

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK



0005

Accredited to
ISO/IEC 17025:2005

ALSTOM GRID UK Limited

Issue No: 020

Issue date: 16 January 2012

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Calibration performed at the above address only

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks
DC RESISTANCE	Specific values as shunts		The value of a 4-terminal shunt may be expressed as a terminal voltage at a specific current
	37.5 $\mu\Omega$	340 ppm (test current 2 kA)	Calibration can be performed at other test currents but with increased uncertainties
	100 $\mu\Omega$	130 ppm	Supplies up to 4 kA are available to the laboratory
	1 m Ω	56 ppm	Test current 225 A
	10 m Ω	26 ppm	Test current 70 A
	100 m Ω	24 ppm	Test current 14 A
	at negligible power		
	1 m Ω	30 ppm	Resistors of modest dimensions, suitable for oil immersion, can be measured over the temperature range 15 °C to 30 °C
	10 m Ω	23 ppm	
	100 m Ω	10 ppm	
	1 Ω	7.0 ppm	
	10 Ω	3.0 ppm	
	100 Ω	2.0 ppm	
	1 k Ω	2.0 ppm	
	10 k Ω	4.0 ppm	
	100 k Ω	8.0 ppm	
	1 M Ω	14 ppm	
	10 M Ω	19 ppm	
	100 M Ω	38 ppm	
Other values	10 Ω to 100 M Ω	200 ppm	



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DC VOLTAGE	Standard cell values 10 V 0 V to 10 V Above 10 V to 200 V Above 200 V to 1500 V Above 1.5 kV to 5 kV	0.75 μ V 0.80 ppm 1.0 ppm + 0.60 μ V 5.0 ppm 8.0 ppm 0.33 % + 2.4 V	
DC CURRENT	0 A to 200 μ A 200 μ A to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 1 A 1 A to 14 A 14 A to 100 A 100 A to 700 A 700 A to 2 kA 2 kA to 4 kA	8.0 ppm + 0.50 nA 11 ppm + 2.5 nA 11 ppm + 25 nA 12 ppm + 0.25 μ A 13 ppm + 2.4 μ A 20 ppm 41 ppm 150 ppm 440 ppm 500 ppm	Supplies available up to 4 kA
DC POWER	0 W to 150 kW	The power uncertainty will be the sum of the individual uncertainties for the corresponding voltage and current measurements as they are correlated terms	Limiting voltage 1.5 kV Limiting current 100 A
AC VOLTAGE	10 mV to 210 mV 40 Hz to 20 kHz 20 kHz to 100 kHz 210 mV to 2.1 V 40 Hz to 20 kHz 20 kHz to 100 kHz 2.1 V to 21 V 40 Hz to 20 kHz 20 kHz to 100 kHz 21 V to 210 V 40 Hz to 20 kHz 20 kHz to 100 kHz 210 V to 300 V 10 kHz to 100 kHz 210 V to 1010 V 40 Hz to 10 kHz 50 Hz to 60 Hz 1010 V to 1.5 kV 1.5 kV to 5 kV	300 ppm + 12 μ V 500 ppm + 12 μ V 51 ppm + 12 μ V 150 ppm + 12 μ V 32 ppm + 120 μ V 56 ppm + 120 μ V 42 ppm + 1.2 mV 72 ppm + 1.2 mV 95 ppm + 12 mV 45 ppm + 12 mV 0.81 % + 5.8 V 0.88 % + 6.3 V	



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AC CURRENT	40 Hz to 1 kHz 30 μ A to 210 μ A 210 μ A to 2.1 mA 2.1 mA to 21 mA 21 mA to 210 mA 210 mA to 2.1 A	200 ppm + 240 nA 60 ppm + 100 nA 63 ppm + 240 nA 75 ppm + 2.4 μ A 120 ppm + 26 μ A	
	45 Hz to 60 Hz 2.5 A to 1000 A	0.030 %	Supplies available up to 500 A
AC CURRENT RATIO			
Primary Currents	50 Hz 0.25, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250, 500, and 1000 A	150 ppm ratio 0.75 minutes of phase (for CTs of accuracy class 0.5 or better)	For calibration of current transformers with resistive burdens up to 10 VA
	Secondary Current 5A only	800 ppm ratio 2.5 minutes of phase (for CTs of accuracy classes 0.5 to 5)	Supplies available up to 500 A
AC POWER at unity power factor	50 Hz to 60 Hz Maximum voltage 1 kV 2.5 W to 6 kW 6 kW to 100 kW	0.0080 % 0.014 %	Maximum current 6 A Maximum current 100 A The maximum current and voltage are for a single-phase system. For a three-phase system they will be reduced to 25 A and 500 V respectively.
PHASE ANGLE	0° to 360° 50 Hz to 5 kHz 5 kHz to 50 kHz 50 kHz to 100 kHz	0.020° 0.040° 0.060°	Equal amplitudes in the range 50 mV to 120 V. Increased uncertainties will apply for unequal amplitudes. The uncertainties relate to the calibration of a phase meter of suitable resolution and stability.
FREQUENCY			
Specific values	1 Hz, 10 Hz, 50 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz, 5 MHz and 10 MHz	8.1 in 10 ¹²	
TIME INTERVAL	100 μ s to 10 minutes	8.0 in 10 ¹² +1 ns	

END