



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

INTEGRATED SERVICE SOLUTIONS, INC.

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CALIBRATION

Valid To: April 30, 2019

Certificate Number: 2551.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1</sup>:

I. Chemical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
pH <sup>3</sup>	4.000 7.000 10.000	0.01 pH 0.02 pH 0.04 pH	pH buffer standards
Conductivity <sup>3</sup>	(0 to 10) μS (>10 to 100) μS (>10 to 1413) μS (>1413 to 10 000) μS	0.68 μS 0.57 μS 6.0 μS 54 μS	Conductivity standards

II. Dimensional

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Micrometers <sup>3</sup>	Up to 4 in (4 to 24) in	(31 + 6L) μin (61 + 9L) μin	Gage blocks

Parameter/Equipment	Range	CMC <sup>2,4</sup> ( $\pm$ )	Comments
Calipers <sup>3</sup>	Up to 4 in (4 to 24) in	(290 + 6L) $\mu$ in (300 + 9L) $\mu$ in	Gage blocks
Gage Blocks	Up to 0.05 in (0.05 to 0.10) in (0.10 to 0.20) in (0.20 to 0.50) in (0.5 to 1.00) in (1.00 to 2.00) in (2.00 to 4.00) in	4.0 $\mu$ in 4.1 $\mu$ in 3.7 $\mu$ in 6.7 $\mu$ in 7.8 $\mu$ in 13 $\mu$ in 24 $\mu$ in	Pratt & Whitney Labmaster <sup>TM</sup>
Rulers	Up to 12 in	530 $\mu$ in	Glass scale
Dial Indicators	Up to 1 in	(31 + 9L) $\mu$ in	Gage blocks

### III. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2,5</sup> ( $\pm$ )	Comments
DC Voltage – Generate	(0 to 330) mV (0 to 3.3) V (0 to 33) V (0 to 330) V (100 to 1000) V	18 $\mu$ V/V + 0.1 $\mu$ V 14 $\mu$ V/V + 2.0 $\mu$ V 15 $\mu$ V/V + 20 $\mu$ V 21 $\mu$ V/V + 150 $\mu$ V 15 $\mu$ V/V + 1.5 mV	Fluke 5520A
DC Voltage – Measure	(0 to 200) mV (0.2 to 2) V (2 to 20) V (20 to 200) V (200 to 1000) V	4.4 $\mu$ V/V + 0.1 $\mu$ V 4.1 $\mu$ V/V + 0.4 $\mu$ V 5.0 $\mu$ V/V + 4 $\mu$ V 6.4 $\mu$ V/V + 40 $\mu$ V 4.6 $\mu$ V/V + 500 $\mu$ V	Fluke 8508A
DC High Voltage – Measure	(0 to 20) kV (20 to 40) kV	12 % 12 %	Fluke 80K-40 with Fluke 8508A
DC Clamp-On – Generate	(20 to 150) A (150 to 100) A	0.60 % + 0.14 A 0.40 % + 0.5 A	Fluke 5520A/Fluke 50A coil

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
DC Current – Generate	(0 to 330) $\mu$ A (0.33 to 3.3) mA (3.3 to 33) mA (33 to 330) mA (0.33 to 3) A (3 to 11) A (11 to 20.5) A	0.012 % + 0.02 $\mu$ A 0.35 % + 0.05 $\mu$ A 0.35 % + 0.25 $\mu$ A 0.35 % + 2.5 $\mu$ A 0.39 % + 40 $\mu$ A 1.1 % + 500 $\mu$ A 0.30 % + 750 $\mu$ A	Fluke 5520A
DC Current – Measure	(0 to 200) $\mu$ A (0.2 to 2) mA (2 to 20) mA (20 to 200) mA (0.2 to 2) A (2 to 20) A	0.0011 % + 0.0004 $\mu$ A 0.004 % + 0.004 $\mu$ A 0.0012 % + 0.04 $\mu$ A 0.004 % + 0.8 $\mu$ A 0.014 % + 16 $\mu$ A 0.031 % + 400 $\mu$ A	Fluke 8508A
Resistance – Generate	(0 to 11) $\Omega$ (11 to 33) $\Omega$ (33 to 110) $\Omega$ (110 to 330) $\Omega$ 330 $\Omega$ to 1.1 k $\Omega$ (1.1 to 3.3) k $\Omega$ (3.3 to 11) k $\Omega$ (11 to 33) k $\Omega$ (33 to 110) k $\Omega$ (110 to 330) k $\Omega$ 330 k $\Omega$ to 1.1 M $\Omega$ (1.1 to 3.3) M $\Omega$ (3.3 to 11) M $\Omega$ (11 to 33) M $\Omega$ (33 to 110) M $\Omega$ (110 to 330) M $\Omega$ (330 to 1100) M $\Omega$	34 $\mu\Omega/\Omega$ + 0.01 $\Omega$ 24 $\mu\Omega/\Omega$ + 0.015 $\Omega$ 23 $\mu\Omega/\Omega$ + 0.015 $\Omega$ 23 $\mu\Omega/\Omega$ + 0.02 $\Omega$ 21 $\mu\Omega/\Omega$ + 0.02 $\Omega$ 22 $\mu\Omega/\Omega$ + 0.2 $\Omega$ 23 $\mu\Omega/\Omega$ + 0.1 $\Omega$ 24 $\mu\Omega/\Omega$ + 1 $\Omega$ 24 $\mu\Omega/\Omega$ + 1 $\Omega$ 46 $\mu\Omega/\Omega$ + 10 $\Omega$ 24 $\mu\Omega/\Omega$ + 10 $\Omega$ 44 $\mu\Omega/\Omega$ + 150 $\Omega$ 0.011 % + 250 $\Omega$ 0.021 % + 2.5 k $\Omega$ 0.048 % + 3 k $\Omega$ 0.24 % + 100 k $\Omega$ 1.2 % + 500 k $\Omega$	Fluke 5520A
Resistance – Measure	(0 to 2) $\Omega$ (2 to 20) $\Omega$ (20 to 200) $\Omega$ (0.2 to 2) k $\Omega$ (2 to 20) k $\Omega$ (20 to 200) k $\Omega$ (0.2 to 2) M $\Omega$ (2 to 20) M $\Omega$ (20 to 200) M $\Omega$ (0.2 to 2) G $\Omega$	6.9 $\mu\Omega$ + 4 $\mu\Omega$ 11 $\mu\Omega$ + 14 $\mu\Omega$ 6.6 $\mu\Omega$ + 50 $\mu\Omega$ 6.5 $\mu\Omega$ + 500 $\mu\Omega$ 6.4 $\mu\Omega$ + 5 m $\Omega$ 6.8 $\mu\Omega$ + 50 m $\Omega$ 8.7 $\mu\Omega$ + 1 $\Omega$ 20 $\mu\Omega$ + 100 $\Omega$ 0.011 % + 10 k $\Omega$ 0.13 % + 1 M $\Omega$	Fluke 8508A

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Electrical Simulation of Thermocouple Indicators & Indicating Systems –			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.40 °C 0.19 °C 0.17 °C 0.20 °C 0.54 °C	Fluke 5520A
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.24 °C 0.18 °C 0.17 °C 0.18 °C 0.58 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.28 °C 0.21 °C 0.18 °C 0.23 °C 0.57 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.51 °C 0.23 °C 0.19 °C 0.18 °C	

Parameter/Range	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Voltage – Generate			
(1 to 33) 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	0.063 % + 6 μV 0.016 % + 6 μV 0.019 % + 6 μV 0.08 % + 6 μV 0.28 % + 12 μV 0.63 % + 50 μV	Fluke 5520A
(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	0.037 % + 8 μV 0.012 % + 8 μV 0.013 % + 8 μV 0.028 % + 8 μV 0.063 % + 32 μV 0.16 % + 70 μV	



Parameter/Range	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Voltage – Generate (cont)			
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	0.024 % + 50 μV 0.012 % + 60 μV 0.015 % + 60 μV 0.024 % + 50 μV 0.055 % + 130 μV 0.19 % + 600 μV	Fluke 5520A
(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	0.024 % + 650 μV 0.012 % + 600 μV 0.019 % + 600 μV 0.028 % + 600 μV 0.07 % + 1.6 mV	
(33 to 330) V	45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.016 % + 2 mV 0.016 % + 6 mV 0.02 % + 6 mV 0.025 % + 6 mV 0.16 % + 50 mV	
(330 to 1020) V	45 Hz to 1 kHz (1 to 5) kHz	0.024 % + 0.13 mV 0.02 % + 10 mV	
AC Voltage – Measure			
(0 to 200) mV	(10 to 40) Hz (40 to 100) Hz (0.1 to 2) kHz (2 to 10) kHz (10 to 30) kHz	0.014 % + 4 μV 93 μV/V + 4 μV 0.011 % + 2 μV 0.012 % + 4 μV 0.028 % + 8 μV	Fluke 8508A
(0.2 to 2) V	(10 to 40) Hz (40 to 100) Hz (0.1 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.01 % + 20 μV 83 μV/V + 20 μV 63 μV/V + 20 μV 90 μV/V + 20 μV 0.019 % + 40 μV 0.047 % + 200 μV	
(2 to 20) V	(10 to 40) Hz (40 to 100) Hz (0.1 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz	95 μV/V + 200 μV 74 μV/V + 200 μV 64 μV/V + 200 μV 89 μV/V + 200 μV 0.018 % + 400 μV 0.045 % + 2 mV 0.24 % + 20 mV	
(20 to 200) V	(10 to 40) Hz (40 to 100) Hz (0.1 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	95 μV/V + 2 mV 73 μV/V + 2 mV 62 μV/V + 2 mV 88 μV/V + 2 mV 0.018 % + 4 mV 0.046 % + 20 mV	

Parameter/Range	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Voltage – Measure (cont)  (200 to 1000) V	(10 to 40) Hz 40 Hz to 10 kHz	0.01 % + 20 mV 93 µV/V + 20 mV	Fluke 8508A
AC High Voltage – Measure  (0 to 20) kV  (35 to 40) kV	60 Hz  60 Hz	3.9 %  4.4 %	Fluke 80K-40 with Fluke 8508A
AC Current – Generate  (30 to 330) µA  (0.33 to 3.3) mA  (3.3 to 33) mA  (33 to 330) mA  (0.33 to 1.1) A  (1.1 to 3) A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz  (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz  (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz  (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz  (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.12 % + 0.1 µA 0.10 % + 0.1 µA 0.23 % + 0.15 µA 0.62 % + 0.2 µA 1.3 % + 0.4 µA  0.12 % + 0.4 µA 0.08 % + 0.15 µA 0.16 % + 0.2 µA 0.39 % + 0.3 µA 0.78 % + 0.6 µA  0.07 % + 2 µA 0.03 % + 2 µA 0.06 % + 2 µA 0.16 % + 3 µA 0.32 % + 4 µA  0.07 % + 20 µA 0.03 % + 20 µA 0.08 % + 50 µA 0.2 % + 100 µA  0.13 % + 100 µA 0.04 % + 100 µA 0.42 % + 1 mA 1.8 % + 5 mA  0.14 % + 10 mA 0.05 % + 10 mA 0.47 % + 1 mA 2 % + 5 mA	Fluke 5520A



Parameter/Range	Frequency	CMC <sup>2, 5</sup> (±)	Comments
AC Current – Generate (cont)			
(3 to 11) A	(45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	0.05 % + 2 mA 0.08 % + 2 mA 2.4 % + 2 mA	Fluke 5520A
(11 to 20.5) A	(45 to 100) Hz (0.1 to 1) kHz (1 to 5) kHz	0.1 % + 5 mA 0.12 % + 5 mA 2.4 % + 5 mA	
Clamp-On Meters – Generate			
Toroidal			
(20 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.48 % + 0.025 A 0.76 % + 0.027 A	Fluke 5520A & Fluke 50 turn coil
(150 to 1000) A	(45 to 65) Hz (65 to 440) Hz	0.24 % + 0.09 A 0.98 % + 0.1 A	
Non-Toroidal			
(20 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.61 % + 0.25 A 0.89 % + 0.25 A	
(150 to 1000) A	(45 to 65) Hz (65 to 440) Hz	0.45 % + 0.9 A 1.1 % + 0.9 A	
AC Current – Measure			
(0 to 200) µA	(1 to 10) Hz (0.010 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.02 % + 0.02 µA 0.03 % + 0.02 µA 0.06 % + 0.02 µA 0.31 % + 0.02 µA	Fluke 8508A
(0.2 to 2) mA	(1 to 10) Hz (0.010 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.02 % + 0.2 µA 0.02 % + 0.2 µA 0.06 % + 0.2 µA 0.31 % + 0.2 µA	
(2 to 20) mA	(1 to 10) Hz (0.010 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.03 % + 2 µA 0.03 % + 2 µA 0.06 % + 2 µA 0.31 % + 2 µA	
(20 to 200) mA	(1 to 10) Hz (0.010 to 10) kHz (10 to 30) kHz	0.02 % + 20 µA 0.02 % + 20 µA 0.05 % + 20 µA	

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
AC Current – Measure (cont)			
(0.2 to 2) A	10 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz	0.05 % + 200 µA 0.06 % + 200 µA 0.23 % + 200 µA	
(2 to 20) A	10 Hz to 2 kHz (2 to 10) kHz	0.06 % + 2 mA 0.19 % + 2 mA	
Oscilloscope –			
Square wave – 50 Ω @ 1 kHz	(1 to 20) mV <sub>(p-p)</sub> (20 to 100) mV <sub>(p-p)</sub> (0.110 to 2) V <sub>(p-p)</sub> (2 to 6) V <sub>(p-p)</sub>	0.25 % + 0.04 mV <sub>(p-p)</sub> 0.34 % + 0.04 mV <sub>(p-p)</sub> 0.33 % + 0.04 mV <sub>(p-p)</sub> 0.68 % + 0.04 mV <sub>(p-p)</sub>	Fluke 5500A/SC600
1 MΩ @ 1 kHz	(1 to 25) mV <sub>(p-p)</sub> (25 to 110) mV <sub>(p-p)</sub> (0.110 to 2.2) V <sub>(p-p)</sub> (2.2 to 11) V <sub>(p-p)</sub> (11 to 130) V <sub>(p-p)</sub>	0.09 % + 0.04 mV <sub>(p-p)</sub> 0.16 % + 0.04 mV <sub>(p-p)</sub> 2.2 % + 0.04 mV <sub>(p-p)</sub> 0.16 % + 0.04 mV <sub>(p-p)</sub> 0.12 % + 0.04 mV <sub>(p-p)</sub>	
Level Sine Wave Generation Amplitude (5 mV to 5.5 V)	50 kHz ref (0.05 to 100) MHz (100 to 300) MHz (300 to 600) MHz	1.6 % + 300 µV 2.8 % + 300 µV 3.2 % + 300 µV 4.8 % + 300 µV	
Flatness	(0.05 to 100) MHz (100 to 300) MHz (300 to 600) MHz	1.2 % + 100 µV 1.6 % + 100 µV 3.2 % + 100 µV	
Time Marker (50 Ω Source & Period)	2 ns to 20 ms 50 ms to 5 s	0.003 % 0.1 % + 130 µs	

#### IV. Fluid Quantities

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Gas Flow – Measure	10 sccm to 200 SLPM (200 to 2000) SLPM	0.25 % 0.25 %	Molbox <sup>TM</sup> 1+/Molbloc <sup>TM</sup> -L Molbox <sup>TM</sup> 1+/Molbloc <sup>TM</sup> -S



Parameter/Equipment	Range	CMC <sup>2, 5</sup> (±)	Comments
Volume – Calibration of Pipettes <sup>3</sup>	0.1 µL 0.5 µL 1 µL 2 µL 5 µL 10 µL 20 µL 50 µL 100 µL 200 µL 500 µL 1000 µL 2000 µL 5000 µL 10 000 µL	0.03 µL 0.03 µL 0.03 µL 0.03 µL 0.04 µL 0.04 µL 0.05 µL 0.11 µL 0.2 µL 0.4 µL 1 µL 2 µL 4 µL 10 µL 20 µL	Gravimetric method
Gas Concentration <sup>3</sup> –  O <sub>2</sub>  CO <sub>2</sub>	  15.00 % 20.90 %  5.00 % 10.00 % 20.00 %	  0.91 % 1.1 %  0.48 % 0.59 % 0.80 %	  Extech SDL 150  GMP70
Gas Detection Equipment –  O <sub>2</sub>  CO <sub>2</sub>	  (0 to 20.00) %  (0 to 20.00) %	  2.3 %  2.1 %	  Standard gas

#### V. Mechanical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Calibration of Mass Standards, Fixed points	0.001 g 0.002 g 0.003 g 0.005 g 0.010 g 0.020 g 0.030 g 0.050 g 0.10 g	3.8 µg 3.8 µg 5.5 µg 3.8 µg 3.8 µg 3.8 µg 5.5 µg 3.8 µg 3.8 µg	Mass measurement by appropriate mass comparator method (ABBA Sw, ABA, modified ABA, etc.)

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Calibration of Mass Standards, Fixed points (cont)	0.20 g 0.30 g 0.50 g 1.0 g 2.0 g 5.0 g 10 g 20 g 30 g 50 g 100 g 200 g 300 g 500 g 1000 g 2000 g 3000 g 5000 g 10 kg 20 kg 25 kg 30 kg	5.5 µg 3.8 µg 1.2 µg 13 µg 14 µg 14 µg 23 µg 31 µg 34 µg 46 µg 95 µg 0.19 mg 0.30 mg 0.45 mg 0.92 mg 1.9 mg 11 mg 11 mg 14 mg 27 mg 31 mg 35 mg	Mass measurement by appropriate mass comparator method (ABBA Sw, ABA, modified ABA, etc.)
Calibration of Weighing Standards <sup>3</sup> –	0.001 g 0.002 g 0.005 g 0.010 g 0.020 g 0.050 g 0.10 g 0.20 g 0.50 g 1.0 g 2.0 g 5.0 g 10 g 20 g 50 g 100 g 200 g 500 g 1000 g 2000 g 5000 g 10 000 g 20 000 g	6.4 µg 7.7 µg 8.8 µg 7.6 µg 6.7 µg 7.9 µg 8.8 µg 6.9 µg 5.8 µg 24 µg 23 µg 33 µg 31 µg 36 µg 63 µg 0.18 mg 0.26 mg 0.64 mg 1.6 mg 12 mg 14 mg 31 mg 39 mg	Balance and scale field calibration using Class 1 and Class 3 weights



Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Pressure – Pneumatic	(0 to 1) inH <sub>2</sub> O	0.0003 inH <sub>2</sub> O	Fluke 7250LP
	(0 to 3) inH <sub>2</sub> O	0.0004 inH <sub>2</sub> O	
	(0 to 10) inH <sub>2</sub> O	0.0005 inH <sub>2</sub> O	Mensor CPC6000
	(0 to 30) inH <sub>2</sub> O	0.0015 inH <sub>2</sub> O	
	(-15 to 65) psig	0.004 psi	
	(65 to 145) psig	0.038 %	
(-15 to 242) psig	0.015 psi		
(242 to 500) psig	0.012 %		
(0 to 8.75) psia	0.0006 psia		
(8.75 to 17.5) psia	0.016 %		
(0 to 17.5) psia	0.0017 psia		
(17.5 to 35) psia	0.036 %		
(8.75 to 17.5) psia	0.013 %		
Pressure – Hydraulic	(50 to 10 000) psig	0.02 %	580DX dead weight tester
Pressure <sup>3</sup>	(0 to 1) inH <sub>2</sub> O	0.35 %	Fluke 700P00
	(0 to 10) inH <sub>2</sub> O	0.35 %	Fluke 700P01
	(0 to 15) psi	0.08 %	Fluke 700P04
	(-15 to 200) psi	0.10 %	Fluke 700PD7
	(50 to 10 000) psi	0.09 %	Fluke 700P31
Vacuum – Measure	(0 to 1000) mTorr	9 %	MKS PVS6
	(1 to 1000) Torr	7 %	
Torque Wrenches	(0.026 to 600) ft·lbf	0.35 %	Digital Torque Calibrator
Torque Transducers	(0.026 to 600) ft·lbf	0.06 %	Torque arms, wheels, and standard weights



VI. Thermodynamics

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Relative Humidity – (0 to 70 °C)	(10 to 90) % RH	1 % RH	Thunder Scientific 2500ST-LT
Relative Humidity <sup>3</sup> – Measure	(0 to 90) % RH (90 to 100) % RH	1.7 % RH 2.0 % RH	Vaisala MI70 & HMP77
Temperature <sup>3</sup> – Measure	(-196 to 0.01) °C (0.01 to 400) °C (400 to 660) °C  (660 to 1200) °C	0.004 °C 0.006 °C 0.011 °C  0.62 °C	SPRT   Type “S” thermocouple
Temperature – Fixed Points  Mercury Triple Point Water Indium Zinc	-38.8344 °C 0.010 °C 156.5985 °C 419.527 °C	2.0 mK 1.6 mK 2.4 mK 3.8 mK	Fluke miniature fixed reference point cells
Dew Point – Measuring Equipment	(10 to 60) °C (-70 to 10) °C (-80 to -70) °C (-90 to -80) °C (-95 to -90) °C	0.25°C 0.19°C 0.28°C 0.55°C 0.93°C	Humidity generator

VII. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Frequency – Measure	0.1 Hz to 10 MHz	10 parts in 10 <sup>9</sup> Hz	Fluke 910 w/ frequency counter
Frequency – Measuring Equipment	(0.01 to 225) MHz	10 parts in 10 <sup>9</sup> Hz	Fluke 910 w/ function generator

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
RPM – Measure <sup>3</sup>	(2.5 to 60) RPM (61 to 600) RPM (601 to 6000) RPM (6001 to 100 000) RPM	0.02 % 0.01 % 0.02 % 0.01 %	Tachometer
Time <sup>3</sup>	(0 to 86 400) s	0.001 %	Timer

<sup>1</sup> This laboratory offers commercial calibration service.

<sup>2</sup> 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.

<sup>3</sup> Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

<sup>4</sup> In the statement of CMC,  $L$  is the measured displacement in inches.

<sup>5</sup> In the statement of CMC, a percent refers to percent of reading unless otherwise noted.



## *Accredited Laboratory*

A2LA has accredited

# **INTEGRATED SERVICE SOLUTIONS, INC.**

*Lansdale, PA*

for technical competence in the field of

## **Calibration**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009*).



Presented this 7<sup>th</sup> day of March 2017.

A handwritten signature in black ink, written over a horizontal line.

President and CEO  
For the Accreditation Council  
Certificate Number 2551.01  
Valid to April 30, 2019

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