day of August 2017.

President and CEO
For the Accreditation Council
Certificate Number 1762.01
Valid to April 30, 2019

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.