Schedule of Accreditation

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Calmet Laboratory Services, a division of Lazgill Ltd

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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 11b Upper Teddington Road Kingston-upon-Thames Surrey KT1 4DL	**Contact:** Mr D Howell Tel: +44 (0)20 8977 8455 Fax: +44 (0)20 8614 8048 E-Mail: sales@calmet.co.uk	Dimensional, Electrical, Pressure and Torque	A

Site activities performed away from the locations listed above:

Location details		Activity	Location code
At customers premises	Mr D Howell	Dimensional and Electrical	B

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
DIMENSIONAL **LENGTH**			All linear calibrations may be given in inch units.	
Plain plug gauges (parallel) cylindrical setting standards and rollers	1 to 50 diameter 50 to 100 100 to 200 200 to 300	1.0 2.0 3.0 4.0	Using length measuring machine and end standards.	A
Plain ring gauges (parallel)	1 to 10 diameter 10 to 50 50 to 100 100 to 200 200 to 300	2.0 1.5 2.0 3.5 5.0	Using length measuring machine and end standards.	A
Screw plug gauges (parallel) including check and setting plugs	1 to 100 diameter 100 to 200 200 to 300	4.0 5.0 6.0	Single and multi-start, symmetrical thread forms only, using length measuring machine.	A
Screw ring gauges (parallel)	1 to 50 50 to 150 150 to 300	5.0 6.0 8.0	Single and multi-start, symmetrical thread forms only, using length measuring machine. The 1 mm to 12 mm diameter range relates to functional test of size using check plugs.	A
Screw thread pitch	0.2 to 8	1.5	Using length measuring machine	A
Screw thread flank angles	0° to 52°	5.0 minutes of arc	Using a projector	A
Length gauges, flat and spherical ended	25 to 600	1.0 + (8.0 x length in m)	Using end standards	A
Plain gap gauges (parallel)	0.5 to 100 100 to 200	3.0 5.0	Using gauge blocks	A
Parallels	As BS 906:1972 5 to 50 x 100 x 400	From 1.5 up to 5.0		A
Vee blocks	As BS 3731:1987 20 to 150 diameter, vee capacity	From 2.5 up to 7.0		A

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
ANGLE			The uncertainties quoted for angle and form are for the departure from flatness, straightness, parallelism or squareness, ie the distance separating the parallel planes which just enclose the surface under consideration.	
Square Blade type	As BS 939:2007 50 to 300 300 to 600	 3.0 on squareness 5.0		A
Angle plates and box angle plates	As BS 5535:1978 50 to 600	Squareness: 3.0 + (1.0 per 100 mm) Parallelism: 1.0 + (1.0 per 100 mm)		A
FORM				
Straight edges Cast iron	As BS 5204:Part 1:1975 300 to 8000	)) 1.0 +		A
Steel, Granite	As BS 5204:Part 2:1977 300 to 2000	) (2.0 x length in m))		
Surface plates Granite Cast iron	┐ As BS 817:2008 ┘ 160 x 100 to 4000 x 6000	1.5 + (0.80 x diagonal in m)		A & B
MEASURING INSTRUMENTS AND MACHINES				
Micrometers External	As BS 870:2008 0 to 900	)) Heads 2.0 between) any two points.		A
Internal	As BS 959:2008 0 to 900	) Setting and extension) rods 1.0 +) (8.0 x length in m)		
Depth	As BS 6468:2008 0 to 300	))		
Three point bore micrometers	3 to 100 100 to 150	Overall performance 5.0 Overall performance 8.0	Using setting rings	A
Bore indicators	2 to 100 100 to 150	Overall performance 5.0 Overall performance 8.0	Using setting rings or length measuring machine	A
Micrometer heads	As BS 1734:1951 0 to 100	1.0		A

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
MEASURING INSTRUMENTS AND MACHINES (cont'd)				
Vernier / Digital / Dial gauges Calliper	BS 887:2008 0 to 1000	Overall performance 10 + (30 x length in m)		A
Height	ISO13225:2012 and BS 1643:2008 0 to 1000	Overall performance 10 + (30 x length in m)		
Depth	BS 6365:2008 0 to 600	Overall performance 10 + (30 x length in m)		
Dial gauges and dial test indicators	As BS 907:2008 and BS 2795:1981 0 to 50	1.0		A
Electronic height gauges (including setting masters)	0 to 1000	1.0 + (5.0 x length in m)	Using end standards	A
Profile projectors	10 to 100 magnifications	125 at the screen 5.0 linear 3.0 minutes of arc	Using glass scales	A & B
Feeler gauges	As BS 957:2008 0.02 to 1.00	3.0		A
Spirit levels	As BS 3509:1962 and BS 958:1968 5 seconds of arc to 60 minutes of arc nominal sensitivity	Mean sensitivity 10 % of nominal Minimum of 0.50 seconds of arc		A
Electronic indicating levels	0 to 10 minutes of arc	1.0 % of range Minimum 0.50 seconds of arc	Using small angle generator	A
TORQUE			Calibration results may also be given in units of lbf·in and lbf·ft. The uncertainties quoted are for both the application of the calibration torque and the characteristics of the device being calibrated	
Torque Wrenches and Torque Drivers	As BS EN ISO 6789-2:2017 0.1 N·m to 3000 N·m	1.0 % See Notes 3 and 6		A
Torque Wrenches and Torque Drivers	As BS EN ISO 6789:2003 (Withdrawn & superseded) 0.1 N·m to 3000 N·m	1.0 % See Notes 3 and 6		A

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
ELECTRICAL				
Electrical measurements are carried out by direct comparison unless otherwise defined in the remarks column.				
DC Resistance				
Spot values	100 μΩ	60 ppm	For the calibration of measuring instruments	A
	1 mΩ	35 ppm		
	10 mΩ	15 ppm		
	100 mΩ	12 ppm		
	1 Ω	6.0 ppm		
	10 Ω	5.0 ppm		
	100 Ω	4.0 ppm		
	1 kΩ	4.0 ppm		
	10 kΩ	3.0 ppm		
	100 kΩ	3.0 ppm		
	1 MΩ	6.0 ppm		
	10 MΩ	10 ppm		
	100 MΩ	0.60 %		
	1.0 GΩ	0.65 %		
Range values	0 Ω to 12 Ω	6.7 ppm + 35 μΩ	For the calibration of resistance sources	A
	12 Ω to 120 Ω	4.4 ppm + 350 μΩ		
	120 Ω to 1.2 kΩ	3.6 ppm + 230 μΩ		
	1.2 kΩ to 12 kΩ	4.4 ppm + 2.3 mΩ		
	12 kΩ to 120 kΩ	3.6 ppm + 23 mΩ		
	120 kΩ to 1.2 MΩ	14 ppm + 1.2 Ω		
	1.2 MΩ to 12 MΩ	61 ppm + 120 Ω		
	12 MΩ to 120 MΩ	650 ppm + 1.2 kΩ		
	120 MΩ to 1 GΩ	0.65 % + 12 kΩ		
	0 Ω to 10 Ω	130 ppm + 3.5 mΩ	For the calibration of measuring instruments	B
	10 Ω to 100 Ω	120 ppm +4.6 mΩ		
	100 Ω to 1 MΩ	220 ppm		
	1 MΩ to 10 MΩ	580 ppm		
	10 MΩ to 120 MΩ	1.2 %		
Spot values				B
	1 Ω	96 ppm	For the calibration of measuring instruments	
	10 Ω	24 ppm		
	100 Ω	11 ppm		
	1 kΩ	6.8 ppm		
	10 kΩ	6.8 ppm		
	100 kΩ	8.8 ppm		
	1 MΩ	15 ppm		
	10 MΩ	41 ppm		
	100 MΩ	120 ppm		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
DC Voltage				
Standard Cell Values	10 V	0.40 ppm		A
Other Values	0 V to 100 mV	0.80 ppm + 0.20 μV	For the calibration of measuring and sourcing instruments	A
	100 mV to 1 V	1.6 ppm + 0.20 μV		
	1 V to 10 V	0.80 ppm		
	10 V to 100 V	2.0 ppm		
	100 V to 1 kV	1.0 %		
	1 kV to 12 kV	0.50 %		
	0 mV to 120 mV	45 ppm + 4.5 μV	Measurement of sources	B
	120 mV to 1.2 V	100 ppm		
	1.2 V to 12 V	80 ppm		
	12 V to 120 V	110 ppm		
	120 V to 1050 V	600 ppm		
	1 kV to 12 kV	0.50 %		
	0 V to 220 mV	9.0 ppm + 0.80 μV	For the calibration of measuring instruments	B
	220 mV to 2.2 V	5.5 ppm + 1.0 μV		
	2.2 V to 11 V	3.8 ppm + 2.6 μV		
	11 V to 22 V	3.8 ppm + 4.2 μV		
	22 V to 220 V	5.2 ppm + 40 μV		
	220 V to 1100 V	6.8 ppm + 400 μV		
DC Current				A
			For the calibration of sourcing instruments	
	1 μA to 10 mA	15 ppm		
	10 mA to 100 mA	20 ppm		
	100 mA to 1 A	25 ppm		
	1 A to 3 A	25 ppm		
	3 A to 10 A	45 ppm		
	10 A to 20 A	50 ppm		
	20 A t0 40 A	85 ppm		
	40 A to 100 A	380 ppm		
	10 A to 550 A	0.55 %	For the Calibration of Current Clamps	A&B
	550 A to 1000 A	0.55 %		A
	0 A to 120 μA	600 ppm + 31 nA	For the calibration of sourcing instruments	B
	120 μA to 1.2 mA	600 ppm + 60 nA		
	1.2 mA to 12 mA	600 ppm + 2.4 μA		
	12 mA to 120 mA	600 ppm + 12 μA		
	120 mA to 400 mA	600 ppm + 26 μA		
	400 mA to 1.2 A	600 ppm + 240 μA		
	1.2 A to 3 A	0.12 % + 700 μA		
	3 A to 10 A	0.18 % + 930 μA		
	10 A to 20 A	75 ppm + 75 μA		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
DC Current Continued	0 A to 220 µA	43 ppm + 6.0 nA	For the calibration of measuring instruments	A&B
	220 µA to 2.2 mA	37 ppm + 7.0 nA		
	2.2 mA to 22 mA	37 ppm + 40 nA		
	22 mA to 220 mA	48 ppm + 700 nA		
	220 mA to 2.2 A	84 ppm + 12 µA		
	2.2 A to 10 A	480 ppm + 260 µA		
AC Voltage				A
	1 mV to 2.2 mV *40 Hz to 20 kHz*	680 ppm + 1.0 µV	For the calibration of sourcing instruments	
	2.2 mV to 7 mV *40 Hz to 20 kHz*	250 ppm + 1.0 µV		
	7 mV to 22 mV *40 Hz to 20 kHz*	110 ppm + 1.0 µV		
	22 mV to 70 mV *40 Hz to 20 kHz*	100 ppm + 1.0 µV		
	70 mV to 220 mV *40 Hz to 20 kHz*	33 ppm + 1.0 µV		
	220 mV to 700 mV *20 Hz to 40 Hz* *40Hz to 20kHz* *20kHz to 50kHz* *50kHz to 100kHz* *100kHz to 300kHz*	 55 ppm + 1.0 µV 29 ppm + 1.0 µV 39 ppm + 1.4 µV 57 ppm + 1.7 µV 150 ppm + 2.7 µV		
	700 mV to 22 V *20 Hz to 40 Hz* *40Hz to 20kHz* *20kHz to 50kHz* *50kHz to 100kHz* *100kHz to 300kHz*	 49 ppm 24 ppm 37 ppm 58 ppm 150 ppm		
AC Voltage				A
	22 V to 70 V *20 Hz to 40 Hz* *40Hz to 20kHz* *20kHz to 50kHz* *50kHz to 100kHz* *100kHz to 300kHz*	 49 ppm 28 ppm 43 ppm 76 ppm 150 ppm	For the calibration of sourcing instruments	
	70 V to 220 V *20 Hz to 40 Hz* *40Hz to 20kHz*	 51 ppm 29 ppm		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
AC Voltage Continued			For the calibration of sourcing instruments	A
	220 V to 700 V			
	50 Hz to 20 kHz	35 ppm		
	700 V to 1000 V			
	50 Hz to 20 kHz	33 ppm		
	5 mV to 120 mV		For the calibration of sourcing instruments	B
	10 Hz to 20 kHz	0.085 % + 47 μV		
	20 kHz to 50 kHz	0.15 % + 58 μV		
	50 kHz to 100 kHz	0.70 % + 95 μV		
	0.12 V to 1.2 V			
	10 Hz to 20 kHz	0.080 % + 350 μV		
	20 kHz to 50 kHz	0.15 % + 580 μV		
	50 kHz to 100 kHz	0.70 % + 950 μV		
	1.2 V to 12 V			
	10 Hz to 20 kHz	0.080 % + 3.5 mV		
	20 kHz to 50 kHz	0.15 % + 5.8 mV		
	50 kHz to 100 kHz	0.70 % + 9.5 mV		
	12 V to 120 V			
	10Hz to 20kHz	0.080 % + 35 mV		
	20kHz to 50kHz	0.15 % + 58 mV		
	50kHz to 100kHz	0.70 % + 95 mV		
	120 V to 1000 V			
	10 Hz to 20 kHz	0.080 % + 260 mV		
	20 kHz to 50 kHz	0.15 % + 440 mV		
	50 kHz to 100 kHz	0.70 % + 700 mV		
	200 μV to 2.2 mV		For the calibration of measuring instruments	A&B
	10 Hz to 2 0Hz	420 ppm + 4.0 μV		
	20 Hz to 40 Hz	350 ppm + 4.0 μV		
	40 Hz to 20 kHz	350 ppm + 4.0 μV		
	20 kHz to 50 kHz	470 ppm + 4.0 μV		
	50 kHz to 100 kHz	710 ppm + 5.0 μV		
	100 kHz to 300 kHz	0.13 % + 10 μV		
	300 kHz to 500 kHz	0.17 % + 20 μV		
	500 kHz to 1 MHz	0.40 % + 20 μV		
	2.2 mV to 22 mV			
	10 Hz to 20 Hz	260 ppm + 4.0 μV		
	20 Hz to 40 Hz	120 ppm + 4.0 μV		
	40 Hz to 20 kHz	110 ppm + 4.0 μV		
	20 kHz to 50 kHz	220 ppm + 4.0 μV		
	50 kHz to 100 kHz	530 ppm + 5.0 μV		
	100 kHz to 300 kHz	0.11 % + 10 μV		
	300 kHz to 500 kHz	0.15 % + 20 μV		
	500 kHz to 1 MHz	0.29 % + 45 μV		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
AC Voltage Continued			For the calibration of measuring instruments	A&B
	22 mV to 220 mV			
	10 Hz to 20 Hz	250 ppm + 12 µV		
	20 Hz to 40 Hz	100 ppm + 7.0 µV		
	40 Hz to 20 kHz	62 ppm + 7.0 µV		
	20 kHz to 50 kHz	130 ppm + 7.0 µV		
	50 kHz to 100 kHz	320 ppm + 17 µV		
	100 kHz to 300 kHz	670 ppm + 20 µV		
	300 kHz to 500 kHz	0.15 % + 25 µV		
	500 kHz to 1 MHz	0.29 % + 45 µV		
	220 mV to 2.2 V			
	10 Hz to 20 Hz	250 ppm + 40 µV		
	20 Hz to 40 Hz	100 ppm + 15 µV		
	40 Hz to 20 kHz	46 ppm + 8.0 µV		
	20 kHz to 50 kHz	70 ppm + 10 µV		
	50 kHz to 100 kHz	88 ppm + 30 µV		
	100 kHz to 300 kHz	350 ppm + 80 µV		
	300 kHz to 500 kHz	0.11 % + 200 µV		
	500 kHz to 1 MHz	0.18 % + 300 µV		
	2.2 V to 22 V			
	10 Hz to 20 Hz	250 ppm + 400 µV		
	20 Hz to 40 Hz	92 ppm + 150 µV		
	40 Hz to 20 kHz	46 ppm + 50 µV		
	20 kHz to 50 kHz	70 ppm + 100 µV		
	50 kHz to 100 kHz	86 ppm + 200 µV		
	100 kHz to 300 kHz	260 ppm + 600 µV		
	300 kHz to 500 kHz	0.11 % + 2.0 mV		
	500 kHz to 1 MHz	0.16 % + 3.2 mV		
	22 V to 220 V			
	10 Hz to 20 Hz	250 ppm + 4.0 mV		
	20 Hz to 40 Hz	92 ppm + 1.5 mV		
	40 Hz to 20 kHz	56 ppm + 600 µV		
	20 kHz to 50 kHz	82 ppm + 1.0 mV		
	50 kHz to 100 kHz	150 ppm + 2.5 mV		
	100 kHz to 300 kHz	910 ppm + 16 mV		
	300 kHz to 500 kHz	0.45 % + 40 mV		
	500 kHz to 1 MHz	0.92 % + 80 mV		
	220 V to 1100 V			
	15 Hz to 50 Hz	310 ppm + 16 mV		
	50 Hz to 1 kHz	74 ppm + 4.0 mV		
AC Current			For the calibration of sourcing instruments	A
	6 µA to 120 µA			
	20 Hz to 45 Hz	0.17 % + 35 nA		
	45 Hz to 100 Hz	750 ppm + 35 nA		
	100 Hz to 5 kHz	750 ppm + 35 nA		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
AC Current Continued			For the calibration of sourcing instruments	A
	120 µA to 1.2 mA			
	10 Hz to 20 Hz	0.50 % + 240 nA		
	20 Hz to 45 Hz	0.20 % + 240 nA		
	45 Hz to 100 Hz	730 ppm + 240 nA		
	100 Hz to 5 kHz	400 ppm + 240 nA		
	5 kHz to 20 kHz	730 ppm + 240 nA		
	20 kHz to 50 kHz	0.50 % + 470 nA		
	50 kHz to 100 kHz	0.66 % + 1.8 µA		
	1.2mA to 12mA			
	10 Hz to 20 Hz	0.48 % + 2.5 µA		
	20 Hz to 45 Hz	0.20 % + 2.5 µA		
	45 Hz to 100 Hz	700 ppm + 2.5 µA		
	100 Hz to 5 kHz	380 ppm +2.5 µA		
	5 kHz to 20 kHz	730 ppm +2.5 µA		
	20 kHz to 50 kHz	0.50 % +4.8 µA		
	50 kHz to 100 kHz	0.65 % +24 µA		
	12mA to 120mA			
	10 Hz to 20 Hz	0.48 % + 24 µA		
	20 Hz to 45 Hz	0.18 % + 24 µA		
	45 Hz to 100 Hz	730 ppm + 24 µA		
	100 Hz to 5 kHz	380 ppm + 24 µA		
	5 kHz to 20 kHz	730 ppm + 2.5 µA		
	20 kHz to 50 kHz	0.50 % + 48 µA		
	50 kHz to 100 kHz	0.65 % + 180 µA		
	120 mA to 1 A			
	10 Hz to 20 Hz	0.48 % + 240 µA		
	20 Hz to 45 Hz	0.20 % + 240 µA		
	45 Hz to 100 Hz	0.10 % + 240 µA		
	100 Hz to 5 kHz	0.14 % + 240 µA		
	5 kHz to 20 kHz	0.38 % + 240 µA		
	20 kHz to 50 kHz	1.2 % + 470 µA		
	1 A to 20 A			
	40 Hz to 1 kHz	750 ppm		
	5 µA to			B
	10 Hz to 5 kHz	0.18 % + 70 nA		
	5 kHz to 10 kHz	0.41 % + 810 nA		
	0.12 mA to 1.2 mA			
	10 Hz to 5 kHz	0.18 % + 480 nA		
	5 kHz to 10 kHz	0.24 % + 2.9 µA		
	1.2 mA to 1 2mA			
	10 Hz to 5 kHz	0.18 % + 7.0 µA		
	5 kHz to 10 kHz	0.41 % +81 µA		
	12 mA to 120 mA			
	10 Hz to 5 kHz	0.12 % + 47 µA		
	5 kHz to 10 kHz	0.23 % + 290 µA		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
AC Current Continued			For the calibration of sourcing instruments	B
	120 mA to 400 mA			
	10Hz to 1kHz	0.12 % + 460 µA		
	1kHz to 10kHz	0.24 % + 3.3 mA		
	400 mA to 1.2 A			
	10 Hz to 5 kHz	0.12 % + 460 µA		
	5 kHz to 10 kHz	0.41 % + 8.1 mA		
	1.2 A to 3 A			
	10 Hz to 5 kHz	0.19 % + 7.0 mA		
	5 kHz to 10 kHz	0.41 % + 24 mA		
	3 A to 10 A			
	10 Hz to 5 kHz	0.19 % + 7.0 mA		
	5 kHz to 10 kHz	0.42 % + 81 mA		
AC Current			For the calibration of measuring instruments	A&B
	9 µA to 220 µA			
	10 Hz to 20 Hz	260 ppm + 16 nA		
	20 Hz to 40 Hz	170 ppm + 10 nA		
	40 Hz to 1 kHz	120 ppm + 8.0 nA		
	1 kHz to 5 kHz	310 ppm + 12 nA		
	5 kHz to 10 kHz	0.12 % + 65 nA		
	220 µA to 2.2 mA			
	10 Hz to 20 Hz	260 ppm + 40 nA		
	20 Hz to 40 Hz	170 ppm + 35 nA		
	40 Hz to 1 kHz	110 ppm + 35 nA		
	1 kHz to 5 kHz	220 ppm + 110 nA		
	5 kHz to 10 kHz	0.12 % + 650 nA		
	2.2 mA to 22 mA			
	10 Hz to 20 Hz	260 ppm + 400 nA		
	20 Hz to 40 Hz	170 ppm + 350 nA		
	40 Hz to 1 kHz	110 ppm + 350 nA		
	1 kHz to 5 kHz	220 ppm + 550 nA		
	5 kHz to 10 kHz	0.12 % + 5.0 µA		
	22 mA to 220 mA			
	10 Hz to 20 Hz	260 ppm + 4.0 µA		
	20 Hz to 40 Hz	170 ppm + 3.5 µA		
	40 Hz to 1 kHz	110 ppm + 2.5 µA		
	1 kHz to 5 kHz	220 ppm + 3.5 µA		
	5 kHz to 10 kHz	0.12 % + 10 µA		
	220 mA to 2.2 A			
	20 Hz to 1 kHz	260 ppm 35 µA		
	1 kHz to 5 kHz	410 ppm + 80 µA		
	5 kHz to 10 kHz	0.71 % + 160 µA		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
AC Current Continued	2.2 A to 11 A		For the calibration of measuring instruments	A&B
	45 Hz to 65 Hz	520 ppm + 1.6 mA		
	65 Hz to 500 Hz	810 ppm + 1.6 mA		
	500 Hz to 1 kHz	0.26 % + 1.6 mA		
	45 Hz to 60 Hz		Current simulation using multi turn coil for the calibration of clamp meters	
	10 A to 100 A	0.15 %		A&B
	100 A to 500 A	0.55 %		
	500 A to 1000 A	0.60 %		A
AC Resistance	*40 Hz to 1 kHz*			A
	0.05 Ω	120 ppm		
	0.1 Ω	90 ppm		
	0.2 Ω	80 ppm		
	0.5 Ω	75 ppm		
	1 Ω	70 ppm		
	2 Ω	70 ppm		
	5 Ω	70 ppm		
	10 Ω	45 ppm		
	100 Ω	45 ppm		
	1 kΩ	45 ppm		
	10 kΩ	50 ppm		
	100 kΩ	65 ppm		
AC/DC Voltage Transfer	*250 mV to 16 V*			A
	20 Hz to 20 kHz	40 ppm		
	20 kHz to 50 kHz	40 ppm		
	50 kHz	30 ppm		
	100 kHz	35 ppm		
	16 V to 125 V			
	20 Hz to 20 kHz	35 ppm		
	20 kHz to 50 kHz	25 ppm		
	50 kHz	25 ppm		
	100 kHz	25 ppm		
	250 V			
	20 Hz to 10 kHz	60 ppm		
	20 kHz	35 ppm		
	50 kHz	40 ppm		
	500 V to 1 kV			
	20 Hz to 10 kHz	85 ppm		
	20 kHz	120 ppm		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
AC Power	*47 Hz to 63 Hz*			
	Voltages 60 V to 240 V Currents 0.5 A to 5 A 15 W to 1200 W	90 ppm	) Unity to 0.5 power) factor lagging or) leading	A
	Voltages 60 V to 240 V Currents 5 A to 100 A 150 W to 24 kW	150 ppm	) Unity to 0.5 power) factor lagging or) leading	
	Combination of specific voltage and current values: V = 75, 100, 150, 300 V I = 0.5, 1, 2, 5, 10, 20 A	0.035 %	) Unity to 0.5 power) factor lagging or) leading. Calibrations at) lower power factors) can be carried out to) greater uncertainties.	
Frequency	0.2 Hz to 1 kHz 1 kHz to 1000 MHz	2 in 10^8 2 in 10^8	Multi-period measurement Frequency measurement	A
Elapsed time	100 ms to 1 day	20 ms	Stop watches	
Rise/Fall Time	160 ps to 500 ns	5.0 % + 20 ps	For the calibration of	A
Bandwidth	50 kHz to 1.0 GHz	5.0 %	Oscilloscopes	A
Capacitance	*At 1 kHz* 1 nF to 10 µF	770 ppm		
Temperature simulation Ambient in support of reference junction	17 ˚C to 23 ˚C	0.10 ˚C		
Temperature indicators, calibration by electrical simulation	Simulated temperature	Uncertainty of simulated temperature	including cold junction compensation	A
Type K Type J Type N Type T	-200 °C to 1370 °C -200 °C to 750 °C -200 °C to 400 °C -200 °C to 1300 °C	0.20 °C 0.20 °C 0.20 °C 0.20 °C		
Type R Type S	0 °C to 1700 °C 0 °C to 1700 °C	0.20 °C 0.20 °C		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
Resistance thermometer (Pt 100)	-200°C to 800°C	0.030 °C		
Type K Type J Type N Type T	-200 °C to 1370 °C -200 °C to 750 °C -200 °C to 400 °C -200 °C to 1300 °C	0.50 °C 0.50 °C 0.80 °C 0.50 °C		B
Resistance thermometer (Pt 100)	-200°C to 800°C	0.10 °C		
Measurements to support 17th edition type test equipment				A & B
Insulation Resistance	100 kΩ 1 MΩ 5 MΩ 10 MΩ 100 MΩ 1 GΩ	500 Ω 80 kΩ 80 kΩ 500 kΩ 5.0 MΩ 50 MΩ		
Insulation Voltage	50 V to 250 V 250 V to 500 V 500 V to 1 kV	5.0 V 10 V 15 V		
RCD Trip Current	10 mA to 15 mA 15 mA to 50 mA 100 mA to 100 mA 100 mA to 150 mA 150 mA to 500 mA 500 mA to 1 A	500 µA 1.0 mA 3.0 mA 5.0 mA 10 mA 25 mA		
RCD Trip Time	0 s to 100 ms	2.0 ms		
Continuity Resistance	10 mΩ to 1 Ω 1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ	100 mΩ 500 mΩ 3.0 Ω 50 Ω 300 Ω		
Loop impedance	100 mΩ to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ	100 mΩ 1.0 Ω 15 Ω		
PAT test Voltage	50 V to 100 V nominal 50 Hz 100 V to 400 V nominal 50 Hz	1.0 V 1.5 V		
Earth Bond resistance	5 mΩ to 50 mΩ 50 mΩ to 5 Ω	5.0 mΩ 10 mΩ		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
Measurements to support 17th edition type test equipment Continued				A&B
Earth bond current	10 mA to 500 mA	10 mA		
	500 mA to 10 A	20 mA		
	10 A to 25 A	65 mA		
PAT Leakage current	50 µA to 7.7 mA	50 µA		
Flash Test	1 kV to 3 kV	100 V		
	3 kV to 12 kV	200 V		
	1 kV to 3 kV nominal 50 Hz	100 V		
	3 kV to 12 kV nominal 50 Hz	250 V		
Flash Current	2 µA to 200 µA	2.0 µA		
	200 µA to 2 mA	30 µA		
	2 mA to 20 mA	200 µA		
	2 µA to 200 µA nominal 50 Hz	3.0 µA		
	200 µA to 2 mA nominal 50 Hz	30 µA		
	2 mA to 20 mA nominal 50 Hz	300 µA		
Load for PAT	0.13 kW	1.0 % + 1.5 Ω	At nominal UK mains supply voltage	
PRESSURE			Calibration of devices with an electrical output may be undertaken.	
Gas pressure (gauge)				A
Calibration of pressure indicators and gauges	-95 kPa to 200 kPa	150 Pa	Calibration by comparison with digital pressure standards.	A
	200 kPa to 2 MPa	650 Pa		
	2 MPa to 10 MPa	3.0 kPa		
Gas pressure (absolute)				A
Calibration of pressure indicators and gauges	10 kPa to 300 kPa	350 Pa	Calibration by comparison with digital pressure standards.	A
	300 kPa to 2.1 MPa	850 Pa		
	2.1 MPa to 10 MPa	3.2 kPa		
Hydraulic pressure (gauge)				A
Calibration of pressure indicators and gauges	550 kPa to 69 MPa	0.037 %	Calibration by comparison with deadweight tester.	A
Calibrations using water	0 MPa to 100 MPa	30 kPa	Calibration by comparison with digital pressure standards.	A

END

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 uncertainty of measurement 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 CIPM-ILAC definition of the CMC is as follows:

A CMC is a calibration and measurement capability available to customers under normal conditions:
(a) as published in the BIPM key comparison database (KCDB) of the CIPM MRA; or
(b) as described in the laboratory's scope of accreditation granted by a signatory to the ILAC Arrangement.

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 CMC is calculated according to the procedures given in M3003 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 CMC in certificates issued under its accreditation.

The CMC may be described using various methods in the Schedule of Accreditation:

As a single value that is valid throughout the range.
As an explicit function of the measurand or of a parameter (see below).
As a range of values. The range is stated such that the customer can make a reasonable estimate of the likely uncertainty at any point within the range.
As a matrix or table where the CMCs depend on the values of the measurand and a further quantity.
In graphical form, providing there is sufficient resolution on each axis to obtain at least two significant figures for the CMC.

Expression of CMCs - symbols and units

In general, only units of the SI and those units recognised for use with the SI are used to express the values of quantities and of the associated CMCs. Nevertheless, other commonly used units may be used where considered appropriate for the intended audience. For example, the term "ppm" (part per million) is frequently used by manufacturers of test and measurement equipment to specify the performance of their products. Terms like this may be used in Schedules of Accreditation where they are in common use and understood by the users of such equipment, providing their use does not introduce any ambiguity in the capability that is being described.

When the CMC is expressed as an explicit function of the measurand or of a parameter, this often comprises a relative term (e.g., percentage) and an absolute term, i.e. one expressed in the same units as those of the measurand. This form of expression is used to describe the capability that can be achieved over a range of values. Some examples are shown below. It should be noted that these expressions are not mathematical formulae but are instead written in a commonly used shorthand for expressing uncertainties - therefore, for purposes of clarity, an indication of how they are to be interpreted is also provided below.

DC voltage, 100 mV to 1 V: 0.0025 % + 5.0 µV

Over the range 100 mV to 1 V, the CMC is 0.0025 %·V + 5.0 µV, where V is the measured voltage.

Hydraulic pressure, 0.5 MPa to 140 MPa: 0.0036 % + 0.12 ppm/MPa + 4.0 Pa

Over the range 0.5 MPa to 140 MPa, the CMC is $0.0036\ \%\cdot p + (0.12\cdot 10^{-6}\cdot p\cdot 10^{-6}) + 4.0$ Pa, where p is the measured pressure in Pa.

It should be noted that the percentage symbol (%) simply represents the number 0.01. In cases where the CMC is stated only as a percentage, this is to be interpreted as meaning percentage of the measured value or indication.

Thus, for example, a CMC of 1.5 % means $1.5 \cdot 0.01 \cdot i$, where i is the instrument indication.