

33-35 King Street Manchester

Condition 2 Discharge Report

28083/CDR1

02 September 2020

For:

Ollier Smurthwaite Architects
40 King Street
Manchester
M2 6BA



Hann Tucker Associates
Consultants in Acoustics Noise & Vibration

Head Office: Duke House, 1-2 Duke Street, Woking, Surrey, GU21 5BA (t) +44 (0) 1483 770 595
Manchester Office: First Floor, 346 Deansgate, Manchester, M3 4LY (t) +44 (0) 161 832 7041
(w) hanntucker.co.uk (e) enquiries@hanntucker.co.uk



Condition 2 Discharge Report 28083/CDR1

Document Control

Issue	Date	Comment	Prepared by	Checked By	Authorised by
0	02/09/20				
			George Grenfell Assistant Consultant MSc, BSc(Hons), AMIOA	Jake Howarth Senior Consultant BEng(Hons), MIOA	John Gibbs Director MIOA, MSEE, CEnv



Condition 2 Discharge Report 28083/CDR1

Contents	Page
1.0 Introduction	1
2.0 Acoustic Terminology	1
3.0 Site Description	1
4.0 Planning Condition 2	2
5.0 Baseline Noise Survey	3
6.0 Condition 2 Discharge Assessment	4
7.0 Conclusions	4

Attachments

Appendix A – Acoustic Terminology

Appendix B – Calibration Information

Time History Graph – 28083/TH1-TH4



1.0 Introduction

Planning permission 113589/FO/2016 has been approved for the “*Conversion and extension of part of building to from 4 no. 3-bed apartments on South King Street side of upper floors, together with roof-top extension to South King Street side of building, formation of external terraces for apartments, extension at 3rd floor level to create additional office space (Use Class B1) and elevational alterations*” subject to a number of conditions.

Condition 2 relates to noise and the scheme is nearing completion, therefore, Hann Tucker Associates has been commissioned to carry out a noise survey to determine whether the requirements of Condition 2 have been met.

This report presents the results the noise survey carried out on site, with a view to providing evidence to discharge Condition 2.

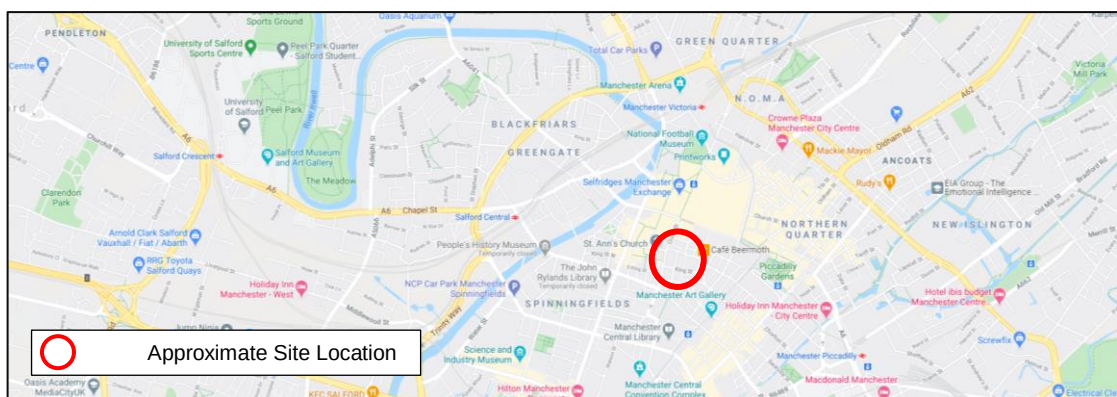
2.0 Acoustic Terminology

Please refer to Appendix A for an explanation of acoustic terminology used herein.

3.0 Site Description

3.1 Location

The development is located on at 33-35 South King Street and falls under the jurisdiction of Manchester City Council. See site location below.



Site Location (© maps.google.co.uk)



3.2 Description

The site is bound by St Anne St to the North, Cross Street to the East, John Dalton Street to the South and Deansgate to the West.

The site is located in a largely commercial area within the city centre of Manchester.



Site Plan (© maps.google.co.uk)

4.0 Planning Condition 2

Planning Condition 2 is split into parts “a” and “b” as follows:

2) a) The residential units within the development shall meet the following internal noise criteria:

- Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB L_{Amax,F} by more than 15 times)
- Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq
- Gardens and terraces (daytime) 55dB LAeq

Additionally, where entertainment noise is a factor in the noise climate the sound insulation scheme shall be designed to achieve internal noise levels in the 63Hz and 125Hz octave centre frequency bands so as not to exceed (in habitable rooms) 47dB and 41dB, respectively.

In order to achieve this, the development hereby approved shall be carried out in accordance with the following documents:

- The Noise Assessment by Spectrum Acoustic Consultants, dated April 2016, ref. AP672/16069
- The agent's email of 15 June 2018 and associated attachments (drawings WECE/188/M/16 Rev T3, WECE/188/M/14 Rev T3 and WECE/188/M/15 Rev T3, and the Lo-Carbon Multivalent information, ref. MVDC-MS/MSH)
- The agent's email of 7 August 2018
- The agent's email of 21 September 2018



b) Upon completion of the development and before any of the apartments are first occupied, a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall give the results of post-completion testing to confirm that the required internal noise criteria is met. The report shall show that when the mechanical ventilation is in use and in particular during the 100% boost function, the required internal noise criteria will not be exceeded. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the noise criteria. The report and any necessary measures shall be approved in writing by the City Council as Local Planning Authority and the development shall be implemented in full in accordance with the approved details before the development is first occupied.

Reason - To ensure an acceptable development in the interests of residential amenity, pursuant to policy DM1 of the Core Strategy.

5.0 Noise Survey

5.1 Procedure

Automated noise measurements were undertaken at 2No internal positions and 1No external position between approximately 10:30 hrs on Thursday 20 August to approximately 07:00 hrs on Friday 21 August 2020 and 1No internal position between 15:30 hrs on Friday 28 August to 07:00 hrs on Monday 01 September 2020.

Measurements were taken of the A-weighted broadband and linear octave band L_{eq} and L_{Fmax} sound pressure levels continuously over 5-minute periods. For the internal noise measurements, the continuous mechanical extract system was running at design duty.

Details of the equipment used during the survey along with the calibration information are provided in Appendix B.

5.2 Measurement Positions

Noise level measurements were undertaken at 3No automated positions as described/illustrated below.

Position	Survey Date(s)	Description
1	20/08/2020 to 21/08/2020 and 28/08/2020 to 01/09/2020	Unattended internal ambient noise measurement at approximately 1.5m above ground level, Unit 2 Bedroom at Second Floor Level
2	20/08/2020 to 21/08/2020	Unattended internal ambient noise measurement at approximately 1.5m above ground level, Unit 2 Living Room at Third Floor Level
3	20/08/2020 to 21/08/2020	Unattended noise measurement at approximately 1.5m above ground level, Roof Terrace.



5.3 Results

The results of the survey have been plotted on the enclosed Time History Graphs 28083/TH1 to 28083/TH4, presenting the 5-minute L_{Aeq} and L_{Amax} noise levels at Position 1, 2 and 3 respectively L_{Aeq} and L_{Amax} at position 1. A summary of the results in Position 1, 2 and 3 are presented below.

Measured Noise Level (dB)			
Position	Daytime (07:00 – 23:00 hr)	Night-time (23:00 – 07:00 hr)	
	$L_{Aeq,16h}$ (dB)	$L_{Aeq,8h}$ (dB)	15th Highest $L_{Amax,5min}$ (dB)
1	33	28	44
2	34	34	-
3	48	47	-

6.0 Condition 2 Discharge Assessment

6.1 Internal Ambient Noise Levels

The table below provides an assessment of the internal noise levels within Unit 2 based on the MCC internal ambient noise level requirements.

It can be seen that the measured internal noise levels were in-line with the MCC criteria in all areas surveyed.

Internal Ambient Noise Level Assessment							
Position	Measured Day Time $L_{Aeq,16h}$ (dB)	Measured INL Night Time $L_{Aeq,8h}$ (dB)	Criteria, $L_{Aeq,T}$ (dB)	Criteria Achieved (Yes/No)	Measured Maximum INL Night Time L_{AFMax} (dB)	Criteria, L_{AFMax} (dB)	Criteria Achieved (Yes/No)
1	-	28	30	Yes	44	45	Yes
2	34	-	35	Yes	-	-	N/A
3	48	-	55	Yes		-	N/A

6.2 Building Services Noise Levels

The condition wording states that the internal ambient noise level criteria should not be exceeded by the mechanical systems in particular when operating at 100% boost.

From discussions with the client, it is understood that the apartments are ventilated via continuous mechanical extract and the “100% boost” function is intended for purge ventilation only and only affects bathrooms and kitchens. Therefore this does not form part of the general ventilation strategy for the apartments.



All internal noise measurements were carried out with the ventilation system running at design duty providing background ventilation and the internal ambient noise level criteria set out in Condition 2 were achieved in all cases (see Section 6.3).

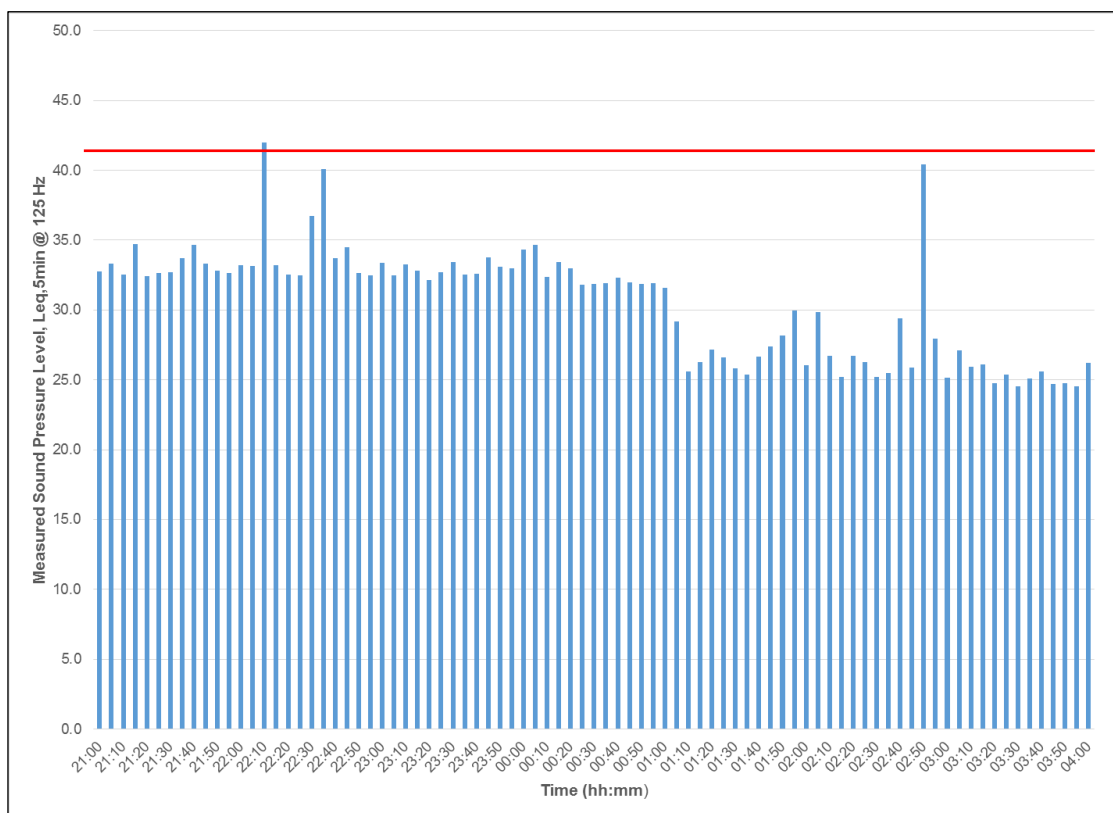
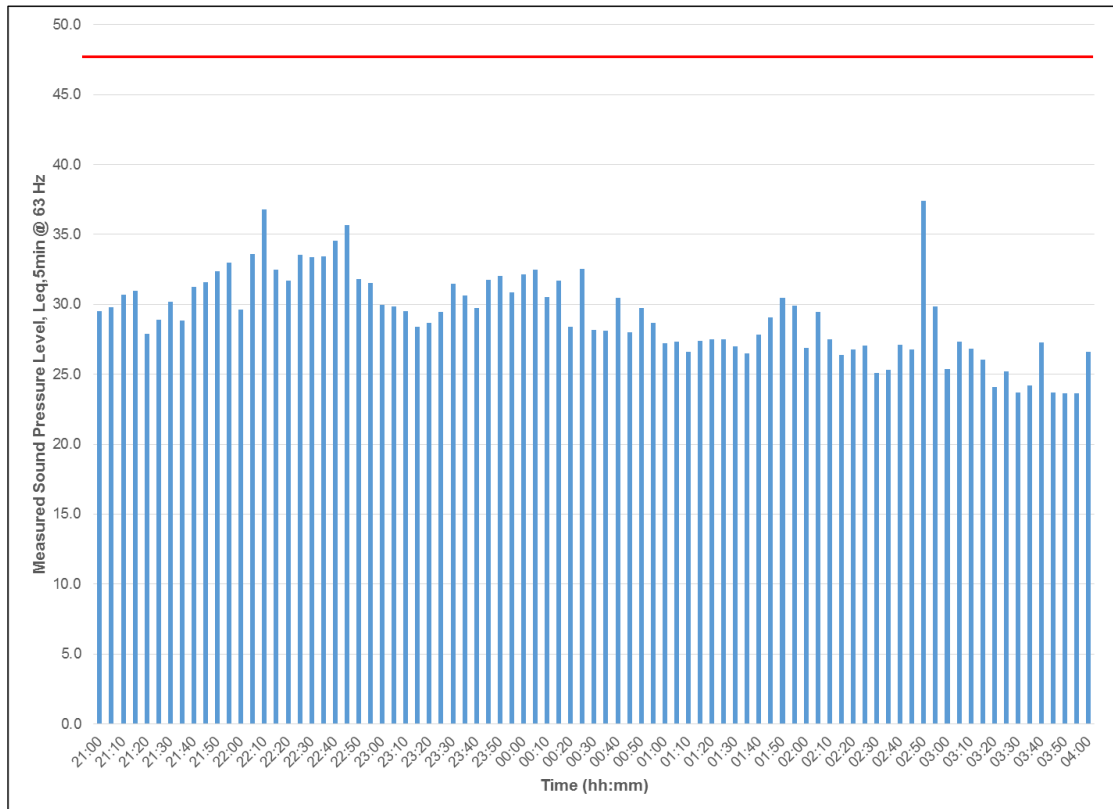
As the boost function has been designed to be used as purge ventilation, in line with the IOA/ANC Acoustics Ventilation and Overheating Residential Design Guide v1.1 “no specific acoustic criterion needs to be met in a room using purge ventilation for the purpose of rapidly diluting indoor pollutants.”

6.3 Music Noise Levels

Condition 2 stipulates that verification measurements relating to music noise ingress are required at completion of the project. The area surrounding the development is mainly commercial with the closest entertainment venue being Arcane located 80 meters from the proposed dwellings. It is, therefore, unlikely that music noise ingress will be problematic within the apartments.

Also, the verification of the MCC music noise criteria is not straight forward as the internal noise level within apartments could exceed the low frequency limits through other noise sources such as traffic noise.

However, in this case, the measured noise levels with Unit 2 Bedroom did not exceed the MCC music noise criteria during the periods at which music noise (if present) should be the loudest (i.e. between 21:00 and 04:00 on Friday and Saturday nights). The graphs overleaf show the measured 5 minute ambient noise levels (L_{eq}) between 21:00 hrs and 04:00 on Saturday 29 August 2020 with the MCC music noise criteria indicated by the red line. The graphs clearly show that the low frequency internal noise levels are well below the criteria set out in Condition 2.





7.0 Conclusions

Detailed noise surveys has been undertaken at 33-35 South King Street, Manchester.

The results of the survey indicate that the internal ambient noise levels inside the development are in-line with the requirements of Planning Condition 2.

.

Appendix A – Acoustic Terminology

The acoustic terms used in this report are defined as follows:

dB	Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).
dBA	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.
L _{90,T}	L ₉₀ is the noise level exceeded for 90% of the period <i>T</i> (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.
L _{eq,T}	L _{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, <i>T</i> .
L _{max}	L _{max} is the maximum sound pressure level recorded over the period stated. L _{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L _{eq} noise level.
L _p	Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).
L _w	Sound Power Level (SWL) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Appendix B – Calibration Information

The instrumentation used during the survey is presented in the table below.

Description	Manufacturer	Type	Serial Number	Calibration
Type 1 Data Logging Sound Level Meter (Position 1)	Larson Davis	LxT	4086	28/07/2020
Type 1 Data Logging Sound Level Meter (Position 2)	Larson Davis	LxT	5111	28/07/2020
Type 1 Data Logging Sound Level Meter (Position 3)	Larson Davis	LxT	4568	28/07/2020
Type 1 Calibrator (Position 1, 2 & 3)	Larson Davis	CAL200	3083	19/05/2020

All equipment was calibrated prior to and on completion of the survey. No significant deviations occurred (no more than 0.1 dB).

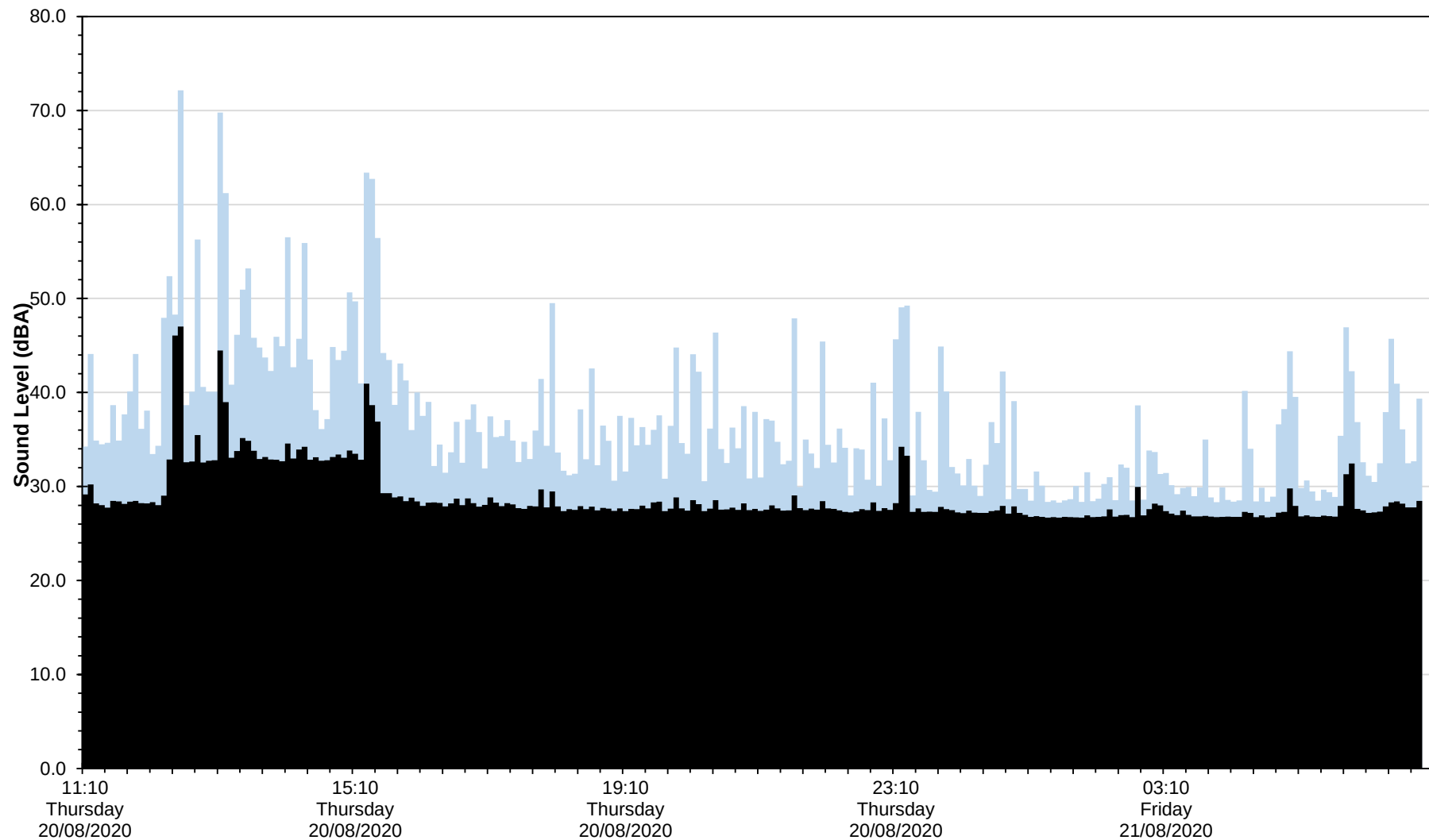
33-35 South King Street

Unit 2: Bedroom 2

L_{eq} , L_{max} Noise Levels

■ L_{max} ■ L_{eq}

Thursday 20 August 2020 to Friday 21 August 2020



Date and Time

28083/TH1

33-35 South King Street

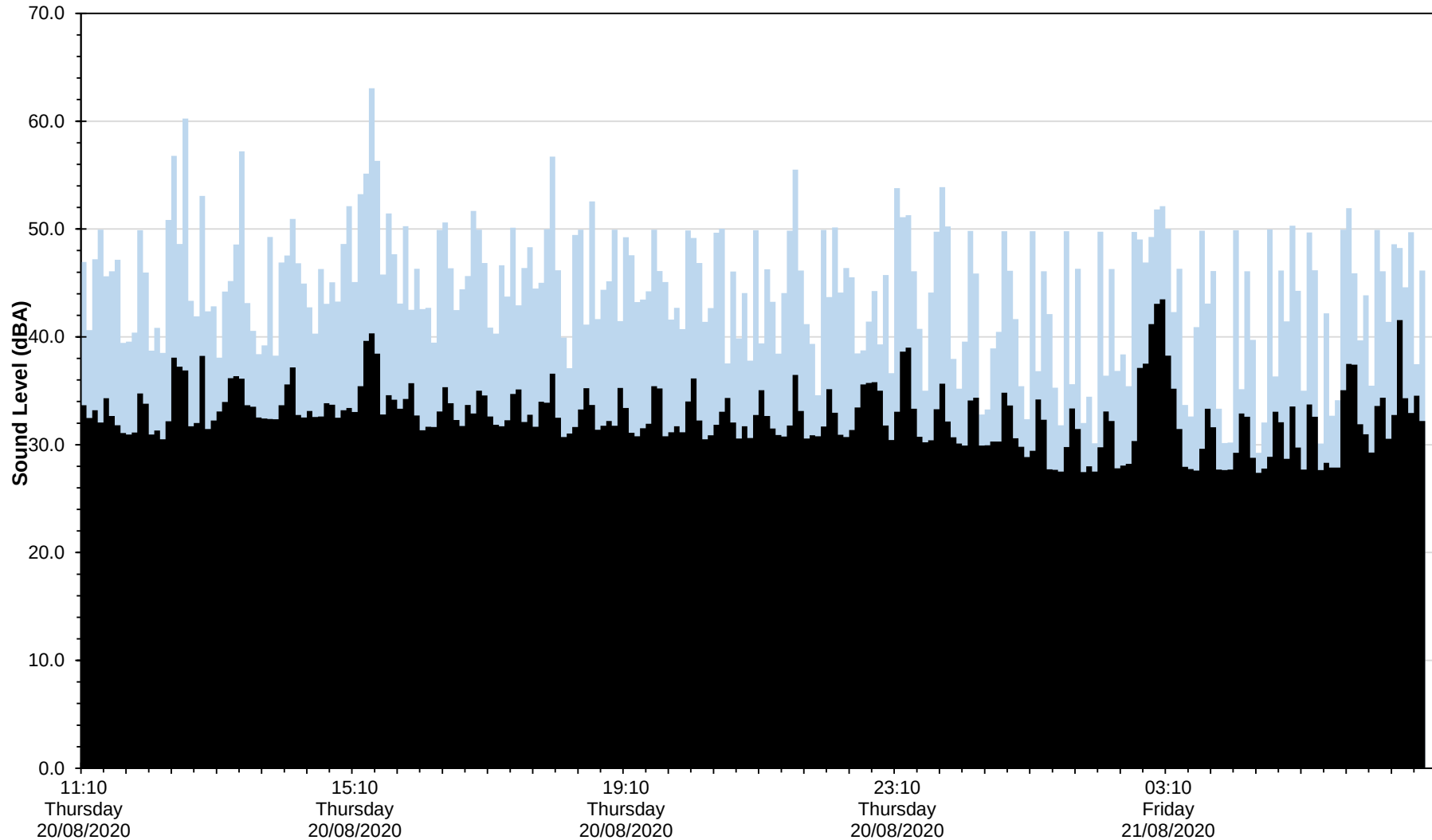
Unit 2: Living room

L_{eq} , L_{max} and L_{90} Noise Levels

Thursday 20 August 2020 to Friday 21 August 2020

■ L_{max} ■ L_{eq}

■ L_{90}



Date and Time

28083/TH2

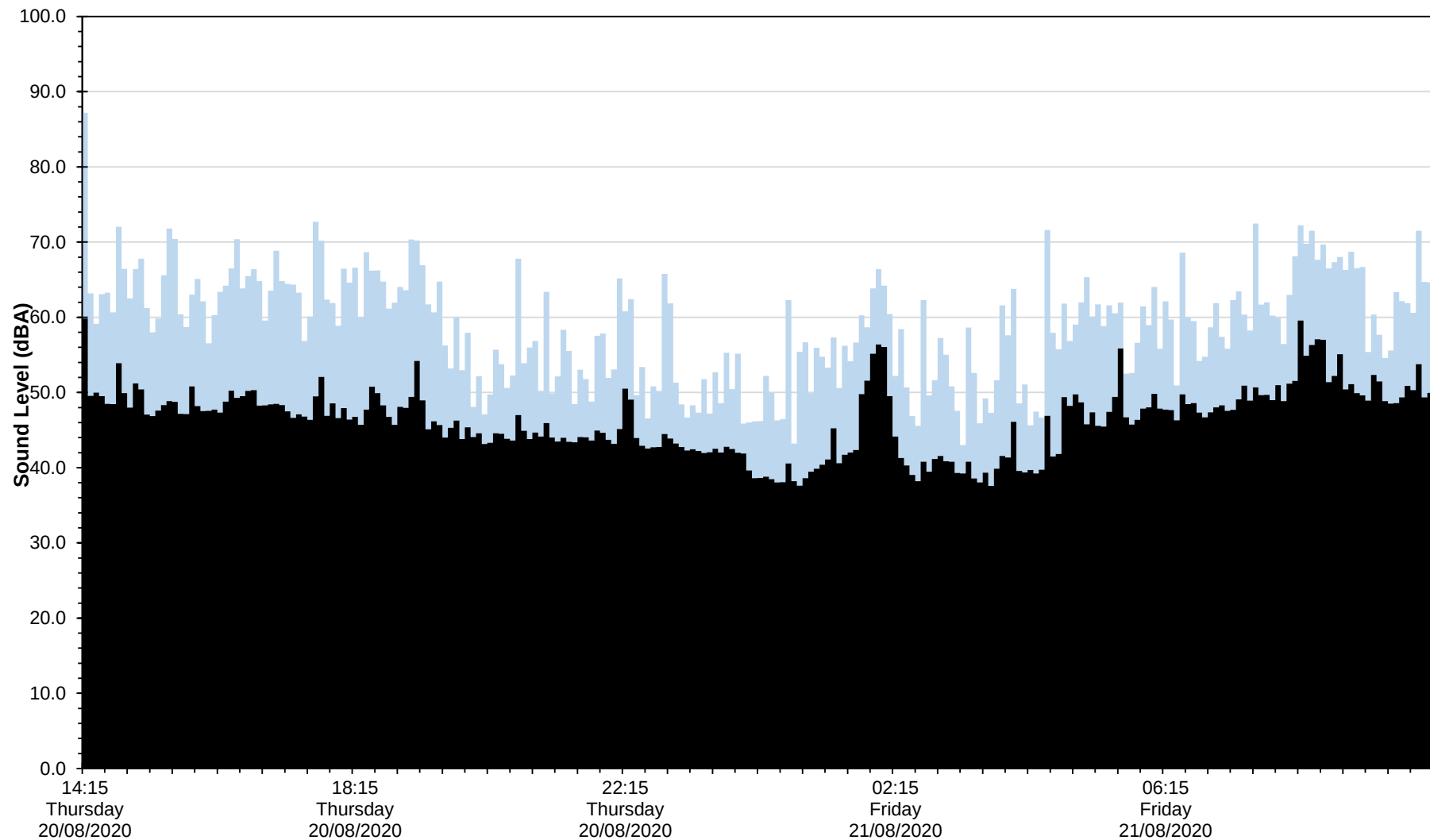
33-35 South King Street

Roof Terrace

L_{eq} , L_{max} Noise Levels

L_{max} L_{eq}

Thursday 20 August 2020 to Friday 21 August 2020



Date and Time

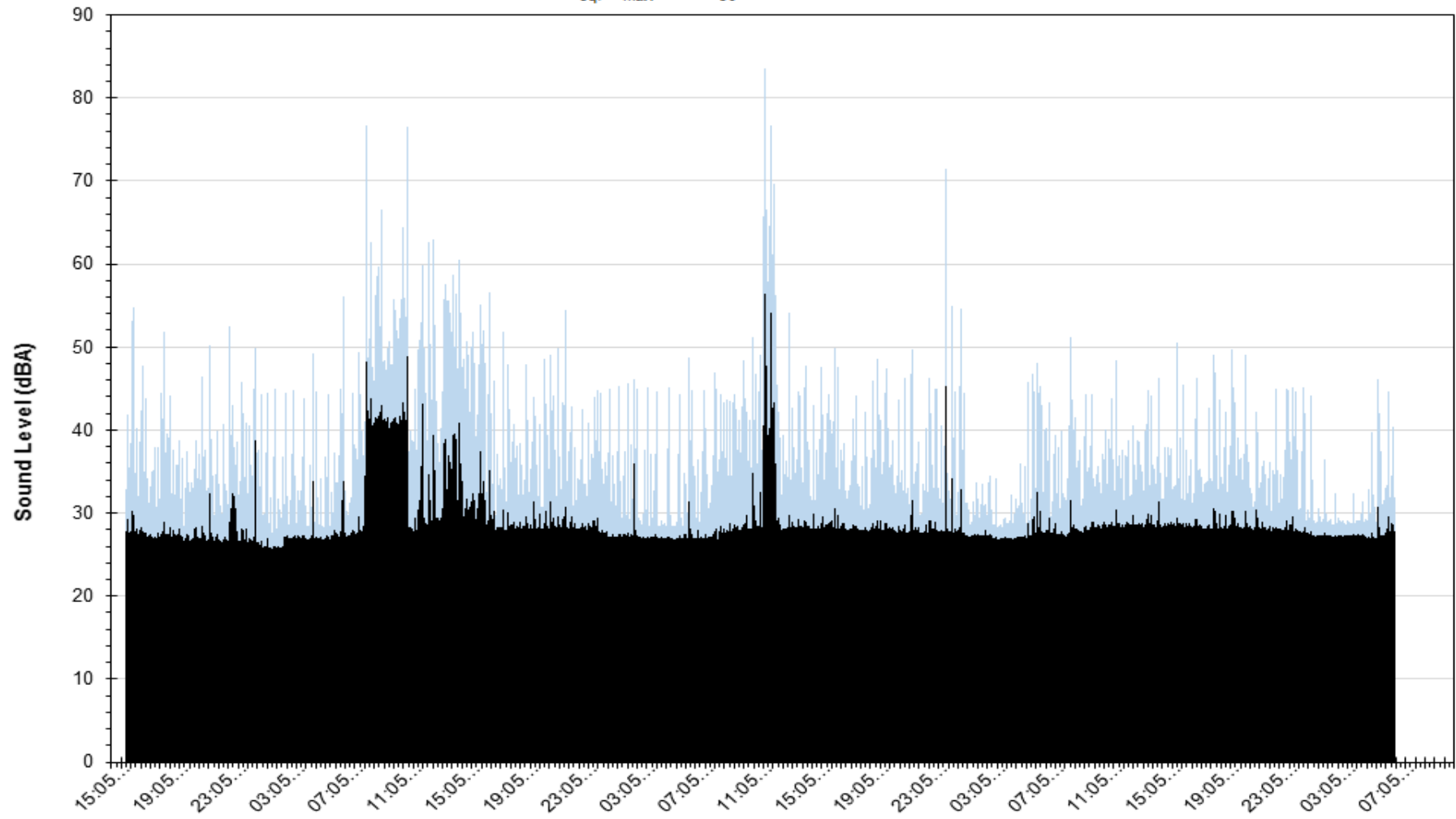
28083/TH3

33-35 South King Street

Unit 2: Bedroom

L_{eq} , L_{max} and L_{90} Noise Levels

■ L_{max} ■ L_{eq}



Date and Time

28083/TH4