



The American Association for Laboratory Accreditation

World Class Accreditation

Accredited Laboratory

A2LA has accredited

ENVIRON LABORATORIES LLC

Minneapolis, MN

for technical competence in the field of

Electrical 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 19th day of August 2009.

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

President & CEO
For the Accreditation Council
Certificate Number 1719.02
Valid to August 31, 2011

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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ENVIRON LABORATORIES LLC
 9725 Girard Avenue South
 Minneapolis, MN 55431-2621
 Marcia McCallum, E-mail: mtm@environlab.com
 Denise I Hart, E-mail: dih@environlab.com
 Phone: 952 888 7795

ELECTRICAL (EMC)

Valid to: August 31, 2011

Certificate Number: 1719.02

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

Test	Test Method
Conducted Emissions, Audio Frequency	MIL-STD-461, Method CE101, Conducted Emissions, Power Leads, 30 Hz to 10 kHz; MIL-STD-461, Method CE02, 0.03 to 20 kHz, Control and Signal Leads; MIL-STD-461, Method CE01, Conducted Emissions, Power and Interconnecting Leads, Low Frequency (up to 15 kHz); BOEING D6-16050-4, Sections 8.3.1 & 8.3.2, Capacitive Coupled Emissions and Inductive Coupled Emissions
Conducted Emissions, Radio Frequency	MIL-STD-461, Method CE102, Conducted Emissions, Power Leads, 10 kHz to 10 MHz; MIL-STD-461, Method CE03 Conducted Emissions, Power and Interconnecting Leads, 0.015 to 50 MHz; MIL-STD-461, Method CE04, 0.02 to 50 MHz, Control and Signal Leads; RTCA/DO-160, Section 21, Emission of Radio Frequency Energy; AIRBUS ABD0100.1.2, Section 3.4.5, Emission of Radio Frequency Energy; BOEING D6-16050-4, Section 8.4, Radio Frequency Emissions Tests
Conducted Emissions, Transient	MIL-STD-461, Method CE07 Conducted Emissions, Power Leads, Spikes, Time Domain
Conducted Susceptibility, Audio Frequency	MIL-STD-461, Method CS101, Conducted Susceptibility, Power Leads, 30 Hz to 150 kHz; MIL-STD-461, Method CS109, Conducted Susceptibility, Structure Current, 60 Hz to 100 kHz;

Test	Test Method
<p>Conducted Susceptibility, Audio Frequency</p>	<p>MIL-STD-461, Method CS01, Conducted Susceptibility, Power Leads, 30 Hz to 50 kHz;</p> <p>MIL-STD-461, Method CS09, Conducted Susceptibility, Structure (Common Mode) Current, 60 Hz to 100 kHz;</p> <p>RTCA/DO-160, Section 18, Audio Frequency Conducted Susceptibility – Power Inputs;</p> <p>RTCA/DO-160, Section 19, Induced Signal Susceptibility;</p> <p>AIRBUS ABD0100.1.8, Section 2.4, Supplied Equipment Requirements and Associated Tests;</p> <p>AIRBUS ABD0100.1.2, Section 3.4, Onboard System Electromagnetic Environment;</p> <p>BOEING D6-16050-4, Section 7.2, Audio Frequency Susceptibility Tests</p>
<p>Conducted Susceptibility, Radio Frequency</p>	<p>MIL-STD-461, Method CS103, Conducted Susceptibility, Antenna Port, Intermodulation, 15 kHz to 10 GHz;</p> <p>MIL-STD-461, Method CS104, Conducted Susceptibility, Antenna Port, Rejection of Undesired Signals, 30 Hz to 20 GHz;</p> <p>MIL-STD-461, Method CS105, Conducted Susceptibility, Antenna Port, Cross Modulation, 30 Hz to 20 GHz;</p> <p>MIL-STD-461, Method CS114, Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz;</p> <p>MIL-STD-461, Method CS02, Conducted Susceptibility, Power and Interconnecting Control Leads, 0.05 to 400 MHz;</p> <p>MIL-STD-461 Method CS04, Rejection of Undesired Signals, 30 Hz to 20 GHz;</p> <p>RTCA/DO-160, Section 20, Radio Frequency Susceptibility (Radiated and Conducted);</p> <p>AIRBUS ABD0100.1.2, Section 3.3.2, Radio Frequency Conducted Susceptibility (10 kHz to 400 MHz);</p> <p>BOEING D6-16050-4, Section 7.3, Radio Susceptibility Tests;</p> <p>SAE J1113-4, Bulk Current Injection Method;</p> <p>IEC 60945, Section 10.3, Immunity to Conducted Radio Frequency Disturbance</p>
<p>Conducted Susceptibility, Transient</p>	<p>MIL-STD-461, Method CS106, Conducted Susceptibility, Spikes, Power Leads;</p> <p>MIL-STD-461, Method CS115, Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation;</p> <p>MIL-STD-461, Method CS116, Conducted Susceptibility, Damped Sinusoidal Transients, Cables and Power Leads, 10 kHz to 100 MHz;</p> <p>MIL-STD-461, Method CS10, Conducted Susceptibility, Damped Sinusoidal Transients, Pins and Terminals, 10 kHz to 100 MHz;</p>



Test	Test Method
<p>Conducted Susceptibility, Transient</p>	<p>MIL-STD-461, Method CS11, Conducted Susceptibility, Damped Sinusoidal Transients, Cables, 10 kHz to 100 MHz;</p> <p>MIL-STD-461, Method CS12, Conducted Susceptibility, Common Mode Cable, Current Pulse, Interconnecting and Power;</p> <p>MIL-STD-461, Method CS13, Conducted Susceptibility, Single Wire Coupled Pulse;</p> <p>RTCA/DO-160, Section 17, Voltage Spike;</p> <p>RTCA/DO-160, Section 22, Lightning Induced Transient Susceptibility;</p> <p>AIRBUS ABD0100.1.2, Section 3.2.2, Lightning Indirect Effects;</p> <p>AIRBUS ABD0100.1.2, Section 3.4, Onboard System Electromagnetic Environment;</p> <p>BOEING D6-16050-4, Section 7.4, Lighting Induced Transient Susceptibility Tests;</p> <p>BOEING D6-16050-4, Section 7.5, Transient Susceptibility Tests;</p> <p>ISO 7637-1/-2, Electrical Transients Power Leads;</p> <p>SAE J1113-11, Immunity to Conducted Transients on Power Leads</p> <p>IEC 60945, Section 10.5, Immunity to Fast Transients on AC Power, Signal, and Control Lines and Section 10.6, Immunity to Conducted Radio Frequency Disturbance</p>
<p>Radiated Emissions, Magnetic Field</p>	<p>MIL-STD-461, Method RE101, Radiated Emissions, Magnetic Field, 30 Hz to 100 kHz;</p> <p>MIL-STD-461, Method RE01, Radiated Emissions, Magnetic Field, 0.03 to 50 kHz;</p> <p>RTCA/DO-160, Section 15, Magnetic Effect;</p> <p>AIRBUS ABD0100.1.2, Section 3.4.1, Magnetic Effect</p>
<p>Radiated Emissions, Electric Field</p>	<p>MIL-STD-461, Method RE102, Radiated Emissions, Electric Field, 10 kHz to 18 GHz;</p> <p>MIL-STD-461, Method RE103, Radiated Emissions, Antenna Spurious and Harmonic Outputs, 10 kHz to 40 GHz;</p> <p>MIL-STD-461, Method RE02, Radiated Emissions, Electric Field, 14 kHz to 40 GHz;</p> <p>MIL-STD-461, Method RE03, Radiated Emissions, Spurious and Harmonics, Radiated Techniques;</p> <p>RTCA/DO-160, Section 21, Emission of Radio Frequency Energy;</p> <p>AIRBUS ABD0100.1.2, Section 3.4.5, Emission of Radio Frequency Energy;</p> <p>BOEING D6-16050-4, Section 8.4, Radio Frequency Emissions Tests;</p> <p>SAE J1113-41, Protection of Receivers Used On-Board Vehicles;</p>



Test	Test Method
Radiated Susceptibility, Audio Frequency	MIL-STD-461, Method RS101, Radiated Susceptibility, Magnetic Field, 30 Hz to 100 kHz; MIL-STD-461, Method RS01, Magnetic Induction Field; RTCA/DO-160, Section 19, Induced Signal Susceptibility; AIRBUS ABD0100.1.2, Section 3.4 Onboard System Electromagnetic Environment; BOEING D6-16050-4, Section 7.2, Audio Frequency Susceptibility Tests
Radiated Susceptibility, Radio Frequency	MIL-STD-461, Method RS103, Radiated Susceptibility, Electric Field, 2 MHz to 40 GHz; MIL-STD-461, Method RS03, Radiated Susceptibility, Electric Field, 14 kHz to 40 GHz; RTCA/DO-160, Section 20, Radio Frequency Susceptibility (Radiated and Conducted); AIRBUS ABD0100.1.2, Section 3.3, Radio Frequency Susceptibility; BOEING D6-16050-4, Section 7.3, Radio Frequency Susceptibility Tests; SAE J1113-21, Immunity to Electromagnetic Fields, 10 kHz to 18 GHz; IEC 60945, Section 10.4, Immunity to Radiated Radio Frequency Disturbance
Radiated Susceptibility, Transient	MIL-STD-461, Method RS02, Radiated Susceptibility, Magnetic and Electric Fields, Spike and Power Frequencies; MIL-STD-461, Method RS06, Radiated Susceptibility, Electromagnetic Field, Switching Pulses (Chattering Relay)
Electrostatic Discharge	RTCA/DO-160, Section 25, Electrostatic Discharge (ESD); AIRBUS ABD0100.1.2, Section 3.5, Electrostatic Discharge (ESD) Susceptibility; BOEING D6-16050-4, Section 7.1, Electrostatic Discharge (ESD) Susceptibility; SAE J1113-13, Immunity to Electrostatic Discharge; IEC 60945, Section 10.9, Immunity to Electrostatic Discharge
Power Quality Test	RTCA/DO-160, Section 16, Power Input; MIL-STD-704, Power Quality; AIRBUS ABD0100.1.8, Section 2.4, Supplied Equipment Requirements and Associated Tests; BOEING D6-16050-4, Section 8.3, Audio Frequency Conducted Emissions Tests; BOEING D6-16050-4, Section 8.1, Interference Voltages on Signal Lines; SAE J1455, Para 4.11, General Heavy-Duty Truck Electrical Environment; IEC 60945, Section 10.7, Immunity to Power Supply, Short-term Variation, IEC 60945, Section 10.8, Immunity to Power Supply Failure

Test	Test Method
Telecommunications	ANSI/SCTE 03, Test Method for Coaxial Cable Structural Return Loss ANSI/SCTE 04, Test Method for “F” Connector Return Loss ANSI/SCTE 05, Test Method for “F” Connector Return Loss In-line Pair ANSI/SCTE 32, Ampacity of Coaxial Telecommunications Cables ANSI/SCTE 44, Test Method for DC Loop Resistance ANSI/SCTE 47, Test Method for Coaxial Cable Attenuation ANSI/SCTE 48-1, Test Method for Measuring Shielding Effectiveness of Passive and Active Devices Using a GTEM ANSI /SCTE 48-3, Test Procedure for Measuring Shielding Effectiveness of Braided Coaxial Drop Cable Using the GTEM Cell ANSI/SCTE 49, Test Method for Velocity of Propagation ANSI/SCTE 66, Test Method for Coaxial Cable Impedence ANSI/SCTE 70, Insulation Resistance Megohmmeter Method ANSI/SCTE 81, Surge Withstand Test Procedure ANSI/SCTE 103, Test Method for DC Contact Resistance, Drop Cable to F-Connectors and F81 Barrels ANSI/SCTE 108, Test Method for Dielectric Withstand of Coaxial Cable ANSI/SCTE 144, Test Procedure for Measuring Transmission and Reflection

Industries served: Telecommunications, Aircraft, Defense, and Electronics.

NOTES

1. Boeing tests performed same as MIL-STD-461 CE101
2. MIL-STD-704 tests use same method as all other standards, including RTCA, Airbus, Boeing, etc.

