



**27 SHORTS GARDENS  
LONDON  
WC2H 9AP**

## **24 HOUR ENVIRONMENTAL NOISE ASSESSMENT**

Our Ref: P3054 CPT/301124/010

Written By:

Cliff Tucker AMIOA

Signed 

Date: 30<sup>th</sup> November 2024

## **CONTENTS**

- 1.0 Brief
- 2.0 Executive Summary
- 3.0 Location
- 4.0 Instrumentation
- 5.0 Time, Date & Environmental Conditions of Survey
- 6.0 Methodology
- 7.0 Results Summary
- 8.0 Analysis
- 9.0 Conclusion

### **Appendices**

- A - Positions, Distances & Locations
- B - Full Measured Levels
- C - Unit Data
- D - Relevant Guidance
- E - Definitions

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## 1.0 Brief

- 1.1 To carry out an Environmental Noise Assessment & Report in order to establish the prevailing environmental noise levels enjoyed by the site.
- 1.2 From these measurements we establish a noise limit criterion (the maximum permissible Rating Level) 1.0 meters from the nearest acoustically critical location (the Assessment Position).
- 1.3 To analyse the published acoustic data for the proposed equipment in relation to the maximum permissible Rating Level including any proposed acoustic control hardware in order to establish compliance or otherwise.
- 1.4 We have excluded the following from our brief:
  - Construction noise
  - Any Building Regulations noise considerations
  - Traffic noise/traffic count per se, though we have recorded LA10 percentiles.
  - Health and safety acoustics.

## 2.0 Executive Summary

- 2.1 An Environmental Noise Assessment has been carried out at 27 Shorts Gardens, London, WC2H 9AP.
- 2.2 A minimum background noise level of 48.2 dB LA<sub>90, 15mins</sub> has been measured for the proposed hours of use of the equipment.
- 2.3 In line with the requirements of Camden Council the maximum permissible Rating Noise Level at the Assessment Position is therefore 38.2 dB LA<sub>r,T</sub>.
- 2.4 It is proposed to enclose the unit in a purpose built 300 mm deep acoustic louvred enclosure.
- 2.5 The theoretical Rating Noise Level of the equipment at the Assessment Position (AP1) with the equipment operating at full duty after allowing for the acoustic mitigation is 35.4 dB-A.
- 2.6 This is 2.8 dB-A below the maximum permissible Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

### 3.0 Location & Background

- 3.1 27 Shorts Gardens is a four storey property within the jurisdiction of the London Borough of Camden.
- 3.2 The ground floor is let to commercial use with residential properties above.
- 3.3 It is bounded to the north-east by 29 Shorts Gardens, a mixed use property; to the south-east by Shorts Gardens with further mixed use property beyond; to the south-west by 25 Shorts Gardens, also a mixed use property; and to the north-west Matthews Yard with residential property beyond.
- 3.4 On the rear façade of the building within Matthews Yard five pre-existing air conditioning condensers are installed. These are believed to have been operational for a considerable period of time without complaint in regard to noise and the noise from these units is therefore considered to form part of the pre-existing environmental noise levels in the area.
- 3.5 An additional air conditioning condenser has been installed adjacent to the pre-existing units and this report is in relation to an application for retrospective planning approval for this unit.
- 3.5 The closest residential property windows are those of the first floor residential apartment opening onto Matthews Yard and located immediately above the pre-existing equipment.
- 3.6 The primary noise sources currently affecting the site is noise from the pre-existing building services equipment and near and distant traffic noise.

#### 4.0 Instrumentation

##### 4.1 The instrumentation employed was:

- Rion NL-52/NX-22RT Class 1 Environmental Noise Analyser
- Rion NC74 Class1 Acoustic Calibrator
- Rion 12 mm Condenser Microphone & Foam Windshield on 1.5 meter Extension Pole.
- Rion Weatherproof Security Box

##### 4.2 The instruments carry current calibration certificates copies of which are available from our offices upon request.

## 5.0 Time, Date & Environmental Conditions

- 5.1 The survey was conducted from 10.07 on 28<sup>th</sup> November 2024 through until 09.52 on 29<sup>th</sup> November 2024.
- 5.2 The weather throughout the survey was light cloud with clear spells. There was no rainfall and only light winds.
- 5.3 Throughout the survey period the pre-existing equipment was operating as usual and the new air conditioning condenser was switched off.
- 5.3 The site engineer was Cliff Tucker AMIOA and the results were analysed & reported by Cliff Tucker AMIOA.

## 6.0 Methodology.

- 6.1 The survey and report generally follow the procedures, method and assessments as described in BS 4142: 2014 'Methods for rating and assessing industrial and commercial sound'.
- 6.2 The standard requires a comparison between the typical measured background noise level and the equivalent continuous A-weighted sound pressure level of the proposed plant at the Assessment Position.
- 6.3 BS4142: 2014 also requires uncertainty to be considered as part of the assessment.
  - We have undertaken a 24 hour background noise survey and the data gathered has been analysed to ensure that any influences from the weather conditions have been accounted for in the assessment.
  - The calibration of the sound level meter was checked before and after the survey period and no significant drift found.
  - Standard acoustic theory has been applied in the noise propagation calculations.

It is therefore considered that the uncertainty associated with the assessment is minimal and the results, as stated, are therefore valid.

- 6.4 The Reference Time Interval used for the survey was 15 minutes.
- 6.5 The microphone position (the measurement position) was at ground level within Matthews Yard at the same approximate distance from the installed equipment as the Assessment Position.
- 6.6 The background level as measured at the microphone position is therefore considered to be representative of the levels enjoyed at the Assessment Position.
- 6.7 The closest residential property windows are those of the first floor residential apartment opening onto Matthews Yard and located immediately above the pre-existing equipment and 3.8 from the newly installed unit. This position is referenced as Assessment Position 1 (AP1) within this report.
- 6.8 The Measurement Position; Assessment Position; and the other relevant points of interest are shown on the plan within Appendix 'A'.
- 6.9 Throughout the survey period the pre-existing equipment was operating as usual and the new air conditioning condenser was switched off.
- 6.10 The measured levels were the principle LA percentiles as prescribed in BS 4142.



6.11 The most significant of the measured percentiles for our purposes are as follows:

- $LA_{eq}$ , (the mean sound pressure level corresponding to a fluctuation level across time period 't'). Used for the measurement and assessment of the Ambient Noise Level; The Specific Noise Level; The Residual Level and the Rating Level
- $LA_{10}$  ('A' weighted level exceeded for 10% of the time) is used for traffic noise assessment.
- $LA_{90}$ , ('A' weighted level exceeded for 90% of the time). Represents the Background Level and is often used as the target threshold against which the acoustic design criteria are set.

We also measured the maximum and minimum levels.

6.12 You will note the basic objective is to establish a Rating Level at the Assessment Point for the specific noise level from any new plant in order to predict the likelihood of noise complaint.

6.13 The London Brough of Camden's requirements in terms of noise are detailed within Appendix 3 Table B of the Local Plan and are as follows:

*"Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and Camden Local Plan | Appendices 347 commercial sound' (BS 4142) will be used. For such cases a 'Rating Level' of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion)."*

6.14 It is understood that the equipment has the propensity to operate 24 hours per day, 7 days per week.

## 7.0 Results Summary

- 7.1 The full set of measured levels are presented in Appendix 'B' of this report
- 7.2 The table below details the minimum  $LA_{90, 15 \text{ mins}}$  (background) noise levels measured for day time and night time along with the prevailing ambient ( $dB LA_{eq, 15 \text{ mins}}$ ) noise level at the same time.

	<b>dB <math>LA_{90, 15 \text{ min}}</math></b>	<b>dB <math>LA_{eq, 15 \text{ min}}</math></b>
<b>Day-Time/ Evening</b> (07.00-23.00 hrs)	48.2	51.8
<b>Night-Time</b> (23.00-07.00 hrs)	49.9	50.6

- 7.3 The presence of a steady state noise source operational 24 hours per day is evident from the above measured levels. This is likely attributable to the pre-existing equipment within the area.
- 7.4 The table below details the maximum permissible Rating Levels in line with the London Borough of Camden's requirements for day time and night time use.

	<b>dB <math>LA_{r,T}</math></b>
<b>Day-Time/ Evening</b> (07.00-23.00 hrs)	38.2
<b>Night-Time</b> (23.00-07.00 hrs)	39.9

- 7.5 As the equipment has the propensity to operate 24 hours per day 7 days per week the maximum permissible Rating Level at the Assessment Position is 38.2 dB  $LA_{r,T}$ .

## 8.0 Analysis

### 8.1 Plant & Location

The newly installed item of plant is:

- 1 no. Mitsubishi FDC121KXZEN1-W A/C Condenser.

The manufacturers published Sound Pressure Level spectrum at 1 metre for the unit in colling mode is as follows:

	<b>Octave Band Mid Frequency Hz</b>							
	<b>63</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1K</b>	<b>2K</b>	<b>4K</b>	<b>8K</b>
Lp @ 1 m	64	55	51	50	49	43	37	35

BS4142: 2014 has provision for corrections to the specific noise level at the Assessment Position based on tonality, impulsivity, intermittency and any other distinguishing characteristics to the sound.

It is not considered that any corrections for the character of the noise are required in this instance.

It is proposed to enclose the unit within an acoustic enclosure formed from nominal 300 mm deep acoustic louvres. The louvre losses used with the acoustic calculation are taken from Table 4.8 of CIBSE Guide B4. These are generic losses and are presented for guidance only. The final supplier of the acoustic louvres should confirm that the requirements of the London Borough of Camden can be met using their specific product noise loss data.

### 8.2 Acoustic Calculations

1.0	<b>Dist 1 (m)</b>							
3.8	<b>Dist 2 (m)</b>							
	<b>63</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>	<b>8000</b>
Lp1	64.0	55.0	51.0	50.0	49.0	43.0	37.0	35.0
Dist	-11.6	-11.6	-11.6	-11.6	-11.6	-11.6	-11.6	-11.6
Louvre Loss	-5.0	-5.0	-7.0	-12.0	-18.0	-21.0	-16.0	-16.0
Screening								
Directivity	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Bend Loss								
Terminal Refl.								
LP2	53.4	44.4	38.4	32.4	25.4	16.4	15.4	13.4
A-Weight	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1
Lp-A	27.2	28.3	29.8	29.2	25.4	17.6	16.4	12.3
dB-A	35.4							
Criteria dB-A	38.2							
Variance dB-A	-2.8							

The theoretical Rating Level of the equipment at the Assessment Position AP1 with the equipment operating at full duty is 35.4 dB-A.

This is 2.8 dB-A below the maximum permissible Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

### 8.3 Vibration

The newly installed equipment is currently supported directly off a cantilever strut frame fixed to the rear façade of the building. In order to prevent the transfer of structure borne noise and vibration to the building resilient mounts should be inserted between the air conditioning condenser and the strut frame such that a vibration isolation efficiency of not less than 95% is achieved

.

## 9.0 Conclusion

The new plant that has been installed should be acoustically treated as detailed within this report.

Assuming this is achieved as outlined above then the Local Authority's requirements in terms of noise will be met.

Report ends

Cliff Tucker AMIOA  
Eurovib (Acoustic Products) Ltd

## **Appendix A – Positions, Distances, & Locations**



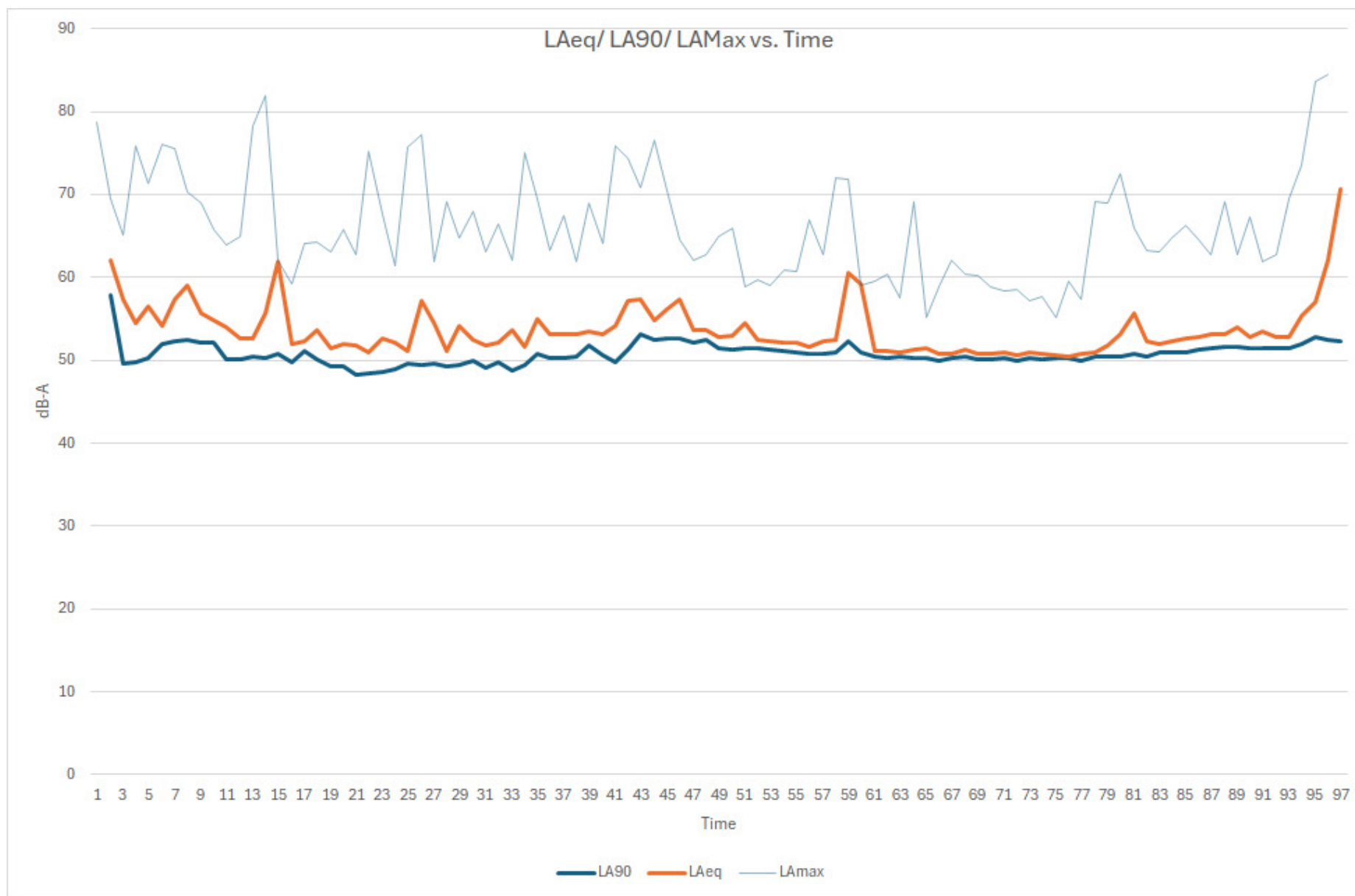
## **Appendix B – Full Measured Levels**



<u>Ref</u>	<u>Time</u>	<u>Measurment Time</u>	<u>L<sub>Amax</sub></u>	<u>L<sub>Amin</sub></u>	<u>L<sub>A10</sub></u>	<u>L<sub>A90</sub></u>	<u>L<sub>Aeq</sub></u>
1	28/11/2024 10:07	0:15:00	78.8	54.9	62.2	57.9	62.1
2	28/11/2024 10:22	0:15:00	69.4	48.4	60.9	49.6	57.4
3	28/11/2024 10:37	0:15:00	65.1	48.6	57.4	49.7	54.5
4	28/11/2024 10:52	0:15:00	75.9	48.8	58.1	50.2	56.5
5	28/11/2024 11:07	0:15:00	71.3	51.2	55.7	51.9	54.1
6	28/11/2024 11:22	0:15:00	76.0	51.6	59.2	52.3	57.4
7	28/11/2024 11:37	0:15:00	75.6	49.2	61.1	52.5	59.0
8	28/11/2024 11:52	0:15:00	70.3	51.3	57.4	52.1	55.7
9	28/11/2024 12:07	0:15:00	69.0	50.1	56.0	52.2	54.9
10	28/11/2024 12:22	0:15:00	65.8	49.0	56.8	50.1	53.9
11	28/11/2024 12:37	0:15:00	64.0	49.2	54.4	50.1	52.7
12	28/11/2024 12:52	0:15:00	64.9	49.4	54.3	50.5	52.7
13	28/11/2024 13:07	0:15:00	78.3	49.2	56.8	50.3	55.6
14	28/11/2024 13:22	0:15:00	82.0	49.6	65.2	50.7	61.9
15	28/11/2024 13:37	0:15:00	62.1	48.9	53.9	49.8	52.0
16	28/11/2024 13:52	0:15:00	59.2	50.6	54.0	51.1	52.3
17	28/11/2024 14:07	0:15:00	64.1	49.3	56.7	50.1	53.7
18	28/11/2024 14:22	0:15:00	64.3	48.7	53.0	49.3	51.4
19	28/11/2024 14:37	0:15:00	63.1	48.6	53.8	49.3	51.9
20	28/11/2024 14:52	0:15:00	65.8	47.4	53.9	48.2	51.8
21	28/11/2024 15:07	0:15:00	62.7	47.1	52.9	48.5	51.0
22	28/11/2024 15:22	0:15:00	75.2	47.9	53.3	48.6	52.7
23	28/11/2024 15:37	0:15:00	67.6	48.1	54.7	49.0	52.2
24	28/11/2024 15:52	0:15:00	61.4	48.8	52.8	49.6	51.1
25	28/11/2024 16:07	0:15:00	75.7	48.3	56.7	49.5	57.1
26	28/11/2024 16:22	0:15:00	77.3	48.3	55.2	49.6	54.4
27	28/11/2024 16:37	0:15:00	61.9	48.7	52.9	49.2	51.1
28	28/11/2024 16:52	0:15:00	69.1	48.5	56.1	49.4	54.1
29	28/11/2024 17:07	0:15:00	64.7	48.9	54.7	49.9	52.5
30	28/11/2024 17:22	0:15:00	68.0	48.0	53.7	49.1	51.8
31	28/11/2024 17:37	0:15:00	63.1	49.0	53.5	49.8	52.1
32	28/11/2024 17:52	0:15:00	66.4	48.0	55.6	48.8	53.7
33	28/11/2024 18:07	0:15:00	62.0	48.8	53.9	49.4	51.7
34	28/11/2024 18:22	0:15:00	75.0	50.1	55.9	50.8	55.0
35	28/11/2024 18:37	0:15:00	69.5	49.5	55.0	50.3	53.1
36	28/11/2024 18:52	0:15:00	63.2	49.3	55.0	50.3	53.1
37	28/11/2024 19:07	0:15:00	67.5	49.8	54.4	50.5	53.1
38	28/11/2024 19:22	0:15:00	61.9	50.6	54.8	51.8	53.5

<u>Ref</u>	<u>Time</u>	<u>Measurment Time</u>	<u>L<sub>Amax</sub></u>	<u>L<sub>Amin</sub></u>	<u>L<sub>A10</sub></u>	<u>L<sub>A90</sub></u>	<u>L<sub>Aeq</sub></u>
39	28/11/2024 19:37	0:15:00	68.9	50.0	55.1	50.6	53.2
40	28/11/2024 19:52	0:15:00	64.1	48.9	56.8	49.8	54.1
41	28/11/2024 20:07	0:15:00	75.9	50.0	59.4	51.2	57.1
42	28/11/2024 20:22	0:15:00	74.4	51.7	58.4	53.1	57.4
43	28/11/2024 20:37	0:15:00	70.8	51.9	55.3	52.5	54.9
44	28/11/2024 20:52	0:15:00	76.5	51.9	56.1	52.6	56.2
45	28/11/2024 21:07	0:15:00	70.5	52.1	58.8	52.7	57.4
46	28/11/2024 21:22	0:15:00	64.6	51.5	55.0	52.1	53.6
47	28/11/2024 21:37	0:15:00	62.1	51.8	54.9	52.4	53.6
48	28/11/2024 21:52	0:15:00	62.7	50.9	54.2	51.4	52.8
49	28/11/2024 22:07	0:15:00	65.0	50.9	54.3	51.3	52.9
50	28/11/2024 22:22	0:15:00	65.9	50.8	56.2	51.4	54.4
51	28/11/2024 22:37	0:15:00	58.9	50.7	53.9	51.4	52.5
52	28/11/2024 22:52	0:15:00	59.7	50.8	53.6	51.3	52.3
53	28/11/2024 23:07	0:15:00	59.0	50.2	53.6	51.1	52.2
54	28/11/2024 23:22	0:15:00	60.9	50.4	53.4	50.9	52.1
55	28/11/2024 23:37	0:15:00	60.7	50.3	52.7	50.8	51.7
56	28/11/2024 23:52	0:15:00	66.9	50.0	53.3	50.8	52.3
57	29/11/2024 00:07	0:15:00	62.7	50.5	53.4	51.0	52.4
58	29/11/2024 00:22	0:15:00	72.0	51.6	64.4	52.3	60.5
59	29/11/2024 00:37	0:15:00	71.9	50.2	64.0	50.9	59.2
60	29/11/2024 00:52	0:15:00	59.0	49.9	51.7	50.4	51.1
61	29/11/2024 01:07	0:15:00	59.6	49.6	51.5	50.3	51.1
62	29/11/2024 01:22	0:15:00	60.3	50.0	51.2	50.4	51.0
63	29/11/2024 01:37	0:15:00	57.5	49.3	52.2	50.2	51.3
64	29/11/2024 01:52	0:15:00	69.1	49.9	51.1	50.3	51.5
65	29/11/2024 02:07	0:15:00	55.2	49.1	51.2	49.9	50.7
66	29/11/2024 02:22	0:15:00	58.9	49.9	51.0	50.2	50.8
67	29/11/2024 02:37	0:15:00	62.0	49.7	51.6	50.4	51.3
68	29/11/2024 02:52	0:15:00	60.4	49.6	50.8	50.1	50.7
69	29/11/2024 03:07	0:15:00	60.2	49.7	50.9	50.1	50.7
70	29/11/2024 03:22	0:15:00	58.9	49.8	51.3	50.3	51.0
71	29/11/2024 03:37	0:15:00	58.3	49.1	50.8	49.9	50.6
72	29/11/2024 03:52	0:15:00	58.6	49.9	51.6	50.3	50.9
73	29/11/2024 04:07	0:15:00	57.1	49.4	51.1	50.1	50.7
74	29/11/2024 04:22	0:15:00	57.7	49.8	50.8	50.2	50.6
75	29/11/2024 04:37	0:15:00	55.1	49.8	50.7	50.3	50.5
76	29/11/2024 04:52	0:15:00	59.6	49.5	51.1	50.0	50.8

<u>Ref</u>	<u>Time</u>	<u>Measurment Time</u>	<u>L<sub>Amax</sub></u>	<u>L<sub>Amin</sub></u>	<u>L<sub>A10</sub></u>	<u>L<sub>A90</sub></u>	<u>L<sub>Aeq</sub></u>
77	29/11/2024 05:07	0:15:00	57.3	50.1	51.1	50.5	50.9
78	29/11/2024 05:22	0:15:00	69.1	49.9	51.4	50.5	51.8
79	29/11/2024 05:37	0:15:00	68.9	50.1	52.4	50.5	53.1
80	29/11/2024 05:52	0:15:00	72.5	50.3	52.5	50.7	55.6
81	29/11/2024 06:07	0:15:00	65.9	49.9	52.5	50.5	52.3
82	29/11/2024 06:22	0:15:00	63.3	50.4	52.2	50.9	51.9
83	29/11/2024 06:37	0:15:00	63.1	50.4	53.1	51.0	52.3
84	29/11/2024 06:52	0:15:00	64.8	50.6	53.8	51.0	52.7
85	29/11/2024 07:07	0:15:00	66.2	50.7	53.4	51.2	52.8
86	29/11/2024 07:22	0:15:00	64.6	50.8	54.5	51.4	53.1
87	29/11/2024 07:37	0:15:00	62.8	51.1	54.8	51.6	53.1
88	29/11/2024 07:52	0:15:00	69.1	51.2	55.5	51.7	53.9
89	29/11/2024 08:07	0:15:00	62.7	50.9	54.1	51.5	52.8
90	29/11/2024 08:22	0:15:00	67.3	51.0	54.9	51.5	53.5
91	29/11/2024 08:37	0:15:00	61.9	50.5	54.3	51.5	52.8
92	29/11/2024 08:52	0:15:00	62.7	51.0	54.3	51.4	52.8
93	29/11/2024 09:07	0:15:00	69.5	51.2	56.5	52.0	55.4
94	29/11/2024 09:22	0:15:00	73.6	51.8	60.1	52.8	57.0
95	29/11/2024 09:37	0:15:00	83.7	51.1	61.2	52.5	62.1
96	29/11/2024 09:52	0:01:11	84.4	50.6	73.7	52.3	70.6



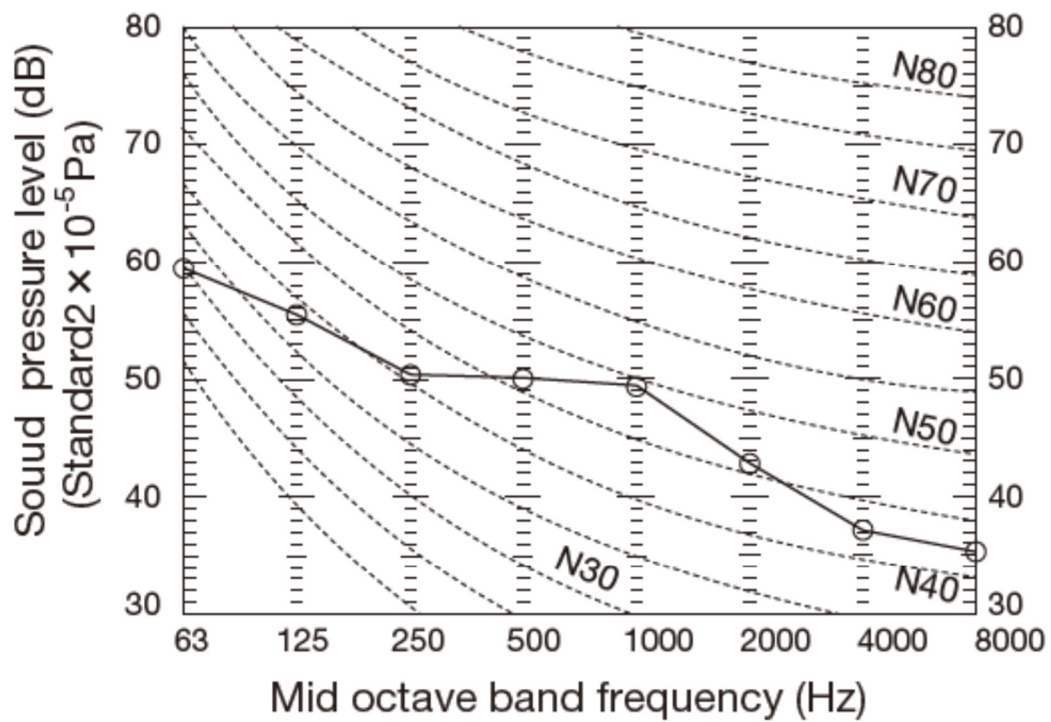
## **Appendix C – Unit Data**

# Models FDC121KXZEN1

## 121KXZES1

### Cooling

Noise level 53 dB (A)



## **Appendix D – Relevant Guidance**

The Department for Communities and Local Government revised the National Planning Policy Framework (NPPF) on 20<sup>th</sup> December 2023 which sets out government's planning policies for England and how these are expected to be applied.

Paragraph 191 of the NPPF contains the following statement:

*“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

- a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason: and*
- c) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*

The Department for Environment Food and Rural Affairs published the Noise Policy Statement for England (NPSE) in March 2010. The explanatory note of NPSE defines the following terms used in the NPPF:

*“NOEL – No Observed Effect Level*

*This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.*

*LOAEL – Lowest Observed Adverse Effect Level*

*This is the level above which adverse effects on health and quality of life can be detected.*

*2.21 Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.*

*SOAEL – Significant Observed Adverse Effect Level*

*This is the level above which significant adverse effects on health and quality of life occur.”*



The NPSE does not define any of the above effect levels numerically.

The NPSE presents the Noise Policy Aims as:

*“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy and sustainable development:*

- avoid significant adverse impacts on health and quality of life;*
- mitigate and minimise adverse impacts on health and quality of life; and*
- where possible, contribute to the improvement of health and quality of life.”*

It can be seen that the first two policy aims are similar to Section 11 of the NPPF, with a third aim that seeks to improve health and quality of life. The NPSE later expands on the Noise Policy Aims, stating:

*2.23 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development (paragraph 1.8).*

*2.24 The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.*

*2.25 This aim (the third aim), seeks where possible, positively to improve health and quality of life through the pro-active management of noise while also taking into account the guiding principles of sustainable development (paragraph 1.8), recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”*

It is clear that noise described in the NPSE as SOAEL that would lead to significant adverse effects should be avoided, although there is no definition as to what constitutes a significant adverse effect. Similarly, noise should be mitigated where it is high enough to lead to adverse effects, termed the LOAEL, but not so high that it leads to significant adverse effects.

BS4142: 2014 ‘Methods for rating and assessing industrial and commercial sound’ is intended to be used to assess whether noise from

factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises is likely to give rise to complaints from people residing in nearby dwellings.

The procedure contained in BS4142 for assessing the likelihood of complaints is to compare the “*specific noise level*”, which is the measured or predicted noise level from the source in question immediately outside the dwelling, with the background noise level. Where the noise contains a “*distinguishable discrete continuous note (whine, hiss, screech, hum etc.) or if there are distinct impulses in the noise (bangs, clicks, clatters or thumps), or if the noise is irregular enough to attract attention*” then a correction of +5dB is added to the specific noise level to obtain the “*rating level*” or  $L_{Ar}$ .

The likelihood of noise provoking complaints is assessed by subtracting the background noise level from the rating noise level. BS4142 states:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on context.

In the context of the NPPF, it is considered that a situation where BS4142 suggests complaints are unlikely would equate to the No Observed Effect Level (NOEL). The situation where BS4142 suggests complaints are likely would equate to the Significant Observed Adverse Effect Level (SOAEL).

The Lowest Observed Adverse Effect Level (LOAEL) has been equated to the situation that BS4142 describes as “marginal” as this is the only intermediate threshold identified in BS4142.

The standard requirements of Camden Council are as follows:

*“Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 ‘Methods for rating and assessing industrial and Camden Local Plan | Appendices 347 commercial sound’ (BS 4142) will be used. For such cases a ‘Rating Level’ of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion.”.*

## **Appendix E – Definitions**

**DECIBEL** - The ratio of sound pressures that we can hear is a ratio of 106. A logarithmic measurement scale is therefore used for convenience. The resulting parameter is called the 'sound pressure level' ( $L_p$ ) and the associated measurement unit is the decibel (dB). As the decibel is a logarithmic ratio, the laws of logarithmic addition and subtraction apply.

The threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain.

A change of 1 dB is only perceptible under controlled conditions.

**dB(A)** - The unit generally used for measuring environmental, traffic or industrial noise is the A-weighted sound pressure level in decibels, denoted dB(A). An 'A'-weighting network can be built into a sound level measuring instrument such that sound levels in dB(A) can be read directly from a meter. The weighting is based on the frequency response of the human ear and has been found to correlate well with human subjective reactions to various sounds. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds to a subjective halving or doubling of the loudness of a sound.

**EQUIVALENT CONTINUOUS SOUND LEVEL (LEQ)** - An index often used for the assessment of overall noise exposure is the equivalent continuous sound level, (LEQ). This is a notional steady level which would, over a given period of time, deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating levels can be described in terms of a single figure level.

The 'A' weighted statistical sound level over a time period,  $T$ , is denoted  $LA_{eq,T}$ .

**AMBIENT NOISE** - The total encompassing sound in a given situation at a given time. Most often described in terms of the index  $LA_{eq,T}$ .

**SPECIFIC NOISE ( $LA_{eq,T}$ )** - The equivalent continuous A-Weighted sound pressure level at the assessment position produced by the specific noise source over a time interval  $T$ .

**STATISTICAL NOISE LEVELS** - For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index which allows for this variation.

- The  $L_{10}$ , the level exceeded for ten per cent of the time period under consideration, has been adopted in this country for the assessment of road traffic noise.
- The  $L_{90}$ , the level exceeded for ninety per cent of the time, has been adopted to represent the background noise level.

'A' weighted statistical noise levels are generally used and are denoted  $LA_{10}$ ,  $LA_{90}$  etc. The reference time period ( $T$ ) is normally included, e.g.  $LA_{10, 15 \text{ mins}}$ .