



Measurement of Environmental Noise

Report Reference Number: 9451-4

For:

Walsh Nolan Design

Project/Site Address

Silverwood House, 129 Barlow Moor Road, Manchester, Greater Manchester, M20 2PW

Prepared by

John Ashe

Report Date

11th May 2023

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Measurement Survey
Undertaken By

Richard Stockdale



Report Completed By

John Ashe



2.0 – Objectives

2.1 E2 Consultants were instructed by Walsh Nolan Design to prepare a noise assessment for the proposal of erecting new dwellings and the conversion of an existing building into dwelling flats.

2.2 The methodology used for the purpose of this assessment is BS 8233. In order to determine the background noise levels of the area, noise levels were measured at a location closest to the nearby noise-sensitive dwellings most likely to be affected by the noise levels. These measurements were taken during the day of 08th of July at two locations.

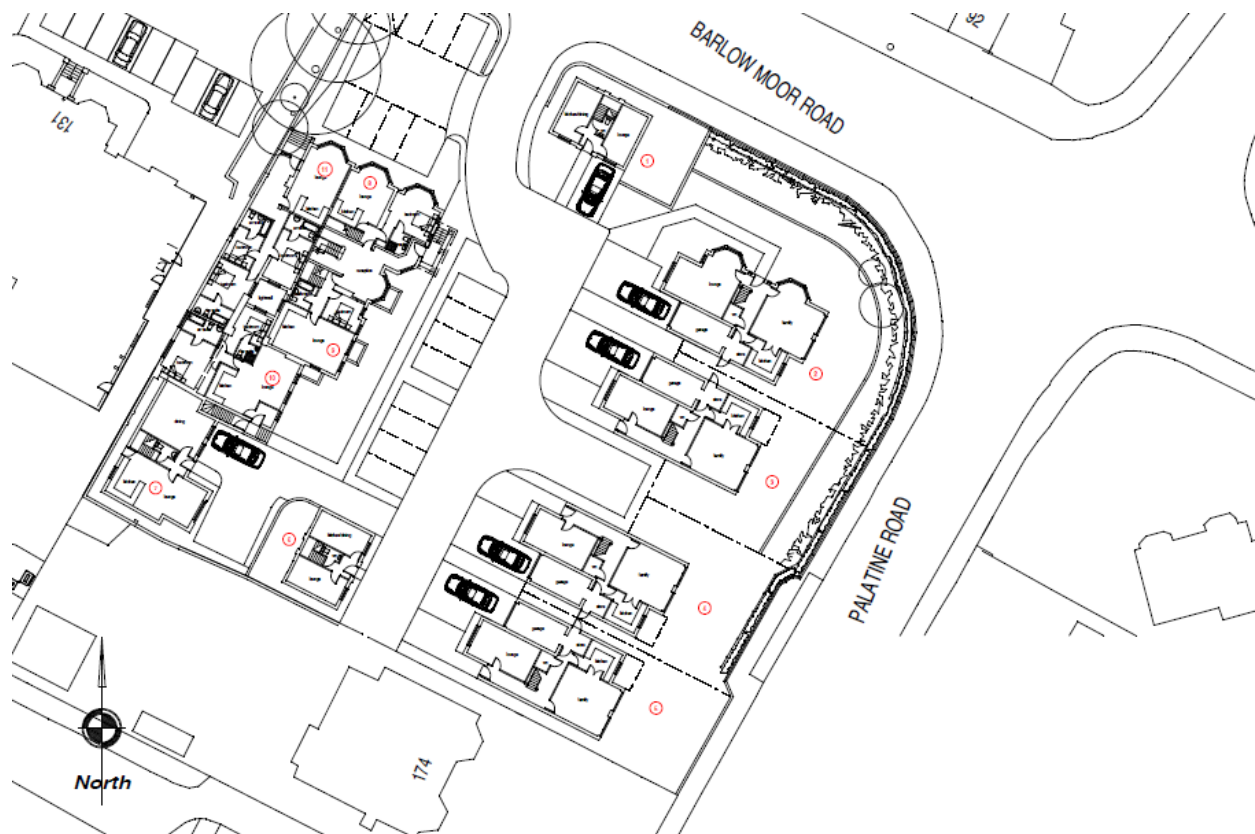
2.3 The noise levels measured have been considered and assessed against this national guidance in order to establish the acceptability of the development.

2.4 Details regarding the assessment methodology used, together with the results of the survey undertaken and the conclusions and recommendations, are presented within this report.

3.0 – Site Description

3.1 The site is currently partially started with the conversion of the existing building mostly completed with all new external windows in place.

3.2 The main concerns of the is from road traffic noise in the area as there is no noise from external plant equipment or industrial sources in the area a BS8233 assessment only was carried out to assess the noise from the adjacent road (Barlow Moor Road A5145).



3.3 As can be seen in the above site plan, it is proposed that the site will have 7 new build dwellings and 6 new dwelling flats made from the material change of use of the existing building on site.

4.0 – Microphone Position

4.1 The microphone was placed at multiple locations on the site to obtain the background noise levels at the different locations on the site.

4.2 The following measurements were taken:

Measurement Time	Location	Duration	Reading Reference
08/07/2019 13:48 – 14:48 – DAY 23:00 – 00:00 - NIGHT	Flats – First Floor	1 Hour	190708_0006 - Day 190708_0012 - Night
Picture			
The Microphone as seen was placed directly in front of the first floor window overlooking the road. This measurement was repeated during the night. The aim of this was to ascertain the resistance of the current glazing and façade			

Measurement Time	Location	Duration	Reading Reference
08/07/2019 14:53 – 15:53 – DAY 21:56 – 22:56 – NIGHT	External – Level with front window	1 Hour	190708_0007 - Day 190708_0011 - Night
Picture The microphone was placed on in-line with the first floor window of the dwelling flat facing the road. This would be used to get the external noise levels for this area along with the resistance of the façade.			

Measurement Time	Location	Duration	Reading Reference
13/06/2019 15:59 – 16:59 – DAY 01:07 – 02:07 – NIGHT	Plot 1	1 Hours	190708_0008 - Day 190709_0002 - Night
Picture The microphone was placed directly next to Plot 1 to obtain the noise levels to the rear of Plot 1.			



5.0 – Uncertainties

5.1 The following points are noted to allow for and minimise where possible any uncertainties in the measurements taken.

- 1) A class one microphone has been used for the purpose of the survey (**Norsonic 140 SLM – serial number 1405312**).
- 2) Weather conditions – 90% cloud cover.

	Before Measurements	After Measurements
Wind speed:	1m/s - NW	2m/s - NW
Humidity:	52%	52%
Temperature:	14°C	20°C
Barometric pressure:	1013mb	1013mb

5.2 The weather during the day was noted as cloudy with winds of less than 5m/s with no prevailing directional component.

- 3) Noise levels at the time of the measurements were noted to be fairly constant with no sudden increases or decreases in noise levels.
- 4) All results seen in this report will be rounded, for example, 82.5 will be rounded up to 83.

6.0 – Recommendations & Results

6.1 The data taken from site is shown below:

Measurement Time	Location	L _{aeq}	L _{AMAX}
08/07/2019 13:48 – 14:48 – DAY 23:00 – 00:00 - NIGHT	Flats – First Floor	40dBA 26dBA	38dBA
08/07/2019 14:53 – 15:53 – DAY 21:56 – 22:56 – NIGHT	External – Level with front window	58dBA 53dBA	60dBA
13/06/2019 15:59 – 16:59 – DAY 01:07 – 02:07 – NIGHT	Plot 1	70dBA 55dBA	45dBA

6.2 BS8233 Assessment

6.2.1 The main prevailing source of noise on the site is from the road traffic noise on the main road (Barlow Moor Road).

6.2.2 The guidelines of BS8233:2014 which states the following:

Table 4 Indoor ambient noise levels for dwellings

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	—
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	—
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

6.2.3 As can be seen in the above levels taken on site the flats that have been mostly completed with glazing installed meet the requirements of both the day time and night time noise levels. Providing an average of 25dB reduction to the noise levels from outside.

6.2.4 No windows have yet been installed to the the houses being built and it would be recommended that these houses directly facing barlow moor road have windows installed to meet a minimum of 32dB + CTR and trickle vents to the same standard.

6.2.5 The above windows will bring noise levels within the properties (Plot 1 is of greatest concern as this plot is the closest to the road) within acceptable levels both during the day and the night time periods.

6.3 Addendum 20/03/2023 – Inclusion of Basement Flats 11 & 12

6.3.1 Since the original application, it is proposed that two new basement flats be constructed as part of the works to the existing building to be converted into flats.

6.3.2 As can be seen, the L_{AMAX} readings have been added to the above tables and included into this report showing that the noise levels at the façade of the flats, is not excessive as measured at the front façade facing Barlow Moor Road.

6.3.3 The same recommendations would remain for the new basement flats as per the original assessment. The windows would need to be double glazed, meeting a minimum reduction of 30dBA + R_w with any trickle ventilation meeting the same standards.

6.3.4 – These flats are located within the basement of the main building and all walls are retaining walls with any windows located in light wells below ground level. This would further reduce the noise levels experienced by 10dB at the window due to the loss of line of sight of the noise source and propagation effects.

Day Windows

	dB	Commentary
External Noise Level	58dBA	This is the background noise level on-site during the day
Assumed façade reduction with the window open	30dBA	This is the maximum allowable façade reduction that can be allowed for with an opened window
Internal Noise level	28dBA	
Required by BS8233	35dBA	
Level Under/Over	-7dBA	This is the total amount that the noise levels are over the BS8233 standards.

Night Windows

	dB	Commentary
External Noise Level	53dBA	This is the background noise level on-site during the day
Assumed façade reduction with the window open	30dBA	This is the maximum allowable façade reduction that can be allowed for with an opened window
Internal Noise level	23dBA	
Required by BS8233	30dBA	
Level Under/Over	-7dBA	This is the total amount that the noise levels are over the BS8233 standards.

Further, Ventilation for the properties can be obtained through trickle ventilation and open windows.

7.0 – On Site Microphone Calibration

Microphone calibration: 114.0 dB 113.9dB = Drift of -0.1dB

(The drift value is within acceptable limits of +/-0.3dB)

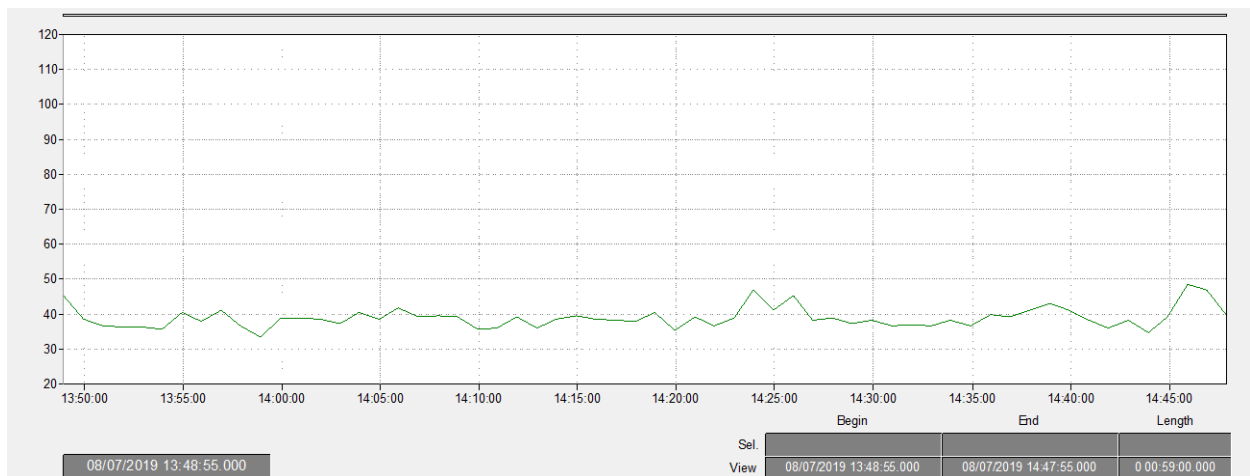
8.0 – Technical Appendix

Class 1 Microphone: Norsonic 140 SLM

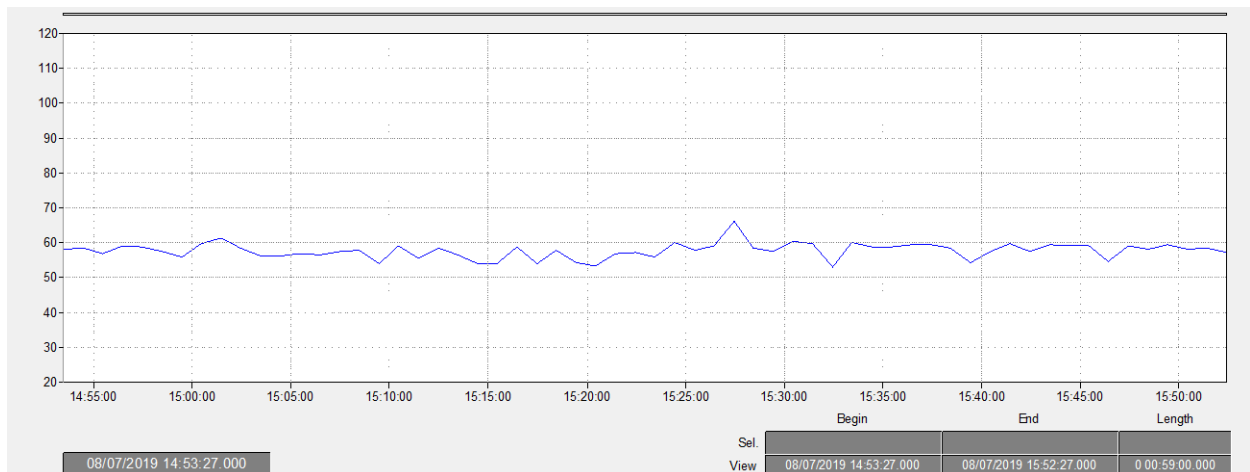
Calibrator: Norsonic 1251

SITE DATA:

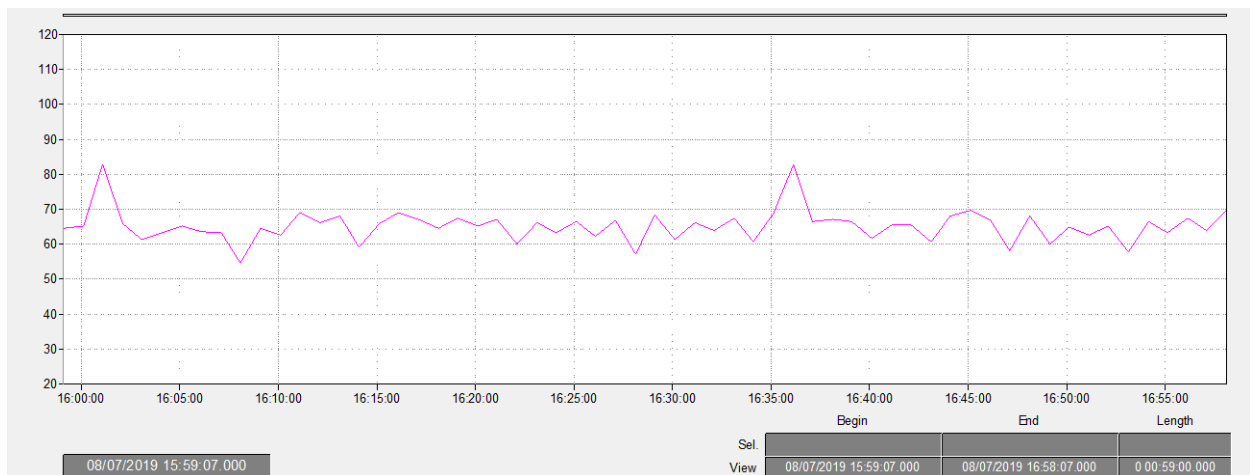
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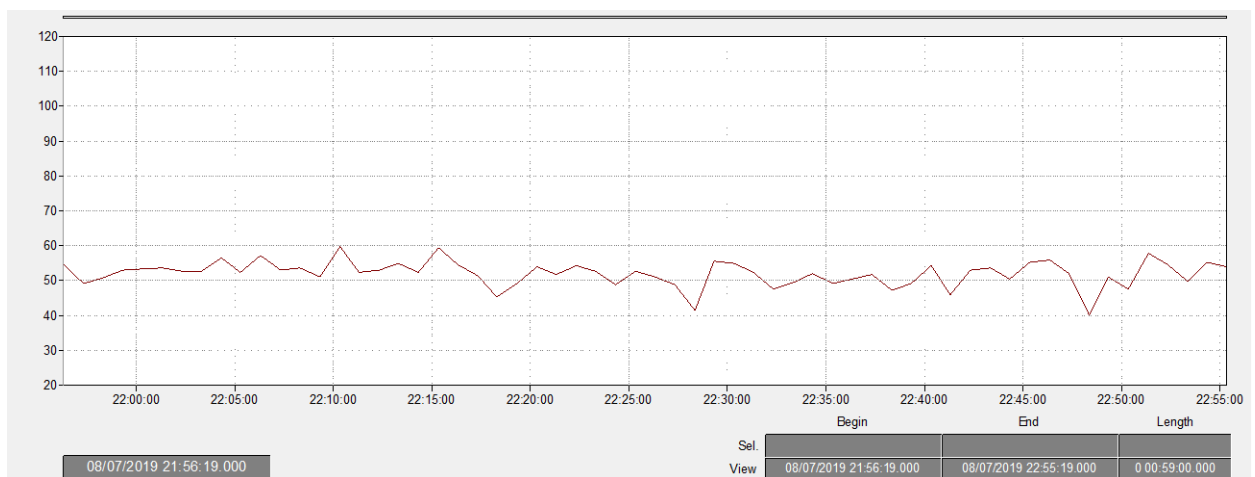
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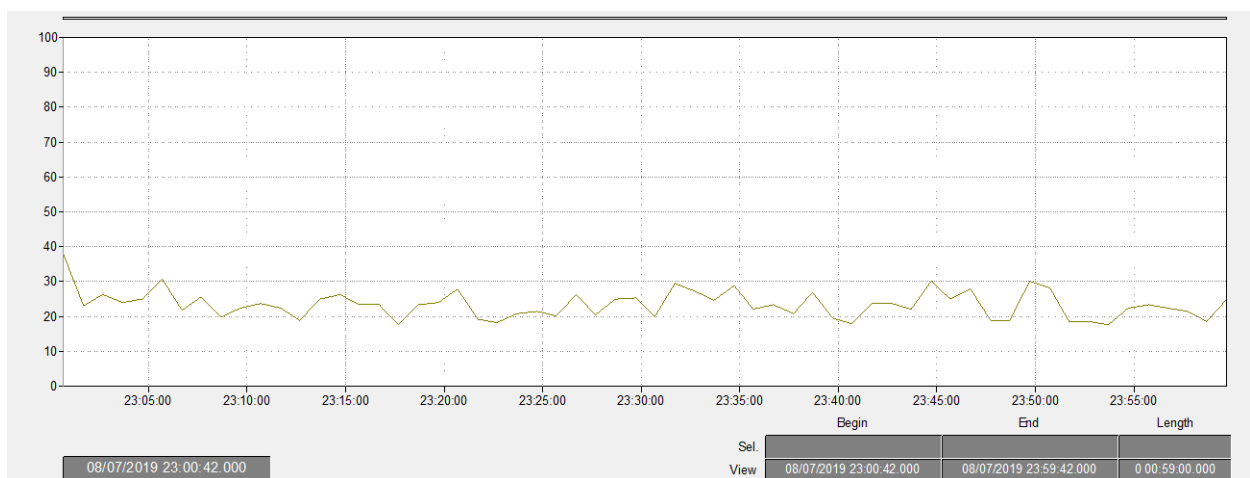
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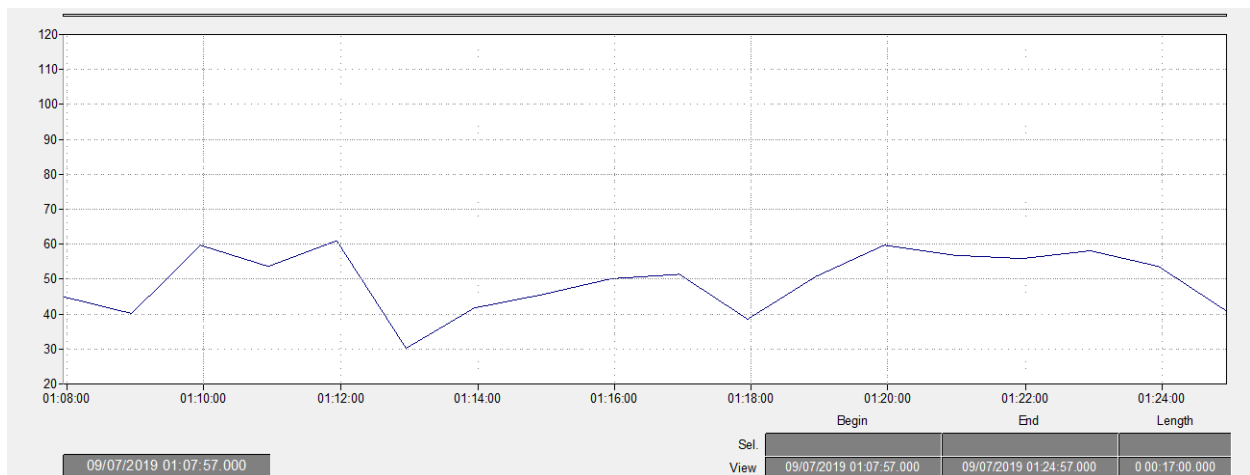
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190708_012

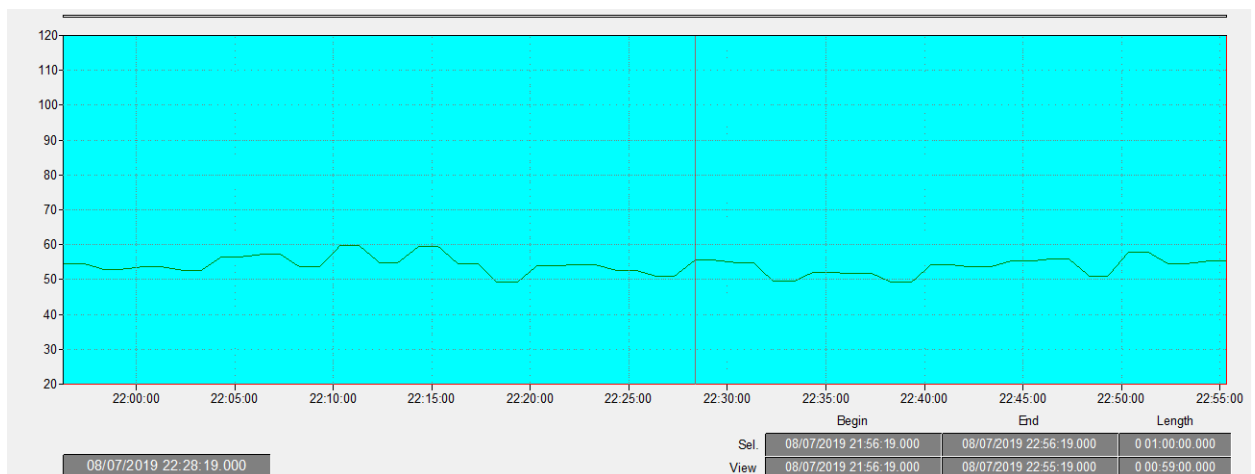


190709_0002

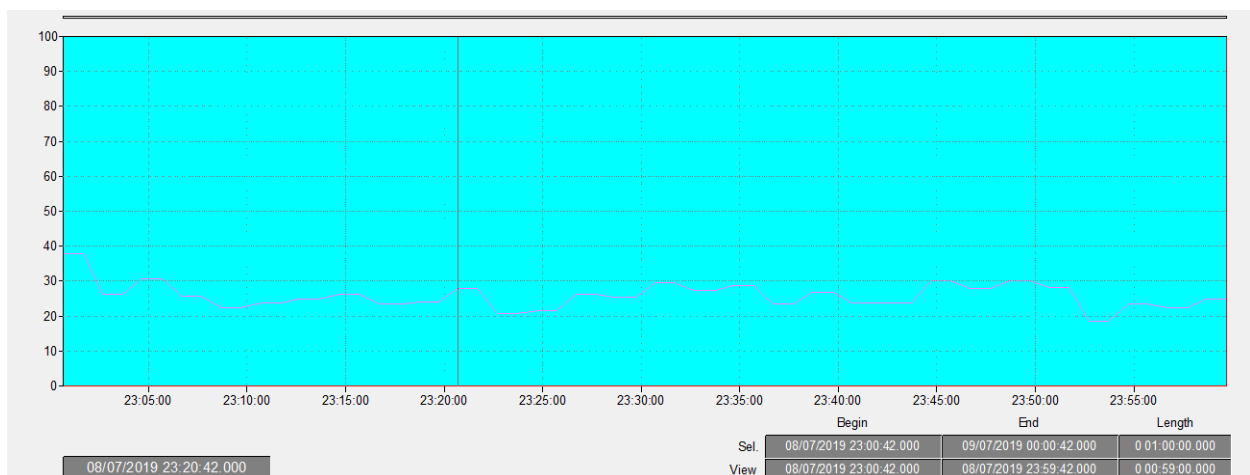


LMAX

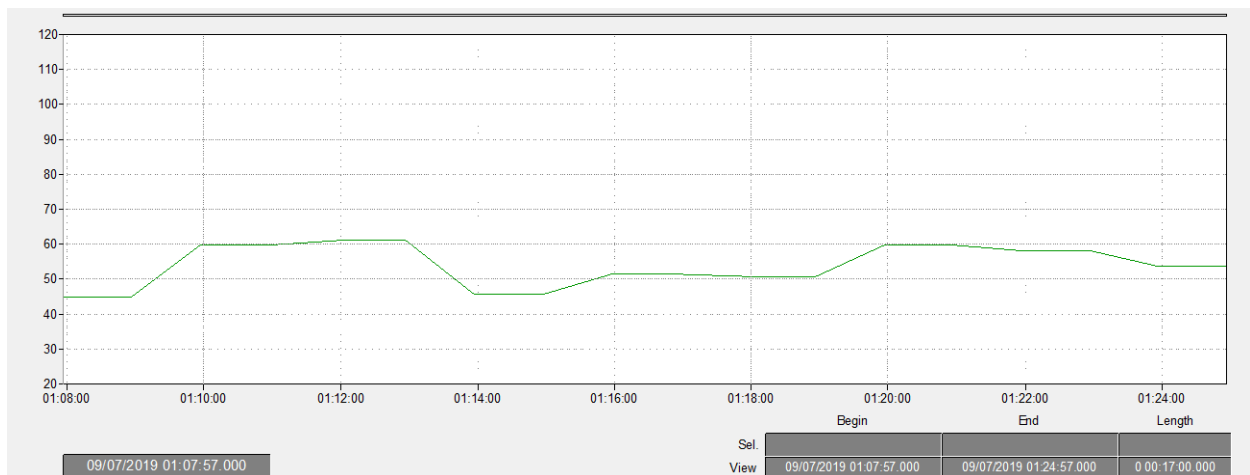
190708_0011 LAMAX



190708_0012 LAMAX



190709_0002 LAMAX



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 Phone 01371 871030 Facsimile 01371879106



CALIBRATION



0789

Certificate number: U29823

Certificate of Calibration and Conformance

Test object: Sound Calibrator
Manufacturer: Norsonic
Type: 1251
Serial no: 33547

Customer: E2 Consultants
Address: E2 HOUSE, South Park Way,
 Wakefield 41 Business Park,
 Wakefield. WF2 0XJ.
Contact Person: John Ashe
Order No: 97451

Measurement Results:	Level	Level Stability	Frequency	Frequency Stability	Distortion
1:	114.06 dB	0.06 dB	1000.45 Hz	0.00 %	<0.3 %
2:	114.07 dB	0.06 dB	1000.45 Hz	0.00 %	<0.3 %
3:	114.06 dB	0.06 dB	1000.45 Hz	0.00 %	<0.3 %
Result (Average):	114.06 dB	0.06 dB	1000.45 Hz	0.00 %	<0.3 %
Expanded Uncertainty:	0.10 dB	0.02 dB	1.00 Hz	0.01 %	0.10 %
Degree of Freedom:	>100	>100	>100	>100	>100
Coverage Factor:	2.00	2.00	2.00	2.00	2.00

The stated level is relative to 20μPa. The level is traceable to National Standards.

The stated level is valid at reference conditions. The following correction factors have been applied during the measurement: Pressure: 0.0005 dB/kPa Temperature: 0.003 dB/°C Relative humidity: 0.000 dB/%RH Load volume : 0.0003 dB/mm³

The reported expanded uncertainty of measurements is based on a standard uncertainty multiplied by the coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty has been determined in accordance with UKAS requirements.

Records: K:\C A\Calibration\Nor-1504\Nor-1018 CalCal\2018\NOR1251_33547_M1.nmf

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50 %RH
Measurement conditions:	101.362 ± 0.042 kPa	22.2 ± 0.1 °C	39.9 ± 1.2 %RH

Date received for calibration: 15/10/2018
 Date of calibration: 17/10/2018
 Date of issue: 17/10/2018
 Engineer

Supervisor

Palanivel Marappan B, Eng(Hons), M.Sc

Darren Batten TechIOA

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to the units of measurement realised at an accredited national physical laboratory or other recognised standards laboratories. This certificate may not be reproduced other than in full without the prior written approval of the issuing laboratory.

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5b Chelmsford Road Industrial Estate
GREAT DUNMOW, Essex, GB-CM6 1HD
www.campbell-associates.co.uk
Phone 01371 871030 Facsimile 01371879106



CALIBRATION



0789

Certificate of Calibration and Conformance

Certificate No.: U25734

Test object: Sound Level Meter, BS EN IEC 61672-1:2003 Class 1 (Precision) and associated Frequency Analyser BS EN IEC 61260, Class 1
Manufacturer: Norsonic
Type: 140
Serial no: 1405312
Customer: E2 Specialist Consultants Ltd
Address: 3B South Park Way, Wakefield Junction 41 Business Park, Wakefield. WF2 0XJ.
Contact Person: John Ashe.

Method :

Calibration has been performed as set out in CA Technical Procedures TP01 & 02 as appropriate. These are based on the procedures for periodic verification of sound level meters as set out in BS EN IEC 61672-3:2006 and for electrical testing of frequency filters as set out in BS EN IEC 61260. Results and conformance statement are overleaf and detailed results are in the attached Test Report.

	Producer:	Type:	Serial No:	Certificate number
Microphone	Norsonic	1225	168187	25733
Calibrator*	Norsonic	1251	33547	U25732
Preamplifier	Norsonic	1209	15370	Included

Additional items that also have been submitted for verification

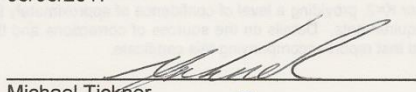
Wind shield	Norsonic	Nor1451
Attenuator	None	
Extension cable	None	

These items have been taken into account wherever appropriate.

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50.0 %RH
Measurement conditions:	99.95 ±0.01kPa	22.4 ±0.2°C	48.5 ±2%RH

Date received : 24/05/2017
Date of calibration: 05/06/2017
Date of issue: 05/06/2017

Engineer


Michael Tickner

Supervisor


Darren Batten TechIOA

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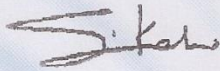
Page 1 of 2

Certificate of Competence in Environmental Noise Measurement

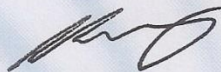
This is to certify that

John William Matthew Ashe

*has completed a course of instruction approved by the
Institute of Acoustics and designed to enable the candidate
to undertake environmental noise measurements in a
competent manner and has achieved a satisfactory
performance in the written and practical examinations
thereof and that this fact has been recorded in a
Register kept by the Institute for this purpose.*



Education Committee Chairman



Institute Secretary

Date 16 May 2014

Centre Leeds Metropolitan University

Reference Number EK161

*For the purposes of Credit Transfer or Professional Development this Certificate
may be considered to be equivalent to 25 points or hours*

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