



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

### System Scale Corporation

8101 Industry Drive  
North Little Rock, AR 72117

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).

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 February 2023

Certificate Number: AC-1756



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)**

**System Scale Corporation**

8101 Industry Drive  
North Little Rock, AR 72117  
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**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756**

**Acoustics and Vibration**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Sound Level Meter	1 kHz 94 dB 114 dB	0.61 dB 0.61 dB	Sound Calibrator

**Chemical Quantities**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
pH Meters <sup>1</sup>	4 pH 7 pH 10 pH	0.021 pH 0.021 pH 0.021 pH	Accredited pH Solutions
Conductivity Meters <sup>1</sup>	10 µS 100 µS 1 000 µS 10 000 µS 100 000 µS	0.68 µS 2.2 µS 5.5 µS 50 µS 470 µS	Accredited Conductivity Solutions



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**Electrical – DC/Low Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Measure <sup>1</sup>	(0 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V (100 to 1 000) V	16 $\mu$ V/V + 0.4 $\mu$ V 17 $\mu$ V/V + 0.1 $\mu$ V 17 $\mu$ V/V + 4.4 $\mu$ V 16 $\mu$ V/V + 67 $\mu$ V 17 $\mu$ V/V + 1.2 mV	HP 3458 opt 002 8.5 Digit Multimeter
DC Voltage – Source <sup>1</sup>	(0 to 329.9) mV (0 to 3.299) V (0 to 32.999) V (30 to 329.999) V (100 to 1 020) V	15.5 $\mu$ V/V + 1.2 $\mu$ V 10.2 $\mu$ V/V + 2.5 $\mu$ V 10.6 $\mu$ V/V + 20 $\mu$ V 14.8 $\mu$ V/V + 0.11 mV 14 $\mu$ V/V + 1.7 mV	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option (Ranges Locked)
DC Current – Measure <sup>1</sup>	(10 to 100) $\mu$ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A	29 $\mu$ A/A + 1.4 nA 26 $\mu$ A/A + 12 nA 27 $\mu$ A/A + 0.12 $\mu$ A 47 $\mu$ A/A + 1.1 $\mu$ A 0.14 mA/A + 14 $\mu$ A	HP 3458 opt 002 8.5 Digit Multimeter
DC Current – Source <sup>1</sup>	(0 to 329.9) $\mu$ A (0 to 3.299 9) mA (0 to 32.999) mA (0 to 329.99) mA (0 to 1.099 9) A (1.1 to 2.999) A (0 to 10.99) A (11 to 20.5) A	0.11 mA/A + 17 nA 93.3 $\mu$ A/A + 43 nA 80 $\mu$ A/A + 0.27 $\mu$ A 88 $\mu$ A/A + 2.2 $\mu$ A 0.17 mA/A + 36 $\mu$ A 0.39 mA/A + 0.2 mA 0.39 mA/A + 0.45 mA 7.1 mA/A + 23 mA	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option (Ranges Locked)
AC Voltage – Measure <sup>1</sup>	(10 to 100) mV (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 100 kHz to 1 MHz (1 to 4) MHz (4 to 8) MHz (0.1 to 10) V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.33 mV/V + 3.8 $\mu$ V 0.2 mV/V + 1.9 $\mu$ V 0.31 mV/V + 1.9 $\mu$ V 1.1 mV/V + 1.9 $\mu$ V 5.7 mV/V + 1.7 $\mu$ V 47 mV/V + 2.4 $\mu$ V 14 mV/V + 5.9 $\mu$ V 80 mV/V + 17 $\mu$ V 0.24 V/V + 14 $\mu$ V 0.13 mV/V + 5.1 $\mu$ V 0.11 mV/V + 5.1 $\mu$ V 0.19 mV/V + 3 $\mu$ V 0.37 mV/V + 1 $\mu$ V 0.95 mV/V + 1 $\mu$ V 3.6 mV/V 11 mV/V + 7.1 mV	HP 3458 opt 002 8.5 Digit Multimeter

**Electrical – DC/Low Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Measure <sup>1</sup>	(0.1 to 10) V		HP 3458 opt 002 8.5 Digit Multimeter
	(1 to 2) MHz	17 mV/V + 6.6 mV	
	(1 to 4) MHz	1.1 mV/V + 8 mV	
	(4 to 8) MHz	1.3 mV/V + 8 mV	
	(8 to 10) MHz	1.7 mV/V + 8 mV	
	(10 to 100) V		
	(1 to 40) Hz	0.22 mV/V + 6 mV	
	40 Hz to 1 kHz	0.22 mV/V + 4 mV	
	(1 to 20) kHz	0.22 mV/V + 4 mV	
	(20 to 50) kHz	0.4 mV/V + 3.7 mV	
	(50 to 100) kHz	1.5 mV/V + 2.2 mV	
	(100 to 300) kHz	4.7 mV/V + 11 mV	
	300 kHz to 1 MHz	18 mV/V + 11 mV	
	(100 to 1 000) V		
	(1 to 40) Hz	0.46 mV/V + 48 mV	
	40 Hz to 1 kHz	0.46 mV/V + 24 mV	
	(1 to 20) kHz	0.7 mV/V + 24 mV	
	(20 to 50) kHz	1.5 mV/V + 22 mV	
(50 to 100) kHz	3.5 mV/V + 22 mV		
AC Voltage – Source <sup>1</sup>	(1 to 32.99) mV		Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
	(10 to 40) Hz	0.94 mV/V + 7.1 $\mu$ V	
	45 Hz to 10 kHz	0.18 mV/V + 7.1 $\mu$ V	
	(10 to 20) kHz	0.23 mV/V + 7.6 $\mu$ V	
	(20 to 50) kHz	1.1 mV/V + 9.3 $\mu$ V	
	(50 to 100) kHz	4.1 mV/V + 16.6 $\mu$ V	
	(100 to 500) kHz	9.4 mV/V + 62 $\mu$ V	
	(33 to 329.99) mV		
	(10 to 45) Hz	0.37 mV/V + 8.9 $\mu$ V	
	45 Hz to 10 kHz	0.17 mV/V + 10 $\mu$ V	
	(10 to 20) kHz	0.18 mV/V + 12 $\mu$ V	
	(20 to 50) kHz	0.41 mV/V + 14 $\mu$ V	
	(50 to 100) kHz	0.95 mV/V + 37 $\mu$ V	
	(100 to 500) kHz	2.3 mV/V + 83 $\mu$ V	
	(0.33 to 3.299) V		
	(10 to 45) Hz	0.34 mV/V + 66 $\mu$ V	
	45 Hz to 10 kHz	0.18 mV/V + 72 $\mu$ V	
	(10 to 20) kHz	0.21 mV/V + 0.1 mV	
	(20 to 50) kHz	0.33 mV/V + 0.1 mV	
	(50 to 100) kHz	0.79 mV/V + 0.2 mV	
	(100 to 500) kHz	2.7 mV/V + 1 mV	

**Electrical – DC/Low Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Source <sup>1</sup>	(3.3 to 32.99) V (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz 20 to 50 kHz 50 to 100 kHz (33 to 329.99) V 45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (330 to 1 020) V 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.38 mV/V + 0.66 mV 0.18 mV/V + 0.72 mV 0.27 mV/V + 1 mV 0.39 mV/V + 1.1 mV 1 mV/V + 2.4 mV 0.22 mV/V + 2.3 mV 0.24 mV/V + 7.2 mV 0.3 mV/V + 11 mV 0.32 mV/V + 26 mV 2.3 mV/V + 64 mV 0.34 mV/V + 17 mV 0.28 mV/V + 26 mV 0.34 mV/V + 17 mV	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
AC Voltage – Source <sup>1</sup> (AUX Output)	(10 to 329.99) mV (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) V (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 5) V (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.53 mV 0.43 mV 0.43 mV 0.52 mV 0.52 mV 1.1 mV 0.71 mV 0.55 mV 0.57 mV 1.7 mV 1.7 mV 3.3 mV 8.1 mV 0.61 mV 0.64 mV 1.7 mV 1.8 mV	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
AC Current – Measure <sup>1</sup>	(10 to 100) $\mu$ A (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	4.6 mA/A + 36 nA 1.7 mA/A + 37 nA 0.73 mA/A + 37 nA 0.73 mA/A + 37 nA	HP 3458 opt 002 8.5 Digit Multimeter



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**Electrical – DC/Low Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Measure <sup>1</sup>	(1 to 100) mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz 100 mA to 1 A (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz	4.7 mA/A + 23 μA 1.8 mA/A + 23 μA 0.7 mA/A + 23 μA 0.35 mA/A + 24 μA 0.7 mA/A + 23 μA 4.7 mA/A + 46 μA 6.4 mA/A + 0.17 mA 4.7 mA/A + 0.23 mA 1.9 mA/A + 0.23 mA 1 mA/A + 0.23 mA 1.2 mA/A + 0.23 mA 3.5 mA/A + 0.23 mA 11 mA/A + 0.56 mA	HP 3458 opt 002 8.5 Digit Multimeter
AC Current – Source <sup>1</sup>	(29 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) 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 32.99) 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	2.3 mA/A + 0.14 μA 1.7 mA/A + 0.14 μA 1.5 mA/A + 0.12 μA 3.7 mA/A + 0.19 μA 9.3 mA/A + 0.23 μA 18 mA/A + 0.55 μA 2.2 mA/A + 0.57 μA 1.4 mA/A + 0.38 μA 1.2 mA/A + 0.18 μA 2.3 mA/A + 0.23 μA 5.4 mA/A + 2.1 μA 12 mA/A + 0.8 μA 2 mA/A + 43 μA 1 mA/A + 39 μA 0.47 mA/A + 23 μA 1.2 mA/A + 58 μA 2.3 mA/A + 0.15 mA 4.7 mA/A + 0.23 mA	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option



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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Source <sup>1</sup>	(33 to 329.99) mA		Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
	(10 to 20) Hz	2 mA/A + 43 $\mu$ A	
	(20 to 45) Hz	1 mA/A + 39 $\mu$ A	
	45 Hz to 1 kHz	0.47 mA/A + 23 $\mu$ A	
	(1 to 5) kHz	1.2 mA/A + 58 $\mu$ A	
	(5 to 10) kHz	2.3 mA/A + 0.15 mA	
	(10 to 30) kHz	4.7 mA/A + 0.23 mA	
	(0.33 to 1.099 9) A		
	(10 to 45) Hz	2.1 mA/A + 0.13 mA	
	45 Hz to 1 kHz	0.6 mA/A + 0.11 mA	
	(1 to 5) kHz	6.9 mA/A + 1.2 mA	
	(5 to 10) kHz	28 mA/A + 6.6 mA	
	(1.1 to 2.999) A		
	(10 to 45) Hz	2.1 mA/A + 0.34 mA	
	45 Hz to 1 kHz	0.8 mA/A + 16 $\mu$ A	
	(1 to 5) kHz	6.9 mA/A + 1.2 mA	
	(5 to 10) kHz	29 mA/A + 6.2 mA	
	(3 to 10.99) A		
(45 to 100) Hz	0.64 mA/A + 3.2 mA		
100 Hz to 1 kHz	1.3 mA/A + 2 mA		
(1 to 5) kHz	34 mA/A + 7.1 mA		
(11 to 20.5) A			
(45 to 100) Hz	1.3 mA/A + 7.3 mA		
100 Hz to 1 kHz	1.8 mA/A + 5.4 mA		
(1 to 5) kHz	34 mA/A + 11 mA		
Resistance – Measure <sup>1</sup>	(0 to 10) $\Omega$	21 $\mu\Omega/\Omega$ + 0.17 m $\Omega$	HP 3458 opt 002 8.5 Digit Multimeter
	(10 to 100) $\Omega$	24 $\mu\Omega/\Omega$ + 1.2 m $\Omega$	
	(0.1 to 1) k $\Omega$	19 $\mu\Omega/\Omega$ + 1.3 m $\Omega$	
	(1 to 10) k $\Omega$	19 $\mu\Omega/\Omega$ + 13 m $\Omega$	
	(10 to 100) k $\Omega$	19 $\mu\Omega/\Omega$ + 0.13 $\Omega$	
	(0.1 to 1) M $\Omega$	24 $\mu\Omega/\Omega$ + 4.7 $\Omega$	
	(1 to 10) M $\Omega$	99 $\mu\Omega/\Omega$ + 0.11 k $\Omega$	
	(10 to 100) M $\Omega$	11 $\mu\Omega/\Omega$ + 1.1 k $\Omega$	
	(0.1 to 1) G $\Omega$	17 k $\Omega$	
Resistance – Source <sup>1</sup>	(0 to 10.9) $\Omega$	37 $\mu\Omega/\Omega$ + 0.8 m $\Omega$	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
	(11 to 32.9) $\Omega$	13 $\mu\Omega/\Omega$ + 22 $\mu\Omega$	
	(33 to 109.99) $\Omega$	59 $\mu\Omega/\Omega$ + 1.8 m $\Omega$	
	(110 to 329.99) $\Omega$	23 $\mu\Omega/\Omega$ + 1.6 m $\Omega$	
	(0.33 to 1.09) k $\Omega$	24 $\mu\Omega/\Omega$ + 1.3 m $\Omega$	
	(1.1 to 3.299) k $\Omega$	28 $\mu\Omega/\Omega$ + 10 m $\Omega$	
	(3.3 to 10.99) k $\Omega$	23 $\mu\Omega/\Omega$ + 19 m $\Omega$	
	(11 to 32.999) k $\Omega$	23 $\mu\Omega/\Omega$ + 0.16 $\Omega$	



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**Electrical – DC/Low Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance – Source <sup>1</sup>	(33 to 109.99) kΩ (110 to 329.9) kΩ (0.33 to 1.09) MΩ (1.1 to 3.29) MΩ (3.3 to 10.9) MΩ (11 to 32.99) MΩ (33 to 109.99) MΩ (110 to 329.99) MΩ (330 to 1 100) MΩ	24 μΩ/Ω + 0.13 Ω 24 μΩ/Ω + 2.5 Ω 42 μΩ/Ω + 2.9 Ω 0.11 mΩ/Ω + 45 Ω 0.19 mΩ/Ω + 0.11 kΩ 0.52 mΩ/Ω + 2.1 kΩ 0.43 mΩ/Ω + 1.7 kΩ 2.3 mΩ/Ω + 82 kΩ 13 mΩ/Ω + 59 kΩ	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
Electrical Simulation of Thermocouple Indicating Devices – Measure/Source <sup>1</sup>	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 Type K (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1 372) °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	0.58 °C 0.19 °C 0.17 °C 0.19 °C 0.25 °C 0.32 °C 0.19 °C 0.17 °C 0.21 °C 0.27 °C 0.39 °C 0.22 °C 0.19 °C 0.31 °C 0.47 °C 0.47 °C 0.26 °C 0.23 °C 0.22 °C 0.32 °C 0.66 °C 0.41 °C 0.39 °C 0.47 °C	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option





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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 Indicating Devices – Measure/Source <sup>1</sup>	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	0.55 °C 0.42 °C 0.43 °C 0.54 °C 0.73 °C 0.29 °C 0.19 °C 0.17 °C	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
Electrical Simulation of RTD Indicating Devices – Source <sup>1</sup>	Pt 385, 100 Ω (-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.06 °C 0.06 °C 0.083 °C 0.11 °C 0.12 °C 0.14 °C 0.27 °C	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
Capacitance – Source <sup>1</sup>	(220 to 399.9) pF (0.4 to 1,099) nF (1.1 to 3.299 9) nF (3.3 to 10.999) nF (11 to 32.999) nF (33 to 109.99) nF (110 to 329.99) nF (0.33 to 1.099 9) μF (1.1 to 3.299) μF (3.3 to 10.999) μF (11 to 32.999) μF (33 to 109.99) μF (110 to 329.99) μF (0.33 to 1.099 9) mF (1.1 to 3.299 9) mF (3.3 to 10.999) mF (11 to 32.999) mF (33 to 110) mF	5.6 pF/F + 12 pF 5 pF/F + 13 pF 5 pF/F + 17 pF 2.7 pF/F + 16 pF 2.3 pF/F + 0.17 nF 2.7 pF/F + 0.16 nF 1.8 pF/F + 1.2 nF 2.7 pF/F + 1.6 nF 1.8 pF/F + 12 nF 2.7 pF/F + 16 nF 3.6 pF/F + 0.11 μF 5.2 pF/F + 0.14 μF 4.1 pF/F + 1.1 μF 5.1 pF/F + 1.5 μF 4.1 pF/F + 11 μF 5.1 pF/F + 14 μF 7.3 pF/F + 0.1 mF 13 pF/F + 0.13 mF	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
Oscilloscopes <sup>1</sup> Amplitude – DC into 50 Ω load into 1 MΩ load	(0 to 6.6) V (0 to 130) V	3 mV/V + 47 μV 0.59 mV/V + 47 μV	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option



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**Electrical – DC/Low Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Oscilloscopes <sup>1</sup> Amplitude – Square Wave into 50 Ω load	10 Hz to 100 kHz ± 1 mVp-p to ± 6 Vp-p	3 mV/V + 47 μV	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
into 1 MΩ load	± 1 mVp-p to 130 Vp-p	1.2 mV/V + 47 μV	
Amplitude – Edge	5 mV to 2.5 V	24 mV/V + 0.23 mV	
Leveled Sine Wave into 50 Ω load	5 mVp-p to 5.5 Vp-p 50 kHz	24 mV/V + 0.37 mV	
	50 kHz to 100 MHz	24 mV/V + 0.37 mV	
	(100 to 300) MHz	47 mV/V + 0.37 mV	
	(300 to 600) MHz	71 mV/V + 0.37 mV	
Time Markers	(2 to 5) ns	0.12 ns	
	10 ns	0.12 ns	
	(20 to 50) ns	0.12 ns	
	100 ns to 20 ms	11 ns	
	50 ms to 5 s	29 μs	

**Length – Dimensional Metrology**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Gage Blocks <sup>3</sup>	Up to 4 in (5 to 6) in	(4.1 + 1.3L) μin (12 + 2L) μin	Master Gage Blocks, Mitutoyo Gage Block Comparator
Plain Ring Gages <sup>3</sup>	(0.04 to 12) in	(26 + 12L) μin	LabMaster Laser Measuring System
Plug Gages <sup>3</sup>	Up to 14 in	(9.1 + 0.7L) μin	LabMaster Laser Measuring System
Reference Spheres	Up to 4 in	(4.8 + 8.7L) μin	LabMaster Laser Measuring System
Pin Gages	Up to 1 in	9 μin	LabMaster Laser Measuring System
Indicators	Up to 1 in	120 μin	Gage Blocks, Indicator Calibrator

**Length – Dimensional Metrology**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Indicators <sup>1</sup>	Up to 1 in (1 to 5) in	60 μin 71 μin	Gage Blocks
Micrometers, Depth Micrometers <sup>1,3</sup>	Up to 20 in	(57 + 8.1L) μin	Gage Blocks
Calipers <sup>1,3</sup>	Up to 80 in	(287 + 2.8L) μin	Gage Blocks
Height Gages <sup>1,3</sup>	Up to 40 in	(13 + 8.7L) μin	Gage Blocks
Shims	Up to 250 mils	11 μin	LabMaster Laser Measuring System
Thickness Coating Gage <sup>1</sup>	Up to 206 mils	(12 + 48L) μin	Shims
Optical Comparators <sup>1,3</sup> Linearity Angularity Magnification	Up to 16 in Up to 180° (10 to 100) X	220 μin 47" 0.002 1 in	Inspection Master, Angle Block
Microscopes <sup>1</sup>	Up to 1.0 in	1 200 μin	Stage Micrometer I1110, Ruler
Precision Rules	(6 to 72) in	0.014 in	Precision Rule, Microscope
Measuring Tapes	(6 to 100) ft	0.073 in	Precision Rule, Microscope
Roughness Gage	16.1 μin Ra 119.5 μin Ra	1.9 μin 4.5 μin	Roughness Standard
Surface Plate <sup>1,3</sup> Overall Flatness Local Area Flatness	Up to 161 DL Up to 0.001 in	(5.4 – 0.97DL) μin 26 μin	Electronic Leveling System Repeat-O-Meter
60 Degree Thread Plugs Pitch Diameter	Up to 8 in	150 μin	Labmaster Laser Measuring System
Thread Wires	Up to 0.15 in	29 μin	LabMaster Laser Measuring System
Angle <sup>3</sup>	Up to 90°	1.9'	Optical Comparator
Digital Protractors <sup>3</sup>	Up to 360°	0.37'	Angle Blocks, Height Gage
Dial Protractors <sup>1,3</sup>	Up to 360°	10'	Angle Blocks
Length Measurements	Up to 100 in	(113 + 7.2L) μin	Comparison to Gage Blocks

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment	
Balances <sup>1,2</sup> (0.000 01 g resolution)	Up to 200 g	0.27 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
(0.000 1 g resolution)	Up to 100 g Up to 210 g Up to 320 g	0.33 mg 0.69 mg 1.1 mg		
(0.001 g resolution)	Up to 100 g Up to 500 g Up to 1 kg Up to 5 kg	1.1 mg 2 mg 3.7 mg 5.1 mg		
(0.01 g resolution)	Up to 100 g Up to 500 g Up to 2 kg Up to 6 kg	9 mg 9.9 mg 15 mg 25 mg		
(0.1 g resolution)	Up to 1 kg Up to 5 kg Up to 10 kg	98 mg 99 mg 0.11 g		
(1 g resolution)	Up to 2 kg Up to 6 kg	1.2 g 1.5 g		
Balances <sup>1,2</sup> (0.1 g resolution)	Up to 24 kg	2.8 g		NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(1 g resolution)	Up to 35 kg	2.8 g		
Scales <sup>1,2</sup> (0.001 lb resolution)	Up to 50 lb Up to 100 lb	0.007 4 lb 0.016 lb		ASTM E617 Class 6, NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.01 lb resolution)	Up to 50 lb Up to 100 lb Up to 300 lb	0.017 lb 0.022 lb 0.052 lb		
(0.1 lb resolution)	Up to 50 lb Up to 300 lb Up to 500 lb Up to 1 000 lb Up to 5 000 lb	0.082 lb 0.11 lb 0.12 lb 0.2 lb 0.7 lb		

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Scales <sup>1,2</sup> (1 lb resolution)	Up to 500 lb Up to 1 000 lb Up to 5 000 lb Up to 10 000 lb	0.82 lb 1.4 lb 1.4 lb 1.7 lb	ASTM E617 Class 6, NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(10 lb resolution)	Up to 20 000 lb Up to 100 000 lb	8.3 lb 8.7 lb	
(20 lb resolution)	Up to 200 000 lb	24 lb	
Mass Determination (ASTM E617 Classes 5, 6, 7, and NIST Class F Weights)	1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg	0.6 mg 0.6 mg 0.6 mg 0.6 mg 0.6 mg 0.6 mg 0.6 mg 0.6 mg 3.4 mg 3.4 mg 3.5 mg 4.6 mg	Balance, ASTM E617 Class 1 Weights
Vacuum <sup>1</sup>	Up to 29 inHg	0.007 6 inHg	Master Vacuum Transducer
Pressure Gages <sup>1</sup> (Pneumatic)	Up to 50 inH <sub>2</sub> O	0.035 inH <sub>2</sub> O	Master Pressure Transducer
Pressure Gages <sup>1</sup> (Pneumatic)	Up to 30 psig Up to 100 psig Up to 500 psig Up to 1 000 psig Up to 3 000 psig	0.012 psi 0.016 psi 0.064 psi 0.13 psi 0.39 psi	Master Pressure Transducer
	(5.8 to 1 000) psig	0.015 % of reading + 0.019 psi	Deadweight Tester
Pressure Gages <sup>1</sup> (Hydraulic)	Up to 10 000 psig	3.2 psi	Master Pressure Transducer
Air Velocity	492 ft/min 984 ft/min 1969 ft/min 2953 ft/min	25 ft/min 27 ft/min 30 ft/min 35 ft/min	Master Anemometer, Open Jet Wind Tunnel

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Force Gages <sup>1</sup> (Compression and Tension)	Up to 100 lbf (100 to 500) lbf (500 to 1 000) lbf (1 000 to 10 000) lbf (1 000 to 100 000) lbf	0.17 lbf 0.26 lbf 0.84 lbf 2.1 lbf 4.5 lbf	Load Cells, Master Weights
Force Gages (Compression and Tension)	Up to 1 000 lbf Up to 10 000 lbf	0.024 lbf 0.17 lbf	Ultra-precision Load Cells
Durometers Indenter Dimensions Extension Diameter/Length Radius Angle Spring Force Types A, B, E, O Types D, C, DO	Up to 0.1 in Up to 0.15 in Up to 0.05 in (25 to 40)° Up to 8.05 N Up to 44.45 N	280 μin 280 μin 280 μin 0.001 4° 0.098 N 0.58 N	Direct verification to ASTM D2240 Optical Projection  Master Weights
Brinell Hardness Testers <sup>1</sup>	(72 to 277) HBW	3.4 HBW	Indirect verification per ASTM E10 using Hardness Blocks.
Rockwell Hardness Testers <sup>1</sup>	HRA Low Middle High	1.2 HRA 1.3 HRA 1.2 HRA	Indirect verification per ASTM E18 using Hardness Blocks.
Rockwell Hardness Testers <sup>1</sup>	HRBW Low Middle High HRC Low Middle High HREW Low Middle High	1.9 HRBW 1.2 HRBW 1.2 HRBW 1.3 HRC 1.3 HRC 0.66 HRC 1.3 HREW 1.3 HREW 1.5 HREW	Indirect verification per ASTM E18 using Hardness Blocks.



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Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Rockwell Superficial Hardness Testers <sup>1</sup>	HR15N		Indirect verification per ASTM E18 using Hardness Blocks.
	Low	1.3 HR15N	
	Middle	1.3 HR15N	
	High	0.92 HR15N	
	HR30N		
	Low	1.3 HR30N	
	Middle	1.3 HR30N	
	High	1.3 HR30N	
	HR45N		
	Low	1.3 HR45N	
	Middle	1.3 HR45N	
	High	0.89 HR45N	
	HR15TW		
	Low	1.8 HR15TW	
	Middle	1.3 HR15TW	
	High	1.3 HR15TW	
	HR30TW		
	Low	1.8 HR30TW	
	Middle	1.8 HR30TW	
	High	1.3 HR30TW	
	Torque Tools <sup>1</sup>	(5 to 50) lbf·in	
(10 to 100) lbf·in		0.29 lbf·in	
(10 to 100) lbf·ft		0.3 lbf·ft	
(25 to 250) lbf·ft		0.73 lbf·ft	
(100 to 1 000) lbf·ft		2.9 lbf·ft	
Torque Transducers	(5 to 50) lbf·in	0.03% of reading + 0.006 lbf·in	Torque Arm, Master Weights
	(10 to 100) lbf·in	0.026% of reading + 0.017 lbf·in	
	(10 to 100) lbf·ft	0.047% of reading + 0.011 lbf·ft	
	(25 to 250) lbf·ft	0.048 lbf·ft	
	(80 to 800) lbf·ft	0.028% of reading + 0.2 lbf·ft	
(100 to 1 000) lbf·ft	0.18 lbf·ft		



ANSI National Accreditation Board

**Thermodynamic**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Infrared Devices <sup>1</sup>	50 °C 125 °C 250 °C 375 °C 500 °C	0.52 °C 0.8 °C 1.4 °C 1.9 °C 2.5 °C	Blackbody Source (Flat Plate) $\epsilon = 0.95, \lambda = (8 \text{ to } 14) \mu\text{m}$
	600 °C 800 °C 1 000 °C 1 200 °C	8.4 °C 9.6 °C 10.8 °C 12 °C	Blackbody Source (Cavity) $\epsilon = 0.99, \lambda = (0.9 \text{ to } 14) \mu\text{m}$
Temperature – Measure <sup>1</sup>	(-200 to 1 372) °C	0.26 °C	Thermocouple Calibrator, Datalogger, Temperature Probe
Temperature Probes (Source)	(-45 to 125) °C (0 to 1 200) °C	0.14 °C 0.054 % of reading + 0.32 °C	Dry-well, PRT, Type S Thermocouple, Environmental Chamber
Chart Recorders Relative Humidity	(20 to 90) % RH	1.8 % RH	Environmental Chamber, Datalogger
Temperature	(-17 to 177) °C	0.53 °C	

**Time and Frequency**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Measure <sup>1</sup>	(1 to 40) Hz 40 Hz to 10 MHz	0.06 % of reading + 0.7 mHz 0.012 % of reading + 1.2 Hz	HP 3458 opt 002 8.5 Digit Multimeter
Frequency – Source <sup>1</sup>	10 mHz to 119.99 Hz (120 to 1199.9) Hz (1.2 to 11.999) kHz (12 to 119.99) kHz (120 to 1199.9) kHz (1.2 to 2) MHz	1.3 mHz 12 mHz 0.12 Hz 1.2 Hz 12 Hz 0.12 kHz	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option
Stopwatches	5 ms to 24 h	0.87 s	Stopwatch Calibrator
Optical Tachometers	(1 to 100 000) rpm	0.002 2 % of reading + 0.21 rpm	Fluke 5522A/6 Multiproduct Calibrator with 600 MHz Scope Option



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.
2. Scale calibration performed on-site only.
3.  $L$  = length in inches;  $DL$  = diagonal length in inches; ' = arc-minute; " = arc-second.
4. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1756.



R. Douglas Leonard Jr., VP, PILR SBU





# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

### System Scale Corporation

4808 Alma Highway  
Van Buren, AR 72956

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).

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 February 2023  
Certificate Number: AC-1756.01



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)**

**System Scale Corporation**  
4808 Alma Highway  
Van Buren, AR 72956  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.01**

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment	
Balances <sup>1,2</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 35 kg	2.8 g		
Scales <sup>1</sup>	Up to 50 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 100 lb	0.016 lb		
	(0.01 lb resolution)	Up to 50 lb		0.017 lb
		Up to 100 lb		0.022 lb
		Up to 300 lb		0.052 lb
	(1 lb resolution)	Up to 50 lb		0.082 lb
		Up to 300 lb		0.11 lb
		Up to 500 lb		0.12 lb
		Up to 1 000 lb		0.2 lb
		Up to 5 000 lb		0.7 lb
	(10 lb resolution)	Up to 500 lb		0.82 lb
		Up to 1 000 lb		1.4 lb
		Up to 5 000 lb		1.4 lb
		Up to 10 000 lb		1.7 lb
(20 lb resolution)	Up to 20 000 lb	8.3 lb		
	Up to 100 000 lb	8.7 lb		
(20 lb resolution)	Up to 200 000 lb	24 lb		

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.
2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1756.01.



R. Douglas Leonard Jr., VP, PILR SBU



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

### System Scale Corporation

2212 N. Yellowwood Avenue  
Broken Arrow, OK 74012

Fulfills the requirements of

### ISO/IEC 17025:2017

and national standard

### ANSI/NCSL Z540-1-1994 (R2002)

In the field of

### CALIBRATION

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R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 February 2023  
Certificate Number: AC-1756.02



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)**

**System Scale Corporation**  
2212 N. Yellowwood Avenue  
Broken Arrow, OK 74012  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.02**

**Mass and Mass Related**

<b>Parameter/Equipment</b>	<b>Range</b>	<b>Expanded Uncertainty of Measurement (+/-)</b>	<b>Reference Standard, Method, and/or Equipment</b>
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment	
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 35 kg	2.8 g		
Scales <sup>1</sup>	(0.001 lb resolution)	Up to 50 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.
		Up to 100 lb	0.016 lb	
	(0.01 lb resolution)	Up to 50 lb	0.017 lb	
		Up to 100 lb	0.022 lb	
		Up to 300 lb	0.052 lb	
	(1 lb resolution)	Up to 50 lb	0.082 lb	
		Up to 300 lb	0.11 lb	
		Up to 500 lb	0.12 lb	
		Up to 1 000 lb	0.2 lb	
		Up to 5 000 lb	0.7 lb	
	(10 lb resolution)	Up to 500 lb	0.82 lb	
		Up to 1 000 lb	1.4 lb	
		Up to 5 000 lb	1.4 lb	
		Up to 10 000 lb	1.7 lb	
(20 lb resolution)	Up to 20 000 lb	8.3 lb		
	Up to 100 000 lb	8.7 lb		
(20 lb resolution)	Up to 200 000 lb	24 lb		

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:

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2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1756.02.



R. Douglas Leonard Jr., VP, PILR SBU



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

**System Scale Corporation**  
**6759 Reese Road**  
**Memphis, TN 38133**

Fulfills the requirements of

**ISO/IEC 17025:2017**

and national standard

**ANSI/NCSL Z540-1-1994 (R2002)**

In the field of

**CALIBRATION**

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R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 February 2023

Certificate Number: AC-1756.04



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)**

**System Scale Corporation**  
6759 Reese Road  
Memphis, TN 38133  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.04**

**Mass and Mass Related**

<b>Parameter/Equipment</b>	<b>Range</b>	<b>Expanded Uncertainty of Measurement (+/-)</b>	<b>Reference Standard, Method, and/or Equipment</b>
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment	
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 35 kg	2.8 g		
Scales <sup>1</sup>	(0.001 lb resolution)	Up to 50 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.
		Up to 100 lb	0.016 lb	
	(0.01 lb resolution)	Up to 50 lb	0.017 lb	
		Up to 100 lb	0.022 lb	
		Up to 300 lb	0.052 lb	
	(1 lb resolution)	Up to 50 lb	0.082 lb	
		Up to 300 lb	0.11 lb	
		Up to 500 lb	0.12 lb	
		Up to 1 000 lb	0.2 lb	
		Up to 5 000 lb	0.7 lb	
	(10 lb resolution)	Up to 500 lb	0.82 lb	
		Up to 1 000 lb	1.4 lb	
		Up to 5 000 lb	1.4 lb	
Up to 10 000 lb		1.7 lb		
(20 lb resolution)	Up to 20 000 lb	8.3 lb		
	Up to 100 000 lb	8.7 lb		
(20 lb resolution)	Up to 200 000 lb	24 lb		

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:

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R. Douglas Leonard Jr., VP, PILR SBU



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

### System Scale Corporation

1420 Donelson Pike, Suite B7

Nashville, TN 37217

Fulfills the requirements of

### ISO/IEC 17025:2017

and national standard

### ANSI/NCSL Z540-1-1994 (R2002)

In the field of

### CALIBRATION

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R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 February 2023

Certificate Number: AC-1756.05



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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)**

**System Scale Corporation**  
1420 Donelson Pike, Suite B7  
Nashville, TN 37217  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.05**

**Mass and Mass Related**

<b>Parameter/Equipment</b>	<b>Range</b>	<b>Expanded Uncertainty of Measurement (+/-)</b>	<b>Reference Standard, Method, and/or Equipment</b>
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment	
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 35 kg	2.8 g		
Scales <sup>1</sup>	(0.001 lb resolution)	Up to 50 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.
		Up to 100 lb	0.016 lb	
	(0.01 lb resolution)	Up to 50 lb	0.017 lb	
		Up to 100 lb	0.022 lb	
		Up to 300 lb	0.052 lb	
	(1 lb resolution)	Up to 50 lb	0.082 lb	
		Up to 300 lb	0.11 lb	
		Up to 500 lb	0.12 lb	
		Up to 1 000 lb	0.2 lb	
		Up to 5 000 lb	0.7 lb	
	(10 lb resolution)	Up to 500 lb	0.82 lb	
		Up to 1 000 lb	1.4 lb	
		Up to 5 000 lb	1.4 lb	
		Up to 10 000 lb	1.7 lb	
(20 lb resolution)	Up to 20 000 lb	8.3 lb		
	Up to 100 000 lb	8.7 lb		
(20 lb resolution)	Up to 200 000 lb	24 lb		

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R. Douglas Leonard Jr., VP, PILR SBU



# CERTIFICATE OF ACCREDITATION

**The ANSI National Accreditation Board**

Hereby attests that

**System Scale Corporation**  
**595 Pearl Park Plaza**  
**Jackson, MS 39208**

Fulfills the requirements of

**ISO/IEC 17025:2017**

and national standard

**ANSI/NCSL Z540-1-1994 (R2002)**

In the field of

**CALIBRATION**

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A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 FEBRUARY 2023

Certificate Number: AC-1756.06



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)**

**System Scale Corporation**  
595 Peal Park Plaza  
Jackson, MS 39208  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.06**

**Mass and Mass Related**

<b>Parameter/Equipment</b>	<b>Range</b>	<b>Expanded Uncertainty of Measurement (+/-)</b>	<b>Reference Standard, Method, and/or Equipment</b>
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	


**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment	
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 35 kg	2.8 g		
Scales <sup>1</sup>	Up to 50 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.	
	Up to 100 lb	0.016 lb		
	(0.01 lb resolution)	Up to 50 lb		0.017 lb
		Up to 100 lb		0.022 lb
		Up to 300 lb		0.052 lb
	(0.1 lb resolution)	Up to 50 lb		0.082 lb
		Up to 300 lb		0.11 lb
		Up to 500 lb		0.12 lb
		Up to 1 000 lb		0.2 lb
		Up to 5 000 lb		0.7 lb
	(1 lb resolution)	Up to 500 lb		0.82 lb
		Up to 1 000 lb		1.4 lb
		Up to 5 000 lb		1.4 lb
		Up to 10 000 lb		1.7 lb
(10 lb resolution)	Up to 20 000 lb	8.3 lb		
	Up to 100 000 lb	8.7 lb		
(20 lb resolution)	Up to 200 000 lb	24 lb		

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.
2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1756.06.



**R. Douglas Leonard Jr., VP, PILR SBU**





# CERTIFICATE OF ACCREDITATION

**The ANSI National Accreditation Board**

Hereby attests that

**System Scale Corporation**

**6215-120 Rangeline Road**

**Theodore, AL 36582**

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).

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 FEBRUARY 2023

Certificate Number: AC-1756.07



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)**

**System Scale Corporation**  
6215-120 Rangeline Road  
Theodore, AL 36582  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.07**

**Mass and Mass Related**

<b>Parameter/Equipment</b>	<b>Range</b>	<b>Expanded Uncertainty of Measurement (+/-)</b>	<b>Reference Standard, Method, and/or Equipment</b>
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	


**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(1 g resolution)	Up to 35 kg	2.8 g	
Scales <sup>1</sup> (0.001 lb resolution)	Up to 50 lb Up to 100 lb	0.007 4 lb 0.016 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.01 lb resolution)	Up to 50 lb Up to 100 lb Up to 300 lb	0.017 lb 0.022 lb 0.052 lb	
(0.1 lb resolution)	Up to 50 lb Up to 300 lb Up to 500 lb Up to 1 000 lb Up to 5 000 lb	0.082 lb 0.11 lb 0.12 lb 0.2 lb 0.7 lb	
(1 lb resolution)	Up to 500 lb Up to 1 000 lb Up to 5 000 lb Up to 10 000 lb	0.82 lb 1.4 lb 1.4 lb 1.7 lb	
(10 lb resolution)	Up to 20 000 lb Up to 100 000 lb	8.3 lb 8.7 lb	
(20 lb resolution)	Up to 200 000 lb	24 lb	

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.
2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1756.07.



R. Douglas Leonard Jr., VP, PILR SBU



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

### System Scale Corporation

4393 West 96<sup>th</sup> Street  
Indianapolis, IN 46268

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.  
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R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 FEBRUARY 2023

Certificate Number: AC-1756.08



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)**

**System Scale Corporation**  
4393 West 96<sup>th</sup> Street  
Indianapolis, IN 46268  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.08**

**Mass and Mass Related**

<b>Parameter/Equipment</b>	<b>Range</b>	<b>Expanded Uncertainty of Measurement (+/-)</b>	<b>Reference Standard, Method, and/or Equipment</b>
Balances <sup>1</sup> (0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	


**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
	Up to 35 kg	2.8 g	
Scales <sup>1</sup>	Up to 50 lb Up to 100 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.
		0.016 lb	
	Up to 50 lb Up to 100 lb Up to 300 lb	0.017 lb	
		0.022 lb	
		0.052 lb	
	Up to 50 lb Up to 300 lb Up to 500 lb Up to 1 000 lb Up to 5 000 lb	0.082 lb	
		0.11 lb	
		0.12 lb	
		0.2 lb	
		0.7 lb	
	Up to 500 lb Up to 1 000 lb Up to 5 000 lb Up to 10 000 lb	0.82 lb	
		1.4 lb	
		1.4 lb	
		1.7 lb	
Up to 20 000 lb Up to 100 000 lb	8.3 lb		
	8.7 lb		
Up to 200 000 lb	24 lb		

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:

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R. Douglas Leonard Jr., VP, PILR SBU



# CERTIFICATE OF ACCREDITATION

**The ANSI National Accreditation Board**

Hereby attests that

**System Scale Corporation**

**10157 Williams Lane  
Walker, LA 70785**

Fulfills the requirements of

**ISO/IEC 17025:2017**

and national standard

**ANSI/NCSL Z540-1-1994 (R2002)**

In the field of

**CALIBRATION**

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R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 FEBRUARY 2023

Certificate Number: AC-1756.09



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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)**

**System Scale Corporation**  
10157 Williams Lane  
Walker, LA 70785  
Sean Rainey 501-562-2900 srainey@system-scale.com

**CALIBRATION**

Valid to: **February 1, 2023**

Certificate Number: **AC-1756.09**

**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Balances <sup>1</sup>			
(0.000 01 g resolution)	Up to 210 g	0.69 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
(0.000 1 g resolution)	Up to 100 g	0.33 mg	
	Up to 210 g	0.69 mg	
	Up to 320 g	1.1 mg	
(0.001 g resolution)	Up to 100 g	1.1 mg	
	Up to 500 g	2 mg	
	Up to 1 kg	3.7 mg	
	Up to 5 kg	15 mg	
(0.01 g resolution)	Up to 100 g	9 mg	
	Up to 500 g	9.9 mg	
	Up to 2 kg	15 mg	
	Up to 6 kg	25 mg	
(0.1 g resolution)	Up to 1 kg	98 mg	
	Up to 5 kg	99 mg	
	Up to 10 kg	0.11 g	
(1 g resolution)	Up to 2 kg	1.2 g	
	Up to 6 kg	1.5 g	




**Mass and Mass Related**

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Balances <sup>1</sup> (0.1 g resolution)	Up to 24 kg	2.8 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
	Up to 35 kg	2.8 g	
Scales <sup>1</sup>	Up to 50 lb Up to 100 lb	0.007 4 lb	ASTM E617 Class 6 weights, NIST Class F weights and NIST Handbook 44 utilized for the calibration of the weighing system.
		0.016 lb	
	Up to 50 lb Up to 100 lb Up to 300 lb	0.017 lb	
		0.022 lb	
		0.052 lb	
	Up to 50 lb Up to 300 lb Up to 500 lb Up to 1 000 lb Up to 5 000 lb	0.082 lb	
		0.11 lb	
		0.12 lb	
		0.2 lb	
		0.7 lb	
	Up to 500 lb Up to 1 000 lb Up to 5 000 lb Up to 10 000 lb	0.82 lb	
		1.4 lb	
		1.4 lb	
		1.7 lb	
Up to 20 000 lb Up to 100 000 lb	8.3 lb		
	8.7 lb		
Up to 200 000 lb	24 lb		

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**R. Douglas Leonard Jr., VP, PILR SBU**