



# 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](http://www.anab.org).

Jason Stine, Vice President

Expiry Date: 09 June 2026

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)**

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**CALIBRATION**

ISO/IEC 17025 Accreditation Granted: **09 June 2024**

Certificate Number: **AC-2055**      Certificate Expiry Date: **09 June 2026**

**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<br>(1.1 to 3.299 9) nF<br>(3.3 to 10.999 9) nF<br>(11 to 32.999 9) nF<br>(33 to 109.999) nF<br>(110 to 329.999) nF<br>(0.33 to 1.099 99) µF<br>(1.1 to 3.299 99) µF<br>(3.3 to 10.999 9) µF<br>(11 to 32.999 9) µF<br>(33 to 109.999) µF<br>(110 to 329.999) µF<br>(0.33 to 1.099 99) mF<br>(1.1 to 3.299 99) mF | 0.018 nF<br>0.32 nF<br>0.11 nF<br>0.35 nF<br>1.1 nF<br>3.3 nF<br>0.015 µF<br>0.32 µF<br>0.16 µF<br>0.35 µF<br>1.1 µF<br>3.3 µF<br>0.12 mF<br>0.34 mF | Comparison to<br>Fluke 5522A Multi Product<br>Calibrator |

**Electrical – DC/Low Frequency**

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

**Electrical – DC/Low Frequency**

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

**Electrical – DC/Low Frequency**

| Parameter/Equipment               | Range                                                                                                                                                                                                                                                                                                                                                                                                              | Expanded Uncertainty of Measurement (+/-)                                                                                                                                                                             | Reference Standard, Method, and/or Equipment             |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| AC Current Source<br><br>LCOMP On | (3 to 10.999 9) A<br>(10 to 100) Hz<br>100 Hz to 1 kHz<br>(11 to 20.5) A<br>(10 to 100) Hz<br>100 Hz to 1 kHz                                                                                                                                                                                                                                                                                                      | 1.6 mA<br>1.8 mA<br>4.3 mA<br>4.8 mA                                                                                                                                                                                  | Comparison to<br>Fluke 5522A Multi Product<br>Calibrator |
| AC Current Measure                | (0 to 200) $\mu$ A<br>10 Hz<br>10 kHz<br>30 kHz<br>(0.2 to 2) mA<br>10 Hz<br>10 kHz<br>30 kHz<br>(2 to 20) mA<br>10 Hz<br>10 kHz<br>30 kHz<br>(20 to 200) mA<br>10 Hz<br>10 kHz<br>30 kHz<br>(0.2 to 2) A<br>2 kHz<br>10 kHz<br>(2 to 20) A<br>2 kHz<br>5 kHz                                                                                                                                                      | 0.052 $\mu$ A<br>0.05 $\mu$ A<br>0.21 $\mu$ A<br>0.2 $\mu$ A<br>0.28 $\mu$ A<br>0.42 $\mu$ A<br>3.8 $\mu$ A<br>6.6 $\mu$ A<br>7.7 $\mu$ A<br>0.064 mA<br>0.028 mA<br>0.034 mA<br>0.14 mA<br>1.4 mA<br>4.8 mA<br>13 mA | Comparison to<br>Fluke 8508A Multimeter                  |
| Resistance Source                 | (0 to 10.999 9) $\Omega$<br>(11 to 32.999 9) $\Omega$<br>(33 to 109.999 9) $\Omega$<br>(110 $\Omega$ to 329.999 9) $\Omega$<br>330 $\Omega$ to 1.099 999 k $\Omega$<br>(1.1 to 3.2999 99) k $\Omega$<br>(3.3 to 10.999 99) k $\Omega$<br>(11 to 32.999 99) k $\Omega$<br>(33 to 109.999 9) k $\Omega$<br>(110 to 329.999 99) k $\Omega$<br>330 k $\Omega$ to 1.099 999 M $\Omega$<br>(1.1 to 3.299 999) M $\Omega$ | 0.22 m $\Omega$<br>0.2 m $\Omega$<br>0.76 m $\Omega$<br>2.4 m $\Omega$<br>1.8 $\Omega$<br>0.022 $\Omega$<br>0.054 $\Omega$<br>0.33 $\Omega$<br>0.46 $\Omega$<br>2.4 $\Omega$<br>0.011 k $\Omega$<br>0.037 k $\Omega$  | Comparison to<br>Fluke 5522A Multi Product<br>Calibrator |

**Electrical – DC/Low Frequency**

| Parameter/Equipment | Range                                                                                                                                                                                                                                                                | Expanded Uncertainty of Measurement (+/-)                                                                                      | Reference Standard, Method, and/or Equipment             |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Resistance Source   | (3.3 to 10.999 99) MΩ<br>(11 to 32.999 99) MΩ<br>(33 to 109.999 9) MΩ<br>(110 to 329.999 9) MΩ<br>(330 to 1 100) MΩ                                                                                                                                                  | 0.14 kΩ<br>0.23 kΩ<br>0.024 MΩ<br>0.28 MΩ<br>0.48 MΩ                                                                           | Comparison to<br>Fluke 5522A Multi Product<br>Calibrator |
| Resistance Measure  | (0 to 1) Ω<br>(1 to 10) Ω<br>(10 to 100) Ω<br>(0.1 to 1) kΩ<br>(1 to 10) kΩ<br>(10 to 100) kΩ<br>(0.1 to 1) MΩ<br>(1 to 10) MΩ<br>(10 to 100) MΩ<br>(0.1 to 1) GΩ                                                                                                    | 1.2 mΩ<br>2.0 mΩ<br>9.5 mΩ<br>80 mΩ<br>0.83 Ω<br>8.3 Ω<br>90 Ω<br>1.3 kΩ<br>72 kΩ<br>18 MΩ                                     | Comparison to<br>Fluke 8508A Multimeter                  |
| DC Voltage Source   | (0 to 329.999) mV<br>330 mV to 3.299 999 V<br>(3.3 to 32.999 99) V<br>(33 to 329.999 9) V<br>(100 to 1 020) V                                                                                                                                                        | 1.7 μV<br>67 μV<br>0.11 mV<br>0.87 mV<br>3.2 mV                                                                                | Comparison to<br>Fluke 5522A Multi Product<br>Calibrator |
| DC Voltage Measure  | (0 to 200) mV<br>(0.2 to 2) V<br>(2 to 20) V<br>(20 to 200) V<br>(200 to 1 050) V                                                                                                                                                                                    | 0.31 μV<br>6.2 μV<br>11 μV<br>1.7 mV<br>3.2 mV                                                                                 | Comparison to<br>Fluke 8508A Multimeter                  |
| AC Voltage Source   | (1 to 32.999) mV<br>(10 to 45) Hz<br>45 Hz to 10 kHz<br>(10 to 20) kHz<br>(20 to 50) kHz<br>(50 to 100) kHz<br>(100 to 500) kHz<br>(33 to 329.999) mV<br>(10 to 45) Hz<br>45 Hz to 10 kHz<br>(10 to 20) kHz<br>(20 to 50) kHz<br>(50 to 100) kHz<br>(100 to 500) kHz | 2.2 μV<br>2.1 μV<br>2.3 μV<br>3.1 μV<br>4.8 μV<br>0.025 mV<br><br>9.4 nV<br>8.8 nV<br>9.7 nV<br>0.012 mV<br>0.02 mV<br>0.17 mV | Comparison to<br>Fluke 5522A Multi Product<br>Calibrator |

**Electrical – DC/Low Frequency**

| Parameter/Equipment | Range                | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment             |
|---------------------|----------------------|-------------------------------------------|----------------------------------------------------------|
| AC Voltage Source   | (0.33 to 3.299 99) V |                                           | Comparison to<br>Fluke 5522A Multi Product<br>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                                   |                                                          |
| AC Voltage Measure  | (330 to 1 020) V     |                                           | Comparison to<br>Fluke 8508A Multimeter                  |
|                     | 45 Hz to 1 kHz       | 0.032 V                                   |                                                          |
|                     | (1 to 5) kHz         | 0.04 V                                    |                                                          |
|                     | (5 to 10) kHz        | 0.035 V                                   |                                                          |
|                     | (0 to 200) mV        |                                           |                                                          |
|                     | 10 Hz                | 3.1 $\mu$ V                               |                                                          |
|                     | 40 Hz                | 8.9 $\mu$ V                               |                                                          |
|                     | 100 Hz               | 270 mV                                    |                                                          |
|                     | 2 kHz                | 7.4 $\mu$ V                               |                                                          |
|                     | 10 kHz               | 8.1 $\mu$ V                               |                                                          |
|                     | 30 kHz               | 9.9 $\mu$ V                               |                                                          |
|                     | 100 kHz              | 20 $\mu$ V                                |                                                          |
|                     | (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                                   |                                                          |

**Electrical – DC/Low Frequency**

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



**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 <sup>1</sup> | Type K              |                                           | Comparison to Fluke 5522A Multi Product Calibrator |
|                                                                                    | (-200 to -100) °C   | 0.28 °C                                   |                                                    |
|                                                                                    | (-100 to -25) °C    | 0.15 °C                                   |                                                    |
|                                                                                    | (-25 to 120) °C     | 0.2 °C                                    |                                                    |
|                                                                                    | (120 to 1 000) °C   | 0.22 °C                                   |                                                    |
|                                                                                    | (1 000 to 1372) °C  | 0.33 °C                                   |                                                    |
|                                                                                    | Type L              |                                           |                                                    |
|                                                                                    | (-200 to -100) °C   | 0.31 °C                                   |                                                    |
|                                                                                    | (-100 to 800) °C    | 0.3 °C                                    |                                                    |
|                                                                                    | (800 to 900) °C     | 0.69 °C                                   |                                                    |
|                                                                                    | Type N              |                                           |                                                    |
|                                                                                    | (-200 to -100) °C   | 0.33 °C                                   |                                                    |
|                                                                                    | (-100 to -25) °C    | 0.17 °C                                   |                                                    |
|                                                                                    | (-25 to 120) °C     | 0.2 °C                                    |                                                    |
|                                                                                    | (120 to 410) °C     | 0.17 °C                                   |                                                    |
|                                                                                    | (410 to 1 300) °C   | 0.24 °C                                   |                                                    |
|                                                                                    | Type R              |                                           |                                                    |
|                                                                                    | (0 to 250) °C       | 0.46 °C                                   |                                                    |
|                                                                                    | (250 to 400) °C     | 0.32 °C                                   |                                                    |
|                                                                                    | (400 to 1 000) °C   | 0.28 °C                                   |                                                    |
|                                                                                    | (1 000 to 1 767) °C | 0.22 °C                                   |                                                    |
|                                                                                    | Type S              |                                           |                                                    |
|                                                                                    | (0 to 250) °C       | 0.38 °C                                   |                                                    |
|                                                                                    | (250 to 1 000) °C   | 0.41 °C                                   |                                                    |
|                                                                                    | (1 000 to 1 400) °C | 0.15 °C                                   |                                                    |
|                                                                                    | (1 400 to 1 767) °C | 0.37 °C                                   |                                                    |
|                                                                                    | Type T              |                                           |                                                    |
|                                                                                    | (-250 to -150) °C   | 0.5 °C                                    |                                                    |
|                                                                                    | (-150 to 0) °C      | 0.22 °C                                   |                                                    |
|                                                                                    | (0 to 120) °C       | 0.22 °C                                   |                                                    |
|                                                                                    | (120 to 400) °C     | 0.5 °C                                    |                                                    |
|                                                                                    | Type U              |                                           |                                                    |
|                                                                                    | (-200 to 0) °C      | 0.45 °C                                   |                                                    |
|                                                                                    | (0 to 600) °C       | 0.24 °C                                   |                                                    |

## 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<br>(1.001 to 7.000) psig<br>(7.001 to 15.000) psig                                                       | 0.003 psi<br>0.003 psi<br>0.003 psi                                                                                  | Comparison to<br>Fluke PM600-A200K<br>Pressure Module           |
| Absolute Pressure   | (2.6 to 100) psia                                                                                                                | 0.012 psi                                                                                                            | Comparison to<br>Fluke PM600-A700K<br>Pressure Module           |
| Absolute Pressure   | (10 to 100) psia<br>(101 to 200) psia<br>(201 to 300) psia<br>(301 to 400) psia<br>(401 to 500) psia                             | 0.012 psi<br>0.012 psi<br>0.012 psi<br>0.018 psi<br>0.018 psi                                                        | Comparison to<br>Fluke PM600-A3.5M<br>Pressure Module           |
| Gauge Pressure      | (0.0 to 300.0) psig                                                                                                              | 0.053 psi                                                                                                            | Comparison to<br>Fluke PM600-A3.5M<br>Pressure Module           |
| Gauge Pressure      | (0.0 to 300.0) psig<br>(300.1 to 600) psig<br>(600.1 to 900) psig<br>(900.1 to 1 200) psig<br>(1 200.1 to 1 500) psig            | 0.15 psi<br>0.13 psi<br>0.13 psi<br>0.15 psi<br>0.16 psi                                                             | Comparison to<br>Fluke PM600-A10M<br>Pressure Module            |
| Hydraulic Pressure  | (200 to 5 000) psi<br>(5 001 to 20 000) psi                                                                                      | 0.76 psi<br>3.3 psi                                                                                                  | Comparison to<br>Fluke P3116-PSI<br>Deadweight Tester           |
| Low Pressure        | (0 to 10) inH <sub>2</sub> O<br>(10 to 30) inH <sub>2</sub> O<br>(0 to -10) inH <sub>2</sub> O<br>(-10 to 30) inH <sub>2</sub> O | 0.003 6 inH <sub>2</sub> O<br>0.004 9 inH <sub>2</sub> O<br>0.002 7 inH <sub>2</sub> O<br>0.003 8 inH <sub>2</sub> O | Comparison to<br>Fluke 7250LP Pressure<br>Controller/Calibrator |

## Thermodynamic

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

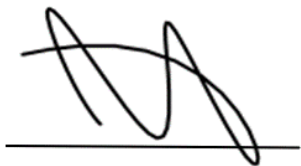
## Time and Frequency

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

- 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.
- This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2055.



Jason Stine, Vice President