Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0653

Accredited to ISO/IEC 17025:2017

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

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Beaufort Court
17 Roebuck Way
Milton Keynes
MK5 8HL
United Kingdom

Contact: Kiran Mistry
Tel: +44 (0)1908 642846
Fax: +44 (0)1908 642814
E-Mail: kmistry@anv.uk.com
Website: www.noise-and-vibration.co.uk

Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Acoustics			
Sound Calibrators			
Sound pressure level	85 dB to 135 dB	0.10 dB	Suitable to support the verification of Sound Calibrators according to IEC 60942:2003 Annex B (Withdrawn); IEC 60942:2017 Annex B. With Bruel & Kjaer microphone type 4134
Frequency	250 Hz 1000 Hz	0.048 % 0.012 %	
Total Distortion	0.01 % to 4 %	6.1 % of reading	
Pistonphones			
Sound pressure level	110 dB to 135 dB	0.10 dB	Suitable to support the verification of Pistonphones according to IEC 60942:2003 Annex B (Withdrawn); IEC 60942:2017 Annex B. With Bruel & Kjaer microphone type 4134
Frequency	250 Hz	0.072 %	
Total Distortion	0.01 % to 4 %	6.1 % of reading	
Sound level meters			
Sound Level Meters	BS 7580:Part 1:1997 (Withdrawn)	See remarks	Suitable to support the verification of Type 0, 1 & 2 SLMs originally manufactured in accordance with BS EN 60651:1994 (Withdrawn) BS EN 60804:1994 (Withdrawn) and for which appropriate correction factors are known and agreed

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Acoustics cont'd			
Sound level meters cont'd			
Sound Level Meters	BS EN 61672-3: 2006 (Withdrawn) as modified by UKAS TPS 49 Edition 3: December 2022	See remarks	Suitable to support the verification of Class 1 & 2 Sound Level Meters originally manufactured in accordance with IEC 61672-1:2002 (Withdrawn) and for which required correction factors are known and agreed
Sound Level Meters	BS EN 61672-3:2013	See remarks	Suitable to support the verification of Class 1 & 2 Sound Level Meters originally manufactured in accordance with IEC 61672-1:2013 and for which required correction factors are known and agreed.
Filters - Octave and one-third octave band, sound level meter based: IEC 61260 and IEC 225, filter band shape: One-third octave at centre band frequencies	16 Hz to 20 kHz	0.16 dB within the filter pass-band 0.20 dB outside the filter pass-band	Filters originally manufactured in accordance with IEC 225:1966 (Withdrawn) or IEC 61260:1995 (Withdrawn) (BS EN 61260:1996 (Withdrawn)); IEC 61260-3:2016 (BS EN 61260-3:2016) in combination with a sound level meter
Octave	16 Hz to 16 kHz		
IEC 61260 / IEC 225 inter-band level	4 Hz to 32 kHz	0.16 dB at the centre frequency	
Reverberation time	50 Hz to 10 kHz in 1/3 octave steps Decay times 0.05 s to 25 s* *NB Exact Base 2 or Base 10 frequencies used; decay time increment 0.01 s	0.20% of decay time for T_{20} 0.13% of decay time for T_{30}	Suitable to support the verification of specific RT modules on sound level meters using multi-frequency sinusoidal signal with a continuous decay
Microphones Pressure sensitivity of ½" microphones @ reference frequency	250 Hz and 1 kHz	0.1 dB	WSM type microphones By comparison with a reference microphone
Electrostatic actuator response of ½" microphones	100 Hz to 4 kHz	0.09 dB	By electrostatic actuator methods
	>4 kHz to 8 kHz	0.10 dB	
	>8 kHz to 16 kHz	0.14 dB	
	>16 kHz to 20 kHz	0.14 dB	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Acoustics cont'd			
Microphones cont'd			
Pre-amp associated with ½" microphone	100 Hz to 20 kHz	0.04 dB	Frequency response of the associated pre-amp. Method can only be applied to microphones and pre-amplifiers which can be separated.
Pressure sensitivity of ¼" microphones @ reference frequency	250 Hz and 1 kHz	0.1 dB	WSM type microphones. By comparison with a reference microphone
Electrostatic actuator response of ¼" microphones	100 Hz to 4 kHz	0.10 dB	By electrostatic actuator methods
	>4 kHz to 8 kHz	0.12 dB	
	>8 kHz to 16 kHz	0.15 dB	
	>16 kHz to 20 kHz	0.13 dB	
	>20 kHz to 50 kHz	0.42 dB	
	>50 kHz to 100 kHz	0.99 dB	
Pre-amp associated with ¼" microphone	100 Hz to 50 kHz	0.04 dB	Frequency response of the associated pre-amp. Method can only be applied to microphones and pre-amplifiers which can be separated.
	>50 kHz to 100 kHz	0.12 dB	
Standalone ¼" and ½" microphone pre-amps	100 Hz to 50 kHz	0.04 dB	Frequency response of a stand alone pre-amp
	>50 kHz to 100 kHz	0.12 dB	
Noise recording instrumentation:			
- Frequency response	31.5 Hz to 12.5 kHz	0.20 dB	Range may be extended to limit of manufacturers' specification for instruments that analyse the recording internally
- Linearity response: external analysis	0 to 65 dB	0.27 dB	
internal analysis	0 to 65 dB	0.20 dB	
Tapping machines:			Suitable to support the verification of tapping machines in accordance with BS EN ISO 140-7:1998 (Withdrawn); BS EN ISO 16283-2:2015 (Withdrawn); BS EN ISO 16283-2:2018 (Withdrawn); BS EN ISO 16283-2:2020; BS EN ISO 10140-5:2010 +A1:2014 (Withdrawn); BS EN ISO 10140-5:2021
- Velocity	0.786 m/s to 0.986 m/s	0.009 m/s	
- Mass	480 g to 520 g	0.14 g	
- Time	60 ms to 140 ms	0.7 ms	
- Distance: diameter	25 mm to 35 mm	0.04 mm	
radius of curvature	300 mm to 700 mm	12 mm	
Angle of fall	0° to 0.6°	0.18°	

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