Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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



Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 3 Iceni Court Icknield Way Letchworth Garden City Hertfordshire SG6 1TN United Kingdom	Contact: Neil Debrick Tel: +44 (0)1462 650 620 Email: Neil Debrick@dplusm.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. The customers' site or premises must be suitable for the nature of the particular calibrations undertaken and will be the subject of contract review arrangements between the laboratory and the customer.	Contact: Neil Debrick Tel: +44 (0)1462 650 620 Email: Neil Debrick@dplusm.co.uk	Dimensional and Electrical.	В

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	DM Calibration Limited
0143 Accredited to ISO/IEC 17025:2017	Issue No: 050 Issue date: 11 May 2025
	Calibration performed by the Organisation at the locations specified

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> =2)	Remarks	Location Code
Ra	ange in millimetres and un	certainty in micrometres unless othe	erwise stated.	
DIMENSIONAL CALIBRATION			All linear calibration results may also be stated in inch units	
LENGTH			dinto.	
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 and setting ring gauges (parallel)	1 to 10 diameter 10 to 50 50 to 100 100 to 200 200 to 300	1.5 1.0 1.2 3.5 4.0	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	А
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	5 to 50 x 100 x 400	From 1.5 up to 5.0	As BS 906:1972 by comparison to datum surfaces and length standards	A
Vee blocks	20 to 150 diameter, vee capacity Flatness of faces: Parallelism of vee: Squareness: Centrality of vee: Equality of semi- angle: Matching:	2.5 2.5 4.0 4.0 4.0 4.0 0.60 minutes of arc 4.0	As BS 3731:1987 comparison to datum surfaces	A

Calibration and Measurement Capability (CMC)

	Uni 2 Pin	Schedule of Accre issued by ted Kingdom Accred e Trees, Chertsey Lane, Staines-upo	editation litation Service n-Thames, TW18 3HR, UK	
0143 Accredited to	DM Calibration Limited Issue No: 050 Issue date: 11 May 2025			
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Measured Quantity	Range	Expanded Measurement	Remarks	Location

Instrument or Gauge	Range	Uncertainty $(k = 2)$	Remains	Code
R	ange in millimetres and un	certainty in micrometres unless othe	erwise stated.	
ANGLE				
Squares Blade type	Squareness of blade to stock 50 to 300 300 to 600 Straightness of blade: Flatness: Parallelism: Squareness of side faces: Squareness of blade edges: Lateral squareness:	6.0 7.0 2.5 2.5 2.5 7.0 6.0 20	As BS 939:2007	A
Angle plates and box angle plates	50 to 600	Squareness: 3.0 + (1.0 per 100 mm) Parallelism: 1.0 + (1.0 per 100 mm)	As BS 5535:1978	A
FORM				
Straight edges Cast iron	300 to 8000	1.0 + (2.0 x length in m)	As BS 5204:Part 1:1975	A
Steel, Granite	300 to 2000	1.0 + (2.0 x length in m)	As BS 5204:Part 2:1977	А
Surface plates Granite and Cast iron	160 x 100 to 4000 x 6000 Flatness of working surface: Local variation of working surface:	1.5 + (0.80 x diagonal in m) 2.0	As BS 817:2008	Α&Β

	Unite 2 Pine	Schedule of Acci issued by ad Kingdom Accre Trees, Chertsey Lane, Staines-up	reditation ditation Service on-Thames, TW18 3HR, UK	
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	Calibration performed by	y the Organisation at the location	s specified	
Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
F	ange in millimetres and un	certainty in micrometres unless othe	erwise stated.	
MEASURING INSTRUMENTS AN	 D MACHINES		Instrument entries in this section of the schedule also cover digital and dial type gauges which are calibrated based on the quoted standards.	
External micrometer	Based on BS 870:2008 0 to 900 (Zero) Setting, 0 to 25: (Zero) Setting, 25 to 600: Flatness of anvils: Parallelism of anvils: Spindle alignment:	2.0 between any two points 1.0 1.0 + (8.0 x length in m) 0.30 1.0 6.0		A
Internal micrometer	Based on BS 959:2008 0 to 900 Heads: Setting and Extension rods:	2.0 1.2 + (8.0 x length in m)		A

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R	ange in millimetres and un	certainty in micrometres unless othe	erwise stated.	
Depth micrometer	Based on BS 6468:2008 0 to 300 Extension rods: Base Flatness: Rod Flatness: Parallelism: Rod axis of rotation: Squareness of:- Face to spindle / rod axis: Rod axis to datum face:	2.0 1.0 + (8.0 x length in m) 3.0 0.30 3.0 5.0 3.0 5.0		A
Three point bore micrometers	3 to 50 50 to 100 100 to 150	Overall performance 3.0 Overall performance 3.5 Overall performance 5.0	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	0 to 100	1.0	As BS 1734:1951	А
Vernier / Digital / Dial gauges Calliper	0 to 1000 Flatness: Parallelism: Squareness: Co-Planer: Width of internal jaws:	Overall performance 10 + (30 x length in m) 4.0 4.0 8.0 7.0 6.0	BS 887:2008	A
Height	0 to 1000 Flatness: Parallelism: Depth of Jaw/Scriber:	Overall performance 10 + (30 x length in m) 1.0 3.0 4.0	BS 1643:2008 and ISO13225:2012	A
Depth	0 to 600 Flatness/Straightness: Parallelism:	Overall performance 10 + (30 x length in m) 3.0 3.0	BS 6365:2008	A
Dial gauges and dial test indicators	0 to 50 Scale measurements: Discrimination: Repeatability:	1.0 1.8 1.4	As BS 907:2008 and BS 2795:1981	A

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	Range in millimetres and unce	ertainty in micrometres unless othe	rwise stated.	
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	0.02 to 1	3.0	As BS 957:2008	А
Spirit levels	5 seconds of arc to 60 minutes of arc nominal sensitivity	Mean sensitivity 10 % of nominal Minimum of 0.50 seconds of arc	As BS 3509:1962 and BS 958:1968	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			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	0.1 N⋅m to 3000 N⋅m	1.0 %	As BS EN ISO 6789- 2:2017	A
Torque Wrenches and Torque Drivers	0.1 N·m to 3000 N·m	1.0 %	As BS EN ISO 6789:2003 (Withdrawn & superseded)	A

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
ELECTRICAL CALIBRATION				
DC RESISTANCE				
Specific values	100 μΩ 1 mΩ 10 mΩ 100 mΩ 1 Ω 10 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ	60 μΩ/Ω 35 μΩ/Ω 15 μΩ/Ω 12 μΩ/Ω 6.0 μΩ/Ω 5.0 μΩ/Ω 4.0 μΩ/Ω 3.0 μΩ/Ω 3.0 μΩ/Ω 10 μΩ/Ω 100 μΩ/Ω 0.65 %	Known values of resistance for the calibration of measuring instruments.	A
Other values	$\begin{array}{l} 0 \ \Omega \ \text{to} \ 1 \ \Omega \\ 1 \ \Omega \ \text{to} \ 12 \ \Omega \\ 12 \ \Omega \ \text{to} \ 120 \ \Omega \\ 120 \ \Omega \ \text{to} \ 120 \ \Omega \\ 120 \ \Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 12 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 120 \ \text{k}\Omega \\ 120 \ \text{k}\Omega \ \text{to} \ 120 \ \text{k}\Omega \\ 120 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \ \text{k} \ 1.2 \ \text{k}\Omega \\ 1.2 \ \text{k}\Omega \ \text{to} \ 1.2 \ \text{k}\Omega \ \text{k} \ 1.2 \ \text{k}\Omega \ \text{k} \ 1.2 \ \text{k} \Omega \ \text{k} \ 1.2 \ \text{k} \Omega \ \text{k} \ 1.2 \ \text{k} \Omega \ \text{to} \ 1.2 \ \text{k} \Omega \ \text{k} \ 1.2 \ \text{k} \ 1.2 \ \text{k} \Omega \ \text{k} \ 1.2 \ \text{k} \Omega \ \text{k} \ 1.2 \ 1.2 \ 1.2 \ \text{k} \ 1.2 \ 1.2 \ 1.2 \ 1.2 \ 1.2 $	12 μΩ/Ω + 34 μΩ 6.4 μΩ/Ω + 35 μΩ 3.9 μΩ/Ω + 350 μΩ 2.9 μΩ/Ω + 240 μΩ 4.0 μΩ/Ω + 2.4 mΩ 3.0 μΩ/Ω + 24 mΩ 14 μΩ/Ω + 1.2 Ω 45 μΩ/Ω + 67 Ω 610 μΩ/Ω + 1.2 kΩ	Using digital multimeter; for the calibration of resistance sources.	A
	0 Ω to 12 Ω 12 Ω to 120 Ω 120 Ω to 1.2 kΩ 1.2 kΩ to 12 kΩ 12 kΩ to 120 kΩ 120 kΩ to 1.2 MΩ 1.2 MΩ to 1.2 MΩ 1.2 MΩ to 120 MΩ	130 μΩ/Ω + 3.5 mΩ 120 μΩ/Ω + 4.6 mΩ 120 μΩ/Ω + 12 mΩ 120 μΩ/Ω + 120 mΩ 120 μΩ/Ω + 1.2 Ω 120 μΩ/Ω + 1.2 Ω 480 μΩ/Ω + 120 Ω 1.1 % + 12 kΩ	Using digital multimeter; for the calibration of resistance sources.	В
Specific values	1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ	95 μΩ/Ω 24 μΩ/Ω 11 μΩ/Ω 7.9 μΩ/Ω 9.7 μΩ/Ω 9.7 μΩ/Ω 14 μΩ/Ω 110 μΩ/Ω	Known values of resistance for the calibration of measuring instruments	В

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DC VOLTAGE				
Reference standard values	10 V	0.20 μV/V	Using digital multimeter.	А
Other Values	0 V to 120 mV 120 mV to 1.2 V 1.2 V to 12 V 12 V to 120 V 120 V to 1 kV 1 kV to 12 kV	6.9 μV/V + 0.32 μV 1.6 μV/V + 0.24 μV 0.70 μV/V 2.0 μV/V 7.1 μV/V + 0.41 mV 0.20 %	Using digital multimeter; for the calibration of voltage sources. Using high voltage source and divider.	A
	0 mV to 120 mV 120 mV to 1.2 V 1.2 V to 12 V 12 V to 120 V 120 V to 1050 V 1 kV to 12 kV	45 μV/V + 4.5 μV 32 μV/V 30 μV/V 47 μV/V 480 μV/V 0.20 %	Using digital multimeter; for the calibration of voltage sources. Using high voltage divider.	В
	0 V to 220 mV 220 mV to 2.2 V 2.2 V to 11 V 11 V to 22 V 22 V to 220 V 220 V to 1100 V	7.9 μV/V + 0.80 μV 5.1 μV/V + 1.0 μV 3.7 μV/V + 2.6 μV 3.6 μV/V + 4.1 μV 5.1 μV/V + 40 μV 6.6 μV/V + 400 μV	Using multifunction calibrator; for the calibration of measuring instruments.	A & B
DC CURRENT	1 μA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 10 A 10 A to 20 A 20 A to 40 A 40 A to 100 A	15 μΑ/Α 20 μΑ/Α 25 μΑ/Α 25 μΑ/Α 45 μΑ/Α 50 μΑ/Α 380 μΑ/Α	Known values of direct current, using voltage/resistance method.	A
Simulation	20 A to 1000 A	0.20 % + 100 mA	For the calibration of current clamps and similar devices, using multi-turn coil method.	A & B A
	0 A to 120 µA 120 µA to 1.2 mA 1.2 mA to 12 mA 12 mA to 120 mA 120 mA to 120 mA 400 mA to 400 mA 400 mA to 1.2 A 1.2 A to 3 A 3 A to 10 A 10 A to 20 A	600 μA/A + 31 nA 600 μA/A + 60 nA 600 μA/A + 2.4 μA 600 μA/A + 12 μA 600 μA/A + 26 μA 600 μA/A + 240 μA 0.12 % + 700 μA 0.18 % + 930 μA 75 μA/A + 75 μA	Using digital multimeter; for the calibration of current sources.	В

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
DC CURRENT (continued)				

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
DC CURRENT (continued)	0 A to 220 µA 220 µA to 2.2 mA 2.2 mA to 22 mA 22 mA to 220 mA 220 mA to 2.2 A 2.2 A to 10 A	41 μΑ/Α + 6.0 nA 36 μΑ/Α + 7.0 nA 36 μΑ/Α + 40 nA 46 μΑ/Α + 700 nA 81 μΑ/Α + 12 μΑ 480 μΑ/Α + 260 μΑ	Using multifunction calibrator; for the calibration of measuring Instruments.	A & B
DC Power	33 mV to 1 kV 3.3 mA to 9 mA 9 mA to 33 mA 33 mA to 90 mA 90 mA to 330 mA 330 mA to 0.90 A 0.9 A to 2.2 A 2.2 A to 4.5 A 4.5 A to 11 A	0.034 % 0.027 % 0.034 % 0.027 % 0.064 % 0.049 % 0.094 % 0.071 %	Using a Multifunction Calibrator for the Calibration of measuring Instruments. $PF = 1$, Power factor of unity to 0.5 at increased uncertainty	
AC VOLTAGE	1.2 mV to 12 mV 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 500 kHz 100 kHz to 500 kHz 12 mV to 120 mV 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 500 kHz 100 kHz to 500 kHz 0.12 V to 1.2 V 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 500 kHz 50 kHz to 100 kHz 100 kHz to 500 kHz 500 kHz to 1 MHz 1.2 V to 12 V 1 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 500 kHz 500 kHz to 500 kHz 500 kHz to 500 kHz 500 kHz to 500 kHz 100 kHz to 500 kHz 500 kHz to 500 kHz 500 kHz to 500 kHz 500 kHz to 1 MHz	440 μ V/V + 0.74 μ V 480 μ V/V + 0.74 μ V 0.10 % + 0.74 μ V 0.35 % + 0.74 μ V 2.7 % + 1.4 μ V 130 μ V/V + 1.4 μ V 130 μ V/V + 1.4 μ V 650 μ V/V + 1.4 μ V 0.21 % + 6.7 μ V 60 μ V/V + 14 μ V 110 μ V/V + 14 μ V 210 μ V/V + 14 μ V 210 μ V/V + 14 μ V 0.68 % + 67 μ V 0.68 % + 67 μ V 70 μ V/V + 0.14 mV 110 μ V/V + 0.14 mV 210 μ V/V + 0.14 mV	Using digital multimeter; for the calibration of voltage sources.	Α

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
AC VOLTAGE (continued)	12 V to 120 V 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 120 V to 700 V 40 Hz to 1 kHz 1 kHz to 20 kHz 700 V to 1000 V 10 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	$\begin{array}{l} 150 \ \mu \text{V/V} + 1.4 \ \text{mV} \\ 170 \ \mu \text{V/V} + 1.4 \ \text{mV} \\ 250 \ \mu \text{V/V} + 1.4 \ \text{mV} \\ 820 \ \mu \text{V/V} + 1.4 \ \text{mV} \\ 820 \ \mu \text{V/V} + 1.4 \ \text{mV} \\ 290 \ \mu \text{V/V} + 14 \ \text{mV} \\ 420 \ \mu \text{V/V} + 14 \ \text{mV} \\ 0.08 \ \% + 260 \ \text{mV} \\ 0.15 \ \% + 440 \ \text{mV} \\ 0.70 \ \% + 700 \ \text{mV} \end{array}$		
AC VOLTAGE	5 mV to 120 mV 10 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 0.12 V to 1.2 V	850 μV/V + 47 μV 0.15 % + 58 μV 0.70 % + 95 μV	Using digital multimeter; for the calibration of voltage sources.	В
	10 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.080 % + 350 μV 0.15 % + 580 μV 0.70 % + 950 μV		
	1.2 V to 12 V 10 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.080 % + 3.5 mV 0.15 % + 5.8 mV 0.70 % + 9.5 mV		
	12 V to 120 V 10Hz to 20kHz 20kHz to 50kHz 50kHz to 100kHz	0.080 % + 35 mV 0.15 % + 58 mV 0.70 % + 95 mV		
	120 V to 1000 V 10 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.080 % + 260 mV 0.15 % + 440 mV 0.70 % + 700 mV		
	1 kV to 12 kV 50 Hz to 60 Hz	0.5%	Using digital multimeter and high voltage divider; for the calibration of voltage sources.	A & B

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AC VOLTAGE	200 µV to 2.2 mV 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 50 kHz 100 kHz to 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	510 μ V/V + 4.0 μ V 450 μ V/V + 4.0 μ V 450 μ V/V + 4.0 μ V 490 μ V/V + 4.0 μ V 670 μ V/V + 5.0 μ V 0.12 % + 10 μ V 0.15 % + 20 μ V 0.29 % + 20 μ V	Using multifunction calibrator; for the calibration of measuring instruments.	A & B
	2.2 mV to 22 mV 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	270 μ V/V + 4.0 μ V 130 μ V/V + 4.0 μ V 120 μ V/V + 4.0 μ V 220 μ V/V + 4.0 μ V 510 μ V/V + 5.0 μ V 0.11 % + 10 μ V 0.14 % + 20 μ V 0.28 % + 20 μ V		
	22 mV to 220 mV 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	290 μ V/V + 12 μ V 110 μ V/V + 7.0 μ V 72 μ V/V + 7.0 μ V 140 μ V/V + 7.0 μ V 320 μ V/V + 17 μ V 680 μ V/V + 20 μ V 0.15 % + 25 μ V 0.28 % + 45 μ V		
	220 mV to 2.2 V 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	250 μ V/V + 40 μ V 92 μ V/V + 15 μ V 44 μ V/V + 8.0 μ V 70 μ V/V + 10 μ V 90 μ V/V + 30 μ V 350 μ V/V + 80 μ V 0.11 % + 200 μ V 0.18 % + 300 μ V		
	2.2 V to 22 V 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	250 μV/V + 400 μV 94 μV/V + 150 μV 45 μV/V + 50 μV 70 μV/V + 100 μV 85 μV/V + 200 μV 270 μV/V + 600 μV 0.11 % + 2.0 mV 0.16 % + 3.2 mV		

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AC VOLTAGE (continued)				
	22 V to 220 V 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz	$\begin{array}{l} 250 \ \mu\text{V/V} + 4.0 \ \text{mV} \\ 94 \ \mu\text{V/V} + 1.5 \ \text{mV} \\ 57 \ \mu\text{V/V} + 600 \ \mu\text{V} \\ 85 \ \mu\text{V/V} + 1.0 \ \text{mV} \\ 160 \ \mu\text{V/V} + 2.5 \ \text{mV} \\ 910 \ \mu\text{V/V} + 16 \ \text{mV} \end{array}$		
	220 V to 1100 V 50 Hz to 1 kHz	88 μV/V + 3.5 mV		
AC CURRENT	6 μA to 120 μA 20 Hz to 45 Hz 45 Hz to 100 Hz 100 Hz to 5 kHz	0.11 % + 20 nA 470 μA/A + 20 nA 470 μA/A + 20 nA	Using digital multimeter; for the calibration of current. sources	A
	120 μA to 1.2 mA 10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 100 Hz 100 Hz to 5 kHz 5 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.27 % + 140 nA 0.10 % + 140 nA 430 μA/A + 140 nA 260 μA/A + 140 nA 430 μA/A + 140 nA 0.27 % + 270 nA 0.37 % + 1.0 μA		
	1.2 mA to 12 mA 10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 100 Hz 100 Hz to 5 kHz 5 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.27 % + 1.4 μA 0.11 % + 1.4 μA 430 μA/A + 1.4 μA 240 μA/A +1.4 μA 430 μA/A +1.4 μA 0.27 % + 2.7 μA 0.37 % +14 μA		A
	12 mA to 120 mA 10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 100 Hz 100 Hz to 5 kHz 5 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.27 % + 14 μA 0.11 % + 14 μA 420 μA/A + 14 μA 240 μA/A + 14 μA 420 μA/A + 14 μA 0.27 % + 27 μA 0.37 % + 100 μA		
	120 mA to 1 A 10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 100 Hz 100 Hz to 5 kHz 5 kHz to 20 kHz 20 kHz to 50 kHz	0.27 % + 140 μA 0.11 % + 140 μA 0.06 % + 140 μA 0.07 % + 140 μA 0.20 % + 140 μA 0.67 % + 270 μA		1

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
AC CURRENT (continued)				
	1 A to 20 A 40 Hz to 1 kHz	750 μΑ/Α		
	20 A to 100 A 40 Hz to 1 kHz	200 μA/A		
	5 μA to 120 μA 10 Hz to 5 kHz 5 kHz to 10 kHz	0.18 % + 70 nA 0.41 % + 810 nA	Using digital multimeter; for the calibration of current	В
	0.12 mA to 1.2 mA 10 Hz to 5 kHz 5 kHz to 10 kHz	0.18 % + 480 nA 0.24 % + 2.9 μA		
	1.2 mA to 1 2mA 10 Hz to 5 kHz 5 kHz to 10 kHz	0.18 % + 7.0 μA 0.41 % + 81 μA		
	12 mA to 120 mA 10 Hz to 5 kHz 5 kHz to 10 kHz	0.12 % + 47 μA 0.23 % + 290 μA		
	120 mA to 400 mA 10Hz to 1kHz 1kHz to 10kHz	0.12 % + 460 μA 0.24 % + 3.3 mA		
	400 mA to 1.2 A 10 Hz to 5 kHz 5 kHz to 10 kHz	0.12 % + 460 μA 0.41 % + 8.1 mA		
	1.2 A to 3 A 10 Hz to 5 kHz 5 kHz to 10 kHz	0.19 % + 2.1 mA 0.41 % + 25 mA		A
	3 A to 10 A 10 Hz to 5 kHz 5 kHz to 10 kHz	0.19 % + 7.0 mA 0.42 % + 81 mA		
AC CURRENT	9 μA to 220 μA 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 220 μA to 2.2 mA	300 μA/A + 16 nA 220 μA/A + 10 nA 190 μA/A + 8.0 nA 360 μA/A + 12 nA 0.13 % + 65 nA	Using multifunction calibrator; for the calibration of measuring instruments.	A & B
	10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz	280 μA/A + 40 nA 200 μA/A + 35 nA 150 μA/A + 35 nA 260 μA/A + 110 nA 0.13 % + 650 nA		

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
AC CURRENT (continued)	2.2 mA to 22 mA 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 22 mA to 220 mA 10 Hz to 20 Hz 20 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 220 mA to 2.2 A 20 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 2 kHz to 10 kHz 2 kHz to 10 kHz 2 A to 11 A	Uncertainty ($k = 2$) 260 µA/A + 400 nA 170 µA/A + 350 nA 110 µA/A + 350 nA 210 µA/A + 550 nA 0.11 % + 5.0 µA 250 µA/A + 3.5 µA 110 µA/A + 3.5 µA 210 µA/A + 3.5 µA 0.11 % + 10 µA 250 µA/A + 35 µA 450 µA/A + 35 µA 450 µA/A + 80 µA 0.70 % + 160 µA		Code
	2.2 A to 11 A 45 Hz to 65 Hz 65 Hz to 500 Hz 500 Hz to 1 kHz 45 Hz to 60 Hz 10 A to 100 A	550 μA/A + 1.6 mA 830 μA/A + 1.6 mA 0.26 % + 1.6 mA	For the calibration of current	A&B
	100 A to 500 A 500 A to 1000 A	0.55 % 0.60 %	clamps and similar devices,. using multi-turn coil method	A & B A

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	Calibration performed by the Organisation at the locations specified	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
AC RESISTANCE	40 Hz to 1 kHz 0.05Ω 0.1Ω 0.2Ω 0.5Ω 1Ω 2Ω 5Ω 10Ω 100Ω $1 k\Omega$ $10 k\Omega$ $100 k\Omega$	120 μΩ/Ω 90 μΩ/Ω 80 μΩ/Ω 75 μΩ/Ω 70 μΩ/Ω 70 μΩ/Ω 70 μΩ/Ω 45 μΩ/Ω 45 μΩ/Ω 50 μΩ/Ω 65 μΩ/Ω	Known values of resistance for the calibration of measuring instruments.	A
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 Voltages 60 V to 240 V Currents 5 A to 100 A 150 W to 24 kW	250 μW/W 280 μW/W	Using phantom load technique; unity to 0.5 power factor, capacitive or inductive.	A
FREQUENCY	0.2 Hz to 10 kHz 0.4 Hz to 10 kHz 10 kHz to 1 MHz 1 MHz to 10 GHz 10 GHz to 40 GHz	2 in 10 ⁸ 2 in 10 ⁸ 2 in 10 ⁹ 2 in 10 ¹⁰	Multi-period measurement. Frequency measurement.	A
	1 MHz and 10 MHz	5 in 10 ¹²	Calibration of stable fixed value oscillators.	
TRANSITION TIME	250 ps to 500 ns	5.0 % + 45 ps	For oscilloscope calibration using fast pulse generator.	A & B
BANDWIDTH	50 kHz to 1 GHz	5.0 %	For oscilloscope calibration using wide band oscillator.	A & B

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Measured Quantity	Expanded

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
CAPACITANCE	At 1 kHz 10 pF to 10 μF DC, 50 Hz to 1 kHz 0.5 nF 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 0.33 μF to 1.1 μF 1.1 μF to 3.3 μF DC, 50 Hz to 400 Hz 3.3 μF to 11 μF 11 μF to 33 uF DC, 50 Hz to 100 Hz 33 μF to 110 μF	0.077 % 0.41 % + 7.8 pF 0.40 % + 7.8 pF 0.40 % + 7.8 pF 0.21 % + 78 pF 0.21 % + 78 pF 0.21 % + 230 pF 0.21 % + 0.78 pF 0.29 % + 2.4 nF 0.29 % + 7.8 nF 0.34 % + 24 nF 0.42 % + 78 nF	Measurement of capacitance using LCR meter. Using Multifucntion calibrator For the calibration of Measuring equipment	A
	110 μF to 330 μF	0.55 % + 240 nF		

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
OSCILLOSCOPE CHARACTERISTICS				
Vertical deflection as a Voltage	0 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	390 μV/V + 47 μV 0.17 % 0.13 % 670 μV/V 0.12 %	Into 1 MΩ	A
	0 to 25 mV 25 mV to 110 mV 110 mV to 2.2 V 2.2 V to 6.6 V	0.20 % + 47 μV 0.33 % 0.25 % 0.21 %	Into 50 Ω	
Square wave peak to peak volage.	0 V 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	780 μV/V + 52 μV 0.21 % 0.15 % 0.10 % 0.14 %	Into 1 MΩ	A
	0 to 25 mV 25 mV to 110 mV 110 mV to 2.2 V 2.2 V to 6.6 V	0.20 % + 47 μV 0.33 % 0.25 % 0.21 %	Into 50 Ω	
Level sine wave flatness for bandwidth respect to set point value.	50 kHz to 100 MHz 50 kHz to 300 MHz 100 kHz to 2 GHz	2.0% 2.5 % 2.5 %	3 dB point uncertainty will be Reported as a frequency	A
Resistance	40 Ω to 60 Ω 500 kΩ to 1.5 MΩ	0.085 % 0.080%		A
Capacitance	5 pF to 50 pF	0.59 pF		A
Time Markers	2 ns to 20 ns 50 ns to 100 ns 100 ns to 1 s 1 s to 5 s	4.0 μs/s 150 μs/s 0.12 % 0.59 %		A
Risetime	250 ps Nominal 1 kHz to 10 MHz 250 mV to 500 mV pp	100 ps		A

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
TEMPERATURE SIMULATION Ambient in support of reference junction	17 °C to 30 °C	0.10 °C		
Temperature indicators, calibration by electrical simulation	Simulated temperature	Uncertainty of simulated temperature		
Туре К	-200 °C to -100 °C -100 °C to 120 °C 120 °C to 1000 °C 1000 °C to 1373 °C	0.28 °C 0.18 °C 0.23 °C 0.33 °C	Including cold junction compensation.	A
Туре Ј	-200 °C to -100 °C -100 °C to 760 °C 760 °C to 1200 °C	0.24 °C 0.17 °C 0.21 °C		
Туре Е	-250 °C to -100 °C -100 °C to -25 °C -25 °C to 350 °C 350 °C to 650 °C 650 °C to 1000 °C	0.61 °C 0.25 °C 0.23 °C 0.25 °C 0.29 °C		
Туре В	600 °C to 800 °C 800 °C to 1000 °C 1000 °C to 1550 °C 1550 °C to 1820 °C	0.58 °C 0.46 °C 0.41 °C 0.43 °C		
Туре N	-200 °C to -100 °C -100 °C to -25 °C -25 °C to 410 °C 410 °C to 1300 °C	0.37 °C 0.27 °C 0.18 °C 0.30 °C		
Туре Т	-250 °C to -150 °C -150 °C to 0 °C 0 °C to 400 °C	0.53 °C 0.28 °C 0.24 °C		
Type R	0 °C to 250 °C 250 °C to 1000 °C 1000 °C to 1767 °C	0.49 °C 0.35 °C 0.38 °C		
Type S	0 °C to 250 °C 250 °C to 1400 °C 1400 °C to 1767 °C	0.42 °C 0.36 °C 0.42 °C		
Resistance thermometer (Pt 100)	-200°C to +800°C	0.10 °C	Using equivalent DC resistance values.	

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement	Remarks	Location Code

Instrument or Gauge	Range	Measurement Uncertainty ($k = 2$)	Remarks	Code
Туре К	-200 °C to -100 °C -100 °C to 400 °C 400 °C to 1372 °C	0.72 °C 0.60 °C 0.65 °C	Including cold junction compensation.	В
Туре Ј	-200 °C to -100 °C -100 °C to 800 °C 800 °C to 1200 °C	0.60 °C 0.50 °C 0.60 °C		
Туре N	-200 °C to -100 °C -100 °C to 1300 °C	0.92 °C 0.50 °C		
Type T Resistance thermometer (Pt 100)	-250 °C to -200 °C -200 °C to 0 °C 0 °C to +400 °C -200°C to 800°C	1.25 °C 0.85 °C 0.60 °C 0.10 °C	Using equivalent DC resistance values.	В
Excluding reference junction Compensation Type K	-200 °C to -150 °C -150 °C to -100 °C -100 °C to 1370 °C	0.069 °C 0.060 °C 0.061 C		A
Туре Ј	-200 °C to -150 °C -150 °C to -100 °C -100 °C to 1200 °C	0.062 °C 0.056 °C 0.056 °C		
Туре Т	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 400 °C	0.12 °C 0.065 °C 0.058 °C		
Туре N	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 1300 °C	0.24 °C 0.086 °C 0.062 °C		
Туре Е	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 1000 °C	0.087 °C 0.060 °C 0.055 °C		
Туре В	300 °C to 500 °C 500 °C to 1000 °C 1000 °C to 1820 °C	0.23 °C 0.15 °C 0.092 °C		
Type R	-50 °C to 100 °C 100 °C to 300 °C 300 °C to 1768 °C	0.19 °C 0.11 °C 0.092 °C		
Type S	-50 °C to 100 °C 100 °C to 300 °C 300 °C to 1768 °C	0.18 °C 0.11 °C 0.092 °C		

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Measured Quantity	Range	Expanded Measurement	Remarks	Location
Instrument or Gauge		Uncertainty $(k = 2)$		Code
CALIBRATION OF 17 TH / 18 TH EDITION TEST EQUIPMENT			Using dedicated calibrator.	A & B
Insulation Resistance	10 kΩ to 5 MΩ 5 MΩ to 2 GΩ 2 GΩ tp 10 GΩ	0.11 % 1.3 % 5.1 %		
Insulation Voltage	0 V to 1100 V	1.0 % + 0.87 V		
RCD Trip Current	2 mA to 10 mA 10 mA to 30 mA 30 mA to 100 mA 100 mA to 300 mA 300 mA to 1000 mA 1000 mA to 3 A	1.2 % + 65 μA 1.2 % + 110 μA 1.2 % + 190 μA 1.2 % + 850 μA 1.2 % + 1.7 mA 1.2 % + 3.0 mA		
RCD Trip Time	20 ms to 500 ms 500 ms to 1000 ms	0.90 ms 8.2 ms		
Continuity Resistance	0 Ω to 10 Ω 10 Ω to 1 kΩ 1 kΩ to 5 kΩ 5 kΩ to 50 kΩ	0.25 % + 11 mΩ 0.25 % + 110 mΩ 0.25 % + 1.1 Ω 0.25 % + 1.1 Ω		
Loop impedance	50 mΩ to 10 Ω 10 Ω to 1 kΩ	0.50 % + 12 mΩ 0.50 % + 37 mΩ		
PAT test Voltage	90 V to 420 V nominal 50 Hz	0.20 % + 0.50 V		
Earth Bond resistance	50 mΩ to 5 Ω 5 Ω to 100 Ω 100 to 1 kΩ	0.50 % + 5.5 mΩ 0.50 % + 25 mΩ 0.50 % + 130 mΩ		
Earth bond current	10 mA to 500 mA 500 mA to 30 A	1.5 % + 6.5 mA 1.5 % + 75 mA		
PAT Leakage current	2 mA to 8 mA	1.5 % + 9.7 μA		
Flash Test Voltage	1 kV to 1.8 kV (class 1) 2 kV to 3.6 kV (class 2)	4.0 % + 16 V 4.0 % + 23 V		
Flash Current	1 mA to 3mA	5 % + 18 μA		
Load for PAT	0.13 kW	1.0 % + 1.5 Ω	At nominal UK mains supply voltage	

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code	
HIPOT /HV Testers HVDC Voltage	500 V to 12 kV	0.54 % + 35 V			

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code
HIPOT /HV Testers				
HVDC Voltage	500 V to 12 kV	0.54 % + 35 V		
HVAC Peak Voltage	50 Hz to 60 Hz 500 V to 4 kV 4 kV to 12 kV	0.70 % + 35 V 0.95 % + 40 V		
DC Leakage Current	0 mA to 200 μA 0.2 mA to 2.0 mA 2.0 mA to 20 mA	0.50 % + 0.55 μΑ 0.50 % + 3.6 μΑ 0.50 % + 38 μΑ		
AC Leakage Current	50 Hz to 60 Hz 2 μA to 200 μA 200 μA to 2 mA 2 mA to 20 mA	0.52 % + 0.55 μA 0.52 % + 2.0 μA 0.52 % + 20 uA		
RF ELECTRICAL MEASUREMENTS				A
RF Power				
1 mW reference	1 mW <i>50 MHz</i>	0.30 %	For outputs with a VRC of up to 0.05	
Flatness at nominal 1 mW (0.8 mW to 1.2 mW)	100 kHz to 50 MHz 50 MHz to 5 GHz 5 GHz to 15 GHz 15 GHz to 18 GHz	0.90 % 0.80 % 0.90 % 1.3 %		
RF Power	100 kHz to 10 MHz 0.01 mW to 0.12 mW 0.12 mW to 0.8 mW 1.2 mW to 10 mW 10 mW to 100 mW	1.6 % 1.2 % 1.6 % 4.3 %		
	10 MHz to 18 GHz 0.01 μW to 1.2 μW 1.2 μW to 10 μW 0.01 mW to 0.12 mW 0.12 mW to 0.8 mW 1.2 mW to 10 mW 10 mW to 100 mW	2.9 % 4.9 % 1.8 % 1.5 % 1.8 % 4.4 %		

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
RF ELECTRICAL MEASUREMENTS (continued) Calibration factor Nominal 1 mW	0.1 MHz 0.3 MHz 0.5 MHz 1 MHz 3 MHz 5 MHz 10 MHz 30 MHz 0.1 GHz 10 GHz 1.0 GHz 1.0 GHz 1.0 GHz 3.0 GHz 4.0 GHz 5.0 GHz 1.0 GHz 1.0 GHz 1.0 GHz 1.0 GHz 1.0 GHz 1.0 GHz 1.0 GHz 1.0 GHz 1.1 0 GHz 1.1 0 GHz 1.2 0 GHz 1.2 0 GHz 1.3 0 GHz 1.3 0 GHz 1.4 0 GHz 1.5 0 GHz 1.	0.75 % 0.75 % 0.75 % 0.75 % 0.75 % 0.75 % 0.75 % 0.80 % 0.80 % 0.80 % 0.65 % 0.65 % 0.65 % 0.65 % 0.65 % 0.75 % 0.75 % 0.75 % 0.75 % 0.75 % 0.75 % 0.75 % 0.80 % 0.80 % 0.80 % 0.90 % 1.1 % 1.3 % 1.0 % 1.0 % 1.0 % 1.0 % 1.1 % 1.3 %	N type Male connectors with a VRC of less than 0.01 sensors with other connector types can be calibrated but at larger uncertainties.	A
MODULATION Carrier 10 MHz to 1.3 GHz Amplitude modulation Rate 50 Hz to 50 kHz Modulation Factor Frequency modulation	0.05 to 0.10 0.10 to 0.40 0.40 to 0.60 0.60 to 0.99	0.0020 0.0050 0.0075 0.012		
Rate 50 Hz to 100 kHz Deviation	1 kHz to 400 kHz	1.2 %		

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
MODULATION (continued)				А
Phase modulation Rate 200 Hz to 20 kHz				
Deviation	0.4 rad to 4 rad 4 rad to 400 rad	3.7 % 3.5 %		
VOLTAGE REFLECTION COEFFICIENT	300 kHz to 3 GHz 0 to 0.1 0.1 to 0.2 0.2 to 0.3 0.3 to 0.4 0.4 to 0.5 0.5 to 0.6 0.6 to 0.7 0.7 to 0.8 0.8 to 0.9 0.9 to 1.0 3 GHz to 8 GHz 0 to 0.1 0.1 to 0.2 0.2 to 0.3 0.3 to 0.4 0.4 to 0.5 0.5 to 0.6 0.6 to 0.7 0.7 to 0.8 0.8 to 0.9 0.9 to 1.0 3 dHz to 8 GHz 0 to 0.1 0.1 to 0.2 0.2 to 0.3 0.3 to 0.4 0.4 to 0.5 0.5 to 0.6 0.6 to 0.7 0.7 to 0.8 0.8 to 0.9 0.9 to 1.0	0.010 0.011 0.012 0.014 0.016 0.019 0.023 0.026 0.031 0.036 0.015 0.015 0.016 0.017 0.019 0.021 0.024 0.027 0.031 0.035 0.040		
	8 GHz to 18 GHz 0 to 0.1 0.1 to 0.2 0.2 to 0.3 0.3 to 0.4 0.4 to 0.5 0.5 to 0.6 0.6 to 0.7 0.7 to 0.8 0.8 to 0.9 0.9 to 1.0	0.015 0.016 0.018 0.021 0.025 0.029 0.034 0.040 0.047 0.054		

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Measured Quantity	_	Expanded		
Instrument or Gauge	Range	Measurement	Remarks	Location Code
		Uncertainty ($\kappa = 2$)		
ATTENUATION	300 kHz to 3 GHz 0 dB to 20 dB 20 dB to 40 dB 40 dB to 60 dB 60 dB to 70 dB	0.080 dB 0.080 dB 0.13 dB 0.33 dB	System A	A
	2.5 MHz to 1.3 GHz 0 dB to 10 dB 10 dB to 40 dB 40 dB to 80 dB 80 dB to 110 dB	0.060 dB 0.080 dB 0.080 dB 0.080 dB	System B	
	1.3 GHz to 8 GHz 0 dB to 10 dB 10 dB to 40 dB 40 dB to 95 dB 95 dB to 100 dB	0.17 dB 0.13 dB 0.13 dB 0.25 dB		
	8 GHz to 18 GHz 0 dB to 10 dB 10 dB to 40 dB 40 dB to 90 dB 90 dB to 100 dB	0.24 dB 0.17 dB 0.17 dB 0.27 dB		
Impedance and Voltage division factor (LISNs and CDNs)				
IMPEDANCE 3 Ω to 250 Ω	9 kHz to 100 kHz 100 kHz to 10 MHz 10 MHz to 100 MHz 100 MHz to 230 MHz 230 MHz to 400 MHz	2.5 % 2.5 % 3.5 % 4.5 % 8.5%		
IMPEDANCE PHASE 3 Ω to 100 Ω	9 kHz to 100 kHz 100 kHz to 10 MHz 10 MHz to 100 MHz	0.46 ⁰ 0.48 ⁰ 1.6 ⁰		
INSERTION LOSS / VDF				
0 dB to 40 dB	9 kHz to 100 kHz 100 kHz to 10 MHz 10 MHz to 100 MHz 100 MHz to 200 MHz 200 MHz to 400 MHz	0.10 dB 0.20 dB 0.30 dB 0.50 dB 0.70 dB		
40 dB to 60 dB	9 kHz to 100 kHz 100 kHz to 10 MHz 10 MHz to 100 MHz 100 MHz to 200 MHz 200 MHz to 400 MHz	0.50 dB 0.50 dB 0.60 dB 0.70 dB 0.80 dB		

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code	
INSERTION LOSS / VDF (continued)				А	
60 dB to 80 dB	9 kHz to 100 kHz 100 kHz to 10 MHz	0.90 dB 0.90 dB			

1.0 dB

1.0 dB

1.1 dB

180 Pa

650 Pa

3.0 kPa

380 Pa

850 Pa 3.2 kPa

0.66 kPa

4.7 kPa

30 kPa

Calibration of devices with an electrical output may be undertaken.

Calibration by comparison with digital

comparison with digital pressure standards.

pressure standards.

Calibration by

Calibration by

Calibration by

comparison with

deadweight tester.

comparison with digital pressure standards.

А

А

А

A

А

A

А

10 MHz to 100 MHz

100 MHz to 200 MHz

200 MHz to 400 MHz

-95 kPa to +200 kPa

200 kPa to 2 MPa 2 MPa to 10 MPa

10 kPa to 300 kPa

300 kPa to 2.1 MPa

2.1 MPa to 10 MPa

550 kPa to 6.9 MPa

6.9 MPa to 69 MPa

0 MPa to 100 MPa

PRESSURE CALIBRATION

Gas pressure (gauge)

Calibration of pressure

Gas pressure (absolute)

Calibration of pressure

indicators and gauges

Hydraulic pressure (gauge)

Calibration of pressure

Calibrations using water

indicators and gauges

indicators and gauges

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: $Q[a, b] = [a^2 + b^2]^{1/2}$