

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 0505 Accredited to ISO/IEC 17025:2017	Ramcare Ltd Issue No: 037 Issue date: 03 February 2025	
	31-37 Penhill Road Lancing West Sussex BN15 8HA	Contact: Mr D G Patel Tel: +44 (0)1903 762555 Fax: +44 (0)1903 762666 E-Mail: info@ramcare.ltd.uk Website: www.ramcare.co.uk
Calibration performed by the Organisations at the locations specified below		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 31-37 Penhill Road Lancing West Sussex BN15 8HA	Local contact Mr D G Patel Tel: +44 (0)1903 762555 Fax: +44 (0)1903 762666 Email: info@ramcare.ltd.uk	Electrical Humidity Temperature Pressure Rotational Speed Carbon Dioxide content	Lab & Site

Site activities performed away from the locations listed above:

Location details	Activity	Location code
The customers' site or premises must be suitable for the nature of the particular calibrations undertaken and will be the subject of contract review arrangements between the laboratory and the customer.	Electrical Humidity Temperature Pressure Rotational Speed Carbon Dioxide content	Site



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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
The method followed for all electrical calibrations of both sources and measuring instruments is by direct comparison of the unit under test against laboratory references, unless otherwise stated in the remarks column. All other calibrations are by comparison with reference instruments unless otherwise stated, Generation means that these values can be supplied for the calibration of measuring devices and Measurement means that devices with an output can be calibrated.				
ELECTRICAL				
DC VOLTAGE				
Generation	0 mV to 150 mV 150 mV to 500 mV 500 mV to 12 V 12 V to 24 V	15 μ V 40 μ V 8.0 mV 2.0 mV		Lab & Site
Measurement	0 mV to 100 mV 100 mV to 1000 V	10 μ V 66 μ V		Lab
	0 mV to 1 V 1 V to 60 V	10 μ V 8.0 μ V		Site
DC CURRENT				
Generation	0 mA to 25 mA 25 mA to 55 mA	3.0 μ A 4.0 μ A		Lab & Site
Measurement	0 mA to 100 mA 100 mA to 1 A	70 μ A 3.3 mA		Lab
	0 mA to 100 mA	6.0 μ A		Site
RESISTANCE				
Generation	0 Ω to 400 Ω 400 Ω to 1 k Ω 1 k Ω to 4 k Ω	20 m Ω 70 m Ω 300 m Ω		Lab & Site
Measurement	0 Ω to 100 Ω 100 Ω to 100 k Ω 100 k Ω to 1 M Ω	40 m Ω 14 Ω 10 k Ω		Lab
	0 Ω to 2 k Ω 2 k Ω to 4 k Ω	120 m Ω 190 m Ω		Site
AC VOLTAGE				
Measurement	200 Hz 0 V to 700 V	800 mV		Lab
AC CURRENT				
Measurement	60 Hz 0 A to 2 A	6 mA		Lab



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
TEMPERATURE SIMULATION				
Temperature indicators, simulators, recorders, controllers and transmitters, calibration by electrical simulation				
Base metal thermocouple Generate and Measure			including cold junction compensation	Lab & Site
Type E	-250 °C to -200 °C -200 °C to 0 °C 0 °C to 990 °C	1.0 °C 0.76 °C 0.37 °C		
Type J	-200 °C to 0 °C 0 °C to 1190 °C	0.46 °C 0.39 °C		
Type K	-200 °C to +1370 °C	0.50 °C		
Type N	-200 °C to 0 °C 0 °C to 1290 °C	0.51 °C 0.35 °C		
Type T	-250 °C to -200 °C -200 °C to -150 °C -150 °C to +390 °C	0.86 °C 0.43 °C 0.37 °C		
Noble metal thermocouple Generate			including cold junction compensation	Lab & Site
Type R	0 °C to 1760 °C	0.73 °C		
Type S	0 °C to 1760 °C	0.65 °C		
Measurement				
Type R	0 °C to 1760 °C	0.74 °C		
Type S	0 °C to 1760 °C	0.66 °C		
Pt 100 Generate	-200 °C to +850 °C	0.090 °C		Lab & Site
Measurement	-200 °C to 0 °C 0 °C to 160 °C 160 °C to 800 °C	0.07 °C 0.11 °C 0.28 °C		
Cold junction compensation	At ambient temperature Source and measurement	0.23 °C		Lab



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
ROTATIONAL SPEED Centrifuges, motor shafts Generation and measurement Measurement Generation	 6 RPM to 90 RPM 90 RPM to 900 RPM 900 RPM to 90 000 RPM 10 RPM to 5 000 RPM 250 RPM to 5 000 RPM	 0.10 RPM 0.91 RPM 9.2 RPM 5.5 RPM 7.0 RPM	 Optically triggered devices Mechanically driven .	 Lab & Site
PRESSURE Pneumatic Pressure (gauge) Calibration of pressure indicating instruments and gauges Hydraulic Pressure (gauge) Calibration of pressure indicating instruments and gauges	 - 95 kPa to -2 kPa -2 kPa to 0 kPa 0 kPa to 2 kPa 2 kPa to 2 MPa 2 MPa to 6 MPa 6 MPa to 20 MPa 6 MPa to 20 MPa	 2.7 kPa 35 Pa 14 Pa 3.0 kPa 27 kPa 0.30 MPa 0.30 MPa	 Methods consistent with EURAMET CG17. Measure only	 Lab & Site Lab & Site
TEMPERATURE Resistance thermometers, thermocouples and electronic thermometers with sensors including probes with indicators Temperature controlled, incubators, ovens, environmental chambers, fridges/refrigerators and freezers (inclusive of associated indicators, controllers and recorders) Dry Block Calibrator Temperature measurements in air Temperature controlled, air- pressurised enclosures (autoclaves)	 -196 °C -100 °C to +140 °C 140 °C to 600 °C 600 °C to 1000 °C -196 °C to -100 °C -100 °C to +160 °C 160 °C to +200 °C 200 °C to 600 °C 600 °C to 1200 °C -100 °C to -50 °C -50 °C to +155 °C 155 °C to 600 °C 600 °C to 1200 °C -25 °C to 0 °C 0 °C to 60 °C 50 °C to +250 °C	 0.15 °C 0.19 °C 0.50 °C 2.7 °C 0.32 °C 0.20 °C 0.30 °C 1.5 °C 2.2 °C 0.15 °C 0.05 °C 0.40 °C 2.1 °C 0.32 °C 0.21 °C 1.8 °C	 Calibration by comparison In Liquid Nitrogen Within a block bath Single and multipoint time dependent temperature profiling, also referred to as spatial temperature surveying or mapping Including data loggers, wireless transmitters, controllers and process transmitters with sensors Calibration within a fixed or removeable metal insert in accordance with Euromet CG13 In portable chamber	 Lab & Site Site Lab Lab & Site Site



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HUMIDITY			Calibration by comparison with reference instruments	
Dewpoint	- 30 °C to + 20 °C +20 °C to +60 °C	0.29 °C 0.36 °C	In a humidity and temperature controlled chamber	Lab
Relative humidity instruments	5 %rh to 90 %rh <i>For the temperature range 0 °C to 10 °C</i>	0.5 %rh to 3.0 %rh 0.21 °C	Calibration by comparison with a reference chilled mirror hygrometer and platinum resistance thermometers	Lab
	5 %rh to 95 %rh <i>For the temperature range 10 °C to 45 °C</i>	0.5 %rh to 2.4 %rh 0.21 °C		
	5 %rh to 90 %rh <i>For the temperature range 45 °C to 60 °C</i>	0.5 %rh to 2.1 %rh 0.21 °C		
Relative humidity instruments	5 %rh to 90 %rh <i>For the temperature range 0 °C to 10 °C</i>	2.3 %rh 0.4 °C	Calibration by comparison with a reference thermohygrometer in a portable chamber	Lab & Site
	5 %rh to 95 %rh <i>For the temperature range 10 °C to 45 °C</i>	2.3 %rh 0.4 °C		
	5 %rh to 90 %rh <i>For the temperature range 45 °C to 60 °C</i>	2.3 %rh 0.4 °C		
Humidity controlled chambers (inclusive of associated indicators, controllers and recorders, all with sensors within the specified parameters and ranges)	5 %rh to 90 %rh 0 °C to 50 °C	2.7 %rh 0.4 °C	The quoted uncertainty will depend on the stability of the customers environment.	Site
GAS CONTENT			Calibration by comparison with a reference instrument	
Carbon Dioxide	Over the range 25 °C to 50 °C 0% to 5% 5% to 20 %	0.3% 1.0%	Gas Analyser	Lab
Carbon Dioxide	Over the range 0 °C to 50 °C 0% to 5% 5% to 20%	0.3% 1.0%	Single point calibration in the centre of the incubator	Site
END				



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Appendix - Calibration and Measurement Capabilities

Introduction

The definitive statement of the accreditation status of a calibration laboratory is the Accreditation Certificate and the associated Schedule of Accreditation. This Schedule of Accreditation is a critical document, as it defines the measurement capabilities, ranges and boundaries of the calibration activities for which the organisation holds accreditation.

Calibration and Measurement Capabilities (CMCs)

The capabilities provided by accredited calibration laboratories are described by the Calibration and Measurement Capability (CMC), which expresses the lowest measurement uncertainty that can be achieved during a calibration. If a particular device under calibration itself contributes significantly to the uncertainty (for example, if it has limited resolution or exhibits significant non-repeatability) then the uncertainty quoted on a calibration certificate will be increased to account for such factors.

The CMC is normally used to describe the uncertainty that appears in an accredited calibration laboratory's schedule of accreditation and is the uncertainty for which the laboratory has been accredited using the procedure that was the subject of assessment. The measurement uncertainty is calculated according to the procedures given in the GUM and is normally stated as an expanded uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. An accredited laboratory is not permitted to quote an uncertainty that is smaller than the published measurement uncertainty in certificates issued under its accreditation.

Expression of CMCs - symbols and units

It should be noted that the percentage symbol (%) represents the number 0.01. In cases where the measurement uncertainty is stated as a percentage, this is to be interpreted as meaning percentage of the measurand. Thus, for example, a measurement uncertainty of 1.5 % means $1.5 \times 0.01 \times q$, where q is the quantity value.

The notation $Q[a, b]$ stands for the root-sum-square of the terms between brackets: $Q[a, b] = [a^2 + b^2]^{1/2}$