



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELECTRIC APPLICATIONS INCORPORATED

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ELECTRICAL

Valid To: October 31, 2021

Certificate Number: 4365.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on the following types of products: Batteries, including but not limited to: lithium ion, lead acid and NiMH at the cell, module, and pack levels. Energy storage devices of various capacities, configurations and chemistries, including batteries and capacitors.

**Test Technology/Test Capabilities<sup>1</sup>**

Rated Capacity Test TS-001  
Current, Voltage and Temperature Range of  
Equipment Utilized

**Test Method**

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT-12-26503, 2015;

USABC Battery Test Manual for Electric  
Vehicles, 2015;

RTCA DO 293 Minimum Operational  
Performance Standards (MOPS) for Nickle-  
Cadmium, Nickle Metal-Hydride and Lead-Acid  
Batteries; Section 2.2 Electrical Requirements and  
Test Procedures, Section 2.3 Rapid Discharge  
Capacity, 2009;

GR-3150 General Requirements for Secondary  
Non-Aqueous Lithium Batteries, 2015;

Society of Automotive Engineers Standard J537,  
Storage Batteries, 2016

**Test Technology/Test Capabilities<sup>1</sup>**

Constant Power Discharge Test TS-002  
Current, Voltage and Temperature Range of  
Equipment Utilized

HPPC Test TS-003  
Current, Voltage and Temperature Range of  
Equipment Utilized

Self-Discharge Test TS-004  
Current, Voltage and Temperature Range of  
Equipment Utilized

Cold Cranking Test TS-005  
Current, Voltage and Temperature Range of  
Equipment Utilized

Thermal Performance Test TS-006  
Current, Voltage and Temperature Range of  
Equipment Utilized

**Test Method**

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT-12-26503, 2015;

USABC Battery Test Manual for Electric  
Vehicles, 2015

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT-12-26503, 2015;

USABC Battery Test Manual for Electric  
Vehicles, 2015

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT-12-26503, 2015;

GR-3150 General Requirements for Secondary  
Non-Aqueous Lithium Batteries, 2015

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT12-26503, 2015;

USABC Battery Test Manual for Electric  
Vehicles, 2015;

Society of Automotive Engineers Standard J537,  
Storage Batteries, 2016;

BCIS-04 Storage Battery Specifications For  
Starting, Lighting And Ignition Types, 2016

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT12-26503, 2015



**Test Technology/Test Capabilities<sup>1</sup>**

**Test Method**

Cycle Life Test TS-007  
Current, Voltage and Temperature Range of  
Equipment Utilized

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT12-26503, 2015;

USABC Battery Test Manual for Electric  
Vehicles, 2015;

SAE J2185 Test of Heavy-Duty Storage Batteries  
(Lead Acid Type Only), 2018;

GR-3150 General Requirements for Secondary  
Non-Aqueous Lithium Batteries, 2015;

SAE J240 Life Test for Automotive Storage  
Batteries, 2012

Accelerated Float Life TS-008  
Current, Voltage and Temperature Range of  
Equipment Utilized

IEC 60896-21 Stationary lead acid batteries – Part  
21: Valve regulated types – methods of test, 2004

Ground Short Propensity Test TS-009  
Current, Voltage and Temperature Range of  
Equipment Utilized

IEC 60896-21 Stationary lead acid batteries – Part  
21: Valve regulated types – methods of test, 2004

Peak Power Test TS-010  
Current, Voltage and Temperature Range of  
Equipment Utilized

USABC Battery Test Manual for Electric  
Vehicles, 2015

Fast Rate Charge Test TS-011  
Current, Voltage and Temperature Range of  
Equipment Utilized

USABC Battery Test Manual for Electric  
Vehicles, 2015

Calendar Life Test TS-012  
Current, Voltage and Temperature Range of  
Equipment Utilized

USDoE Vehicle Technologies Program Battery  
Test Manual For 12 Volt Start/Stop Vehicles,  
INL/EXT-12-26503, 2015;

Water Consumption Test TS-013  
Current, Voltage and Temperature Range of  
Equipment Utilized

EN50342-1 Lead-acid starter batteries Part 1:  
General Requirements and Methods of Test, 2015

Dynamic Charge Acceptance Test TS-014  
Current, Voltage and Temperature Range of  
Equipment Utilized

EN50342-6 Lead-acid starter batteries Part 6:  
Batteries for Micro-Cycle Applications, 2015

<sup>1</sup>Also using customer specified test methods directly related to the types of testing above that fall within the following test parameters and ranges:



Current, Voltage and Temperature Range of Equipment Utilized

<b>Parameter</b>	<b>Range:</b>
VDC – Measure	(0 to 400) V
VDC – Source	(0 to 400) V
ADC – Measure	(-1000 to 1000) A
ADC – Source	(-1000 to 1000) A
Power – Source	(-33,000 to 33,000) W
Temperature	(-60 to 120) °C





# Accredited Laboratory

A2LA has accredited

## ELECTRIC APPLICATIONS INCORPORATED

Phoenix, AZ

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 12<sup>th</sup> day of November 2019.

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

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 4365.01  
Valid to October 31, 2021

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