



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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MECHANICAL

Valid To: April 30, 2013

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 as well as other industry accepted or customer specified methods within the parameters listed below:

<u>Test Description</u>	<u>Test Method</u>
<u>Acceleration Testing</u> Up to 75g constant acceleration Connections during test: electrical/pressure Chamber size: 12' x 10' x 8' 36 inch wing	MIL-STD-202G (Method 212), MIL-STD-810A-G (Method 513 Centrifuge); RTCA/DO/160D-F
<u>Altitude Testing</u> 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
<u>Charge / Discharge Testing</u> <u>Battery Forced Discharge Testing</u> <u>Battery Overcharge Test</u> <u>AC Current Measure</u> (0.01 to 3000) amps <u>DC Current Measure</u> (0.01 to 3000) amps	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)

<u>Test Description</u>	<u>Test Method</u>
<u>Charge / Discharge Testing (Cont...)</u> <u>Resistance measure</u> 100 $\mu\Omega$ to 100 M Ω <u>Voltage measure</u> (0.0001 to 1000) VDC (0.0001 to 1000) VAC	
<u>Short Circuit Testing</u> Down to 0.001 circuit resistance	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T5; UL 1642,UL 2054; SAE J2464 (Section 4.4.1 and 4.4.2)
<u>Force Deflection (Tensile / Compression)</u> Cylinder Stroke: 12 inches Compression Load: 100,000 lbs Tension Load: 100,000 lbs	SANDI 2005-3123
<u>Humidity Testing</u> Humidity Range: (10 to 95) % RH Temperature Range: (+4 to 93) °C Chamber Size (max): 3x3x3 Feet	MIL-STD-202G (Method 103, 106), MIL-STD-810A-G (Method 507); RTCA/DO/160D-F
<u>Mass Measure</u> (0 to 500) lbs	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T1, T2, T3, T4
<u>Pressure Testing</u> Static / Cyclic (0-10,000) PSI Pneumatic, Hydraulic, Stoddard Solvent, etc. *Can be conducted in conjunction with Vibration and Temperature Testing	RTCA/DO/160D-F
<u>Salt Fog (Corrosion)</u> Chamber size (max): 2x3x4 Feet Modified Gas	ASTM B117, ASTM B685, ASTM G85 Annex A4; IEC 60529; JIS-D-0203, S2; MIL-STD-202D (Method 101), MIL-STD-810A-G (Method 509); RTCA/DO/160D-F



<u>Test Description</u>	<u>Test Method</u>
<u>Shock Testing</u> <u>Mechanical Shock</u> Up to 3500g Peak Minimum Duration: 0.5 Milliseconds <u>Pyrotechnic (Pyro) Shock</u> Up to 10,000 g Frequency: (20 to 10000) Hz	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) MIL-STD-202G (Method 213), MIL-STD-810 A-G (Procedure VII)
<u>Impact</u>	United Nations 3090/3091 T6; ST/SG/ac.10/27/Add.2; UL 1642, UL 2054
<u>Temperature Testing</u> <u>Temperature Measurement Capabilities</u> (-190 to +1350) °C <u>Temperature Testing</u> Temperature Range: (-70 to +250) °C Ramp Rate: 10°C /minute Remote chamber available *Can be conducted in addition to Vacuum Testing, Vibration Testing <u>Thermal Cycling (Thermal Shock)</u> Temperature Range: (-70 to +250)°C Chamber Size (max): 16"x16"x16"	UL 1642, UL 2054 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 (Method 501, 503); NAVMAT-P-9492; RTCA/DO/160D-F (Section 4 & 5); SAE J2464 (Section 4.3.2) MIL-STD-202G (Method 107), MIL-STD-810 A-G (Method 503); NAVMAT-P-9492; RTCA/DO/160D-F



<u>Test Description</u>	<u>Test Method</u>
<u>Vibration</u> *Can be conducted in conjunction with Temperature Testing <u>Random Vibration</u> Up to 45 Grms Frequency: (5 to 4000) Hz Peak-Peak: 1 Inch <u>Sine Vibration</u> Up to 90g Frequency: (5 to 4000) Hz Peak-Peak: 1 Inch <u>Sine on Random Vibration</u> Up to 45 Grms Frequency: (5 to 2000) Hz Peak-Peak: 1 Inch <u>Random on Random Vibration</u> Up to 45 Grms Frequency: (5 to 2000) Hz Peak to 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 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 MIL-STD-202G (Method 201, 204, 214), MIL-STD-810 A-G (Method 514); NAVMAT-P-9492; RTCA/DO/160D-F MIL-STD-810 A-G (Method 514.4 Procedure I, Category 8)
<u>Waterproof Ness</u> <u>Blowing Rain</u> <u>Water Spray</u> <u>Immersion</u> Depth up to 500 Feet	MIL-STD-810 A-G (Method 506.4) MIL-STD-810 A-G (Method 506.4); SAE J1455 MIL-STD-810 A-G (Method 512.4)
<u>Drop Test</u>	MIL-STD-810 A-G (Method 516.5)



<u>Test Description</u>	<u>Test Method</u>
<u>Vacuum Testing</u> 1 ⁻⁵ Torr Connections during test: Electrical / Pressure *Can be conducted in conjunction with Temperature Testing	ST/SG/ac.10/27/Add.2; United Nations 3090/3091 T1
<u>Crush Testing</u> Up to 100,000 lbs Variable Platens	SAE J2464 (Section 4.2.6)
<u>Nail Penetration</u> Speed up to 3.25-in/sec Variable Nail Diameter	SAE J2464 (Section 4.2.3)
<u>Ballistics Resistance Testing</u>	NIJ 0101.06; MIL-STD-662F

Peter Abney



The American Association for Laboratory Accreditation

World Class Accreditation

Accredited Laboratory

A2LA has accredited

MGA RESEARCH CORPORATION TECHNICAL SERVICES LABORATORY

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 2nd day of May 2011.





President & CEO
For the Accreditation Council
Certificate Number 1762.01
Valid to April 30, 2013

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