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Kiss The Sky Bar

11 Camden High Street, London

24 March 2023

18280-NIA-01

Project Number
18280

Issued For
Kiss The Sky

EXECUTIVE SUMMARY

This noise impact assessment has been undertaken in order to assess the impact of operational noise from an existing ground floor bar at 11 Camden High Street, London to residential flats above, in response to complaints from residents relating to noise disturbance due to amplified music playback. It is understood that sound insulation works and installation of a noise limiter have been undertaken to address complaints prior to the undertaking of this assessment.

The site comprises a parade of commercial units including several other bars and food takeaway premises, with residential flats above.

Sound insulation testing was undertaken to the floor separating the bar from the 2 flats directly above.

Calculations were undertaken in order to set appropriate noise limits for amplified music in order mitigate the complaints of noise in residential spaces above.

It has been demonstrated that compliance with the established criterion is feasible, dependant on the following material considerations:

- A suitable in-line cut-off or compression noise limiter is installed in the sound system
- The noise limiter is calibrated by a competent person to the required threshold level
- The noise management plan detailed herein is followed

If there is any deviation from the above, Clement Acoustics must be informed, in order to establish whether a reassessment is necessary.

Clement Acoustics has used all reasonable skill and professional judgement when preparing this report. The report relies on the information as provided to us at the time of writing and the assumptions as made in our assessment.

This report is designed to address noise breakout from amplified music within the bar. The scope of this assessment does not extend to general operational noise such as that arising from customer behaviour inside or outside the premises.

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LIST OF ATTACHMENTS

18280-SP1	Indicative Site Plan
18280-TH1	Environmental Noise Time History
Appendix A	Glossary of Acoustic Terminology
Appendix B1-3	Acoustic Calculations

Issue	Date of Issue	Author	Reviewed
0	24/03/2023		
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Issue	Comment
0	First Issue

1.0 INTRODUCTION

Clement Acoustics has been commissioned by Kiss The Sky to undertake sound insulation (breakout) testing at 11 Camden High Street, London. The measured results, alongside a site inspection and consultation with the client and residents of flats above, have been used to determine maximum noise limits for amplified music playback within the ground floor bar.

This report presents the results of a breakout assessment followed by an assessment of anticipated noise emission levels and outlines any necessary mitigation measures. An acoustic terminology glossary is provided in Appendix A.

2.0 SITE DESCRIPTION

The site comprises a parade of commercial units, including Kiss the Sky Bar at 11 Camden High Street, within a larger building of residential flats above. The bar is positioned directly below first floor Flat 1.

The site is located in a mixed use area, bound by commercial units on either side, facing onto Camden High Street, with the Koko music venue directly opposite to the east and Mornington Crescent Underground station to the south.

The site and surroundings are shown in attached site plan 18280-SP1.

The bar consists of an open plan space with bar to one side, with toilets and a separate VIP area to the rear. A dropped plasterboard ceiling has been installed with mineral wool in the cavity. The walls are partially dry-lined with some areas of exposed structural brickwork remaining.

The front façade of the bar is formed (mainly) by a plate glass window and glazed entrance door.

A DJ station is set up beside the bar with hard-wired sound system has been installed with 2 large speakers mounted to the walls either side of the bar and a single similar speaker in the VIP room. It is understood that background music is typically played through the in-house sound system during operating hours from a portable DJ system, laptop or similar. A noise limiter has been installed and calibrated by a third party.

It is understood that the bar was subject to complaint from residents of the flat above, prior to installation of the ceiling. It is further understood that the ceiling has achieved a noticeable improvement to the sound insulation and no complaints have been received since its installation.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Unattended Noise Survey Procedure

Measurements were undertaken at one position as shown on indicative site drawing 18280-SP1. The choice of this position was based both on accessibility and on collecting representative noise data in relation to the nearest affected receiver.

The surroundings and position used for the monitoring location are described in Table 3.1.

Position No.	Description
1	The microphone was mounted on a 3rd storey window at the front of the building. The microphone was positioned 1 m in front of the window. [1]

Table 3.1 Description of unattended monitoring locations

Note [1]: The position was not considered to be free-field according to guidance found in BS 4142: 2014, and a correction for reflections has therefore been applied. Based on the presence of the reflective surface and the nature of surrounding noise sources, a correction for reflections of 3 dB has been applied, in line with the recommendations of the standard.

Continuous automated monitoring was undertaken for the duration of the survey between 11:30 on 17 March 2023 and 10:30 on 20 March 2023.

The measurement procedure generally complied with BS 7445: 1991: 'Description and measurement of environmental noise, Part 2- Acquisition of data pertinent to land use'.

3.2 Weather Conditions

At the time of set-up and collection of the monitoring equipment the weather conditions were predominantly dry with light winds, although some light precipitation was noted on installation. It is understood that the weather conditions during the unattended survey were remained predominantly dry with light winds.

It is considered that the weather conditions did not significantly adversely affect the measurements and are therefore considered suitable for the measurement of environmental noise.

It is considered that the weather conditions were suitable for the measurement of environmental noise.

3.3 Internal Noise Survey Procedure

Additional unattended noise measurements were undertaken on during the same period inside the bar to provide representative source noise levels for the assessment.

The sound level meter's microphone was mounted to the wall behind the bar approximately 3 m above floor level.

The measurement location was chosen to based on accessibility and to provide suitable worst case source levels during operation.

3.4 Noise Breakout Measurements

High volume "white" noise was generated from two loudspeakers in the source room, positioned in order to obtain a diffuse sound field. A spatial average of the resulting one-third octave band noise levels between 50 Hz and 10 kHz was obtained by using a moving microphone technique over a minimum period of 15 seconds at each of two positions.

The same measurement procedure was followed in the receiver room.

Reverberation time measurements were taken following the procedure described below in order to correct the receiver levels for room characteristics.

High volume "white noise" was generated in the receiver rooms and stopped instantaneously in order to measure the reverberation time in each of the one-third octave bands between 100 Hz and 3150 Hz. The internal programme of the sound level meter was used to measure the decay time of sound in the room. This was repeated nine times in each room in order to obtain an average result.

Background noise levels in the receiver rooms were measured during the tests.

The dominant source of background noise observed during the tests was road traffic noise from the surrounding roads.

3.5 Equipment

The equipment used during the environmental noise surveys and noise breakout measurements is summarised in Table 3.2

Instrument	Manufacturer and Type	Serial Number
Environmental Survey Sound level meter	Svantek 957	15381
Internal Survey Sound level meter	Svantek 977	45355
Breakout Sound level meter	Norsonic Nor 145	14529093
Active Loudspeaker	RCF ART 310A	LKXN31648
Active Loudspeaker	RCF ART 310A	HAX20870
Calibrator	Svantek SV33B	83120

Table 3.2 Instrumentation used during surveys / testing

4.0 RESULTS

4.1 Unattended Noise Survey Results

The $L_{Aeq:\ 5min}$, $L_{Amax:\ 5min}$, $L_{A10:\ 5min}$ and $L_{A90:\ 5min}$ acoustic parameters were measured at the location shown in site drawing 18280-SP1.

Measured noise levels are shown as a time history in Figure 18280-TH1, with average ambient and typical background noise levels summarised in Table 4.1.

It should be noted that the guidance of the latest revision of British Standard 4142: 2014 +A1 2019 *'Methods for rating and assessing industrial and commercial sound'*, as detailed in Section 8.1 of the standard is as follows:

> *'The objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods.'*

Therefore, the typical background noise level will be used for the purpose of this assessment.

Position	Time Period	Average ambient noise level $L_{Aeq:\ T}$, dB	Typical background noise level $L_{A90:\ 5min}$, dB
1	Daytime (07:00 - 23:00)	66	57
	Night-time (23:00 - 07:00)	66	57
	Operating hours (17:00 – 02:00)	67	58

Table 4.1 Average ambient and typical background noise levels

Note – Operating hours levels were taken for the period 17:00 on Sunday 19th - 02:00 on Monday 20th, when the bar was closed, in order to ensure a robust assessment.

4.2 Internal Noise Survey Results

Error! Reference source not found. presents the summarised results of the measurements carried out at the internal noise survey position, during the bars operation on Friday 17 March 2023 and Saturday 18 March 2023.

Loudest periods have been used in order to present a robust assessment. For each measurement position, the average $L_{Amax,T}$ of the 20 loudest 5 minute periods during operating hours have been obtained.

Source description	*Sound Pressure Level (dB) in each Frequency Band, at source $L_{Amax,T}$*								
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	dB(A)
Friday Night 17:00 – 02:00	83	78	79	81	82	83	80	69	88
Saturday Night 07:00 – 02:00	86	82	81	82	80	78	76	65	86

Table 4.2 Measured Internal Noise Levels During Operation

4.3 Noise Breakout Levels

The summarised results of the airborne tests are shown in Table 4.3.

The main parameter used to express airborne sound insulation of separating constructions is D_w. It should be noted that there is a difference of about 5-8 dB between the laboratory sound insulation R_w value and the D_w measured on site, with the latter being lower as it is dependent on various parameters such as flanking.

Test Location	Source	Element	Test Result
Flat 1 Bedroom	Main Bar Area	Separating Floor to Flat Above (as built)	$D_{n,T,w}$ 52 dB
Flat 1 Living Room		Separating Floor to Flat Above (as built)	$D_{n,T,w}$ 51 dB
1 m from Front Façade of Bar		Front Window and Glazed Entrance Door	$D_{n,T,w}$ 33 dB

Table 4.3 Breakout Measurement Results

5.0 NOISE CRITERIA

5.1 External Noise Emissions

In order to assess the likely impact of the proposed activities on nearby residential windows, we would suggest the comparison of anticipated noise emission levels to the minimum measured background noise levels (L_{A90}) and provide a rating of impact according to BS 4142: 2014: *Methods for rating and assessing industrial and commercial sound*' [BS 4142].

BS 4142 can be seen as a good guide for assessing the suitability of noise emissions to residential receivers from commercial sounds. In a BS 4142 assessment, corrections are applied to measured noise levels in order to calculate a noise rating level for the effects of the source on nearby noise sensitive receivers.

The available penalties for different characteristics are summarised in Table 5.1.

Characteristic	Comments	Maximum Penalty
Tonality	Can be converted to 2 dB for a tone which is just perceptible, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible	6 dB
Impulsivity	Can be converted to 3 dB for impulsivity which is just perceptible, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible	9 dB
Distinctiveness	Intended for sources that are neither tonal nor impulsive, but distinctive against background noise sources	3 dB
Intermittency	When the sound has identifiable on/off conditions	3 dB

Table 5.1 Available penalties according to BS 4142

This assessment will compare noise emissions to the operational hours minimum measured background noise level of 43 dB(A) during proposed operating hours.

BS 4142 states that a noise rating of around 5 dB the background noise level is likely to be an indication of an adverse impact. If the difference is around 10 dB or more, then this is stated as likely to be an indication of a significant adverse impact. Where the rating level does not exceed the background noise level, this is stated as an indication of the sound source having a low impact.

5.2 Internal Receivers

For noise breakout calculations to the flat above, it has been deemed appropriate to refer to BS 8233: 2014 "Guidance on *sound insulation and noise reduction for buildings*" [BS 8233]. BS 8233 describes recommended acceptable internal noise levels for residential spaces. These levels are shown in Table 5.2.

Activity	Location	Design range LAeq,T dB	
		Daytime (07:00-23:00)	Night-time (23:00-07:00)
Resting	Living Room	35 dB(A)	-
Dining	Dining Room/Area	40 dB(A)	-
Sleeping	Bedroom	35 dB(A)	30 dB(A)

Table 5.2 BS8233 recommended internal background noise levels

As the proposed bar will be operational during night-time hours, we would recommend that achieving an internal ambient noise level of 30 dB(A) would be an appropriate design target.

A frequency dependent noise rating of NR20 (targeting 10 dB below the BS 8233 criteria for the operating hours) may be considered a reasonable criterion for acceptable received levels in the residential flat due to the tonal nature of amplified music from Kiss the Sky bar.

6.0 INTERNAL ACTIVITIES – BREAKOUT THROUGH EXTERNAL BUILDING FACADE

6.1 Proposed Activity

Based on discussions with the client it is understood that the expected noise profile and levels in the proposed micropub are expected to be similar to that of a medium sized coffee shop or restaurant. It is understood that the maximum occupancy is expected to be 40 people and no recorded or live music will be played. While smoking may be permitted outside the front entrance, no seating or other facilities which might encourage congregation of people will be provided.

Measurements undertaken in the bar on Friday 17th March shown in Table 4.2 are considered representative of the expected worst-case (L_{max}) noise levels for the bar.

These levels will be used to calculate the noise transmission to noise sensitive receivers.

For all calculated levels shown below, full formulae used and spectral calculations are shown in the corresponding Appendix B1.

Receiver 1 (front bedroom window to flat above) is approximately 3 m from the front façade below.

It should be noted that the sound reduction of the front façade has been calculated on the assumption that the existing glazed façade will be retained.

6.2 Noise Breakout Assessment

Based on measured levels during operation, noise emission levels at the receiver due to noise breakout through the facade would be as shown in Table 6.1. Full calculations are indicated in Appendix B1.

In a BS 4142 Assessment, corrections are applied to noise sources for distinguishable content. In this instance, a 6 dB penalty has been applied in the calculations to account for the tonality of the noise source.

Receiver	Typical Operating Hours Background Noise Level L90	Noise Level at Receiver (due to bar operation)
Front window to residential flat above	58 dB(A)	55 dB(A)

Table 6.1 Noise levels and criteria at Receiver

As shown in Table 6.1 and Appendix B1, transmission of noise to the nearest sensitive windows due to the effects of the proposed activity would provide a noise rating level of -3 dB at the nearest noise sensitive receiver (front bedroom window).

This would indicate that noise emissions due to indoor activities are closest to the region specified as having a 'low impact' in accordance with BS 4142. It is also unlikely that predicted indoor noise levels would be audible at the receiver.

We would therefore not expect a negative impact on the amenity of nearby residential windows due to the internal activities of Kiss the Sky bar based on this assessment.

7.0 INTERNAL ACTIVITIES – BREAKOUT THROUGH SEPARATING FLOOR

7.1 Proposed Activity

As described in Section 6.1 above, measurements undertaken in the bar on Friday 17th March shown in Table 4.2 are considered representative of the expected worst-case (L_{max}) noise levels for the bar.

It is understood that noise levels due to amplified music are currently controlled by an in-system noise limiter. This is understood to have been set (by a third-party acoustic engineer) to a limit level of 87 dB(A). While the calibration of the limiter unit has not been independently verified by Clement Acoustics, this does correlate with the maximum measured levels as shown in Table 4.2 above.

7.2 Residential Receiver Assessment – Internal Levels (Transmission through Separating Floor)

In order to predict the transmission of noise to residential spaces, calculations have been undertaken using the following standard acoustic formula:

$$SPL_{Receiver} = SPL_{Source} - SRI + 10\log\left(\frac{S}{A}\right)$$

Where:

- $SRI_{seperation}$ is the calculated sound reduction of the existing floor,
- S is the area of the transmitting floor
- A is the absorption area of the receiving room

Taking all above factors into account, including mitigation measures, the predicted transmission level of noise to residential spaces would be as shown in Table 7.1.

Receiver	Design Target	Noise Rating Level at Receiver [due to proposed commercial activity]
Flat 1 – Front Bedroom	NR 20	NR 33
Flat 1 – Living Room	NR20	NR 38

Table 7.1 Noise levels and criteria at noise sensitive receiver

As shown in Table 7.1, noise transmission to residential spaces based on the levels measured would be expected to exceed with the proposed criteria, leading to possibility of further complaint.

While it is understood and acknowledged that the existing noise limits and upgraded sound insulation of the ceiling have achieved an improvement compared to previous, we would recommend some further steps to mitigate noise transmission, in order to ensure a low impact of residents above, as detailed in Section 8.0.

8.0 MITIGATION

8.1 Noise Limiter

In the first instance, noise levels arising from amplified music may be treated at source by means of the existing noise limiter.

In order to meet the recommended criteria as a minimum (without undertaking any other measures), we would recommend the noise limiter is recalibrated to control levels in the bar to not exceed the levels shown in Table 8.1

Source	*Sound Pressure Level (dB) in each Frequency Band, at source*								
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	dB(A)
Bar	81	74	78	80	84	75	66	72	85

Table 8.1 Recommended Limit Levels

With music played back at the levels shown in Table 8.1, noise levels in the flat would be expected to comply with the proposed criteria described in Section 5.2 and be at a level that was considered unintrusive and difficult to hear against typical residual noise levels (without the influence of the bar music).

We would also recommend certain steps to reduce transmission of structure-borne noise (See Section 8.2 and 8.3).

8.2 Noise Management for Internal Activities

In order to ensure the calculated noise emission levels are not exceeded, we would recommend following certain steps when operating the bar, as detailed below:

- We would recommend ensuring noise levels do not exceed the noise limit levels shown in Table 8.1 above[1].
- The existing noise limiter is expected to be suitable providing it is set up and properly calibrated to limit maximum noise levels within the bar.

  Note – the above levels apply to the most noise sensitive periods – higher levels may be acceptable at less sensitive times (e.g. during typical office hours).

- All loudspeakers should be isolated from the building structure. For fixed speakers, this should be achieved using neoprene fixings for all speaker mountings. For free standing speakers, these should be sited on a suitable isolating material.

- DJs should be reminded of the requirements and be trained in the proper use of noise limiting equipment and the appropriate control of sound systems. The limiter should never be allowed to be by-passed.

[1] It must be noted that these noise limits are a prediction only, based on the measured noise transmission to the receiving flat in relation to the source level. A final commissioning exercise should be undertaken to determine the appropriate limits in practice, which could change.

8.3 Optional upgrade - Improvement Works to Walls and Separating Floor/Ceiling

Mitigation by means of a noise limiter and noise management measures described in Section 8.1 and 8.2 above would be expected to address the complaints received with regards to amplified music. However, the resulting sound levels may be significantly reduced compared to current practice. The operator may wish to retain or increase the existing noise limit. If required, additional mitigation may be applied in order further improve sound insulation to the flats above and facilitate a higher music level to be set in the bar.

The measured sound insulation of the existing separating floor between the ground floor space and flat above, as shown in Table 4.3 could be improved. At the time of testing, it was noted that some of the walls in the bar were unlined, leaving structural brickwork exposed. A degree of flanking transmission into the receiving room was observed in the form of audible re-radiated noise from this wall in the bedroom above.

In order to further reduce sound transmission to the flat above we would recommend the installation of a suitable semi-independent wall lining for walls in the bar.

A suitable build-up would be as follows:

- Existing masonry wall
- Gyplyner frame creating min 35 mm cavity to be filled with 25 mm mineral wool such as Isover APR roll
- 2 layers of 12.5 mm Soundbloc Plasterboard or similar.
- Skim or finish as required.

It is understood that a metal frame ceiling has been installed, creating a void with mineral wool fill (exact construction unknown at time of writing).

While this would be expected to offer a good level of sound insulation to the floor above, it was noted on site that this ceiling is penetrated in places by services, in particular the air conditioning cassette.

This would be expected to measurably compromise the performance of the acoustic ceiling.

In order to optimise the sound insulation performance of the ceiling we would recommend removal of the air conditioning cassette and any other penetrations such that the ceiling can be made good to provide a continuous, uninterrupted lining to the entire soffit (with void filled with mineral wool where not already present).

Air conditioning cassette should then be re-mounted on the surface of the plasterboard ceiling (or another suitable location.

Note – if required, the unit may be attached to the structural soffit by drop rods which pass through the ceiling, providing all penetrations re sealed with a suitable non hardening silicon mastic.

It should be ensured that all other joints, gaps and holes in the plasterer ceiling are similarly sealed.

If above works are undertaken it may then be possible to increase the noise limit for amplified music as well **(further assessment would be required once any works have been undertaken to determine appropriate amplified music limits).**

9.0 CONCLUSION

An environmental noise survey has been undertaken at Kiss The Sky Bar. The results of the survey have enabled criteria to be set for noise emissions from the proposed plant in accordance with the requirements of the London Borough of Camden.

Calculations show that noise emissions from the proposed use of the ground floor premises would be expected to be reduced to an acceptable level with the recommended mitigation and noise management measures as stated herein.

Additional advice has been provided for further improvement of the separating floor, should higher noise levels than those set be desired.

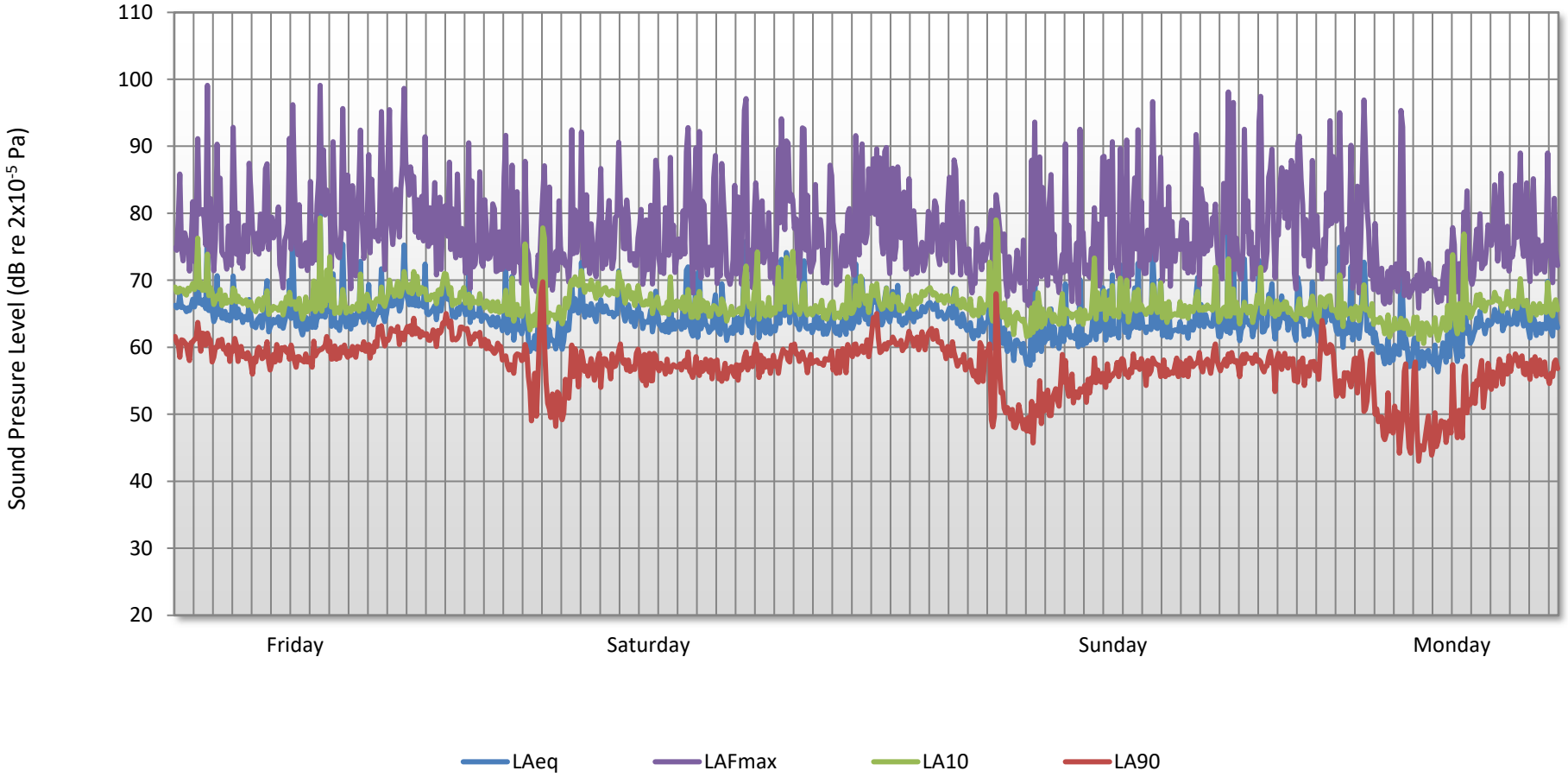
18280-SP1 Indicative site plan indicating noise monitoring position site surroundings and nearest noise sensitive receiver

Date: 24 March 2023

Kiss the Sky

Position 1

Environmental Noise Time History
17 March 2023 to 20 March 2023



18280-TH1

APPENDIX A

GLOSSARY OF ACOUSTIC TERMINOLOGY

dB(A)

The human ear is less sensitive to low (below 125Hz) and high (above 16kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq}. The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L_{10}

This is the level exceeded for not more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise

L_{90}

This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 10 such octave bands whose centre frequencies are defined in accordance with international standards.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than one alone and 10 sources produce a 10 dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3 dB for each doubling of distance.

Subjective impression of noise

Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

Barriers

Outdoor barriers can be used to reduce environmental noises, such as traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and its construction.

Reverberation control

When sound falls on the surfaces of a room, part of its energy is absorbed and part is reflected back into the room. The amount of reflected sound defines the reverberation of a room, a characteristic that is critical for spaces of different uses as it can affect the quality of audio signals such as speech or music. Excess reverberation in a room can be controlled by the effective use of sound-absorbing treatment on the surfaces, such as fibrous ceiling boards, curtains and carpets.

APPENDIX B1

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Noise Breakout Calculation - Existing Glazing

Acoustic Calculation used for Indoor to Outdoor Transmission:

$$SPL_{outdoor} = SPL_{indoor} - SRI_{composite} + 10\log_{10} S + 10\log\left(\frac{Q}{4\pi r^2}\right) - 6dB$$

Receiver: Nearest Residential Window
Source: Internal Activities

	Frequency, Hz								
	63	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*	*dB(A)*
Manufacturer provided sound pressure level Bar Operation (based on measured levels)	83	78	79	81	82	83	80	69	88
Dw reduction of existing façade, dB	-23	-20	-24	-33	-33	-37	-34	-38	
Correction for total area of south facade (S = 15 m^2)	12	12	12	12	12	12	12	12	
Correction for directivity (Q) and distance (r) (Q=2, r =3 m)	-12	-12	-12	-12	-12	-12	-12	-12	
Non reverberant correction	-6	-6	-6	-6	-6	-6	-6	-6	
Sound pressure level at residential window due to pub activities	54	52	49	42	43	40	40	25	49
Penalty for Tonal Nature	6	6	6	6	6	6	6	6	
Sound Pressure level at receiver	**60**	**58**	**55**	**48**	**49**	**46**	**46**	**31**	**55**

Design Criterion	**58**

APPENDIX B2

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Noise Breakout Calculation - Proposed Ungraded Glazing

Acoustic Calculation used for Indoor to Outdoor Transmission:

$$SPL_{outdoor} = SPL_{indoor} - SRI_{composite} + 10\log_{10} S + 10\log\left(\frac{Q}{4\pi r^2}\right) - 6dB$$

Receiver: Nearest Residential Window
Source: Internal Activities

	Frequency, Hz								
	63	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*	*dB(A)*
Manufacturer provided sound pressure level Bar Operation (based on measured levels)	83	78	79	81	82	83	80	69	88
Dw reduction of upgraded glazing, dB	-23	-20	-24	-33	-33	-37	-34	-38	
Correction for total area of south facade (S = 15 m^2)	12	12	12	12	12	12	12	12	
Correction for directivity (Q) and distance (r) (Q=2, r =3 m)	-12	-12	-12	-12	-12	-12	-12	-12	
Non reverberant correction	-6	-6	-6	-6	-6	-6	-6	-6	
Sound pressure level at residential window due to pub activities	54	52	49	42	43	40	40	25	49
Penalty for Tonal Nature	6	6	6	6	6	6	6	6	
Sound Pressure level at receiver	**60**	**58**	**55**	**48**	**49**	**46**	**46**	**31**	**55**

Design Criterion	**58**

Appendix B2

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Room to Room Calculation - Flat 1 Bedroom

Partition Surface Area	3.24
Reciver Room Volume	81
Reciever Room RT	0.8
Absorption A (sabine)	16

$$SPL_{Receiver} = SPL_{Source} - SRI + 10\log\left(\frac{S}{A}\right)$$

		Frequency, Hz								
		63	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*	*dB(A)*
Source Room SPL, dB		83	78	79	81	82	83	80	69	88
Sound Reduction (R or R'), dB		27	32	45	54	62	56	50	57	
Flanking Correction (5-8)	*5*	*22*	*27*	*40*	*49*	*57*	*51*	*45*	*52*	
Reciever Room SPL, dB		54	44	32	25	18	25	28	10	**34**
									NR	33.3

Criteria	**dB(A)**	30
	NR	20

Criteria NR	20	51	39	31	24	20	17	14	13	
Difference		2.4	4.3	1.1	0.9	-1.6	8.3	13.6	-2.5	

Calculates the highest possible source room level while still meeting NR criteria in reciever									
Maximum Allowable Levels	81	74	78	80	84	75	66	72	85.4

Appendix B2

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Kiss The Sky

Room to Room Calculation - Flat 1 Living Room

Partition Surface Area	3.24
Reciver Room Volume	81
Reciever Room RT	0.8
Absorption A (sabine)	16

$$SPL_{Receiver} = SPL_{Source} - SRI + 10\log\left(\frac{S}{A}\right)$$

		Frequency, Hz								
		63	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*	*dB(A)*
Source Room SPL, dB		83	78	79	81	82	83	80	69	88
Sound Reduction (R or R'), dB		27	32	45	56	65	47	48	57	
Flanking Correction (5-8)	*5*	*22*	*27*	*40*	*51*	*60*	*42*	*43*	*52*	
Reciever Room SPL, dB		54	44	32	23	15	34	30	10	**38**
									NR	37

Criteria	**dB(A)**	30
	NR	20

Criteria NR	20	51	39	31	24	20	17	14	13
Difference		2.4	4.3	1.2	-1.2	-5.4	17.3	15.8	-2.5

Calculates the highest possible source room level while still meeting NR criteria in reciever									
Maximum Allowable Levels	80.6	73.7	77.8	82.2	87.4	65.7	64.2	71.5	88.2

SOUND INSULATION PERFORMANCE CERTIFICATE

Standardised Airborne Sound Insulation Performance According to BS EN ISO 140-4

Field Measurements of Airborne Sound Insulation Between Rooms

clement acoustics

Site Address: **11 Camden High Street, London**
Client: Kiss The Sky
Test Date: 17/03/2023
Test Rooms: **Kiss The Sky Bar - Flat 1 Bedroom**

Frequency (Hz)	D_{nT} (dB)
100	**29.2**
125	**33.4**
160	**38.3**
200	≥ **42.8**
250	**46.8**
315	**47.5**
400	**51.7**
500	≥ **54.7**
630	≥ **55.0**
800	≥ **60.0**
1000	≥ **60.2**
1250	≥ **60.3**
1600	≥ **57.2**
2000	≥ **55.6**
2500	≥ **53.5**
3150	**36.0**

"≥" Shows limit of measurement due to background noise

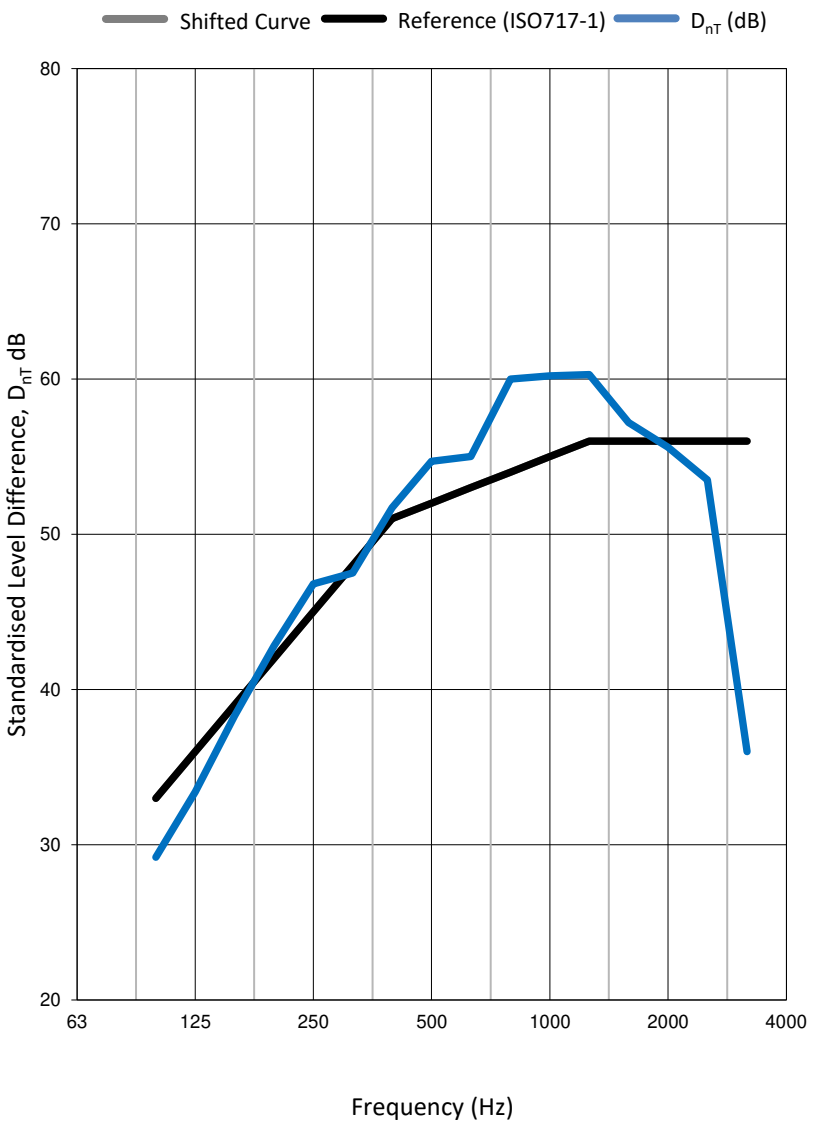
$D_{nT,w}$ (C_{tr}) (dB) : (C_{tr}) = 52 (-7)

$D_{nT,w}$ (dB) = 52

According to ISO 717-1. Evaluation based on field measurement results obtained using procedure described in Report 18280-NIA-01

UKAS TESTING 7688

Tested By: Matt Markwick MIOA



18280-NIA-01-AF1

SOUND INSULATION PERFORMANCE CERTIFICATE

Standardised Airborne Sound Insulation Performance According to BS EN ISO 140-4

Field Measurements of Airborne Sound Insulation Between Rooms

clement acoustics

Site Address: **11 Camden High Street, London**
Client: Kiss The Sky
Test Date: 17/03/2023
Test Rooms: **Kiss The Sky Bar - Flat 1 Living Room**

Frequency (Hz)	D_{nT} (dB)
100	**29.4**
125	**32.4**
160	**41.9**
200	**43.8**
250	**43.9**
315	**49.9**
400	**53.2**
500	**56.0**
630	≥ **59.9**
800	≥ **63.3**
1000	≥ **64.6**
1250	≥ **64.9**
1600	≥ **62.5**
2000	≥ **61.9**
2500	≥ **41.8**
3150	**43.6**

"≥" Shows limit of measurement due to background noise

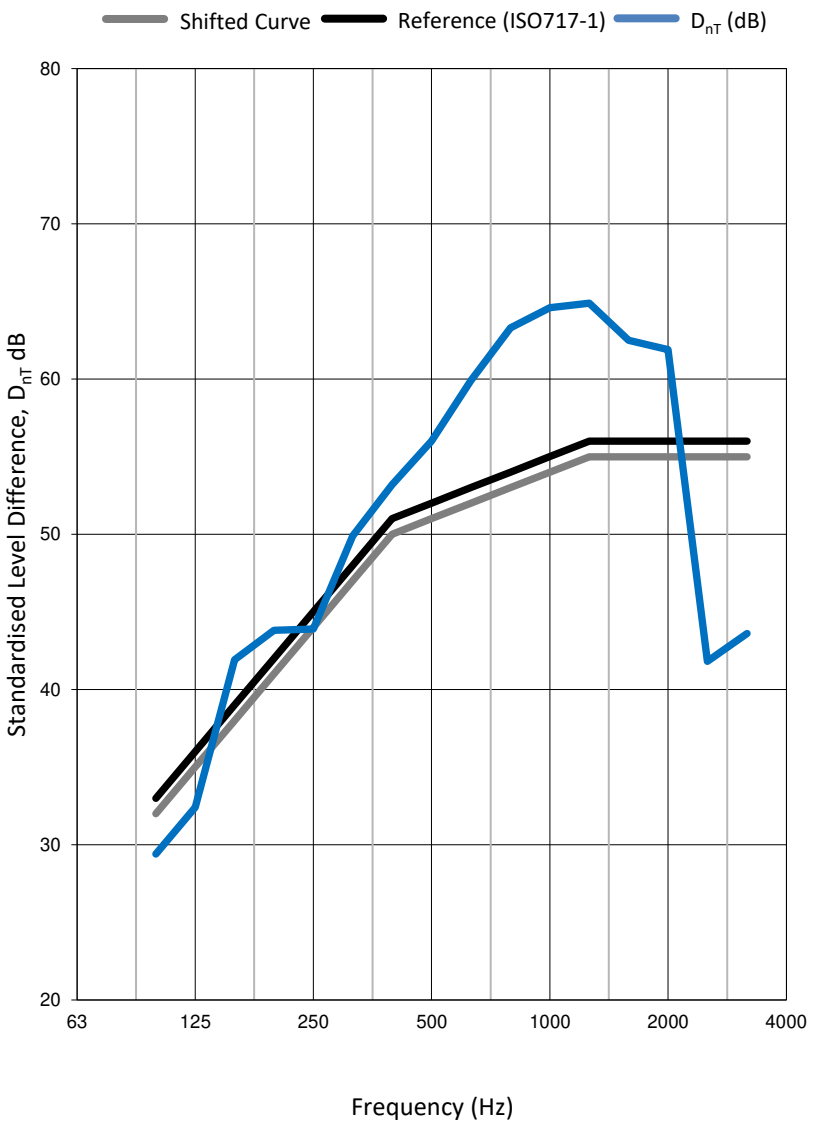
$D_{nT,w}$ (C_{tr}) (dB) : (C_{tr}) = 51 (-5)

$D_{nT,w}$ (dB) = 51

According to ISO 717-1. Evaluation based on field measurement results obtained using procedure described in Report 18280-NIA-01

UKAS TESTING 7688

Tested By: Matt Markwick MIOA



18280-NIA-01-AF2