



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY FREMONT NEWARK
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 Newark, CA 94560
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MECHANICAL

Valid to: September 30, 2025

Certificate Number: 214.27

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to the laboratory at the location listed above, ***as well as the 2 satellite laboratories listed below***, to perform the following Environmental Tests for the following industries: Aerospace, Defense, Telecommunication, Electronics and Automotive:

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Vibration ¹	Electro Dynamic Sine, Random, Mixed Mode and Shock 5 to up to 3,000 Hz and 10,000 to 20,000 force-lbs Shock half-sine and Sawtooth and Trapezoidal	AT&T-TP76200; ETSI EN 300 019; GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108-CORE; GR-3160-CORE; MIL-STD-202; IEC 60068-2-64; ISO 15197; RTCA/DO-160; EN 50155; GMW3172; IEC 60068-2-6; IEC 60068-2-27; IEC 60068-2-29; IEC 60068-2-64; IEC 60255-21-1; IEC 60255-21-2; IEC 60255-21-3; IEC 61373; IEC 61850-3; IEC 60601-1-11 and IEC 60601-1-12; ISO 16750-3; MIL-STD-810; NHTSA Vol 78 No. 89; AREMA Communications & Signals Manual 2022, Section 11; EN 50125; ST/SG/AC.10/11/Rev. 7 Section 38.3; IEC 60571; IEC 62498
Seismic / Vibration	Servo Hydraulic Sine, Random and Shock 15,000 force-lbs (1 to 500) Hz Shock half-sine	ANSI T1.329; AC 156; GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108-CORE; GR-3160-CORE; ASTM D4169; AT&T-TP76200; IEEE 1613; ISTA 1A, 1B, 1G, 1H, 2C, 3A, 3B; OSHDP, 6-AMAZON.com-Over Boxing

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Seismic / Vibration (continued)	Servo Hydraulic Sine, Random and Shock 15,000 force-lbs (1 to 500) Hz Shock half-sine	6-AMAZON.com-SIOC Type A; OSHPD; ETSI EN 300 019; IEC 60068-2-57
Illumination	Visual Inspection/ Observation	GR-63-CORE; GR-487-CORE; GR-3160-CORE
Packaged Drop Testing		GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108-CORE; GR-3160-CORE
Free-Fall, Shock and Unpackaged Drop Testing		ETSI EN 300 019; AT&T-TP76200; IEC 60069-2-32; IEC 62133-2; IEC 60601-1-11; IEC 60601-1-12; ISO 16750-3; MIL-STD-810; ISTA 1A, 1B, 1G, 1H, 2C, 3A, 3B; 6-AMAZON.com-Over Boxing; 6-AMAZON.com-SIOC Type A; GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108-CORE; IEEE 1613; IEC 60068-2-31; IEC 60068-2-31 [11]; ASTM D4169
Crush for Housing	Elbow Load	GMW3172
Ice Water Shock Test (Splash Water Test)		ISO 16750-4
Hygroscopic Dust		GR-63-CORE; GR-3108-CORE; GR-3160-CORE
Salt Fog Salt Spray Salt Mist, Cyclic		ASTM B117; MIL-STD-810, Method 509; GR-487-CORE; GR-950-CORE; GR-3108-CORE; GR-3160-CORE; EN 50155; GMW3286; IEC 60068-2-11; IEC 60068-2-52, Methods 1, 2, 3, 4, 5, 6, and 7; ISO 16750-4; ISO 9227; IEC 60571; NEMA 250-2020

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Salt Fog Salt Spray Salt Mist, Cyclic (<i>continued</i>)		AREMA Communications & Signals Manual 2022, Section 11
Temperature ¹	(-70 to 170) °C	GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108-CORE; GR-3160-CORE; MIL-PRF-28800F; MIL-STD-810; MIL-STD-202; RTCA/DO-160; ISO 15197 Section 6.11; ETSI EN 300 019; AT&T-TP76200; EN 50155; GMW3172; IEC 60068-2-1; IEC 60068-2-2; IEC 60068-2-14; IEC 61850-3; IEC 60601-1-11; IEC 60601-1-12; ISO 16750-4; ISO 15197; NHTSA Vol 78 No. 89
Humidity ¹	(10 to 95) %RH	GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108 CORE; GR-3160-CORE; MIL-STD-810; MIL-STD-202; RTCA/DO-160; ISO 15197 Section 6.12; ETSI EN 300 019; AT&T-TP76200; EN 50155; GMW3172; IEC 60068-2-30; IEC 60068-2-78; IEC 61850-3; IEC 60601-1-11; IEC 60601-1-12; ISO 16750-4; NHTSA Vol 78 No. 89; AREMA Communications & Signals Manual 2022, Section 11; ISTA 1A, 1B, 1G, 1H, 2C, 3A, 3B; 6-AMAZON.com-Over Boxing; 6-AMAZON.com-SIOC Type A; IEEE 1613; EN 50125; IEC 60571; IEC 62498

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Thermal Shock ¹	(-70 to 125) °C	GR-63-CORE; GR-487-CORE; GR-950-CORE; GR-3108-CORE; ETSI EN 300 019; ISO 16750-4; IEC 60068-2-14; MIL-STD-810; JESD22-A104E
Heat Dissipation		ATIS-0600010.03
Mixed Flowing Gas		GR-63-CORE; GR-3108-CORE; ASTM B827; ASTM B845; EIA 364-65B; IEC 60068-2-60, Methods 2, 3, and 4
Altitude ¹	(-807 to 55,140) feet	GR-63-CORE; AT&T-TP76200; GR-487-CORE; GR-950-CORE; GR-3108-CORE; MIL-STD-202, Method A; MIL-STD-202, Procedures I and II; NHTSA Vol 78 No. 89; RTCA/DO-160, Categories A1, A2, A3, A4, B1, B2, B3, B4, C1, C2, C3 and C4; MIL-STD-810; IEEE 1613; EN 50125; EN 50155; IEC 62498
Freeze /Thaw		MIL-STD-810
Immersion		MIL-STD-810
<i>Ingress Protection</i>		
Protection against ingress of dust: dust-protected equipment		IEC 60529 – IP5X
Protection against ingress of dust; dust-tight equipment		IEC 60529 – IP6X
Protection against spraying water		IEC 60529 – IPX3; ISO 20653 – IPX3
Protection against splashing water		IEC 60529 – IPX4; ISO 20653 – IPX4
Protection against water jets		IEC 60529 – IPX5; ISO 20653 – IPX5

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Protection against powerful jetting		IEC 60529 – IPX6; ISO 20653 – IPX6
Protection against the effects of temporary immersion in water		IEC 60529 – IPX7; ISO 20653 – IPX7
Protection against the effect of continuous immersion in water		IEC 60529 – IPX8; ISO 20653 – IPX8
Protection against ingress of solid bodies		IEC 60529 – IP1X to IP4X; ISO 20653 – IP1X to IP4X
Strong high-velocity water with increased pressure		ISO 20653 – IPX6K
Insulation Resistance	Up to 500 V dc	EN 50155; IEC 60571; IEC 61850-3
Voltage Withstand/Dielectric Strength/Dielectric Type Test/Dielectric Power Frequency Test	Up to 3000 Vrms	EN 50155; IEC 60571; IEC 61850-3; IEEE 1613; AREMA Communications & Signals Manual 2022, Section 11
Protective Bonding Resistance – Type Test	Up to 30A and voltage not exceeding 12 V rms or 12 V dc.	IEC 61850-3
Fire Testing <ul style="list-style-type: none"> • Fire Propagation Risk Assessment Criteria • Fire Spread • Needle Flame Test • AT&T Verizon		ATIS-0600319.2008; ATIS-0600319.2014; GR-63-CORE; ATIS 0600307.2007; GR-3108-CORE; GR-3160-CORE; AT&T-TP76200; VZ.TPR.9305
Rain	Test for Protection against Ingress of Water (Rain)	NEMA 250-2020 Section 5.4
Water (Rain)		ETSI EN 300 019-2-2

¹ This laboratory also uses customer supplied specifications and/or methods directly related to the testing technologies and parameters listed above.

41039 Boyce Road
Fremont, CA 94538

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Acoustic Noise	(30 to 100) dBa	GR-63-CORE; GR-487-CORE; GR-3108-CORE; ETSI EN 300 019; ISO 3744 (<i>Excluding Section 8.3</i>); ISO 7779 (<i>Excluding Section 6</i>); MIL-STD-1474D, (<i>Requirement 5 only</i>)

324 N. Mary Avenue
Sunnyvale, CA 94086

<u>Test Technology:</u>	<u>Test Capabilities:</u>	<u>Test Specifications/Standards:</u>
Temperature	(-30 to 50) °C	GR-63-CORE; ETSI EN 300 019; GR-3160-CORE
Humidity	(15 to 95) %RH	GR-63-CORE; ETSI EN 300 019; GR-3160-CORE
Altitude	Temperature Compensation Method only	GR-63-CORE Section 5.1.3



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY FREMONT NEWARK

Fremont, CA

for technical competence in the field of

Mechanical 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 11th day of January 2024.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 214.27
Valid to September 30, 2025

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