



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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ELECTRICAL

Valid to: August 31, 2019

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 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, subassemblies, telecommunication cabinets and components in the Telecommunications, Aircraft, Aerospace, Automotive, Medical, Defense, Electronics and Agriculture industries.

Test Technology/Description: **Test Method(s)/Standard(s):**

Conducted Emissions, Audio Frequency	MIL-STD-461, Method CE101 (30 Hz to 10 kHz); MIL-STD-461, Method CE02 (30 Hz to 20 kHz); MIL-STD-461, Method CE01 (up to 15 kHz); BOEING D6-16050-4, Sections 8.3.1 and 8.3.2; BOEING D6-16050-5, Section 8.1.1; BOEING D6-16050-6, Section 8.3
Conducted Emissions, Radio Frequency	MIL-STD-461, Method CE102 (10 kHz to 10 MHz); MIL-STD-461/462, Method CE03 (15 kHz to 50 MHz); MIL-STD-461, Method CE04 (20 kHz to 50 MHz); MIL-STD-461, Method CE106 (10 kHz to 40 GHz); RTCA/DO-160, Section 21; AIRBUS ABD0100.1.2, Section 3.4.5; BOEING D6-16050-4, Section 8.4; BOEING D6-16050-5, Section 8.2; BOEING D6-16050-6, Section 8.4
Conducted Susceptibility, Audio Frequency	MIL-STD-461, Method CS101 (30 Hz to 150 kHz); MIL-STD-461/462, Method CS109 (60 Hz to 100 kHz); MIL-STD-461/462, Method CS01 (30 Hz to 50 kHz); MIL-STD-461, Method CS09 (60 Hz to 100 kHz); RTCA/DO-160, Sections 18 and 19; AIRBUS ABD0100.1.8, Section 2.4; AIRBUS ABD0100.1.2, Section 3.4; BOEING D6-16050-4, Section 7.2; BOEING D6-16050-5, Section 7.2; BOEING D6-16050-6, Section 7.2; SAE J1113/2; ISO 11452-10; GR-1089-CORE

(A2LA Cert. No. 1719.02) Revised 01/17/2019

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Test Technology/Description: **Test Method(s)/Standard(s):**

Conducted Emissions, Transient	MIL-STD-461/462, Method CE07; ISO 7637-2; SAE J1113-42 (2010)
Conducted Susceptibility, Radio Frequency	MIL-STD-461/462, Method CS103 (15 kHz to 10 GHz); MIL-STD-461, Method CS104 (30 Hz to 20 GHz); MIL-STD-461/462, Method CS105 (30 Hz to 20 GHz); MIL-STD-461, Method CS114 (10 kHz to 200 MHz); MIL-STD-461/462, Method CS02 (50 kHz to 400 MHz); MIL-STD-461/462, Method CS04 (30 Hz to 20 GHz); RTCA/DO-160, Section 20; AIRBUS ABD0100.1.2, Section 3.3.2 (10 kHz to 400 MHz); BOEING D6-16050-4, Section 7.3; BOEING D6-16050-5, Section 7.3; BOEING D6-16050-6, Section 7.3; SAE J1113-4, Bulk Current Injection Method; IEC 60945, Section 10.3
Conducted Susceptibility, Transient	MIL-STD-461/462, Method CS06; MIL-STD-461F, Method CS106; MIL-STD-461, Method CS115; MIL-STD-461/462D, Method CS116 (10 kHz to 100 MHz); MIL-STD-461, Method CS117; MIL-STD-461/462, Method CS10 (10 kHz to 100 MHz); MIL-STD-461/462, Method CS11 (10 kHz to 100 MHz); MIL-STD-461/462, Method CS12; MIL-STD-461/462, Method CS13; RTCA/DO-160, Sections 17 and 22; AIRBUS ABD0100.1.2, Sections 3.2.2 and 3.4; BOEING D6-16050-4, Sections 7.4 and 7.5; BOEING D6-16050-5, Sections 7.4 and 7.5; BOEING D6-16050-6, Sections 7.4 and 7.5; ISO 7637-2; SAE J1113-11
Radiated Susceptibility, Audio Frequency	MIL-STD-461, Method RS101 (30 Hz to 100 kHz); MIL-STD-461, Method RS01; RTCA/DO-160, Section 19; AIRBUS ABD0100.1.2, Section 3.4; BOEING D6-16050-4, Section 7.2; BOEING D6-16050-5, Section 7.2; BOEING D6-16050-6, Section 7.2; SAE J1113-22 (2010); ISO 11452-8
Radiated Emissions, Magnetic Field	MIL-STD-461/462, Method RE101 (30 Hz to 100 kHz); MIL-STD-461/462, Method RE01 (30 Hz to 50 kHz); RTCA/DO-160, Section 15; AIRBUS ABD0100.1.2, Section 3.4.1

Test Technology/Description: **Test Method(s)/Standard(s):**

Radiated Emissions,
Electric Field

MIL-STD-461, Method RE102 (10 kHz to 18 GHz);
MIL-STD-461, Method RE103 (10 kHz to 40 GHz);
MIL-STD-461, Method RE02 (14 kHz to 40 GHz);
MIL-STD-461, Method RE03;
RTCA/DO-160, Section 21;
AIRBUS ABD0100.1.2, Section 3.4.5;
BOEING D6-16050-4, Section 8.4;
BOEING D6-16050-5, Section 8.2;
BOEING D6-16050-6, Section 8.4;
SAE J1113-41

Radiated Susceptibility,
Radio Frequency

MIL-STD-461, Method RS103 (2 MHz to 40 GHz);
MIL-STD-461, Method RS03 (14 kHz to 40 GHz);
RTCA/DO-160, Section 20;
AIRBUS ABD0100.1.2, Section 3.3;
BOEING D6-16050-4, Section 7.3;
BOEING D6-16050-5, Section 7.3;
BOEING D6-16050-6, Section 7.3;
SAE J1113-21 (10 kHz to 18 GHz)

Radiated Susceptibility,
Transient

MIL-STD-461, Method RS02;
MIL-STD-461, Method RS06 (Chattering Relay)

Power Quality Test

RTCA/DO-160, Section 16;
MIL-STD-704, Power Quality;
MIL-STD-1275;
MIL-STD-1399;
AIRBUS ABD0100.1.8, Section 2.4;
BOEING D6-16050-4, Section 7.5.3;
BOEING D6-16050-6, Section 7.5.3;
BOEING 787B3-0147;
SAE J1455, Para 4.1.3;
GR-1089-CORE:
- DC Potential Difference
- Corrosion
- Bonding and Grounding
- DC Power Port

Electrostatic Discharge

MIL-STD-461, Method CS118;
RTCA/DO-160, Section 25 (ESD);
AIRBUS ABD0100.1.2, Section 3.5 (ESD) Susceptibility;
BOEING D6-16050-4, Section 7.1 (ESD) Susceptibility;
BOEING D6-16050-5, Section 7.1 (ESD);
BOEING D6-16050-6, Section 7.1;
SAE J1113-13

Telecommunications Tests:

AC Fault
GR-771-CORE;
GR-902-CORE;
GR-950-CORE;
GR-3121-CORE;
GR-3123-CORE;
GR-3125-CORE

Backscatter, Attenuation
GR-13-CORE;
GR-326-CORE;
GR-771-CORE;
GR-950-CORE;
GR-3120-CORE;
GR-3121-CORE;
GR-3123-CORE;
GR-3125-CORE

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 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 63 - Test Method for Voltage Withstand of Outer Jacket;
ANSI/SCTE 66 - Test Method for Coaxial Cable Impedance;
ANSI/SCTE 70 - Insulation Resistance Megohmmeter Method;
ANSI/SCTE 101 - Test Method for "Mainline" Splice Connector Return Loss;
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 125 - "Mainline" PIN (Plug) Connector Return Loss;
ANSI/SCTE 144 - Test Procedure for Measuring Transmission and Reflection;
ANSI/SCTE 152 - Test Method for Contact Resistance Measurement of Mainline Plug Interface

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

NOTES:

Boeing tests performed same as MIL-STD-461 CE101

MIL-STD-704 tests use same method as all other standards, including RTCA, Airbus, Boeing, etc.

This laboratory is capable of performing current revision level, and old revision levels of:

MIL-STD-461 (A through F), MIL-STD-704 (A through F),
BOEING D6-16050-4 (A through D), BOEING D6-16050-5 (A through C),
RTCA/DO-160 (B through G)



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY MINNEAPOLIS 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 20th day of October 2017.

A blue ink signature of the Senior Director of Accreditation Services.

Senior Director, Accreditation Services
For the Accreditation Council
Certificate Number 1719.02
Valid to August 31, 2019
Revised January 17, 2019

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