CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

TAI Technical Services
811 Pinnacle Drive, Suite D
Linthicum, MD 21090

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.

Jason Stine, Vice President

Expiry Date: 09 June 2028

Certificate Number: AC-2055

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)

TAI Technical Services
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CALIBRATION

ISO/IEC 17025 Accreditation Granted: **05 June 2026**

Certificate Number: **AC-2055** Certificate Expiry Date: **09 June 2028**

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Capacitance Source	(0.4 to 1.099 9) nF	0.018 nF	Comparison to Fluke 5522A Multi Product Calibrator
	(1.1 to 3.299 9) nF	0.32 nF	
	(3.3 to 10.999 9) nF	0.11 nF	
	(11 to 32.999 9) nF	0.35 nF	
	(33 to 109.999) nF	1.1 nF	
	(110 to 329.999) nF	3.3 nF	
	(0.33 to 1.099 99) µF	0.015 µF	
	(1.1 to 3.299 99) µF	0.32 µF	
	(3.3 to 10.999 9) µF	0.16 µF	
	(11 to 32.999 9) µF	0.35 µF	
	(33 to 109.999) µF	1.1 µF	
	(110 to 329.999) µF	3.3 µF	
	(0.33 to 1.099 99) mF	0.12 mF	
	(1.1 to 3.299 99) mF	0.34 mF	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Current Source	(0 to 329.999) µA (330 to 3.299 99) mA (3.3to 32.999 9) mA (33 to 329.999) mA 330 mA to 1.099 99 A (1.1 to 2.999 99) A (0 to 10.999 9) A (11 to 20.5) A	5.2 nA 0.035 µA 0.91 µA 8.7 µA 0.043 mA 0.11 mA 1.3 mA 6.9 mA	Comparison to Fluke 5522A Multi Product Calibrator
DC Current Measure	(0 to 200) µA (0.2 to 2) mA (2 to 20) mA (20 to 200) mA (0.2 to 2) A (2 to 20) A	3.1 nA 22 nA 0.54 µA 7.8 µA 0.04 mA 6.9 mA	Comparison to Fluke 8508A Multimeter
AC Current Source LCOMP Off	(29.00 to 329.99) µA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz (0.33 to 3.299 99) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz (3.3 to 32.999 9) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	 0.02 µA 0.03 µA 0.03 µA 0.03 µA 0.06 µA 0.34 µA 0.3 µA 0.23 µA 0.23 µA 0.25 µA 0.31 µA 0.7 µA 0.74 µA 3.6 µA 5.7 µA 0.01 mA 0.01 mA 0.01 mA	Comparison to Fluke 5522A Multi Product Calibrator

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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current Source LCOMP Off	(33 to 329.999) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz (0.33 to 1.099 99) A (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (1.1 to 2.999 99) A (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (3 to 10.999 9) A (45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz (11 to 20.5) A (45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	 0.05 mA 0.03 mA 0.03 mA 0.03 mA 0.04 mA 0.05 mA 0.14 mA 0.15 mA 0.36 mA 1.4 mA 0.28 mA 0.33 mA 0.85 mA 2 mA 1.6 mA 1.8 mA 16 mA 4.4 mA 4.8 mA 2.3 mA	Comparison to Fluke 5522A Multi Product Calibrator
AC Current Source LCOMP On	(29.00 to 329.99) µA (10 to 100) Hz 100 Hz to 1kHz (0.33 to 3.2999 9) mA (10 to 100) Hz 100 Hz to 1 kHz (3.3 to 32.999 9) mA (10 to 100) Hz 100 Hz to 1 kHz (33 to 329.999) mA (10 to 100) Hz 100 Hz to 1 kHz (0.33 to 2.999 99) A (10 to 100) Hz 100 Hz to 440 Hz	 0.03 µA 0.03 µA 0.24 µA 0.24 µA 0.9 µA 0.28 µA 28 µA 28 µA 0.29 mA 0.29 mA	Comparison to Fluke 5522A Multi Product Calibrator

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AC Current Source LCOMP On	(3 to 10.999 9) A (10 to 100) Hz 100 Hz to 1 kHz (11 to 20.5) A (10 to 100) Hz 100 Hz to 1 kHz	 1.6 mA 1.8 mA 4.3 mA 4.8 mA	Comparison to Fluke 5522A Multi Product Calibrator
AC Current Measure	(0 to 200) µA 10 Hz 10 kHz 30 kHz (0.2 to 2) mA 10 Hz 10 kHz 30 kHz (2 to 20) mA 10 Hz 10 kHz 30 kHz (20 to 200) mA 10 Hz 10 kHz 30 kHz (0.2 to 2) A 2 kHz 10 kHz (2 to 20) A 2 kHz 5 kHz	 0.052 µA 0.05 µA 0.21 µA 0.2 µA 0.28 µA 0.42 µA 3.8 µA 6.6 µA 7.7 µA 0.064 mA 0.028 mA 0.034 mA 0.14 mA 1.4 mA 4.8 mA 13 mA	Comparison to Fluke 8508A Multimeter
Resistance Source	(0 to 10.999 9) Ω (11 to 32.999 9) Ω (33 to 109.999 9) Ω (110 Ω to 329.999 9) Ω 330 Ω to 1.099 999 kΩ (1.1 to 3.2999 99) kΩ (3.3 to 10.999 99) kΩ (11 to 32.999 99) kΩ (33 to 109.999 9) kΩ (110 to 329.999 99) kΩ 330 kΩ to 1.099 999 MΩ (1.1 to 3.299 999) MΩ	0.22 mΩ 0.2 mΩ 0.76 mΩ 2.4 mΩ 1.8 Ω 0.022 Ω 0.054 Ω 0.33 Ω 0.46 Ω 2.4 Ω 0.011 kΩ 0.037 kΩ	Comparison to Fluke 5522A Multi Product Calibrator

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Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance Source	(3.3 to 10.999 99) MΩ (11 to 32.999 99) MΩ (33 to 109.999 9) MΩ (110 to 329.999 9) MΩ (330 to 1 100) MΩ	0.14 kΩ 0.23 kΩ 0.024 MΩ 0.28 MΩ 0.48 MΩ	Comparison to Fluke 5522A Multi Product Calibrator
Resistance Measure	(0 to 1) Ω (1 to 10) Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ (0.1 to 1) MΩ (1 to 10) MΩ (10 to 100) MΩ (0.1 to 1) GΩ	1.2 mΩ 2.0 mΩ 9.5 mΩ 80 mΩ 0.83 Ω 8.3 Ω 90 Ω 1.3 kΩ 72 kΩ 18 MΩ	Comparison to Fluke 8508A Multimeter
DC Voltage Source	(0 to 329.999) mV 330 mV to 3.299 999 V (3.3 to 32.999 99) V (33 to 329.999 9) V (100 to 1 020) V	1.7 µV 67 µV 0.11 mV 0.87 mV 3.2 mV	Comparison to Fluke 5522A Multi Product Calibrator
DC Voltage Measure	(0 to 200) mV (0.2 to 2) V (2 to 20) V (20 to 200) V (200 to 1 050) V	0.31 µV 6.2 µV 11 µV 1.7 mV 3.2 mV	Comparison to Fluke 8508A Multimeter
AC Voltage Source	(1 to 32.999) 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 (33 to 329.999) 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	 2.2 µV 2.1 µV 2.3 µV 3.1 µV 4.8 µV 0.025 mV 9.4 nV 8.8 nV 9.7 nV 0.012 mV 0.02 mV 0.17 mV	Comparison to Fluke 5522A Multi Product Calibrator

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AC Voltage Source	(0.33 to 3.299 99) V		Comparison to Fluke 5522A Multi Product Calibrator
	(10 to 45) Hz	0.079 mV	
	45 Hz to 10 kHz	0.064 mV	
	(10 to 20) kHz	0.092 mV	
	(20 to 50) kHz	0.1 mV	
	(50 to 100) kHz	0.14 mV	
	(3.3 to 32.999 9) V		
	(10 to 45) Hz	0.86 mV	
	45 Hz to 10 kHz	0.81 mV	
	(10 to 20) kHz	0.84 mV	
	(20 to 50) kHz	1.8 mV	
	(50 to 100) kHz	2.8 mV	
	(33 to 329.999) V		
	45 Hz to 1 kHz	0.01 V	
	(1 to 10) kHz	0.01 V	
	(10 to 20) kHz	0.014 V	
	(20 to 50) kHz	0.031 V	
	(50 to 100) kHz	0.074 V	
	(330 to 1 020) V		
	45 Hz to 1 kHz	0.032 V	
	(1 to 5) kHz	0.04 V	
	(5 to 10) kHz	0.035 V	
AC Voltage Measure	(0 to 200) mV		Comparison to Fluke 8508A Multimeter
	10 Hz	3.1 µV	
	40 Hz	8.9 µV	
	100 Hz	270 mV	
	2 kHz	7.4 µV	
	10 kHz	8.1 µV	
	30 kHz	9.9 µV	
	100 kHz	20 µV	
	(0.2 to 2) V		
	10 Hz	0.79 mV	
	40 Hz	0.073 mV	
	100 Hz	0.073 mV	
	2 kHz	0.066 mV	
	10 kHz	0.059 mV	
	30 kHz	0.071 mV	
	100 kHz	0.14 mV	
	300 kHz	0.16 mV	
	1 MHz	0.92 mV	

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Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage Measure	(2 to 20) V 10 Hz 40 Hz 100 Hz 2 kHz 10 kHz 30 kHz 100 kHz 300 kHz 1 MHz (20 to 200) V 50 HZ 100 Hz 2 kHz 10 kHz 30 kHz 100 kHz	 0.037 V 0.81 mV 0.81 mV 0.76 mV 0.72 mV 5.2 mV 2.8 mV 1.3 mV 0.036 V 9.9 mV 10 mV 9.9 mV 0.01 V 0.012 V 0.074 V	Comparison to Fluke 8508A Multimeter
Electrical Simulation of Thermocouple Indicators - Source and Measure [1]	Type B (600 to 800) °C (800 to 1 000) °C (1 000 to 1 550) °C (1 550 to 1 820) °C Type C (0 to 150) °C (150 to 650) °C (650 to 1 000) °C (1 000 to 1 800) °C (1 800 to 2 316) °C Type E (-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1 000) °C Type J (-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1 200) °C	 0.36 °C 0.65 °C 0.3 °C 0.28 °C 0.26 °C 0.27 °C 0.17 °C 0.23 °C 0.66 °C 0.38 °C 0.16 °C 0.16 °C 0.13 °C 0.2 °C 0.24 °C 0.14 °C 0.17 °C 0.17 °C 0.21 °C	Comparison to Fluke 5522A Multi Product Calibrator

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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of Thermocouple Indicators - Source and Measure [1]	Type K (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1372) °C Type L (-200 to -100) °C (-100 to 800) °C (800 to 900) °C Type N (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1 300) °C Type R (0 to 250) °C (250 to 400) °C (400 to 1 000) °C (1 000 to 1 767) °C Type S (0 to 250) °C (250 to 1 000) °C (1 000 to 1 400) °C (1 400 to 1 767) °C Type T (-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C Type U (-200 to 0) °C (0 to 600) °C	 0.28 °C 0.15 °C 0.2 °C 0.22 °C 0.33 °C 0.31 °C 0.3 °C 0.69 °C 0.33 °C 0.17 °C 0.2 °C 0.17 °C 0.24 °C 0.46 °C 0.32 °C 0.28 °C 0.22 °C 0.38 °C 0.41 °C 0.15 °C 0.37 °C 0.5 °C 0.22 °C 0.22 °C 0.5 °C 0.45 °C 0.24 °C	Comparison to Fluke 5522A Multi Product Calibrator

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Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Gauge Pressure	(-13.200 to 1.000) psig (1.001 to 7.000) psig (7.001 to 15.000) psig	0.003 psi 0.003 psi 0.003 psi	Comparison to Fluke PM600-A200K Pressure Module
Absolute Pressure	(2.6 to 100) psia	0.012 psi	Comparison to Fluke PM600-A700K Pressure Module
Absolute Pressure	(10 to 100) psia (101 to 200) psia (201 to 300) psia (301 to 400) psia (401 to 500) psia	0.012 psi 0.012 psi 0.012 psi 0.018 psi 0.018 psi	Comparison to Fluke PM600-A3.5M Pressure Module
Gauge Pressure	(0.0 to 300.0) psig	0.053 psi	Comparison to Fluke PM600-A3.5M Pressure Module
Gauge Pressure	(0.0 to 300.0) psig (300.1 to 600) psig (600.1 to 900) psig (900.1 to 1 200) psig (1 200.1 to 1 500) psig	0.15 psi 0.13 psi 0.13 psi 0.15 psi 0.16 psi	Comparison to Fluke PM600-A10M Pressure Module
Hydraulic Pressure	(200 to 5 000) psi (5 001 to 20 000) psi	0.76 psi 3.3 psi	Comparison to Fluke P3116-PSI Deadweight Tester
Low Pressure	(0 to 10) inH_2O (10 to 30) inH_2O (0 to -10) inH_2O (-10 to 30) inH_2O	0.003 6 inH_2O 0.004 9 inH_2O 0.002 7 inH_2O 0.003 8 inH_2O	Comparison to Fluke 7250LP Pressure Controller/Calibrator

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Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Piston-Operated Volumetric Apparatus	< 0.5 µL (> 0.5 to 1) µL (> 1 to 2) µL (> 2 to 10) µL (> 10 to 20) µL (> 20 to 50) µL (> 50 to 100) µL (> 100 to 200) µL (> 200 to 500) µL (> 500 to 1 000) µL (> 1 to 2) mL (> 2 to 5) mL (> 5 to 10) mL (> 10 to 20) mL (> 20 to 50) mL	0.05 µL 0.064 µL 0.07 µL 0.059 µL 0.087 µL 0.19 µL 0.21 µL 0.24 µL 1.5 µL 2.6 µL 2.7 µL 7 µL 17 µL 18 µL 37 µL	Gravimetric Method per ISO 8655

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Temperature, Measure	(-197 to 0.010) °C (0.010 to 231.9) °C (231.9 to 420) °C	0.084 °C 0.073 °C 0.037 °C	Comparison to Fluke 5628 Thermometer w/Metrology Baths and TPW

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency Source	(0.01 to 119.99) Hz (120.0 1199.9) Hz (1.200 to 11.999) kHz (12.00 to 119.99) kHz (120.0 to 1199.9) kHz (1.200 to 2.000) MHz	2.1 mHz 19 mHz 0.19 Hz 8.2 Hz 0.19 kHz 0.52 kHz	Comparison to Fluke 5522A Multi Product Calibrator

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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.

Jason Stine, Vice President

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