Schedule of Accreditation

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Accredited to ISO/IEC 17025:2005

Lambda Calibration 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 Lambda Calibration Ltd Units 11-13 Chorley Central Business Park Stump Lane Chorley Lancashire PR6 0BL	**Local contact** Brenda Seeds	Dimensional Electrical Pressure Torque Temperature	A

Site activities performed away from the locations listed above:

Location details		Activity	Location code
At customers premises	Brenda Seeds	Dimensional Electrical	B

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH			NOTES	
Gauge blocks		Class (*See* Notes)	**Class C** uncertainties apply to the measurement of length of gauges by comparison with grade K standards of length of a similar material. Class C uncertainties apply to new and used grade 0, 1 and 2 gauges to BS 4311-1:2007 and BS EN ISO 3650:1999. 1. All calibrations must be carried out in accordance with procedures agreed by UKAS.	A
Inch (Steel and Carbide)	As BS 4311-1:2007 Up to 0.4 in Above 0.4 in up to 1 in Size 2 in Size 3 in Size 4 in	C 3 4 5 6 7 μ inches		
Millimetre (Steel and Carbide)	As BS EN ISO 3650:1999 Up to 10 Above 10 up to 25 Sizes 30, 40, 50 60, 70, 75 80, 90, 100	C .08 .10 .12 .15 .18		A
Gauge block accessories	As BS 4311-2	0.3		A
Length gauges, flat and spherical ended (excluding Length Bars)	Up to 1 m	1 + (5 x length m)		A
Plain plug gauges parallel, cylindrical setting standards and rollers.	From 1 up to 50 diameter above 50 up to 100 Above 100 up to 300	0.8 1 1.5		A
Plain ring gauges (parallel)	From 2 up to 10 diameter Above 10 up to 50 Above 50 up to 100 Above 100 up to 300	1 0.8 1.0 2.5		A
Precision balls (steel, carbide, ceramic)	From 1 up to 70 diameter	0.8		
Feeler gauges	As BS 957	1		A
Gap gauges (Plain parallel)	As BS 969 From 2 up to 100 Above 100 up to 200 Above 200 up to 300	 3 5 8		A
Paint thickness setting foils	Up to 8	1.0		A
Rule - steel	As BS 4372 up to 1000	5 + (10 x length in m)		A

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
SCREW THREAD GAUGES			NOTES (cont'd)	
Screw plug gauges (parallel) including check and setting plugs. See Note 4	From 1 to 100 diameter Above 100 up to 150 diameter	3 on pitch 5 diameter	2. In addition to all items other similar items, including parts of measuring instruments and machines, may be calibrated (see Note 1) to the uncertainties stated. Where the item or part calibrated is of lower quality due to wear, errors in geometry or from, poor surface texture, or where any other factor adversely affects the measurement capability, greater uncertainties must be quoted.	A
Screw plug gauges (taper) See Note 4	From 5 to 100 diameter Above 100 up to 150 diameter	5 on pitch 8 diameter		
Screw ring gauges (parallel) See Note 4	From 1 mn up to 75 diameter Above 75 up to 150 diameter	5 on pitch 7 diameter		
Screw ring gauges (taper) See Note 4	From 5 to 100 diameter Above 100 up to 150 diameter	7 on pitch 10 diameter Pitch: 1.5 Flank angle:2+(800/*(MxP)* Where *M* is projector magnification and *P* is pitch in mm		
Screw thread adjustable caliper gauges (parallel) See Note 4	From 1 up to 150 diameter	By setting plugs	3. The uncertainty quoted is for the departure from flatness, straightness, parallelism or squareness, i.e. the distance separating the two parallel planes which just enclose the surface under consideration 4. Single start, symmetrical thread forms only. 5. The uncertainty quoted is for the application of the calibration torque and does not take into account the characteristics of the device being calibrated. 6. Calibrations may also be given in lbf.in and lbf.ft	A
Thread measuring cylinders	As BS 5590 and specials	0.5		A
Parallels	As BS 906 up to 50 x 100 x 400	Dependent on size and grade From 1.5 up to 5		A
Vee blocks	As BS 3731 up to 200	Dependent on size and grade From 2.5 up to 5		A
Receiver and position gauges, jigs, fixtures	600 x 600 x 600	Dependent on size and features measured		A
Thread vee groove jaw blades	Down to 0.6 (40 T.P.I.)	3		A
ANGLE				
Squares				A
Blade type	As BS 939 up to 300 Above 300 up to 600	3 5		A
Cylindrical	As BS 939 up to 300 Above 300 up to 600	3 4	On squareness see Note 3	A
Block	As BS 939 up to 300 Above 300 up to 600	3 5		A

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
ANGLE (cont'd)				
Right angle and box angle plates	As BS 5535	Squareness: 3 + 1 per 100 mm Parallelism: 1 + 1 per 100 mm See Note 3		A
Sine bars and tables	As BS 3064 and up to 500 length	Linear dimensions 1 + (10 x length in m) Overall performance 3 seconds of arc		A
Clinometers	Up to 360°	10 seconds of arc or greater Dependant on sensitivity		A
Electronic indicating levels	8 minutes of arc	1% of range Minimum 0.4 seconds of arc		A
Levels, spirit	As BS 958:1968	1/5 div + 02 seconds of arc		A
MEASURING INSTRUMENTS				
Micrometers				
External Internal Depth	As BS 870 As BS 959 As BS 6468	Heads 2.0 Setting and extension rods 1 + (5 x length in m)		A
Micrometer, 3 point bore	From 6 up to 250	3 + (12 x length in m)		A
Micrometer Heads	As BS 1734	1.0		A
Height setting micrometer	Up to 300	Heads 1.5 between any two points Stepped column 2.5 Overall performance 3.0		A
Riser blocks for above	150 300	2.5 5		A
Vernier				A
Caliper gauges Height gauges Depth gauges	As BS 887 As BS 1643 up to 1.2 m As BS 6365	Overall performance 10 + (30 x length in m)		
Bevel protractors	As BS 1685	1 min of arc + 1 vernier division		A

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
MEASURING INSTRUMENTS				
Dial gauges and dial test indicators	As BS 907 and BS 2795	1.0		A
Displacement transducers (linear)	Up to 100	Dependant on range From 0.6 to 1.6		A
Height gauges (digital and electronic)	Up to 1000	2 + (10 x length in m)		A
FORM				
Surface plates				
Granite Cast Iron	BS 817	1.5 + (1.0 x diagonal in m)		A,B
ELECTRICAL MEASUREMENT			Published uncertainties apply for an environment of 18°C to 28°C. Measurements can take place outside these limits but at increased uncertainties.	
RESISTANCE	Up to 20 Ω 20 Ω to 200 Ω 200 Ω to 2 kΩ 2 kΩ to 20 kΩ 20 kΩ to 200 kΩ 200 kΩ to 2 MΩ 2 MΩ to 20 MΩ 20 MΩ to 200 MΩ 200 MΩ to 2 GΩ	23 ppm + 21 μΩ 15 ppm + 68 μΩ 12 ppm + 700 μΩ 12 ppm + 7 mΩ 14 ppm + 70 mΩ 26 ppm + 1.5 Ω 46 ppm + 4Ω 360 ppm + 10 kΩ 0.36% + 900 kΩ		A & B
AC RESISTANCE	0.5 Ω to 2 kΩ 50 Hz	0.65%		A & B
DC VOLTS	Up to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1050 V 1 kV to 10 kV	10.4 ppm + 62 nV 7.5 ppm + 482 nV 7.4 ppm + 2 μV 12 ppm + 86 μV 12 ppm + 256 μV 0.5%		A & B
DC CURRENT	Up to 200 μA 200 μA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 1 A 1 A to 10 A 10 A to 1 kA	120 ppm + 0.5 nA 117 ppm + 5 nA 117 ppm + 48 nA 118 ppm + 1.2 μA 234 ppm + 11 μA 168 ppm + 13 μA 356 ppm + 1.3 mA		A & B

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
ELECTRICAL MEASUREMENT (cont'd)				
DC CURRENT			Suitable for Clamp Meters	A & B
Generation only	3.2 A to 105 A	0.07% + 11 mA	Using 10 turn coil	
	105 A to 200 A	0.07% + 50 mA	Using 10 turn coil	
	16 A to 160 A	0.07% + 7 mA	Using 50 turn coil	
	160 A to 525 A	0.07% +55 mA	Using 50 turn coil	
	525 A to 1 KA	0.07% + 250 mA	Using 50 turn coil	
AC VOLTAGE	Up to 200 mV			A & B
	20 Hz to 40 Hz	300 ppm + 14 μV		
	40 Hz to 10 kHz	281 ppm + 2 μV		
	10 kHz to 30 kHz	363 ppm + 5 μV		
	30 kHz to 100 kHz	720 ppm + 20 μV		
	200 mV to 2 V			A & B
	20 Hz to 40 Hz	210 ppm + 120 μV		
	40 Hz to 10 kHz	164 ppm + 11 μV		
	10 kHz to 30 kHz	240 ppm + 30 μV		
	30 kHz to 100 kHz	496 ppm + 100 μV		
	2 V to 20 V			A & B
	20 Hz to 40 Hz	210 ppm + 1.2 mV		
	40 Hz to 10 kHz	164 ppm + 0.1 mV		
	10 kHz to 30 kHz	239 ppm + 0.3 mV		
	30 kHz to 100 kHz	496 ppm + 1.0 mV		
	20 V to 200 V			
	20 Hz to 40 Hz	212 ppm + 13 mV		
	40 Hz to 10 kHz	168 ppm + 1.6 mV		
	10 kHz to 30 kHz	240 ppm + 4 mV		
	30 kHz to 100 kHz	525 ppm + 11 mV		
	200 V to 1050 V			
	20 Hz to 40 Hz	212 ppm + 71 mV		
	40 Hz to 10 kHz	168 ppm + 51 mV		
	10 kHz to 30 kHz	340 ppm + 152 mV		
	1 kV to 10 kV *@ 50 Hz*	2.2%		
AC CURRENT	Up to 200 μA			A & B
	10 Hz to 1 kHz	378 ppm + 21 nA		
	1 kHz to 5 kHz	693 ppm + 21 nA		
	200 μA to 2 mA			
	10 Hz to 1 kHz	378 ppm + 210 nA		
	1 kHz to 5 kHz	693 ppm + 210 nA		
	2 mA to 20 mA			
	10 Hz to 1 kHz	361 ppm + 2.1 μA		
	1 kHz to 5 kHz	693 ppm + 2.1 μA		
	20 mA to200 mA			
	10 Hz to 1 kHz	378 ppm + 21 μA		
	1 kHz to 5 kHz	693 ppm + 21 μA		

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
ELECTRICAL MEASUREMENT (cont'd)				
AC CURRENT (cont'd)	200 mA to 1 A			
	10 Hz to 1 kHz	755 ppm + 209 μA		
	40 Hz to 3 kHz	0.12%		
	3 kHz to 5 kHz	0.15%		
	1 A to 10 A			
	40 Hz to 3 kHz	0.16%		
	3 kHz to 5 kHz	0.27%		
AC CURRENT Generation only			Suitable for Clamp Meters	A & B
	3.2 A to 32 A (10 to 100 Hz)	0.33% + 6 mA	Using 10 turn coil	
	32 A to 200 A (10 to 100 Hz)	0.33% + 104 mA	Using 10 turn coil	
	3.2 A to 32 A (100 to 440 Hz)	0.93% + 31 mA	Using 10 turn coil	
	32 A to 200 A (100 to 440 Hz)	0.81% + 288 mA	Using 10 turn coil	
	16 A to 160 A (10 to 100 Hz)	0.33% + 323 mA	Using 50 turn coil	
	160 A to 1 kA (10 to 100 Hz)	0.33% + 519 mA	Using 50 turn coil	
ELECTRICAL SIMULTION OF THERMOCOUPLES				
Type: B	+500 °C to +1820 °C	0.56 °C		A & B
C	+ 0 °C to +2320 °C	0.42 °C		
E	-250 °C to +1000 °C	0.46 °C		
J	-210 °C to +1200 °C	0.27 °C		
K	-200 °C to -250 °C	0.58 °C		
K	-200 °C to +1372 °C	0.29 °C		
L	-200 °C to +900 °C	0.28 °C		
N	-200 °C to +1300 °C	0.34 °C		
R	+ 0 °C to +1767 °C	0.53 °C		
S	+ 0 °C to +1767 °C	0.50 °C		
T	-250 °C to -200 °C	0.60 °C		
T	-200 °C to +400 °C	0.29 °C		
CAPACITANCE Generation only	Up to 350 Hz			
	0.5 nF to 4 nF	0.35% + 18 pF	Suitable for the testing of capacitance measuring devices	A & B
	4 nF to 40 nF	0.35% + 35 pF		
	40 nF to 400 nF	0.35% + 185 pF		
	400 nF to 4 μF	0.47% + 2 nF		
	4 μF to 40 μF	0.57% + 19 nF		
	40 μF to 400 μF	0.58% + 185 nF		
	400 μF to 4 mF	0.58% + 2 μF		
	4 mF to 40 mF	1.16% + 69 μF		
	350 Hz to 1.5 Hz			
	0.5 nF to 4 nF	0.70% +35 pF		
	4 nF to 40 nF	0.70% + 69 pF		
	40 nF to 400 nF	0.70% + 370 pF		
	400 nF to 4 μF	0.93% + 3 nF		
	4 μF to 40 μF	1.16% + 37 nF		
	40 μF to 400 μF	1.16% + 370 nF		
	400 μF to 4 mF	1.16% + 4 μF		
	4 mF to 40 mF	2.31% +139 μF		

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (k=2)	Remarks	Location Code
ELECTRICAL MEASUREMENT (cont'd)				
BANDWIDTH				
	3 dB point with respect to set point		Appropriate for calibration of oscilloscopes	A & B
	10 Hz to 50 kHz	0.6%		
	50 kHz to 100 MHz	2.4 %		
	100 MHz to 250 MHz	5.2%		
FREQUENCY	2 Hz to 250 MHz	2 in 10^9	May be expressed as time (1/f) for repetitive measurements	A
FREQUENCY Generation only	0.2 Hz to 250 MHz	0.29 ppm	May be expressed as time (1/f) for repetitive measurements	A & B
TIME Electronically Triggered				
Interval/Period Average	25 ns to 10 s	2 in 10^9 + (100 ns/No of periods)	Actual uncertainties quoted on certificate will include an allowance for the characteristics of the measured signal	A & B
Time Interval (A-A Event)	100 ns to 10^9 s	2 in 10^9 + 100 ns		A & B
Time Interval (A-B Event)	100 ns to 10^9 s	2 in 10^9 + 100 ns		
Time Interval	0.1 ms to 10 s	1.8 %	Appropriate for the calibration of RCD testers	A & B
TIME Mechanically Triggered	over 1 second	50 ms		A & B
TORQUE				
Hand torque tools (including drivers)	To BS EN ISO 6789:2003 0.2 N.m to 1000 N.m	1.5 % See Notes 5 & 6		A
PRESSURE				
Hydraulic pressure (gauge)				
Calibration of pressure indicating instruments and gauges	500 kPa to 7 MPa	0.011%	Calibration of devices with an electrical output may be undertaken	A
	7 MPa to 110 MPa	0.0092%		
	110 MPa to 400 MPa	0.024%		
Calibration of Piezoelectric pressure transducers at quasi-static pressures	500 kPa to 7 MPa	0.35%	Calibration of devices with a charge output may be undertaken	A
	10 MPa to 400 MPa	0.35%		

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty (*k*=2)	Remarks	Location Code
PRESSURE (cont'd)				
Gas pressure (gauge)				
Calibration of pressure indicating instruments and gauges	-95 kPa to -7 kPa -7 kPa to -3 kPa -3 kPa to -1.5 kPa -1.5 kPa to -150 Pa -150 Pa to -24 Pa -24 Pa to 24 Pa 24 Pa to 150 Pa 150 Pa to to 1.5 kPa 1.5 kPa to 3 kPa 3 kPa to 7 kPa 7 kPa to 2 MPa 2 MPa to 6 MPa 6 MPa to 25 MPa	12 Pa 0.011 % + 0.9 Pa 0.011 % + 0.6 Pa 0.025 % + 0.4 Pa 0.22 % + 0.095 Pa 0.22 % + 0.045 Pa 0.22 % + 0.095 Pa 0.025 % + 0.4 Pa 0.011% + 0.6 Pa 0.011% + 0.9 Pa 0.0085 % 0.021 % + 1.4 kPa 0.021 % + 4.5 kPa	Absolute pressure calibrations can be undertaken using associated barometric pressure measurement correction. The uncertainties quoted will be increased by 12 Pa.	A
Gas pressure (absolute)				
Calibration of pressure indicating instruments and gauges	0.1 Pa to 1 Pa 1 Pa to 10 Pa 10 Pa to 100 Pa 100 Pa to 1 kPa 1 kPa to 3.5 kPa 3.5 kPa to 131 kPa 131 kPa to 200 kPa	1 % + 0.1 Pa 1 % + 0.3 Pa 1 % + 1.8 Pa 1 % + 18 Pa 80 Pa 12 Pa 80 Pa		A
Temperature				
Radiation thermometers (pyrometers)	20 to 100 °C 101 to 200 °C 201 to 300 °C 301 to 400 °C 401 to 500 °C	0.8degC 1.2degC 1.6degC 2.1degC 2.6degC		A

END