



ALLAWAY ACOUSTICS
LIMITED

Our Ref: 20680C/HA

Client: Adaptive Cooling

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09 APR 2007

**Project: Berkshire House, 2nd Floor Plant Area,
168-173 High Holborn, London, WC2A**

Existing Environmental Noise Levels

Date of Survey: 27th – 28th February 2007

Prepared By: Chris Williams BSc (Hons) MIOA



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Berkshire House, 168-173 High Holborn Existing Environmental Noise Levels

1. Introduction

- 1.1 Prior to the installation of new building services plant at this site, we have carried out an environmental noise survey to establish the existing minimum background noise levels.
- 1.2 This report describes the survey and details the results obtained.
- 1.3 On the basis of the survey results, a target noise level will be determined for the proposed future plant.

2. Site Description

- 2.1 The site is located at 168-173 High Holborn, London.
- 2.2 5 new items of plant are to be located in an existing 2nd floor external plant area. The new plant is as follows:
 - 2no. Daikin RXYSQ6P
 - 1no. Daikin RXYSQ4P VRVII-S
 - 2no. Daikin RZQ71B
- 2.3 There are approximately twelve other items of plant within this area, including a chiller (which did not run during the survey period).
- 2.4 The plant area is bounded by a screen which runs around the perimeter. Some of the existing plant protrudes over the top of the screen.
- 2.5 The closest affected residences were observed to be a block of flats to the south of the site, at a distance of approximately 10m.
- 2.6 The windows of the flats are on the east and west facades of the building and therefore do not overlook the plant area.



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- 2.7 The 2no. RZQ71B units will run 24-hours a day, the remaining units will only operate during normal office hours (8am-6pm).

3. Survey

- 3.1 The survey was carried out between the hours of 9:20am on Tuesday 27th February and 11:00am on Wednesday 28th February 2007.
- 3.2 The weather during the survey period was cold with occasional winds and light showers. This was deemed not to have any significant effect on the measured noise levels.
- 3.3 To the best of our knowledge there were no roadworks or other unusual influences on traffic flow within the vicinity.
- 3.4 Noise levels were measured for 20-minute periods on a gantry directly over the plant area.
- 3.5 Of the parameters measured, the LA90 gives the closest representation of the background level, as it is the level exceeded for 90% of the measurement period. The LAEQ is an energy-averaged value, and the LA10 is indicative of traffic noise.
- 3.6 In addition to the A-weighted levels referred to above, representative octave-band spectra were also recorded so that the frequency distribution of the noise could be assessed.

4. Instrumentation

- 4.1 All measurements were obtained using a Norsonic NOR131 Sound Level Meter (s/n 1312779). This instrument conforms to IEC60651 and 60804 Type 1 specifications and to IEC61260 and 61672-1:2002 Class 1 specifications.



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- 4.2 Before commencing the readings, the meter was checked for correct calibration with both the internal reference signal and an acoustic calibrator. The calibration was rechecked after the survey with no change noted.
- 4.3 To minimise environmental effects, the microphone was fitted with a windshield at all times.

5. Results

- 5.1 Full details of the results obtained are attached to this Report.
- 5.2 The minimum background (L90) noise levels measured were:
- 62dB(A) during office hours (8am-6pm).
 - 58dB(A) over 24-hours.

6. Discussion

- 6.1 The existing plant dominates the local noise environment and provides a consistent ambient level.
- 6.2 Due to the noise of the existing plant, we would recommend that the new plant be designed to a level which is 5dB(A) lower and will result in an overall increase in the background noise of 1dB(A).
- 6.3 To this end, we would recommend that the following noise limits be imposed and should apply to the façade of the nearest affected building (i.e. 10m away).
- During office hours **57dB(A)**
 - Over 24-hours **53dB(A)**



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- 6.4 Suppression of any tonal components from the plant is also important, as this can increase the potential disturbance.

7. **Assessment**

- 7.1 The following are the sound pressure levels @1m for each of the units:

- Daikin RXYSQ6P – 67dB(A)
- Daikin RXYSQ4P VRVII-S – 64dB(A)
- Daikin RZQ71B – 47dB(A)

- 7.2 Assuming that all of the new plant will run at the same time and at 100% load, the noise levels from the new plant only will be 55dB(A) at 10m. This complies with the daytime noise limit of 57dB(A).

- 7.3 The two units which run for 24 hours a day (assuming 100% load) will result in a noise level of 35dB(A) at 10m. This complies with the 24-hour noise limit.

Chris Williams BSc (Hons) MIOA
06 March 2007



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SCHEDULE OF RESULTS

Date of Survey: 27th – 28th May 2007

RE: Berkshire House, High Holborn

Table 1 - L_{EQ}

Time	Octave Band Centre Frequency, Hz								dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 k	2.0 k	4.0 k	8.0 k	
09:23	72.6	71.3	67.1	64.1	63.8	62.5	58.6	55	69.1
09:43	71.6	69.2	65.7	62.8	61.9	60.4	56.5	50.4	67.2
10:03	72.1	68.7	65.5	63.2	62.2	60.3	56.1	50.8	67.3
10:23	73.3	70.8	66.9	64.1	62.9	60.8	56.9	51.5	68.1
10:43	71.7	69.6	65.5	63	63.8	60	56.1	50.7	67.8
11:03	72.9	71.8	67.4	64.1	63.1	61.3	57.6	53.6	68.5
11:23	72.3	70.4	65.6	65.5	65.3	60.6	56.7	51.8	69.1
11:43	73	71.9	65.8	62.7	62.1	60.9	58.8	55.8	68
12:03	72.8	71.1	66.6	64.8	62.4	60.7	56.7	51.6	68.1
12:23	71.4	68.3	64.3	61.9	60.9	59.4	55.4	50.4	66.3
12:43	71.7	68.6	65.2	64.3	63.6	60.8	56.9	51.8	68.2
13:03	72.3	69.5	64.7	62.6	62.4	60.8	56.3	50.6	67.4
13:23	71.4	69	64.4	63.3	67.3	60.8	56.2	50.1	69.6
13:43	72.4	69.8	65.2	62.4	60.9	59.6	56.1	50.3	66.6
14:03	72.1	71.2	66.3	62.8	63.4	61.1	57.5	54.8	68.2
14:23	71.1	68.3	64.8	62.1	65.5	65.7	56	50.5	70.2
14:43	71.9	69	64.4	61.9	60.8	58.9	54.7	49.5	66
15:03	72.3	68.5	64.2	61.7	60.5	58.8	54.6	48.7	65.8
15:23	72	70.7	65.3	62.3	65.6	65.2	55.2	50.7	70
15:43	71.4	68.6	64.7	61.5	60.3	58.9	55.1	49.9	65.9
16:03	71.4	68.6	64.2	62.1	61.1	60.8	58.1	51.5	67.1
16:23	71.2	69.8	65.6	61.7	60.6	60.7	58.7	54.5	67.2
16:43	71.8	71.8	66.3	62.6	61.6	61.2	58.8	54.1	67.9
17:03	71.6	68.3	64.7	61.9	60.9	60.8	58	51.5	67.1
17:23	70.6	69.5	64.6	61.8	60.3	59.5	56.4	50	66.2
17:43	70.6	67.8	64.1	61.3	60.1	59.2	56.6	51	66
18:03	71.7	70.2	64.8	62	60.8	59.8	56.7	51.5	66.6
18:23	70.6	69.9	65	62.4	60.8	59.3	55.8	50.8	66.5
18:43	71.8	71.7	65.2	62.1	61.1	59.5	57	53.4	66.8
19:03	71.4	69.1	64.4	61.3	60.2	58.9	54.9	49.5	65.8
19:23	71	68.6	63.9	60.7	60.5	60.3	53.8	48.3	66



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Table 1 cont.

19:43	70.4	66.9	63.7	60.2	58.9	57.2	53.4	48.5	64.4
20:03	70	67.8	63.7	60	58.9	56.9	52.7	48.4	64.3
20:23	69.7	66.5	62.7	59.4	58.5	56.7	52.8	48	63.8
20:43	69.3	66.2	62.7	59.3	58.6	56.8	53.6	49.6	64
21:03	69.2	66.6	62.9	59.3	58.2	56.6	53.1	48.6	63.8
21:23	68.8	65.9	63	59.2	57.7	55.7	51.9	47.4	63.2
21:43	68.7	65.7	62.6	59	57.7	56.3	53.5	48.1	63.5
22:03	69.6	65.6	62.9	60.1	64.7	59.2	53.1	47.5	67.4
22:23	69.4	66	62.6	59.2	58.1	55.9	51.2	45	63.3
22:43	69.8	66	63.7	61.6	61.5	58.7	50.9	45.1	65.7
23:03	69.5	66.5	62.6	58.6	57.9	56.1	51.2	46	63.1
23:23	69.1	65.2	61.7	57.9	57.1	55.1	52.4	44.7	62.5
23:43	70.2	66.2	63	59.3	59	56.7	51.2	45.5	63.8
00:03	69.4	65	61.9	57.9	56.6	54.6	49.9	45.1	62
00:23	69.7	66.1	62.8	58.8	58.1	55.3	50.7	45.2	63
00:43	69.4	66.1	62.5	58.7	57.7	56.2	51.7	46	63.2
01:03	70	64.9	62	58.3	60.4	58.2	50.9	45.3	64.5
01:23	69.2	64.7	61.9	58.8	57	55	50.8	45.8	62.5
01:43	68.1	64	61.2	57.1	55.4	53.2	49.1	44.7	61
02:03	68.3	63.3	61.2	58.1	56.4	54.2	50	45.4	61.7
02:23	68	64.1	61.3	57.1	55.4	53.4	49.3	44.9	61
02:43	67.9	64.1	62.3	57.9	56.3	54.5	50	44.9	61.9
03:03	66.2	62.6	60.4	56.2	54.9	53	48.6	44.3	60.4
03:23	67	63.9	60.9	57.9	56.5	54.3	50.6	44.9	61.8
03:43	67.8	62.8	60.5	56.3	54.6	52.4	48	44.3	60.2
04:03	67.7	63.1	61.1	57.2	55.3	52.8	48.7	44.5	60.7
04:23	69.1	64.3	61.8	59.1	57.2	56.3	51.7	46.2	63
04:43	68.3	64.3	62	58	55.8	53.5	49.1	44.8	61.5
05:03	69.2	64.5	61.9	58.4	56.5	54.4	50.8	45.3	62.1
05:23	68.4	63.1	60.7	57.1	58.4	61.7	51	45.2	65.2
05:43	69.7	65.1	63.1	58.8	57.4	55.6	51.2	45.5	62.9
06:03	69.8	65.3	63.3	60.6	58.4	56.3	51.9	46.2	63.8
06:23	71.3	66.4	63.5	60.1	58.8	56.9	52.4	46.3	64.1
06:43	72.5	68.8	65.7	62.1	60.7	58.8	53.7	48.2	66
07:03	72.4	67.9	66.1	62.8	61.1	58.9	53.8	48.2	66.3
07:23	73	68.1	66.1	63.4	62.6	61.3	56.4	49.6	67.8
07:43	76.4	71.1	67.2	64.6	64.7	64.1	58.9	51.9	70
08:03	73.5	71.5	66.8	63.8	62.6	61.5	59.8	58.2	68.8
08:23	74.6	72.8	68.8	65.2	63.6	61.7	57.7	51.6	69.1
08:43	73.6	71.3	67.2	64.8	63	61.5	57.1	50.4	68.5



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Table 1 cont.

09:03	73.2	71.7	67.7	64.7	63.1	61.1	56.5	50.2	68.4
09:23	73.5	70.7	67.2	64	62.4	60.3	55.8	50	67.7
09:43	72.9	68.7	65.2	62.5	62.2	59.7	54.8	47.9	66.8
10:03	72.4	68.7	65.4	62.5	62.7	59.3	54.3	49.9	66.9
10:23	73.4	70.3	65.5	62.9	61.1	59.4	54.6	49.6	66.6
10:43	73.3	71.7	66.6	63.4	62.4	60.6	58	55.5	68
11:03	75.8	70.3	67.8	64.9	64.1	63.3	59.1	51	69.6

Table 2 – L₁₀

Time	Octave Band Centre Frequency, Hz								dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 k	2.0 k	4.0 k	8.0 k	
09:23	75.2	73.5	68.6	65.7	65.1	63.7	60.5	56.8	70.6
09:43	74.3	71.9	67.8	64.9	64.3	62.8	58.9	52.2	69.4
10:03	74.4	71.7	67.2	64.5	64.1	62.5	58.3	51.9	69.2
10:23	75.9	73.2	68.4	65.7	64.8	63.1	58.9	52.8	70
10:43	74.6	72	67.1	64.5	64.3	62.4	58.3	52.4	69.3
11:03	75.8	73.7	68.8	66	65.4	63.6	59.6	54.5	70.5
11:23	75.4	73.2	67.7	65.6	65.2	63.1	58.9	53.3	70.2
11:43	75.8	74.1	67.7	65	64.6	63.4	61.6	59.8	70.3
12:03	75.7	73.5	68.5	65.8	64.8	63.2	59	53	70.1
12:23	74.4	70.8	66.3	64.1	63.5	62	57.9	52.2	68.6
12:43	75	71.1	67.4	65	64.7	62.9	59	53.6	69.9
13:03	75.5	72.8	66.9	64.5	63.8	62.4	58.2	52.4	69.1
13:23	74.7	71.6	66.3	64.5	65.1	62.9	58.7	51.8	69.9
13:43	75.7	72.8	66.6	64.3	63.7	62.2	58.6	52.2	69
14:03	75	74.3	68	64.8	64.5	62.8	60.1	58.4	69.8
14:23	74.3	71.5	66.8	64.3	64.2	62.6	57.7	52.2	69.3
14:43	75.1	71.4	66.6	64	63.1	61.4	56.9	51.5	68.3
15:03	75.3	72	66.2	64	63.2	61.6	57.2	50.6	68.3
15:23	75.1	73.9	67.3	64.5	64.2	62.3	57.2	51.9	69.3
15:43	74.6	71.4	66.7	63.8	63.1	61.8	57.8	52	68.4
16:03	74.4	71.2	66.4	63.9	63.7	63.7	60.9	53.7	69.7
16:23	74.2	73.5	66.9	63.8	63.5	63.7	61.5	58.2	69.8
16:43	74.8	73.6	67.8	64.5	63.9	63.9	61.3	57.2	70
17:03	74.9	70.9	66.5	63.9	63.6	63.6	60.6	53.4	69.6
17:23	73.4	72.8	66.4	63.7	62.9	62.3	59.2	51.7	68.6
17:43	73.4	70.5	66.2	63.2	62.6	61.9	58.9	52.4	68.3
18:03	74.5	73.3	66.9	64.1	63.2	62.1	58.9	53.1	68.8
18:23	73.6	72.8	67	64.3	63.3	61.8	58	52	68.9



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Table 2 cont.

18:43	74.9	74	67	64	63.4	61.9	59.5	57.4	68.9
19:03	74.6	72.4	66.6	63.7	62.9	61.6	56.9	50.9	68.3
19:23	74.2	71.2	66	62.9	62.7	60.8	56.2	49.9	67.7
19:43	73.5	69.6	65	62.4	61.7	60.2	55.9	50.4	66.9
20:03	72.8	70.6	65.5	62.1	61.7	60	55.5	50.6	66.9
20:23	72.5	69.1	64.8	61.6	61.4	59.6	55.2	50.1	66.4
20:43	72.2	69	64.9	61.8	61.7	59.5	56.3	52.5	66.7
21:03	72.2	68.9	65.2	61.7	61.1	59.4	56.6	50.9	66.4
21:23	71.4	68.1	64.9	61.4	60.7	58.5	54	49.6	65.7
21:43	71.7	68.7	64.9	61.5	60.7	58.8	56.1	50.3	65.9
22:03	72.4	68.4	65	62.3	61.6	59.3	55.3	50	66.5
22:23	72.4	68.9	64.8	61.9	61.5	59.1	53.8	46.5	66.3
22:43	72.5	68.9	65.1	62	61.9	59.9	53.6	46.5	66.8
23:03	72.6	68.7	64.8	61.1	61.1	59	53.6	47	65.8
23:23	71.8	67.9	63.8	60.5	60.1	57.8	52	45.8	64.9
23:43	73	68.7	65	61.7	61.3	59	53.2	46.6	66.1
00:03	71.9	67.5	63.8	60	59.2	57.4	52	46.1	64.4
00:23	72.1	68.3	64.3	61.1	60.7	58	52.5	46.3	65.4
00:43	72.2	68.2	64.3	61.1	61	59	54.1	47.3	66
01:03	72.8	67.5	64.3	60.6	59.8	57.9	52.7	46.8	65
01:23	71.5	66.2	63.3	60.4	59.3	57.2	52.5	46.8	64.4
01:43	70.1	65.5	63.4	59.3	57.7	55.6	51	46	63
02:03	70.6	65.3	63.2	59.9	58.8	56.2	51.5	46.5	63.5
02:23	70	65.8	63.3	59	57.6	55.3	50.8	46	62.8
02:43	69.9	65.7	64.2	59.5	58.4	55.9	50.5	45.7	63.3
03:03	68.4	64.5	63.1	58.1	57	54.9	49.8	45.2	61.9
03:23	69.3	65.2	62.4	59.8	58.5	55.9	50.7	45.8	63.4
03:43	69	64.5	62.3	58.2	56.6	54.4	49.5	45.2	61.9
04:03	69.9	64.7	63.3	59.2	57.3	54.9	50.3	45.7	62.4
04:23	70.3	65.5	63.3	59.5	57.4	55.3	50.4	45.8	62.7
04:43	70.5	65.7	63.8	59.7	58	55.7	50.8	45.8	63.2
05:03	71	65.5	63.3	60	58.5	56.5	51.9	46.5	63.8
05:23	70.5	65	62.9	59.4	59.4	57.9	53.1	46.7	64.5
05:43	71.8	67.1	64.9	61	60.4	58.6	53.8	46.9	65.5
06:03	71.2	67.3	65.2	62.6	60.8	58.7	54.4	47.7	66.1
06:23	73.6	68.6	65.5	62.5	61.8	60	55.1	48.3	67
06:43	75.1	70.4	67.7	64.8	63.4	61.3	56.3	51.3	68.6
07:03	74.3	70.1	67.9	65.2	64	61.5	56.2	50.3	68.8
07:23	75.9	70.8	68.3	65.9	65.8	64.9	58.8	51.8	70.9
07:43	77.4	72.3	69.1	66.9	67.9	67.5	61.3	54.2	72.9
08:03	75.5	73.5	68.4	65.5	65	64.1	62.7	62.2	71.1
08:23	76.6	74.1	69	66.4	65.5	64.1	60	53.5	70.8



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Table 2 cont.

08:43	75.8	73.4	68.7	66.3	65.1	63.8	59.6	52.5	70.5
09:03	75.7	73.3	69.2	66.5	65.3	63.5	58.8	52.2	70.5
09:23	76.2	73	68.7	65.7	64.8	63	58.3	51.2	70
09:43	76	71.7	67.3	64.5	63.9	61.9	57	50.3	68.8
10:03	75.4	71.9	67.6	64.9	64.1	62	56.9	51.1	69
10:23	76.5	72.8	67.5	64.6	63.5	62.1	57.3	51.4	68.9
10:43	76.4	74.1	68.5	65.1	64.4	62.7	60.8	59.8	69.8
11:03	77.9	72.1	69	66	65.6	65.1	59.8	52.8	71.1

Table 3 – L₉₀

Time	Octave Band Centre Frequency, Hz								dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 k	2.0 k	4.0 k	8.0 k	
09:23	67.4	65.2	63.5	60.2	58.1	56.3	52.9	47.5	64.3
09:43	66.6	63.9	62.7	59.1	57.1	55.3	51.7	47.3	63.1
10:03	66.2	63.5	61.9	58.4	56.3	54.6	50.8	46	62.2
10:23	68.1	65.7	64.5	61.1	58.8	56.5	52.9	48.3	64.6
10:43	66.3	63.9	61.8	58.3	56.5	54.8	52.2	47.3	62.5
11:03	67.9	66.3	64.6	61	59.2	57	53.3	48.8	64.9
11:23	67	64.4	62.3	59.2	57.4	55.7	52.3	47.8	63.3
11:43	66.7	65	60.9	57.6	56.5	55.7	53.3	48.4	64.2
12:03	66.4	65	62.2	59.2	57.4	55.9	52.2	47.9	63.4
12:23	65.5	64	61.1	58.5	56.5	54.7	51.2	47.1	62.4
12:43	65.6	64.1	61.8	59.2	57	55.4	52.8	47.9	63.2
13:03	65.4	63.1	60.4	57.9	56.1	54.7	52	47	62.1
13:23	65.5	64	60.9	58.3	56.2	54.3	51.1	47.2	62.2
13:43	65.9	64.3	61.1	58.8	56.6	54.9	51.4	47	62.5
14:03	66.3	64.5	61.3	58.5	57	55.2	52.3	47.8	63.4
14:23	65.3	63.7	61	58.3	56.3	54.7	51.4	47.2	62.4
14:43	65.2	63.8	60.9	58.6	56.4	54.2	50.8	46.7	62.2
15:03	65.3	63.4	60.9	58.1	56	53.9	50.4	45.9	61.9
15:23	66.3	64.5	61.5	58.6	56.2	54.1	50.5	46.8	62.2
15:43	65.6	64	61.2	58.3	56.1	54	50.4	46.2	62
16:03	65.3	63.9	61.1	58.8	56.8	55.7	53.1	48.5	63.1
16:23	64.9	63.1	60.3	57	55.5	54.6	52.9	48.4	62.3
16:43	66.9	66.7	64.3	60.2	58.3	56.8	54.2	49.8	64.9
17:03	65.7	63.9	61.5	58.4	56.4	55.4	53.1	48.7	62.9
17:23	65.1	63.7	60.7	58.2	56	54.3	51.8	46.9	62.1
17:43	65.3	63.9	61	58.5	56.2	54.5	51.8	47.8	62.5
18:03	65.5	64.3	61.6	58.7	56.4	55.2	52.5	47.9	62.8
18:23	65.6	64.3	61.1	58.5	56.3	54.8	51.6	47.8	62.5
18:43	66.6	65.2	61.5	58.4	56.9	55.1	52	48	63.3
19:03	65	62.6	60.2	56.8	55	53.2	49.8	46.2	61



ALLAWAY ACOUSTICS
LIMITED

Table 3 cont.

19:23	65.1	62.5	59.7	56	54	52.5	49.1	44.4	60.2
19:43	64.4	62.1	59.5	56.6	54.3	52.4	49	45	60.4
20:03	63.7	62.1	59.5	55.7	53.6	51.8	48.5	45.1	59.8
20:23	64.3	61.8	59.2	55.7	53.5	51.7	49.1	44.7	59.7
20:43	63.1	61.3	59.7	55.6	53.1	51.7	48.2	44.7	60
21:03	63.3	61.3	59.7	55.6	53.3	51.8	48.6	45.4	59.7
21:23	63.3	60.8	59.6	55.7	52.9	51.2	48	43.6	59.5
21:43	63.3	60.6	59.7	55.5	53.1	51.6	48.2	44.6	59.6
22:03	63.5	61	59.9	55.6	53.2	51.2	48	43.3	59.8
22:23	63.4	60.3	59.2	54.6	52	50.2	47.4	42.9	58.5
22:43	63.9	60.7	59.2	55	53	50.9	46.8	42.7	58.9
23:03	63.5	60.8	59	54.7	52.7	50.8	47.2	43.3	58.9
23:23	63.5	60.7	59.1	54.6	52.8	50.8	47	43.1	58.8
23:43	64.9	62	60.2	55.7	53.7	51.5	47.7	43.6	59.7
00:03	64.6	61.4	59.7	54.9	52.7	51	47.4	43.5	59
00:23	64.7	61.4	59.6	55.2	53.1	51.2	47.4	43.3	59.2
00:43	63.5	61	59.1	54.9	52.5	50.4	47.4	43.5	58.7
01:03	63.2	60.5	58.7	54.3	51.9	50.9	47.2	43.3	58.5
01:23	64.5	61.7	60	56.2	53.6	51.3	48.5	44.2	59.8
01:43	62.6	60	58.4	54.1	51.4	49.6	46.8	43.2	58
02:03	63	60.1	58.4	54.2	52	50.4	47.3	43.8	58.3
02:23	62.5	60.2	58.3	54.1	52	50.5	47.3	43.3	58.3
02:43	63.9	61.7	60.3	55.7	53.1	51.1	47.3	43.6	59.6
03:03	62.5	59.5	57.7	53.6	51.5	49.7	46.5	43.1	57.7
03:23	62.3	59.7	57.9	53.6	51.3	49.4	46.4	43.1	57.7
03:43	62.7	59.7	58.3	53.8	51.3	49.2	46.1	43	57.7
04:03	63	60.2	58.4	54	51.3	49.4	46.2	43.1	57.8
04:23	64.2	61.3	59.6	55.4	52.7	50.6	46.9	43.4	59
04:43	63.9	60.3	59	54.9	52.2	49.9	46.3	43	58.4
05:03	63.3	60.8	58.5	54.5	51.8	50.2	47.2	43.5	58.5
05:23	63.2	59.8	58.1	54	51.3	49.6	46.5	43.1	57.8
05:43	64.8	61.9	60.2	55.8	53.4	51.4	47.7	43.7	59.7
06:03	64.4	60.9	59.9	55.3	53	51	47.1	43.3	59.3
06:23	66	62.7	60.7	56.8	54.5	52.4	48.3	43.8	60.5



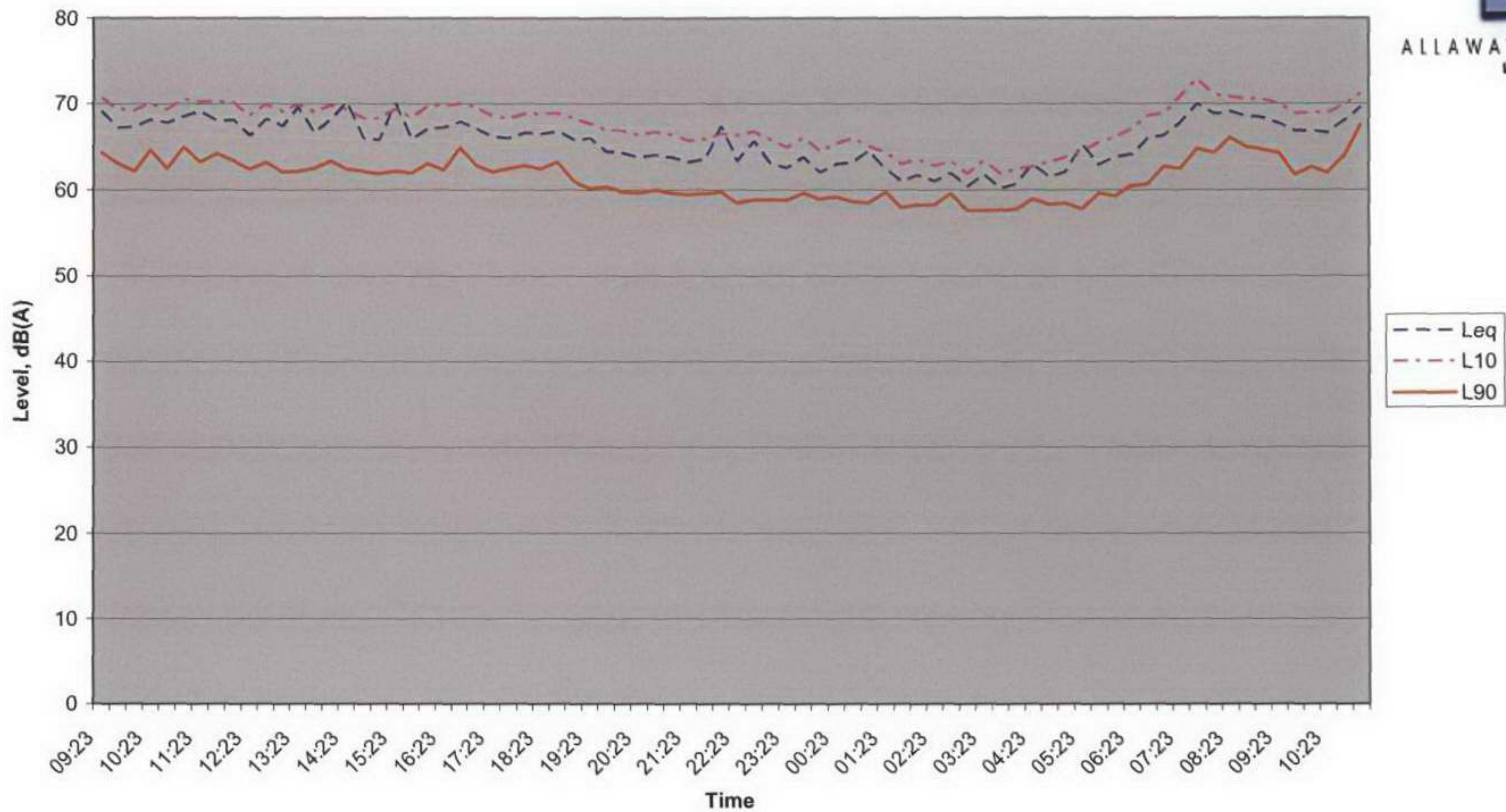
ALLAWAY ACOUSTICS
LIMITED

Table 3 cont.

06:43	66.5	62.9	61.3	56.7	54.7	52.9	48.2	43.9	60.7
07:03	66.7	64.4	63.7	59.8	56.6	54.1	49.6	44.8	62.7
07:23	67	64.1	62.5	59.3	56.8	53.8	49.1	44.3	62.5
07:43	68.4	64.8	63.5	60.6	58.9	58	53.7	48.3	64.8
08:03	68.7	64.8	63.8	60.6	58.4	56.8	52.9	47.3	64.3
08:23	69.5	70.6	65.8	62.7	60.3	57.7	53.5	48.1	66.1
08:43	68.6	65.1	64.1	61.7	59.2	57.8	52.7	46.5	65
09:03	69	65.7	64.3	61.2	59	56.7	52.3	46.8	64.7
09:23	68.6	65.6	64.3	60.7	58.5	56.2	51.9	46.8	64.3
09:43	67.1	63.5	61.6	58.1	56.4	53.5	48.4	43.9	61.7
10:03	66.8	64	62.7	59.2	57.3	54.2	50	46.5	62.7
10:23	66.8	63.5	62.3	58.4	56.4	53.8	49.4	45.4	62
10:43	67.7	65.1	62.9	59.5	57.9	55.7	51.9	47.5	64
11:03	72.6	68	66.2	62.5	61.8	60.7	56.2	48.7	67.5

Notes; All readings sound pressure level dB re: $2 \times 10^{-5} \text{ Nm}^{-2}$.

Environmental Noise Levels



ALLAWAY ACOUSTICS
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ACOUSTIC TERMINOLOGY

DECIBEL (dB) - The Decibel is a logarithmic unit used to express ratios of quantities such as sound pressure level or sound power. The logarithmic nature of the unit means that decibel values cannot be added or subtracted in the usual way.

dba or LA - The A weighted scale is used to take account of the fact that the human ear is more sensitive to sounds at high frequencies than sounds at low frequencies. "A" weighted sound pressure level (sound level) measurements correspond roughly to the subjective impression of loudness of the average listener.

LAEQ - The LAEQ index is used as a method of averaging temporally or spatially varying sound levels. At a given position, it may be defined as the notional sound level which contains the same amount of acoustical energy as the actual (time varying) sound level over the same measurement period. The LAEQ is gaining acceptance for many types of noise assessment, and is now referred to within BS4142 (used to assess the likelihood of justifiable environmental noise complaints), and also within the Noise at Work Regulations 1989.

LAMAX - The LAMAX is the maximum sound pressure level (sound level) recorded during any given measurement period.

LA10 - The LA10 is the sound level that is exceeded for 10% of the measurement period and is commonly used to describe road traffic noise, since it has been found to correlate reasonably well with complaint thresholds.

LA90 - The LA90 is the sound level that is exceeded for 90% of the measurements period, and is generally considered to describe the background noise, since it inherently excludes the sounds of transient events.