SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY DETROIT - WARREN 11 MILE
27485 George Merrelli Drive
Warren, MI 48092
Matthew Gorsline Phone: 248 458 5900
Email: matt.gorsline@element.com

ELECTRICAL

Valid To: December 31, 2026 Certificate Number: 0098.12

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory at the location listed above as well as the satellite location listed below to perform the following types of tests:

METHOD[1]	TEST
ASTM D257	DC Resistance or Conductance of Insulating Materials
PF.90012 (Sections 6.3.6 and 6.3.7)	Performance Specification for Automotive Electrical Connector Systems
ISO 16750-2	Road Vehicles – Environmental Conditions and Testing for Electrical and Electronic Equipment Part 2: Electrical loads (excluding Clause 4.13 Electromagnetic Compatibility)
Battery Testing	
DOE/ID-11069	Ineel Battery Test Manual for Test: Static Capacity, Hybrid Pulse Power Characterization, Self-Discharge, Cold Cranking, Thermal Performance, Efficiency, Operating Set Point Stability, Cycle Life, Calendar Life, Reference Performance
DOE/NE-ID-11173	FreedomCAR Ultracapacitor Test Manual (Excluding Impedance Spectrum Testing)
SAE J1798	Rating of Electric Vehicle Battery Modules
SAE J2288	Life Cycle Testing of Electric Vehicle Battery Modules
UL 2580 (Sections 30 to 32, 35 to 36, 39)	Outline of Investigation for Batteries for use in Electric Vehicles
UN ST/SG/AC.10	Transport of Dangerous Goods Lithium Batteries: T.1 Altitude simulation, T.2 Thermal test, T.3 Vibration, T.4 Shock
Wiring, Connectors, and Other Automotive Electrical System	
GMW3191 (Section 4.3)	Connector Test and Validation Specification
GMW3431 (Sections 4.1.1 to 4.1.3)	General Procedures for Testing Switches
USCAR 2	Performance Specification for Automotive Electrical Connector Systems
USCAR 21	Performance Specification for Cable-to-Terminal Electrical Crimps

Parameter	Range	Test Method
Voltage –		
AC – Measure[2]	100 µV to 15 kV	MIL-STD-202-301
AC – Generate[2]	100 mV to 10 V @ 1Hz to 30 MHz, 10V to 40V @ 1 Hz to 1.3 MHz 3 V to 40 kV, (50 to 60) Hz (3 to 300) V, (45 to 1,000) Hz	MIL-STD-202-301
DC – Measure[2]	0.01 µV to 15 kV	GMW 3172, Sections 8.2 and 9.2
DC – Generate[2]	100 µV to 1.5 kV	GMW3172, Sections 8.2 and 9.2
Resistance[2]	100 µOhms to 1.6 x 10^{16} Ohms	GMW3431
Resistivity[2]	1 x 10^{6} Ohms to 1.6 x 10^{16} Ohms	ASTM D257
Dielectric Testing[2] –		
DC	100 V to 15 kV	USCAR 2
AC	100 V to 15 kV	MIL-STD-202-301

On the following products and components: motors, alternators, generators, controllers, starters, coils, inductors, transformers, connectors, relays, switches, solenoids, resistors, capacitors, cables, feeders; conductive materials; printed circuits; batteries (hybrid and lithium-ion); exterior/interior lighting components.

ELEMENT MATERIALS TECHNOLOGY[3]
1920 Concept Dr.
Warren, MI 48091-1385

Battery Testing

DOE/ID-11069	Ineel Battery Test Manual for Test: Static Capacity, Hybrid Pulse Power Characterization, Self-Discharge, Cold Cranking, Thermal Performance, Efficiency, Operating Set Point Stability, Cycle Life, Calendar Life, Reference Performance
DOE/NE-ID-11173	FreedomCAR Ultracapacitor Test Manual (Excluding Impedance Spectrum Testing)
SAE J1798	Rating of Electric Vehicle Battery Modules
SAE J2288	Life Cycle Testing of Electric Vehicle Battery Modules
UL 2580 (Sections 40 to 41)	Outline of Investigation for Batteries for use in Electric Vehicles

[1]The laboratory is accredited for the test methods listed above. The accredited test methods are used to determine compliance with any material specifications included on this Scope; however, the inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications. Inclusion of these material specifications on this Scope also does not confer accreditation for every method embedded within the specification. Only the methods listed above on this Scope are accredited.

[2]Also using customer-specific test methods utilizing any combination of test equipment parameters and ranges listed above.

[3]This accreditation covers the specified testing performed at the laboratory locations listed in this scope of accreditation.

Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY DETROIT – WARREN 11 MILE

Warren, MI

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 26th day of February 2025.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0098.12
Valid to December 31, 2026

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