



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY SEATTLE  
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MECHANICAL

Valid To: January 31, 2023

Certificate Number: 2582.03

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

<b><u>Test Description/ Parameters:</u></b>	<b><u>Test Method(s) <sup>1</sup>:</u></b>
Corrosion Testing	ASTM G85
Corrosive Atmosphere/Mixed Flow Gases	ASTM B845; ASTM B827; JDQ 53.3; DS/EN 60068-2-60; IEC 60068-2-60; Ford ES-2L2T-14K147-AA
Salt Fog/Salt Spray	ASTM B117; ASTM D1735; ASTM D2247; DIN 50021-SS; IEC 60945, Section 8.12; RTCA/DO-160, Section 14 (Category S & T); MIL-STD-202, Method 101E; MIL-STD-810, Method 509; MIL-DTL-5541F; SAE J1810, Section 5.7; GMW 3172, Section 9.4.8
Solar Radiation	JDQ 53.3, Section 8.1, Level 3; ISO 4892-2; ASTM G26-96; ASTM G155; ASTM D2565
Dust	IEC 60529, Section 13; MIL-STD-202, Method 110A; MIL-STD-810, Method 510, Procedure I; RTCA/DO-160, Section 12.4 (Category D); GMW 3172, Section 9.5.1

<u>Test Description/ Parameters</u>	<u>Test Method(s) <sup>1</sup>:</u>
Blowing Sand	RTCA DO-160, Section 12.4; MIL-STD-810, Method 510, Procedure II
High and Low Temperature Range <sup>2</sup> : (-77 to 177) °C	IEC 60945, Sections 8.2 and 8.4; MIL-STD-202, Method 108A; MIL-STD-810, Methods 501, 502, and 521; RTCA/DO-160, Sections 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.5.5, 5, and 24 (Categories A & C); SAE J1810, Section 5.1; GMW 3172, Section 9.4.1
Humidity Range <sup>2</sup> : (10 to 95) %RH	DIN 50017; IEC 60945, Section 8.3; MIL-STD-202, Methods 103B and 106G; MIL-STD-810, Method 507; RTCA/DO-160, Section 6; GMW 3172, Sections 9.4.5 and 9.4.6
Thermal Shock:	RTCA/DO-160, Section 6; IEC 60945, Section 8.5; MIL-STD-202, Method 107G; MIL-STD-810, Method 503; GMW 3172, Section 9.42
Vibration: Range <sup>2</sup> : Up to 12 000 lbf (3 to 4,000) Hz, 4-Inch Stroke, with Combined Environments of (-77 to 177) °C and (10 to 95) %RH Acceleration up to 100 Gs	IEC 60945, Section 8.7; MIL-STD 202, Methods 106G, 201A, 204D, and 214A; MIL-STD-810, Methods 514 and 516, Procedures IV and VI; MIL-STD-167; RTCA/DO-160, Section 8; SAE J1810, Section 5.5; GMW 3172, Section 9.3.1
Shock Range <sup>2</sup> : Force: Up to 210 Gs 1/2 Sine Period: < 1 ms to 35 ms at Terminal Peak	MIL-STD-202, Method 213B (higher levels need shock machine); MIL-STD-810, Method 514; MIL-STD-810, Method 516, Procedures I, II, III, and V; RTCA/DO-160, Sections 7.2 and 7.3.1; SAE J1810, Section 5.4; GMW 3172, Sections 9.3.3, 9.3.4, and 9.3.5
Altitude Range <sup>2</sup> : Up to 60,000 feet	RTCA/DO-160, Section 4; MIL-STD-810, Method 500

<u>Test Description/ Parameters</u>	<u>Test Method(s) <sup>1</sup>:</u>
HALT/HASS  Range <sup>2</sup> : Random Vibration (5 to 5000) Hz Level (0 to 85) g(pk) Temperature (-100 to 200) °C	GMW 8287; GMW 14906; Qualmark 933-0326, Section 10
Acceleration/Crash Safety  Range <sup>2</sup> : Up to 20 G's	MIL-STD-810, Method 513; RCTA DO-160, Section 7
Immersion	MIL-STD-810, Method 512; IEC 60945, Section 8.9; SAE J1810, Section 5.8
Explosive Atmosphere	MIL-STD-810, Method 511; RTCA/DO-160
Icing/Freezing Rain	MIL-STD-810, Method 521; RTCA/DO-160, Section 24
Waterproofness/IP testing	RTCA DO-160, Section 10; DIN 40050 (Cat 5, 6, 5K, 6K, 9K); ISO 20653 (Cat 5, 6, 5K, 6K, 9K); IEC 60529 (Cat 5, 6, 5K, 6K, 9K)
Contamination by Fluids/Fluid Susceptibility	MIL-STD-810, Method 504; RTCA/DO-160, Section 11
Drop Test	IEC 60945, Section 8.6.1
Pressure  Range <sup>2</sup> : Up to 3000 psi	RTCA/DO-160, Section 4.6; Element VC 202
Powered Temperature Cycling Test	GMW 3172, Section 9.4.3
HAST/Accelerated Humidity	JESD22-A110B

<sup>1</sup> When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA R101 - *General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.

<sup>2</sup> Also using customer-specified methods directly related to the types of tests and parameters listed above.





# Accredited Laboratory

A2LA has accredited

## ELEMENT MATERIALS TECHNOLOGY SEATTLE

Bothell, WA

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 9<sup>th</sup> day of March 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 2582.03  
Valid to January 31, 2023

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