

ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

ADT 3912

15 October 2025

Bubby Kaur Vig
14 Wilton Road
Manchester
M8 4WQ

14 WILTON ROAD, CRUMPSALL
ENVIRONMENTAL NOISE IMPACT ASSESSMENT
ACOUSTIC CONSULTANCY REPORT ADT 3912/ENIA

Revision	Date	Issued By	Checked by	Revision Notes
-	14 October 2025	Jack Williamson	Chris Middleton	first issue

TABLE OF CONTENTS

1.0	SUMMARY	3
2.0	BASIS OF ASSESSMENT	4
2.1	Site Location	4
2.2	Proposed Development	4
2.3	Assessment Criteria	4
3.0	ENVIRONMENTAL NOISE SURVEY	6
3.1	Introduction	6
3.2	Scope of Survey	6
3.3	Instrumentation	6
3.4	Procedure	6
3.5	Results	7
3.6	Weather Conditions	8
3.7	Description of Existing Acoustic Environment	8
4.0	Scheme of sound insulation measures	8
4.1	Incident Noise Levels	8
4.2	Noise Criteria	10
4.3	Scheme of Sound Insulation Measures	10
4.4	Control of Overheating	12
4.5	Noise Levels in Outdoor Amenity Areas	12

1.0 **SUMMARY**

Planning permission 140962/FO/2024 has been granted for the *‘erection of two no.2 bed two storey dwellings with rear dormers following demolition of existing dwelling including landscaping and car parking’*, as shown on the planning application drawings.

Condition 23 requires the submission and approval of a scheme of sound insulation measures. Acoustic Design Technology Limited have undertaken an environmental noise survey to determine the existing ambient noise levels on the site, and a scheme of sound insulation has been prepared for compliance with the internal noise criteria in planning condition 23.

As the incident noise levels are low, the sound insulation requirements for the building envelope can be achieved using standard thermal double glazing and standard trickle vents.

With windows open for ventilation the noise criteria in Approved Document O would be achievable, so mechanical cooling systems are not necessary in this case.

Noise levels in outdoor amenity areas would be within the noise criteria defined in planning condition 23 without additional noise control measures.

2.0 BASIS OF ASSESSMENT

2.1 Site Location

The site is a currently unoccupied house located on 14 Wilton Road, Crumpsall, Manchester. This is a typical, quiet residential location with houses in all directions.

The nearest main road is the A576 Middleton Road, approximately 120 metres to the west of the property. There is a tram line approximately 200 metres away to the east.

2.2 Proposed Development

Planning permission 140962/FO/2024 has been granted for the *‘erection of two no.2 bed two storey dwellings with rear dormers following demolition of existing dwelling including landscaping and car parking’*, as shown on the planning application drawings.

2.3 Assessment Criteria

Planning Condition 23) a) reads as follows:-

“23) a) Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from Wilton Road and the trams shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises.

The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.

Noise survey data shall include measurements taken during a rush-hour period and night-time to determine the appropriate sound insulation measures necessary. The following noise criteria shall be required to be achieved when providing adequate ventilation as defined by Approved Document F of the Building Regulations (whole dwelling ventilation):

o Bedrooms (night-time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB L_{Amax,F} by more than 10 times)

o Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

o Gardens and terraces (daytime) 55 dB LAeq

Higher internal noise levels than those specified above may be allowed when higher rates of ventilation are required in relation to the overheating condition."

With regard to the control of overheating, Approved Document O states that windows are likely to be closed during sleeping hours where the indoor ambient noise levels exceed 40 dB L_{Aeq, 8 hour} and 55 dB L_{Amax} during the night.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Introduction

An environmental noise survey was undertaken to measure the local road traffic noise levels on the site over a sample of typical day time and night time conditions.

3.2 Scope of Survey

An environmental noise survey was undertaken over three periods, the first between 05:15 hours and 06:25 hours on Tuesday 30 September 2025 and the second between 07:35 and 09:15 hours on Tuesday 30 September 2025.

As there was some localised disturbance between the first and second survey periods, and scaffolding was being erected at a nearby house during the latter part of the second survey period, a third period of measurements was undertaken between 05:45 and 09:00 hours on Thursday 2 October 2025.

These survey periods collectively cover the typical worst case period of the night (23:00 – 07:00) and the morning rush hour period of the day (07:00 – 23:00).

3.3 Instrumentation

The instrumentation used, and the field calibration values before and after the survey are detailed in Appendix A of this report.

3.4 Procedure

Two measurement positions were selected as described below and indicated on the attached site plan 3912/SP1:

- i. on the site, at the front of the existing house and approximately 10 metres from the edge of the Wilton Road carriageway and 8 metres from the edge of the Holland Road carriageway.
- ii. on the site, at the rear of the existing house, approximately 8 metres from the edge of the Holland Road carriageway

These positions were chosen to obtain measurements of the existing noise levels at the approximate locations of the new facades of the proposed new houses.

At both positions the microphone was mounted on a tripod approximately 1.2 metres above the ground and least 1.5 metres from the existing building facades.

At both positions during the first and second measurement periods, the noise levels were logged continuously for the duration of each survey period, using an 01dB Fusion sound level meter set to store the octave band and 'A' weighted 100ms short-term L_{eq} for subsequent post processing.

During the third measurement period only position 1 was used, that being the most affected by local traffic noise. The noise levels were logged continuously for the duration of the survey period, using the Norsonic 140 sound level meter set to store the octave band and 'A' weighted 100ms short-term L_{eq} for subsequent post processing.

3.5 Results

The logged data has been post processed to determine $L_{Aeq,T}$, $L_{A90,T}$ and L_{Amax} levels for each 15 minute period, and these are listed in the attached tables 3912/T1 and 3912/T2.

Octave band and A-weighted $L_{eq,T}$ for the surveyed portions of the day time and night time periods, excluding extraneous events such as the scaffolding noise are listed in the attached table 3912/T3.

Please refer to Appendix B for explanation of the noise units and the A-weighting term used in this report.

3.6 Weather Conditions

Throughout the first measurement period, the weather conditions were overcast with temperatures varying between 11 and 12 degrees Celsius and windspeeds of less than 1 m/s. During the second and third measurement periods, skies were clear with windspeeds of less than 1 m/s and temperatures varying between 9 and 11 degrees Celsius.

3.7 Description of Existing Acoustic Environment

During all measurement periods, the noise climate was generally controlled by road traffic on Wilton Road and Holland Road. The hum/drone of the traffic on the A576 was constantly audible throughout both measurement periods. No trams were audible at any time.

During the second survey period scaffolding was being erected at a nearby house from 08:00 hours onwards, and the results are therefore not typical.

4.0 SCHEME OF SOUND INSULATION MEASURES

4.1 Incident Noise Levels

When assessing external noise intrusion into new dwellings and noise levels in gardens it must be borne in mind that the noise climate may change in the future.

The following discussion is by necessity based on the results of the environmental noise survey described in Section 3.0 above. The surveyed portions of the day time and night time periods are assumed to be representative of the full day and night periods, as they encompass the morning rush hour period.

While the measurements were by necessity taken within 3.5 metres of the existing bungalow and were therefore not truly free field measurements, although a facade correction has not been deducted, which is the pessimistic approach.

Incident $L_{eq,T}$ for the surveyed portions of the day time and night time periods are set out in the attached table 3912/T3, and the day and night $L_{Aeq,T}$ are provided for quick reference as follows:-

Location	Incident $L_{Aeq,T}$ dB	
	Day (07:00 - 23:00)	Night (23:00 - 07:00)
Front Elevation	51	48
Rear Elevation	48	44

In relation to L_{Amax} levels, as the sound insulation properties of a building façade vary with frequency, it cannot be assumed that the highest single event noise levels (L_{Amax}) inside a building will result from the highest single event noise levels outside.

It is therefore a complex procedure to predict how many single events may generate an internal noise level higher than the guideline figure outlined in planning condition 23.

Based on detailed analysis of the octave band 1 minute $L_{\max}$ levels, the following incident levels have been derived to estimate the sound insulation necessary to control single event noise levels such that the internal $L_{A\max,1\min}$ does not normally exceed 45 dB $L_{A\max}$ more than 10 times per night.

Location	Typical $L_{\max}$ (dB) at octave band centre frequency (Hz)								$L_{A\max}$ dB
	63	125	250	500	1k	2k	4k	8k	
Front Elevation	74	62	55	56	59	60	64	58	68
Rear Elevation	63	53	51	49	46	49	60	58	63

4.2 Noise Criteria

The $L_{Aeq,T}$ and $L_{A\max}$ noise levels required by planning condition 23 and the Approved Document O requirements are summarised in Section 2.3 above.

4.3 Scheme of Sound Insulation Measures

Based on the incident noise levels set out in Section 4.1 above, the overall noise reductions required from the building envelope to achieve compliance with the Manchester City Council indoor ambient noise criteria in Section 2.3 above are as follows.

Overall noise reduction required from building envelope, by parameter			
Location	$L_{Aeq,T}$ dB		Typical night time $L_{A\max}$ dB
	Day (07:00 - 23:00)	Night (23:00 - 07:00)	
Front Elevation	16	18	23
Rear Elevation	13	14	18

A building facade with windows open for ventilation is generally understood to provide around 13 dB overall noise reduction (as indicated in the IOA/ANC 'Acoustics, Ventilation and Overheating – A Design Guide).

On that basis compliance with the Manchester City Council indoor ambient noise criteria would only be achievable with windows closed even at the rear of the site, which is the reality in nearly all urban areas.

This situation is addressed in ProPG:Planning & Noise (2017), which includes guidance that compliance would normally be determined with windows closed and ventilation at the Approved Document F 'whole dwelling rate' subject to the consideration of overheating. Compliance with the Approved Document O criteria is discussed separately in Section 4.4 below.

In terms of controlling noise intrusion to the noise criteria in planning condition 23 with windows closed, the sound insulation of the building envelope is largely determined by the windows and the trickle vents (or air bricks), as the sound insulation of the new walls will be significantly greater than that of the glazing or vents.

The recommended sound insulation performance requirements for the glazing and vents are set out on the attached tables 3912/T4 and 3912/T5, sufficient to achieve compliance with the noise criteria in planning condition 23.

Detailed calculations have been undertaken for the worst case scenario of a typical bedroom on the north elevation in the attached table 3912/C1, demonstrating that 30 dB $L_{Aeq, 8 \text{ hour}}$ is achievable internally during the night by a comfortable margin.

4.4 Control of Overheating

In order to assess whether open windows can be used as part of the means of controlling overheating, Approved Document O sets night time indoor ambient noise criteria of ≤ 40 dB $L_{Aeq, 8 \text{ hour}}$ and ≤ 55 dB L_{Amax} for the night time period.

Assuming typically 13 dB overall noise reduction for a façade with windows open as indicated in Section 4.3 above, the incident noise levels would have to be ≤ 53 dB $L_{Aeq, 8 \text{ hour}}$ and ≤ 68 dB L_{Amax} for compliance with the ADO requirements using open windows.

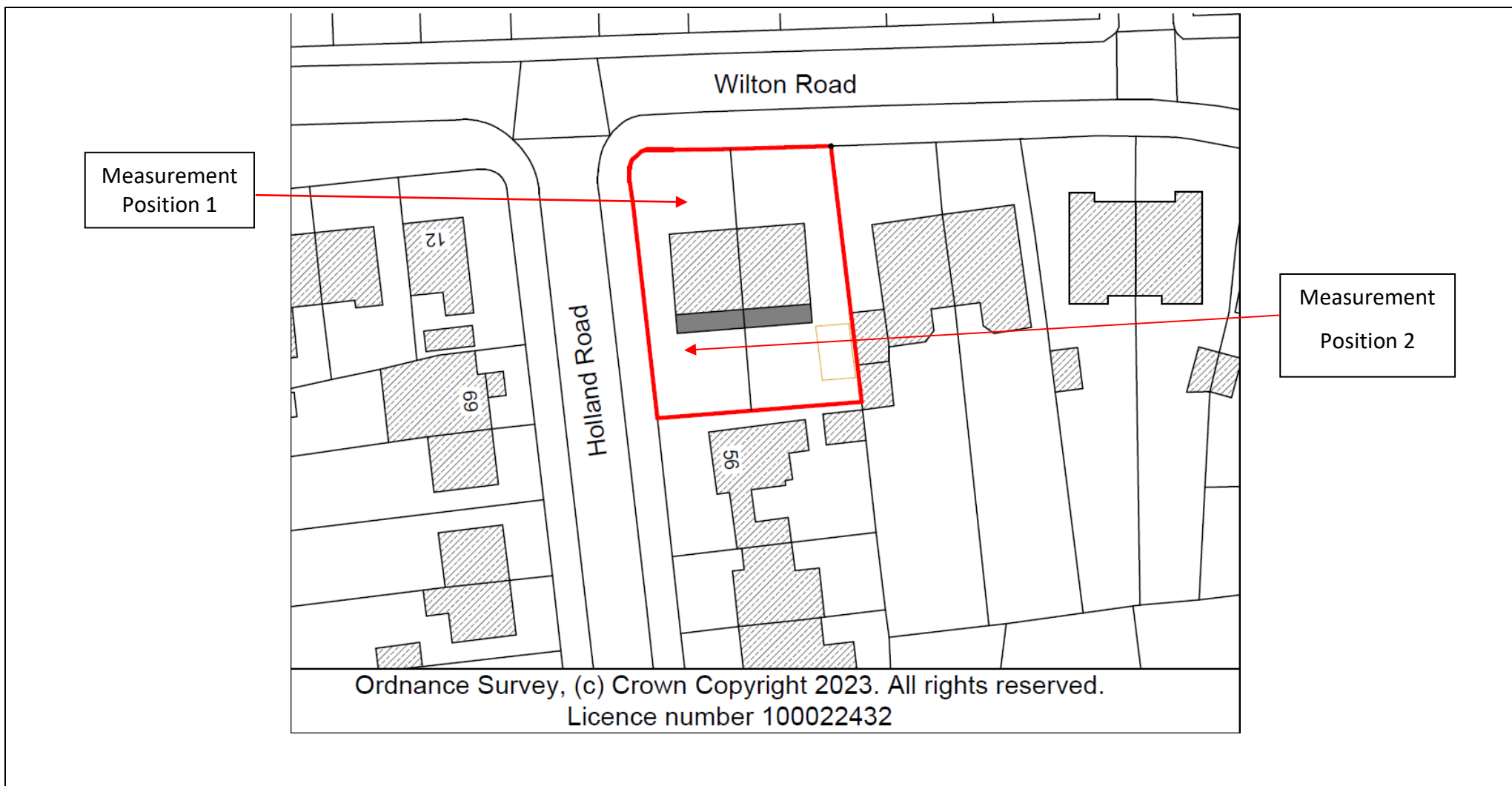
Reference to the incident noise levels in Section 4.1 above reveals that this would be the case for all elevations, meaning that the control of overheating can be achieved using open windows.

4.5 Noise Levels in Outdoor Amenity Areas

Reference to Section 4.1 above reveals day time noise levels of 51 dB $L_{Aeq, 16 \text{ hour}}$ at the front of the site and 48 dB $L_{Aeq, 16 \text{ hour}}$ at the rear. Those levels are well within the requirement of 55 dB $L_{Aeq, 16 \text{ hour}}$ stated in planning condition 23, and no additional noise control measures are therefore required.

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the bottom.

FOR ACOUSTIC DESIGN TECHNOLOGY



<u>Notes</u>	<u>Description</u> Site Plan Showing Noise Monitoring Locations		 ACOUSTIC DESIGN TECHNOLOGY Noise and Vibration Consultants
	<u>Project</u> 14 Wilton Road, Crumpsall		
	<u>Survey Date</u> 30 September and 2 October 2025	<u>Drawing No.</u> 3912/SP1	

SURVEY RESULTS (A WEIGHTED TIME HISTORY)

30 SEPTEMBER 2025

Position	Period	L _{Aeq, 15mins} dB	L _{Amax} dB	L _{A90} dB
1	05:15 – 05:30	47	68	36
	05:30 – 05:45	48	67	37
	05:45 – 06:00	46	71	38
	06:00 – 06:15	47	78	38
	06:15 – 06:30	51	70	40
	07:35 – 07:50	52	81	41
	07:50 – 08:05 ¹⁾	56	82	41
	08:05 – 08:20 ¹⁾	56	84	41
	08:20 – 08:35 ¹⁾	63	93	40
	08:35 – 08:50 ¹⁾	60	90	42
	08:50 – 09:05 ¹⁾	63	87	41
2	05:15 – 05:30	42	63	38
	05:30 – 05:45	43	65	38
	05:45 – 06:00	44	65	40
	06:00 – 06:15	44	63	40
	06:15 – 06:30	47	71	41
	07:45 – 08:00	46	64	42
	08:00 – 08:15	47	64	41
	08:15 – 08:30	47	73	40
	08:30 – 08:45	50	81	40
	08:45 – 09:00	48	69	40
	09:00 – 09:15	50	72	40
1) Period affected by scaffolding works on opposite property				

TABLE 3912/T1

SURVEY RESULTS (A WEIGHTED TIME HISTORY)

2 OCTOBER 2025

Position	Period	L _{Aeq, 15mins} dB	L _{Amax} dB	L _{A90} dB
1	05:45 – 06:00	48	67	36
	06:00 – 06:15	47	67	36
	06:15 – 06:30	48	64	39
	06:30 – 06:45	49	67	39
	06:45 – 07:00	45	64	39
	07:00 – 07:15	47	63	40
	07:15 – 07:30	46	61	41
	07:30 – 07:45	51	66	41
	07:45 – 08:00	49	64	41
	08:00 – 08:15	52	71	42
	08:15 – 08:30	54	78	42
	08:30 – 08:45	50	65	41
	08:45 – 09:00	53	41	77

Table 3912/T2

Average Octave Band $L_{eq,T}$ for surveyed portions of night and day periods

Position	Time	Average $L_{eq,T}$ (dB) at octave band centre frequency (Hz)								L_{Aeq}
		63	125	250	500	1k	2k	4k	8k	
Position 1 Front Elevation	Night (05:10 – 07:00)	55	47	43	41	44	40	38	36	48
	Day (07:00 – 09:00)	60	56	49	45	47	43	37	33	51
Position 2 Rear Elevation	Night (05:10 – 07:00)	49	41	40	38	38	33	37	38	44
	Day (07:00 – 09:00)	54	49	46	44	44	40	35	33	48

TABLE 3912/T3

ACOUSTIC SPECIFICATIONS FOR GLAZING SYSTEMS AND TRICKLE VENTS
(to achieve 35 L_{Aeq,16 hour} during the day / 30 L_{Aeq, 8 hour} and 45 dB L_{Amax} during the night)

Minimum Required Sound Reduction Indices (R) for Glazing Systems dB

Zone	Rooms	Octave Band Centre Frequency - Hz								Possible Glazing Configuration
		63	125	250	500	1k	2k	4k	8k	
All Elevations	All rooms	18	24	20	25	35	38	35	35	4 / 12 / 4 (R _w + C _{tr} 27 dB)

TABLE 3912/T4

Minimum Required Sound Reduction Indices (R) for Trickle Vents dB (one per room)

Zone	Rooms	Octave Band Centre Frequency - Hz								Example Vent
		63	125	250	500	1k	2k	4k	8k	
All Elevations	All Bedrooms	29	29	30	28	28	29	33	33	Generic Standard trickle vent (D _{n,e,w} 30 dB)

TABLE 3912/T5

SAMPLE FACADE CALCULATION
Front Bedroom to Wilton Road - night

	Area	Octave Band Centre Frequency - Hz							dB(A)	NR	
		63	125	250	500	1k	2k	4k			8k
Incident noise level		55	49	45	42	43	39	37	38	48	45
Direct Field											
Composite SRI of structure (from below)		-21	-26	-24	-26	-28	-29	-33	-33		
Direct L _p		34	23	21	16	15	10	4	5	20	15
Reverberant Field											
Composite SRI of structure (from below)		-21	-26	-24	-26	-28	-29	-33	-33		
10 log (S / A)		4	4	4	3	1	0	0	0		
Constant (for line source)		1	1	1	1	1	1	1	1		
Reverberant L _p		39	28	26	20	17	11	5	6	23	17
Total L _p		40	29	27	21	19	13	7	8	25	19
Composite SRI Calculation											
Cavity wall	7.7	28	34	40	45	50	55	55	55		
4/12/4 sealed glazing	3.5	18	24	20	25	35	38	35	35		
Generic standard trickle vent	(10)	29	29	30	28	28	29	33	33		

TABLE 3912/C1

APPENDIX A

Instrumentation

Manufacturer	Type and / or Model	Serial Number	Last Laboratory Calibration	Calibrator Output (dB)	Free Field Correction (dB)	Initial Reading (dB)	Final Reading (dB)
01dB	Fusion 1 Class 1 Sound Level Meter	15131	July 2025		-0.3	113.8	113.9
01dB	Fusion MCE3 Microphone	14038	July 2025				
01dB	Fusion 2 Class 1 Sound Level Meter	15130	Jan 2025		-0.2	113.8	113.8
01dB	Fusion MCE3 Microphone	14050	Jan 2025				
Norsonic	Nor140 Class 1 Sound Level Meter	1407647	February 2025		-0.2	113.8	113.8
Norsonic	Nor1225 ½" Microphone	413060					
Norsonic	Nor1209 Preamplifier	22847					
Norsonic	Nor1251 Calibrator (Cal 5)	34220	February 2025	113.98			

APPENDIX B

Acoustic Terminology

The annoyance produced by noise is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and any variations in its level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

A-weighting The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the A-weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average person. It is also possible to calculate the A-weighted noise level by applying certain corrections to an un-weighted spectrum.

When the noise being measured has variable amplitude, such as traffic noise, it is necessary to qualify the basic dB unit. This may be done using a statistical index L_n dB, where n is any value between 0 and 100, and is the percentage of the sample time for which the stated level is exceeded. In defining the use of the index, both the value of n and the length of the sample period must be stated.

L_{10} L_{10} , being the level exceeded for 10% of the time, has been shown to be a good indicator for traffic noise intrusion, and is used in assessing the effect of traffic noise on residential or commercial premises.

L_{90} L_{90} is the level exceeded for 90% of the time, and is used as a measure of background noise level, as it excludes the effects of occasional transient levels, such as individual passing cars or aircraft.

In addition to the statistical noise indices defined above, the following noise units are also used to define variable amplitude noise sources:

$L_{eq,T}$ $L_{eq,T}$ is defined as the notional steady sound pressure level which, over a stated period of time, would contain the same amount of acoustical energy as the actual fluctuating sound measured over the same period. In other words, it is a measure of the "average" noise level

L_{max} L_{max} is the maximum time-weighted sound pressure level recorded over the stated time period