Schedule of Accreditation

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Accredited to ISO/IEC 17025:2017

Calibration, Maintenance and Repair Ltd

Issue No: 043 **Issue date:** 23 August 2024

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Calibration performed by the Organisation at the locations specified

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 11 Frensham Road Norwich NR3 2BT	**Local contact:** Mr P K Clark Tel: +44 (0)1603 279557	Electrical Calibration Accelerometer calibration Mass Calibration NAWI Calibration	A
Address 5 Octavian Way, Team Valley Trading Est Gateshead NE11 0HZ	**Local contact:** Mr John Fryer Tel: +44 (0)191 4875951	Electrical Calibration Pressure Calibration	B

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
ELECTRICAL MEASUREMENTS			Calibrations are performed as a direct comparison against a reference standard	
DC VOLTAGE				A
Generation	0 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1100 V 1 kV to 2 kV 2 kV to 3 kV 3 kV to 4 kV 4 kV to 5 kV	0.55 µV 1.4 µV 6.6 µV 44 µV 630 µV 8.0 mV 0.45 % + 7.0 V 0.45 % + 8.0 V 0.45 % + 9.0 V 0.45 % + 11 V	For the calibration of measuring instruments	
Measurement	0 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1 kV 1 kV to 2 kV 2 kV to 3 kV 3 kV to 4 kV 4 kV to 5 kV	1.0 µV 2.0 µV 10 µV 98 µV 1.3 mV 14 mV 0.67 % + 9.0 V 0.67 % + 11 V 0.67 % + 14 V 0.67 % + 16 V	For instruments with a voltage output	
DC RESISTANCE				A
Sourcing - Spot Values	1 Ω 1.9 Ω 10 Ω 19 Ω 100 Ω 190 Ω 1 kΩ 1.9 kΩ 10 kΩ 19 kΩ 100 kΩ 190 kΩ 1 MΩ 1.9 MΩ 10 MΩ 19 MΩ 100 MΩ	110 µΩ 210 µΩ 270 µΩ 540 µΩ 1.2 mΩ 2.5 mΩ 8.7 mΩ 17 mΩ 81 mΩ 170 mΩ 1.1 Ω 2.4 Ω 16 Ω 48 Ω 460 Ω 1.1 kΩ 12 kΩ	For the calibration of measuring instruments	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
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DC RESISTANCE (continued)				A
Sourcing - Range values				
	0Ω to 10 Ω	2.0 mΩ	For the calibration of measuring instruments	
	10 Ω to 100 Ω	5.0 mΩ		
	100 Ω to 1 kΩ	31 mΩ		
	1 kΩ to 10 kΩ	310 mΩ		
	10 kΩ to 100 kΩ	3.0 Ω		
	100 kΩ to 1 MΩ	37 Ω		
	1 MΩ to 10 MΩ	2.0 kΩ		
	10 MΩ to 33 MΩ	11 kΩ		
	33 MΩ to 110 MΩ	60 kΩ		
	110 MΩ to 330 MΩ	1.0 MΩ		
	330 MΩ to 1.1 GΩ	17 MΩ		
Measurement	0 Ω to 10 Ω	250 μΩ	For instruments with a resistance output	
	10 Ω to 100 Ω	2.0 mΩ		
	100 Ω to 1 kΩ	14 mΩ		
	1 kΩ to 10 kΩ	140 mΩ		
	10 kΩ to 100 kΩ	1.0 Ω		
	100 kΩ to 1 MΩ	22 Ω		
	1 MΩ to 10 GΩ	0.71 %		
	10 GΩ to 100 GΩ	1.0 %		
DC CURRENT				A
Generation	0 μA to 10 μA	7.4 nA	For the calibration of measuring instruments	
	10 μA to 100 μA	12 nA		
	100 μA to 1 mA	49 nA		
	1 mA to 10 mA	450 nA		
	10 mA to 100 mA	6.0 μA		
	100 mA to 1 A	110 μA		
	1 A to 3 A	1.0 mA		
	3 A to 5 A	4.0 mA		
	5 A to 10 A	6.0 mA		
	10 A to 20 A	12 mA		
	20 A to 30 A	570 mA		
	16 A to 160 A	25 mA	Current clamp calibration using a multi turn coil	
	160 A to 1000 A	580 mA		

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DC CURRENT (continued)				A
Measurement	0 μA to 10 μA	2.0 nA	For instruments which generate current	
	10 μA to 100 μA	4.0 nA		
	100 μA to 1 mA	34 nA		
	1 mA to 10 mA	340 nA		
	10 mA to 100 mA	5.0 μA		
	100 mA to 1 A	150 μA		
	1 A to 2 A	2.4 mA		
	2 A to 10 A	25 mA		
	10 A to 20 A	330 mA		
	20 A to 30 A	490 mA		
AC VOLTAGE				A
Generation	1 Hz to 10 Hz			
	10 μV to 10 mV	60 μV	For the calibration of measuring instruments	
	10 mV to 100 mV	270 μV		
	100 mV to 1 V	1.9 mV		
	1 V to 7 V	9.2 mV		
	10 μV to 2.2 mV			
	10 Hz to 20 Hz	5.3 μV		
	20 Hz to 40 Hz	4.9 μV		
	40Hz to 500 Hz	4.9 μV		
	500 Hz to 1 kHz	4.9 μV		
	1 kHz to 10 kHz	4.9 μV		
	10 kHz to 20 kHz	4.9 μV		
	20 kHz to 50 kHz	5.2 μV		
	50 kHz to 100 kHz	7.1 μV		
	100 kHz to 300 kHz	14 μV		
	300 kHz to 500 kHz	27 μV		
	500 kHz to 1 MHz	30 μV		
	2.2 mV to 22 mV			
	10 Hz to 20 Hz	11 μV		
	20 Hz to 40 Hz	7.1 μV		
	40Hz to 500 Hz	6.9 μV		
	500 Hz to 1 kHz	6.9 μV		
	1 kHz to 10 kHz	6.9 μV		
	10 kHz to 20 kHz	6.9 μV		
	20 kHz to 50 kHz	10 μV		
	50 kHz to 100 kHz	19 μV		
	100 kHz to 300 kHz	38 μV		
	300 kHz to 500 kHz	59 μV		
	500 kHz to 1 MHz	92 μV		

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AC VOLTAGE (continued)				A
Generation (continued)	**22 mV to 220 mV**			
	10 Hz to 20 Hz	76 µV	For measuring instruments	
	20 Hz to 40 Hz	31 µV		
	40Hz to 500 Hz	23 µV		
	500 Hz to 1 kHz	23 µV		
	1 kHz to 10 kHz	23 µV		
	10 kHz to 20 kHz	23 µV		
	20 kHz to 50 kHz	39 µV		
	50 kHz to 100 kHz	99 µV		
	100 kHz to 300 kHz	190 µV		
	300 kHz to 500 kHz	380 µV		
	500 kHz to 1 MHz	740 µV		
	220 mV to 2.2 V			
	10 Hz to 20 Hz	660 µV		
	20 Hz to 40 Hz	250 µV		
	40Hz to 500 Hz	120 µV		
	500 Hz to 1 kHz	120 µV		
	1 kHz to 10 kHz	120 µV		
	10 kHz to 20 kHz	120 µV		
	20 kHz to 50 kHz	180 µV		
	50 kHz to 100 kHz	250 µV		
	100 kHz to 300 kHz	950 µV		
	300 kHz to 500 kHz	2.8 mV		
	500 kHz to 1 MHz	4.7 mV		
	2.2 V to 22 V			
	10 Hz to 20 Hz	6.6 mV		
	20 Hz to 40 Hz	2.5 mV		
	40Hz to 500 Hz	1.1 mV		
	500 Hz to 1 kHz	1.1 mV		
	1 kHz to 10 kHz	1.1 mV		
	10 kHz to 20 kHz	1.1 mV		
	20 kHz to 50 kHz	1.8 mV		
	50 kHz to 100 kHz	2.3 mV		
	100 kHz to 300 kHz	7.2 mV		
	300 kHz to 500 kHz	28 mV		
	500 kHz to 1 MHz	42 mV		
	22 V to 220 V			
	10 Hz to 20 Hz	66 mV		
	20 Hz to 40 Hz	25 mV		
	40Hz to 500 Hz	14 mV		
	500 Hz to 1 kHz	14 mV		
	1 kHz to 10 kHz	14 mV		
	10 kHz to 20 kHz	14 mV		
	20 kHz to 50 kHz	22 mV		
	50 kHz to 100 kHz	41 mV		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE (continued)				A
Generation (continued)	**220 V to 1100 V** *55 Hz to 1 kHz*	 110 mV	For measuring instruments	
	220 V to 500 V *50 Hz to 10 kHz*	 180 mV		
	500 V to 750 V *50 Hz to 10 kHz*	 260 mV		
	750 V to 1 kV *50 Hz to 10 kHz*	 350 mV		
	1 kV to 2 kV *50 Hz to 60 Hz* 2 kV to 3 kV *50 Hz to 60 Hz* 3 kV to 4 kV *50 Hz to 60 Hz* 4 kV to 5 kV *50 Hz to 60 Hz*	0.67 % + 12 V 0.67 % + 16 V 0.67 % + 20 V 0.67 % + 24 V		
Measurement	**30 µV to 10 mV** *1 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 1 MHz*	 8.0 µV 5.0 µV 6.0 µV 13 µV 60 µV 160 µV	For instruments with a voltage output	
	10 mV to 100 mV *1 Hz to 40 Hz* *40 Hz to 1 kHz* *1kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz*	 15 µV 13 µV 20 µV 38 µV 100 µV 360 µV 2.3 mV		
	100mV to 1V *1 Hz to 40 Hz* *40 Hz to 1 kHz* *1kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz*	 140 µV 120 µV 200 µV 390 µV 970 µV 3.6 mV 24 mV		
	1 V to 10 V *1 Hz to 40 Hz* *40 Hz to 1 kHz* *1kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz*	 2.0 mV 1.0 mV 2.0 mV 4.0 mV 10 mV 36 mV 240 mV		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
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AC VOLTAGE (continued) Measurement (continued)				A
	10V to 100V		For instruments with a voltage output.	
	1 Hz to 40 Hz	38 mV		
	40 Hz to 1kHz	36 mV		
	1kHz to 20 kHz	37 mV		
	20 kHz to 50 kHz	51 mV		
	50 kHz to 100 kHz	150 mV		
	100kHz to 300 kHz	480 mV		
	100V to 1 kV			
	1 Hz to 40 Hz	520 mV		
	40 Hz to 1 kHz	490 mV		
	1 kHz to 20 kHz	720 mV		
	20 kHz to 50 kHz	1.4 V		
	50 kHz to 100 kHz	3.5 V		
	1 kV to 2 kV *30 Hz to 200 Hz*	0.45 % + 8.0 V		
	2 kV to 3 kV *30 Hz to 200 Hz*	0.45 % + 11 V		
	3 kV to 4 kV *30 Hz to 200 Hz*	0.45 % + 13 V		
	4 kV to 5 kV *30 Hz to 200 Hz*	0.45 % + 16 V		
AC CURRENT				A
Generation	**10 µA to 220 µA**		For the calibration of measuring instruments	
	55 Hz to 400 Hz	38 nA		
	400 Hz to 1 kHz	38 nA		
	1 kHz to 5 kHz	88 nA		
	5 kHz to 10 kHz	360 nA		
	220 µA to 2.2 mA			
	55 Hz to 400 Hz	320 nA		
	400 Hz to 1 kHz	320 nA		
	1 kHz to 5 kHz	660 nA		
	5 kHz to 10 kHz	3.6 µA		
	2.2 mA to 22 mA			
	55 Hz to 400 Hz	29 µA		
	400 Hz to 1 kHz	29 µA		
	1 kHz to 5 kHz	55 µA		
	5 kHz to 10 kHz	290 µA		
	22 mA to 220 mA			
	55 Hz to 400 Hz	3.0 µA		
	400 Hz to 1 kHz	3.0 µA		
	1 kHz to 5 kHz	5.7 µA		
	5 kHz to 10 kHz	34 µA		
	220 mA to 2.2 A			
	55 Hz to 400 Hz	660 µA		
	400 Hz to 1 kHz	660 µA		
	1 kHz to 5 kHz	1.3 mA		
	5 kHz to 10 kHz	18 mA		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC CURRENT (continued)				
	10 Hz to 1 kHz			
Generation (continued)	*2 A to 3 A*	7.0 mA		
	3 A to 5 A	9.0 mA		
	5 A to 10 A	14 mA		
	10 A to 20 A			
	50 Hz to 400 Hz	310 mA		
	400 Hz to 1 kHz	290 mA		
	20 A to 30 A			
	50 Hz to 400 Hz	430 mA		
	400 Hz to 1 kHz	420 mA		
	30 A to 40 A			
	50 Hz to 400 Hz	560 mA		
	400 Hz to 1 kHz	540 mA		
	40 A to 50 A			
	50 Hz to 400 Hz	680 mA		
	400 Hz to 1 kHz	670 mA		
	10 Hz to 100 Hz		Calibration of current clamps using a multi turn coil	
	10 A to 32 A	9.0 mA		
	16 A to 160 A	35 mA		
	160 A to 1000 A	580 mA		
Measurement	**20 nA to 10 μA**		For instruments which generate current	
	20 Hz to 45 kHz	23 nA		
	45 Hz to 1 kHz	14 nA		
	10 μA to 100 μA			
	20 Hz to 45 kHz	210 nA		
	45 Hz to 1 kHz	110 nA		
	100 μA to 1 mA			
	20 Hz to 45 kHz	2.0 μA		
	45 Hz to 20 kHz	1.0 μA		
	20 kHz to 50 kHz	5.0 μA		
	1 mA to 10 mA			
	20 Hz to 45 kHz	20 μA		
	45 Hz to 20 kHz	9.0 μA		
	20 kHz to 50 kHz	51 μA		
	10 mA to 100 mA			
	20 Hz to 45 Hz	200 μA		
	45 Hz to 20 kHz	95 μA		
	20 kHz to 50 kHz	510 μA		
	100 mA to 1 A			
	20 Hz to 45 Hz	2.0 mA		
	45 Hz to 20 kHz	1.0 mA		
	20 kHz to 50 kHz	12 mA		

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AC CURRENT (continued)				A
Measurement (continued)	**1 A to 10 A**			
	50 Hz to 400 Hz	180 mA		
	400 Hz to 1 kHz	140 mA		
	10 A to 20 A			
	50 Hz to 400 Hz	270 mA		
	400 Hz to 1 kHz	250 mA		
	20 A to 30 A			
	50 Hz to 400 Hz	370 mA		
	400 Hz to 1 kHz	360 mA		
	30 A to 40 A			
	50 Hz to 400 Hz	480 mA		
	400 Hz to 1 kHz	470 mA		
	40 A to 50 A			
	50 Hz to 400 Hz	590 mA		
	400 Hz to 1 kHz	580 mA		
FREQUENCY				A
Generation	0.5 Hz to 5.4 GHz	2.1 in 10^9	For the calibration of measuring instruments May be reported as events per unit time	
	1 Hz to 100 Hz	35 µHz	For instruments outputting frequency	
	100 Hz to 1 kHz	0.40 Hz		
	1 kHz to 27 GHz	0.24 µHz/Hz		
Measurement	0.5 Hz to 5.4 GHz	2.1 in 10^9	For the calibration of instruments with frequency outputs. May be reported as events per unit time	
	5.4 GHz to 20 GHz	4.0 MHz		
TIME and FREQUENCY				A
Elapsed time			Mechanical timers / stop watches	
Single event	10 s to 12 hrs	0.23 s		
Revolutions Per Minute	60 RPM to 1000 RPM	0.37 RPM		
	1000 RPM to 30000 RPM	1.6 RPM		
	30000 RPM to 96000 RPM	23 RPM		

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CAPACITANCE				A
Measurement For capacitance sources	***1 kHz*** 0.1 pF to 1 pF 1 pF to 10 pF 10 pF to 100 pF 100 pF to 1000 pF	 0.030 pF 0.035 pF 0.10 pF 1.2 pF	For capacitance sources	
	1 MHz 0.1 pF to 1 pF 1 pF to 10 pF 10 pF to 100 pF 100 pF to 1000 pF	 0.0050 pF 0.030 pF 0.90 pF 8.0 pF		
Simulated For capacitance meters	***10 Hz to 10 kHz*** 220 pF to 400 pF 400 pF to1.1 nF	 13 pF 16 pF		
	10 Hz to 3 kHz 1.1 nF to 3.3 nF	 27 pF		
	10 Hz to 1 kHz 3.3 nF to 11 nF 11 nF to 33 nF	 39 pF 180 pF		
	10 Hz to 1 kHz 33 nF to 110 nF 110 nF to 330 nF	 380 pF 1.0 nF		
	10 Hz to 600 Hz 330 nF to 1.1 µF	 5.0 nF		
	10 Hz to 300 Hz 1.1 µF to 3.3 µF	 12 nF		
	10 Hz to 150 Hz 3.3 µF to 11 µF	 39 nF		
	10 Hz to 120 Hz 11 µF to 33 µF	 140 nF		
	10 Hz to 80 Hz 33 µF to 110 µF	 610 nF		

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CAPACITANCE (continued)				A
For capacitance meters	***0 Hz to 50 Hz*** 110 µF to 330 µF	2.0 µF		
	0 Hz to 20 Hz 330 µF to 1.1 mF	6.0 µF		
	0 Hz to 6 Hz 1.1 mF to 3.3 mF	2.0 µF		
	0 Hz to 2 Hz 3.3 mF to 11 mF	60 µF		
	0 Hz to 0.6 Hz 11 mF to 33 mF	280 µF		
	0 Hz to 0.2 Hz 33 mF to 110 mF	1.0 mF		
CALIBRATION OF INSULATION TESTERS				A
Insulation Resistance	100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 1 GΩ	2.0 kΩ 32 kΩ 510 kΩ 7.0 MΩ	Up to 1350 V	
Insulation test voltage Nominal	50 V 100 V 250 V 500 V 1 kV	1.0 V 2.0 V 3.0 V 4.0 V 7.0 V	The test voltage will normally be measured with a 1 mA load.	
Continuity Resistance	0 Ω to 1 Ω 1 Ω to 50 Ω 50 Ω to 100 Ω 100 Ω to 200 Ω	58 mΩ 100 mΩ 120 mΩ 140 mΩ		

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Temperature indicators, calibration by electrical simulation				A
Type K thermocouple	-200 °C to +1372 °C	0.73 °C	Including reference junction compensation	
Type T thermocouple	-250 °C to +400 °C	0.65 °C	Including reference junction compensation	
Type N thermocouple	-200 °C to +1300 °C	0.46 °C	Including reference junction compensation	
Type S thermocouple	0 °C to 1767 °C	0.77 °C	Including reference junction compensation	
Type J thermocouple	-210 °C to +1200 °C	0.23 °C	Including reference junction compensation	
Type E thermocouple	-250 °C to +1000 °C	0.26 °C	Including reference junction compensation	
Resistance thermometer (Pt 100)	-200°C to +800°C	0.05°C		
Calibration of Oscilloscopes				A
Voltage deflection	0 V to 6 V 11 V to 130 V	0.33 % 0.22 %	Into 50 Ω Into 1 MΩ	
Edge verification - Amplitude	4.5 mV to 2.27 V 1 kHz, 10 kHz & 100 kHz	 2.7 %		
Time markers	100 ns to 20 ms 20 ms to 50 ms	83 ns 250 µs		
Rise time	1 kHz to 2 MHz 2 MHz to 10 MHz	300 ps 350 ps		
Bandwidth Level flatness 50 kHz ref Nominal 3 V	 To 100 MHz To 300 MHz To 600 MHz To 1.1 GHz	 3.3 % 5.4 % 8.5 % 9.5 %	CMC is with respect to relative amplitude of level flatness this will be quoted in frequency terms when stating bandwidth uncertainty as it will vary from device to device.	

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ACCELEROMETRY			Uncertainties for accelerometry sensitivity calibrations at ambient temperature applies for masses up to 40 grams.	A
Accelerometer calibration Charge	Sensitivity range: 0.3 pC/g to 1000 pC/g (0.03 pC/ms^2 to 100 pC/ms^2)			
	1 Hz to 2 Hz *2 Hz to 5 Hz* *5 Hz to 5 kHz* *5 kHz to 10 kHz*	3.0 % 1.2 % 0.80 % 0.90 %	Nominal acceleration ms^{-2}: 1 Hz: 0.10 3 Hz: 0.20 4 Hz to 10 kHz: 0.3 to 100.0	
	Sensitivity range: 0.04 pC/g to 0.3 pC/g (0.004 pC/ms^2 to 0.03 pC/ms^2)			
	20 Hz to 10 kHz	3.0 %	Nominal acceleration 0.3 ms^{-2} to 100.0 ms^{-2}:	
Devices with integral electronics				
Voltage (mV/ms^2)	0.03 mV/ms^2 to 1000 mV/ms^2 *1 Hz to 2 Hz* *2 Hz to 5 Hz* *5 Hz to 5 kHz* *5 kHz to 10 kHz*	 2.0 % 0.83 % 0.80 % 0.90 %	Nominal acceleration ms^{-2}: 1 Hz: 0.10 3 Hz: 0.20 4 Hz to 10 kHz: 0.3 to 100.0	
	0.004 mV/ms^2 to 0.03 mV/ms^2 *20 Hz to 10 kHz*	 3.0 %		
Resistive/Capacitive	0.01 mV/ms^2 to 100 mV/ms^2 *1 Hz to 2 Hz* *2 Hz to 5 Hz* *5 Hz to 5 kHz* *5 kHz to 10 kHz*	 2.0 % 0.83 % 0.86 % 0.90 %	Nominal acceleration ms^{-2}: 1 Hz: 0.10 3 Hz: 0.20 4 Hz to 10 kHz: 0.3 to 100.0	
Vibration	*10 Hz to 5 kHz*		Reference to transfer standard Accelerometer	
Acceleration	0.1g to 10 g	0.40 %		
Velocity	3 mm/s to 2000 mm/s	0.40 %		
Displacement	0.2µm to 100 mm	0.40 %		
Velocity transducers	*5 Hz to 10 kHz* 1.5 mm/s to 3000 mm/s	 0.90 %		

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ACCELEROMETRY (continued)				A
Transducer at any temperature from -60 ^{0}C to +180 ^{0}C:	0.03 mV/ms^2 to 1000 mV/ms^2		At a nominal 1 g_n	
	20 Hz to 630 Hz	3.0 %	This uncertainty applies for masses up to 60 grams, larger masses can be calibrated but at greater uncertainties.	
Portable calibrators	*Frequency 160 Hz* 10 ms^2 nominal	1.5 %		
Bench Calibrators			Note indicated outputs on Bench Calibrators for acceleration are normally indicated in “g”.	
Acceleration	*10mV to 10V, 5 Hz to 10KHz Up to 25g*	2.4 %		
Velocity	*10mV to 10V, 10 Hz to 1KHz Up to 1000 m/sec pk*	2.4 %		
Displacement	*10 mV to 10V, 10 Hz to 250 Hz Up to 10 mm pk to pk*	2.4 %		
DISTORTION THD	*20 Hz to 20 kHz* *10 mV to 750 V* 0 % to 1 % 1 % to 100 %	 0.20 % distortion 0.47 % distortion	Bandpass filter between 20 Hz and 50 kHz	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
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ACCELERATION TRANSDUCERS - SHOCK CALIBRATION				A
<u>Piezoelectric and Piezoresistive and voltage types</u>			Calibration of charge sensitivity by comparison with a reference (precision grade) transducer	
Transducer at nominal 23 ^{0}C	Sensitivity 0.001 pC/ms^2 to 100 pC/ms^2 0.001 mV/ms^2 to 10 mV/ms^2 Within the range of: 2 ms^2 to 1000 ms^2	3.0 %	The transducer to be calibrated must have a mass of no more than 40 grams.	
Vibration meters and analysers	*Frequency 10 Hz to 1 kHz* Range 0.1 ms^2 to 1 ms^2	2.0 %		
Shock and Impulse hammers	Half Sine Wave *Frequency 500 Hz to 20 kHz* Applied Force 0.2 N to 450 N	4.0 %		
Spring hammers				
Impact Energy Imparted from Spring Operated Impact Test Apparatus - as specified in BS EN 60068-2-75:1997 and IEC 60068-2-75 1997	0.1 Joule to 1.0 Joule	0.015 Joule	Calibrations can be given in Joule or Newton Meter units.	
HELICOPTER BLADE BALANCING TEST SETS				
Strobe frequency	1 Hz to 10 Hz 20 Hz to 50 Hz 50 Hz to 100 Hz 100 Hz to 150 Hz 150 Hz to 200 Hz	1.2 Hz 1.2 Hz 1.4 Hz 1.6 Hz 1.7 Hz		
MASS	500 g 200 g 100 g	9 mg 7 mg 7 mg	Calibrated using Borda substitution method.	A
NON-AUTOMATIC WEIGHING MACHINES	100 g 200 g 500 g	19 mg 19 mg 20 mg	Weights are available in OIML Class: M1 from 1 g to 500 g Calibration method in line with the requirements of Euramet gauge cg-18	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
Gateshead Laboratory				
ELECTRICAL				
DC VOLTAGE				B
Generation	0 mV to 50 mV	1.1 µV		
	50 mV to 100 mV	1.4 µV		
	100 mV to 220 mV	2.5 µV		
	0.22 V to 0.5 V	4.9 µV		
	0.5 to 1 V	9.4 µV		
	1 V to 2.2 V	20 µV		
	2.2 V to 5 V	47 µV		
	5 V to 11 V	0.10 mV		
	11 V to 22 V	0.20 mV		
	22 V to 50 V	0.54 mV		
	50 V to 100 V	1.0 mV		
	100 V to 220 V	2.3 mV		
	220 V to 500 V	6.5 mV		
	500 V to 1100 V	14 mV		
Measurement	0 mV	0.65 µV		
	0 mV to 50 mV	0.86 µV		
	50 mV to 100 mV	1.1 µV		
	100 mV to 200 mV	2.0 µV		
	200 mV to 500 mV	2.1 µV		
	500 mV to 1 V	3.6 µV		
	1 V to 2 V	7.0 µV		
	2 V to 5 V	18 µV		
	5 V to 10 V	34 µV		
	10 V to 20 V	69 µV		
	20 V to 50 V	0.30 mV		
	50 V to 100 V	0.53 mV		
	100 V to 200 V	1.1 mV		
	200 V to 500 V	2.8 mV		
	500 V to 1050 V	5.5 mV		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
DC RESISTANCE Sourcing - Spot Values	0 Ω 1 Ω 1.9 Ω 10 Ω 19 Ω 100 Ω 190 Ω 1 kΩ 1.9 kΩ 10 kΩ 19 kΩ 100 kΩ 190 kΩ 1 MΩ 1.9 MΩ 10 MΩ 19 MΩ 100 MΩ	58 µΩ 0.13 mΩ 0.24 mΩ 0.38 mΩ 0.68 mΩ 2.3 mΩ 4.4 mΩ 17 mΩ 33 mΩ 0.16 Ω 0.31 Ω 1.8 Ω 3.5 Ω 27 Ω 53 Ω 0.53 kΩ 1.2 kΩ 15 kΩ		B
DC RESISTANCE Sourcing - 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 kΩ 1.1 kΩ to 3.3 kΩ 3.3 kΩ to 11 kΩ 11 k Ω to 33 kΩ 33 kΩ to 110 kΩ 110 kΩ to 330 kΩ 330 kΩ to 1.1 MΩ 1.1 MΩ to 3.3 MΩ 3.3 MΩ to 11 MΩ 11 MΩ to 33 MΩ 33 MΩ to 110 MΩ 110 MΩ to 330 MΩ 330 MΩ to 1.1 GΩ	0.67 mΩ 1.1 mΩ 3.6 mΩ 11 mΩ 36 mΩ 110 mΩ 0.36 mΩ 1.1 Ω 3.6 Ω 12 Ω 41 Ω 230 Ω 1.7 kΩ 9.6 kΩ 64 kΩ 1.1 MΩ 19 MΩ		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
DC RESISTANCE Measurement	0 Ω 0 Ω to 0.5 Ω 0.5 Ω to 1 Ω 1 Ω to 2 Ω 2 Ω to 5 Ω 5 Ω to 10 Ω 10 Ω to 20 Ω 20 Ω to 50Ω 50 Ω to 100 Ω 100 Ω to 200 Ω 0.2 kΩ to 0.5 kΩ 0.5 kΩ to 1 kΩ 1 kΩ to 2 kΩ 2 kΩ to 5 kΩ 5 kΩ to 10 kΩ 10 kΩ to 20 kΩ 20 kΩ to 50 kΩ 50 kΩ to 100 kΩ 100 kΩ to 200 kΩ 0.2 MΩ to 0.5 MΩ 0.5 MΩ to 1 MΩ 1 MΩ to 2 MΩ 2 MΩ to 5 MΩ 5 MΩ to 10 MΩ 10 MΩ to 20 MΩ 20 MΩ to 50 MΩ 50 MΩ to 100 MΩ 100 MΩ to 1 GΩ	7.5 μΩ 13 μΩ 21 μΩ 43 μΩ 92 μΩ 0.14 mΩ 0.25 mΩ 0.58 mΩ 1.1 mΩ 2.2 mΩ 5.5 mΩ 11 mΩ 21 mΩ 57 mΩ 0.11 Ω 0.22 Ω 0.62 Ω 1.1 Ω 2.2 Ω 7.8 Ω 13 Ω 26 Ω 0.18 kΩ 0.26 kΩ 0.52 kΩ 14 kΩ 19 kΩ 0.34 MΩ		B
DC CURRENT Generation	0 μA to 50 μA 50 μA to 100 μA 100 μA to 220 μA 0.22 mA to 0.5 mA 0.5 mA to 1 mA 1 mA to 2.2 mA 2.2 mA to 5 mA 5 mA to 10 mA 10 mA to 22 mA 22 mA to 50 mA 50 mA to 100 mA 100 mA to 220 mA 0.22 A to 0.5 A 0.5 A to 1 A 1 A to 2.2 A 2.2 A to 3 A 3 A to 11 A 11 A to 20.5 A	12 nA 13 nA 19 nA 37 nA 71 nA 0.15μA 0.37 μA 0.71 μA 1.5 μA 4.2 μA 8.2 μA 18 μA 65 μA 0.12 mA 0.24 mA 1.3 mA 6.4 mA 24 mA		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
DC CURRENT (continued) Generation	20 A to 30 A 30 A to 110 A 110 A to 200 A 200 A to 550 A 550 A to 1025 A	150 mA 500 mA 930 mA 2.5 A 4.7 A	Current clamp calibration using a multi turn coil	B
Measurement	0 µA to 5 µA 5 µA to 10 µA 10 µA to 20 µA 20 µA to 50 µA 50 µA to 100 µA 100 µA to 200 µA 0.2 mA to 0.5 mA 0.5 mA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 50 mA 50 mA to 100 mA 100 mA to 200 mA 0.2 A to 0.5 A 0.5 A to 1 A 1 A to 2 A 2 A to 5 A 5 A to 10 A 10 A to 20 A 20 A to 30 A	0.57 nA 0.63 nA 1.2 nA 1.1 nA 1.4 nA 2.9 nA 9.1 nA 13 nA 26 nA 0.11 µA 0.18 µA 0.35 µA 3.7 µA 6.8 µA 14 µA 0.14 mA 0.19 mA 0.39 mA 1.5 mA 2.8 mA 14 mA 20 mA		
AC VOLTAGE Generation	**0.22 mV to 0.5 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz*	 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 9.3 µV 17 µV 35 µV 46 µV		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Generation (continued)	**0.5 mV to 1 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **1 mV to 2.2 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **2.2 mV to 5 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* ***5 mV to 10 mV*** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz*	 5.9 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 9.3 µV 17 µV 35 µV 47 µV 6.0 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.8 µV 5.9 µV 10 µV 18 µV 35 µV 48 µV 7.8 µV 7.1 µV 7.0 µV 7.0 µV 7.0 µV 7.0 µV 7.4 µV 11 µV 19 µV 36 µV 54 µV 10 µV 7.5 µV 7.1 µV 7.1 µV 7.1 µV 7.1 µV 8.4 µV 14 µV 23 µV 40 µV 72 µV		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Generation (continued)	**10 mV to 22 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **22 mV to 50 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **50 mV to 100 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **100 mV to 220 mV** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz*	 17 µV 9.3 µV 7.6 µV 7.6 µV 7.6 µV 7.6 µV 13 µV 26 µV 37 µV 57 µV 0.13 mV 39 µV 18 µV 13 µV 13 µV 13 µV 13 µV 24 µV 62 µV 72 µV 0.11 mV 0.24 mV 72 µV 30 µV 17 µV 17 µV 17 µV 17 µV 43 µV 0.11 mV 0.13 mV 0.21 mV 0.43 mV 0.15 mV 62 µV 30 µV 30 µV 30 µV 30 µV 92 µV 0.23 mV 0.28 mV 0.46 mV 0.92 mV		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Generation (continued)	**220 mV to 0.5 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **0.5 V to 1 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **1 V to 2 .2 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **2.2 V to 5 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz*	 0.37 mV 0.11 mV 52 µV 52 µV 52 µV 52 µV 85 µV 0.19 mV 0.33 mV 0.83 mV 1.8 mV 0.70 mV 0.21 mV 0.10 mV 0.10 mV 0.10 mV 0.10 mV 0.16 mV 0.34 mV 0.58 mV 1.5 mV 3.0 mV 1.5 mV 0.46 mV 0.22 mV 0.22 mV 0.22 mV 0.22 mV 0.36 mV 0.72 mV 1.2 mV 3.1 mV 6.2 mV 3.7 mV 1.1 mV 0.52 mV 0.52 mV 0.52 mV 0.52 mV 0.85 mV 1.7 mV 4.0 mV 10 mV 20 mV		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Generation (continued)	**5 V to 10 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **10 V to 22 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* *100 kHz to 200 kHz* *200 kHz to 500 kHz* *500 kHz to 1 MHz* **22 V to 50 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* **50 V to 100 V** *10 Hz to 20 Hz* *20 Hz to 40 Hz* *40 Hz to 100 Hz* *100 Hz to 1 kHz* *1 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz*	 7.0 mV 2.1 mV 1.0 mV 1.0 mV 1.0 mV 1.0 mV 1.6 mV 3.3 mV 7.2 mV 17 mV 36 mV 15 mV 4.6 mV 2.2 mV 2.2 mV 2.2 mV 2.2 mV 3.6 mV 7.1 mV 15 mV 36 mV 77 mV 37 mV 11 mV 5.8 mV 5.8 mV 5.8 mV 5.8 mV 15 mV 37 mV 70 mV 21 mV 11 mV 11 mV 11 mV 11 mV 29 mV 70 mV		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Generation (continued)	**100 V to 220 V**			B
	10 Hz to 20 Hz	0.15 V		
	20 Hz to 40 Hz	46 mV		
	40 Hz to 100 Hz	23 mV		
	100 Hz to 1 kHz	23 mV		
	1 kHz to 10 kHz	23 mV		
	10 kHz to 20 kHz	23 mV		
	20 kHz to 50 kHz	64 mV		
	50 kHz to 100 kHz	0.15 mV		
	220 V to 500 V			
	50 Hz	57 mV		
	50 Hz to 500 Hz	57 mV		
	500 Hz to 1 kHz	57 mV		
	500 V to 1100 V			
	50 Hz	0.12 V		
	50 Hz to 500 Hz	0.12 V		
	500 Hz to 1 kHz	0.12 V		
AC VOLTAGE Measurement	1 **mV to 5 mV**			B
	10 Hz to 2 kHz	3.0 µV		
	2 kHz to 10 kHz.	3.3 µV		
	10 kHz to 30 kHz	3.3 µV		
	30 kHz to 100 kHz	18 µV		
	100 kHz to 300 kHz	58 µV		
	300 kHz to 1 MHz	0.12 mV		
	5 **mV to 10 mV**			
	10 Hz	3.0 µV		
	10 Hz to 2 kHz	4.2 µV		
	2 kHz to 10 kHz.	4.9 µV		
	10 kHz to 30 kHz	5.0 µV		
	30 kHz to 60 kHz	36 µV		
	60 kHz to 100 kHz	35 µV		
	100 kHz to 300 kHz	0.12 mV		
	300 kHz to 1 MHz	0.23 mV		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Measurement (continued)	**10 mV to 50 mV** *10Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* *1 MHz to 2 MHz* *2 MHz to 4 MHz* *4 MHz to 6 MHz* *6 MHz to 8 MHz* *8 MHz to 10 MHz* ***50* mV to 100 mV** *10 Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* *1 MHz to 2 MHz* *2 MHz to 4 MHz* *4 MHz to 8 MHz* *8 MHz to 10 MHz* **0.1 V to 0.5 V** *10Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* *1 MHz to 2 MHz* *2 MHz to 4 MHz* *4 MHz to 8MHz* *8 MHz to 10 MHz* ***0.5* V to 1 V** *10Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 60 kHz* *60 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* *1 MHz to 2 MHz* *2 MHz to 4 MHz* *4 MHz to 8 MHz* *8 MHz to 10 MHz*	 6.1 µV 5.7 µV 7.9 µV 14 µV 34 µV 0.14 mV 0.69 mV 1.1 mV 2.7 mV 5.1 mV 5.2 mV 9.5 mV 11 10 µV 15 µV 27 µV 68 µV 0.25 mV 1.3 mV 1.9 mV 4.9 mV 10 mV 19 mV 50 µV 47 µV 73 µV 0.13 mV 0.34 mV 1.4 mV 6.3 mV 11 mV 26 mV 51 mV 92 mV 91 µV 90 µV 0.14 mV 0.27 mV 0.62 mV 0.68 mV 2.5 mV 12 mV 18 mV 48 mV 0.10 V 0.18 V		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC VOLTAGE Measurement (continued)	**1 V to 5 V** *10Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* *1 MHz to 2 MHz* *2 MHz to 4 MHz* *4 MHz to 8 MHz* *8 MHz to 10 MHz* ***5* V to 10 V** *10Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* *1 MHz to 2 MHz* *2 MHz to 4 MHz* *4 MHz to 8 MHz* *8 MHz to 10 MHz* **10 V to 50 V** *10Hz* *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* ***50* V to 100 V** *10 Hz to 2 kHz* *2 kHz to 10 kHz.* *10 kHz to 30 kHz* *30 kHz to 100 kHz* *100 kHz to 300 kHz* *300 kHz to 1 MHz* **100 V to 500 V** *40 Hz to 10 kHz* *10 kHz to 30 kHz* *30 kHz to 100 kHz* ***500* V to 1000 V** *40 Hz to 10 kHz* *10 kHz to 30 kHz* *30 kHz to 100 kHz*	 0.49 mV 0.48 mV 0.73 mV 1.3 mV 3.3 mV 14 mV 60 mV 0.10 V 0.26 V 0.49 V 0.90 V 0.91 mV 0.90 mV 1.4 mV 2.7 mV 6.3 mV 25 mV 0.12 V 0.18 V 0.48 V 1.0 V 1.8 V 6.0 mV 5.6 mV 6.7 mV 16 mV 39 mV 0.22 V 0.88 V 11 mV 13 mV 28 mV 71 mV 0.43 V 1.4 V 73 mV 0.16 V 0.38 V 0.13 V 0.28 V 0.70 V		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC CURRENT Generation	**10 µA to 50 µA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **50 µA to 100 µA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **100 µA to 220 µA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **0.22 mA to 0.5 mA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **0.5 mA to 1 mA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **1 mA to 2.2 mA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **2.2 mA to 5 mA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **5 mA to 10 mA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz* **10 mA to 22 mA** *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 5 kHz* *5 kHz to 10 kHz*	 38 nA 26 nA 71 nA 0.16 µA 57 nA 30 nA 0.10 µA 0.24 µA 0.11 µA 48 nA 0.19 µA 0.47 µA 48 nA 47 nA 0.58 µA 1.2 µA 0.49 µA 0.19 µA 1.0 µA 2.4 µA 1.1 µA 0.41 µA 1.9 µA 4.7 µA 2.5 µA 1.0 µA 7.0 µA 16 µA 4.9 µA 1.9 µA 10 µA 24 µA 11 µA 4.1 µA 19 µA 47 µA		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC CURRENT Generation (continued)				B
	22 mA to 50 mA			
	20 Hz to 40 Hz	25 µA		
	40 Hz to 1 kHz	11 µA		
	1 kHz to 5 kHz	70 µA		
	5 kHz to 10 kHz	0.16 mA		
	50 mA to 100 mA			
	20 Hz to 40 Hz	49 µA		
	40 Hz to 1 kHz	21 µA		
	1 kHz to 5 kHz	99 µA		
	5 kHz to 10 kHz	0.24 mA		
	100 mA to 220 mA			
	20 Hz to 40 Hz	0.11 mA		
	40 Hz to 1 kHz	46 µA		
	1 kHz to 5 kHz	0.19 mA		
	5 kHz to 10 kHz	0.47 mA		
	0.22 A to 0.5 A			
	20 *Hz to 1 kHz*	0.44 mA		
	1 kHz to 5 kHz	0.50 mA		
	5 kHz to 10 kHz	0.62 mA		
	0.5 A to 1 A			
	20 *Hz to 1 kHz*	0.87 mA		
	1 kHz to 5 kHz	0.99 mA		
	5 kHz to 10 kHz	1.2 mA		
	1 A to 2.2 A			
	20 *Hz to 1 kHz*	1.9 mA		
	1 kHz to 5 kHz	2.2 mA		
	5 kHz to 10 kHz	2.6 mA		
	2.2 A to 3 A			
	10 Hz to 45 Hz	6.2 mA		
	45 Hz to 1 kHz	2.1 mA		
	1 kHz to 5 kHz	21 mA		
	5 kHz to 10 kHz	87 mA		
	3 A to 11 A			
	45 Hz to 100 Hz	8.0 mA		
	100 Hz to 1 kHz	13 mA		
	1 kHz to 5 kHz	0.38 mA		
	11 A to 20.5 A			
	45 Hz to 100 Hz	29 mA		
	100 Hz to 1 kHz	36 mA		
	1 kHz to 5 kHz	710 mA		
	45 Hz to 400 Hz		Calibration of current clamps using a multi turn coil	
	20 A to 30 A	150 mA		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC CURRENT Generation (continued)	**30 A to 110 A** *45 Hz to 100 Hz*	520 mA	Calibration of current clamps using a multi turn coil	B
	110 A to 200 A *100 Hz to 400 Hz*	960 mA		
	200 A to 550 A *45 Hz to 100 Hz*	2.5 A		
	550 A to 1025 A *45 Hz to 100 Hz*	4.8 A		
Measurement	**0 µA to 5 µA** *10 Hz to 55 Hz* *55 Hz to 10 kHz*	13 nA 25 nA		
	5 µA to 10 µA *10 Hz to 55 Hz* *55 Hz to 10 kHz*	24 nA 34 nA		
	10 µA to 20 µA *10 Hz to 55 Hz* *55 Hz to 10 kHz*	47 nA 52 nA		
	20 µA to 50µA *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 30 kHz*	23 nA 35 nA 48 nA 53 nA		
	50 µA to 100 µA *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 20 kHz* *20 kHz to 30 kHz*	36 nA 63 nA 88 nA 91 nA		
	100 µA to 200 µA *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz*	67 nA 0.12 µA 0.17 µA		
	0.2 mA to 0.5 mA *10Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz*	0.19 µA 0.32 µA 0.44 µA		
	0.5 mA to 1 mA *10 Hz to 2 kHz.* *2 kHz to10 kHz* *10 kHz to 30 kHz*	0.34 µA 0.62 µA 0.86 µA		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC CURRENT Measurement (continued)	**1 mA to 2 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **2 mA to 5 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **5 mA to 10 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **10 mA to 20 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **20 mA to 50 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **50 mA to 100 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **100 mA to 200 mA** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **0.2 A to 0.5 A** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* ***0.5* A to 1 A** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **1 A to 2 A** *10 Hz to 2 kHz.* *2 kHz to 10 kHz* *10 kHz to 30 kHz* **2 A to 5 A** *10 Hz to 10 kHz*	 0.66 µA 1.2 µA 1.7 µA 1.9 µA 3.2 µA 4.4 µA 3.4 µA 6.2 µA 8.6 µA 6.6 µA 12 µA 17 µA 19 µA 31 µA 45 µA 34 µA 61 µA 86 µA 66 µA 0.12 mA 0.17 mA 0.23 mA 0.36 mA 0.47mA 0.38 mA 0.66 mA 0.92 mA 0.74 mA 1.3 mA 1.8 mA 5.0 mA		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
AC CURRENT Measurement (continued)	***5* A to 10 A** *10 Hz to 10 kHz*	10 mA		B
	10 A to 20 A *10 Hz to 10 kHz*	19 mA		
	20 A to 30 A *10 Hz to 2 kHz* 2 k*Hz to 10 kHz*	24 mA 32 mA		
FREQUENCY				B
Generation	10 MHz	3.2 in 10^9	Reference	
Measurement	10 Hz to 100 kHz 100 kHz to 1 MHz 1 MHz to 10 MHz 10 MHz to 50 MHz 50 MHz to 600 MHz 600 MHz to 6 GHz	16 mHz 170 mHz 1.7 Hz 17 Hz 4.8 Hz 35 Hz		
Generation	1 Hz to 10 Hz 10 Hz to 100 Hz 100 Hz to 20 MHz	2.3 µHz/Hz 1.2 µHz/Hz 0.012 µHz/Hz	May be reported as events per unit time	
Elapsed time			Mechanical timers / stop watches	
Single event	1 s to 12 hrs	0.05 s		
Revolutions Per Minute Simulation	6 RPM to 600 RPM 600 RPM to 6000 RPM 6000 RPM to 120000 RPM	0.064 RPM 0.065 RPM 0.066 RPM	Optical	
CAPACITANCE				B
Simulated generation	***1 kHz*** 220 pF to 400 pF 400 pF to 1.1 nF 1.1 nF to 3.3 nF 3.3 nF to 11 nF 11 nF to 33 nF 33 nF to 110 nF 110 nF to 330 nF	 12 pF 13 pF 22 pF 34 pF 100 pF 320 pF 970 pF		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
CAPACITANCE (continued) Simulated generation (continued)	***100 Hz*** 0.33 µF to 1.1 µF 1.1 µF to 3.3 µF 3.3 µF to 11 µF 11 µF to 33 µF 33 µF to 110 µF 110 µF to 330 µF 330 µF to 1.1 mF 1.1 mF to 3.3 mF 3.3 mF to11 mF 11 mF to 33 mF 33 mF to 110 mF	 3.4 nF 10 nF 34 nF 160 nF 600 nF 1.8 µF 5.8 µF 18 µF 58 µF 290 µF 1.4 mF		B
Measurement	0 to 0.5 nF 0.5 nF to 1 nF 1 nF to 2 nF 2 nF to 5 nF 5 nF to 10 nF 10 nF to 20 nF 20 nF to 50 nF 50 nF to 100 nF 100 nF to 200 nF 0.2 µF to 0.5 µF 0.5 µF to 1 µF 1 µF to 2 µF 2 µF to 5 µF 5 µF to 10 µF 10 µF to 20 µF 20 µF to 50 µF 50 µF to 100 µF 100 µF to 200 µF 0.2 mF to 0.5 mF 0.5 mF to 1 mF 1 mF to 2 mF 2 mF to 5 mF 5 mF to 10 mF 10 mF to 20 mF 20 mF to 50 mF 50 mF to 100 mF 100 mF to 200 mF	2.0 pF 2.7 pF 5.1 pF 6.1 pF 10 pF 20 pF 35 pF 60 pF 0.12 nF 0.28 nF 0.50 nF 1.1 nF 3.5 nF 5.5 nF 10 nF 45 nF 76 nF 0.15 µF 0.45 µF 0.76 µF 1.5 µF 5.0 µF 8.7 µF 17 µF 45 µF 87 µF 0.17 mF		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
CALIBRATION OF INSULATION TESTERS				B
Insulation Resistance	10 kΩ to 190 kΩ 200 kΩ 400 kΩ 800 kΩ 1.9 MΩ 2 MΩ 4 MΩ 8 MΩ 19 MΩ 20 MΩ 40 MΩ 80 MΩ 190 MΩ 200 MΩ 400 MΩ 800 MΩ 1.9 GΩ	5.8 kΩ 6.1 kΩ 6.2 kΩ 6.4 kΩ 7.0 kΩ 9.4 kΩ 15 kΩ 28 kΩ 58 kΩ 0.13 MΩ 0.24 MΩ 0.47 MΩ 0. 58 MΩ 1.8 MΩ 3.4 MΩ 6.7 MΩ 13 MΩ	Up to 1350 V	B
Insulation test voltage Nominal	0 to 10 V 10 V to 100 V 100 V to 1100 V	0.10 V 0.26 V 2.6 V	The test voltage will normally be measured with a 1 mA load.	B
Continuity Resistance	100 mΩ to 2 Ω 4 Ω 8 Ω 19 Ω 20 Ω 40 Ω 80 Ω 190 Ω 200 Ω 400 Ω 800 Ω 1.9 k Ω 2 kΩ 4 kΩ 8 kΩ 10 kΩ	30 mΩ 33 mΩ 35 mΩ 38 mΩ 55 mΩ 0.12 Ω 0.20 Ω 0.24 Ω 0.74 Ω 1.1 Ω 2.0 Ω 2.4 Ω 8.1 Ω 11 Ω 20 Ω 24 Ω		B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)		Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.					
Temperature indicators, calibration by electrical simulation		Excluding CJC	Including CJC	By injection of equivalent DC voltages	B
Type K thermocouple	-270 °C to -200 °C	1.6 °C	2.8 °C		
	-200 °C to -50 °C	0.10 °C	0.17 °C		
	-50 °C to 1370 °C	0.10 °C	0.13 °C		
Type J thermocouple	-210 °C to -200 °C	0.10 °C	0.23 °C		
	-200 °C to 0 °C	0.10 °C	0.21 °C		
	0 °C to 1200 °C	0.10 °C	0.14 °C		
Type E thermocouple	-270 °C to -200 °C	0.69 °C	0.95 °C		
	-200 °C to 0 °C	0.10 °C	0.13 °C		
	0 °C to 1000 °C	0.10 °C	0.12 °C		
Type T thermocouple	-270 °C to -200 °C	1.1 °C	7.2 °C		
	-200 °C to 0 °C	0.10 °C	0.48 °C		
	0 °C to 400 °C	0.10 °C	0.22 °C		
Type N thermocouple	-270 °C to -200 °C	3.7 °C	4.3 °C		
	-200 °C to -100 °C	0.13 °C	0.18 °C		
	-100 °C to 800 °C	0.10 °C	0.13 °C		
	800 °C to 1300 °C	0.10 °C	0.12 °C		
Type R thermocouple	-50 °C to 0 °C	0.30 °C	0.34 °C		
	0 °C to 150 °C	0.22 °C	0.25 °C		
	150 °C to 400 °C	0.15 °C	0.19 °C		
	400 °C to 1768 °C	0.12 °C	0.17 °C		
Type S thermocouple	-50 °C to 0 °C	0.28 °C	0.31 °C		
	0 °C to 100 °C	0.21 °C	0.24 °C		
	100 °C to 300 °C	0.16 °C	0.20 °C		
	300 °C to 1768 °C	0.13 °C	0.17 °C		
Resistance thermometer (Pt 100)	-200 °C to -80 °C	0.058 °C		By injection of equivalent DC resistance	
	-80 °C to 0 °C	0.058 °C			
	0 °C to 100 °C	0.081°C			
	100 °C to 300 °C	0.10 °C			
	300 °C to 400 °C	0.12 °C			
	400 °C to 630 °C	0.14 °C			
	630 °C to 800 °C	0.27 °C			

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)		Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.					
Temperature simulators, calibration by electrical measurement				By measurement of equivalent DC voltages	B
		Excluding CJC	Including CJC		
Type K thermocouple	-270 °C to -200 °C	1.2 °C	2.6 °C		
	-200 °C to -50 °C	0.10 °C	0.17 °C		
	-50 °C to 1370 °C	0.10 °C	0.13 °C		
Type J thermocouple	-210 °C to -200 °C	0.10 °C	0.23 °C		
	-200 °C to 0 °C	0.10 °C	0.21 °C		
	0 °C to 1200 °C	0.10 °C	0.14 °C		
Type E thermocouple	-270 °C to -200 °C	0.54 °C	0.85 °C		
	-200 °C to 0 °C	0.10 °C	0.13 °C		
	0 °C to 1000 °C	0.10 °C	0.12 °C		
Type T thermocouple	-270 °C to -200 °C	0.86 °C	7.2 °C		
	-200 °C to 0 °C	0.10 °C	0.47 °C		
	0 °C to 400 °C	0.10 °C	0.22 °C		
Type N thermocouple	-270 °C to -200 °C	2.9 °C	3.6 °C		
	-200 °C to -100 °C	0.11 °C	0.16 °C		
	-100 °C to 800 °C	0.10 °C	0.13 °C		
	800 °C to 1300 °C	0.10 °C	0.12 °C		
Type R thermocouple	-50 °C to 0 °C	0.24 °C	0.29 °C		
	0 °C to 150 °C	0.17 °C	0.22 °C		
	150 °C to 400 °C	0.12 °C	0.17 °C		
	400 °C to 1768 °C	0.10 °C	0.15 °C		
Type S thermocouple	-50 °C to 0 °C	0.22 °C	0.26 °C		
	0 °C to 100 °C	0.17 °C	0.21 °C		
	100 °C to 300 °C	0.13 °C	0.17 °C		
	300 °C to 1768 °C	0.11 °C	0.16 °C		
Resistance thermometer (Pt 100)	-200 °C to 0 °C	0.0069 °C		By measurement of equivalent DC resistance	
	0 °C to 850 °C	0.020 °C			

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.				
Calibration of Oscilloscopes				B
Voltage deflection	1 mV to 25 mV 25 mV to 110 mV 110 mV to 2.2 V 2.2 V to 6 V	Q [0.29 %, 47 µV] Q [0.29 %, 48 µV] Q [0.29 %, 92 µV] Q[0.29 %, 0.21 mV]	Into 50 Ω	
	1 mV to 25 mV 25 mV to 110 mV 110 mV to 2.2 V 2.2 V to 11 V 11 V to 130 V	Q [0.12 %, 46 V] Q [0.12 %, 46 µV] Q [0.12 %, 51 µV] Q [0.12 %, 0.22 mV] Q [0.12 %, 0.47 mV]	Into 1 MΩ	
Time markers	2 ns to 500 ns 500 ns to 500 µs 500 µs to 50 ms 50 ms to 5 s	Q [0.082 %, 0.12 ps] Q [0.082 %, 0.12 ns] Q [0.058 %, 12 ns] Q [0.59 %, 1.2 µs]		
PRESSURE Pneumatic Pressure (gauge)			Methods consistent with EURAMET CG17. Absolute pressures can be generated within these gauge pressure ranges. This will attract an additional uncertainty of 10 Pa.	B
Calibration of pressure indicating instruments and gauges	- 95 kPa to -10 kPa -10 kPa to -3.5 kPa -3.5 kPa to -1.5 kPa 1.5 kPa to 3.5 kPa 3.5 kPa to 10 kPa 10 kPa to 20 kPa 20 kPa to 2.5 MPa 2.5 MPa to 14 MPa	0.0087 % 0.0097 % Q [0.014 %, 0.50 Pa] Q [0.013 %, 0.50 Pa] 0.0078 % 0.0066 % 0.0063 % 0.0079 %	Sensors with an electrical output can be calibrated	
Hydraulic Pressure (gauge)				
Calibration of pressure indicating instruments and gauges	0.6 MPa to 6 MPa 6 MPa to 120 MPa	0.011 % 0.010 %		
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 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: $Q[a, b] = [a^2 + b^2]^{1/2}$