

Certificate of Calibration

Issued by University of Salford (Acoustics Calibration Laboratory)
UKAS ACCREDITED CALIBRATION LABORATORY NO. 0801



0801

University of
Salford
MANCHESTER

Page 1 of 3

APPROVED SIGNATORIES

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Certificate Number: 04418/3

Date of Issue: 25 September 2019

PERIODIC TEST OF A SOUND LEVEL METER to IEC 61672-3:2006

FOR:	Lighthouse Acoustics 2nd Floor 3 Hardman Square Spinningfields Manchester M3 3EB
FOR THE ATTENTION OF:	Robin Wood
PERIODIC TEST DATE:	25/09/2019
TEST PROCEDURE:	CTP12 (Laboratory Manual)

Sound Level Meter Details

Manufacturer	CEL
Model	CEL-633C
Serial number	0721319
Class	1
Firmware version	129-05

Associated Items	Microphone	Preamplifier
Manu	CEL	CEL
Model	251	495
Serial Number	1996	001446

Test Engineer (initial):

GP

Name:

Gary Phillips

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Page 2 of 3

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The manufacturer's instruction manual was marked as follows: CEL-63x HB3356-02.

Adjustment data used to adjust the sound levels indicated in response to the application of a multi-frequency sound calibrator to sound levels equivalent to those that would be indicated in response to plane, progressive sound waves were obtained from the manufacturer's instruction manual referred to in this certificate.

The sound level meter calibration check frequency is 1000 Hz, the reference sound pressure level was 114 dB. As this instrument only has a single range, this range is the reference level range.

The environmental conditions in the laboratory at the start of the test were:

Static pressure 99.365 kPa $\pm$ 0.015 kPa; air temperature 23.2 °C $\pm$ 0.4 °C; relative humidity 47.0 % $\pm$ 2.4 %.

The initial response of the instrument to application of the suitable laboratory sound calibrator was 113.8 dB (Z). The instrument was then adjusted to indicate 113.9 dB (Z).

This indication was obtained from the calibration certificate of the calibrator and information in the manufacturer's instruction manual specified in this certificate, when the instrument response is set to Free field. The instrument was calibrated without a windshield. Consult manufacturer's instructions if using a windshield.

With the microphone installed the level of self-generated noise was:

A: 19.7 dB

With the microphone replaced by the electrical input device specified in the manufacturer's instruction manual, the levels of self-generated noise were:

A: 15.0 dB

C: 19.4 dB

Z: 25.9 dB

The environmental conditions in the laboratory at the end of the test were:

Static pressure 99.453 kPa $\pm$ 0.015 kPa; air temperature 23.7 °C $\pm$ 0.4 °C; relative humidity 47.8 % $\pm$ 2.4 %.

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Page 3 of 3

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The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

The microphone corrections applied as specified in 12.6 of IEC 61672-3:2006 were obtained from a frequency response measured by this Laboratory using the electrostatic actuator method. This response in isolation is not covered by our UKAS accreditation.

Instruments used in the verification procedure were traceable to *National Standards*. The multi-frequency calibrator method was employed in the acoustical tests of a frequency weighting.

The uncertainty evaluation has been carried out in accordance with UKAS requirements. All measurement results are retained at the acoustic calibration laboratory for at least four years.

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