

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY DETROIT - WARREN 11 MILE

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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	<u>TEST</u>
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

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<u>Parameter</u>	Range	Test Method
Voltage –		
$AC - Measure^2$	$100~\mu V$ to $15~kV$	MIL-STD-202-301
AC – Generate ²	100 mV to $10 V$ @ 1Hz to $30 MHz$, $10 V$	MIL-STD-202-301
	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	
$DC - Measure^2$	$0.01~\mu\mathrm{V}$ to $15~\mathrm{kV}$	GMW 3172, Sections 8.2 and 9.2
$DC - Generate^2$	$100~\mu V$ to $1.5~kV$	GMW3172, Sections 8.2 and 9.2
Resistance ²	100 μ Ohms to 1.6 x 10 ¹⁶ Ohms	GMW3431
Resistivity ²	1×10^6 Ohms to 1.6×10^{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 TECHNOLOGY³ 1920 Concept Dr. Warren, MI 48091-1385

Battery Testing

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	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

¹The 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.

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

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



A2LA has accredited

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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

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