

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <b>4432</b> Accredited to <b>ISO/IEC 17025:2017</b>	<b>Caltest Instruments Limited</b>	
	Issue No: 019    Issue date: 03 November 2025	
	Unit 2 Viceroy Court Bedford Road Petersfield Hampshire GU32 3LJ	Contact: Krzysztof Gawlik Tel: +44 (0)1483 302700 E-Mail: krzysztof.gawlik@caltest.co.uk Website: www.caltest.co.uk
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
<b>Address</b> Unit 2 Viceroy Court Bedford Road Petersfield Hampshire GU32 3LJ	<b>Local contact</b> Krzysztof Gawlik	Electrical
		A

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
At customers premises	Krzysztof Gawlik	Electrical
		B



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No: 019    Issue date: 03 November 2025**

Calibration performed at main address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location
DC RESISTANCE	0 $\Omega$	0.3 $\mu\Omega$	Outputs of instruments within these values can be measured to the listed uncertainties.	A & B
	1 m $\Omega$ to 10 m $\Omega$	212 $\mu\Omega/\Omega$		
	10 m $\Omega$ to 100 m $\Omega$	113 $\mu\Omega/\Omega$		
	100 m $\Omega$ to 1 $\Omega$	19 $\mu\Omega/\Omega$		
	1 $\Omega$ to 10 $\Omega$	8.0 $\mu\Omega/\Omega$		
	10 $\Omega$ to 100 $\Omega$	8.0 $\mu\Omega/\Omega$		
	100 $\Omega$ to 1 k $\Omega$	9.0 $\mu\Omega/\Omega$		
	1 k $\Omega$ to 10 k $\Omega$	10 $\mu\Omega/\Omega$		
	10 k $\Omega$ to 100 k $\Omega$	15 $\mu\Omega/\Omega$		
	100 k $\Omega$ to 1 M $\Omega$	14 $\mu\Omega/\Omega$		
	1 M $\Omega$ to 10 M $\Omega$	10 $\mu\Omega/\Omega$		
	10 M $\Omega$ to 100 M $\Omega$	11 $\mu\Omega/\Omega$		
	100 M $\Omega$ to 1 G $\Omega$	16 $\mu\Omega/\Omega$		
	1 G $\Omega$ to 10 G $\Omega$	35 $\mu\Omega/\Omega$		
	10 G $\Omega$ to 100 G $\Omega$	185 $\mu\Omega/\Omega$		
Set Values	1.0 m $\Omega$	114 $\mu\Omega/\Omega$	These values can be generated for the calibration of measuring instruments.	A
	10 m $\Omega$	105 $\mu\Omega/\Omega$		
	0.1 $\Omega$	110 $\mu\Omega/\Omega$		
	1 $\Omega$	8.0 $\mu\Omega/\Omega$		
	10 $\Omega$	8.0 $\mu\Omega/\Omega$		
	100 $\Omega$	9.0 $\mu\Omega/\Omega$		
	1.0 k $\Omega$	8.0 $\mu\Omega/\Omega$		
	10 k $\Omega$	8.0 $\mu\Omega/\Omega$		
	1 $\Omega$	15 $\mu\Omega/\Omega$		
	10 $\Omega$	8.0 $\mu\Omega/\Omega$		
	100 $\Omega$	8.0 $\mu\Omega/\Omega$		
	1 k $\Omega$	8.0 $\mu\Omega/\Omega$		
	10 k $\Omega$	8.0 $\mu\Omega/\Omega$		
	100 k $\Omega$	8.0 $\mu\Omega/\Omega$		
	1 M $\Omega$	15 $\mu\Omega/\Omega$		
10 M $\Omega$	15 $\mu\Omega/\Omega$			
DC VOLTAGE	0 V to 200 mV	5.0 $\mu\text{V}/\text{V} + 0.1 \mu\text{V}$	These values can be measured and generated for the calibration of sourcing and measuring instruments.	A & B
	200 mV to 2 V	3.0 $\mu\text{V}/\text{V} + 0.4 \mu\text{V}$		
	2 V to 20 V	3.0 $\mu\text{V}/\text{V} + 4.0 \mu\text{V}$		
	20 V to 200 V	5.0 $\mu\text{V}/\text{V} + 40 \mu\text{V}$		
	200 V to 1 kV	5.0 $\mu\text{V}/\text{V} + 0.5 \text{mV}$		
	1 kV to 2 kV	0.09 %		
	2 kV to 10 kV	0.08 %		
	10 kV to 20 kV	0.07 %		



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No:** 019    **Issue date:** 03 November 2025

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location
DC CURRENT	0 $\mu$ A to 200 $\mu$ A 200 $\mu$ A to 2 mA 2 mA to 200 mA 200 mA to 2 A 2 A to 20 A 20 A to 1000 A	8.0 $\mu$ A/A + 0.4 $\mu$ V 9.0 $\mu$ A/A + 4.0 nA 10 $\mu$ A/A + 40 nA 43 $\mu$ A/A + 0.8 $\mu$ A 116 $\mu$ A/A + 0.4 mA 101 $\mu$ A/A	Measurements only	A & B
	0 $\mu$ A to 220 $\mu$ A 220 $\mu$ A to 2.2 mA 2.2 mA to 220 mA 220 mA to 2.2 A 20 A to 1000 A	11 $\mu$ A/A + 0.6 nA 6.0 $\mu$ A/A + 7.0 nA 6.0 $\mu$ A/A + 40 nA 12 $\mu$ A/A + 12 $\mu$ A 101 $\mu$ A/A	These values can be generated	A & B
DC POWER	1 W to 100 kW	0.012 %	These values can be measured and generated. Limiting Voltage from 1 V to 1000 V. Limiting Current from 1 A to 1000 A	A & B
AC VOLTAGE	2 mV to 200 mV 10 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 60 kHz 60 kHz to 100 kHz	0.0098 % + 4.0 $\mu$ V 0.011 % + 4.0 $\mu$ V 0.017 % + 8.0 $\mu$ V 0.032 % + 20 $\mu$ V 0.067 % + 20 $\mu$ V	These values can be measured	A & B
	200 mV to 2 V 10 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 60 kHz 60 kHz to 100 kHz 100 kHz to 500 kHz 500 kHz to 1 MHz	0.0087 % + 20 $\mu$ V 0.0096 % + 20 $\mu$ V 0.013 % + 40 $\mu$ V 0.031 % + 200 $\mu$ V 0.032 % + 200 $\mu$ V 0.057 % + 20 mV 0.095 % + 20 mV		
	2 V to 20 V 10 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 60 kHz 60 kHz to 100 kHz 100 kHz to 500 kHz 500 kHz to 1 MHz	0.0066 % + 200 $\mu$ V 0.0078 % + 200 $\mu$ V 0.010 % + 400 $\mu$ V 0.029 % + 2.0 mV 0.029 % + 2.0 mV 0.18 % + 200 mV 0.46 % + 200 mV		
	20 V to 200 V 10 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 60 kHz 60 kHz to 100 kHz	0.0052 % + 2.0 mV 0.0079 % + 2.0 mV 0.011 % + 4.0 mV 0.030 % + 20 mV 0.032 % + 20 mV		



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No:** 019    **Issue date:** 03 November 2025

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location	
AC VOLTAGE (cont'd)	200 V to 500 V 10 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 30 kHz	0.0087 % + 20 mV 0.0085 % + 20 mV 0.013 % + 40 mV			
	500 V to 1000 V 10 Hz to 1 kHz 1 kHz to 10 kHz	0.025 % + 20 mV 0.026 % + 20 mV	These values can be measured	A & B	
	50 Hz to 60 Hz 1 kV to 2 kV 2 kV to 15 kV	0.28 % 0.32 %	Measurement only	A & B	
	AC VOLTAGE	0.2 mV to 2.2 mV 10 Hz to 40 Hz 40 Hz to 500 Hz 500 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 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	0.078 % + 4 $\mu$ V 0.054 % + 4 $\mu$ V 0.093 % + 4 $\mu$ V 0.085 % + 4 $\mu$ V 0.11 % + 4 $\mu$ V 0.11 % + 5 $\mu$ V 0.067 % + 5 $\mu$ V 0.11 % + 10 $\mu$ V 0.24 % + 20 $\mu$ V 0.45 % + 20 $\mu$ V	These values can be generated	A
		2.2 mV to 22 mV 10 Hz to 40 Hz 40 Hz to 500 Hz 500 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 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	0.032 % + 4 $\mu$ V 0.019 % + 4 $\mu$ V 0.020 % + 4 $\mu$ V 0.0092 % + 4 $\mu$ V 0.0091 % + 4 $\mu$ V 0.011 % + 4 $\mu$ V 0.015 % + 5 $\mu$ V 0.057 % + 10 $\mu$ V 0.029 % + 20 $\mu$ V 0.068 % + 20 $\mu$ V		
		22 mV to 220 mV 10 Hz to 40 Hz 40 Hz to 500 Hz 500 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 300 kHz 300 kHz to 500 kHz 500 kHz to 1 MHz	0.017 % + 12 $\mu$ V 0.0044 % + 7 $\mu$ V 0.0045 % + 7 $\mu$ V 0.0045 % + 7 $\mu$ V 0.0045 % + 7 $\mu$ V 0.0066 % + 7 $\mu$ V 0.0067 % + 17 $\mu$ V 0.019 % + 20 $\mu$ V 0.022 % + 25 $\mu$ V 0.060 % + 45 $\mu$ V		



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No: 019 Issue date: 03 November 2025**

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location
AC VOLTAGE (cont'd)	220 mV to 2.2 V			A
	10 Hz to 40 Hz	0.0081 % + 40 $\mu$ V		
	40 Hz to 500 Hz	0.0013 % + 8 $\mu$ V		
	500 Hz to 1 kHz	0.0013 % + 8 $\mu$ V		
	1 kHz to 10 kHz	0.0013 % + 8 $\mu$ V		
	10 kHz to 20 kHz	0.0013 % + 8 $\mu$ V		
	20 kHz to 50 kHz	0.0018 % + 10 $\mu$ V		
	50 kHz to 100 kHz	0.0034 % + 30 $\mu$ V		
	100 kHz to 300 kHz	0.0087 % + 80 $\mu$ V		
	300 kHz to 500 kHz	0.0096 % + 200 $\mu$ V		
	500 kHz to 1 MHz	0.029 % + 300 $\mu$ V		
		2.2 V to 22 V		These values can be generated
	10 Hz to 40 Hz	0.0080 % + 400 $\mu$ V		
	40 Hz to 500 Hz	0.0018 % + 50 $\mu$ V		
	500 Hz to 1 kHz	0.0018 % + 50 $\mu$ V		
	1 kHz to 10 kHz	0.0018 % + 50 $\mu$ V		
	10 kHz to 20 kHz	0.0018 % + 50 $\mu$ V		
	20 kHz to 50 kHz	0.0018 % + 100 $\mu$ V		
	50 kHz to 100 kHz	0.0026 % + 200 $\mu$ V		
	100 kHz to 300 kHz	0.013 % + 0.6 mV		
	300 kHz to 500 kHz	0.016 % + 2.0 mV		
	500 kHz to 1 MHz	0.029 % + 3.2 mV		
	22 V to 220 V			
	10 Hz to 40 Hz	0.0091 % + 4.0 mV		
	40 Hz to 500 Hz	0.0022 % + 0.6 mV		
	500 Hz to 1 kHz	0.0023 % + 0.6 mV		
	1 kHz to 10 kHz	0.0023 % + 0.6 mV		
	10 kHz to 20 kHz	0.0037 % + 0.6 mV		
	20 kHz to 50 kHz	0.0029 % + 1.0 mV		
	50 kHz to 100 kHz	0.0099 % + 2.3 mV		
	220 V to 1100 V			
	40 Hz to 500 Hz	0.0054 % + 3.5 mV		
	500 Hz to 1 kHz	0.0056 % + 3.5 mV		
AC CURRENT	40 Hz to 1 kHz		These values can be measured	A & B
	0 $\mu$ A to 200 $\mu$ A	0.0099 % + 0.02 $\mu$ A		
	200 $\mu$ A to 2 mA	0.010 % + 0.2 $\mu$ A		
	2 mA to 20 mA	0.0080 % + 2.0 $\mu$ A		
	20 mA to 200 mA	0.012 % + 20 $\mu$ A		
	200 mA to 2A	0.014 % + 0.2 mA		
	2A to 20A	0.017 % + 2.0 mA		
	1 kHz to 5 kHz			
	Up to 200 $\mu$ A	0.017 % + 0.02 $\mu$ A		
	200 $\mu$ A to 2 mA	0.011 % + 0.2 $\mu$ A		
	2 mA to 20 mA	0.010 + 2.0 $\mu$ A		
	20 mA to 200 mA	0.014 % + 20 $\mu$ A		
200 mA to 2A	0.044 % + 0.2 mA			
2A to 20A	0.041 % + 2.0 mA			



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No: 019    Issue date: 03 November 2025**

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location
AC CURRENT (cont'd)	5 kHz to 10 kHz Up to 200 $\mu$ A 200 $\mu$ A to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2A 2A to 20A	0.041 % + 0.02 $\mu$ A 0.013 % + 0.2 $\mu$ A 0.010 % + 2.0 $\mu$ A 0.013 % + 20 $\mu$ A 0.035 % + 0.2 mA 0.151 % + 2.0 mA	These values can be generated	A & B
	50 Hz to 400 Hz 20 A to 1000 A	0.06 %		A
	40 Hz to 1 kHz 10 $\mu$ A to 220 $\mu$ A 220 $\mu$ A to 2.2 mA 2.2 mA to 22 mA 22 mA to 220 mA 220 mA to 2.2 A	0.016 % + 8.0 nA 0.012 % + 35 nA 0.0022 % + 0.35 $\mu$ A 0.0034 % + 2.5 $\mu$ A 0.0041 % + 80 $\mu$ A		A
	1 kHz to 5 kHz 10 $\mu$ A to 220 $\mu$ A 220 $\mu$ A to 2.2 mA 2.2 mA to 22 mA 22 mA to 220 mA 220 mA to 2.2 A	0.025 % + 12 nA 0.017 % + 110 nA 0.007 % + 0.55 $\mu$ A 0.0082 % + 3.5 $\mu$ A 0.014 % + 80 $\mu$ A		A
	5 kHz to 10 kHz 10 $\mu$ A to 220 $\mu$ A 220 $\mu$ A to 2.2 mA 2.2 mA to 22 mA 22 mA to 220 mA 220 mA to 2.2 A	0.065 % + 65 nA 0.052 % + 650 nA 0.015 % + 5.0 $\mu$ A 0.015 % + 10 $\mu$ A 0.026 % + 160 $\mu$ A		A
	50 Hz to 400 Hz 20 A to 360 A	0.06 %		A
	45 Hz to 65 Hz 1 to 10 A 10 A to 25 A 25 A to 50 A 50 A to 75 A 75 A to 100 A	0.005 % + 0.05 mA 0.005 % + 0.13 mA 0.005 % + 0.25 mA 0.005 % + 0.50 mA 0.005 % + 0.50 mA	These values can be measured and generated	A & B
FREQUENCY	40 Hz to 225 MHz	2.0 parts in $10^8$	Frequency results may be expressed in terms of average periodic time.	A & B
TIME PERIOD	10 ms to 100 s	11 parts in $10^6$		A & B



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No: 019    Issue date: 03 November 2025**

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location
ACTIVE POWER 0.6 W to 48 kW	45 Hz to 65 Hz $0.3 \leq \cos \varphi \leq 1.0$  0.005 A to 0.01 A 0.01 A to 0.025 A 0.025 A to 0.05 A 0.05 A to 10 A 10 A to 120 A	0.023 % 0.018 % 0.014 % 0.006 % 0.007 %	Limiting Voltage 60 V to 480 V	A & B
REACTIVE POWER 0.6 kVar to 48 kVar	45 Hz to 65 Hz $0.3 \leq \sin \varphi \leq 1.0$  0.05 A to 10 A 10 A to 120 A	0.006 % 0.007 %	Limiting Voltage 60 V to 480 V	A & B
PHASE ANGLE	45 Hz to 60 Hz $-180^\circ$ to $+180^\circ$	0.0048 °	Limiting Voltage 60 V to 480 V Limiting Current 50 mA to 100 A	A & B
<p>Harmonics generation in accordance with IEC TR 61000-4-37. All tests can be reproduced, except test 3 and test 12. Additional harmonics generation within the scope of IEC 61000-3-12.</p> <p>Voltage changes and flicker generation in accordance with IEC TR 61000-4-38. All tests can be reproduced, except test 3 and test 4. Additional flicker generation within the scope of IEC 61000-3-11.</p> <p>NOTE: the range represents the values that the test system under calibration is required to measure and report.</p>				
Harmonics generation	3 % to 300 %	0.50 %	Range given in % of the IEC 61000-3-2 limits (A).	A, B
Flicker generation	0.65 to 1.5	0.80 %	Range based on $P_{st}$ values around $P_{st} = 1$ (IEC 61000-3-3).	A, B
Voltage changes generation	0.5 % to 3.3 %	0.70 %	Range based on the relative voltage changes $d$ associated with the flicker generation.	A, B



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No:** 019    **Issue date:** 03 November 2025

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location
Measurement uncertainty of quantities related to test generators for IEC 61000-4-11 and IEC 61000-4-34 immunity testing.				
Output voltage accuracy and load regulation	90 V – 400 V	0.015 %		A, B
Output current capability	0.1 A – 100 A	0.010 %		A, B
Dips and interruptions duration	10 ms – 5 s	2 ppm		A, B
Phase angle	45 ° - 360 °	0.00072 °	50/60 Hz	A, B
Rise/fall time	0.5 μs – 20 μs	1.16 %		A, B
Voltage Overshoot/Undershoot	0 % - 20 %	1.2 %	Peak voltage 50 V – 600 V	A, B
Inrush current	100 A – 1500 A	0.82 %		A, B
END				



4432  
Accredited to  
ISO/IEC 17025:2017

**Schedule of Accreditation**  
issued by  
**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Caltest Instruments Limited**  
**Issue No:** 019    **Issue date:** 03 November 2025

Calibration performed at main address only

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