

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY DENVER-LONGMONT 1736 Vista View Drive

Longmont, CO 80504-5242

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ELECTRICAL

Valid To: February 28, 2026 Certificate Number: 214.43

In recognition of the successful completion of the A2LA evaluation process, is granted to this laboratory to perform the following <u>Electromagnetic Compatibility/Interference (EMC/EMI)</u>, <u>Lightning</u>, <u>Transient</u>, <u>and Surge tests:</u>

Test Technology	Test Methods ¹
Emissions	
Radiated and Conducted (10	CFR 47 FCC, Part 15B (using ANSI C63.4:2014);
meter semi-anechoic chamber)	CFR 47 FCC, Part 18 (using MP-5:1986);
	CISPR 11; EN 55011; AS CISPR 11; KS C 9811;
	CISPR 32 (excluding Annex H); EN 55032 (excluding Annex H);
	AS/NZS CISPR 32 (excluding Annex H);
	KS C 9832 (excluding Annex H);
	VCCI-CISPR 32:2016 (excluding Annex H);
	CISPR 14-1 (excluding disturbance power and click
	measurements);
	EN 55014-1(excluding disturbance power and click
	measurements);
	AS/NZS CISPR 14-1 (excluding disturbance power and click
	measurements);
	KS C 9814-1(excluding disturbance power and click
	measurements);
	CNS 13438;
	TCVN 7189;
	QCVN 118:2018/BTTTT; ICES-003
Harmonics	IEC 61000-3-2; EN 61000-3-2;
Harmonies	IEC 61000-3-12; EN 61000-3-12
	112 01000 3 12, E1 01000 3 12
Flicker	IEC 61000-3-3; EN 61000-3-3
Immunity	
Electrostatic Discharge (ESD)	IEC 61000-4-2; EN 61000-4-2; KS C 9610-4-2
Radiated Immunity	IEC 61000-4-3; EN 61000-4-3; KS C 9610-4-3
·	TEG (1000 A A EN (1000 A A RG C 0(10 A A
Electrical Fast Transient/Burst	IEC 61000-4-4; EN 61000-4-4; KS C 9610-4-4

(A2LA Cert No. 214.43) Revised 04/12/2024

Page 1 of 3

Test Technology Test Methods¹

IEC 61000-4-5; EN 61000-4-5; KS C 9610-4-5; Surge

IEEE C62.41.1 (2002); IEEE C62.41.2 (2002);

IEEE C62.45 (2002)

Conducted Immunity IEC 61000-4-6; EN 61000-4-6; KS C 9610-4-6

Magnetic Field Immunity IEC 61000-4-8 (excluding short duration mode);

> EN 61000-4-8 (excluding short duration mode); KS C 9610-4-8 (excluding short duration mode);

IEC 61000-4-39 (Medical Devices only) EN 61000-4-39 (Medical Devices only)

Voltage Dips, Short Interruptions,

and Voltage Variations

IEC 61000-4-11; EN 61000-4-11;

KS C 9610-4-11

IEC 61000-6-1; EN 61000-6-1; KS C 9610-6-1; Generic/Product Family Standards IEC 61000-6-2; EN 61000-6-2; KS C 9610-6-2;

and Industry Standards IEC 61000-6-3; EN 61000-6-3; KS C 9610-6-3;

IEC 61000-6-4; EN 61000-6-4; KN 61000-6-4; KS C 9610-6-4;

IEC 60601-1-2; EN 60601-1-2; KS C IEC 60601-1-2;

EN 61326-1;

CISPR 24; EN 55024; KS C 9824

CISPR 35 (excluding Annex A-H); EN 55035 (excluding Annex

KS C 9835 (excluding Annex A-H); CISPR 14-2; EN 55014-2; KS C 9814-2;

ISO 7176-21

Automotive

(DC - 150 kHz)

Automotive Radiated Emissions CISPR 25 (2008, 2016, 2021); CISPR 25

ISO 11452-2; ISO 11452-2 (2019) Road Vehicles — Component Radiated Immunity – ALSE (200 MHz - 6 GHz [100 V/m]) Test: Methods for electrical disturbances from narrowband

radiated electromagnetic energy – Part 2: Absorber-lined Shielded (1.2 GHz - 3.2 GHz [100 V/m])

Enclosure

ISO 11452-4; ISO 11452-4 (2020) Road Vehicles – Component Radiated Immunity – BCI Test: Methods for electrical disturbances from narrowband (10 kHz - 400 MHz)

radiated electromagnetic energy

ISO 11452-5; ISO 11452-5 (2002) Road Vehicles - Component Stripline (10 kHz - 400 MHz)

Test: Methods for electrical disturbances from narrowband

radiated electromagnetic energy

Radiated Loop Method ISO 11452-8; ISO 11452-8 (2015) Road Vehicles – Component

Test: Methods for electrical disturbances from narrowband

radiated electromagnetic energy

<u>lest lechnology</u>	Test Methods'
Military/Defense	MIL-STD-461E, F, G Method CE1013 (30 Hz to 10 kHz);
	MIL-STD-461E, F, G Method CE1023 (10 kHz to 10 MHz);
	MIL-STD-461E, F, G Method CE1063 (10 kHz to 40 GHz);
	MIL-STD-461E, F, G Method CS1013 (30 Hz to 150 kHz);
	MIL-STD-461E, F, G Method CS1063;
	MIL-STD-461E, F, G Method CS1143 (10 kHz to 200 MHz);
	MIL-STD-461E, F, G Method CS1153;
	MIL-STD-461E, F, G Method CS1163 (10 kHz to 100 MHz);
	MIL-STD-461E, F, G Method RE1013 (30 Hz to 100 kHz);
	MIL-STD-461E, F, G Method RE102 (10 kHz to 18 GHz);
	MIL-STD-461E, F, G Method RE103 (10 kHz to 40 GHz);
	MIL-STD-461E, F, G Method RS1013 (30 Hz to 100 kHz);
	MIL-STD-461E, F, G Method RS103 (2 MHz to 40 GHz);
	MIL-STD-7043 D, E, F;
	MIL-HDBK-704-8 Method LDC1013;
	MIL-HDBK-704-8 Method LDC1023;
	MIL-HDBK-704-8 Method LDC1033;
	MIL-HDBK-704-8 Method LDC1043;
	MIL-HDBK-704-8 Method LDC1053;
	MIL-HDBK-704-8 Method LDC2013;
	MIL-HDBK-704-8 Method LDC3013;
	MIL-HDBK-704-8 Method LDC3023;
	MIL-HDBK-704-8 Method LDC4013;
	MIL-HDBK-704-8 Method LDC5013;
	MIL-HDBK-704-8 MethodLDC6013;
	MIL-HDBK-704-8 Method LDC6023
Agragaga	DTCA DO 160C Section 15, DTCA DO 160C Section 162.
Aerospace	RTCA DO-160G Section 15; RTCA DO-160G Section 16 ² ;
	RTCA DO-160G Section 17 ² ; RTCA DO-160G Section 18 ² ;
	RTCA DO-160G Section 19 ² ; RTCA DO-160G Section 20;
	RTCA DO-160G Section 21; RTCA DO-160G Section 25 ²

Test Methods¹

On the following types of products:

Test Technology

Telecommunication Equipment, Network Equipment, Industrial and Commercial Equipment, Electronic (Digital) Equipment, Medical, Aerospace, Military. Information Technology Equipment, Multimedia Equipment, Scientific Equipment

Page 3 of 3

¹ The laboratory is only accredited for testing activities outlined within the test methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory's accredited capabilities.

² This laboratory performs field testing activities for the noted tests.

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1³:

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u>		
Part 15B	ANSI C63.4:2014	40000
Industrial, Scientific, and Medical Equipment		
Part 18	FCC MP-5 (February 1986)	40000

³Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (https://apps.fcc.gov/oetcf/eas/) for a listing of FCC approved laboratories.



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY DENVER-LONGMONT

Longmont, CO

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 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 April 2017).



Presented this 28th day of March 2024.

Mr. Trace McInturff, Vice President, Accreditation Services For the Accreditation Council

Certificate Number 214.43

Valid to February 28, 2026

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