

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

File Manager:

**CAB Contact Details:**

<b>Contact Person</b>	Mr. Yousuf Al Naabi- CEO Mr. Sabu Thankachen – Laboratory Manger Mrs. Biji Koshy – QHSE Manager	<b>Telephone/Mobile:</b>	+968 24504206 +968 24504206/+96899844058 +96824504924/+96899881224
<b>Email:</b>	<a href="mailto:yousuf.al.naabi@gulfc Calibration.com">yousuf.al.naabi@gulfc Calibration.com</a> <a href="mailto:sabu@gulfc Calibration.com">sabu@gulfc Calibration.com</a> <a href="mailto:quality@gulfc Calibration.com">quality@gulfc Calibration.com</a>	<b>Website:</b>	<a href="http://www.gulfc Calibration.com">www.gulfc Calibration.com</a>

**Scope particulars:**

<b>Scope Issue No:</b>	02	<b>Scope Issued Date:</b>	16 <sup>th</sup> December 2025
<b>Details of scope updates (if any)</b>			
<b>Locations where scope activities are covered by under this accreditation:</b>			
<b>Location-1</b>	P.O. Box 1197, PC 130, Muscat -Sultanate of Oman, Street No. 52, Building No. 4329, Ghala Industrial Area, Muscat, Sultanate of Oman	<b>Date of Inclusion in Accreditation:</b> 9 <sup>th</sup> August 2023	

**For the following scope:**

- 1. Calibration
  - 1.03 Engineering metrology equipment
  - 1.11 Masses
  - 1.12 Weighing devices
  - 1.13 Volumetric equipment
  - 1.17 Flow measuring Devices
  - 1.20 Pressure and Vacuum Measuring Devices
  - 1.26 Testing machines
  - 1.38 Instrument Calibrators
  - 1.39 Indicating and Recording Instruments
  - 1.41 Frequency and time measuring instruments and standards
  - 1.80 Calibration of temperature measuring equipment

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

1.83 Hygrometry

1.84 Testing of controlled enclosures

Scope details are as follows:

**Calibration field 1: (Temperature)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Temperature	0°C (-30 to 150) °C (> 150 to 250) °C	0.02 °C 0.05 °C 0.07 °C	GCTS-SOP-08 Stirred Liquid Baths	Digital Thermometers with PRT Sensor	P
Temperature	(30 to 250) °C (>250 to 400) °C (>400 to 600) °C	0.3 °C 0.6 °C 1.2 °C	GCTS-SOP-08 in dry block	Digital Thermometers with PRT Sensor	P
Temperature	0°C (-30 to 150) °C (> 150 to 250) °C	0.1 °C 0.1 °C 0.4 °C	GCTS-SOP-08 Stirred Liquid Baths	Digital Thermometers with TC Sensor	P
Temperature	(>250 to 400) °C (>400 to 600) °C (>600 °C to 1100) °C	0.6°C 0.8°C 2.0°C	GCTS-SOP-08 in dry block	Digital Thermometers with TC Sensor	P
Temperature	(-20 to 250) °C (>250 to 400) °C (>400 to 600) °C	0.25°C 0.5°C 1.0°C	GCTS-SOP-09	Dial Thermometers	P and S

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Temperature	-20 °C to 250 °C	0.25 °C	GCTS-SOP-10	Liquid in glass Thermometers	P
Temperature	50 °C to 300 °C >300 °C to 500 °C	2.0 °C 3.0 °C	GCTS-SOP-40	IR Thermometers	P
Temperature	-40 °C to 20 °C	0.7 °C	GCTS-SOP-11	Chillers, Freezers (using 9 sensors)	P and S
Temperature	-40 °C to 300 °C	0.7 °C	GCTS-SOP-11	Environmental chambers, Ovens (using 9 sensors)	P and S
Temperature	20 °C to 100 °C	0.3 °C	GCTS-SOP-13	Incubators (using 5 sensors)	P and S
Temperature	100 °C to 140 °C	0.3 °C	GCTS-SOP-38	Aut°Claves (Temperature)	P and S
Temperature	-20 °C to 95 °C >95 °C to 200 °C	0.25 °C 0.4 °C	GCTS-SOP-12	Liquid Baths (using 5 sensors)	P and S
Temperature	Ambient to 300 °C 300 °C to 600 °C 600 °C to 800 °C 800 °C to 1200 °C	1.0 °C 3.0 °C 6.0 °C 10.0 °C	GCTS-SOP-16	Muffle Furnace (1 sensor)	P and S
	-45 to 160 °C	1.0 °C	GCTS-SOP-74	Dry Well Calibrator	P
	≥ 160 to 650 °C	1.2 °C			
	≥ 160 to 1200 °C	2.0 °C			
	(-80 to 250) °C	0.2 °C	GCTS-SOP-70	Stirred Liquid Bath	P/S
	(> -80 to -40) °C	0.2 °C			
	-20 to 50 °C	0.2 °C	GCTS-SOP-71	Dataloggers & Thermometers with internal sensor	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Temperature	-40 to 250 °C	0.2 °C	GCTS-SOP-64	Environmental Chambers/Ovens/Heat Enclosures	P/S
	-45 to 160 °C	0.2	GCTS-SOP-08	RTD Sensor with Readout including transmitters and Temperature Chart Recorders	P/S
	≥ 160 to 650 °C	0.4	GCTS-SOP-08		
	-45 to 160 °C	0.3	GCTS-SOP-08	TC Sensor with Readout including transmitters and Temperature Chart Recorders	
	≥ 160 to 650 °C	0.6	GCTS-SOP-08		
	≥ 650 to 1200 °C	1.0	GCTS-SOP-08		

**Calibration field 2: (Hygrometry)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Hygrometry	(10 to 50) °C (35 to 80) % RH	0.4°C 3 % RH @(20 to 25) °C	GCTS-SOP-27 by comparison Method.	Direct Reading Thermometer/Hygrometers including Data loggers	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

### Calibration field 3: (Masses)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Conventional Mass	1 mg, 2 mg, 5 mg	0.02 mg	GCTS-SOP-28 based on OIML R111	Standard test weights	P
	10 mg	0.025 mg			
	20 mg	0.03 mg			
	50 mg	0.04 mg			
	100 mg	0.05 mg			
	200 mg	0.06 mg			
	500 mg	0.08 mg			
	1 g	0.1 mg			
	2 g	0.12 mg			
	5 g	0.16 mg			
	10 g	0.2 mg			
	20 g	0.25 mg			
	50 g	0.3 mg			
	100 g	0.5 mg			
	200 g	1.0 mg			
	500 g	2.5 mg			
	1 kg	5.0 mg			
	2 kg	10 mg			
	5 kg	25 mg			
		10 kg	0.16 g	GCTS-SOP-28 based on OIML R111	Standard test weights
	20 kg	0.3 g			

### Calibration field 3: (Weighing Devices)

Mass	1 mg to 5 kg	5 X 10 <sup>-6</sup> of FS	GCTS-SOP-01 based EURAMET cg 18:2015 & ASTM E 898	Electronic balances	P and S
	>5 kg up to 30 kg	1 X 10 <sup>-5</sup> of FS			
	>30 kg up to 1000 kg	5 X 10 <sup>-5</sup> of FS			
Mass	(1.0 to 8 000) kg	0.1 % of applied load	GCTS-SOP-29	Batching Plant	S

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

## Calibration field 4: (Dimensional)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Length/Dimensional	Up to 300 mm 300 to 1000 mm	0.02 mm 0.03 mm	GCTS-SOP-05 based on BSEN ISO 13385-1	All types of Callipers Vernier Dial, Electronic	P
Length/Dimensional	Up to 100 mm 100 to 500 mm	2.0 µm 6.3 µm	GCTS-SOP-06 based on BSEN 870	External Micrometre	P
Length/Dimensional	Up to 50 mm	5.0 µm	GCTS-SOP-07 based on BS 907	Dial Gauges-Digital/Analogue	P
Length/Dimensional	Up to 4 mm(using profile projector)	8.0 µm	GCTS-SOP-14 based on ASTM E 11, ISO 3310-2 & ISO 3310-1	Laboratory Test sieves	P
Length/Dimensional	Above 4 mm(using Digital Caliper)	40 µm		Laboratory Test sieves	P and S
Length/Dimensional	(0.03 to 1.00) mm	6.0 µm	GCTS-SOP-39 based on BS 957	Feeler Gauges	P
Length/Dimensional	Up to 100 mm	20 µm	GCTS-SOP-43 based on BS EN ISO 13385-2	All types of depth Gauges (Dial/Vernier/Electronic)	P
Length/Dimensional	Up to 100 mm	5.0 µm	GCTS-SOP-44 based on BS 6468	Depth Micrometres	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Length/Dimensional	Up to 300 mm (x-y axis), 0-360 degrees & Magnification	7 µm (Linear) 10 min of ARC(Angular) & 0.5%(Magnification)	GCTS-SOP-45 based on JIS B 7184	Profile Projectors	P and S
Length/Dimensional	Up to 2 mm travel	5.0 µm	GCTS-SOP-47	Bore Gauge	P
Length/Dimensional	Up to 50 mm (Extension) & Gauge Length up to 600 mm	5.0 µm	GCTS-SOP-48 based on ASTM E 83 & ISO 9513	Extensometers	S
Length/Dimensional	0.1 ° to 180 °	3 min of arc	GCTS-SOP-75 based on BS 1685	Bevel Protractor/Angle measuring gauges	P
Length/Dimensional	0 to 20 m	6 mm	GCTS-SOP-72	Laser Distance meter	P/O
Length/Dimensional	0 to 25 mm	5 µm	GCTS-SOP-68	Calibration Foils/Thickness Standards	P
Length/Dimensional	0.0 to 1 mm	0.004 mm	GCTS-SOP-68	Coating Thickness gauge/Ultrasonic Thickness gauges	P
	>1 to 4 mm	0.005 mm			
	>4 to 100 mm	0.03 mm			
Length/Dimensional	0 to 600 mm -Outer Diameter	3.5 µm	GCTS-SOP-69	Plain Plug Gauge	P
Length/Dimensional	4 to 300 mm – Inner Diameter	4.0 µm	GCTS-SOP-69	Plain Ring Gauge	P
Length/Dimensional	0 to 300 mm- Effective Diameter	3.5 µm	GCTS-SOP-69	Thread Plug Gauge	P
Length/Dimensional	4 to 300 mm- Effective Diameter	4.0 µm	GCTS-SOP-69	Thread Ring Gauge	P
Length/Dimensional	0 to 300 mm -Effective Diameter and Taper	3.5 µm	GCTS-SOP-69	Taper Thread Plug Gauge	P
Length/Dimensional	4 to 100 mm -Effective Diameter and Taper	3.5 µm	GCTS-SOP-69	Taper Thread Ring Gauge	P
Length/Dimensional	(0.3 × 0.3) to (2 × 2) m	0.005 mm	GCTS-SOP-32 based on BS817	Surface Plates-Granite / Steel (Flatness) available only workshop and factory plates not relevant for reference plate for engineering purposes	P

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Length/Dimensional	300 mm	0.070 mm	GCST-SOP-19	Riffle Box (Length, Height, width, Thickness) etc.	P/S
Length/Dimensional	300 mm	0.070 mm	GCST-SOP-19	Slump Cone with Tamping Rod (Length, Height, width, Thickness) etc.	P/S
Length/Dimensional	600 mm	0.070 mm	GCST-SOP-19	Sand Cone Density Apparatus (Length, Height, width, Thickness) etc.	P/S
Length/Dimensional	350 mm	0.070 mm	GCST-SOP-19	Flakiness Gauge/Length Gauge/Compacting Bar (Length, Height, width, Thickness) etc.	P/S
Length/Dimensional	300x300x300 mm Diameter: 300 mm	0.070 mm	GCST-SOP-19	Cube Mould/Cylinder Mould/Compaction Mould/CBR Mould (Length, Height, width, Thickness) etc.	P/S
Length/Dimensional	Up to 30 m	0.6 mm	GCTS-SOP-60	Measuring Tape	P
Length/Dimensional	Up to 1000 mm	0.6 mm	GCTS-SOP-60	Steel Rule	P
Length/Dimensional	25 to 150 mm ≥150 to 600 mm	3 μm	GCTS-SOP-49	Micrometre Setting Rod	P
Dimensional	(0.01 to 30) m	0.6 mm/m	GCTS-SOP-60	Measuring Tape and Steel Ruler	P

### **Calibration field 5: (Force)**

Version: 2.0

Date: 21<sup>st</sup> August 2025

Approved by: Atta Subhan

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Force	1 kN up to 3000 kN	0.27% of reading	Verification/Calibration of the force measuring system by force proving instruments in compression, acc .ISO 7500-1- <b>GCTS-SOP-02</b> & Alignment of upper machine platen acc. EN 12390-4 <b>GCTS-SOP-42</b>	Force/Material Testing Machines in Compression	S
Force	1 kN up to 250 kN	0.27% of reading	Verification/Calibration of the force measuring system by force proving instruments in compression, acc .ISO 7500-1 GCTS-SOP-02	Force/Flexural Strength Material Testing Machines	S
Force	1 kN up to 50kN	1 % of reading	Verification/Calibration of the force measuring system by force proving instruments in compression, <b>GCTS-SOP-30</b>	Force/Proving Ring, Load cell with indicator for CBR, Marshall Testing Machines	P & S
Force	1 kN up to 3000 kN	0.48 % of reading	Verification of the force measuring system by force proving instruments in compression, acc. ASTM E4, GCTS-SOP-57	Force/Material Testing Machines in Compression	S
Force	0.5 kN up to 50 kN	0.48 % of reading	Verification of the force measuring system by force proving instruments in tension, acc. ASTM E4, GCTS-SOP-58	Force/Material Testing Machines in Tension	S
Force	(100 to 20000) kg	0.5% of applied load	<b>GCTS-SOP-73</b>	Crane Scale/ Dynamometer	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

**Calibration field 6: (Pressure)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty ( $k = 2$ ) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Gauge Pressure	100 kPa to 0 kPa	0.05 kPa	Comparison method, acc. DKD-R 6-1:2014, GCTS-SOP-04	Gas Pressure (Negative Gauge)/Digital & Analogue Indicating Devices	P & S
Gauge Pressure	0.01 MPa to 3.5 MPa	1 kPa	Comparison method, acc. DKD-R 6-1:2014, GCTS-SOP-03	Gas Pressure (Gauge)/Digital & Analogue Indicating Devices	P & S
Gauge Pressure	0.1 MPa to 140 MPa	$8 \times 10^{-5} \text{pe} + 50 \text{ Pa}$	Pressure generated by dead weight tester, acc. DKD-R 6-1:2014, GCTS-SOP-31	Hydraulic Pressure (Gauge)/Digital & Analogue Indicating Devices	P
Gauge Pressure	0.1 Mpa to 300 Mpa	0.1% of F. S	Comparison Method, acc. DKD-R 6-1:2014, GCTS-SOP-03	Hydraulic Pressure (Gauge)-/Digital & Analogue Indicating Devices & Transmitters	P & S
Gauge Pressure	0.01 Mpa to 12 Mpa	0.01 % of F. S	Pressure generated by dead weight tester, acc. DKD-R 6-1:2014 GCTS-SOP-31	Gas Pressure (Gauge) /Digital & Analogue Indicating Devices	P
Pressure	0 to 1.5 bar	0.01 bar	Internal Procedure GCTS-SOP-38	Autoclave Pressure using Data Logger	P/S

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

## Calibration field 7: (Electrical)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Electrical – DC Voltage Measure	0 mV to 600 mV > 0.60 V to 6 V >6.0 V to 60 V >60.0 V to 600 V >600 V to 1000 V	0.24 mV 8.9 mV 89 mV 0.89 V 4.2 V	Direct Method using Fluke 179 DMM + Internal Procedure GCTS-SOP- 52	DC Voltage Generating Equipment	P & S
DC High Voltage - Measure	1 kV to 30 kV	20 x 10 <sup>-3</sup> U <b>U = Measured voltage value</b>	Direct Method using Fluke 179 DMM & High Voltage Probe (GCTS-SOP- 52)	DC High Voltage Generating Equipment	P & S
Electrical – AC Voltage -Measure	0 mV to 600 mV @ 45 Hz to 1 kHz >0.6 V to 6 V @ 45 Hz to 1 kHz > 6.0 V to 60 V @ 45 Hz to 1 kHz >60.0 V to 600 V @ 45 Hz to 1 kHz >600 V to 1000 V @ 45 Hz to 1 kHz	0.46 mV 0.073 V 0.73 V 7.3 V 16 V	Direct Method using Fluke 179 DMM GCTS-SOP- 52	AC Voltage Generating Equipment	P & S
Electrical – AC High Voltage – Measure	1 kV to 28 kV	20 x 10 <sup>-3</sup> U U = Measured voltage value	Direct Method using Fluke 179 DMM & High Voltage Probe GCTS-SOP- 52	AC High Voltage Generating Equipment	P & S
Electrical – AC High Voltage – Source- High Voltage Probe with Digital Multi meter	1 to 25KV AC	0.5 kV	Direct Method – GCTS-SOP-52	AC High Voltage -Measuring Equipment	P
DC High Voltage Source – High Voltage Probe with Digital Multi meter	1 to 12.5 KV DC	0.5 kV	Direct Method – GCTS-SOP-52	DC High Voltage Measuring Equipment	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Electrical – Frequency -Measure	1 Hz to 99.99 Hz 100.0 Hz to 999.9 Hz 1 kHz to 9.99 kHz 10.00 kHz to 99.99 kHz	0.13 Hz 1.3 Hz 13 Hz 0.13 kHz	Direct Method using Fluke 179 DMM <b>GCTS-SOP- 52</b>	Frequency / Signal Generators	P & S
Electrical – Resistance -Measure	0 Ω to 600 Ω >600 Ω to 6kΩ >6.0 Ω to 60kΩ >60.0 kΩ to 600kΩ >600 kΩ to 6MΩ >6.0 MΩ to 50 MΩ	6.4 Ω 64 Ω 0.64 kΩ 6.4 kΩ 64 kΩ 0.54 MΩ	Direct Method using Fluke 179 DMM GCTS-SOP- 52	Resistance – Generating Equipment	P & S
Electrical – DC Current -Measure	0 mA to 60 mA >60.0 mA to 400 mA >0.4A to 6 A >6.0 A to 10A	0.73 mA 5.0 mA 73 mA 0.15 A	Direct Method using Fluke 179 DMM GCTS-SOP- 52	DC Current -Generating equipment	P & S
Electrical – AC Current -Measure	0 mA to 60 mA @ 45 Hz to 1 kHz >60.0 mA to 400mA@ 45 Hz to 1 kHz > 0.40 A to 6 A @ 45 Hz to 1 kHz >6.0 A to 10 A @ 45 Hz to 1 kHz	1.1 mA 7.3 mA 0.11 A 0.21 A	Direct Method using Fluke 179 DMM GCTS-SOP- 52	AC Current - Generating equipment	P & S
AC Voltage -Measure	0 mV to 600 mV @ 45 Hz to 1 kHz	0.073 mV	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	AC Voltage - Generating equipment	P
	>0.6 V to 6 V @ 45 Hz to 1 kHz	0.026 V			
	> 6.0 V to 60 V @ 45 Hz to 1 kHz	0.007 V			
	>60.0 V to 600 V @ 45 Hz to 1 kHz	0.078 V			
	>600 V to 1000 V @ 45 Hz to 1 kHz	0.59 V			

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

DC Voltage -Measure	0 mV to 600 mV	0.013 mV	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	DC Voltage -Sources	P
	> 0.60 V to 6 V	0.00003 V			
	>6.0 V to 60 V	0.0089 V			
	>60.0 V to 600 V	0.089 V			
	>600 V to 1000 V	0.037 V			
DC Current -Measure	0 mA to 60 mA	0.058 mA	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	DC Current -Sources	P
	>60.0 mA to 400 mA	0.043 mA			
	>0.4A to 6 A	0.001 A			
	>6.0 A to 10A	0.008 A			
AC Current -Measure	0 mA to 60 mA @ 45 Hz to 1 kHz	0.12 mA	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	AC Current -Sources	P
	>60.0 mA to 400mA@ 45 Hz to 1 kHz	0.27 mA			
	> 0.40 A to 6 A @ 45 Hz to 1 kHz	0.001 A			
	>6.0 A to 10 A @ 45 Hz to 1 kHz	0.025 A			
Frequency-Measure	1 Hz to 99.99 Hz	0.008 Hz	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	Frequency-Sources (Counters etc.)	P
	100.0 Hz to 999.9 Hz	0.008 Hz			
	1 kHz to 9.99 kHz	0.006 kHz			
	10.00 kHz to 99.99 kHz	0.006 kHz			
Resistance -Measure	0 Ω to 600 Ω	0.02 Ω	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	Resistance -Sources	P
	>600 Ω to 6kΩ	0.003 Ω			
	>6.0 Ω to 60kΩ	0.007 Ω			
	>60.0 kΩ to 600kΩ	0.007 kΩ			
	>600 kΩ to 6MΩ	0.04 MΩ			
	>6.0 MΩ to 100 MΩ	0.54 MΩ			
Capacitance-Measure	0 to 1nF	0.025 nF	Direct Method using Fluke 8846 DMM GCTS-SOP- 52	Capacitance- Sources	P
	> 1 to 10 nF	0.09 nF			
	>10 to 100 nF	0.87 nF			

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Temperature- by electrical simulation <b>RTD</b>	-200°C to 850°C	0.5°C	Direct Method as per GCTS-SOP-53	RTDs (Resistance Temperature Detectors, Transmitters & Indicators)	P & S
Temperature- by electrical simulation <b>K TYPE T/C</b>	-200°C to 1370°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>J TYPE T/C</b>	-210°C to 1200°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>T TYPE T/C</b>	-250°C to 400°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>R TYPE T/C</b>	0°C to 1760°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>S TYPE T/C</b>	0°C to 1760°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>N TYPE T/C</b>	-200°C to 1300°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>B TYPE T/C</b>	600°C to 1820°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>E TYPE T/C</b>	-250°C to 1000°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation <b>L TYPE T/C</b>	-200°C to 900°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Temperature- by electrical simulation U TYPE T/C	-200°C to 600°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation C TYPE T/C	0°C to 2300°C	0.6°C	Direct Method as per GCTS-SOP-53	Thermocouples, Transmitters & Indicators	P & S
Temperature- by electrical simulation - RTD MEASURE	-200 °C to 850 °C	0.5 °C	Direct Method using Beamex MC6 /Beamex MC2 Multi-Function Calibrator GCTS-SOP- 53	RTD PT100 -Source	P & S
Temperature- by electrical simulation - TC MEASURE	-200°C to 1370°C	0.6 °C	Direct Method using Transmille 3050 A Multi-Function Calibrator & Thermocouple Simulator/ Beamex MC6 Multi-Function Calibrator GCTS-SOP- 53	Thermocouple K Type – Source	P & S
Temperature- by electrical simulation - TC MEASURE	-210°C to 1200°C	0.6 °C	Direct Method using Transmille 3050 A Multi-Function Calibrator & Thermocouple Simulator/ Beamex MC6 Multi-Function Calibrator GCTS-SOP- 53	Thermocouple J Type – Source	P & S
Temperature- by electrical simulation - TC MEASURE	-250°C to 400°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple T Type - Source	P & S
Temperature- by electrical simulation - TC MEASURE	0°C to 1760°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple R Type – Source	P & S
Temperature- by electrical simulation	0°C to 1760°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple S Type – Source	P & S
Temperature- by electrical simulation	-200°C to 1300°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple N Type – Source	P & S

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Temperature- by electrical simulation	600°C to 1820°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple B Type – Source	P & S
Temperature- by electrical simulation	-250°C to 1000°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple E Type – Source	P & S
Temperature- by electrical simulation	-200°C to 900°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple L Type – Source	P & S
Temperature- by electrical simulation	-200°C to 600°C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple U Type – Source	P & S
Temperature- by electrical simulation	0°C to 2300C	0.6 °C	Direct Method as per GCTS-SOP-53	Thermocouple C Type -Source	P & S
DC Voltage -Source	0 mV to 100 mV > 0.10 V to 1 V >1.0 V to 10 V >10.0 V to 100 V >100.0 V to 1000 V	0.022 mV 0.13 mV 1.3 mV 90 mV 0.13 V	Direct Method using Transmille 1000 A Portable Multi-Function Calibrator GCTS-SOP- 52	Multimeter(s) & other measuring equipment	P & S
AC Voltage -Source	0 mV to 100 mV > 0.10 V to 1 V >1.0 V to 10 V >10.0 V to 100 V >100.0 V to 1000 V	0.2 mV 0.77 mV 14 mV 0.17 V 2.4 V	Direct Method using Transmille 1000 A Portable Multi-Function Calibrator GCTS-SOP- 52	Multimeter(s) & other measuring equipment	P & S
DC Current-Source	0 µA to 100 µA >0.10 mA to 1 mA >1.0 mA to 10mA >10.0 mA to 100 mA >0.10 A to 1 A >1.0 A to 10A	0.07 µA 0.46 µA 4.6 µA 46 µA 0.52 mA 8.3 mA	Direct Method using Transmille 1000 A Portable Multi-Function Calibrator GCTS-SOP- 52	DC current – Measuring equipment	P & S

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

DC Current-Source	10 A to 1000 A	$10 \times 10^{-3} \times I$	Direct Method using Portable Multi-Function Calibrator (Transmille 1000 A) & 2,10 & 50 turn current coil, I=Measured current value GCTS-SOP- 52	DC current – Measuring equipment	P & S
AC Current-Source	10 A to 1000A@ 45 Hz to 200 Hz	$10 \times 10^{-3} \times I$	Direct Method using Portable Multi-Function Calibrator (Transmille 1000 A) & 2,10 & 50 turn current coil I =Measured current value GCTS-SOP- 52	AC current – Measuring equipment	P & S
AC Current-Source	0 $\mu$ A to 100 $\mu$ A @ 45 Hz to 1 kHz >0.10 mA to 1 mA@ 45 Hz to 1 kHz >1.0 mA to 10 mA @ 45 Hz to 1 kHz >10.0 mA to 100mA@ 45 Hz to 1 kHz > 0.10 A to 1 A @ 45 Hz to 1 kHz >1.0 A to 10 A @ 45 Hz to 1 kHz	0.6 $\mu$ A 2.6 $\mu$ A 22 $\mu$ A 0.22 mA 2.2 mA 0.03 A	Direct Method using Transmille 1000 A Portable Multi-Function Calibrator GCTS-SOP- 52	AC current – Measuring equipment	P & S
Capacitance-Source	10 nF 100 nF 1 $\mu$ F	0.1 nF 1.0 nF 20 nF	Direct Method using Transmille 1000 A Portable Multi-Function Calibrator GCTS-SOP- 52	Capacitance– Measuring equipment	P & S
Resistance-Source	0 $\Omega$ to 10 $\Omega$ >10 $\Omega$ to 100 $\Omega$ >100.0 $\Omega$ to 1 k $\Omega$ >1.0 k $\Omega$ to 10 k $\Omega$ >10.0 k $\Omega$ to 100 k $\Omega$ >100.1 k $\Omega$ to 1 M $\Omega$ >1 M $\Omega$ to 10 M $\Omega$	0.07 $\Omega$ 0.08 $\Omega$ 0.29 $\Omega$ 2.4 $\Omega$ 0.024 k $\Omega$ 0.25 k $\Omega$ 4.1 k $\Omega$	Simulation Method using Transmille 1000 A Portable Multi-Function Calibrator GCTS-SOP- 52	Resistance– Measuring equipment	P & S

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

DC Voltage-Source	0.0 mV to 200 mV > 0.20 V to 2 V >2.0 V to 20 V >20.0 V to 200 V >200.0 V to 1000 V	0.016 mV 0.2 mV 1.5 mV 15 mV 81 mV	Direct Method using Transmille 3050 A/3041A Multi-Function Calibrator GCTS-SOP- 52	DC Voltage – Measuring equipment	P
AC Voltage-Source	0.0 mV to 200 mV @ 45 Hz to 1 kHz >0.20 V to 2 V @ 45 Hz to 1 kHz > 2.0 V to 20 V @ 45 Hz to 1 kHz >20.0 V to 200 V @ 45 Hz to 1 kHz >200.0 V to 1000 V @ 45 Hz to 1 kHz	0.14 mV 1.2 mV 12 mV 0.14 V 0.72 V	Direct Method using Transmille 3050 A/3041A Multi-Function Calibrator GCTS-SOP- 52	AC Voltage – Measuring equipment	P
Frequency-Source	1 Hz to 100 Hz >10 Hz to 1 kHz >1.0 kHz to 10.0 kHz >10.0 kHz to 100 kHz >100.0 kHz to 1.0 MHz >1.0 MHz to 10 MHz	0.0023 Hz 0.023 Hz 0.23 Hz 2.3 Hz 20 Hz 0.23 kHz	Direct Method using Transmille 3050 A/3041A Multi-Function Calibrator GCTS-SOP- 52	Frequency– Measuring equipment	P/S
DC Current	0.0 μA to 200 μA >0.20 mA to 2 mA >2.0 mA to 20mA >20.0 mA to 200 mA >0.20 A to 2 A >2.0 A to 30A	0.05 μA 0.3 μA 3.3 μA 40 μA 1.3 mA 13 mA	Direct Method using Transmille 3050 A/3041A Multi-Function Calibrator GCTS-SOP- 52	DC Current-Measuring equipment	P
DC Current	10 A to 1500 A	$10 \times 10^{-3} \times I$	Direct Method using Portable Multi-Function Calibrator (TRANSMILLE 3050 A / 3041 A) & 2,10 & 50 turn current coil $I = \text{Measured current value}$ GCTS-SOP- 52	DC Current- Measuring equipment	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

AC Current	10 A to 1500 A@ 45 Hz to 200 Hz	$10 \times 10^{-3} \times I$	Direct Method using Portable Multi-Function Calibrator (TRANSMILLE 3050 A / 3041 A) & 2,10 & 50 turn current coil I = Measured current value GCTS-SOP- 52	AC Current- Measuring equipment	P
AC Current	0 $\mu$ A to 200 $\mu$ A @ 45 Hz to 1 kHz >0.20 mA to 2 mA@ 45 Hz to 1 kHz >2.0 mA to 20 mA @ 45 Hz to 1 kHz >20.0 mA to 200mA@ 45 Hz to 1 kHz > 0.20 A to 2 A @ 45 Hz to 1 kHz >2.0 A to 30 A @ 45 Hz to 1 kHz	0.52 $\mu$ A 2.2 $\mu$ A 21 $\mu$ A 0.21 mA 2.7 mA 56 mA	Direct Method using Portable Multi-Function Calibrator (TRANSMILLE 3050 A / 3041 A) I = Measured current value GCTS-SOP- 52	AC Current- Measuring equipment	P
Capacitance	10 nF 20 nF 50 nF 100 nF 1 $\mu$ F	0.052 nF 0.11 nF 0.24 nF 0.48 nF 4.7 nF	Direct Method using Transmille 3050 A / 3041 A Multi-Function Calibrator (Fixed values only) GCTS-SOP- 52	Capacitance – Measuring equipment	P
Resistance	10 $\Omega$ 100 $\Omega$ 1 k $\Omega$ 10 k $\Omega$ 100 k $\Omega$ 1 M $\Omega$ 10 M $\Omega$ 100 M $\Omega$	13 m $\Omega$ 16 m $\Omega$ 0.12 $\Omega$ 1.2 $\Omega$ 12 $\Omega$ 0.22 k $\Omega$ 7.4 k $\Omega$ 0.75 M $\Omega$	Direct Method using Transmille 3050 A / 3041 A Multi-Function Calibrator GCTS-SOP- 52	Resistance Source Fixed values only-2 WIRE	P
Insulation Resistance	0.01 M $\Omega$ to 5 M $\Omega$ >5 M $\Omega$ to 2 G $\Omega$	$10 \times 10^{-3} \times R$ $39 \times 10^{-3} \times R$	Direct Method using 3200B Electrical Test Calibrator R = Measured resistance value	Insulation Resistance Tester(s)	P
Insulation Resistance- Voltage	50 V to 1000 V	$30 \times 10^{-3} \times U$	Direct Method using 3200B Electrical Test Calibrator U = Measured resistance value	Insulation Resistance Tester(s)	P

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Insulation Resistance-DC Current	0.5 mA & 1 mA	20 $\mu$ A	Direct Method using 3200B Electrical Test Calibrator	Insulation Resistance Tester(s)	P
Continuity Resistance	100 m $\Omega$ to 900 m $\Omega$ 1 $\Omega$ to 2 $\Omega$ >2 $\Omega$ to 900 $\Omega$ 1 k $\Omega$ to 50 k $\Omega$	40 m $\Omega$ 50 m $\Omega$ 20 X 10 <sup>-3</sup> X R 20 X 10 <sup>-3</sup> X R	Direct Method using 3200B Electrical Test Calibrator R = Measured resistance value	Continuity Testers	P
Continuity Current	10 mA to 100 mA >100 mA to 300 mA	2.0 mA 5.0 mA	Direct Method using 3200B Electrical Test Calibrator	Continuity Testers	P
AC Voltage-Source	100 V to 400 V @ 50 Hz	5.0 X 10 <sup>-3</sup> X U	Direct Method using 3200B Electrical Test Calibrator U = Measured resistance value	AC Voltage – Measuring Equipment	P
Loop Impedance Resistance	0.05 $\Omega$ to 10.0 $\Omega$ 100 $\Omega$ 900.0 $\Omega$	0.5 $\Omega$ 6.0 $\Omega$ 10 $\Omega$	Direct Method using 3200B Electrical Test Calibrator	Loop Impedance Tester(s)	P
RCD Current	2 mA to 10 mA 10.01 mA to 30 mA 30.01 mA to 100 mA 100.01 mA to 300 mA 300.01 A to 1000 mA 1000.01 mA to 3000 mA	0.2 mA 0.5 mA 1.6 mA 4.5 mA 15 mA 30 mA	Direct Method using 3200B Electrical Test Calibrator	Residual Current Devices	P
RCD Trip Time	20 ms to 390 ms 900 ms	1.3 ms 20 ms	Direct Method using 3200B Electrical Test Calibrator	Residual Current Devices (RCDs)	P
PAT Insulation Resistance	1 M $\Omega$ to 10 M $\Omega$	10 X 10 <sup>-3</sup> X R	Direct Method using 3200B Electrical Test Calibrator R = Measured resistance value	PAT Tester(s)	P
PAT Earth Bond Resistance	0.05 $\Omega$ to 1.0 $\Omega$ >1 $\Omega$ to 900.0 $\Omega$	20 m $\Omega$ 20 X 10 <sup>-3</sup> X R	Direct Method using 3200B Electrical Test Calibrator R = Measured resistance value	PAT Tester(s)	P

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Earth Bond Current Measurement	0 mA to 500 mA 1 A to 10 A 11 A to 30 A	16 mA 0.2 A 0.6 A	Direct Method using 3200B Electrical Test Calibrator	PAT Tester(s)	P
PAT Leakage Current	2 mA to 8 mA @ 240 V	20 $\mu$ A	Direct Method using 3200B Electrical Test Calibrator	PAT Tester(s)	P

### **Calibration field 8: (Tachometer)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty ( $k = 2$ ) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
RPM	240 rpm to 20,000 rpm	2 rpm	GCTS-SOP-54 using Transmille EA015 Multi-Function Workstation	RPM Tachometers Non-contact	P

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

**Calibration field 9: (Volume)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Volume	(1 to 100) µl (100 to 500) µl (500 to 1000) µl (1 to 10) ml	0.20 µl 0.51 µl 0.86 µl 10 µl	GCTS-SOP-51 based on ISO 8655-6, ISO/TR 20461 & ISO/TR 20461 Corr1:2008	Piston Operated Volumetric Apparatus (Micro-Pipettes & Pipettes)	P
Volume	(1 to 50) ml (>50 to 500) ml (> 500 to 2000) ml	0.05 ml 0.41 ml 1.3 ml	GCTS-SOP-25 based on ISO 4787 & EURAMET cg19	Volumetric Glass Wares (Measuring flasks)	P
Volume	(1 to 10) ml (5 to 25) ml (10 to 100) ml (25 to 250) ml (50 ml to 500) ml (100 ml to 1000) ml (200 ml to 2000) ml	0.06 ml 0.3 ml 0.73 ml 0.85 ml 3.2 ml 6.7 ml 10 ml	GCTS-SOP-25 based on ISO 4787 & EURAMET cg19	Volumetric Glass Wares (Measuring cylinders)	P

## AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

Volume	(0.1 to 1) ml (>1 ml to 10) ml (> 10 to 50) ml	0.012 ml 0.02 ml 0.04 ml	GCTS-SOP-25 based on ISO 4787 & EURAMET cg19	Volumetric Glass Wares (Graduated Pipettes)	P
Volume	1 ml to 50 ml	0.03 ml	GCTS-SOP-25 based on ISO 4787 & EURAMET cg19	Volumetric Glass Wares (Bulb Pipettes – Single Volume)	P
Volume	1 ml to 50 ml	0.03 ml	GCTS-SOP-25 based on ISO 4787 & EURAMET cg19	Volumetric Glass Wares (Graduated Burettes)	P

### Calibration field 20: (Chemical)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Chemical	(4, 7, 10) PH @ 25°C	0.06 PH	GCTS-SOP-67	PH Meter	P/S
	1413 µS/cm @ 25°C	1.3 µS/cm	GCTS-SOP-67	Conductivity Meter	

### Calibration field 20: (Volume)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Volume	0 to 60 ml	0.09 ml	GCTS-SOP-61	Bottle Top Dispenser	P/S

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

## Calibration field 21: (Torque)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Torque	(0.5 to 5) N.m	1% of set/Indicated value	GCTS-SOP-63	Torque Wrench	P
	(40 to 400) N.m				
	(>400 to 2000) N.m				

## Calibration field 22: (Time)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Time	Up to 1 hr	0.2 s	GCTS-SOP-65	Timer/Stop Watch	P/S

## Calibration field 23: (Rotational Speed)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Rotational Speed	0.5 to 99999 rpm	2.5 rpm	GCTS-SOP-66	Centrifuge	P/S

## Calibration field 24: (Acoustic)

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Acoustic	(94, 114) dB	0.4 dB	GCTS-SOP-34	Sound Level Meter	P/S
	(94, 114) dB	0.4 dB	GCTS-SOP-34	Sound Level Calibrator	

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

**Calibration field 25: (Illuminance)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Illuminance	10 to 20000 lux	20 Lux	GCTS-SOP-35	Lux Meter	P

**Calibration field 26: (Air Velocity)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Air Velocity	(2.5 to 15) m/s	0.51 m/s	GCTS-SOP-33	Anemometer	P

**Calibration field 27: (Gas Flow)**

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal Procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
Gas Flow	(0.05 to 0.5) lpm	0.05 lpm	GCTS-SOP-59	Gas Flow Meter/Rotameter	P/S
	(> 0.5 to 20) lpm	0.3 lpm			
	(>20 to 50) lpm	0.5 lpm			

# AC 10.15 Accreditation Certificate and Scope – ISO/IEC 17025:2017 Calibration

\*: Put only 'P', 'S' or 'P and S'

\*\*Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMC's represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

**Note:** the text in blue indicates the new scope OR update in the Edition/Version/Year number of a calibration method/standard/SOP in this issue of the scope of accreditation

### Log of Suspended Scopes:

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty ( $k = 2$ ) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *	Date Suspended	Date Reinstated

### Log of Withdrawn Scopes:

**END**

Status of this accreditation can be checked in the GAC's website to confirm the validity of this accreditation - <https://www.gac.org.sa/en/>