


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 5772 Accredited to ISO/IEC 17025:2017	UL International UK Ltd Issue No: 005 Issue date: 28 May 2024	
	Unit 1 - 4 Horizon Kingsland Business Park Wade Road Basingstoke Hampshire RG24 8AH	Contact: Mr Neil Friggi Tel: +44 (0) 1483 402020 Fax: +44 (0) 1483 302230 Email : Neil.Friggi@ul.com Website: https://uk.ul.com

Calibration performed by the Organisation at the locations specified below

Location details		Activity
Address Unit 1 - 4 Horizon Kingsland Business Park Wade Road Basingstoke Hampshire RG24 8AH	Contact: Neil.Friggi@ul.com Tel: +44 (0) 1483 402020 Fax: +44 (0)1483 302230 E-Mail: Neil.Friggi@ul.com Website: https://uk.ul.com	Calibration Dipoles



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Calibration performed at main address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
For the Calibration of half wavelength Reference Dipoles			Dipole calibration as per the requirements of: IEC 62209-1:2016 (withdrawn) IEC 62209-2:2010/ AMD1:2019 (withdrawn) IEC 62209-3:2019 IEC/IEEE 62209-1528:2020
S11 return Loss	450 MHz to 9.7 GHz 0 dB 15 dB 20 dB 25 dB 30 dB Greater than 30 dB	0.3 dB to 0.5 dB 0.6 dB to 0.8 dB 0.7 dB to 1.2 dB 1.1 dB to 2.0 dB 1.9 dB to 3.6 dB 1.9 dB	Increasing with Frequency Increasing with Frequency Increasing with Frequency Increasing with Frequency Increasing with Frequency increasing with Frequency and RL
Complex impedance	450 MHz to 9.7 GHz 50 $\Omega \pm 20 \Omega$	Q[0.28 Ω ,0.044 Ω]	Calculated S11 ≥ 15 dB RL
Fluid Dielectric Properties	450 MHz to 10.0 GHz in the following bands		
Permittivity & Conductivity	300 MHz to 3 GHz 3 GHz to 6 GHz 6 GHz to 10 GHz	7.3 % 4.9% 5.0%	
System Validation	300 MHz to 3.0 GHz	20 %	
SAR 1g/10g	3.0 GHz to 6.0 GHz 6.0 GHz to 10.0 GHz	21 % 27 %	
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 nonrepeatability) 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: $Q[a, b] = [a^2 + b^2]^{1/2}$