Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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Accredited to ISO/IEC 17025:2017

CCPI Europe Ltd

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Temperature Technology Centre **Vector 31 Business Park** **Waleswood Way** **Wales Bar** **Sheffield** **South Yorkshire** **S26 5NU**	**Contact: Mr P Williams** **Tel: +44 (0)1909 775 333** **Fax: +44 (0)1909 772 225** **E-Mail: lab@ccpi-europe.com** **Website: www.ccpi-europe.com**

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 Temperature Technology Centre Vector 31 Business Park Waleswood Way Wales Bar Sheffield South Yorkshire S26 5NU	**Local contact** Mr Phil Williams Tel: +44 (0)1909 775 333 Fax: +44 (0)1909 772 225 Email: lab@ccpi-europe.com Website: www.ccpi-europe.com	Electrical Temperature	P

Site activities performed away from the locations listed above:

Location details		Activity	Location code
The customer's 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 as above	Electrical Temperature	S

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL			Electrical calibrations are performed by comparison with a reference instrument	
DC Voltage	0 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V	10 μV/V + 0.50 μV 10 μV/V + 1.0 μV 10 μV/V 20 μV/V	For the calibration of voltage measuring and generating equipment	P
	0 mV to 100 mV 100 mV to 1 V 1 V to 10 V	90 μV/V + 5.0 μV 70 μV/V + 10 μV 70 μV/V		S
DC Current	0 μA to 200 μA 200 μA to 2 mA 2 mA to 20 mA 20 mA to 200 mA	40 μA/A + 1.0 nA 20 μA/A + 5.0 nA 20 μA/A + 50 nA 200 μA/A	For the calibration of current measuring and generating equipment	P
	0 mA to 10 mA 10 mA to 100 mA	750 μA/A + 2.5 μA 800 μA/A + 6.0 μA		S
DC Resistance	10 Ω to 200 Ω 200 Ω to 2 kΩ	15 μΩ/Ω + 3.0 mΩ 20 μΩ/Ω	For the calibration of resistance measuring and generating equipment	P
Electrical calibration of temperature indicators, calibrators, controllers and recorders for the following sensors:				
Noble metal thermocouples	-40 °C to +1800 °C	0.30 °C	with cold junction compensation	P
	-40 °C to +1800 °C	1.0 °C	with cold junction compensation	S
Base metal thermocouples	-250 °C to +1370 °C	0.25 °C	with cold junction compensation	P
	-250 °C to +1370 °C	0.80 °C	with cold junction compensation	S
Cold Junction Measurement	Normal Ambient 18 °C to 22 °C	0.50 °C		P
Pt100	-200 °C to +850 °C	0.025 °C		P

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE			Calibration by comparison with reference thermometers	
Resistance thermometers			2, 3 and 4 Wire	P
	-196 °C	0.010 °C	In Liquid Nitrogen	
	-100 °C to -80 °C	0.030 °C	In metal block bath	
	-80 °C to +525 °C	0.010 °C	In fluid bath	
	Triple Point of Water (0.01 °C)	0.0030 °C		
	-30 °C to 0 °C	0.40 °C	In metal block bath	S
	Ice Point 0 °C	0.15 °C		
	20 °C to 200 °C	0.20 °C	In metal block bath	
Platinum thermocouples			Type B only above 400 °C	P
	200 °C to 525 °C	0.20 °C	In fluid bath	
	0 °C to 1000 °C	0.41 °C	In a furnace	
	1000 °C to 1350 ºC	0.75 ºC		
	1350 ºC to 1500 °C	1.1 °C		
	1500 ºC to 1600 °C	1.7 °C		
	Fixed point calibrations			P
	Triple Point of Water (0.01 °C)	0.15 °C	FP = Freezing Point	
	FP Tin (231.928 °C	0.38 °C	MP = Melting Point	
	FP Zinc (419.527 °C)	0.35 °C		
	FP Aluminium (660.323 °C)	0.36 °C		
	FP Silver (961.78 °C)	0.36 ºC		
	MP Gold (1064.18 °C)	0.65 ºC		
	MP Co-C eutectic (1324.02 °C)	0.65 ºC		
	MP Pd-C eutectic (1491.16 °C)	0.90 ºC		
	MP Palladium (1553.5 °C)	1.4 ºC		
	0 °C to 1100°C	1.5 °C	In a furnace	S
	1100 °C to 1350 ºC	2.5 °C		
	1350 ºC to 1600°C	3.0 ºC		
Other thermocouples	-196 °C	0.20 °C	In Liquid Nitrogen	P
	-100 °C to +525 °C	0.20 °C	In metal block bath	
	525 °C to 1000 ºC	0.80 °C	In a furnace	
	1000 °C to 1350 °C	1.1 °C		
	0 °C to 200 °C	0.50 °C	In metal block bath	S
	200 °C to 600 °C	1.5 °C	In a furnace	
	600 °C to 1000 °C	2.0 °C		
	1000 °C to 1350 °C	2.7 °C		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE (continued)				
Compensating and extension cables	-20 °C to +200 °C 0 °C to 200 °C	0.20 °C 0.50 °C	In fluid bath In metal block bath	P S
Electronic thermometers with sensors, analogue and digital	Range as per sensors	As for sensors		P and S
Metal block calibrators	-100 °C to +100 °C 100 °C to 450 °C 450 °C to 700 °C 700 °C to 1000 °C 1000 °C to 1350 °C	0.10 °C 0.15 °C 1.0 °C 1.1 °C 1.5 °C		P
Temperature surveys			Single and multipoint time dependent temperature profiling, also referred to as spatial temperature surveying or mapping	S
Temperature controlled, incubators, ovens, environmental chambers, fridges/refrigerators, and freezers	-30 °C to 200 °C 200 °C to 600 °C 600 °C to 1000 °C 1000 °C to 1300 °C	1.0 °C 2.1 °C 2.8 °C 3.3 °C		
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: $Q[a, b] = [a^2 + b^2]^{1/2}$