SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

GREENWICH INSTRUMENT CO. INC., A DIVISION OF PARKER MEDICAL INC.
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CALIBRATION

Valid To: June 30, 2023 Certificate Number: 6374.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 4]:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Dynalyzers and High Voltage Dividers –	Nominal Voltage Ratio: 1 k, 10 k, 100 k		
DC High Voltage (kVp) Bipolar	(5 to 100) kV	0.3 % of Voltage Ratio	Spellman HVD-200 voltage divider, Fluke 8842A/8845A multimeters
Monopole (negative polarity)	(30 to 175) kV	0.2 % of Voltage Ratio	Spellman HVD-300 modified voltage divider, Fluke 8842A multimeter
Dynalyzers and High Voltage Dividers –	Nominal Voltage Ratio: 1 k, 10 k, 100 k		
Voltage Divider Frequency Response	DC to 1 kHz (1 to 30) kHz	2 % of DC Voltage Ratio 4 % of DC Voltage Ratio	Fluke 8845A multimeter
Anode Current Sensor	(1 to 500) mA	0.6 % of reading	Fluke 8842A multimeter

Parameter/Equipment	Range	CMC[2, 3] (±)	Comments
Dynalyzers and High Voltage Dividers –	Nominal Voltage Ratio: 1 k, 10 k, 100 k		
Filament Current Sensor	60 Hz to 10 kHz (1 to 10) A	1 % of reading	Fluke 8842A multimeter, Fluke 80J-10 shunt
Dynalyzer Digital Displays –			
Peak Voltage Anode Current Anode	(20 to 150) kV 1 mA to 1 A	0.10 % of reading 0.15 % of reading	Fluke 8845A multimeter
Current Filament	60 Hz to 10 kHz (1 to 10) A	0.20 % of reading	
Exposure Time	50 ms to 1.5 s	0.30 % of reading	HP 5316B counter
MAS Meter	1 mA to 1 A	0.30 % of reading	Fluke 8845A multimeter HP 5316B counter
DC Voltage – Generate	Up to 330 mV 330 mV to 3.3 V (3.3 to 33) V (33 to 330) V 330 V to 1.02 kV	0.0070 % + 3.5 µV 0.0058 % + 5.8 µV 0.0045 % + 0.48 mV 0.0057 % + 0.44 mV 0.0064 % + 1.8 mV	Fluke 5500A SC600, multiproduct calibrator
Resistance – Generate	Up to 11 Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω 330 Ω to 1.1 kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ 330 kΩ to 1.1 MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (110 to 330) MΩ	0.014 % + 7 mΩ 0.014 % + 12 mΩ 0.011 % + 12 mΩ 0.011 % + 11 mΩ 0.011 % + 0.070 Ω 0.011 % + 0.069 Ω 0.011 % + 0.70 Ω 0.011 % + 0.69 Ω 0.013 % + 6.9 Ω 0.014 % + 7.0 Ω 0.40 % of reading 0.018 % + 56 Ω 0.07 % + 0.61 kΩ 0.12 % + 0.57 kΩ 0.58 % + 6.2 kΩ 0.58 % + 5.9 kΩ	Fluke 5500A SC600, multiproduct calibrator

Parameter/Equipment	Range	CMC[2, 3] (±)	Comments
DC Current – Generate	(3.3 to 33) mA (33 to 330) mA 330 mA to 2.2 A (2.2 to 11) A	0.012 % + 0.029 µA 0.012 % + 3.8 µA 0.046 % + 14 µA 0.073 % + 0.39 mA	Fluke 5500A SC600, multiproduct calibrator

Parameter/Range	Frequency	CMC[2, 3] (±)	Comments
AC Voltage – Generate			
(1 to 33) mV	45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.17 % + 23 µV 0.23 % + 23 µV 0.29 % + 23 µV 0.29 % + 39 µV 1.2 % + 69 µV	Fluke 5500A SC600, multiproduct calibrator
(33 to 330) mV	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	1.2 % + 69 µV 0.058 % + 23 µV 0.12 % + 23 µV 0.19 % + 46 µV 0.28 % + 0.2 mV 0.81 % + 0.38 mV	
330 mV to 3.3 V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.17 % + 0.29 mV 0.035 % + 85 µV 0.092 % + 78 µV 0.16 % + 0.35 mV 0.28 % + 2.0 mV 0.57 % + 3.9 mV	
(3.3 to 33) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.18 % + 2.8 mV 0.046 % + 0.71 mV 0.092 % + 3.0 mV 0.22 % + 5.8 mV 0.28 % + 0.02 V	
(33 to 330) V	45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz	0.058 % + 7.7 mV 0.092 % + 96 µV 0.11 % + 0.1 mV	
330 V to 1.02 kV	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	2.2 V 0.072 % + 1.6 V 0.070 % + 1.6 V	

Parameter/Range	Frequency	CMC[2, 3] (±)	Comments
AC Current – Generate			
(29 to 330) µA	(20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.088 % + 0.36 µA 0.11 % + 0.40 µA 0.11 % + 0.4 µA 1.4 % + 0.24 µA	Fluke 5500A SC600, multiproduct calibrator
330 µA to 3.3 mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.23 % + 0.43 µA 0.12 % + 0.45 µA 0.25 % + 0.026 µA 0.23 % + 0.43 µA 0.69 % + 0.38 µA	
(3.3 to 33) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.23 % + 3.5 µA 0.12 % + 3.5 µA 0.11 % + 3.5 µA 0.23 % + 3.5 µA 0.69 % + 3.5 µA	
(33 to 330) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.23 % + 35 µA 0.12 % + 35 µA 0.11 % + 35 µA 0.23 % + 35 µA 0.69 % + 35 µA	
330 mA to 2.2 A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz	0.23 % + 0.35 mA 0.12 % + 0.35 mA 0.87 % + 0.35 mA	
(2.2. to 11) A	(45 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz	0.080 % + 2.1 mA 0.12 % + 2.3 mA 0.38 % + 2.3 mA	

[1] This laboratory offers commercial calibration service and field calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.

[4] This scope meets A2LA's *P112 Flexible Scope Policy*.

Accredited Laboratory

A2LA has accredited

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Danbury, CT

for technical competence in the field of

Calibration

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 laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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 2nd day of November 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 6374.01
Valid to June 30, 2023

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