



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Electro-Tech Systems, Inc.
700 West Park Avenue
Perkasie, PA 18944

Fulfills the requirements of

ISO/IEC 17025:2017

In the fields of

TESTING and CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 22 August 2024

Certificate Number: ACT-3122



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Electro-Tech Systems, Inc.

700 West Park Avenue
Perkasie, PA 18944

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TESTING AND CALIBRATION

Valid to: **August 22, 2024**

Certificate Number: **ACT-3122**

TESTING

Electrical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Static Decay	Mil-STD-3010C, Method 4046	Woven Fabric, Nonwoven Fabric, Plastics, Cellulose, Other Flat Plaque Specimens	Static Decay Analyzer
Surface or Volume Resistivity	ASTM-D-257	Insulative Materials	Concentric Ring Electrode and Wide Range Resistance Meter
Surface Resistance ESD	ANSI/ESD STM11.11	Dissipative Flat Plaque Specimens	Concentric Ring Electrode and Wide Range Resistance Meter
Surface Resistivity	EN1149-1	Woven Fabric, Nonwoven Fabric, Plastics, Cellulose, Other Flat Plaque Specimens	Concentric Ring Electrode and Wide Range Resistance Meter
Volume Resistance STM11.12	ANSI/ESD STM11.12	Dissipative Flat Plaque Specimens	Concentric Ring Electrode and Wide Range Resistance Meter
Volume Resistivity	ASTM D991	Rubber or other flat materials	Voltmeter, Ammeter, and M 831T electrode
Electrostatic shielding	ANSI/ESD STM11.31	ESD Shielding Packaging	Shielded Bag Test System
Floor Material and Footwear Resistance	ANSI/ESD STM 97.1	Flooring and Footwear	Wide Range Resistance Meter
Floor Material and Footwear Voltage	ANSI/ESD STM 97.2	Flooring and Footwear	Charge Plate Monitor
Resistance of Flooring	ASTM F150	Flooring	Wide Range Resistance Meter

Electrical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Resistive Characterization of Worksurfaces per ANSI/ESD STM4.1	ANSI/ESD STM4.1	Worksurfaces	Wide Range Resistance Meter
Worksurface Charge Dissipation ANSI/ESD STM4.2	ANSI/ESD STM4.2	Worksurfaces	Charge Plate Monitor
Resistive Characterization of Flooring	ANSI/ESD STM7.1	Flooring	Wide Range Resistance Meter and 5-lb. probes
Resistive Characterization of Seating	ANSI/ESD STM12.1	Seating or cart	Wide Range Resistance Meter and 5-lb. probes
Voltage Generation of mailer wrap materials	USPS-T-3204, Section 3.1.8	Mailer Wraps or Polymer Film Material	Charge Plate Monitor
Volume Resistance Alternating Polarity Method	ASTM D257	Insulative Materials	Concentric Ring Electrode and Wide Range Resistance Meter
Resistive Characterization of Garment per ANSI/ESD STM2.1	ANSI/ESD STM2.1	Garments	Wide Range Resistance Meter and 5-lb. probes
Footwear or Foot Grounder Resistive Characterization	ANSI/ESD STM9.1	Footwear or Foot Grounder	Wide Range Resistance Meter and 5-lb. probes
Surface Resistance ESD	ANSI/ESD STM11.13	Dissipative Small Specimens	Two-Point Electrode and Wide Range Resistance Meter
Resistive Characterization of Wrist Straps	ANSI/ESD S1.1	Wrist Straps	Wide Range Resistance Meter
Ionization and Ionizer Testing	ANSI/ESD STM3.1	Ionizers	Charge Palte Monitor

CALIBRATION

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Source	(0 to 2 000) V	13 V	Comparison to Brandenburg 149-1 High Voltage Meter
	(2 000 to 5 000) V	11 V	
	(5 000 to 10 000) V	19 V	
	(10 000 to 20 000) V	190 V	
	(20 000 to 25 000) V	210 V	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Measure	(0 to 2 000) V (2 000 to 5 000) V (5 000 to 10 000) V (10 000 to 20 000) V (20 000 to 30 000) V	7.3 V 12 V 18 V 39 V 54 V	Brandenburg 149-1 High Voltage Meter
DC Voltage – Measure	(0 to 500) mV 500 mV to 5 V (5 to 50) V	18 μ V 1.7 mV 15 mV	AEMC MX55 Digital Multimeter
Electrostatic Field – Measure	1 000 V 5 000 V	6.8 V 22 V	Brandenburg 149-1 High Voltage Meter, ETS 812 High Voltage Power Supply
Resistance – Measure	500 Ω 50 k Ω 500 k Ω	0.79 Ω 9.3 Ω 1200 Ω	AEMC MX55 Digital Multimeter
Resistance – Measure	20 Ω 20 k Ω 200 k Ω 2 M Ω 200 M Ω 2 G Ω 20 G Ω 200 G Ω 1 T Ω	97 m Ω 16 Ω 1.7 k Ω 66 k Ω 0.24 M Ω 13 M Ω 0.1 G Ω 1.9 G Ω 0.13 T Ω	Dr. Thedig Milli-TO 2 Resistance Meter
Resistance/Resistivity Rubber Electrode – Measure	500 k Ω 1 T Ω	2.3 k Ω 0.13 T Ω	Dr. Thedig Milli-TO 2 Resistance Meter
Resistance/Resistivity Metallic Electrode – Measure	Up to 10 Ω	70 m Ω	AEMC MX55 Digital Multimeter
Resistance Fixture (Fixed Point)	500 k Ω	2.1 k Ω	AEMC MX55 Digital Multimeter
Resistance Fixture (Fixed Points)	100 k Ω 1 G Ω 1 T Ω	1.7 k Ω 13 M Ω 0.13 T Ω	Comparison to Dr. Thedig Milli-TO 2 Resistance Meter
Capacitance – Measure	200 pF 2 nF 20 nF 200 nF	1.3 pF 11 pF 0.11 nF 0.79 nF	B&K Precision 810C Capacitance Meter
Static Decay Time – Measure	10 ms to 20 s	27 ms	Brandenburg 149-01 Timer Chip/High Voltage Meter

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Current Over Time – Waveform Generation DC Current	(0 to 100) A	0.99 A	Agilent Oscilloscope (1 GHz)
Time	(0 to 170) ns	3.6 μ s	

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Relative Humidity – Measuring Equipment	12 %RH 75.5 %RH	1.1 %RH 2.1 %RH	Comparison to Rotronic HC2A-S Ambient Air Probe
Temperature – Measuring Equipment	10 °C 50 °C	0.32 °C 0.22 °C	Comparison to Rotronic HC2A-S Ambient Air Probe

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Length – Measure	6 in	0.001 3 in	Mitutoyo CD-6 CS Digital Caliper

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope
2. This scope is formatted as part of a single document including Certificate of Accreditation No. ACT-3122.



R. Douglas Leonard Jr., VP, PILR SBU