CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Transcat Biomedical
1228 State Route 487
Paxinos, PA 17860

Fulfills the requirements of

ISO/IEC 17025:2017

and national standard

ANSI/NCSL Z540-1-1994 (R2002)

In the field of

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.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 07 September 2023
Certificate Number: AC-2489.19

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

AND

ANSI/NCSL Z540-1-1994 (R2002)

Transcat Biomedical

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CALIBRATION

Valid to: **September 7, 2023** Certificate Number: **AC-2489.19**

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Source [1]	(30 to 330) µA		Fluke 5500A Multiproduct Calibrator
	(10 to 20) Hz	0.25 % of reading + 0.12 µA	
	(20 to 45) Hz	0.098 %% of reading + 0.12 µA	
	45 Hz to 1 kHz	0.097 %% of reading + 0.12 µA	
	(1 to 5) kHz	0.31 %% of reading + 0.12 µA	
	(0.33 to 3.3) mA		
	(10 to 20) Hz	0.16 %% of reading + 0.23 µA	
	(20 to 45) Hz	0.16 %% of reading + 0.23 µA	
	45 Hz to 1 kHz	0.078 %% of reading + 0.23 µA	
	(1 to 5) kHz	0.16 %% of reading + 0.23 µA	
	(5 to 10) kHz	0.47 %% of reading + 0.23 µA	
	(3.3 to 33) mA		
	(10 to 20) Hz	0.16 %% of reading + 2.3 µA	
	(20 to 45) Hz	0.079 %% of reading + 2.3 µA	
	45 Hz to 1 kHz	0.07 %% of reading + 2.3 µA	
	(1 to 5) kHz	0.16 % % of reading + 2.3 µA	
	(5 to 10) kHz	0.47 % of reading + 2.3 µA	
	(33 to 330) mA		
	(10 to 20) Hz	0.16 % of reading + 23 µA	
	(20 to 45) Hz	0.078 % of reading + 23 µA	
	45 Hz to 1 kHz	0.07 % of reading + 23 µA	
	(1 to 5) kHz	0.16 % of reading + 23 µA	
	(5 to 10) kHz	0.47 % of reading +23 µA	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Source [1]	(0.33 to 2.2) A (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (2.2 to 10) A (10 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz	 0.16 % of reading + 0.23 mA 0.078 % of reading + 0.23 mA 0.58 % of reading + 0.23 mA 0.047 % of reading + 1.6 mA 0.078 % of reading + 1.6 mA 0.26 % of reading + 1.6 mA	Fluke 5500A Multiproduct Calibrator
DC Current – Source [1]	(0 to 3.3) mA (3.3 to 33) mA (33 to 330) mA (0.33 to 2.2) A (2.2 to 11) A	0.01 % of reading + 40 nA 0.01 % of reading + 0.19 µA 0.008 % of reading + 2.5 µA 0.025 % of reading + 34 µA 0.047 % of reading + 0.26 mA	Fluke 5500A Multiproduct Calibrator
Capacitance – Source [1]	(0.33 to 11) nF (50 to 1 000) Hz (11 to 110) nF (50 to 1 000) Hz (110 to 330) nF (50 to 1 000) Hz (0.33 to 1.1) µf (50 to 1 000) Hz (1.1 to 3.3) µf (50 to 1 000) Hz (3.3 to 11) µf (50 to 400) Hz (11 to 33) µf (50 to 400) Hz (33 to 110) µf (50 to 200) Hz (110 to 330) µf (50 to 100) Hz (0.33 to 1.1) mf (50 to 100) Hz	 0.41 % of reading + 7.8 pF 0.22 % of reading + 7.8 pF 0.22 % of reading + 0.23 nF 0.22 % of reading + 0.77 nF 0.22 % of reading + 2.3 nF 0.22 % of reading + 7.8 nF 0.33 % of reading + 23 nF 0.45 % of reading + 78 nF 0.59 % of reading + 0.23 µF 0.85 % of reading + 0.23 µF	Fluke 5500A Multiproduct Calibrator
Resistance – Source [1]	(0 to 11) Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω (0.33 to 1.1) kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ	0.009 % of reading + 4.6 mΩ 0.009 % of reading + 7.7 mΩ 0.007 % of reading + 7.7 mΩ 0.007 % of reading + 7.7 mΩ 0.007 % of reading + 47 mΩ 0.007 % of reading + 47 mΩ 0.007 % of reading + 0.47 Ω 0.007 % of reading + 0.47 Ω	Fluke 5500A Multiproduct Calibrator

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance – Source [1]	(33 to 110) kΩ	0.009 % of reading + 4.7 Ω	Fluke 5500A Multiproduct Calibrator
	(110 to 330) kΩ	0.009 % of reading + 4.7 Ω	
	(0.33 to 1.1) MΩ	0.012 % of reading + 43 Ω	
	(1.1 to 3.3) MΩ	0.013 % of reading + 43 Ω	
	(3.3 to 11) MΩ	0.047 % of reading + 0.43 kΩ	
	(11 to 33) MΩ	0.086 % of reading + 0.43 kΩ	
	(33 to 110) MΩ	0.4 % of reading + 4.3 kΩ	
	(110 to 330) MΩ	0.54 % of reading + 4.3 kΩ	
AC Voltage – Source [1]	(1 to 33) mV		Fluke 5500A Multiproduct Calibrator
	(10 to 45) Hz	0.27 % of reading + 16 µV	
	45 Hz to 10 kHz	0.12 % of reading + 16 µV	
	(10 to 20) kHz	0.16 % of reading + 16 µV	
	(20 to 50) kHz	0.19 % of reading + 16 µV	
	(50 to 100) kHz	0.27 % of reading + 26 µV	
	(100 to 500) kHz	0.78 % of reading + 47 µV	
	(33 to 330) mV		
	(10 to 45) Hz	0.19 % of reading + 39 µV	
	45 Hz to 10 kHz	0.039 % of reading + 16 µV	
	(10 to 20) kHz	0.078 % of reading + 16 µV	
	(20 to 50) kHz	0.12 % of reading + 31 µV	
	(50 to 100) kHz	0.19 % of reading + 0.13 mV	
	(100 to 500) kHz	0.54 % of reading + 0.26 mV	
	(0.33 to 3.3) V		
	(10 to 45) Hz	0.12 % of reading + 0.19 mV	
	45 Hz to 10 kHz	0.023 % of reading + 46 µV	
	(10 to 20) kHz	0.062 % of reading + 47 µV	
	(20 to 50) kHz	0.11 % of reading + 0.23 mV	
	(50 to 100) kHz	0.19 % of reading + 1.3 mV	
	(100 to 500) kHz	0.39 % of reading + 2.6 mV	
	(3.3 to 33) V		
	(10 to 45) Hz	0.12 % of reading + 1.9 mV	
	45 Hz to 10 kHz	0.031 % of reading + 0.47 mV	
	(10 to 20) kHz	0.062 % of reading + 2 mV	
	(20 to 50) kHz	0.15 % of reading + 3.9 mV	
	(50 to 100) kHz	0.19 % of reading + 13 mV	
	(33 to 330) V		
	45 Hz to 1 kHz	0.039 % of reading + 5.1 mV	
	(1 to 10) kHz	0.062 % of reading + 12 mV	
	(10 to 20) kHz	0.07 % of reading + 26 mV	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Source [1]	(330 to 1020) V 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.039 % of reading + 62 mV 0.16 % of reading + 78 mV 0.16 % of reading + 0.39 V	Fluke 5500A Multiproduct Calibrator
DC Voltage – Source [1]	(0 to 330) mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V (330 to 1 000) V	0.005 % of reading + 2.3 µV 0.004 % of reading + 3.9 µV 0.004 % of reading + 39 µV 0.004 % of reading + 0.39 mV 0.004 % of reading + 1.2 mV	Fluke 5500A Multiproduct Calibrator

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Source [1]	10 mHz to 2 MHz	19 µHz/Hz + 0.78 mHz	Fluke 5500A Multiproduct Calibrator

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. CMC is for a controlled laboratory environment of 18 °C to 28 °C (65 °F to 82 °F), when outside of this environment, larger measurement uncertainties are expected than what is reported on the accredited scope.
2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2489.19.

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