



THE AMERICAN ASSOCIATION FOR  
LABORATORY ACCREDITATION

## ACCREDITED LABORATORY

A2LA has accredited

**ENVIRON LABORATORIES LLC**

**Minneapolis, MN**

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 18 June 2005*).



Presented this 17<sup>th</sup> day of July 2007.

A handwritten signature in black ink, appearing to read "Peter Abney".

President  
For the Accreditation Council  
Certificate Number 1719.01  
Valid to August 31, 2009

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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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MECHANICAL

Valid to: August 31, 2009

Certificate Number: 1719.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory for the following environmental simulation and mechanical tests:

Tests	Test Methods
Explosion	MIL-STD-810 E, Method 511.3; MIL-STD-810 F, Method 511.4; RTCA/DO-160 D/E Section 9
Earthquake / Seismic Frequency (1 to 500) Hz Velocity 40 Inches per Second Displacement 10.5 Inches	GR-63-CORE, Para. 5.4.1
Firearms Resistance	GR-487-CORE, Para. 3.32
Fire Test	DOT/FAA AC 20-135; ISO 2685; RTCA/DO-160 E, Section 26; SAE AS4273; SAE AS1055; SAE AIR1377A
Flammability	UL 94, Para. 7, 8, 9
Fire Resistance	GR-13-CORE, Para. 3.21; GR-487-CORE, Para. 3.33
NEBS Fire Spread	ANSI T1-319; GR-63-CORE, Para. 5.2.3
Fungus	ASTM D3273, G21, C1338 GR-13-CORE, Para. R3-17; GR-487-CORE, Para. 3.5, R3-21; MIL-STD-810 E Method 508.4; MIL-STD-810 F Method 508.5;

Tests	Test Methods
	RTCA/DO-160 D/E, Section 13; SAE J1455, Para. 4.6
Hosedown; Water Resistance; Waterproofness; Enclosure Protection	IEC 60529, IPX3, Section 14.2.3; IEC 60529, IPX4, Section 14.2.4; IEC 60529, IPX5, Section 14.2.5; IEC 60529, IPX6, Section 14.2.6; NEMA 250, Para. 5.7; RTCA/DO-160 D/E, Section 10; UL 50, Para. 35
Humidity Up to 98% with Temperatures (40 to 200) °F	GR-487-CORE, Para. 3.34.2; GR-63-CORE, Para. 5.1.1.3; MIL-STD- 810 F, Method 507.4; MIL-STD-810 E, Method 507.3; RTCA/DO-160 D/E, Section 6; SAE J1455, Para. 4.2 IEC 60945 Section 8.3 Damp Heat IEC 60068-2-3, IEC 60068-2-28, IEC 60068-2-30, IEC 60068-2-38, IEC 60068-2-56, IEC 60068-2-61, IEC 60068-2-78
Airborne Contaminants/ Hygroscopic Dust	GR-1274-CORE; GR-63-CORE, Para. 5.5.3
Impact Resistance	ASTM D2794; GR-487-CORE, Para. 3.6.4; GR-487-CORE, Para. 3.31
Salt Spray & Corrosion Resistance 8'H x 8'W x 12'L	ASTM B117, ASTM G85.A5; GR-487-CORE, Para. 3.34.1; MIL-STD-810 E, Method 509.3; MIL-STD-810 F, Method 509.4; NEMA 250, Para. 5.8 & 5.9; RTCA/DO-160 D/E, Section 14; SAE J1455, Para. 4.3; UL 50, Para. 38 IEC 60068-2-11

Tests	Test Methods
Cyclic Corrosion Testing	CCT-1; CCT-4; GM9540P, IEC Section 8.12 Corrosion/Salt Mist; IEC 60068-2-52
Rain; Blowing Rain; Wind Driven Rain  Velocities to 90 Miles per Hour Rainfall Rates to 6 Inches per Hour	GR-487-CORE, Para. 3.28.1; GR-487-CORE, Para. 3.28.2; MIL-STD-810 E, Method 506.3, Procedure I & III; MIL-STD-810 F, Method 506.4, Procedure I & II; NEMA 250, Para. 5.4; UL 497, Para. 34; UL 50, Para. 30
Temperature Exposure, High or Low, Thermal Shock (-100 to +2,000) °F	GR-487-CORE, Para. 3.26, R3.187; GR-487-CORE, Para. 3.27 & R3.191; GR-63-CORE, Para. 5.1.1.1; GR-63-CORE, Para. 5.1.1.2; GR-63-CORE, Para. 5.1.2; MIL-STD-810 E, Method 501.3 & 502.3; MIL-STD-810 F, Method 501.4 & 502.4; NEMA 250, Para. 5.14; RTCA/DO-160 D/E, Section 4; RTCA/DO-160 D/E, Section 5; SAE J1455, Para. 4.1.3.1 IEC 60945 Sections 8.2 Dry Heat, 8.4 Low Temp., 8.5 Thermal Shock; IEC 60068-2-1, IEC 60068-2-5, IEC 60068-2-14, IEC 60068-2-33, IEC 60068-2-48, IEC 60068-2-61, IEC 60068-2-53, IEC 60068-2-51, IEC 60068-2-50
Temperature Shock (-150 to +350) °F	SAE J1455 Para. 4.1.3.2
Ultraviolet Resistance	ASTM G53-1996, G154; GR-487-CORE, Para. 3.5, R3-22; GR-487-CORE, Para. 3.6.6; IEC 60945 Section 8.10 Solar Radiation; IEC 60068-2-5
Altitude/Pressure (-2000 to +120,000) Feet	GR-63-CORE, Para. 5.1.3; MIL-STD-810 E, Method 500.3, Procedure I, II, III; MIL-STD-810 F, Method 500.4, Procedure I, II, III, IV; RTCA/DO-160 D/E, Section 4;

Tests	Test Methods
	SAE J1455, Para. 4.8; IEC 60068-2-12, IEC 60068-2-40, IEC 60068-2-41
Sand and Dust	GR 487-CORE, Para. 3.28.4; IEC 60529, IP5X, Section 13.4 & 13.5; IEC 60529, IP6X, Section 13.4; & 13.6; RTCA / DO-160C / D / E Section 12; MIL-STD-810, Method 510; MIL-STD-202, Method 110; IEC 60068-2-68
Automotive Backfire Simulation Pressure Pulse (0 to 15) Psig	Environ Laboratories LLC QTP 5235C.3
Highly Accelerated Life Testing (HALT)  Highly Accelerated Stress Screening (HASS)	HALT and HASS (Section 3), Gregg K. Hobbs, Ph.D., PE; Hobbs Engineering; 1992. <i>Accelerated Reliability Engineering: HALT and HASS (pp. 31-75)</i>  HALT, HASS & HASA Explained: Accelerated Reliability Techniques (pp. 2-25) Harry W. McLean, ASQ Quarterly Press, 2000  (-100 to 200) °C  70°C/minute Ramp Rate  50 Grms repetitive shock with six degrees of freedom
Shock/Drop	GR-487-CORE, Para. 3.35.1, R3-205; GR-487-CORE, Para. 3.35.4, R3-208; GR-63-CORE, Para. 5.3.1; GR-63-CORE, Para. 5.3.2; MIL-STD-810 E, Method 516.4; MIL-STD-810 F, Method 516.5; RTCA/DO-160 D/E, Section 7; SAE J1455, Para. 4.10; IEC 60945 Section 8.6 Drop; IEC 60068-2-27, IEC 60068-2-29, IEC 60068-2-31
Vibration, Standard/Transportation (1 to 3000) Hz @ 18,000 Force Pounds Sine or 15,000 Force Pounds Random	GR-487-CORE, Para. 3.35.3, R3-207; GR-487-CORE, Para. 3.35.5, CR3-209; GR-63-CORE, Para. 5.4.2; GR-63-CORE, Para. 5.4.3; MIL-STD-810 E, Method 514.4; MIL-STD-810 F, Method 514.5;

<b>Tests</b>	<b>Test Methods</b>
	RTCA/DO-160 D/E, Section 8; SAE J1455, Para. 4.9; IEC 60945 Section 8.7 Vibration; IEC 60068-2-6, IEC 60068-2-55, IEC 60068-2-64, IEC 60068-2-53, IEC 60068-2-51, IEC 60068-2-50
Acceleration Range (0 to 110) Gs	MIL-STD-810 E, Method 513.4, Procedure I, II; MIL-STD-810 F, Method 513.5, Procedure I, II; RTCA/DO-160 D/E, Section 7, Sustained; IEC 60068-2-7
Icing/Freezing Rain	MIL-STD-810 E, Method 521.1; MIL-STD-810 F, Method 521.2; NEMA 250, Para. 5.6; RTCA/DO-160 D/E, Section 24; UL 50, Para. 34
Fluid Susceptibility; Immersion and Splash, Contamination by Fluids	MIL-STD-810 F, Method 504; RTCA/DO-160 D/E, Section 11; SAE J1455, Para. 4.4; IEC 60945 Section 8.9 Immersion, 8.8 Rain & Spray, 8.11 Oil Resistance; IEC 60068-2-18
Acoustic Noise	GR-63-CORE, Para. 5.6; GR-487-CORE, Para. 3.29
Steam Cleaning; Pressure Washing	SAE J1455, Para. 4.5

<b>Tests</b>	<b>Test Methods</b>
UV/Weathering	IEC 68-2-9; ISO 4892-1; ASTM G151, G155

On the following products and materials: aircraft components, automotive components, gaskets, seals and packings, packaging and containers, pipes, hoses, valves and fittings, rubber and rubber products, tools, windows and doors, wiring harnesses, sub-assemblies, telecommunication cabinets and components in the Telecommunications, Aircraft, Automotive, Medical, Defense, Electronics and Agriculture industries. Note: This lab is capable of performing current and older versions of MIL-STD-810 for the methods listed above.