



## SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

### ELEMENT MATERIALS TECHNOLOGY BURTON

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### ELECTRICAL

Valid to: May 31, 2026

Certificate Number: 1123.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following automotive electromagnetic compatibility tests and electronics testing using the parameters and methods listed below:<sup>4</sup>

**On the following products or types of products:**

Automotive, Aerospace, Military and Electrical/Electronic/Mechanical components and assemblies.

Test Technology:	Test Specification/Method(s) <sup>3</sup> :
<b><i>EMC Tests</i></b>	
Radiated RF Emissions	CISPR 25 <i>Section 6.5 ALSE Method only;</i> CISPR 25:2008 <i>Section 6.4 ALSE Method only</i>
Conducted RF Emissions	CISPR 25 <i>Section 6.3 and 6.4;</i> CISPR 25:2008 <i>Section 6.2 and 6.3</i>
Bulk Current Injection (BCI)	ISO 11452-4 <i>Excluding TWC test method;</i> ISO 11452-4 (2011) <i>Excluding TWC test method</i>
Absorber-Lined Shielded Enclosure (ALSE) RI	ISO 11452-2 <i>Frequency range 200 MHz – 6 GHz;</i> ISO 11452-2 (2004) <i>Frequency range 200 MHz – 6 GHz</i>
Radiated Immunity – Portable Transmitters	ISO 11452-9 <i>Using Annex B, Section B.2 Antenna only;</i> ISO 11452-9 (2012) <i>Using Annex B, Section B.2 Antenna only</i>
Reverberation Radiated Immunity Mode Tuned	ISO/IEC 61000-4-21 <i>Annex D only, Modified OEM method;</i> ISO 11452-11; ISO 11452-11(2019)
Conducted Transient Emissions	ISO 7637-2 <i>Conducted Transient Emissions;</i>

Test Technology:	Test Specification/Method(s) <sup>3</sup> :
	ISO 7637-2 (2004) <i>Conducted Transient Emissions</i>
Conducted Transient Immunity – Power/Supply Lines	ISO 7637-2 <i>Conducted Transient Immunity</i> ; ISO 7637-2 <i>Conducted Transient Immunity</i> (2011); ISO 16750-2 <i>Conducted Immunity</i> ( <i>Pulses 4, 5a, 5b</i> )
Conducted Transient Immunity – Other than Power/Supply Lines	ISO 7637-3; ISO 7637-3 (2007)
Radiated Immunity – Magnetic Fields (Loop)	ISO 11452-8 <i>Section 8.3.1 Radiating loop</i> ; ISO 11452-8 (2007) <i>Section 7.3.1 Radiating loop</i>
Electrostatic Discharge (ESD)	ISO 10605 <i>Excluding Section 6, Vehicle Tests</i> ; ISO 10605 (2008) <i>Excluding Section 10, Vehicle Tests</i>
<p><b><u>Electrical Tests Based on GMW 3172:</u></b></p> <ul style="list-style-type: none"> <li>- Jump Start</li> <li>- Reverse Polarity</li> <li>- Over Voltage</li> <li>- State Change Waveform Characterization</li> <li>- Ground Path Inductance Sensitivity</li> <li>- Power Supply Interruptions</li> <li>- Battery Voltage Dropout</li> <li>- Intermittent Short Circuit to Battery/Ground</li> <li>- Continuous Short Circuit to Battery/Ground</li> <li>- Parasitic Current</li> <li>- Sinusoidal Superimposed Voltage</li> <li>- Pulsed Superimposed Voltage</li> <li>- Power Offset</li> <li>- Ground Offset</li> <li>- Open Circuit Single Line</li> <li>- Open Circuit Multiple Lines</li> <li>- Overload – Fuse Protected Circuits</li> </ul>	GMW 3172 <sup>2</sup> ;
<p><b><u>Electrical Tests Based on GMW 3172 (cont.):</u></b></p> <ul style="list-style-type: none"> <li>- Overload – All Circuits</li> <li>- Crank Pulse Capability and Durability</li> <li>- Switched Battery Line</li> <li>- Multiple Power and Multiple Ground Short</li> <li>- Circuit Including Pass Through</li> <li>- Fretting Corrosion Degradation</li> </ul>	GMW 3172 <sup>2</sup> ;
<p><b><u>Electrical Tests Based on MIL-STD 202:</u></b></p> <ul style="list-style-type: none"> <li>- Dielectric Withstanding Voltage</li> <li>- Insulation Resistance</li> <li>- DC Resistance</li> </ul>	MIL-STD-202G, Method 301; MIL-STD-202G, Method 302; MIL-STD-202G, Method 303;

Test Technology:	Test Specification/Method(s) <sup>3</sup> :
- Resistance Temperature Characteristic	MIL-STD-202G, Method 304
<b><u>Electrical Tests Based on USCAR-2:</u></b>	
- Dry Circuit Resistance - Voltage Drop - Insulation Resistance	USCAR-2; USCAR-2; USCAR-2
<b><u>Battery Abuse Testing</u></b>	SAE J2464 §4.5.1
<b><u>Short Circuit</u></b>	UL 2580 §26 UN 38.3
<b><u>External Short Circuit Protection</u></b>	UN ECE R100 rev3 Annex 9F
<b><u>Over-current protection</u></b>	UN ECE R100 rev3 Annex 9J
<b><u>Overcharge protection</u></b>	UN ECE R100 rev3 Annex 9G§ 3.2.4
<b><u>Over-discharge protection</u></b>	UN ECE R100 rev3 Annex 9H§ 3.2.4

Test Type	Test Parameters
<b><u>Voltage</u></b>	
AC – Measure <sup>1</sup>	1 $\mu$ V to 400 V @ 1 Hz to 250 MHz
AC – Generate <sup>1</sup>	1 mV to 10 V @ 1 Hz to 80 MHz
DC – Measure <sup>1</sup>	1 mV to 1,000 V
DC – Generate <sup>1</sup>	1 mV to 1,000 V
<b><u>Current</u></b>	
AC/DC Current – Measure <sup>1</sup>	10 $\mu$ A to 400 A
DC Current – Generate <sup>1</sup>	10 $\mu$ A to 600 A
<b><u>Resistance</u></b>	
Measure <sup>1</sup>	100 $\mu$ $\Omega$ to 2.0 x 10 <sup>10</sup> $\Omega$
Generate <sup>1</sup>	100 $\mu$ $\Omega$ to 1.6 x 10 <sup>10</sup> $\Omega$
<b><u>Dielectric Testing</u></b>	
AC <sup>1</sup>	(100 to 4,000) V
DC <sup>1</sup>	(100 to 1,100) V
<b><u>Frequency</u></b>	
Measure <sup>1</sup>	1 Hz to 250 MHz
Generate <sup>1</sup>	1 Hz to 80 MHz
<b><u>Capacitance<sup>1</sup></u></b>	0.1 pF to 10 mF
<b><u>Resistivity<sup>1</sup></u></b>	1 x 10 <sup>6</sup> $\Omega$ m to 1 x 10 <sup>10</sup> $\Omega$ m

<sup>1</sup>Also using customer specifications directly related to the types of tests and parameters listed.

<sup>2</sup> This laboratory's scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered "historical" and not that the laboratory's accreditation for the method has been withdrawn including but not limited to GMW 3172 (2008, 2010, 2012, 2015, 2018)<sup>2</sup>

<sup>3</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>4</sup> This scope meets A2LA's P112 Flexible Scope Policy.



## Accredited Laboratory

A2LA has accredited

### ELEMENT MATERIALS TECHNOLOGY BURTON

Burton, 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 25<sup>th</sup> day of July 2024.

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

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 1123.02  
Valid to May 31, 2026  
Revised November 07, 2025



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