Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

6742

Accredited to ISO/IEC 17025:2017

Electromagnetic Testing Services Ltd

Issue No: 005 **Issue date:** 5 October 2021

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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
Antenna Factor Biconical Antenna Biconical Antenna Log Periodic Antenna Hybrid Antennas (Bilog etc.) Horn Antennas	 20 MHz to 300 MHz 30 MHz to 1 GHz 200 MHz to 1 GHz 20 MHz to 1 GHz 1 GHz to 3.5 GHz 800 MHz to 18 GHz	 1.5 dB 1.5 dB 1.5 dB 1.5 dB 1.5 dB 1.5 dB	CISPR 16-1-6:2015 EN 55016-1-6:2015 (reference antenna method) Results expressed as free space, 10 m or 3 m factors
Antenna Balance	20 MHz to 300 MHz	0.2 dB	CISPR 16-1-4:2019 EN 55016-1-4:2019
Antenna VSWR expressed as reflection coefficient N Type connectors 1 MHz to 18 GHz	VRC Range / Frequency Range 0.0 to 0.3 — 1 MHz to 5 GHz 5 GHz to 10 GHz 10 GHz to 18 GHz 0.3 to 0.6 — 1 MHz to 5 GHz 5 GHz to 10 GHz 10 GHz to 18 GHz 0.6 to 1.0 — 1 MHz to 5 GHz 5 GHz to 10 GHz 10 GHz to 18 GHz	Min / Max 0.012 / 0.026 0.021 / 0.039 0.032 / 0.039 0.015 / 0.041 0.026 / 0.058 0.039 / 0.058 0.023 / 0.067 0.041 / 0.090 0.058 / 0.090	CISPR 16-1-6:2015 EN 55016-1-6:2015 CISPR 16-1-4:2019
Antenna Factor Biconical Antennas LPDA Antennas Horn Antennas	 20 MHz to 300 MHz 200 MHz to 1 GHz 800 MHz to 18 GHz	 1.5 dB 1.5 dB 1.5 dB	SAE ARP 958 rev D 1 m and 3 m
Antenna Factor Biconical Antennas LPDA Antennas Horn Antennas	 20 MHz to 300 MHz 200 MHz to 1 GHz 800 MHz to 18 GHz	 1.5 dB 1.5 dB 1.5 dB	Def Stan 59/411 issue 1, 2 and 3 results normalised to 1 m

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Issue No: 005 **Issue date:** 5 October 2021

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Insertion Loss	20 Hz to 18 GHz	0.35 dB	For N type connectors Uncertainties will increase for Other connector types
Attenuators, Couplers, Cables	20 Hz to 18 GHz	0.35 dB	
Amplifiers			For N type connectors Uncertainties will increase for Other connector types
Gain	20 Hz to 18 GHz	0.35 dB	
Gain Flatness	20 Hz to 18 GHz	0.05 dB	
1dB Compression points	20 Hz to 18 GHz	0.35 dB	
Return loss S11 expressed as reflection coefficient	20 Hz to 18 GHz	0.05 to 0.1	
Return Loss S22 expressed as reflection coefficient	20 Hz to 18 GHz	0.05 to 0.1	With the amplifier input un-excited
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: $Q[a, b] = [a^2 + b^2]^{1/2}$