



INTERNATIONAL  
ACCREDITATION  
SERVICE®

# CERTIFICATE OF ACCREDITATION

*This is to attest*

## **UL INTERNATIONAL GERMANY GMBH**

ADMIRAL - ROSENDAHL - STRASSE 23  
NEU-ISENBURG, ST, 63263, GERMANY

### **Calibration Laboratory CL-171**

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date January 6, 2025



*International Accreditation Service*  
Issued under the authority of IAS management

Visit [www.iasonline.org](http://www.iasonline.org) for current accreditation information.

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

## UL INTERNATIONAL GERMANY GMBH

[www.ul.com](http://www.ul.com)

**Contact Name** Tobias Berg

**Contact Phone** +49-69-489810-231

*Accredited to ISO/IEC 17025:2017*

*Effective Date January 6, 2025*

### CALIBRATION AND MEASUREMENT CAPABILITY (CMC)\*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> ( $\pm$ )	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<b>Dimensional</b>			
Calibration of steel balls	Up to Diameter of 60 mm	62 $\mu$ m	Cal procedure – 89-LO-W0862 Using Digital Caliper by direct method
Calibration of Digital Caliper	0 mm to 150 mm	30 $\mu$ m	Cal procedure – 89-LO-W0853 Using Slip Gauges Grade 0 & Ring Gauges of 4 mm and 25 mm by direct method
<b>Mechanical</b>			
Measurement of weights	500 g to 4000 g	2.9 g	Cal procedure – 89-LO-W0863 Using Weights and Measuring Scale by comparison method
Tension meter calibration (for Surface Tension)	48 mN/m to 250 mN/m	0.18 mN/m	Cal procedure – 89-LO-W0401 Using Reference weights & Thermometer by comparison method
Water flow meters	0 L/min to 1 L/min 1 L/min to 3 L/min 3 L/min to 5 L/min 5 L/min to 22 L/min	0.01 L/min 0.03 L/min 0.05 L/min 0.36 L/min	Cal procedure – 89-LO-W0859 Using master water flow meter by comparison methods
Sound Level Meters	94 dB 114 dB	0.3 dB 0.6 dB	Cal Procedure – 89-LO-W0851 Using Sound Level Calibrator by direct method (Fixed point)

\* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

CL-171

UL INTERNATIONAL GERMANY GMBH

Effective Date January 6, 2025

Page 2 of 10

IAS/CL/100-3



# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<b>Thermal</b>			
Climatic chambers (Temperature)	-25 °C to 25 °C 25 °C to 75 °C 75 °C to 100 °C 100 °C to 200 °C	0.8 °C 0.8 °C 0.8 °C 1.7 °C	Cal procedure – 89-LO-W0400 Using Multi Channel Data logger and Thermocouple by 9 points calibration & mapping method
Climatic chambers (Humidity)	10 %RH to 95 %RH	1.8 %RH	Cal Procedure – 89-LO-W0400 Using Humidity Sensor with Data logger by single sensor method at center position
Thermocouple	-40 °C to 140 °C 140 °C to 300 °C 300 °C to 700 °C	0.4 °C 1.8 °C 2.6 °C	Cal Procedure – 22-LO-W0852 Using Dry Block Calibrator & Pt-100 / Type N reference sensor
<b>Electrical – DC/LF</b>			
Thermocouple Simulation Generate and Measure			Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
Type J	-210 °C to -100 °C -100 °C to -30 °C -30 °C to 150 °C 150 °C to 760 °C 760 °C to 1200 °C	0.6 °C 0.5 °C 0.6 °C 0.6 °C 0.6 °C	
Type T	-250 °C to -150 °C -150 °C to 0 °C 0 °C to 120 °C 120 °C to 400 °C	0.73 °C 0.29 °C 0.20 °C 0.17 °C	
Type K	-200 °C to -100 °C -100 °C to -25 °C -25 °C to 120 °C 120 °C to 1000 °C 1000 °C to 1372 °C	0.39 °C 0.22 °C 0.20 °C 0.31 °C 0.47 °C	
DC Voltage - Generate <sup>3</sup>	0 mV to 329.9999 mV 0 V to 3.299999 V 0 V to 32.99999 V 30 V to 329.9999 V 100 V to 1000.000 V	28 x 10 <sup>-6</sup> + 1.2 μV 14 x 10 <sup>-6</sup> + 2.4 μV 15 x 10 <sup>-6</sup> + 24 μV 22 x 10 <sup>-6</sup> + 190 μV 22 x 10 <sup>-6</sup> + 1.9 mV	Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
DC Current - Generate <sup>3</sup>	0 μA to 329.999 μA	200 x 10 <sup>-6</sup> + 0.024 μA	Cal Procedure – 89-LO-W0412
DC Current - Generate <sup>3</sup> continued	0 mA to 3.29999 mA	120 x 10 <sup>-6</sup> + 0.059 μA	Using Multifunction Calibrator by direct method

CL-171

UL INTERNATIONAL GERMANY GMBH

Effective Date January 6, 2025

Page 3 of 10

IAS/CL/100-3



INTERNATIONAL  
ACCREDITATION  
SERVICE®

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	0 mA to 32.9999 mA 0 mA to 329.999 mA 0 A to 1.09999 A 1.1 A to 2.99999 A 0 A to 10.9999 A (20 A range) 11 A to 20.5 A (20 A range)	120 x 10 <sup>-6</sup> + 0.3 µA 120 x 10 <sup>-6</sup> + 3 µA 240 x 10 <sup>-6</sup> + 47 µA 450 x 10 <sup>-6</sup> + 47 µA 590 x 10 <sup>-6</sup> + 590 µA	Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
	5 A to 50 A (5 Windings)	1200 x 10 <sup>-6</sup> + 870 µA	
	55 A to 100 A (5 Windings)	590 x 10 <sup>-6</sup> + 590 µA x 5	
	10 A to 100 A (10 Windings)	1200 x 10 <sup>-6</sup> + 870 µA x 5	
	110 A to 200 A (10 Windings)	590 x 10 <sup>-6</sup> + 590 µA x 10	
	20 A to 200 A (20 Windings)	1200 x 10 <sup>-6</sup> + 870 µA x 10	
	220 A to 400 A (20 Windings)	590 x 10 <sup>-6</sup> + 590 µA x 20	
	30 A to 300 A (30 Windings)	1200 x 10 <sup>-6</sup> + 870 µA x 20	
	330 A to 400 A (30 Windings)	590 x 10 <sup>-6</sup> + 590 µA x 30	
	330 A to 400 A (30 Windings)	1200 x 10 <sup>-6</sup> + 870 µA x 30	
DC Resistance - Generate <sup>3</sup>	0 Ω to 10.9999 Ω 11 Ω to 32.9999 Ω 33 Ω to 109.9999 Ω 110 Ω to 329.9999 Ω 330 Ω to 1.099999 kΩ 1.1 kΩ to 3.299999 kΩ 3.3 kΩ to 10.99999 kΩ 11 kΩ to 32.99999 kΩ 33 kΩ to 109.9999 kΩ 110 kΩ to 329.9999 kΩ 330 kΩ to 1.099999 MΩ 1.1 MΩ to 3.299999 MΩ 3.3 MΩ to 10.99999 MΩ	48 x 10 <sup>-6</sup> + 0.012 Ω 36 x 10 <sup>-6</sup> + 0.018 Ω 33 x 10 <sup>-6</sup> + 0.018 Ω 33 x 10 <sup>-6</sup> + 0.024 Ω 33 x 10 <sup>-6</sup> + 0.024 Ω 33 x 10 <sup>-6</sup> + 0.24 Ω 33 x 10 <sup>-6</sup> + 0.12 Ω 33 x 10 <sup>-6</sup> + 2.4 Ω 33 x 10 <sup>-6</sup> + 2.4 Ω 38 x 10 <sup>-6</sup> + 12 Ω 39 x 10 <sup>-6</sup> + 12 Ω 73 x 10 <sup>-6</sup> + 180 Ω 160 x 10 <sup>-6</sup> + 290 Ω	Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
DC Resistance - Generate <sup>3</sup> (continued)	11 MΩ to 32.99999 MΩ 33 MΩ to 109.9999 MΩ	300 x 10 <sup>-6</sup> + 2900 Ω 580 x 10 <sup>-6</sup> + 3500 Ω	



# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	110 MΩ to 329.9999 MΩ 330 MΩ to 1100 MΩ	$3.5 \times 10^{-3} + 120 \text{ k}\Omega$ $18 \times 10^{-3} + 580 \text{ k}\Omega$	Using Multifunction Calibrator by direct method
AC Voltage - Generate <sup>3</sup>	33 mV to 329.999 mV (45 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 50 kHz) (50 kHz to 100 kHz)	$170 \times 10^{-6} + 9.3 \text{ }\mu\text{V}$ $190 \times 10^{-6} + 9.3 \text{ }\mu\text{V}$ $410 \times 10^{-6} + 9.3 \text{ }\mu\text{V}$ $930 \times 10^{-6} + 37 \text{ }\mu\text{V}$	Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
	0.33 V to 3.29999 V (45 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 50 kHz) (50 kHz to 100 kHz)	$180 \times 10^{-6} + 70 \text{ }\mu\text{V}$ $220 \times 10^{-6} + 70 \text{ }\mu\text{V}$ $350 \times 10^{-6} + 59 \text{ }\mu\text{V}$ $810 \times 10^{-6} + 150 \text{ }\mu\text{V}$	
	3.3 V to 32.9999 V (45 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 50 kHz) (50 kHz to 100 kHz)	$180 \times 10^{-6} + 700 \text{ }\mu\text{V}$ $280 \times 10^{-6} + 700 \text{ }\mu\text{V}$ $410 \times 10^{-6} + 700 \text{ }\mu\text{V}$ $1100 \times 10^{-6} + 1.9 \text{ mV}$	
	33 V to 329.999 V (45 Hz to 1 kHz) (1 kHz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 50 kHz) (50 kHz to 100 kHz)	$220 \times 10^{-6} + 2.4 \text{ mV}$ $240 \times 10^{-6} + 7 \text{ mV}$ $290 \times 10^{-6} + 7 \text{ mV}$ $350 \times 10^{-6} + 7 \text{ mV}$ $2400 \times 10^{-6} + 58 \text{ mV}$	
	330 V to 1020 V (45 Hz to 1 kHz) (1 kHz to 5 kHz) (5 kHz to 10 kHz)	$350 \times 10^{-6} + 13 \text{ mV}$ $300 \times 10^{-6} + 13 \text{ mV}$ $350 \times 10^{-6} + 13 \text{ mV}$	
AC Current - Generate <sup>3</sup>	0.33 mA to 3.2999 mA (45 Hz to 1 kHz) (1 kHz to 5 kHz) (5 kHz to 10 kHz)	$1.2 \times 10^{-3} + 0.18 \text{ }\mu\text{A}$ $2.4 \times 10^{-3} + 0.24 \text{ }\mu\text{A}$ $5.8 \times 10^{-3} + 0.35 \text{ }\mu\text{A}$	Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
	3.3 mA to 32.999 mA (45 Hz to 1 kHz) (1 kHz to 5 kHz) (5 kHz to 10 kHz)	$470 \times 10^{-6} + 2.4 \text{ }\mu\text{A}$ $930 \times 10^{-6} + 2.4 \text{ }\mu\text{A}$ $2.4 \times 10^{-3} + 3.5 \text{ }\mu\text{A}$	
	33 mA to 329.99 mA (45 Hz to 1 kHz) (1 kHz to 5 kHz) (5 kHz to 10 kHz)	$470 \times 10^{-6} + 24 \text{ }\mu\text{A}$ $1.2 \times 10^{-3} + 58 \text{ }\mu\text{A}$ $2.4 \times 10^{-3} + 120 \text{ }\mu\text{A}$	
AC Current - Generate <sup>3</sup>			

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
continued	0.33 A to 1.09999 A (45 Hz to 1 kHz) (1 kHz to 5 kHz) (5 kHz to 10 kHz)	0.7 x 10 <sup>-3</sup> + 120 µA 7 x 10 <sup>-3</sup> + 1.2 mA 29 x 10 <sup>-3</sup> + 5.8 mA	Cal Procedure – 89-LO-W0412 Using Multifunction Calibrator by direct method
	1.1 A to 2.99999 A (45 Hz to 1 kHz) (1 kHz to 5 kHz) (5 kHz to 10 kHz)	0.7 x 10 <sup>-3</sup> + 120 µA 7 x 10 <sup>-3</sup> + 1.2 mA 29 x 10 <sup>-3</sup> + 5.8 mA	
	3 A to 10.9999 A (45 Hz to 100 Hz) (100 Hz to 1 kHz) (1 kHz to 5 kHz)	0.7 x 10 <sup>-3</sup> + 2.4 mA 1.2 x 10 <sup>-3</sup> + 2.4 mA 35 x 10 <sup>-3</sup> + 2.4 mA	
	11 A to 20.5 A (45 Hz to 100 Hz) (100 Hz to 1 kHz) (1 kHz to 5 kHz)	1.4 x 10 <sup>-3</sup> + 5.8 mA 1.8 x 10 <sup>-3</sup> + 5.8 mA 35 x 10 <sup>-3</sup> + 5.8 mA	
AC Current Supply (5 Windings)	15 A to 50 A (45 Hz to 1 kHz)	700 x 10 <sup>-6</sup> + 2.4 mA x 5	Cal Procedure – 89-LO-W0413 and -89-LO-W0414 Using Multifunction Calibrator by direct method
	55 A to 120 A (45 Hz to 1 kHz)	1400 x 10 <sup>-6</sup> + 5.8 mA x 5	
AC Current Supply (10 Windings)	30 A to 100 A (45 Hz to 1 kHz)	700 x 10 <sup>-6</sup> + 2.4 mA x 10	
	110 A to 200 A (45 Hz to 100 Hz)	1400 x 10 <sup>-6</sup> + 5.8 mA x 10	
AC Current Supply (20 Windings)	60 A to 200 A (45 Hz to 100 Hz)	700 x 10 <sup>-6</sup> + 2.4 mA x 20	
	220 A to 400 A (45 Hz to 100 Hz)	1400 x 10 <sup>-6</sup> + 5.8 mA x 20	
AC Current Supply (30 Windings)	90 A to 300 A (45 Hz to 1 kHz)	700 x 10 <sup>-6</sup> + 2.4 mA x 30	
	330 A to 400 A (45 Hz to 100 Hz)	1400 x 10 <sup>-6</sup> + 5.8 mA x 30	

CL-171

UL INTERNATIONAL GERMANY GMBH

Effective Date January 6, 2025

Page 6 of 10

IAS/CL/100-3



# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Shunt Calibration	1.00 A to 99.00 A	0.13 A	Cal Procedure – 89-LO-W0415 Using Shunt Calibration Unit by direct method
Fixed Reference DC Resistances (4-wire reference resistance)	1 mΩ 5 mΩ 10 mΩ 20 mΩ 100 mΩ	2.4 % 1.2 % 1.2 % 1.2 % 1.2 %	Cal Procedure – 89-LO-W0412 Using Reference Resistance Unit by direct method
Fixed Reference DC Resistances (2-wire reference resistance) Fixed Reference DC Resistances (2-wire reference resistance) continued	1.8 Ω 3 Ω 9 Ω 18 Ω 100 Ω 200 Ω 1.5 kΩ 10 kΩ 20 kΩ 90 kΩ 180 kΩ	1.2 % 1.2 %	Cal Procedure – 89-LO-W0412 Using Reference Resistance Unit by direct method Cal Procedure – 89-LO-W0412 Using Reference Resistance Unit by direct method
DC Resistance - Measure <sup>4</sup> (3-wire method)	0 Ω to 500 Ω 500 Ω to 5 kΩ 5 kΩ to 50 kΩ	0.064 % + 0.087 Ω 0.064 % + 0.87 Ω 0.064 % + 12 Ω	Cal Procedure – 89-LO-W0412 Using Reference Resistance Unit by direct method
DC Resistance - Measure <sup>4</sup> (4-wire method)	(50 mA & 500 mV) 1 Ω to 10 Ω (DC) (50 Hz) (1 kHz) (10 kHz)  (50 mA & 5 V) 10 Ω to 100 Ω (DC) (50 Hz) (1 kHz) (10 kHz)  (5 mA & 5 V) 100 Ω to 1000 Ω (DC) (50 Hz) (1 kHz) (10 kHz)	0.032 % + 10 mΩ 0.35 % + 12 mΩ 0.46 % + 16 mΩ 0.52 % + 26 mΩ  0.032 % + 7.6 mΩ 0.35 % + 74 mΩ 0.69 % + 61 mΩ 0.73 % + 110 mΩ  0.032 % + 130 mΩ 0.35 % + 750 mΩ 0.69 % + 750 mΩ 0.73 % + 910 mΩ	Cal Procedure – 89-LO-W0412 Using Fluke 5520A as current source, Fluke 289 to measure voltage drop
DC Resistance - Measure <sup>4</sup> (4-wire method)	(0.5 mA & 5 V)		Cal Procedure – 89-LO-W0412

CL-171

UL INTERNATIONAL GERMANY GMBH

Effective Date January 6, 2025

Page 7 of 10

IAS/CL/100-3



# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
continued	1 kΩ to 10 kΩ (DC) (50 Hz) (1 kHz) (10 kHz)	0.032 % + 10 Ω 0.37 % + 12 Ω 0.70 % + 12 Ω 0.90 % + 13 Ω	Using Fluke 5520A as current source, Fluke 289 to measure voltage drop
DC Voltage - Measure <sup>4</sup>	0 mV to 50 mV 0 mV to 500 mV 0 V to 5 V 0 V to 50 V 0 V to 500 V 0 V to 1000 V	0.059 % + 0.024 mV 0.03 % + 0.024 mV 0.03 % + 0.24 mV 0.031 % + 2.4 mV 0.035 % + 24 mV 0.036 % + 240 mV	Cal Procedure – ULID-019807 Using Multimeter by direct method.
DC Current - Measure <sup>4</sup>	0 μA to 500 μA 0 μA to 5000 μA 0 μA to 50 mA 0 mA to 400 mA 0 A to 5 A 0 A to 10 A	0.095 % + 0.24 μA 0.089 % + 0.24 μA 0.062 % + 0.012 mA 0.18 % + 0.024 mA 0.36 % + 1.2 mA 0.36 % + 2.4 mA	Cal Procedure – 89-LO-W0419 Using Multimeter by direct method
AC Voltage - Measure <sup>4</sup>	0 mV to 50 mV (45 Hz to 65 Hz) (65 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 100 kHz)	3500 x 10 <sup>-6</sup> + 29 μV 4700 x 10 <sup>-6</sup> + 29 μV 8100 x 10 <sup>-6</sup> + 47 μV 41 x 10 <sup>-3</sup> + 47 μV	Cal Procedure – 89-LO-W0419 Using Multimeter by direct method
	0 mV to 500 mV (45 Hz to 65 Hz) (65 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 100 kHz)	3500 x 10 <sup>-6</sup> + 290 μV 4700 x 10 <sup>-6</sup> + 290 μV 8100 x 10 <sup>-6</sup> + 470 μV 41 x 10 <sup>-3</sup> + 470 μV	
	0 V to 5 V (45 Hz to 65 Hz) (65 Hz to 10 kHz)	3500 x 10 <sup>-6</sup> + 2.9 mV 7000 x 10 <sup>-6</sup> + 2.9 mV	
	0 V to 50 V (45 Hz to 65 Hz) (65 Hz to 10 kHz)	3500 x 10 <sup>-6</sup> + 29 mV 4700 x 10 <sup>-6</sup> + 29 mV	
AC Voltage - Measure <sup>4</sup> (continued)	0 V to 500 V (45 Hz to 65 Hz)	3500 x 10 <sup>-6</sup> + 290 mV	Cal Procedure – 89-LO-W0419



# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	0 V to 500 V (65 Hz to 10 kHz)	4700 x 10 <sup>-6</sup> + 290 mV	Using Multimeter by direct method
	0 V to 1000 V (45 Hz to 65 Hz) (65 Hz to 10 kHz)	3500 x 10 <sup>-6</sup> + 2.9 V 4700 x 10 <sup>-6</sup> + 2.9 V	
AC Current - Measure <sup>4</sup>	0 mA to 5 mA (45 Hz to 1 kHz)  (1 kHz to 20 kHz)	7100 x 10 <sup>-6</sup> + 0.59 µA 8300 x 10 <sup>-6</sup> + 1.2 µA	Cal Procedure – 89-LO-W0419 Using Multimeter by direct method
	0 mA to 50 mA (45 Hz to 1 kHz) (1 kHz to 20 kHz)	7300 x 10 <sup>-6</sup> + 24 µA 7700 x 10 <sup>-6</sup> + 24 µA	
	0 mA to 400 mA (45 Hz to 1 kHz) (1 kHz to 20 kHz)	7 x 10 <sup>-3</sup> + 59 µA 36 x 10 <sup>-3</sup> + 120 µA	
	0 A to 5 A (45 Hz to 1 kHz)	9500 x 10 <sup>-6</sup> + 2.4 mA	
	0 A to 10 A (45 Hz to 1 kHz)	9500 x 10 <sup>-6</sup> + 5.9 mA	
Sine Frequency - Measure <sup>4</sup>	0 Hz to 99.999 Hz	240 x 10 <sup>-6</sup> + 5.9 mHz	Cal Procedure – 89-LO-W0419
	0 Hz to 999.99 Hz	59 x 10 <sup>-6</sup> + 0.059 Hz	Using Multimeter by direct method
	0 kHz to 9.9999 kHz	59 x 10 <sup>-6</sup> + 0.59 Hz	
	0 kHz to 99.999 kHz	59 x 10 <sup>-6</sup> + 5.9 Hz	
	0 kHz to 999.99 kHz	59 x 10 <sup>-6</sup> + 59 Hz	
<b>Time and Frequency</b>			
Time	10 s to 24 h	1.9 s	Cal Procedure – 89-LO-W0420 Using Timer (Atomic Watch) by comparison method
<b>Chemical &amp; Gas</b>			
Conductivity meter	15 µS to 150 mS	1.2 %	Cal Procedure – 89-LO-W0402 Using Omega CA 150 Ref. electrolytic solution by direct method

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

<sup>1</sup>The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

<sup>2</sup>When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

<sup>3</sup>Capability is suitable for the calibration of measuring devices in the stated ranges.

<sup>4</sup>Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.

