


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <b>0335</b>  Accredited to <b>ISO/IEC 17025:2017</b>	<b>Glasgow City Council, trading as Glasgow Scientific Services</b>	
	Issue No: 042    Issue date: 13 August 2021	
	<b>Land &amp; Environmental Services Calibration and Test Centre Colston Laboratory 64 Everard Drive Glasgow G21 1XG</b>	<b>Contact: Tracy Macbeth Tel: +44 (0)1412 760660 Fax: +44 (0)1412 760640 E-Mail: caltest@glasgow.gov.uk Website: glasgow.gov.uk</b>

**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
<b>Address</b> Land & Environmental Services Calibration and Test Centre Colston Laboratory 64 Everard Drive Glasgow G21 1XG	<b>Local contact</b> T Macbeth	Mass Temperature Volume  P

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customers' sites or premises  The customer's sites or premises must be suitable for the nature of the particular calibrations undertaken and will be subject of contract review arrangements between the laboratory and the customer	Mass - weighing machines (non-automatic)  Temperature	S



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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
MASS  See Notes 1 to 3	Nominal value (g)	(mg)	NOTES  1 Intermediate values can be calibrated with an uncertainty not less than that interpolated from the next higher and lower nominal value in the table.  2 Calibrations can be given in other units as required  3 Calibration by Borda's method of substitution	P
	25 000	250		
	20 000	20		
	10 000	10		
	5 000	5.0		
	2 000	2.0		
	1 000	1.0		
	500	0.25		
	200	0.10		
	100	0.050		
	50	0.030		
	20	0.025		
	10	0.020		
	5	0.015		
	2	0.012		
	1	0.010		
	0.5	0.0080		
	0.2	0.0060		
	0.1	0.0050		
	0.05	0.0040		
	0.02	0.0030		
	0.01	0.0030		
	0.005	0.0020		
	0.002	0.0020		
	0.001	0.0020		



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
NON AUTOMATIC WEIGHING MACHINES  See notes 4 to 6	5 mg 50 mg 200 mg 500 mg  1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g  1 kg 2 kg 5 kg 10 kg 20 kg 30 kg 50 kg 100 kg 200 kg 500 kg 1000 kg 2000 kg	0.0030 mg 0.0061 mg 0.0091 mg 0.012 mg  0.015 mg 0.018 mg 0.024 mg 0.033 mg 0.045 mg 0.074 mg 0.14 mg 0.28 mg 0.69 mg  1.9 mg 3.8 mg 9.6 mg 19 mg 39 mg 58 mg 0.80 g 1.7 g 4.4 g 10 g 19 g 43 g	4 Weights are available in OIML Class  E2 from 1 mg to 500 g Max grouped load 900 g  F1 from 1 g to 20 kg Max grouped load 41 kg  M1 from 1 g to 20 kg Max. grouped load 2541 kg  5 Other loads within the overall listed range may also be used  6 Calibration based on EURAMET CG-18	S
TEMPERATURE  See Notes 7 to 10				P
Liquid-in-glass thermometers	-30 °C to +250 °C	0.020 °C	7 By comparison in a liquid bath	
Electronic thermometers with sensors	-30 °C to +250 °C	0.020 °C	8 By comparison in a liquid bath	
	250 °C to 600 °C	2.0 °C	9 By comparison in a dry block	
Temperature controlled incubators, ovens, furnaces, environmental chambers, fridges/refrigerators and freezers (inclusive of associated indicators, controllers and recorders within the specified parameters and ranges)	-30 °C to +250 °C	1.0 °C	10 Multipoint time dependent temperature profiling, also referred to as spatial temperature surveying or mapping	S
	250 °C to 600 °C	2.0 °C		



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
VOLUME of liquids  See notes 11 and 12	2 000 cm <sup>3</sup> to 100 litres 2 000 cm <sup>3</sup> 1 000 cm <sup>3</sup> 500 cm <sup>3</sup> 200 cm <sup>3</sup> 100 cm <sup>3</sup> 50 cm <sup>3</sup> 20 cm <sup>3</sup> 10 cm <sup>3</sup> 5 cm <sup>3</sup> 2 cm <sup>3</sup> 1 cm <sup>3</sup>	0.010 % of volume 0.12 cm <sup>3</sup> 0.08 cm <sup>3</sup> 0.050 cm <sup>3</sup> 0.030 cm <sup>3</sup> 0.020 cm <sup>3</sup> 0.010 cm <sup>3</sup> 0.0060 cm <sup>3</sup> 0.0040 cm <sup>3</sup> 0.0030 cm <sup>3</sup> 0.0030 cm <sup>3</sup> 0.0020 cm <sup>3</sup> See note 11	11 Calibration is normally undertaken at a reference temperature of 20 °C unless otherwise reported.  12 Gravimetric determination based on ISO 4787 or NNWML 7321	P
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:  $Q[a, b] = [a^2 + b^2]^{1/2}$