Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

28281

Accredited to ISO/IEC 17025:2017

Muirhead Aerospace Limited Trading as Muirhead Avionics

Issue No: 002 **Issue date:** 28 September 2026

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Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Values and uncertainties listed below are applicable for the calibration of both measurement instruments and for instruments with an output. the method used is by direct comparison unless otherwise stated in the remarks column			
ELECTRICAL			
DC VOLTAGE			
Generation	0 V to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1050 V	0.0017 mV 0.0033 mV 0.030 mV 1.0 mV 0.014 V 0.045 V	These values can be generated for the calibration of measuring instruments
Measurement	0 V to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V	0.0079 mV 0.10 mV 0.40 mV 0.0040 V 0.050 V	Outputs of instruments within these values can be measured to the listed uncertainties
DC RESISTANCE			
Generation	1 Ω 1 Ω to 20 Ω 20 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 120 MΩ 120 MΩ to 300 MΩ	0.013 Ω 0.025 Ω 0.020 Ω 0.079 Ω 0.00020 kΩ 0.0042 kΩ 0.045 kΩ 0.0020 MΩ 0.15 MΩ 15 MΩ	These values can be generated for the calibration of measuring instruments
Measurement	0 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ	0.010 Ω 0.10 Ω 1.0 Ω 0.010 kΩ 0.10 kΩ 0.0030 MΩ 0.69 MΩ	

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
DC Current			
Generation	0 A to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 22 A	0.070 µA 0.10 µA 0.0010 mA 0.010 mA 0.00020 A 0.00050 A	These values can be generated for the calibration of measuring instruments
Measurement	0 A to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A	0.0050 mA 0.040 mA 1.0 mA 0.0020 A	Outputs of instruments within these values can be measured to the listed uncertainties
AC Voltage			
Generation	*20 Hz to 200 Hz* 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V *40 Hz to 200 Hz* 20 V to 200 V *50 Hz to 200 Hz* 200 V to 1050 V *200 Hz to 1 kHz* 20 V to 200 V 200 V to 1050 V *200 Hz to 20 kHz* 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V *20 kHz to 25 kHz* 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V *25 kHz to 50 kHz* 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V *50 kHz to 100 kHz* 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V	 0.010 mV 1.14 mV 0.60 mV 0.0050 V 0.050 V 0.12 V 0.060 V 0.12 V 0.010 mV 0.050 mV 0.0010 mV 0.0050 V 0.020 mV 0.070 mV 0.50 mV 0.020 V 0.040 mV 0.17 mV 0.0010 V 0.020 V 0.040 mV 0.08 mV 1.0 mV 0.030 V	These values can be generated for the calibration of measuring instruments

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
AC VOLTAGE Measurement			
	3 Hz to 1kHz		These values can be generated for the calibration of measuring instruments
	1 mV to 10 mV	0.070 mV	
	10 mV to 100 mV	0.070 mV	
	100 mV to 1 V	1.0 mV	
	1 V to 10 V	0.010 V	
	10 V to 100 V	0.060 V	
	100 V to 750 V	0.46 V	
AC CURRENT Generation	*20 Hz to 50 Hz*		
	10 µA to 200 µA	0.10 µA	These values can be generated for the calibration of measuring instruments
	200 µA to 2 mA	0.0010 mA	
	2 mA to 20 mA	0.0080 mA	
	20 mA to 200 mA	0.080 mA	
	200 mA to 2 A	1.0 mA	
	50 Hz		
	2 A to 22 A	0.020 A	
	50 Hz to 200 Hz		
	10 µA to 200 µA	0.090 µA	
	200 µA to 2 mA	1.0 µA	
	2 mA to 20 mA	0.010 mA	
	200 Hz to 5 kHz		
	10 µA to 200 µA	0.090 µA	
	200 µA to 2 mA	1.0 mA	
	2 mA to 20 mA	0.010 mA	
	20 mA to 200 mA	0.26 mA	
AC CURRENT Measurement	*1 kHz*		
	1 mA to 1 A	1.0 mA	
	1 A to 3 A	3.0 mA	
BATTERY ANALYSERS AND CHARGERS			
DC Current	1 A to 10 A	50 mA	
	10 A to 80 A	100 mA	
DC Voltage	0 mV to 100 mV	100 µV	
	100 mV to 40 V	500 µV	
FREQUENCY			
Generation	9 kHz to 100 kHz	0.00030 kHz	Using frequency standard and divider.
	100 kHz to 1 MHz	0.0030 kHz	
	1 MHz to 10 MHz	0.000030 MHz	
	10 MHz to 100 MHz	0.00030 MHz	
	100 MHz to 200 MHz	0.0010 MHz	
	200 MHz to 400 MHz	0.0010 MHz	
	400 MHz to 700 MHz	0.0020 MHz	
	700 MHz to 1000 MHz	0.0030 MHz	
	1000 MHz to 1200 MHz	0.0040 MHz	
	1200 MHz to 1400 MHz	0.0050 MHz	
	1400 MHz to 1800 MHz	0.010 MHz	
	1800 MHz to 2000 MHz	0.010 MHz	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
FREQUENCY			
Measurement	10 Hz to 100 Hz	0.0010 Hz	Using frequency counter
	100 Hz to 1 Hz	0.0020 Hz	
	1 kHz to 10 kHz	0.010 Hz	
	10 kHz to 100 kHz	0.00010 kHz	
	100 kHz to 1 MHz	0.0010 kHz	
	1 MHz to 10 MHz	0.000010 MHz	
	10 MHz to 100 MHz	0.00010 MHz	
	100 MHz to 1 GHz	0.0010 MHz	
	1 GHz to 2 GHz	0.0010 MHz	
Pulse			
Measurement	**Horizontal (Time) Deflection**		
	2 ns to 12 ms	5.0 ns	
	Verticle (Voltage) Deflection		
	0 mV to 15 mV	0.58 mV	
	15 mV to 30 mV	0.47 mV	
	30 mV to 60 mV	0.88 mV	
	60 mV to 150 mV	2.64 mV	
	150 mV to 300 mV	5.37 mV	
	300 mV to 600 mV	6.25 mV	
	600 mV to 1500 mV	29.32 mV	
	1500 mV to 3 V	0.030 V	
	3 V to 6 V	0.080 V	
	6 V to 15 V	0.50 V	
RF POWER			
Generation			

Frequency Range	(-50 to 0) dBm	(0 to +7) dBm	(+7 to +14.5) dBm
9 kHz to 100 kHz	0.33 dB	0.33 dB	0.36 dB
100 kHz to 300 kHz	0.16 dB	0.12 dB	0.50 dB
300 kHz to 500 kHz	0.11 dB	0.10 dB	0.20 dB
500 kHz to 1 MHz	0,12 dB	0.13 dB	0.21 dB
1 MHz to 10 MHz	0.11 dB	0.11 dB	0.21 dB
10 MHz to 100 MHz	0.11 dB	0.11 dB	0.22 dB
100 MHz to 500 MHz	0.11 dB	0,10 dB	0,21 dB
500 MHz to 1 GHz	0.10 dB	0.10 dB	0.21 dB
1 GHz to 1.5 GHz	0.10 dB	0.10 dB	0.20 dB
1.5 GHz to 2 GHz	0.10 dB	0.10 dB	0.20 dB

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks

RF POWER (continued)

Measurement

Type N coaxial systems.

Frequency Range	(-10 to 20 dBm)	(-60 to -10 dBm)
9 kHz	0.69 %	0.85 %
9 kHz to 100 kHz	0.70 %	0.86 %
100 kHz to 1 MHz	0.71 %	0.91 %
1 MHz to 10 MHz	0.69 %	0.97 %
10 MHz to 100 MHz	0.75 %	0.85 %
100 MHz to 500 MHz	0.65 %	0,79 %
500 MHz to 1 GHz	0.85 %	0.95 %
1 GHz to 1.2 GHz	0.88 %	0.97 %
1.2 GHz to 1.5 GHz	0.88 %	0.97 %
1.5 GHz to 2 GHz	0.88 %	0.97 %

Frequency Range	(-60 dBm)	(-70 dBm)	(-80 dBm)	(-90 dBm)	(-100 dBm)	(-110 dBm)	(-120 dBm)
100 kHz to 2 GHz Power relative to set point	0.14 %	0.14 %	0.14 %	0.24 %	0.40 %	0.80 %	0.85 %

AMPLITUDE MODULATION (AM)	Carrier Frequency ≤10 MHz		Carrier Frequency Range 50 kHz to 1360 MHz
	F_{mod} 30 Hz, Mod 20 %	0.080 %	
	F_{mod} 1 kHz, Mod 20 %	0.080 %	Mod Frequency Range 10 Hz to 20 kHz
	F_{mod} 20 kHz, Mod 20 %	0.080 %	
	F_{mod} 30 Hz, Mod 80 %	0.35 %	Modulation 0 to 100 %
	F_{mod} 1 kHz, Mod 80 %	0.36 %	
	F_{mod} 20 kHz, Mod 80 %	0.35 %	
	F_{mod} 1 kHz, Mod 95 %	0.45 %	
	F_{mod} 100 kHz, Mod 95 %	0.49 %	
	Carrier Frequency >10 MHz		
	F_{mod} 1 kHz, Mod 20 %	0.10 %	
	F_{mod} 20 kHz, Mod 20 %	0.10 %	
	F_{mod} 1 kHz, Mod 80 %	0.28 %	
	F_{mod} 20 kHz, Mod 80 %	0.30 %	
	F_{mod} 1 kHz, Mod 95 %	0.36 %	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
AM DISTORTION			
	Carrier Frequency Range 50 kHz to 1360 MHz		Mod Frequency Range 10 Hz to 20 kHz
	F_{mod} 10 Hz, Mod 40 %	0.050 %	Distortion 0 % to 99.9 %
	F_{mod} 1 kHz, Mod 40 %	0.050 %	
	F_{mod} 20 kHz, Mod 40 %	0.050 %	
	F_{mod} 10 Hz, Mod 80 %	0.10 %	
	F_{mod} 1 kHz, Mod 80 %	0.10 %	
	F_{mod} 20 kHz, Mod 80 %	0.10 %	
FREQUENCY MODULATION (FM)			
	Carrier Frequency Range 50 kHz to 1360MHz		Modulation Frequency Range 10 Hz to 20 kHz
	F_{mod} 10 Hz, Mod 20 kHz	0.060 kHz	Frequency Modulation 30 Hz to 20 kHz
	F_{mod} 30 Hz, Mod 20 kHz	0.030 kHz	
	F_{mod} 1 kHz, Mod 20 kHz	0.040 kHz	
	F_{mod} 10 kHz, Mod 20 kHz	0.040 kHz	
	F_{mod} 20 kHz, Mod 20 kHz	0.030 kHz	
VOR PHASE Measurement	0° to 270°	0.010°	Frequency, 30 Hz and 9.96 kHz
	270° to 360°	0.020°	
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: $Q[a, b] = [a^2 + b^2]^{1/2}$