

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS CALIBRATION</p> <p>4554</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>Acoustical Investigation & Research Organisation Ltd (AIRO)</p> <p>Issue No: 011 Issue date: 19 May 2025</p>	
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<p>Calibration performed at the above address only</p>		

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
ACOUSTICS			
Tapping Machines			
Velocity	0.786 m/s to 0.986 m/s	0.013 m/s	In support of verification to BS EN ISO 140-7:1998 (Withdrawn), BS EN ISO 10140-5:2021 and BS EN ISO 16283-2:2020 Calibration performed using Optical Sensors and Oscilloscope
Mass	480 g to 520 g	0.78 g	Calibration performed using Digital Weighing Machine
Time	20 ms to 500 ms	1.75 ms	Between successive hammer impacts Calibration performed using Optical Sensors, Accelerometer and Oscilloscope
	20 ms to 500 ms	3.78 ms	Between hammer impact and lift Calibration performed using Optical Sensors, Accelerometer and Oscilloscope
Length	10 mm to 150 mm	0.020 mm	Calibration performed using Measures or Vernier Caliper
Radius of curvature	350 mm to 650 mm	27 mm	Calibration performed using an engineers square and feeler gauges.



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
ACOUSTICS (Cont'd) Tapping Machines (Cont'd) Angle of fall	0° to 0.5°	0.19°	Calibration performed using Annular Ring Alignment Gauges
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: $Q[a, b] = [a^2 + b^2]^{1/2}$