Name of Accreditation Program	JCSS Accreditation Program
Accreditation Identification	JCSS 0039 Calibration
Name of Conformity Assessment Body	Japan Electric Meters Inspection Corporation
Name of Legal Entity	Japan Electric Meters Inspection Corporation JCN 4010405002454
Inquiry Point	Calibration Service Group TEL: +81-3-3451-6760 FAX: +81-3-3451-6910

*JCN: Japan Corporate Number

24･08･30-NITE-002
2024-09-18

Certificate of Accreditation

International Accreditation Japan (IAJapan) hereby accredits the following conformity assessment body as a calibration laboratory of Japan Calibration Service System.

Accreditation Identification: JCSS 0039 Calibration

Name of Conformity Assessment Body: Japan Electric Meters Inspection Corporation

Name of Legal Entity: Same as above

Location of Conformity Assessment Body: 4-15-7 Shibaura, Minato-ku, Tokyo 108-0023, JAPAN

Scope of Accreditation: Time & Frequency & Rotational speed, Pressure, Mass, Length, Electricity (Direct Current & Low Frequency), Humidity, Temperature,
Electricity (High Frequency) & Electromagnetic Fields, Torque, Photometry, Force
(as the following pages)

Accreditation Requirement: ISO/IEC 17025:2017*

* The relevant accreditation requirements described in the Accreditation Scheme Document for JCSS are also applied.

Effective Date of Accreditation: 2023-03-22

Expiry Date of Accreditation: 2027-03-21

Date of Initial Accreditation: 1994-08-01

K. Horisaka

HORISAKA Kazuhide
Chief Executive, International Accreditation Japan (IAJapan)
National Institute of Technology and Evaluation

- International Accreditation Japan (IAJapan) is a laboratory accreditation body which has signed MRAs of ILAC (International Laboratory Accreditation Cooperation) and APAC (Asia Pacific Accreditation Cooperation).
- MRA requirements are, in addition to relevant international standards and guides, requirements for participation in proficiency testing programs, surveillance and reassessment, and the policy for the traceability of measurement for MRA purpose.
- This laboratory fulfills ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation means this laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).
- The latest accreditation information is publicly available on IAJapan Website as an accreditation certificate.

General Field of Calibration: Time & Frequency & Rotational speed
Date of Initial Accreditation of the Field: 2004-12-24
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Time & Frequency Counter, etc.	Frequency Generator	From 1 Hz up to 100 MHz		3.0×10^{-10} (Relative expanded uncertainty)
	Frequency Counter	From 1 Hz up to 100 MHz		3.0×10^{-10} (Relative expanded uncertainty)
	Time-Interval Source *1	From 0.1 s less than 1 s		0.003 0 s
		From 1 s less than 10 s		0.004 s
		From 10 s up to 60 s		0.01 s
	Time-Interval Measuring Equipment	Calibration by Frequency Measurement (rate)*2	Up to 99.99 s	0.006 s
		Calibration by Time-Interval Measurement	From 0.1 s less than 10 s	0.000 3 s
			From 10 s up to 60 s	0.003 s
			More than 60 s up to 3600 s	0.09 s
	Tachometer	From 1 rpm up to 50 000 rpm		0.060 rpm
		More than 50 000 rpm up to 100 000 rpm		0.065 rpm

#All Calibration Procedures are in-house procedures developed by this laboratory.
*1 : Limited to Withstand Voltage tester.
*2 : Limited to the frequency of Crystal oscillator is 32.768 kHz.
Note: In the CMC column, the values of Frequency Generator and Frequency Counter exclude sources of uncertainty attributed to a unit under test, the values of Time-Interval Source, Time-Interval Measuring Equipment and Tachometer include sources of uncertainty attributed to a unit under test.

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Time & Frequency Counter, etc.	Frequency Generator	From 1 Hz up to 10 MHz		1.0×10^{-6} (Relative expanded uncertainty)
	Frequency Counter	From 1 Hz up to 10 MHz		1.0×10^{-6} (Relative expanded uncertainty)
	Time-Interval Source *1	From 0.1 s less than 1 s		0.003 0 s
		From 1 s less than 10 s		0.004 s
		From 10 s up to 60 s		0.01 s
	Time-Interval Measuring Equipment	Calibration by Time-Interval Measurement	From 0.1 s less than 10 s	0.000 3 s
			From 10 s up to 60 s	0.003 s
			More than 60 s up to 3600 s	0.09 s
	Tachometer	From 1 rpm up to 50 000 rpm		0.060 rpm
		More than 50 000 rpm up to 100 000 rpm		0.065 rpm

#All Calibration Procedures are in-house procedures developed by this laboratory.
*1 : Limited to Withstand Voltage tester.
Note: The values in the CMC column include sources of uncertainty attributed to a unit under test.

General Field of Calibration: Time & Frequency & Rotational speed
Date of Initial Accreditation of the Field: 2004-12-24
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Time & Frequency Counter, etc.	Time-Interval Measuring Equipment	Calibration by Time-Interval Measurement (Lightning impulse waveform)	Front time 0.84 μs, 1.56 μs (Voltage: From 100 kV up to 500 kV) (Time to half-value 60 μs)	Front time 2.8 %
			Time to half-value 60 μs (Voltage: From 100 kV up to 500 kV) (Front time 0.84 μs, 1.56 μs)	Time to half-value 2.0 %
		Calibration by Time-Interval Measurement (Switching impulse waveform)	Front time 200 μs, 300 μs (Voltage: From 180 kV up to 500 kV) (Time to half-value 2 500 μs)	Front time 2.3 %
			Time to half-value 2 500 μs (Voltage: From 180 kV up to 500 kV) (Front time 200 μs, 300 μs)	Time to half-value 1.2 %

#All Calibration Procedures are in-house procedures developed by this laboratory.
Note: In the CMC column, the values of Time-Interval Measuring Equipment include sources of uncertainty attributed to a unit under test.

General Field of Calibration: Pressure
Date of Initial Accreditation of the Field: 2015-09-11
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Pressure Gauge	Pressure Gauges (Digital Pressure Gauges)	Gas Gauge Pressure	From -90 kPa up to -10 kPa	35 Pa
			From 10 kPa up to 100 kPa	29 Pa
			More than 100 kPa up to 700 kPa	73 Pa
			More than 700 kPa up to 7 MPa	0.52 kPa
		Liquid Gauge Pressure	From 1 MPa up to 7 MPa	0.71 kPa
			More than 7 MPa up to 70 MPa	6.5 kPa
	Mechanical Type Pressure Gauges	Gas Gauge Pressure	From -90 kPa up to -10 kPa	0.2 kPa
			From 10 kPa up to 100 kPa	0.5 kPa
			More than 100 kPa up to 700 kPa	2.0 kPa
			More than 700 kPa up to 7 MPa	11 kPa
		Liquid Gauge Pressure	From 1 MPa up to 10 MPa	12 kPa
			More than 10 MPa up to 100 MPa	0.15 MPa

#All Calibration Procedures are in-house procedures developed by this laboratory.

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Pressure Gauge	Pressure Gauges (Digital Pressure Gauges)	Gas Gauge Pressure	From -80 kPa up to -10 kPa	0.10 kPa
			From 10 kPa up to 150 kPa	0.08 kPa
			More than 150 kPa up to 700 kPa	0.11 kPa
			More than 700 kPa up to 2 MPa	0.52 kPa
	Mechanical Type Pressure Gauges	Gas Gauge Pressure	From -80 kPa up to -10 kPa	0.2 kPa
			From 10 kPa up to 100 kPa	0.5 kPa
			More than 100 kPa up to 700 kPa	2.0 kPa
			More than 700 kPa up to 2 MPa	11 kPa

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Mass
Date of Initial Accreditation of the Field: 2015-09-11
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility, On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
			Conventional mass	
			Laboratory's permanent facility	On-site Calibration
Weight	Weight	1 mg	0.004 mg	-
		2 mg	0.004 mg	-
		5 mg	0.004 mg	-
		10 mg	0.004 mg	-
		20 mg	0.005 mg	-
		50 mg	0.006 mg	-
		100 mg	0.007 mg	-
		200 mg	0.009 mg	-
		500 mg	0.011 mg	-
		1 g	0.015 mg	-
		2 g	0.018 mg	-
		5 g	0.023 mg	-
		10 g	0.030 mg	-
		20 g	0.037 mg	-
		50 g	0.047 mg	-
		100 g	0.076 mg	-
		200 g	0.16 mg	-
		500 g	0.42 mg	-
		1 kg	0.80 mg	-
		2 kg	1.6 mg	0.03 g
		5 kg	4.2 mg	0.08 g
		10 kg	8.0 mg	0.15 g
		20 kg	16 mg	0.30 g
	Deadweight	From 1 g less than 20 g	0.18 mg	-
		From 20 g less than 50 g	0.25 mg	-
		From 50 g less than 100 g	0.30 mg	-
		From 100 g less than 200 g	0.47 mg	-
		From 200 g less than 500 g	1.3 mg	-
		From 500 g less than 1 kg	2.3 mg	-
		From 1 kg less than 2 kg	4.6 mg	-
		From 2 kg less than 5 kg	13 mg	0.03 g
		From 5 kg less than 10 kg	24 mg	0.08 g
		From 10 kg less than 20 kg	46 mg	0.15 g
		From 20 kg up to 25 kg	59 mg	0.30 g

#All Calibration Procedures are in-house procedures developed by this laboratory.

Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility, On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
			Laboratory's permanent facility	On-site Calibration
Scale	Non-Automatic Electronic Weighing Instruments	From 1 g up to 50 g	0.074 mg	0.11 mg
		More than 50 g up to 80 g	0.12 mg	0.19 mg
		More than 80 g up to 220 g	0.25 mg	0.35 mg
		More than 220 g up to 320 g	0.33 mg	0.48 mg
		More than 320 g up to 500 g	1.9 mg	1.9 mg
		More than 500 g up to 2 200 g	0.013 g	0.016 g
		More than 2 200 g up to 3 200 g	0.018 g	0.020 g
		More than 3 200 g up to 8 100 g	0.025 g	0.034 g
		More than 8 100 g up to 12 kg	0.13 g	0.13 g
		More than 12 kg up to 21 kg	0.22 g	0.23 g
		More than 21 kg up to 32 kg	0.29 g	0.31 g
		More than 32 kg up to 60 kg	1.7 g	1.7 g

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Length
Date of Initial Accreditation of the Field: 2015-09-11
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)
Length Measuring Instrument	Gauge Blocks (Comparison method)	From 0.5 mm up to 100 mm	0.15 μm
		More than 100 mm up to 150 mm	0.22 μm
		More than 150 mm up to 200 mm	0.27 μm
		More than 200 mm up to 250 mm	0.32 μm
	Micrometers	Up to 25 mm	2 μm
		More than 25 mm up to 50 mm	3 μm
		More than 50 mm up to 75 mm	3 μm
		More than 75 mm up to 100 mm	5 μm
	Calipers	Up to 600 mm	0.04 mm
	Height gauges	Up to 600 mm	0.03 mm
	Dial gauges	Up to 5 mm	0.9 μm
		More than 5 mm up to 25.4 mm	2 μm
		More than 25.4 mm up to 100 mm	4 μm
	Dial test indicators	Up to 0.14 mm	0.9 μm
		More than 0.14 mm up to 0.8 mm	2 μm

#All Calibration Procedures are in-house procedures developed by this laboratory.

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)
Length Measuring Instrument	Micrometers	Up to 25 mm	3 μm
		More than 25 mm up to 50 mm	4 μm
		More than 50 mm up to 75 mm	6 μm
		More than 75 mm up to 100 mm	7 μm
	Calipers	Up to 600 mm	0.06 mm
	Height gauges	Up to 600 mm	0.05 mm
	Dial gauges	Up to 25 mm	3 μm
	Dial test indicators	Up to 0.8 mm	3 μm

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Electricity (Direct Current & Low Frequency)
Date of Initial Accreditation of the Field: 1995-06-21
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	DC Resistor	1 mΩ	3.1 ppm
		10 mΩ	1.8 ppm
		100 mΩ	0.9 ppm
		1 Ω	0.3 ppm
		10 Ω	0.8 ppm
		100 Ω	0.5 ppm
		1 kΩ	1.0 ppm
		10 kΩ	0.6 ppm
		30 kΩ, 40 kΩ, 50 kΩ, 60 kΩ, 70 kΩ, 80 kΩ, 90 kΩ	10 ppm
		100 kΩ	1.5 ppm
		200 kΩ, 300 kΩ, 400 kΩ, 500 kΩ, 600 kΩ, 700 kΩ, 800 kΩ, 900 kΩ	10 ppm
		1 MΩ	1.7 ppm
		10 MΩ	4.2 ppm
		100 MΩ	6 ppm
		1 GΩ	10 ppm
		10 GΩ	20 ppm
		100 GΩ	50 ppm
		1 TΩ	0.5 %
		More than 1 mΩ less than 2 mΩ	0.009 %
		From 2 mΩ less than 3 mΩ	0.008 %
		From 3 mΩ less than 10 mΩ	0.007 %
		More than 10 mΩ less than 1 Ω	0.004 %
		More than 1 Ω less than 6 Ω	20 ppm
		From 6 Ω less than 10 Ω	10 ppm
		More than 10 Ω less than 20 Ω	20 ppm
		From 20 Ω less than 10 kΩ	10 ppm
		More than 10 kΩ up to 9 MΩ	20 ppm
		More than 9 MΩ up to 120 MΩ	30 ppm
		More than 120 MΩ up to 600 MΩ	0.2 %
		More than 600 MΩ less than 1 GΩ	0.3 %
		More than 1 GΩ less than 100 GΩ	0.4 %
		More than 100 GΩ up to 700 GΩ	0.7 %
		More than 700 GΩ less than 1 TΩ	0.8 %
	DC Resistance Measuring Equipment	1 mΩ	80 ppm
		10 mΩ	25 ppm
		100 mΩ	10 ppm
		1 Ω	3.5 ppm
		10 Ω, 100 Ω, 1 kΩ	4.0 ppm
		10 kΩ	3.5 ppm
		20 kΩ, 30 kΩ, 40 kΩ, 50 kΩ, 60 kΩ, 70 kΩ, 80 kΩ, 90 kΩ	0.001 %
		100 kΩ	4.0 ppm
		200 kΩ, 300 kΩ, 400 kΩ, 500 kΩ, 600 kΩ,	0.001 %

		700 kΩ, 800 kΩ, 900 kΩ		
		1 MΩ		4.0 ppm
		1 GΩ, 10 GΩ		0.05 %
		100 GΩ		0.2 %
		1 TΩ		0.5 %
		More than 1 Ω up to 6Ω		0.002 %
		More than 6 Ω less than 10 Ω		0.001 %
		More than 10 Ω up to 20 Ω		0.002 %
		More than 20 Ω less than 10 kΩ		0.001 %
		More than 10 kΩ less than 1 MΩ		0.002 %
		More than 1 MΩ less than 3 MΩ		0.02 %
		From 3 MΩ less than 4 MΩ		0.01 %
		From 4 MΩ less than 5 MΩ		0.008 %
		From 5 MΩ less than 6 MΩ		0.006 %
		From 6 MΩ up to 10 MΩ		0.005 %
		More than 10 MΩ less than 30 MΩ		0.02 %
		From 30 MΩ less than 40 MΩ		0.01 %
		From 40 MΩ less than 50 MΩ		0.008 %
		From 50 MΩ less than 60 MΩ		0.006 %
		From 60 MΩ up to 100 MΩ		0.005 %
		More than 100 MΩ up to 120 MΩ		0.02 %
		More than 120 MΩ up to 600 MΩ		0.2 %
		More than 600 MΩ less than 1 GΩ		0.3 %
		More than 1 GΩ less than 100 GΩ		0.4 %
		More than 100 GΩ less than 700 GΩ		0.7 %
		More than 700 GΩ less than 1 TΩ		0.8 %
	DC Voltage Source	1 V (fixed terminal)		0.5 ppm
		1.018 V (fixed terminal)		0.4 ppm
		10 V (fixed terminal)		0.2 ppm
		From 0 V less than 1 μV		0.7 μV
		From 1 μV up to 10 mV		0.3 μV
		More than 10 mV up to 20 mV		13 ppm
		More than 20 mV up to 30 mV		9 ppm
		More than 30 mV up to 40 mV		7 ppm
		More than 40 mV up to 50 mV		6 ppm
		More than 50 mV up to 60 mV		5 ppm
		More than 60 mV up to 100 mV		4 ppm
		More than 100 mV up to 1 kV		3.0 ppm
		More than 1 kV up to 200 kV		0.05 %
	DC Voltage Measuring Equipment	From 0 V less than 1 μV		0.5 μV
		From 1 μV up to 10 mV		0.3 μV
		More than 10 mV up to 20 mV		13 ppm
		More than 20 mV up to 30 mV		9 ppm
		More than 30 mV up to 40 mV		7 ppm
		More than 40 mV up to 50 mV		6 ppm
		More than 50 mV up to 60 mV		5 ppm
		More than 60 mV up to 100 mV		4 ppm
		More than 100 mV up to 1 kV		3.0 ppm
		More than 1 kV up to 200 kV		0.05 %
		Lightning	From 100 kV up to 500 kV	Scale factor

		impulse voltage	(Front time 0.84 μs, 1.56 μs) (Time to half-value 60 μs)	0.7 %
		Switching impulse voltage	From 180 kV up to 500 kV (Front time 200 μs, 300 μs) (Time to half-value 2 500 μs)	Scale factor 0.7 %
	DC Voltage Resistive Divider	More than 1 kV up to 200 kV		0.003 %
		1000 V	100:1	2.7 ppm
		100 V	10:1	1.6 ppm
		10 V	1:1	1 ppm
			From 1:0.000 000 1 up to 1:0.09	0.000 000 1
		110 V	1:1.0	0.000 001 1
			1:0.9	0.000 001 0
			1:0.8	0.000 000 9
			1:0.7	0.000 000 7
			1:0.6	0.000 000 6
			1:0.5	0.000 000 5
			1:0.4	0.000 000 4
			1:0.3	0.000 000 3
			1:0.2	0.000 000 2
			1:0.1	0.000 000 1
	Direct Current Source	0 A		0.001 0 μA
		From 1 pA up to 10 pA		0.07 pA
		More than 10 pA up to 60 pA		0.3 pA
		More than 60 pA up to 400 pA		0.4 pA
		More than 400 pA up to 600 pA		0.5 pA
		More than 600 pA up to 800 pA		0.6 pA
		More than 800 pA up to 900 pA		0.7 pA
		More than 900 pA up to 1 000 pA		0.8 pA
		More than 1 nA up to 3 nA		0.003 nA
		More than 3 nA up to 4 nA		0.004 nA
		More than 4 nA up to 6 nA		0.005 nA
		More than 6 nA up to 8 nA		0.006 nA
		More than 8 nA up to 9 nA		0.007 nA
		More than 9 nA up to 100 nA		0.008 nA
		More than 100 nA up to 400 nA		0.03 nA
		More than 400 nA up to 8 μA		0.04 nA
		More than 8 μA up to 10 μA		0.05 nA
		More than 10 μA up to 90 μA		0.4 nA
		More than 90 μA up to 100 μA		0.5 nA
		More than 0.1 mA up to 0.9 mA		0.004 μA
		More than 0.9 mA up to 1 mA		0.005 μA
		More than 1 mA up to 8 mA		0.04 μA
		More than 8 mA up to 10 mA		0.05 μA
		More than 10 mA up to 90 mA		0.4 μA
		More than 90 mA up to 100 mA		0.5 μA
		More than 0.1 A up to 0.7 A		0.004 mA
		More than 0.7 A up to 0.9 A		0.005 mA
		More than 0.9 A up to 1 A		0.006 mA
		More than 1 A up to 1.3 A		0.05 mA
		More than 1.3 A up to 1.9 A		0.06 mA

		More than 1.9 A up to 2.3 A	0.07 mA
		More than 2.3 A up to 2.7 A	0.08 mA
		More than 2.7 A up to 3.1 A	0.09 mA
		More than 3.1 A up to 3.5 A	0.1 mA
		More than 3.5 A up to 7.2 A	0.2 mA
		More than 7.2 A up to 10 A	0.3 mA
		More than 10 A up to 11 A	0.4 mA
		More than 11 A up to 15 A	0.5 mA
		More than 15 A up to 19 A	0.6 mA
		More than 19 A less than 20 A	0.7 mA
		20 A	0.6 mA
		More than 20 A up to 21 A	0.7 mA
		More than 21 A up to 25 A	0.8 mA
		More than 25 A up to 28 A	0.9 mA
		More than 28 A less than 30 A	1 mA
		30 A	0.9 mA
		More than 30 A up to 45 A	2 mA
		More than 45 A less than 50 A	3 mA
		50 A	2 mA
		More than 50 A up to 58 A	4 mA
		More than 58 A up to 73 A	5 mA
		More than 73 A up to 88 A	6 mA
		More than 88 A less than 100 A	7 mA
		100 A	3 mA
		More than 100 A up to 300 A	0.02 A
		More than 300 A up to 500 A	0.03 A
		More than 500 A up to 900 A	0.3 A
		More than 900 A up to 1 000 A	0.4 A
		More than 1 000 A up to 5 000 A	2 A
	Direct Current Measuring Equipment	0 A	0.001 0 μA
		From 1 pA up to 10 pA	0.06 pA
		More than 10 pA up to 60 pA	0.2 pA
		More than 60 pA up to 400 pA	0.3 pA
		More than 400 pA up to 600 pA	0.4 pA
		More than 600 pA up to 800 pA	0.5 pA
		More than 800 pA up to 900 pA	0.6 pA
		More than 900 pA up to 1 000 pA	0.7 pA
		More than 1 nA up to 3 nA	0.002 nA
		More than 3 nA up to 4 nA	0.003 nA
		More than 4 nA up to 6 nA	0.004 nA
		More than 6 nA up to 8 nA	0.005 nA
		More than 8 nA up to 9 nA	0.006 nA
		More than 9 nA up to 100 nA	0.007 nA
		More than 100 nA up to 400 nA	0.02 nA
		More than 400 nA up to 600 nA	0.03 nA
		More than 600 nA up to 1 000 nA	0.04 nA
		More than 1 μA up to 10 μA	0.05 nA
		More than 10 μA up to 80 μA	0.4 nA
		More than 80 μA up to 100 μA	0.5 nA
		More than 0.1 mA up to 0.8 mA	0.004 μA

		More than 0.8 mA up to 1 mA		0.005 μA
		More than 1 mA up to 8 mA		0.04 μA
		More than 8 mA up to 10 mA		0.05 μA
		More than 10 mA up to 80 mA		0.4 μA
		More than 80 mA up to 100 mA		0.5 μA
		More than 0.1 A up to 0.6 A		0.004 mA
		More than 0.6 A up to 0.9 A		0.005 mA
		More than 0.9 A up to 1 A		0.006 mA
		More than 1 A up to 1.6 A		0.06 mA
		More than 1.6 A up to 2.1 A		0.07 mA
		More than 2.1 A up to 2.5 A		0.08 mA
		More than 2.5 A up to 2.9 A		0.09 mA
		More than 2.9 A up to 3.4 A		0.1 mA
		More than 3.4 A up to 7.2 A		0.2 mA
		More than 7.2 A up to 10 A		0.3 mA
		More than 10 A up to 11 A		0.5 mA
		More than 11 A up to 16 A		0.6 mA
		More than 16 A up to 20 A		0.7 mA
		More than 20 A up to 23 A		0.8 mA
		More than 23 A up to 26 A		0.9 mA
		More than 26 A up to 30 A		1 mA
		More than 30 A up to 45 A		2 mA
		More than 45 A less than 50 A		3 mA
		50 A		2 mA
		More than 50 A up to 58 A		4 mA
		More than 58 A up to 73 A		5 mA
		More than 73 A up to 87 A		6 mA
		More than 87 A less than 100 A		7 mA
		100 A		3 mA
		More than 100 A up to 300 A		0.02 A
		More than 300 A up to 500 A		0.03 A
		More than 500 A up to 2 000 A		0.012 %
		More than 2 000 A up to 5 000 A		2 A
	Direct Current Standard Shunt	From 10 μA up to 100 A		25 ppm
		More than 100 A up to 500 A		50 ppm
		More than 500 A less than 1 000 A		0.06 %
		From 1 000 A less than 2 000 A		0.04 %
		From 2 000 A up to 5 000 A		0.02 %
	Direct Current Transformer	Direct Current Transformer	More than 50 A up to 500 A	50 ppm
			More than 500 A up to 5 000 A	0.06 %
		Current Sensor	From 10 A less than 20 A	90 ppm
			From 20 A less than 30 A	60 ppm
			From 30 A less than 70 A	50 ppm
			From 70 A up to 100 A	40 ppm
			More than 100 A up to 2 000 A	0.012 %
			More than 2 000 A less than 3 000 A	0.015 %
			From 3 000 A up to 5 000 A	0.014 %

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Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current& Low Frequency Measuring Equipment, etc.	AC Voltage Source	10 Hz	0.3 V	0.025 %
			0.6 V	0.023 %
			1 V, 2 V, 6 V, 10 V, 20 V, 60 V 100 V, 200 V, 600 V, 1 000 V	0.022 %
		20 Hz, 30 Hz	0.3 V	95 ppm
			0.6 V	88 ppm
			1 V	77 ppm
			2 V	76 ppm
			6 V	75 ppm
			10 V, 20 V	81 ppm
			60 V	80 ppm
			100 V	83 ppm
			200 V	81 ppm
			600 V, 1 000 V	0.012 %
		40 Hz	From 10 mV less than 20 mV	0.050 %
			20 mV	0.024 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.014 %
			More than 60 mV less than 100 mV	0.013 %
			From 0.1 V less than 0.2 V	0.011 %
			0.2 V	97 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			From 0.3 V less than 0.6 V	59 ppm
			0.6 V	48 ppm
			More than 0.6 V less than 2 V	44 ppm
			From 2 V less than 6 V	39 ppm
			6 V	36 ppm
			More than 6 V up to 10 V	40 ppm
			More than 10 V up to 20 V	41 ppm
			More than 20 V less than 30 V	49 ppm
			From 30 V up to 60 V	48 ppm
			More than 60 V up to 100 V	50 ppm
			More than 100 V up to 200 V	52 ppm
			More than 200 V up to 600 V	63 ppm
			More than 600 V up to 1 000 V	62 ppm
		50 Hz, 60 Hz	From 10 mV less than 20 mV	0.050 %
			20 mV	0.024 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.014 %
			More than 60 mV less than 100 mV	0.013 %
			From 0.1 V less than 0.2 V	0.011 %
			0.2 V	97 ppm

			More than 0.2 V less than 0.3 V	96 ppm
			From 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	45 ppm
			More than 0.6 V less than 2 V	42 ppm
			From 2 V less than 6 V	39 ppm
			6 V	37 ppm
			More than 6 V less than 20 V	40 ppm
			20 V	38 ppm
			More than 20 V up to 60 V	41 ppm
			More than 60 V up to 200 V	44 ppm
			More than 200 V up to 600 V	55 ppm
			More than 600 V up to 1 000 V	53 ppm
			More than 1 kV up to 1.5 kV	0.014 kV
			More than 1.5 kV up to 3.5 kV	0.02 kV
			More than 3.5 kV up to 6.5 kV	0.03 kV
			More than 6.5 kV up to 9 kV	0.04 kV
			More than 9 kV up to 10 kV	0.05 kV
		400 Hz	From 10 mV less than 20 mV	0.050 %
			20 mV	0.024 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.014 %
			More than 60 mV less than 100 mV	0.013 %
			From 0.1 V less than 0.2 V	0.011 %
			0.2 V	97 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			From 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	42 ppm
			More than 0.6 V less than 2 V	37 ppm
			From 2 V less than 6 V	35 ppm
			6 V	32 ppm
			More than 6 V up to 20 V	35 ppm
			More than 20 V less than 30 V	40 ppm
			From 30 V up to 60 V	39 ppm
			More than 60 V up to 200 V	41 ppm
			More than 200 V up to 1 000 V	52 ppm
		500 Hz, 1 kHz	From 10 mV less than 20 mV	0.050 %
			20 mV	0.024 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.014 %
			More than 60 mV less than 100 mV	0.013 %
			From 0.1 V less than 0.2 V	0.011 %
			0.2 V	97 ppm

			More than 0.2 V less than 0.3 V	96 ppm
			From 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	41 ppm
			More than 0.6 V less than 2 V	36 ppm
			2 V	34 ppm
			More than 2 V less than 6 V	35 ppm
			6 V	31 ppm
			More than 6 V up to 20 V	34 ppm
			More than 20 V less than 30 V	40 ppm
			From 30 V up to 60 V	39 ppm
			More than 60 V up to 100 V	40 ppm
			More than 100 V up to 200 V	41 ppm
			More than 200 V up to 1 000 V	52 ppm
		10 kHz	From 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	41 ppm
			More than 0.6 V less than 2 V	37 ppm
			From 2 V less than 6 V	36 ppm
			6 V	32 ppm
			More than 6 V up to 20 V	34 ppm
			More than 20 V less than 30 V	40 ppm
			From 30 V up to 60 V	39 ppm
			More than 60 V up to 100 V	40 ppm
			More than 100 V up to 200 V	41 ppm
			More than 200 V up to 1 000 V	53 ppm
		20 kHz	From 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	41 ppm
			More than 0.6 V less than 6 V	38 ppm
			6 V	32 ppm
			More than 6 V up to 20 V	34 ppm
			More than 20 V less than 30 V	40 ppm
			From 30 V up to 60 V	39 ppm
			More than 60 V up to 100 V	40 ppm
			More than 100 V up to 200 V	41 ppm
			More than 200 V up to 1 000 V	53 ppm
		50 kHz	From 0.3 V less than 0.5 V	79 ppm
			From 0.5 V less than 0.6 V	78 ppm
			0.6 V	61 ppm
			More than 0.6 V up to 2 V	63 ppm
			More than 2 V less than 6 V	64 ppm
			From 6 V less than 10 V	55 ppm
			From 10 V up to 20 V	54 ppm
			More than 20 V less than 40 V	67 ppm
			From 40 V up to 60 V	66 ppm
			More than 60 V up to 100 V	77 ppm
			More than 100 V up to 200 V	78 ppm

			More than 200 V up to 1 000 V	0.014 %
		70 kHz	0.3 V	0.014 %
			0.6 V	84 ppm
			1 V, 2 V	83 ppm
			6 V	79 ppm
			10 V, 20 V	78 ppm
			60 V	94 ppm
			100 V, 200 V	99 ppm
			600 V, 1 000 V	0.040 %
		100 kHz	0.3 V	0.014 %
			0.6 V	84 ppm
			1 V, 2 V	86 ppm
			6 V	80 ppm
			10 V, 20 V	78 ppm
			60 V	94 ppm
			100 V, 200 V	99 ppm
			600 V, 1 000 V	0.041 %
		200 kHz	0.3 V	0.024 %
			0.6 V	0.019 %
			1 V, 2 V	0.018 %
			6 V	0.019 %
			10 V	0.018 %
			20 V	0.019 %
			60 V, 100V	0.020 %
		500 kHz	0.3 V	0.033 %
			0.6 V	0.028 %
			1 V	0.026 %
		700 kHz	0.3 V	0.081 %
			0.6 V	0.077 %
			1 V	0.072 %
		1 MHz	0.3 V	0.081 %
			0.6 V	0.077 %
			1 V	0.073 %

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Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	AC Voltage Measuring Equipment	10 Hz	0.3 V	0.018 %
			0.6 V, 1 V	0.016 %
			2 V, 6 V	0.015 %
			10 V, 20 V, 60 V, 100 V, 200 V, 600 V, 1 000 V	0.016 %
		20 Hz, 30 Hz	0.3 V	71 ppm
			0.6 V	63 ppm
			1 V	57 ppm
			2 V	55 ppm
			6 V	53 ppm
			10 V	61 ppm
			20 V	62 ppm

			60 V	60 ppm
			100 V	63 ppm
			200 V	61 ppm
			600 V	84 ppm
			1 000 V	86 ppm
		40 Hz	10 mV	0.04 %
			More than 10 mV less than 20 mV	0.050 %
			20 mV	0.019 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.012 %
			More than 60 mV less than 100 mV	0.013 %
			0.1 V	0.010 %
			More than 0.1 V less than 0.2 V	0.011 %
			0.2 V	90 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			0.3 V	51 ppm
			More than 0.3 V less than 0.6 V	59 ppm
			0.6 V	39 ppm
			More than 0.6 V less than 1 V	44 ppm
			1 V	39 ppm
			More than 1 V less than 2 V	44 ppm
			2 V	34 ppm
			More than 2 V less than 6 V	39 ppm
			6 V	30 ppm
			More than 6 V less than 10 V	40 ppm
			10 V	34 ppm
			More than 10 V less than 20 V	41 ppm
			20 V	35 ppm
			More than 20 V less than 60 V	48 ppm
			60 V	41 ppm
			More than 60 V less than 100 V	50 ppm
			100 V	43 ppm
			More than 100 V less than 200 V	52 ppm
			200 V	45 ppm
			More than 200 V less than 600 V	63 ppm
			600 V	54 ppm
			More than 600 V less than 1 000 V	62 ppm
			1 000 V	54 ppm
		50 Hz, 60 Hz	10 mV	0.04 %
			More than 10 mV less than 20 mV	0.050 %
			20 mV	0.019 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.012 %
			More than 60 mV less than 100 mV	0.013 %
			0.1 V	0.010 %
			More than 0.1 V less than 0.2 V	0.011 %
			0.2 V	90 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			0.3 V	48 ppm
			More than 0.3 V less than 0.4 V	57 ppm

			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	35 ppm
			More than 0.6 V less than 1 V	42 ppm
			1 V	37 ppm
			More than 1 V less than 2 V	42 ppm
			2 V	34 ppm
			More than 2 V less than 6 V	39 ppm
			6 V	31 ppm
			More than 6 V less than 10 V	40 ppm
			10 V	34 ppm
			More than 10 V less than 20 V	40 ppm
			20 V	31 ppm
			More than 20 V less than 60 V	41 ppm
			60 V	32 ppm
			More than 60 V less than 100 V	44 ppm
			100 V	36 ppm
			More than 100 V less than 200 V	44 ppm
			200 V	36 ppm
			More than 200 V less than 600 V	55 ppm
			600 V	44 ppm
			More than 600 V less than 1 000 V	53 ppm
			1 000 V	44 ppm
		400 Hz	10 mV	0.04 %
			More than 10 mV less than 20 mV	0.050 %
			20 mV	0.019 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.012 %
			More than 60 mV less than 100 mV	0.013 %
			0.1 V	0.010 %
			More than 0.1 V less than 0.2 V	0.011 %
			0.2 V	90 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			0.3 V	48 ppm
			More than 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	31 ppm
			More than 0.6 V less than 1 V	37 ppm
			1 V	31 ppm
			More than 1 V less than 2 V	37 ppm
			2 V	29 ppm
			More than 2 V less than 6 V	35 ppm
			6 V	25 ppm
			More than 6 V less than 10 V	35 ppm
			10 V	27 ppm
			More than 10 V less than 20 V	35 ppm
			20 V	27 ppm
			More than 20 V less than 60 V	39 ppm
			60 V	30 ppm
			More than 60 V less than 100 V	41 ppm
			100 V	32 ppm
			More than 100 V less than 200 V	41 ppm
			200 V	33 ppm

			More than 200 V less than 600 V	52 ppm
			600 V	41 ppm
			More than 600 V less than 1 000 V	52 ppm
			1 000 V	42 ppm
		500 Hz	10 mV	0.04 %
			More than 10 mV less than 20 mV	0.050 %
			20 mV	0.019 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.012 %
			More than 60 mV less than 100 mV	0.013 %
			0.1 V	0.010 %
			More than 0.1 V less than 0.2 V	0.011 %
			0.2 V	90 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			0.3 V	48 ppm
			More than 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	30 ppm
			More than 0.6 V less than 1 V	36 ppm
			1 V	30 ppm
			More than 1 V less than 2 V	36 ppm
			2 V	28 ppm
			More than 2 V less than 6 V	35 ppm
			6 V	24 ppm
			More than 6 V less than 10 V	34 ppm
			10 V	26 ppm
			More than 10 V less than 20 V	34 ppm
			20 V	26 ppm
			More than 20 V less than 60 V	39 ppm
			60 V	30 ppm
			More than 60 V less than 100 V	40 ppm
			100 V	31 ppm
			More than 100 V less than 200 V	41 ppm
			200 V	33 ppm
			More than 200 V less than 600 V	52 ppm
			600 V	41 ppm
			More than 600 V less than 1 000 V	52 ppm
			1 000 V	42 ppm
		1 kHz	10 mV	0.04 %
			More than 10 mV less than 20 mV	0.050 %
			20 mV	0.019 %
			More than 20 mV less than 30 mV	0.023 %
			From 30 mV less than 40 mV	0.022 %
			From 40 mV less than 60 mV	0.021 %
			60 mV	0.012 %
			More than 60 mV less than 100 mV	0.013 %
			0.1 V	0.010 %
			More than 0.1 V less than 0.2 V	0.011 %
			0.2 V	90 ppm
			More than 0.2 V less than 0.3 V	96 ppm
			0.3 V	48 ppm
			More than 0.3 V less than 0.4 V	57 ppm

			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	30 ppm
			More than 0.6 V less than 1 V	36 ppm
			1 V	30 ppm
			More than 1 V less than 2 V	36 ppm
			2 V	28 ppm
			More than 2 V less than 6 V	35 ppm
			6 V	24 ppm
			More than 6 V less than 10 V	34 ppm
			10 V	26 ppm
			More than 10 V less than 20 V	34 ppm
			20 V	26 ppm
			More than 20 V less than 60 V	39 ppm
			60 V	30 ppm
			More than 60 V less than 100 V	40 ppm
			100 V	31 ppm
			More than 100 V less than 200 V	41 ppm
			200 V	32 ppm
			More than 200 V less than 600 V	52 ppm
			600 V	41 ppm
			More than 600 V less than 1 000 V	52 ppm
			1 000 V	42 ppm
		10 kHz	0.3 V	48 ppm
			More than 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	30 ppm
			More than 0.6 V less than 1 V	37 ppm
			1 V	31 ppm
			More than 1 V less than 2 V	37 ppm
			2 V	30 ppm
			More than 2 V less than 6 V	36 ppm
			6 V	25 ppm
			More than 6 V less than 10 V	34 ppm
			10 V	26 ppm
			More than 10 V less than 20 V	34 ppm
			20 V	26 ppm
			More than 20 V less than 60 V	39 ppm
			60 V	30 ppm
			More than 60 V less than 100 V	40 ppm
			100 V	31 ppm
			More than 100 V less than 200 V	41 ppm
			200 V	32 ppm
			More than 200 V less than 600 V	53 ppm
			600 V	42 ppm
			More than 600 V less than 1 000 V	53 ppm
			1 000 V	43 ppm
		20 kHz	0.3 V	48 ppm
			More than 0.3 V less than 0.4 V	57 ppm
			From 0.4 V less than 0.6 V	56 ppm
			0.6 V	30 ppm
			More than 0.6 V less than 1 V	38 ppm
			1 V	33 ppm
			More than 1 V less than 2 V	38 ppm
			2 V	32 ppm

			More than 2 V less than 6 V	38 ppm
			6 V	25 ppm
			More than 6 V less than 10 V	34 ppm
			10 V	26 ppm
			More than 10 V less than 20 V	34 ppm
			20 V	26 ppm
			More than 20 V less than 60 V	39 ppm
			60 V	30 ppm
			More than 60 V less than 100 V	40 ppm
			100 V	31 ppm
			More than 100 V less than 200 V	41 ppm
			200 V	32 ppm
			More than 200 V less than 600 V	53 ppm
			600 V	42 ppm
			More than 600 V less than 1 000 V	53 ppm
			1 000 V	44 ppm
		50 kHz	0.3 V	65 ppm
			More than 0.3 V less than 0.5 V	79 ppm
			From 0.5 V less than 0.6 V	78 ppm
			0.6 V	44 ppm
			More than 0.6 V less than 1 V	63 ppm
			1 V	51 ppm
			More than 1 V less than 2 V	63 ppm
			2 V	51 ppm
			More than 2 V less than 6 V	64 ppm
			6 V	40 ppm
			More than 6 V less than 10 V	55 ppm
			10 V	39 ppm
			More than 10 V less than 20 V	55 ppm
			20 V	39 ppm
			More than 20 V less than 40 V	67 ppm
			From 40 V less than 60 V	66 ppm
			60 V	49 ppm
			More than 60 V less than 100 V	77 ppm
			100 V	55 ppm
			More than 100 V less than 200 V	78 ppm
			200 V	56 ppm
			More than 200 V less than 600 V	0.014 %
			600 V	88 ppm
			More than 600 V less than 1 000 V	0.014 %
			1 000 V	86 ppm
		70 kHz	0.3 V	0.012 %
			0.6 V	53 ppm
			1 V, 2 V	61 ppm
			6 V	47 ppm
			10 V, 20 V	46 ppm
			60 V	59 ppm
			100 V	62 ppm
			200 V	63 ppm
			600 V	93 ppm
			1 000 V	94 ppm
		100 kHz	0.3 V	0.012 %
			0.6 V	53 ppm
			1 V, 2 V	66 ppm

			6 V	48 ppm
			10 V, 20 V	46 ppm
			60 V	59 ppm
			100 V	62 ppm
			200 V	63 ppm
			600 V	99 ppm
			1 000 V	0.011 %
		200 kHz	0.3 V	0.018 %
			0.6 V	0.011 %
			1 V, 2 V	0.013 %
			6 V, 10 V, 20 V	0.011 %
			60V, 100 V	0.012 %
		500 kHz	0.3 V	0.020 %
			0.6 V	0.012 %
			1 V	0.016 %
		700 kHz	0.3 V	0.024 %
			0.6 V	0.013 %
			1 V	0.018 %
		1 MHz	0.3 V	0.025 %
			0.6 V	0.013 %
			1 V	0.020 %
		50 Hz, 60 Hz	More than 1 kV less than 1.1 kV	0.4 %
			From 1.1 kV less than 1.6 kV	0.3 %
			From 1.6 kV less than 5 kV	0.2 %
			From 5 kV up to 9.5 kV	0.1 %
			More than 9.5 kV up to 10 kV	0.08 %
			More than 10 kV less than 11.25 kV	0.04 kV
			From 11.25 kV less than 13.75 kV	0.05 kV
			From 13.75 kV less than 16.25 kV	0.06 kV
			From 16.25 kV less than 18.75 kV	0.07 kV
			From 18.75 kV less than 21.25 kV	0.08 kV
			From 21.25 kV less than 23.75 kV	0.09 kV
			From 23.75 kV less than 26.25 kV	0.10 kV
			From 26.25 kV less than 28.75 kV	0.11 kV
			From 28.75 kV less than 31.25 kV	0.12 kV
			From 31.25 kV less than 33.75 kV	0.13 kV
			From 33.75 kV less than 36.25 kV	0.14 kV
			From 36.25 kV less than 38.75 kV	0.15 kV
			From 38.75 kV less than 41.25 kV	0.16 kV
			From 41.25 kV less than 43.75 kV	0.17 kV
			From 43.75 kV less than 46.25 kV	0.18 kV
			From 46.25 kV less than 48.75 kV	0.19 kV
			From 48.75 kV less than 51.25 kV	0.20 kV
			From 51.25 kV less than 53.75 kV	0.21 kV
			From 53.75 kV less than 56.25 kV	0.22 kV
			From 56.25 kV less than 58.75 kV	0.23 kV
			From 58.75 kV less than 61.25 kV	0.24 kV
			From 61.25 kV less than 63.75 kV	0.25 kV
			From 63.75 kV less than 66.25 kV	0.26 kV
			From 66.25 kV less than 68.75 kV	0.27 kV
			From 68.75 kV less than 71.25 kV	0.28 kV
			From 71.25 kV less than 73.75 kV	0.29 kV
			From 73.75 kV less than 76.25 kV	0.30 kV
			From 76.25 kV less than 78.75 kV	0.31 kV

			From 78.75 kV less than 81.25 kV	0.32 kV
			From 81.25 kV less than 83.75 kV	0.33 kV
			From 83.75 kV less than 86.25 kV	0.34 kV
			From 86.25 kV less than 88.75 kV	0.35 kV
			From 88.75 kV less than 91.25 kV	0.36 kV
			From 91.25 kV less than 93.75 kV	0.37 kV
			From 93.75 kV less than 96.25 kV	0.38 kV
			From 96.25 kV less than 98.75 kV	0.39 kV
			From 98.75 kV less than 101.25 kV	0.40 kV
			From 101.25 kV less than 103.75 kV	0.41 kV
			From 103.75 kV less than 106.25 kV	0.42 kV
			From 106.25 kV less than 108.75 kV	0.43 kV
			From 108.75 kV less than 111.25 kV	0.44 kV
			From 111.25 kV less than 113.75 kV	0.45 kV
			From 113.75 kV less than 116.25 kV	0.46 kV
			From 116.25 kV less than 118.75 kV	0.47 kV
			From 118.75 kV less than 121.25 kV	0.48 kV
			From 121.25 kV less than 123.75 kV	0.49 kV
			From 123.75 kV less than 126.25 kV	0.50 kV
			From 126.25 kV less than 128.75 kV	0.51 kV
			From 128.75 kV less than 131.25 kV	0.52 kV
			From 131.25 kV less than 133.75 kV	0.53 kV
			From 133.75 kV less than 136.25 kV	0.54 kV
			From 136.25 kV less than 138.75 kV	0.55 kV
			From 138.75 kV less than 141.25 kV	0.56 kV
			From 141.25 kV less than 143.75 kV	0.57 kV
			From 143.75 kV less than 146.25 kV	0.58 kV
			From 146.25 kV less than 148.75 kV	0.59 kV
			From 148.75 kV less than 151.25 kV	0.60 kV
			From 151.25 kV less than 153.75 kV	0.61 kV
			From 153.75 kV less than 156.25 kV	0.62 kV
			From 156.25 kV less than 158.75 kV	0.63 kV
			From 158.75 kV less than 161.25 kV	0.64 kV
			From 161.25 kV less than 163.75 kV	0.65 kV
			From 163.75 kV less than 166.25 kV	0.66 kV
			From 166.25 kV less than 168.75 kV	0.67 kV
			From 168.75 kV less than 171.25 kV	0.68 kV
			From 171.25 kV less than 173.75 kV	0.69 kV
			From 173.75 kV less than 176.25 kV	0.70 kV
			From 176.25 kV less than 178.75 kV	0.71 kV
			From 178.75 kV less than 181.25 kV	0.72 kV
			From 181.25 kV less than 183.75 kV	0.73 kV
			From 183.75 kV less than 186.25 kV	0.74 kV
			From 186.25 kV less than 188.75 kV	0.75 kV
			From 188.75 kV up to 190.00 kV	0.76 kV

#All Calibration Procedures are in-house procedures developed by this laboratory.

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current& Low Frequency Measuring Equipment,	AC-DC-Voltage Comparator	0.3 V	10 Hz	37 ppm
			20 Hz, 30 Hz	35 ppm
			40 Hz	33 ppm

etc.			50 Hz, 60 Hz	28 ppm
			400 Hz	27 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz,	26 ppm
			50 kHz, 70 kHz, 100 kHz	27 ppm
			200 kHz	46 ppm
			500 kHz	49 ppm
			700 kHz	84 ppm
			1 MHz	87 ppm
		0.6 V	10 Hz	35 ppm
			20 Hz, 30 Hz	33 ppm
			40 Hz	32 ppm
			50 Hz, 60 Hz	26 ppm
			400 Hz	25 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz,	24 ppm
			50 kHz, 70 kHz, 100 kHz	25 ppm
			200 kHz	45 ppm
			500 kHz	48 ppm
			700 kHz, 1 MHz	82 ppm
		1 V, 1.2 V	10 Hz	40 ppm
			20 Hz, 30 Hz	31 ppm
			40 Hz	28 ppm
			50 Hz, 60 Hz	25 ppm
			400 Hz	24 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 70 kHz, 100 kHz	23 ppm
			200 kHz	43 ppm
			500 kHz	47 ppm
			700 kHz	48 ppm
			1 MHz	50 ppm
		2 V	10 Hz	37 ppm
			20 Hz, 30 Hz	27 ppm
			40 Hz	24 ppm
			50 Hz, 60 Hz	25 ppm
			400 Hz	24 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 70 kHz, 100 kHz	23 ppm
			200 kHz	44 ppm
			500 kHz	48 ppm
			700 kHz, 1 MHz	45 ppm
		6 V	10 Hz	36 ppm
			20 Hz, 30 Hz	26 ppm
			40 Hz, 50 Hz, 60 Hz	24 ppm
			400 Hz	23 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 70 kHz, 100 kHz	22 ppm
			200 kHz	43 ppm
			500 kHz	47 ppm
			700 kHz, 1 MHz	45 ppm
		10 V	10 Hz	48 ppm
			20 Hz, 30 Hz	41 ppm
			40 Hz	26 ppm
			50 Hz, 60 Hz	25 ppm
			400 Hz	24 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 70 kHz, 100 kHz	23 ppm

			200 kHz	43 ppm
			500 kHz	47 ppm
			700 kHz	49 ppm
			1 MHz	51 ppm
		20 V	10 Hz	49 ppm
			20 Hz, 30 Hz	42 ppm
			40 Hz	30 ppm
			50 Hz, 60 Hz	25 ppm
			400 Hz	24 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 70 kHz, 100 kHz	23 ppm
			200 kHz	44 ppm
			500 kHz	48 ppm
			700 kHz	56 ppm
			1 MHz	60 ppm
		24 V	10 Hz	49 ppm
			20 Hz, 30 Hz	42 ppm
			40 Hz	30 ppm
			50 Hz, 60 Hz	25 ppm
			400 Hz	24 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 70 kHz, 100 kHz	23 ppm
			200 kHz	45 ppm
			500 kHz	48 ppm
		48 V	10 Hz	43 ppm
			20 Hz, 30 Hz	35 ppm
			40 Hz	33 ppm
			50 Hz, 60 Hz	25 ppm
			400 Hz	24 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz,	23 ppm
			50 kHz, 70 kHz, 100 kHz	26 ppm
			200 kHz	52 ppm
		60 V	10 Hz	46 ppm
			20 Hz, 30 Hz	39 ppm
			40 Hz	37 ppm
			50 Hz, 60 Hz	26 ppm
			400 Hz , 500 Hz, 1 kHz, 10 kHz, 20 kHz,	25 ppm
			50 kHz, 70 kHz, 100 kHz	29 ppm
			200 kHz	58 ppm
		100 V	10 Hz	46 ppm
			20 Hz, 30 Hz	39 ppm
			40 Hz	38 ppm
			50 Hz, 60 Hz, 400 Hz	30 ppm
			500 Hz, 1 kHz, 10 kHz, 20 kHz	29 ppm
			50 kHz	31 ppm
			70 kHz, 100 kHz	38 ppm
			200 kHz	57 ppm
		200 V	10 Hz	48 ppm
			20 Hz, 30 Hz, 40 Hz	41 ppm
			50 Hz, 60 Hz, 400 Hz, 500 Hz, 1 kHz, 10 kHz, 20 kHz	31 ppm
			50 kHz	32 ppm
			70 kHz, 100 kHz	40 ppm
		300 V	10 Hz	50 ppm

			20 Hz, 30 Hz	45 ppm
			40 Hz	44 ppm
			50 Hz, 60 Hz, 400 Hz, 500 Hz, 1 kHz, 10 kHz, 20 kHz	32 ppm
			50 kHz	35 ppm
			70 kHz	42 ppm
			100 kHz	43 ppm
		600 V	10 Hz	54 ppm
			20 Hz, 30 Hz	49 ppm
			40 Hz	48 ppm
			50 Hz, 60 Hz, 400 Hz, 500 Hz, 1 kHz, 10 kHz, 20 kHz	36 ppm
			50 kHz	75 ppm
			70 kHz	80 ppm
			100 kHz	89 ppm
		700 V, 1000 V	10 Hz	56 ppm
			20 Hz, 30 Hz	52 ppm
			40 Hz	51 ppm
			50 Hz, 60 Hz	40 ppm
			400 Hz, 500 Hz, 1 kHz, 10 kHz	39 ppm
			20 kHz	40 ppm
			50 kHz	73 ppm
			70 kHz	83 ppm
			100 kHz	0.011 %

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Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current& Low Frequency Measuring Equipment, etc.	Alternating Current Source	100 μA	50 Hz, 60 Hz	0.30 μA
		More than 100 μA less than 500 μA		0.40 μA
		From 500 μA less than 1 mA		0.50 μA
		From 0.001 A up to 0.006 A		0.025 % + 0.1 μA
		More than 0.006 A less than 0.01 A		0.025 % + 0.5 μA
		0.01 A		0.004 %
		More than 0.01 A less than 0.011 A		0.000 000 8 A
		From 0.011 A less than 0.012 A		0.000 000 9 A
		From 0.012 A less than 0.013 A		0.000 001 0 A
		From 0.013 A less than 0.015 A		0.000 001 1 A
		From 0.015 A less than 0.016 A		0.000 001 2 A
		From 0.016 A less than 0.018 A		0.000 001 3 A
		From 0.018 A less than 0.02 A		0.000 001 4 A
		0.02 A		0.005 %
		More than 0.02 A less than 0.021 A		0.000 001 5 A
		From 0.021 A less than 0.022 A		0.000 001 6 A
		From 0.022 A less than 0.023 A		0.000 001 7 A
		From 0.023 A less than 0.025 A		0.000 001 8 A
		From 0.025 A less than 0.026 A		0.000 001 9 A
		From 0.026 A less than 0.028 A		0.000 002 0 A
		From 0.028 A less than 0.03 A		0.000 002 1 A
		0.03 A		0.005 %
		More than 0.03 A less than 0.031 A		0.000 002 2 A
		From 0.031 A less than 0.032 A		0.000 002 3 A
		From 0.032 A less than 0.034 A		0.000 002 4 A

		From 0.034 A less than 0.035 A		0.000 002 5 A
		From 0.035 A less than 0.037 A		0.000 002 6 A
		From 0.037 A less than 0.038 A		0.000 002 7 A
		From 0.038 A less than 0.04 A		0.000 002 8 A
		From 0.04 A less than 0.041 A		0.000 002 9 A
		From 0.041 A less than 0.043 A		0.000 003 0 A
		From 0.043 A less than 0.044 A		0.000 003 1 A
		From 0.044 A less than 0.046 A		0.000 003 2 A
		From 0.046 A less than 0.047 A		0.000 003 3 A
		From 0.047 A less than 0.049 A		0.000 003 4 A
		From 0.049 A less than 0.05 A		0.000 003 5 A
		0.05 A		0.005 %
		More than 0.05 A less than 0.051 A		0.000 003 6 A
		From 0.051 A less than 0.053 A		0.000 003 7 A
		From 0.053 A less than 0.054 A		0.000 003 8 A
		From 0.054 A less than 0.056 A		0.000 003 9 A
		From 0.056 A less than 0.057 A		0.000 004 0 A
		From 0.057 A less than 0.059 A		0.000 004 1 A
		From 0.059 A up to 0.06 A		0.000 004 2 A
		More than 0.06 A less than 0.069 A		0.000 006 A
		From 0.069 A less than 0.085 A		0.000 007 A
		From 0.085 A less than 0.1 A		0.000 008 A
		0.1 A		0.006 %
		More than 0.1 A less than 0.11 A		0.000 009 A
		From 0.11 A less than 0.12 A		0.000 010 A
		From 0.12 A less than 0.13 A		0.000 011 A
		From 0.13 A less than 0.15 A		0.000 012 A
		From 0.15 A less than 0.16 A		0.000 013 A
		From 0.16 A less than 0.17 A		0.000 014 A
		From 0.17 A less than 0.19 A		0.000 015 A
		From 0.19 A less than 0.2 A		0.000 016 A
		0.2 A		0.006 %
		More than 0.2 A less than 0.21 A		0.000 019 A
		From 0.21 A less than 0.23 A		0.000 020 A
		From 0.23 A less than 0.24 A		0.000 021 A
		From 0.24 A less than 0.25 A		0.000 022 A
		From 0.25 A less than 0.26 A		0.000 023 A
		From 0.26 A less than 0.27 A		0.000 024 A
		From 0.27 A less than 0.29 A		0.000 025 A
		From 0.29 A less than 0.3 A		0.000 026 A
		0.3 A		0.007 %
		More than 0.3 A less than 0.31 A		0.000 027 A
		From 0.31 A less than 0.32 A		0.000 028 A
		From 0.32 A less than 0.33 A		0.000 029 A
		From 0.33 A less than 0.34 A		0.000 030A
		From 0.34 A less than 0.36 A		0.000 031 A
		From 0.36 A less than 0.37 A		0.000 032 A
		From 0.37 A less than 0.38 A		0.000 033 A
		From 0.38 A less than 0.39 A		0.000 034 A
		From 0.39 A less than 0.4 A		0.000 035 A
		From 0.4 A less than 0.42 A		0.000 036 A
		From 0.42 A less than 0.43 A		0.000 037 A
		From 0.43 A less than 0.44 A		0.000 038 A
		From 0.44 A less than 0.45 A		0.000 039 A

		From 0.45 A less than 0.46 A		0.000 040 A
		From 0.46 A less than 0.47 A		0.000 041 A
		From 0.47 A less than 0.49 A		0.000 042A
		From 0.49 A less than 0.5 A		0.000 043 A
		0.5 A		0.008 %
		More than 0.5 A less than 0.51 A		0.000 044 A
		From 0.51 A less than 0.52 A		0.000 045 A
		From 0.52 A less than 0.53 A		0.000 046 A
		From 0.53 A less than 0.55 A		0.000 047 A
		From 0.55 A less than 0.56 A		0.000 048 A
		From 0.56 A less than 0.57 A		0.000 049 A
		From 0.57 A less than 0.58 A		0.000 050 A
		From 0.58 A less than 0.59 A		0.000 051 A
		From 0.59 A up to 0.6 A		0.000 052 A
		More than 0.6 A less than 0.69 A		0.000 07 A
		From 0.69 A less than 0.81 A		0.000 08 A
		From 0.81 A less than 1 A		0.000 09 A
		1 A		0.008 %
		More than 1 A less than 1.06 A		0.000 11 A
		From 1.06 A less than 1.2 A		0.000 12 A
		From 1.2 A less than 1.3 A		0.000 13 A
		From 1.3 A less than 1.4 A		0.000 14 A
		From 1.4 A less than 1.5 A		0.000 15 A
		From 1.5 A less than 1.6 A		0.000 16 A
		From 1.6 A less than 1.8 A		0.000 17 A
		From 1.8 A less than 1.9 A		0.000 18 A
		From 1.9 A less than 2 A		0.000 19 A
		2 A		0.009 %
		More than 2 A less than 2.1 A		0.000 28 A
		From 2.1 A less than 2.12 A		0.000 29 A
		From 2.12 A less than 2.2 A		0.000 30 A
		From 2.2 A less than 2.27 A		0.000 31 A
		From 2.27 A less than 2.4 A		0.000 32 A
		From 2.4 A less than 2.42 A		0.000 33 A
		From 2.42 A less than 2.5 A		0.000 34 A
		From 2.5 A less than 2.6 A		0.000 35 A
		From 2.6 A less than 2.65 A		0.000 36 A
		From 2.65 A less than 2.8 A		0.000 37 A
		From 2.8 A less than 2.81 A		0.000 38 A
		From 2.81 A less than 2.88 A		0.000 39 A
		From 2.88 A less than 3 A		0.000 40 A
		3 A		0.013 %
		More than 3 A less than 3.1 A		0.000 41 A
		From 3.1 A less than 3.11 A		0.000 42 A
		From 3.11 A less than 3.19 A		0.000 43 A
		From 3.19 A less than 3.3 A		0.000 44 A
		From 3.3 A less than 3.4 A		0.000 45 A
		From 3.4 A less than 3.41 A		0.000 46 A
		From 3.41 A less than 3.49 A		0.000 47 A
		From 3.49 A less than 3.6 A		0.000 48 A
		From 3.6 A less than 3.64 A		0.000 49 A
		From 3.64 A less than 3.72 A		0.000 50 A
		From 3.72 A less than 3.8 A		0.000 51 A
		From 3.8 A less than 3.9 A		0.000 52 A

		From 3.9 A less than 4 A		0.000 53 A
		From 4 A less than 4.02 A		0.000 54 A
		From 4.02 A less than 4.1 A		0.000 55 A
		From 4.1 A less than 4.2 A		0.000 56 A
		From 4.2 A less than 4.3 A		0.000 57 A
		From 4.3 A less than 4.33 A		0.000 58 A
		From 4.33 A less than 4.4 A		0.000 59 A
		From 4.4 A less than 4.5 A		0.000 60 A
		From 4.5 A less than 4.56 A		0.000 61 A
		From 4.56 A less than 4.7 A		0.000 62 A
		From 4.7 A less than 4.71 A		0.000 63 A
		From 4.71 A less than 4.78 A		0.000 64 A
		From 4.78 A less than 4.9 A		0.000 65 A
		From 4.9 A less than 5 A		0.000 66 A
		5 A		0.013 %
		More than 5 A less than 5.01 A		0.000 67 A
		From 5.01 A less than 5.09 A		0.000 68 A
		From 5.09 A less than 5.2 A		0.000 69 A
		From 5.2 A less than 5.3 A		0.000 70 A
		From 5.3 A less than 5.32 A		0.000 71 A
		From 5.32 A less than 5.39 A		0.000 72 A
		From 5.39 A less than 5.47 A		0.000 73 A
		From 5.47 A less than 5.6 A		0.000 74 A
		From 5.6 A less than 5.62 A		0.000 75 A
		From 5.62 A less than 5.7 A		0.000 76 A
		From 5.7 A less than 5.8 A		0.000 77 A
		From 5.8 A less than 5.9 A		0.000 78 A
		From 5.9 A less than 5.93 A		0.000 79 A
		From 5.93 A up to 6 A		0.000 80 A
		More than 6 A less than 6.3 A		0.001 1 A
		From 6.3 A less than 7 A		0.001 2 A
		From 7 A less than 7.6 A		0.001 3 A
		From 7.6 A less than 8.3 A		0.001 4 A
		From 8.3 A less than 8.9 A		0.001 5 A
		From 8.9 A less than 10 A		0.001 6 A
		10 A		0.013 %
		More than 10 A less than 10.2 A		0.001 7 A
		From 10.2 A less than 10.9 A		0.001 8 A
		From 10.9 A less than 11.5 A		0.001 9 A
		From 11.5 A less than 12.1 A		0.002 0 A
		From 12.1 A less than 12.8 A		0.002 1 A
		From 12.8 A less than 13.4 A		0.002 2 A
		From 13.4 A less than 14.1 A		0.002 3 A
		From 14.1 A less than 14.7 A		0.002 4 A
		From 14.7 A less than 15.4 A		0.002 5 A
		From 15.4 A less than 16 A		0.002 6 A
		From 16 A less than 16.6 A		0.002 7 A
		From 16.6 A less than 17.3 A		0.002 8 A
		From 17.3 A less than 17.9 A		0.002 9 A
		From 17.9 A less than 18.6 A		0.003 0 A
		From 18.6 A less than 19.2 A		0.003 1 A
		From 19.2 A less than 20 A		0.003 2 A
		20 A		0.014 %
		More than 20 A up to 60 A		0.045 % + 1 mA

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Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current& Low Frequency Measuring Equipment, etc.	Alternating Current Measuring Equipment	100 μA	50 Hz, 60 Hz	0.50 μA
		More than 100 μA less than 500 μA		0.70 μA
		From 500 μA less than 1 mA		0.90 μA
		From 0.001 A less than 0.01 A		0.030 % + 0.5 μA
		0.01 A		0.005 %
		More than 0.01 A less than 0.010 1 A		0.000 001 8 A
		From 0.010 1 A less than 0.010 6 A		0.000 001 9 A
		From 0.010 6 A less than 0.012 A		0.000 002 0 A
		From 0.012 A less than 0.012 2 A		0.000 002 1 A
		From 0.012 2 A less than 0.013 A		0.000 002 2 A
		From 0.013 A less than 0.014 A		0.000 002 3 A
		From 0.014 A less than 0.015 A		0.000 002 4 A
		From 0.015 A less than 0.016 A		0.000 002 5 A
		From 0.016 A less than 0.016 1 A		0.000 002 6 A
		From 0.016 1 A less than 0.016 8 A		0.000 002 7 A
		From 0.016 8 A less than 0.018 A		0.000 002 8 A
		From 0.018 A less than 0.019 A		0.000 002 9 A
		From 0.019 A less than 0.019 1 A		0.000 003 0 A
		From 0.019 1 A less than 0.02 A		0.000 003 1 A
		0.02 A		0.006 %
		More than 0.02 A less than 0.021 A		0.000 003 2 A
		From 0.021 A less than 0.022 A		0.000 003 3 A
		From 0.022 A less than 0.03 A		0.000 008 A
		0.03 A		0.006 %
		More than 0.03 A less than 0.034 A		0.000 009 A
		From 0.034 A less than 0.041 A		0.000 010 A
		From 0.041 A less than 0.05 A		0.000 011 A
		0.05 A		0.006 %
		More than 0.05 A less than 0.054 A		0.000 012 A
		From 0.054 A less than 0.06 A		0.000 013 A
		From 0.06 A less than 0.067 A		0.000 014 A
		From 0.067 A less than 0.073 A		0.000 015 A
		From 0.073 A less than 0.08 A		0.000 016 A
		From 0.08 A less than 0.087 A		0.000 017 A
		From 0.087 A less than 0.093 A		0.000 018 A
		From 0.093 A less than 0.1 A		0.000 019 A
		0.1 A		0.006 %
		More than 0.1 A less than 0.101 A		0.000 020 A
		From 0.101 A less than 0.108 A		0.000 021 A
		From 0.108 A less than 0.12 A		0.000 022 A
		From 0.12 A less than 0.121 A		0.000 023 A
		From 0.121 A less than 0.128 A		0.000 024 A
		From 0.128 A less than 0.14 A		0.000 025 A
		From 0.14 A less than 0.142 A		0.000 026 A
		From 0.142 A less than 0.148 A		0.000 027 A
		From 0.148 A less than 0.16 A		0.000 028 A
		From 0.16 A less than 0.162 A		0.000 029 A

		From 0.162 A less than 0.169 A		0.000 030 A
		From 0.169 A less than 0.18 A		0.000 031 A
		From 0.18 A less than 0.182 A		0.000 032 A
		From 0.182 A less than 0.189 A		0.000 033 A
		From 0.189 A less than 0.2 A		0.000 034 A
		0.2 A		0.007 %
		More than 0.2 A less than 0.201 A		0.000 035 A
		From 0.201 A less than 0.204 A		0.000 036 A
		From 0.204 A less than 0.21 A		0.000 037 A
		From 0.21 A less than 0.22 A		0.000 038 A
		From 0.22 A less than 0.23 A		0.000 17 A
		From 0.23 A less than 0.24 A		0.000 18 A
		From 0.24 A less than 0.26 A		0.000 19 A
		From 0.26 A less than 0.28 A		0.000 20 A
		From 0.28 A less than 0.3 A		0.000 21 A
		0.3 A		0.008 %
		More than 0.3 A less than 0.31 A		0.000 22 A
		From 0.31 A less than 0.33 A		0.000 23 A
		From 0.33 A less than 0.34 A		0.000 24 A
		From 0.34 A less than 0.36 A		0.000 25 A
		From 0.36 A less than 0.38 A		0.000 26 A
		From 0.38 A less than 0.4 A		0.000 27 A
		From 0.4 A less than 0.41 A		0.000 28 A
		From 0.41 A less than 0.43 A		0.000 29 A
		From 0.43 A less than 0.45 A		0.000 30 A
		From 0.45 A less than 0.46 A		0.000 31 A
		From 0.46 A less than 0.48 A		0.000 32 A
		From 0.48 A less than 0.5 A		0.000 33 A
		0.5 A		0.008 %
		More than 0.5 A less than 0.51 A		0.000 34 A
		From 0.51 A less than 0.53 A		0.000 35 A
		From 0.53 A less than 0.55 A		0.000 36 A
		From 0.55 A less than 0.57 A		0.000 37 A
		From 0.57 A less than 0.58 A		0.000 38 A
		From 0.58 A less than 0.6 A		0.000 39 A
		From 0.6 A less than 0.62 A		0.000 40 A
		From 0.62 A less than 0.63 A		0.000 41 A
		From 0.63 A less than 0.65 A		0.000 42 A
		From 0.65 A less than 0.67 A		0.000 43 A
		From 0.67 A less than 0.69 A		0.000 44 A
		From 0.69 A less than 0.7 A		0.000 45 A
		From 0.7 A less than 0.72 A		0.000 46 A
		From 0.72 A less than 0.74 A		0.000 47 A
		From 0.74 A less than 0.75 A		0.000 48 A
		From 0.75 A less than 0.77 A		0.000 49 A
		From 0.77 A less than 0.79 A		0.000 50 A
		From 0.79 A less than 0.80 A		0.000 51 A
		From 0.80 A less than 0.82 A		0.000 52 A
		From 0.82 A less than 0.84 A		0.000 53 A
		From 0.84 A less than 0.86 A		0.000 54 A
		From 0.86 A less than 0.87 A		0.000 55 A
		From 0.87 A less than 0.89 A		0.000 56 A
		From 0.89 A less than 0.91 A		0.000 57 A
		From 0.91 A less than 0.92 A		0.000 58 A

		From 0.92 A less than 0.94 A		0.000 59 A
		From 0.94 A less than 0.96 A		0.000 60 A
		From 0.96 A less than 0.97 A		0.000 61 A
		From 0.97 A less than 1 A		0.000 62 A
		1 A		0.008 %
		More than 1 A less than 1.01 A		0.000 63 A
		From 1.01 A less than 1.02 A		0.000 64 A
		From 1.02 A less than 1.04 A		0.000 65 A
		From 1.04 A less than 1.05 A		0.000 66 A
		From 1.05 A less than 1.07 A		0.000 67 A
		From 1.07 A less than 1.09 A		0.000 68 A
		From 1.09 A less than 1.1 A		0.000 69 A
		From 1.1 A less than 1.12 A		0.000 70 A
		From 1.12 A less than 1.14 A		0.000 71 A
		From 1.14 A less than 1.16 A		0.000 72 A
		From 1.16 A less than 1.17 A		0.000 73 A
		From 1.17 A less than 1.19 A		0.000 74 A
		From 1.19 A less than 1.21 A		0.000 75 A
		From 1.21 A less than 1.22 A		0.000 76 A
		From 1.22 A less than 1.24 A		0.000 77 A
		From 1.24 A less than 1.26 A		0.000 78 A
		From 1.26 A less than 1.28 A		0.000 79 A
		From 1.28 A less than 1.29 A		0.000 80 A
		From 1.29 A less than 1.31 A		0.000 81 A
		From 1.31 A less than 1.33 A		0.000 82 A
		From 1.33 A less than 1.34 A		0.000 83 A
		From 1.34 A less than 1.36 A		0.000 84 A
		From 1.36 A less than 1.38 A		0.000 85 A
		From 1.38 A less than 1.39 A		0.000 86 A
		From 1.39 A less than 1.41 A		0.000 87 A
		From 1.41 A less than 1.43 A		0.000 88 A
		From 1.43 A less than 1.45 A		0.000 89 A
		From 1.45 A less than 1.46 A		0.000 90 A
		From 1.46 A less than 1.48 A		0.000 91 A
		From 1.48 A less than 1.5 A		0.000 92 A
		From 1.5 A less than 1.51 A		0.000 93 A
		From 1.51 A less than 1.53 A		0.000 94 A
		From 1.53 A less than 1.55 A		0.000 95 A
		From 1.55 A less than 1.56 A		0.000 96 A
		From 1.56 A less than 1.58 A		0.000 97 A
		From 1.58 A less than 1.6 A		0.000 98 A
		From 1.6 A less than 1.62 A		0.000 99 A
		From 1.62 A less than 1.63 A		0.001 0 A
		From 1.63 A less than 1.8 A		0.001 1 A
		From 1.8 A less than 1.97 A		0.001 2 A
		From 1.97 A less than 2 A		0.001 3 A
		2 A		0.009 %
		More than 2 A less than 2.12 A		0.001 3 A
		From 2.12 A less than 2.2 A		0.001 4 A
		From 2.2 A less than 2.4 A		0.001 1 A
		From 2.4 A less than 2.6 A		0.001 2 A
		From 2.6 A less than 3 A		0.001 3 A
		3 A		0.013 %
		More than 3 A less than 3.1 A		0.001 4 A

		From 3.1 A less than 3.4 A		0.001 5 A
		From 3.4 A less than 3.7 A		0.001 6 A
		From 3.7 A less than 3.9 A		0.001 7 A
		From 3.9 A less than 4.2 A		0.001 8 A
		From 4.2 A less than 4.5 A		0.001 9 A
		From 4.5 A less than 4.7 A		0.002 0 A
		From 4.7 A less than 5 A		0.002 1 A
		5 A		0.013 %
		More than 5 A less than 5.3 A		0.002 2 A
		From 5.3 A less than 5.5 A		0.002 3 A
		From 5.5 A less than 5.8 A		0.002 4 A
		From 5.8 A less than 6 A		0.002 5 A
		From 6 A less than 6.3 A		0.002 6 A
		From 6.3 A less than 6.6 A		0.002 7 A
		From 6.6 A less than 6.8 A		0.002 8 A
		From 6.8 A less than 7.1 A		0.002 9 A
		From 7.1 A less than 7.4 A		0.003 0 A
		From 7.4 A less than 7.6 A		0.003 1 A
		From 7.6 A less than 7.9 A		0.003 2 A
		From 7.9 A less than 8.2 A		0.003 3 A
		From 8.2 A less than 8.4 A		0.003 4 A
		From 8.4 A less than 8.7 A		0.003 5 A
		From 8.7 A less than 8.9 A		0.003 6 A
		From 8.9 A less than 9.2 A		0.003 7 A
		From 9.2 A less than 9.5 A		0.003 8 A
		From 9.5 A less than 9.7 A		0.003 9 A
		From 9.7 A less than 10 A		0.004 0 A
		10 A		0.014 %
		More than 10 A less than 10.1 A		0.005 0 A
		From 10.1 A less than 10.3 A		0.005 1 A
		From 10.3 A less than 10.6 A		0.005 2 A
		From 10.6 A less than 10.8 A		0.005 3 A
		From 10.8 A less than 11 A		0.005 4 A
		From 11 A less than 11.3 A		0.005 5 A
		From 11.3 A less than 11.5 A		0.005 6 A
		From 11.5 A less than 11.8 A		0.005 7 A
		From 11.8 A less than 12 A		0.005 8 A
		From 12 A less than 12.3 A		0.005 9 A
		From 12.3 A less than 12.5 A		0.006 0 A
		From 12.5 A less than 12.8 A		0.006 1 A
		From 12.8 A less than 13 A		0.006 2 A
		From 13 A less than 13.2 A		0.006 3 A
		From 13.2 A less than 13.5 A		0.006 4 A
		From 13.5 A less than 13.7 A		0.006 5 A
		From 13.7 A less than 14 A		0.006 6 A
		From 14 A less than 14.2 A		0.006 7 A
		From 14.2 A less than 14.5 A		0.006 8 A
		From 14.5 A less than 14.7 A		0.006 9 A
		From 14.7 A less than 15 A		0.007 0 A
		From 15 A less than 15.2 A		0.007 1 A
		From 15.2 A less than 15.4 A		0.007 2 A
		From 15.4 A less than 15.7 A		0.007 3 A
		From 15.7 A less than 15.9 A		0.007 4 A
		From 15.9 A less than 16.2 A		0.007 5 A

		From 16.2 A less than 16.4 A		0.007 6 A
		From 16.4 A less than 16.7 A		0.007 7 A
		From 16.7 A less than 16.9 A		0.007 8 A
		From 16.9 A less than 17.1 A		0.007 9 A
		From 17.1 A less than 17.4 A		0.008 0 A
		From 17.4 A less than 17.6 A		0.008 1 A
		From 17.6 A less than 17.9 A		0.008 2 A
		From 17.9 A less than 18.1 A		0.008 3 A
		From 18.1 A less than 18.4 A		0.008 4 A
		From 18.4 A less than 18.6 A		0.008 5 A
		From 18.6 A less than 18.8 A		0.008 6 A
		From 18.8 A less than 19.1 A		0.008 7 A
		From 19.1 A less than 19.3 A		0.008 8 A
		From 19.3 A less than 19.6 A		0.008 9 A
		From 19.6 A less than 20 A		0.009 0 A
		20 A		0.014 %
		More than 20 A up to 27 A		0.18 % + 0.01 A
		More than 27 A up to 30 A		0.06 A
		More than 30 A up to 60 A		0.18 % + 0.01 A
		More than 60 A up to 100 A		0.12 A
		More than 100 A up to 600 A		0.7 A
		More than 600 A up to 1 000 A		1.2 A
		More than 1 000 A up to 2 000 A		2.4 A
		More than 2 000 A up to 3 000 A		3.6 A
	AC-DC- Current Comparator	10 mA, 20 mA	50 Hz, 60 Hz	0.004 %
		30 mA, 50 mA		0.005 %
		100 mA, 200 mA, 300 mA		0.006 %
		500 mA, 1 A		0.007 %
		2 A, 3 A		0.008 %
		5 A, 10 A		0.009 %
		20 A		0.010 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	Temperature Indicator	Thermocouple R, with Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	5 μV
		Thermocouple S, with Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	5 μV
		Thermocouple N, with Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	21 μV
		Thermocouple K, with Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	22 μV
		Thermocouple E, with Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	27 μV
		Thermocouple J, with Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	25 μV
		Thermocouple T, with Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	24 μV
		Thermocouple R, without Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	4 μV
		Thermocouple S,	From -236 μV up to 18693 μV	4 μV

		without Reference Junction	(From -50 ˚C up to 1768 ˚C)	
		Thermocouple N, without Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	9 μV
		Thermocouple K, without Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	10 μV
		Thermocouple E, without Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	18 μV
		Thermocouple J, without Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	14 μV
		Thermocouple T, without Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	14 μV
		Resistance thermometer Sensor	From 18.52 Ω up to 390.48 Ω (From -200 ˚C up to 850 ˚C)	0.011 Ω
	Temperature Indicator calibration equipment	Thermocouple R, with Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	3 μV
		Thermocouple S, with Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	3 μV
		Thermocouple N, with Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	19 μV
		Thermocouple K, with Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	20 μV
		Thermocouple E, with Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	23 μV
		Thermocouple J, with Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	21 μV
		Thermocouple T, with Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	20 μV
		Thermocouple R, without Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	1.4 μV
		Thermocouple S, without Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	1.4 μV
		Thermocouple N, without Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	1.5 μV
		Thermocouple K, without Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	1.6 μV
		Thermocouple E, without Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	1.7 μV
		Thermocouple J, without Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	1.7 μV
		Thermocouple T, without Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	1.4 μV
		Resistance thermometer Sensor	From 18.52 Ω up to 390.48 Ω (From -200 ˚C up to 850 ˚C)	0.02 Ω
	DC Voltage Ratio Measuring Equipment	From 0 mV/V up to 10 mV/V		0.000 17 mV/V
	AC Voltage Ratio Measuring Equipment	225 Hz	From 0 mV/V up to 2.5 mV/V	0.000 050 mV/V
			More than 2.5 mV/V up to 5 mV/V	0.000 060 mV/V

#All Calibration Procedures are in-house procedures developed by this laboratory.

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Electric Power Measuring Equipment, etc.	Power Converter	From 10 V up to 300 V From 50 mA up to 200 A From 45 Hz up to 66 Hz Power factor, whole range		0.04 mV/V ～ 1.4 mV/V (Appendix 1-1)
		100 V, 5 A More than 66 Hz up to 1000 Hz Power factor, whole range		0.25 mV/V (Appendix 1-1)
	Power Meter	From 10 V up to 1 000 V From 5 mA up to 200 A From 45 Hz up to 66 Hz Power factor, whole range		0.04 mW/VA ～ 0.16 mW/VA (Appendix 1-2)
		100 V, 5 A More than 66 Hz up to 1000 Hz Power factor, whole range		0.25 mW/VA (Appendix 1-2)
	Reactive Power Meter	From 10 V up to 1 000 V From 5 mA up to 200 A From 45 Hz up to 66 Hz Power factor, whole range		0.04 mvar/VA ～ 0.16 mvar/VA (Appendix 1-3)
	Energy Meter	From 10 V up to 300 V From 50 mA up to 50 A From 45 Hz up to 66 Hz The absolute of Power factor is from 0.2		0.009 % ～ 0.011 % (Appendix 1-4)
	Reactive Energy Meter	From 10 V up to 132 V From 50 mA up to 5 A From 45 Hz up to 66 Hz Except the range of Power factor is form +0.9 lag to +0.9 lead against 1 and from -0.9 lag to -0.9 lead against -1		0.009 % ～ 0.011 % (Appendix 1-5)
	Power Source	From 50 V up to 100 V From 2.5 A up to 5 A From 45 Hz up to 66 Hz Power factor, whole range		0.06 mW/VA ～ 0.12 mW/VA (Appendix 1-5)
	AC Voltage Transformer	50 Hz, 60 Hz (Testing voltage is from 5 % to 120 % of rated primary voltage and from 5 % up to 110 % at more than 275/√3 kV)	Rated primary voltage from 100 V up to 33 kV	Ratio error 5×10^{-5} Phase angle 0.3'
			Rated primary voltage more than 33 kV up to 77 kV	Ratio error 8×10^{-5} Phase angle 0.3'
			Rated primary voltage more than 77 kV up to 275/√3 kV	Ratio error 13×10^{-5} Phase angle 0.5'
			Rated primary voltage more than 275/√3 kV up to 550/√3 kV	Ratio error 14×10^{-5} Phase angle 0.5'
	Alternating Current Transformer	50 Hz, 60 Hz	Rated primary current from 5 mA up to 1.5 kA	Ratio error 60 ppm Phase angle 0.3'
			Rated primary current more than 1.5 kA up to 12 kA	Ratio error 90 ppm Phase angle 0.4'
	Alternating Current Transformer (Current Comparator)		Primary current 5 A	Ratio error 60 ppm Phase angle 0.2'
	Alternating Current Transformer (Current Sensor [Current Output])		From 1 A up to 3 000 A	0.18 %
	Alternating Current Transformer (Current Sensor [Voltage Output])		From 1 A up to 3 000 A	0.17 %
	Alternating Current Standard Shunt	50 Hz, 60 Hz	From 1 A up to 3 000 A	0.17 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

Appendix 1-1

Category	Range				Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Frequency	Voltage	Current	Power factor	
Power Converter	50 Hz	100 V	200 A	1	0.08 mV/V
			5 A	1	0.05 mV/V
				0.5 lag	0.05 mV/V
				0.5 lead	0.05 mV/V
				0 lag	0.04 mV/V
				0 lead	0.04 mV/V
		10 V	5 A	1	0.14 mV/V
		100 V	50 mA	1	1.4 mV/V
	60 Hz	100 V	5 A	1	0.05 mV/V
				0.5 lag	0.05 mV/V
				0.5 lead	0.05 mV/V
				0 lag	0.04 mV/V
				0 lead	0.04 mV/V
	400 Hz	100 V	5 A	1	0.25 mV/V
				0.5 lag	0.25 mV/V
				0.5 lead	0.25 mV/V
				0 lag	0.25 mV/V
				0 lead	0.25 mV/V
	1 kHz	100 V	5 A	1	0.25 mV/V
				0.5 lag	0.25 mV/V
				0.5 lead	0.25 mV/V
				0 lag	0.25 mV/V
				0 lead	0.25 mV/V

Appendix 1-2

Category	Range						Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Type	Phase wire	Frequency	Voltage	Current	Power factor	
Power Meter	Active Power	Single phase two wire	50 Hz	100 V	200 A	1	0.08 mW/VA
					5 A	1	0.05 mW/VA
						0.5 lag	0.04 mW/VA
						0.5 lead	0.04 mW/VA
						0 lag	0.04 mW/VA
						0 lead	0.04 mW/VA
				1000 V	5 A	1	0.14 mW/VA
				100 V	5 mA	1	0.16 mW/VA
			60 Hz	100 V	5 A	1	0.05 mW/VA
						0.5 lag	0.04 mW/VA
						0.5 lead	0.04 mW/VA
						0 lag	0.04 mW/VA
						0 lead	0.04 mW/VA
			400 Hz	100 V	5 A	1	0.25 mW/VA
						0.5 lag	0.25 mW/VA
						0.5 lead	0.25 mW/VA
						0 lag	0.25 mW/VA
						0 lead	0.25 mW/VA
			1 kHz	100 V	5 A	1	0.25 mW/VA
						0.5 lag	0.25 mW/VA
						0.5 lead	0.25 mW/VA
						0 lag	0.25 mW/VA
						0 lead	0.25 mW/VA
		Single phase three wire	50 Hz	100 V	5 A	1	0.05 mW/VA
		Three phase three wire	50 Hz	100 V	5 A	1	0.05 mW/VA
		Three phase four wire	50 Hz	100 V	5 A	1	0.05 mW/VA

Appendix 1-3

Category	Range						Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Type	Phase wire	Frequency	Voltage	Current	Power factor	
Reactive Power Meter	Reactive Power	Single phase two wire	50 Hz	100 V	200 A	0 lag	0.08 mvar/VA
					5 A	0 lag	0.05 mvar/VA
						0 lead	0.05 mvar/VA
						0.866 lag	0.05 mvar/VA
						0.866 lead	0.05 mvar/VA
						1	0.04 mvar/VA
				1000 V	5 A	0 lag	0.14 mvar/VA
				100 V	5 mA	0 lag	0.16 mvar/VA
			60 Hz	100 V	5 A	0 lag	0.05 mvar/VA
						0 lead	0.05 mvar/VA
						0.866 lag	0.05 mvar/VA
						0.866 lead	0.05 mvar/VA
						1	0.04 mvar/VA
		Single phase three wire	50 Hz	100 V	5 A	0 lag	0.05 mvar/VA
		Three phase three wire	50 Hz	100 V	5 A	0 lag	0.05 mvar/VA
		Three phase four wire	50 Hz	100 V	5 A	0 lag	0.05 mvar/VA

Appendix 1-4

Category	Range						Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Type	Phase wire	Frequency	Voltage	Current	Power factor	
Energy Meter	Active Energy	Three phase three wire	50 Hz	100 V	5 A	1	0.009 %
						0.5 lag	0.011 %
						0.5 lead	0.011 %
				10 V	5 A	1	0.009 %
				100 V	50 mA	1	0.009 %
			60 Hz	100 V	5 A	1	0.009 %
						0.5 lag	0.011 %
						0.5 lead	0.011 %
		Single phase two wire	50 Hz	300 V	5 A	1	0.009 %
				100 V	50 A	1	0.011 %
					5 A	1	0.009 %
						0.5 lag	0.011 %
						0.5 lead	0.011 %
					50 mA	1	0.011 %
				10 V	5 A	1	0.010 %
			60 Hz	100 V	5 A	1	0.009 %
						0.5 lag	0.011 %
						0.5 lead	0.011 %
		Single phase three wire	50 Hz	100 V	5 A	1	0.009 %
		Three phase four wire	50 Hz	100 V	5 A	1	0.009 %

Appendix 1-5

Category	Range						Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Type	Phase wire	Frequency	Voltage	Current	Power factor	
Reactive Energy Meter	Reactive Energy	Three phase three wire	50 Hz	100 V	5 A	0 lag	0.009 %
						0 lead	0.009 %
						0.866 lag	0.011 %
						0.866 lead	0.011 %
				10 V	5 A	0 lag	0.009 %
				100 V	50 mA	0 lag	0.009 %
			60 Hz	100 V	5 A	0 lag	0.009 %
						0 lead	0.009 %
						0.866 lag	0.011 %
						0.866 lead	0.011 %
		Single phase two wire	50 Hz	100 V	5 A	0 lag	0.009 %
		Single phase three wire	50 Hz	100 V	5 A	0 lag	0.009 %
		Three phase four wire	50 Hz	100 V	5 A	0 lag	0.009 %
Power Source	Active Power	Single phase two wire	50 Hz	100 V	5 A	1	0.06 mW/VA
						0.5 lag	0.06 mW/VA
						0.5 lead	0.06 mW/VA
						0 lag	0.06 mW/VA
						0 lead	0.06 mW/VA
					2.5 A	1	0.12 mW/VA
				50 V	5 A	1	0.12 mW/VA
			60 Hz	100 V	5 A	1	0.06 mW/VA
						0.5 lag	0.06 mW/VA
						0.5 lead	0.06 mW/VA
						0 lag	0.06 mW/VA
						0 lead	0.06 mW/VA
		Single phase three wire	50 Hz	100 V	5 A	1	0.06 mW/VA
		Three phase three wire	50 Hz	100 V	5 A	1	0.06 mW/VA
		Three phase four wire	50 Hz	100 V	5 A	1	0.06 mW/VA

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	DC Resister	1 mΩ		0.03 %
		10 mΩ		0.03 %
		100 mΩ		0.01 %
		1 Ω		0.01 %
		2 Ω, 3 Ω, 4 Ω, 5 Ω, 6 Ω, 7 Ω, 8 Ω, 9 Ω, 10 Ω		0.001 Ω
		20 Ω, 30 Ω, 40 Ω, 50 Ω, 60 Ω, 70 Ω, 80 Ω, 90 Ω, 100 Ω		0.003 Ω
		200 Ω, 300 Ω, 400 Ω, 500 Ω, 600 Ω, 700 Ω, 800 Ω, 900 Ω, 1000 Ω		0.02 Ω
		2 kΩ, 3 kΩ, 4 kΩ, 5 kΩ, 6 kΩ, 7 kΩ, 8 kΩ, 9 kΩ, 10 kΩ		0.0002 kΩ
		20 kΩ, 30 kΩ, 40 kΩ, 50 kΩ, 60 kΩ, 70 kΩ, 80 kΩ, 90 kΩ, 100 kΩ		0.002 kΩ
		200 kΩ, 300 kΩ, 400 kΩ, 500 kΩ, 600 kΩ, 700 kΩ, 800 kΩ, 900 kΩ, 1 MΩ		0.03 kΩ
		1.1 MΩ		0.40 kΩ
		2 MΩ, 3 MΩ, 4 MΩ, 5 MΩ, 6 MΩ, 7 MΩ, 8 MΩ, 9 MΩ, 10 MΩ		0.001 MΩ
		20 MΩ, 30 MΩ, 40 MΩ, 50 MΩ, 60 MΩ		0.1 %
		70 MΩ, 80 MΩ, 90 MΩ		0.06 MΩ
		100 MΩ		0.05 MΩ
	DC Resistance Measuring Equipment	1 mΩ		0.050 %
		10 mΩ		0.050 %
		100 mΩ		0.050 %
		From 1 Ω up to 1 MΩ		0.020 %
		More than 1 MΩ up to 10 MΩ		0.10 %
		More than 10 MΩ up to 100 MΩ		0.50 %
		More than 100 MΩ up to 2000 MΩ		2.0 %
	DC Voltage Source	From 0 V up to 1000 V		0.010 % (lower limit 0.010 mV)
		More than 1 000 V up to 2 000 V		5 V
		More than 2 kV up to 3.5 kV		0.02 kV
		More than 3.5 kV up to 6.5 kV		0.03 kV
		More than 6.5 kV up to 9 kV		0.04 kV
		More than 9 kV up to 10 kV		0.05 kV
	DC Voltage Measuring Equipment	From 0 V up to 1000 V		0.010 % (lower limit 5 μV)
		More than 1 000 V up to 2 000 V		5 V
	Direct Current Source	From 0 A up to 1 000 A		0.10 % (lower limit 0.05 μA)
	Direct Current Measuring Equipment	From 0 A up to 1 000 A		0.10 % (lower limit 0.10 μA)
	AC Voltage Source	50 Hz, 60 Hz	From 10 mV up to 40 mV	0.10 mV
			More than 40 mV up to 1000 V	0.30 %
			More than 1 kV up to 1.5 kV	0.014 kV
			More than 1.5 kV up to 3.5 kV	0.02 kV
			More than 3.5 kV up to 6.5 kV	0.03 kV

			More than 6.5 kV up to 9 kV	0.04 kV
			More than 9 kV up to 10 kV	0.05 kV
		400 Hz, 1 kHz	From 10 mV up to 40 mV	0.10 mV
			More than 40 mV up to 1000 V	0.30 %
	AC Voltage Measuring Equipment	50 Hz, 60 Hz 400 Hz, 1 kHz	From 10 mV up to 1000 V	0.10 % (lower limit 0.10 mV)
		50 Hz, 60 Hz	From 5 kV up to 190 kV	0.005 V/V
	Alternating Current Source	50 Hz, 60 Hz	From 1 mA up to 60 A	0.50 %
	Alternating Current Measuring Equipment	50 Hz, 60 Hz	From 0.1 mA less than 1 mA	1.2 μA
			From 1 mA up to 43 mA	0.30 %
			More than 43 mA up to 50 mA	0.13 mA
			More than 50 mA up to 0.2 A	0.30 %
			More than 0.2 A up to 0.3 A	0.000 6 A
			More than 0.3 A up to 0.43 A	0.30 %
			More than 0.43 A up to 0.5 A	0.001 3 A
			More than 0.5 A up to 0.75 A	0.001 4 A
			More than 0.75 A up to 1.3 A	0.30 %
			Moe than 1.3 A up to 1.5 A	0.004 A
			More than 1.5 A up to 2 A	0.30 %
			More than 2 A up to 3 A	0.006 A
			More than 3 A up to 4.3 A	0.30 %
			More than 4.3 A up to 5 A	0.013 A
			More than 5 A up to 7.5 A	0.014 A
			More than 7.5 A up to 10 A	0.30 %
			More than 10 A up to 15 A	0.03 A
			More than 15 A up 20 A	0.30 %
			More than 20 A up to30 A	0.06 A
			More than 30 A up to50 A	0.13 A
			More than 50 A up to 60 A	0.50 %
			More than 60 A up to 100 A	0.3 A
			More than 100 A up to 500 A	1.5 %
	Temperature Indicator	Thermocouple R, with Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	5 μV
		Thermocouple S, with Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	5 μV
		Thermocouple N, with Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	21 μV
		Thermocouple K, with Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	22 μV
		Thermocouple E, with Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	27 μV
		Thermocouple J, with Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	25 μV
		Thermocouple T, with Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	24 μV
		Thermocouple R, without Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	4 μV
		Thermocouple S, without Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	4 μV
		Thermocouple N, without Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	9 μV
		Thermocouple K, without Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	10 μV
		Thermocouple E, without Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	18 μV
		Thermocouple J,	From -8095 μV up to 69553 μV	14 μV

		without Reference Junction	(From -210 ˚C up to 1200 ˚C)	
		Thermocouple T, without Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	14 μV
		Resistance thermometer Sensor	From 18.52 Ω up to 390.48 Ω (From -200 ˚C up to 850 ˚C)	0.07 Ω
	Temperature Indicator calibration equipment	Thermocouple R, with Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	5 μV
		Thermocouple S, with Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	5 μV
		Thermocouple N, with Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	19 μV
		Thermocouple K, with Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	20 μV
		Thermocouple E, with Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	24 μV
		Thermocouple J, with Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	22 μV
		Thermocouple T, with Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	21 μV
		Thermocouple R, without Reference Junction	From -226 μV up to 21101 μV (From -50 ˚C up to 1768 ˚C)	3.0 μV
		Thermocouple S, without Reference Junction	From -236 μV up to 18693 μV (From -50 ˚C up to 1768 ˚C)	3.0 μV
		Thermocouple N, without Reference Junction	From -4345 μV up to 47513 μV (From -270 ˚C up to 1300 ˚C)	3.2 μV
		Thermocouple K, without Reference Junction	From -6458 μV up to 54886 μV (From -270 ˚C up to 1372 ˚C)	3.3 μV
		Thermocouple E, without Reference Junction	From -9835 μV up to 76373 μV (From -270 ˚C up to 1000 ˚C)	3.4 μV
		Thermocouple J, without Reference Junction	From -8095 μV up to 69553 μV (From -210 ˚C up to 1200 ˚C)	3.3 μV
		Thermocouple T, without Reference Junction	From -6258 μV up to 20872 μV (From -270 ˚C up to 400 ˚C)	3.0 μV
		Resistance thermometer Sensor	From 18.52 Ω up to 390.48 Ω (From -200 ˚C up to 850 ˚C)	0.05 Ω
Electric Power Measuring Equipment, etc.	Power Meter	Single phase two wire From 30 V up to 300 V From 0.2 A up to 33 A 50 Hz, 60 Hz Power factor 0 lag ～1～0 lead		0.050 W～8 W (Appendix 2-1)
		Single phase three wire, Three phase three wire From 50 V up to 300 V From 0.2 A up to 33 A 50 Hz, 60 Hz Power factor 0 lag ～1～0 lead		0.075 W～12 W (Appendix 2-2)

#All Calibration Procedures are in-house procedures developed by this laboratory.

Appendix 2-1

Category	Range						Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Type	Phase wire	Frequency	Voltage	Current	Power factor	
Power Meter	Active Power	Single phase two wire	50 Hz 60 Hz	More than 150 V up to 300 V	More than 20 A up to 33 A	0 lag～1～0 lead	8 W
					More than 10 A up to 20 A	0 lag～1～0 lead	5.1 W
					More than 5 A up to 10 A	0 lag～1～0 lead	2.6 W
					More than 2 A up to 5 A	0 lag～1～0 lead	1.3 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.51 W
					1 A	0 lag～1～0 lead	0.26 W
					0.2 A	0 lag～1～0 lead	0.48 W
				More than 100 V up to 150 V	More than 20 A up to 33 A	0 lag～1～0 lead	4 W
					More than 10 A up to 20 A	0 lag～1～0 lead	2.6 W
					More than 5 A up to 10 A	0 lag～1～0 lead	1.3 W
					More than 2 A up to 5 A	0 lag～1～0 lead	0.7 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.26 W
					1 A	0 lag～1～0 lead	0.13 W
					0.2 A	0 lag～1～0 lead	0.24 W
				More than 60 V Up to 100 V	More than 20 A up to 33 A	0 lag～1～0 lead	2.6 W
					More than 10 A up to 20 A	0 lag～1～0 lead	1.7 W
					More than 5 A up to 10 A	0 lag～1～0 lead	0.9 W
					More than 2 A up to 5 A	0 lag～1～0 lead	0.42 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.17 W
					1 A	0 lag～1～0 lead	0.09 W
				From 50 V up to 60 V	More than 20 A up to 33 A	0 lag～1～0 lead	1.7 W
					More than 10 A up to 20 A	0 lag～1～0 lead	1.1 W
					More than 5 A up to 10 A	0 lag～1～0 lead	0.51 W
					More than 2 A up to 5 A	0 lag～1～0 lead	0.26 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.10 W
					1 A	0 lag～1～0 lead	0.050W
					0.2 A	0 lag～1～0 lead	0.12 W
				30 V	10 A	0 lag～1～0 lead	1.5 W
					5 A	0 lag～1～0 lead	0.8 W
					2.5 A	0 lag～1～0 lead	0.38 W
					1 A	0 lag～1～0 lead	0.15 W
					0.2 A	0 lag～1～0 lead	0.060 W

Appendix 2-2

Category	Range						Expanded Uncertainty (Level of Confidence Approximately 95 %)
	Type	Phase wire	Frequency	Voltage	Current	Power factor	
Power Meter	Active Power	Single phase three wire Three phase three wire	50 Hz 60 Hz	More than 150 V up to 300 V	More than 20 A up to 33 A	0 lag～1～0 lead	12 W
					More than 10 A up to 20 A	0 lag～1～0 lead	7.6 W
					More than 5 A up to 10 A	0 lag～1～0 lead	3.9 W
					More than 2 A up to 5 A	0 lag～1～0 lead	1.9 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.76 W
					1 A	0 lag～1～0 lead	0.38 W
					0.2 A	0 lag～1～0 lead	0.96 W
				More than 100 V up to 150 V	More than 20 A up to 33 A	0 lag～1～0 lead	6 W
					More than 10 A up to 20 A	0 lag～1～0 lead	3.9 W
					More than 5 A up to 10 A	0 lag～1～0 lead	2.0 W
					More than 2 A up to 5 A	0 lag～1～0 lead	1.0 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.38 W
					1 A	0 lag～1～0 lead	0.19 W
					0.2 A	0 lag～1～0 lead	0.48 W
				More than 60 V up to 100 V	More than 20 A up to 33 A	0 lag～1～0 lead	3.7 W
					More than 10 A up to 20 A	0 lag～1～0 lead	2.5 W
					More than 5 A up to 10 A	0 lag～1～0 lead	1.3 W
					More than 2 A up to 5 A	0 lag～1～0 lead	0.63 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.25 W
					1 A	0 lag～1～0 lead	0.13 W
				From 50 V up to 60 V	More than 20 A up to 33 A	0 lag～1～0 lead	2.2 W
					More than 10 A up to 20 A	0 lag～1～0 lead	1.5 W
					More than 5 A up to 10 A	0 lag～1～0 lead	0.75 W
					More than 2 A up to 5 A	0 lag～1～0 lead	0.38 W
					More than 1 A up to 2 A	0 lag～1～0 lead	0.15 W
					1 A	0 lag～1～0 lead	0.075 W

General Field of Calibration: Electricity (Direct Current & Low Frequency)
Date of Initial Accreditation of the Field: 1995-06-21
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range			Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Low Frequency Impedance Measuring Equipment, etc.	AC Voltage Inductive Voltage-Divider	50 Hz		10 V	Real	0.20×10^{-6}
					Imag	3.0×10^{-6}
		60 Hz		10 V	Real	0.20×10^{-6}
					Imag	3.0×10^{-6}
		50 Hz		More than 10 V up to 300 V	Real	5×10^{-6}
					Imag	10×10^{-6}
		60 Hz		More than 10 V up to 300 V	Real	5×10^{-6}
					Imag	10×10^{-6}
		120 Hz		10 V, 20 V	Real	0.15×10^{-6}
					Imag	3.0×10^{-6}
		225 Hz		10 V	Real	0.15×10^{-6}
					Imag	3.0×10^{-6}
		400 Hz		From 10 V up to100 V	Real	0.10×10^{-6}
					Imag	1.0×10^{-6}
		1 kHz		From 1 V up to 150 V	Real	0.10×10^{-6}
					Imag	1.0×10^{-6}
		5 kHz		10 V, 20 V	Real	2.0×10^{-6}
					Imag	1.2×10^{-5}
		10 kHz		10 V, 20 V	Real	1.7×10^{-5}
					Imag	2.9×10^{-5}
	Capacitor	1 kHz		1 pF	1.1 µF/F	
				More than 1 pF less than 10 pF	0.002 %	
				10 pF	0.80 µF/F	
				More than 10 pF less than 100 pF	0.002 %	
				100 pF	0.73 µF/F	
				More than 100 pF less than 1 000 pF	0.002 %	
				1 000 pF	0.79 µF/F	
				More than 1 000 pF up to 0.1 µF	0.007 %	
				More than 0.1 µF up to 1 µF	0.008 %	
				10 µF	0.008 %	
	Capacitance Measuring Equipment	1 kHz		100 pF	0.006 %	
				1 000 pF	0.006 %	
				0.01 µF	0.007 %	
				0.1 µF	0.007 %	
				1 µF	0.008 %	
				10 µF	0.008 %	
	AC Resister	1 kHz Coaxial Shunt	Up to 10 A	From 10 µΩ less than 100 µΩ	AC Resistance	0.09 %
					Phase angle	0.004 rad
				From 100 µΩ less than 1 mΩ	AC Resistance	0.06 %
					Phase angle	0.004 rad
				From 1 mΩ less than 10 mΩ	AC Resistance	0.06 %
					Phase angle	0.004 rad
				From 10 mΩ less than 0.1 Ω	AC Resistance	0.009 %
					Phase angle	0.000 4 rad
			Up to 1 A	0.1 Ω	AC Resistance	0.006 %
					Phase angle	0.000 12 rad
		1 kHz		10 Ω	AC Resistance	0.007 %
					Phase angle	5×10^{-5} rad

				100 Ω	AC Resistance	0.003 %
					Phase angle	3 ×10^{-5} rad
				1 kΩ	AC Resistance	0.003 %
					Phase angle	3 ×10^{-5} rad
				10 kΩ	AC Resistance	0.003 %
					Phase angle	3 ×10^{-5} rad
				100 kΩ	AC Resistance	0.003 %
					Phase angle	5 ×10^{-5} rad
		10 kHz Coaxial Shunt	Up to 10 A	From 10 μΩ less than 100 μΩ	AC Resistance	0.4 %
					Phase angle	0.04 rad
				From 100 μΩ less than 1 mΩ	AC Resistance	0.4 %
					Phase angle	0.04 rad
				From 1 mΩ less than 10 mΩ	AC Resistance	0.4 %
					Phase angle	0.04 rad
				From 10 mΩ less than 0.1 Ω	AC Resistance	0.04 %
					Phase angle	0.004 rad
			Up to 1 A	0.1 Ω	AC Resistance	0.008 %
					Phase angle	0.000 5 rad
	AC Resistance Measuring Equipment	1 kHz		10 mΩ		0.02 %
				100 mΩ		0.01 %
				1 Ω		0.009 %
				10 Ω		0.007 %
				100 Ω		0.004 %
				1 kΩ		0.004 %
				10 kΩ		0.004 %
				100 kΩ		0.002 %
	Inductor	1 kHz		100 μH		0.04 %
				More than 100 μH up to 300 μH		0.2 %
				More than 300 μH less than 600 μH		0.1 %
				600 μH		0.09 %
				More than 600 μH less than 1 mH		0.08 %
				1 mH		0.02 %
				More than 1 mH less than 2 mH		0.08 %
				2 mH		0.07 %
				More than 2 mH less than 10 mH		0.06 %
				10 mH		0.010 %
				More than 10 mH less than 100 mH		0.06 %
				100 mH		0.010 %
				More than 100 mH less than 1 H		0.06 %
				1 H		0.011 %
				More than 1 H less than 2 H		0.06 %
				2 H		0.1 %
				More than 2 H less than 10 H		0.2 %
				10 H		0.05 %
	Inductance Measuring Equipment	1 kHz		100 μH		0.2 %
				1 mH		0.03 %
				10 mH		0.02 %
				100 mH		0.02 %
				1 H		0.02 %
				10 H		0.2 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Humidity
Date of Initial Accreditation of the Field: 2015-09-11
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Humidity Measuring Instrument, etc.	Dew point hygrometers	Frost point from -30 ºC up to -10 ºC		Frost point 0.25 ºC
		Dew point from -10 ºC up to 85 ºC		Dew point 0.17 ºC
		Calibration temperature from 5 ºC less than 20 ºC	Relative humidity from 10 % up to 50 % Dew point above -10 ºC	Relative humidity 1.0 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 1.5 %
		Calibration temperature from 20 ºC up to 30 ºC	Relative humidity from 10 % up to 50 % Dew point above -10 ºC	Relative humidity 0.8 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 1.2 %
		Calibration temperature more than 30 ºC up to 50 ºC	Relative humidity from 10 % up to 50 %	Relative humidity 0.8 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 1.2 %
		Calibration temperature more than 50 ºC up to 85 ºC	Relative humidity from 10 % up to 50 %	Relative humidity 1.2 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 2.1 %
	Electronic hygrometers	Dew point from -10 ºC up to 48 ºC Calibration temperature from 5 ºC up to 85 ºC Relative humidity from 10 % up to 90 %		Dew point 0.20 ºC
		Dew point more than 48 ºC up to 83 ºC Calibration temperature more than 50 ºC up to 85 ºC Relative humidity from 10 % up to 90 %		Dew point 0.38 ºC
		Calibration temperature from 5 ºC less than 20 ºC	Relative humidity from 10 % up to 50 % Dew point above -10 ºC	Relative humidity 1.0 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 1.5 %
		Calibration temperature from 20 ºC up to 30 ºC	Relative humidity from 10 % up to 50 % Dew point above -10 ºC	Relative humidity 0.8 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 1.2 %
		Calibration temperature more than 30 ºC up to 50 ºC	Relative humidity from 10 % up to 50 %	Relative humidity 0.8 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 1.2 %
		Calibration temperature more than 50 ºC up to 85 ºC	Relative humidity from 10 % up to 50 %	Relative humidity 1.2 %
			Relative humidity more than 50 % up to 90 %	Relative humidity 2.1 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Temperature
Date of Initial Accreditation of the Field: 1994-08-01
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Contact Type Thermometer	Fixed point apparatus	Triple point of Water	0.4 mK	
		Triple point of Mercury	1.2 mK	
		Melting point of Gallium	1.0 mK	
		Freezing point of Indium	2.4 mK	
		Freezing point of Tin	2.3 mK	
		Freezing point of Zinc	3.3 mK	
		Freezing point of Aluminum	6.0 mK	
	Resistance thermometer (Fixed point calibration)		$W(T_{90})$ (*1)	$R(T_{90})$ (*2)
		Triple point of Water	-	1.0 mK
		Triple point of Mercury	2.0 mK	2.0 mK
		Melting point of Gallium	2.0 mK	2.0 mK
		Freezing point of Indium	3.0 mK	3.0 mK
		Freezing point of Tin	3.0 mK	3.0 mK
		Freezing point of Zinc	4.0 mK	4.0 mK
		Freezing point of Aluminum	7.0 mK	7.0 mK
	Resistance thermometer (Comparison calibration)	Vicinity of -196 °C, -186 °C or -183 °C	6 mK	6 mK
		From -80 °C up to 80 °C	7 mK	7 mK
		More than 80 °C up to 250 °C	8 mK	8 mK
		More than 250 °C up to 420 °C	30 mK	30 mK
	Thermocouple (Fixed point calibration) (for noble metal thermocouple)	Freezing point of Indium	0.10 °C (*3)	
		Freezing point of Tin		
		Freezing point of Zinc	0.15 °C (*3)	
		Freezing point of Aluminum		
		Freezing point of Silver	0.25 °C (*3)	
		Freezing point of Copper		
		Melting point of Palladium	1.0 °C (*3)	
	Thermocouple (Comparison calibration)	From -80 °C up to 250 °C	0.2 °C (*3)	
		More than 250 °C up to 400 °C	0.5 °C (*3)	
		More than 400 °C up to 1100 °C	0.7 °C (*3)	
		More than 1100 °C up to 1554 °C	1.8 °C (*3)	
	Temperature sensors with display unit (Comparison calibration)	Vicinity of -196 °C, -186 °C or -183 °C	10 mK	
		From -80 °C up to 80 °C	7 mK	
		More than 80 °C up to 250 °C	8 mK	
		More than 250 °C up to 420 °C	30 mK	
		More than 420 °C up to 1100 °C	0.8 °C	
		More than 1100 °C up to 1554 °C	2.0 °C	
	Thermometer calibration equipment	From -80 °C up to 250 °C	0.060 °C	
		More than 250 °C up to 400 °C	0.070 °C	
		More than 400 °C up to 700 °C	0.60 °C	

Radiation Thermometer	Fixed point apparatus	Freezing point of Zinc	0.30 ºC
		Freezing point of Aluminum	
		Freezing point of Silver	
		Freezing point of Copper	
	Near-infrared radiation thermometer / Visible radiation thermometer (Fixed-point calibration) (for 0.9 μm radiation thermometer)	Freezing point of Zinc	0.30 ºC
		Freezing point of Aluminum	
		Freezing point of Silver	
		Freezing point of Copper	
	Near-infrared radiation thermometer / Visible radiation thermometer (Comparison calibration)	From 400 ºC up to 1200 ºC	0.7 ºC
		More than 1200 ºC up to 1400 ºC	0.9 ºC
		More than 1400 ºC up to 1600 ºC	1.1 ºC
		More than 1600 ºC up to 1800 ºC	2.1 ºC
		More than 1800 ºC up to 2000 ºC	2.3 ºC

#All Calibration Procedures are in-house procedures developed by this laboratory.
(*1) Temperature converted from the ratio of the resistance R (T_{90}) to R (273.16K), W (T_{90})
(*2) Temperature converted from resistance R(T_{90})
(*3) Temperature converted from Electromotive Force (EMF)

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Contact Type Thermometer	Temperature sensors with display unit (Comparison calibration)	From -40 ºC up to 250 ºC		0.15 ºC
		More than 250 ºC up to 400 ºC		0.30 ºC
		Equipped within temperature controlled enclosures	From -40 ºC up to 200 ºC	0.25 ºC

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Electricity (High Frequency) & Electromagnetic Fields
Date of Initial Accreditation of the Field: 2016-10-20
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Electromagnetic Fields Measuring Equipments	Magnetic Fields Generator	Direct Current Magnetic Flux Density	From 29 mT up to 2.5 T	0.07 %
			From 0.5 mT less than 29 mT	0.4 %
	Magnetic Fields Measuring Equipment		From 29 mT up to 2.5 T	0.09 %
			From 30 μT less than 29 mT	1 %
			From 10 μT less than 30 μT	3 %
		Direct Current Magnetic Flux	From 1 mWb up to 1 Wb	1.0 %
			From 100 μWb less than 1 mWb	2.0 %
		Alternating Current Magnetic Flux Density	From 10 μT up to 2 mT (50 Hz / 60 Hz)	3 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Torque
Date of Initial Accreditation of the Field: 2018-02-02
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Torque measuring devices	Hand Torque tools	Hand Torque wrench	Clockwise Torque and Counterclockwise Torque from 5 N・m up to 420 N・m	2.0 %
			Clockwise Torque and Counterclockwise Torque TypeII from 1 N・m up to 5 N・m	2.0 %
		Hand Torque screwdriver	Clockwise Torque and Counterclockwise Torque TypeII from 100 cN・m up to 500 cN・m	2.0 %
			Clockwise Torque and Counterclockwise Torque TypeII from 10 cN・m less than 100 cN・m	4.0 %
	Torque measuring devices	Torque measuring devices	0.2 N・m	0.90 %
			0.3 N・m	0.65 %
			0.4 N・m	0.55 %
			0.5 N・m	0.50 %
			0.6 N・m, 0.7 N・m, 0.8 N・m	0.45 %
			0.9 N・m, 1 N・m	0.40 %
			2 N・m	0.90 %
			4 N・m	0.55 %
			6 N・m, 8 N・m	0.45 %
			10 N・m	0.40 %
		Torque screwdriver checker	2 cN・m	1.2 %
			4 cN・m, 10 cN・m, 20 cN・m, 30 cN・m, 40 cN・m, 50 cN・m, 60 cN・m	0.96 %
			20 cN・m, 50 cN・m, 100 cN・m, 200 cN・m, 300 cN・m, 400 cN・m, 500 cN・m, 600 cN・m	0.82 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Torque measuring devices	Hand Torque tools	Hand Torque wrench	Clockwise Torque and Counterclockwise Torque from 5 N・m up to 420 N・m	2.0 %
			Clockwise Torque and Counterclockwise Torque TypeII from 1 N・m up to 5 N・m	2.0 %
		Hand Torque screwdriver	Clockwise Torque and Counterclockwise Torque TypeII from 100 cN・m up to 500 cN・m	2.0 %
			Clockwise Torque and Counterclockwise Torque TypeII from 10 cN・m less than 100 cN・m	4.0 %
	Torque measuring devices	Torque measuring devices	0.2 N・m	0.90 %
			0.3 N・m	0.65 %
			0.4 N・m	0.55 %
			0.5 N・m	0.50 %
			0.6 N・m, 0.7 N・m, 0.8 N・m	0.45 %
			0.9 N・m, 1 N・m	0.40 %
			2 N・m	0.90 %

			4 N･m	0.55 %
			6 N･m, 8 N･m	0.45 %
			10 N･m	0.40 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Photometry
Date of Initial Accreditation of the Field: 1994-08-01
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures# and Type of Instruments/Materials to be calibrated			Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)
Standard lamp for luminous intensity, etc.	Luminous Intensity Standard Source & Measuring Instruments	Tungsten Lamp	From 10 cd up to 3 000 cd	1.1 %
		LED	From 0.1 cd up to 10 cd	1.5 %
	Luminous Flux Standard Source & Measuring Instruments	Tungsten Lamp	From 5 lm up to 20 000 lm	1.1 %
		LED	From 0.1 lm up to 10 lm	1.4 %
	Illuminance Standard Source		From 1 lx up to 3 000 lx	1.1 %
	Measuring Instruments (Illuminance Meter)		From 1 lx up to 3 000 lx	1.2 %
			More than 3 000 lx up to 10 000 lx	2.5 %
	Distribution Temperature Standard (Distribution Temperature Standard Lamp)		From 2 045 K up to 2 856 K	18 K
	Spectral Irradiance Standard Source & Measuring Instruments (Tungsten Lamp)		From 250 nm up to 290 nm	8.0 %
			More than 290 nm up to 350 nm	6.1 %
			More than 350 nm up to 450 nm	4.8 %
			More than 450 nm up to 600 nm	3.8 %
			More than 600 nm up to 830 nm	3.6 %
			More than 830 nm up to 2 300 nm	4.0 %
			More than 2 300 nm up to 2 500 nm	6.4 %
	Colorimetric Values (Derived Values with Spectral Irradiance Standard Lamp)	Chromaticity of LED	Chromaticity Coordinate x: From 0.004 up to 0.735 y: From 0.005 up to 0.834	x: 0.003 y: 0.004
	Illuminance Responsivity Standard (Illuminance Standard Source & Measuring Instruments)	Illuminance Responsivity Detector	Illuminance Responsivity of distribution temperature 2 856 K	1.1 %
	Luminance/Spectral Radiance Standard Source & Measuring Instruments	Luminance Meter	From 50 cd/m^2 up to 10 000 cd/m^2	1.8 %

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration: Force
Date of Initial Accreditation of the Field: 2021-11-29
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

Calibration Procedures and Type of Instruments/Materials to be calibrated		Range		Expanded Uncertainty (Level of Confidence Approximately 95 %)
Force-proving Instruments	Applying JIS B 7721	Tension & Compression	From 0.2 N less than 1 N	0.60 %
			From 1 N up to 500 N	0.20 %