

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 9460 Accredited to ISO/IEC 17025:2017	NDT Maincal Limited Issue No: 015 Issue date: 07 July 2025	
	Unit 1a Bingswood Trading Estate Whaley Bridge High Peak SK23 7LY	Contact: Lee Wilde Tel: +44 (0) 1663 735283 Fax: +44 (0) 1663 733482 E-Mail: Lee@maincal.com Website: www.maincal.com
Calibration performed by the Organisation at the locations specified		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address NDT Maincal Limited Unit 1a Bingswood Trading Estate Whaley Bridge High Peak SK23 7LY United Kingdom	Local contact Lee Wilde Tel: +44 (0) 1663 735283 E-Mail: Lee@maincal.com	Magnetic particle inspection and associated equipment Magnetics/Gauss test equipment Ultrasonic test equipment Eddy Current test equipment Pressure indicator Temperature indicators and ovens AC conductivity Electrical measurements: AC/DC Voltage/Current, frequency & attenuation	Lab

Site activities performed away from the locations listed above:

Location details		Activity	Location code
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.		Magnetic particle inspection and associated equipment Eddy current test equipment Ultrasonic test equipment Temperature indicators and ovens Pressure indicator Electrical measurements: AC/DC, Voltage/Current, frequency & attenuation	Site



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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
ELECTRICAL				
All electrical measurements are carried out using the method of direct comparison or transfer to laboratory reference standards unless otherwise determined in the remarks column.				
DC Current	10 mA to 3 A 3 A to 20 A	0.45 % 2.2 %		Lab & Site
Voltage Peak to Peak 10 Hz to 20 MHz	0.6 Vpk-pk to 40 Vpk-pk 40 Vpk-pk to 390 Vpk-pk	3.0 % 4.2 %		Lab & Site
AC Voltage RMS 50 Hz	20 mV to 750 V	1.20 %		Lab & Site
DC Voltage	20 mV to 1000 V	0.30 %		Lab & Site
AC Current				
50 Hz	10 mA to 3 A 3 A to 20 A	1.50 % 2.6 %		Lab & Site
Attenuation 10 Hz to 25 MHz Nominal input 5 V to 10 V	0 dB to 44 dB	0.40 dB		Lab & Site
Frequency	10 Hz to 100 MHz	0.50 %		Lab & Site
MPI EQUIPMENT CALIBRATION				
HWDC scaled in MAGAMPS (2XDC average)	100 A to 6 kA	3.0 %	Ranged is scaled up by 2	Lab & Site
DC Current – All Waveforms	0.1 A to 3.5 A 3.5 A to 15 A 50 A to 3kA	0.10 A 3.0 % 3.0 %		Lab & Site
50 Hz z rms Current	0.1 A to 3.5 A 3.5 A to 15 A 20 A to 3.5kA	0.16 A 4.60 % 3.0%		Lab & Site
50 Hz peak current	50 A to 4.95 kA	3.0 %		Lab & Site
DC half wave peak current	50 A to - 7.0 kA	3.0%		Lab & Site
AC Voltage 50Hz rms	100 mV to 750 V	3.0 %		Lab & Site
AC de-gauss coil field intensity	Nominal 50 Gauss to 150 Gauss	5.5 %	Measured with hand search coil	Lab & Site



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
ELECTRICAL (continued) AC / DC Magnetic YOKE Lift test performance (3.7,	90 to 250V AC 6 to 15V DC	2.0 % 1.7 %	Performance assessed using standard lift test at rated voltage and 90% of rated voltage	Lab & Site
Current Shot elapsed time	0.0 s to 1.1 s 1.1 to 2.2 s 2.2 to 5.5 s 5.5 to 11.0 s 11.0 to 22.0 s 22.0 to 55.0 s	12 ms 23 ms 55 ms 108 ms 215 ms 530 ms		Lab & Site
AC Conductivity Nominal 60 kHz Sourcing nominal values	2 MS/m to 60 MS/m	0.75 %	Note; 58.0 MS/m = 100 % on the International Annealed Copper Scale	Lab
Conductivity block Measurement	2 MS/m to 60 MS/m	1.35 %		
Traceability to Boeing (NIST)	0.5 MS/m to 36 MS/m 36 MS/m to 60.5 MS/m	0.75 % 1.5 %	Boeing BAC 5651 Table III. Results will be reported using the IACS Scale, the conversion to SI units will be reported on the certificate.	
Thickness	0 mm to 100 mm	0.50 mm	Supplementary information for the calibration of conductivity blocks only	
Probe frequency	10Hz to 100MHz	0.50 %		



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (<i>k</i> = 2)	Remarks	Location Code	
ELECTRICAL VERIFICATION of ULTRASONIC FLAW DETECTION EQUIPMENT	As BS EN 12668-1:2010 Group 2 tests and including the following calibrations and quantities:		The method of measurement is described in the standards listed.	Lab & Site	
	Stability after warm up (height)	0.50 % of screen height	These claims are all dominated by the resolution of the digital readout rather than the display resolution.		
	Stability after warm up (width)	0.50 % of screen width			
	Jitter - screen height	0.50 % of screen height			
	Jitter - screen width	0.50 % of screen width			
	Stability against voltage variation (height)	0.50 % of screen height			
	Stability against voltage variation (width)	0.5 % of screen width			
	Transmitter voltage	50 V to 600 V	4.2 %		Tested 0 to 26 dB
	Pulse risetime	4.0 ns to 40 ns	3.0 ns		
	Pulse duration		2.5 ns + 2.0 %		
	Pulse Reverberation		2.5 V		
	Nominal 1 V pk-pk	Amplifier frequency response 100 kHz to 50 MHz	4.5 %		
		Equivalent input noise	5.0 nV/√Hz		
		Linearity of vertical display	2.5 % of screen height		
		Linearity of timebase x axis	1.0 % of screen width		
		Accuracy of attenuator 0 to 90 dB	0.50 dB		
	90 to 110 dB	1.00 dB			
	As BS EN ISO 22232-1:2020 Group 2 tests and including the following calibrations and quantities:		The method of measurement is described in the standards listed.		
Transmitter voltage	50 V to 600 V	4.2 %			
Pulse risetime	4.0 ns to 40ns	3.0 ns			
Pulse duration	1 ms to 25 ns	2.5 ns + 2.0 %			



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
ELECTRICAL VERIFICATION of ULTRASONIC FLAW DETECTION EQUIPMENT continued Amplifier frequency response Nominal 1 V pk-pk Accuracy of Attenuator	100 kHz to 50 MHz Equivalent input noise Linearity of vertical display 0 to 90 dB 90 to 110 dB	4.50 % 5.0 nV/$\sqrt{\text{Hz}}$ 2.5 % of screen height 0.50 dB 1.00 dB	Method B	
ULTRASONIC THICKNESS MEASURING EQUIPMENT Transmitter pulse Voltage Pulse rise time Pulse duration Pulse reverberation Measurement accuracy Measurement stability over time Stability with voltage variation	As EN15317 Group 2 tests and including the following calibrations and quantities 50 to 600 V 10 Hz to 20 MHz 4 ns to 40 ns 40 ns to 1 ms 0 to 16 V 1.00 mm to 100.0 mm 10.0mm Nominal to 80%	4.2 % 3.0ns 2.5 ns + 2.0 % 2.5 V 0.044 mm 0.029 mm 0.029 mm		
ULTRASONIC THICKNESS MEASURING EQUIPMENT (continued) Eddy Current measurements Attenuation, probe drive voltage and frequency are listed in the general electrical capabilities. Probe Drive Voltage Probe Drive Frequency Screen angle rotation Overall system measurements with probe.	0.6 Vpk-pk to 40 Vpk-pk 10 Hz to 100 MHz 0° to 360° in 45° degree increments. 0.20 mm, 0.50 mm and 1.0 mm	3.0 % 0.5 % 1.0° 3.0 % of full screen width	ISO 15548-1:2013 tests as listed. Correlation between UUT digital readout and display. Serial number of probe used will be stated on the certificate	Lab & Site Lab & Site Lab & Site



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ACCOUSTIC BOND TESTERS Amplifier frequency response Nominal 1 V Pk-Pk	100 kHz to 50 MHz	4.5 %	3dB points	Lab & Site
Probe Drive Frequency Probe Drive Voltage Tap Tester frequency	20Hz to 20MHz 0.6 Vpk-pk to 40 Vpk-pk 1 to 20 Hz	0.5 % 3.0 % 10 ms		
Magnetics measurements	2 Gauss to 30 Gauss DC 5 Gauss to 150 Gauss DC 5 Gauss to 150 Gauss AC	0.6 Gauss 1.60 % 3.50 %	DC Solenoid DC Helmholtz AC Helmholtz	Lab
De-Gauss coils	Nominal 50 G to 150 G	5.50 %	Hand search coil	Lab & Site
PRESSURE Gas pressure gauge Calibration of pressure indicating instruments and gauges	0 Pa to 200 kPa 200 kPa to 400 kPa 400 kPa to 700 kPa	2.3 kPa 3.6 kPa 4.2 kPa	Calibration by comparison with a digital pressure standard. Calibrations can be undertaken in other pressure units.	Lab & Site
TEMPERATURE Temperature controlled ovens and associated indicators	45 °C to 75 °C	1.5 °C	Single and multipoint monitoring probes Time dependent temperature profiling	Site & Lab
Water temperature indicators	1 °C to 55 °C	2.5 °C		Lab & site
END				



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