


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>0361</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>Pennine Instrument Services Limited</p> <p>Issue No: 044 Issue date: 21 November 2023</p>	
	<p>Unit 3 Shepcote Enterprise Park 2 3 Europa Drive Sheffield S9 1XT</p>	<p>Contact: Mr G E Bell Tel: +44 (0)1142 730534 Fax: +44 (0)1142 751818 E-Mail: calibration@pennineinstruments.co.uk Website: www.pennineinstruments.co.uk</p>
<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
ELECTRICAL CALIBRATION			
All electrical measurements are carried out using the method of direct comparison or transfer to laboratory reference standards unless otherwise determined in the remarks column. The measurement and generation headings in the first column declare the laboratory's ability to either measure outputs of submitted test items or to generate values as a stimulus for test items which measure.			
DC Voltage			
Measurement	0 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1100 V 1 kV to 4 kV 4 kV to 6 kV 6 kV to 8 kV 8 kV to 10 kV 10 kV to 15 kV 15 kV to 20 kV 20 kV to 25 kV 25 kV to 30 kV 30 kV to 35 kV 45 kV to 40 kV	9.0 μ V/V + 0.60 μ V 5.0 μ V/V 4.0 μ V/V 7.0 μ V/V 7.0 μ V/V 0.49 % + 6.0 V 0.49 % + 6.1 V 0.61 % + 6.3 V 0.60 % + 6.6 V 0.72 % + 35 V 0.72 % + 35 V 0.72 % + 57 V 0.72 % + 68 V 0.72 % + 78 V 0.72 % + 97 V	These values can be generated for the calibration of measuring instruments, Outputs of instruments can be measured directly
Generation	0 mV to 330 mV 330 mV to 3.3 V 3.3 V to 33 V 33 V to 330 V 330 V to 1020 V	13 μ V/V + 1.6 μ V 8.0 μ V/V 9.0 μ V/V 11 μ V/V 12 μ V/V	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks
AC Voltage Measurement	1 mV to 12 mV 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 12 mV to 120 mV 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz 1 MHz to 2 MHz 120 mV to 1.2 V 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz 1 MHz to 2 MHz 1.2 V to 12 V 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 2 MHz 12 V to 120 V 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz 120 V to 200 V 20 Hz to 100 Hz 100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	160 μV/V + 0.8 μV 100 μV/V + 0.8 μV 100 μV/V + 0.8 μV 160 μV/V + 0.8 μV 250 μV/V + 0.8 μV 0.63 % + 0.8 μV 110 μV/V 100 μV/V 100 μV/V 170 μV/V 250 μV/V 0.62 % 0.63 % 0.63 % 100 μV/V 100 μV/V 100 μV/V 160 μV/V 250 μV/V 280 μV/V 0.62 % 0.62 % 110 μV/V 100 μV/V 100 μV/V 100 μV/V 390 μV/V 410 μV/V 0.62 % 130 μV/V 110 μV/V 120 μV/V 250 μV/V 680 μV/V 690 μV/V 720 μV/V 190 μV/V 180 μV/V 160 μV/V 170 μV/V 420 μV/V	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks
AC Voltage Measurement (cont'd)	200 V to 1100 V 20 Hz to 100 Hz 100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz	150 µV/V 140 µV/V 350 µV/V 790 µV/V	
	1 kV to 2 kV 50 Hz 2 kV to 4 kV 50 Hz 4 kV to 6 kV 50 Hz 6 kV to 7 kV 50 Hz	0.84 % + 8.4 V 0.84 % + 13 V 0.94 % + 18 V 0.97 % + 19 V	
	7 kV to 10 kV 50 Hz to 60 Hz 10 kV to 15 kV 50 Hz to 60 Hz 15 kV to 20 kV 50 Hz to 60 Hz 20 kV to 25 kV 50 Hz to 60 Hz	0.80 % + 40 V 0.80 % + 59 V 0.80 % + 87 V 0.80 % + 110 V	
AC Voltage Generation	10 Hz to 45 Hz 1 mV to 33 mV 33 mV to 33 V	0.060 % + 2.6 µV 0.030 %	
	45 Hz to 10 kHz 1 mV to 33 mV 33 mV to 330 V	0.050 % + 2.6 µV 0.010 %	
	10 kHz to 20 kHz 1 mV to 33 mV 33 mV to 330 mV 330 mV to 3.3 V 3.3 V to 33 V 33 V to 330 V	0.050 % + 2.6 µV 0.020 % 0.010 % 0.010 % 0.010 %	
	20 kHz to 50 kHz 1 mV to 33 mV 33 mV to 330 mV 330 mV to 3.3 V 3.3 V to 33 V 33 V to 330 V	0.050 % + 2.6 µV 0.020 % 0.010 % 0.010 % 0.030 %	
	50 kHz to 100 kHz 1 mV to 33 mV 33 mV to 330 mV 330 mV to 3.3 V 3.3 V to 33 V 33 V to 330 V	0.060 % + 2.6 µV 0.020 % 0.040 % 0.010 % 0.090 %	



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AC Voltage Generation (cont'd)	<i>100 kHz to 500 kHz</i> 1 mV to 33 mV 33 mV to 330 mV 330 mV to 3.3 V 330 V to 1020 V 45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz	0.13 % + 2.6 μ V 0.20 % 0.20 % 0.010 % 0.010 % 0.030 %	
DC Current Measurement	0 μ A to 1.2 μ A 1.2 μ A to 12 μ A 12 μ A to 120 μ A 0.12 mA to 120 mA 120 mA to 200 mA 0.2 A to 2 A 2 A to 11 A	110 μ A/A + 0.50 nA 23 μ A/A + 0.50 nA 18 μ A/A 16 μ A/A 17 μ A/A 65 μ A/A 140 μ A/A	
DC Current Generation	0 μ A to 330 μ A 0.33 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 0.33 A to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20.5 A 20.5 A to 150 A 150 A to 1025 A	110 μ A/A + 3.8 nA 35 μ A/A 33 μ A/A 42 μ A/A 190 μ A/A 190 μ A/A 350 μ A/A 440 μ A/A 0.61 % 0.60 %	For the calibration of clamp meters only
AC Current Measurement	<i>10 Hz to 1 kHz</i> 2 μ A to 200 μ A 0.2 mA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 0.2 A to 2 A <i>1 kHz to 20 kHz</i> 0.12 mA to 12 mA 12 mA to 120 mA 120 mA to 1.05 A	240 μ A/A + 17 nA 240 μ A/A 260 μ A/A 260 μ A/A 650 μ A/A 510 μ A/A 630 μ A/A 0.28 %	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
AC Current Measurement (cont'd)	1 kHz to 5 kHz 1.05 A to 2 A	0.16 %	
	20 Hz to 2 kHz 2 A to 11 A	660 μ A/A	
	2 kHz to 5 kHz 2 A to 11 A	0.12 %	
AC Current Generation	10 Hz to 20 Hz 30 μ A to 330 μ A	0.15 % + 60 nA	
	330 μ A to 3.3 mA	0.10 %	
	3.3 mA to 33 mA	0.14 %	
	33 mA to 330 mA	0.13 %	
	20 Hz to 45 Hz 30 μ A to 330 μ A	0.15 % + 60 nA	
	330 μ A to 3.3 mA	0.10 %	
	3.3 mA to 330 mA	0.060 %	
	10 Hz to 45 Hz 330 mA to 1.1 A	0.050 %	
	1.1 A to 3 A	0.04 %	
	45 Hz to 1 kHz 30 μ A to 330 μ A	0.14 % + 60 nA	
	330 μ A to 3.3 mA	0.10 %	
	3.3 mA to 330 mA	0.060 %	
	330 mA to 1.1 A	0.050 %	
	1.1 A to 3 A	0.040 %	
	1 kHz to 5 kHz 30 μ A to 330 μ A	0.24 % + 60 nA	
	330 μ A to 3.3 mA	0.12 %	
	3.3 mA to 33 mA	0.090 %	
	33 mA to 330 mA	0.070 %	
	330 mA to 1.1 A	0.090 %	
	1.1 A to 3 A	0.040 %	
	3 A to 11 A	0.23 %	
	11 A to 20.5 A	0.25 %	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
AC Current Generation (cont'd)	<i>5 kHz to 10 kHz</i> 30 μ A to 330 μ A 330 μ A to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA <i>45 Hz to 100 Hz</i> 3 A to 11 A 11 A to 20.5 A <i>100 Hz to 1 kHz</i> 3 A to 11 A 11 A to 20.5 A <i>10 A to 1025 A</i> 45 Hz to 65 Hz 65 Hz to 100 Hz	0.28 % + 60 nA 0.13 % 0.14 % 0.10 % 0.060 % 0.080 % 0.070 % 0.090 % 0.40 % 0.90 %	For the calibration of clamp meters only
DC Resistance Measurement	0 Ω to 20 Ω 20 Ω to 200 Ω 200 Ω to 12 k Ω 12 k Ω to 120 k Ω 0.12 M Ω to 1.2 M Ω 1.2 M Ω to 12 M Ω 12 M Ω to 200 M Ω 200 M Ω to 2 G Ω	22 $\mu\Omega/\Omega$ + 1.0 $\mu\Omega$ 12 $\mu\Omega/\Omega$ 8.0 $\mu\Omega/\Omega$ 11 $\mu\Omega/\Omega$ 18 $\mu\Omega/\Omega$ 42 $\mu\Omega/\Omega$ 630 $\mu\Omega/\Omega$ 900 $\mu\Omega/\Omega$	
Generation (sourcing spot values)	0.0001 Ω 0.001 Ω 0.01 Ω 0.1 Ω 1 Ω 1.9 Ω 10 Ω 19 Ω 100 Ω 190 Ω 1 k Ω 1.9 k Ω 10 k Ω 19 k Ω	660 $\mu\Omega/\Omega$ 290 $\mu\Omega/\Omega$ 180 $\mu\Omega/\Omega$ 80 $\mu\Omega/\Omega$ 28 $\mu\Omega/\Omega$ 28 $\mu\Omega/\Omega$ 11 $\mu\Omega/\Omega$ 12 $\mu\Omega/\Omega$ 9.0 $\mu\Omega/\Omega$ 9.0 $\mu\Omega/\Omega$ 6.0 $\mu\Omega/\Omega$ 7.5 $\mu\Omega/\Omega$ 8.5 $\mu\Omega/\Omega$ 9.5 $\mu\Omega/\Omega$	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
DC Resistance			
Generation (sourcing spot values cont'd)	100 k Ω 190 k Ω 1 M Ω 1.9 M Ω 10 M Ω 19 M Ω 100 M Ω	9.0 $\mu\Omega/\Omega$ 9.5 $\mu\Omega/\Omega$ 9.5 $\mu\Omega/\Omega$ 15 $\mu\Omega/\Omega$ 29 $\mu\Omega/\Omega$ 53 $\mu\Omega/\Omega$ 200 $\mu\Omega/\Omega$	
Range Values	0 Ω to 11 Ω 11 Ω to 33 Ω 33 Ω to 110 Ω 110 Ω to 330 Ω 330 Ω to 1.1 k Ω 1.1 k Ω to 3.3 k Ω 3.3 k Ω to 11 k Ω 11 k Ω to 33 k Ω 33 k Ω to 110 k Ω 110 k Ω to 330 k Ω 330 k Ω to 1.1 M Ω 1.1 M Ω to 3.3 M Ω 3.3 M Ω to 11 M Ω 11 M Ω to 33 M Ω 33 M Ω to 110 M Ω 110 M Ω to 330 M Ω 330 M Ω to 1.1 G Ω	71 $\mu\Omega/\Omega + 60 \mu\Omega$ 79 $\mu\Omega/\Omega$ 34 $\mu\Omega/\Omega$ 20 $\mu\Omega/\Omega$ 12 $\mu\Omega/\Omega$ 14 $\mu\Omega/\Omega$ 12 $\mu\Omega/\Omega$ 12 $\mu\Omega/\Omega$ 12 $\mu\Omega/\Omega$ 23 $\mu\Omega/\Omega$ 18 $\mu\Omega/\Omega$ 59 $\mu\Omega/\Omega$ 64 $\mu\Omega/\Omega$ 230 $\mu\Omega/\Omega$ 300 $\mu\Omega/\Omega$ 0.14 % 0.55 %	
DC Power	Voltage: 1 V to 1000 V Current: 10 mA to 20 A 10 mW to 20 kW	0.050 %	
	Voltage: 1 V to 1000 V Current: 1 A to 1000 A 1 W to 1000 kW	0.70 %	For the calibration of power clamp meters
AC Power	50 Hz to 1 kHz Voltage: 1 V to 1000 V Current: 10 mA to 20 A 10 mW to 20 kW	0.21 %	Active and reactive in phase (unity)
	50 Hz to 1 kHz Voltage: 1 V to 1000 V Current: 10 mA to 20 A 10 mW to 20 kW	0.60 %	Reactive power factor -1 to 1
	50 Hz to 1 kHz Voltage: 1 V to 1000 V Current: 1 A to 1000 A 1 W to 1000 kW	0.71 %	For the calibration of power clamp meters



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Phase Angle	50 Hz to 1 kHz 0 ° to 360 °	0.16 °	
Frequency	10 MHz 1 Hz to 3 GHz 0.1 Hz to 100 MHz 0.2 100 MHz to 3 GHz	4.0 in 10 ¹² 5.0 in 10 ¹² 5.0 in 10 ¹² + 10 mHz 5.0 in 10 ¹²	Source suitable for counters of sufficient resolution. Measurement capability of stable sources.
Capacitance Generation	1 kHz 190 pF to 400 pF 0.4 nF to 1.1 nF 1.1 nF to 3.3 nF 3.3 nF to 11 µF 11 µF to 33 µF 33 µF to 110 mF	1.0 % 0.30 % 0.22 % 0.20 % 0.240 % 0.28 %	Values available for calibration of measuring devices.
Measurement	100 Hz to 1kHz 1 pF to 10 µF	0.12 %	Measurement of capacitors.
Temperature Indicators and simulators, calibration by electrical simulation			
Cold junction	21 °C to 25 °C	0.20 °C	For reporting CJ value in ambient conditions for electrical simulation of temperature.
Noble metal thermocouples	0 °C to 1820 °C 0 °C to 1820 °C	0.30 °C 0.35 °C	Excluding cold junction compensation Including cold junction compensation
Base metal thermocouples	- 200 °C to - 100 °C - 100 °C to + 1372 °C	0.25 °C 0.20 °C	Excluding cold junction compensation
	- 200 °C to - 100 °C - 100 °C to 120 °C - 120 °C to + 1372 °C	0.25 °C 0.30 °C 0.27 °C	Including cold junction compensation
Resistance sensors (Pt 100)	- 200 °C to + 800 °C	0.020 °C	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks
17th Edition capability			
Insulation Resistance	10 kΩ to 5 MΩ 5 MΩ to 90 MΩ 90 MΩ to 1 GΩ 1 GΩ to 10 GΩ	0.070 % 0.36 % 1.2 % 1.4 %	
Insulation Resistance: Voltage measurement	50 V to 1 kV @ 0.5 mA or 1 mA	0.090 %	
Continuity resistance	20 mΩ to 1 Ω 1 Ω to 20 Ω 100 Ω 1 kΩ	1.9 % 1.5 % 0.2 % 0.2 %	
Continuity resistance current	0 mA to 320 mA @ 1 Ω	0.62 %	
Loop impedance	50 Hz 0.2 mΩ to 0.4 Ω 0.4 Ω to 0.8 Ω 0.8 Ω to 3 Ω 3 Ω to 8 Ω 8 Ω to 20 Ω 20 Ω to 200 Ω 200 Ω to 1 kΩ	30 mΩ 31 mΩ 32 mΩ 33 mΩ 42 mΩ 210 mΩ 1.2 Ω	
RCD Trip Current	50 Hz 1 mA to 60 mA 60 mA to 3 A	0.64 % 0.36 %	
RCD Trip time	20 ms to 400 ms 400 ms to 5 s	0.80 ms 8.3 ms	



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PAT Testers			
Earth Bond resistance	0.2 Ω to 2 Ω	10 m Ω	
	2 Ω to 8 Ω	16 m Ω	
	8 Ω to 20 Ω	29 m Ω	
	20 Ω to 200 Ω	150 m Ω	
	200 Ω to 1 k Ω	1.6 Ω	
Earth bond current	0 mA to 300 mA	3.0 %	
	300 mA to 8 A	0.60 %	
	8A to 30 A	0.50 %	
Insulation resistance	10 k Ω to 5 M Ω	0.070%	
	5 M Ω to 90 M Ω	0.36 %	
	90 M Ω to 300 M Ω	1.2 %	
	300 M Ω to 1 G Ω	1.2 %	
	1 G Ω to 2 G Ω	1.4 %	
Leakage current	50 Hz		
	1 μ A to 10 mA	1.6 %	
Load	50 Hz		
	0.13 kW	2.5 %	
Flash voltage	1 kV to 1.8 kV	2.5 %	
	2 kV to 3.6 kV	2.5 %	
Flash current	0.3 mA to 3 mA	4.0 %	



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DIMENSIONAL CALIBRATION			
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
Length			All linear calibrations may also be made in inch units.
Feeler gauges	BS 957:2008 0.02 to 1.00	2.0	
Gap Gauges (Plain parallel)	BS 969:2008 0.5 to 100 100 to 200 200 to 300	2.0 2.0 4.0	
Length Gauges, Flat and Spherical-ended (excluding length bars)	0 to 3000 Diameter:	1.0 + (8.0 x length in m)	By comparison with reference standards
Plain Plug Gauges (parallel) cylindrical setting standards and rollers	1 to 50 50 to 100 100 to 200 200 to 300	0.80 1.0 1.5 2.5	By comparison with reference standards
Plain ring gauges (parallel)	5 to 15 15 to 50 50 to 100 100 to 150 150 to 200 200 to 500	2.0 1.8 2.0 2.5 3.0 8.0	By comparison with reference standards
Measuring Instruments and Equipment			
Dial gauges and dial test indicators	BS 907:2008 and BS 2795:1981 0 to 50	1.0	
Micrometers			
External	BS 870:2008 0 to 600	Heads: 2.0 between any two points Setting and extension rods: 1.0 + (8.0 x length in m)	
Internal (including stick micrometers)	BS 959:2008 0 to 1000		
Depth	BS 6468:2008 0 to 300		
Vernier caliper gauges	BS 887:2008 0 to 1000		
Vernier depth gauges	BS 6365:2008 0 to 600	Overall performance 10 + (30 x length in m)	
Vernier height gauges	BS 1643:2008 (withdrawn) ISO13225:2012 0 to 1000		



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AIR VELOCITY Calibration of anemometers and pitot tubes with a digital display	0.3 m/s to 0.8 m/s 0.8 m/s to 1.5 m/s 1.5 m/s to 3 m/s 3 m/s to 5 m/s 5 m/s to 6 m/s 6 m/s to 7 m/s 7 m/s to 9 m/s 9 m/s to 11 m/s 11 m/s to 21 m/s 21 m/s to 26 m/s 26 m/s to 30 m/s	0.14 m/s 0.16 m/s 0.22 m/s 0.32 m/s 0.35 m/s 0.34 m/s 0.40 m/s 0.46 m/s 0.65 m/s 0.74 m/s 0.92 m/s	Method by comparison using an open jet wind tunnel Calibration of devices up to 100 mm diameter may be undertaken
PRESSURE <u>Hydraulic pressure (gauge)</u> Calibration of pressure indicating instruments and gauges <u>Hydraulic pressure (absolute)</u> Calibration of pressure indicating instruments and gauges <u>Gas pressure (gauge)</u> Calibration of pressure indicating instruments and gauges <u>Gas pressure (absolute)</u> Calibration of pressure indicating instruments and gauges	140 kPa to 410 kPa 410 kPa to 4.1 MPa 4.1 MPa to 289 MPa 240 kPa to 510 kPa 510 kPa to 4.2 MPa 4.2 MPa to 289 MPa -90 kPa to -1.5 kPa 0 to 800 Pa 800 Pa to 1.5 kPa 1.5 kPa to 200 kPa 200 kPa to 350 kPa 350 kPa to 7.1 MPa 10 kPa to 80 kPa 80 kPa to 115 kPa 115 kPa to 300 kPa 300 kPa to 450 kPa 450 kPa to 7.2 MPa	0.016 % + 55 Pa 0.012 % 0.010 % 0.016 % + 56 Pa 0.011 % + 12 Pa 0.010 % + 12 Pa 0.0095 % + 0.17 Pa 10 Pa 12 Pa 0.0075 % + 0.17 Pa 0.023 % + 35 Pa 0.023 % + 70 Pa 0.0095 % + 10 Pa 10 Pa 0.0095 % + 10 Pa 0.023 % + 79 Pa 0.023 % + 71 Pa	Methods consistent with EURAMET CG17 Calibration of pressure measuring devices with an electrical output may be undertaken.
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: $Q[a, b] = [a^2 + b^2]^{1/2}$