


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>29561 Accredited to ISO/IEC 17025:2017</p>	<h3>High Technology Sources Limited</h3> <p>Issue No: 001 Issue date: 01 February 2024</p>	
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<p>Calibration performed at the above address only</p>		

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
Surface contamination response Calibration process is completed as per the guidance of GPG 14	Alpha emitting nuclides Americium-241 Thorium-230 Uranium-234/238 Plutonium-239	7.8 %	Calibration of portable surface contamination instruments using large area sources with surface emission rates to national standards.
	Beta emitting nuclides Chlorine-36 Carbon-14 Strontium-90 / Yttrium-90 Cobalt-60 Caesium-137 Technetium-99	6.8 %	
Air kerma rate	Americium-241 40 $\mu\text{Gy}\cdot\text{h}^{-1}$ to 613 $\mu\text{Gy}\cdot\text{h}^{-1}$	7.3 %	Calibration of air kerma/air kerma rate monitors using air kerma rates to national standards through a secondary standard dosimeter.
	Caesium-137 0.2 $\mu\text{Gy}\cdot\text{h}^{-1}$ to 1.6 $\text{Gy}\cdot\text{h}^{-1}$	4.5 %	
	Cobalt-60 34 $\mu\text{Gy}\cdot\text{h}^{-1}$ to 1.6 $\text{mGy}\cdot\text{h}^{-1}$	4.5 %	
Ambient dose equivalent $H^*(10)$	Americium-241 70 $\mu\text{Sv}\cdot\text{h}^{-1}$ to 1.0 $\text{mSv}\cdot\text{h}^{-1}$	7.3 %	Calibration of dose/dose rate monitors using air kerma rates to national standards through a secondary standard dosimeter and using appropriate coefficients given in ISO Standards for $H^*(10)$.
	Caesium-137 0.2 $\mu\text{Sv}\cdot\text{h}^{-1}$ to 1.9 $\text{Sv}\cdot\text{h}^{-1}$	4.5 %	
	Cobalt-60 39 $\mu\text{Sv}\cdot\text{h}^{-1}$ to 1.9 $\text{mSv}\cdot\text{h}^{-1}$	4.5 %	
Personal dose equivalent $H_p(10)$	Americium-241 76 $\mu\text{Sv}\cdot\text{h}^{-1}$ to 1.1 $\text{mSv}\cdot\text{h}^{-1}$	7.3 %	Calibration of electronic personal dosimeters using air kerma rates to national standards through a secondary standard dosimeter, and using appropriate coefficients given in ISO Standards for $H_p(10)$. Measurement uncertainties are dependent upon the exposure method used. The stated uncertainties are the best achievable using collimated sources.
	Caesium-137 0.2 $\mu\text{Sv}\cdot\text{h}^{-1}$ to 2.0 $\mu\text{Sv}\cdot\text{h}^{-1}$	4.5 %	
	Cobalt-60 39 $\mu\text{Sv}\cdot\text{h}^{-1}$ to 1.9 $\text{mSv}\cdot\text{h}^{-1}$	4.5 %	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
Alpha, beta and photon large area sources Measurement of surface emission rates s^{-1}	Alpha emitting nuclides Americium-241 Thorium-230 Plutonium-239 Uranium-234/238 Beta emitting nuclides Chlorine-36 Carbon-14 Strontium-90/Yttrium-90 Cobalt-60 Caesium-137 Technetium-99 Electron Capture nuclides Iron-55	5.9 % 6.5 % 10.0 %	Measurement of surface emission rates from planar sources using a windowed gas-flow proportional counter, calibrated with extended reference sources of the same nuclide. The measurement uncertainties are dependent upon the nuclide and surface emission rate. The stated values are the best achievable.
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: $Q[a, b] = [a^2 + b^2]^{1/2}$