KINGSWAY HALL HOTEL

EXTERNAL PLANT NOISE ASSESSMENT

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Revision 01

CONTENTS

1 INTRODUCTION

1.1 Proposals are in place to refurbish the Kingsway Hall Hotel, Great Queen Street, London. As part of these proposals it is intended that the existing air conditioning and ventilation systems, which have been in operation at the hotel for many years, are replaced. This new replacement plant is to be the subject of a planning application to London Borough of Camden.

1.2 As the new replacement plant has the potential to disturb neighbours who overlook the rear of the hotel, a noise level survey has been undertaken so that suitable noise emission limits for any plant can be determined.

1.3 Chapter 2 of this report considers the guidance on noise emission relevant to the project. The external noise survey required for the assessment is presented in Chapter 3, whilst the assessment to establish noise emission limits is presented in Chapter 4.

1.4 Measurement data from the noise survey are presented in Appendix A. A completed copy of London Borough of Camden's *Acoustic Report Checklist for Planninng Applications* is included in Appendix B.

2 CRITERIA & GUIDANCE

2.1 LOCAL AUTHORITY REQUIREMENTS

2.1.1 The London Borough of Camden's policy for addressing noise and vibration when considering planning applications has recently been revised and is now set down in *Camden Local Plan Adoption Version : June 2017, Appendix 3 : Noise thresholds.* The guidance provided within Appendix 3 of that document relevant to the proposed application here states:

The significance of noise impact varies dependent on the different noise sources, receptors and times of operation presented for consideration within a planning application. Therefore, Camden's thresholds for noise and vibration evaluate noise impact in terms of various 'effect levels' described in the National Planning Policy Framework and Planning Practice Guidance:

- *NOEL – No Observed Effect Level*
- *LOAEL – Lowest Observed Adverse Effect Level*
- *SOAEL – Significant Observed Adverse Effect Level*

Three basic design criteria have been set for proposed developments, these being aimed at guiding applicants as to the degree of detailed considerationneeded to be given to noise in any planning application. The design criteria outlined below are defined in the corresponding noise tables. The values will vary depending on the context, type of noise and sensitivity of the receptor:

- *Green – where noise is considered to be at an acceptable level.*
- *Amber – where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development.*
- *Red – where noise is observed to have a significant adverse effect.*

2.1.2 The guidance goes on to provide objective limits for plant and equipment of the kind proposed here for the Kingsway Hall hotel. These are set down in Table C of Appendix 3.

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing Noise sensitive receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings**	Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)	Day	'Rating level' 10dB* below background	'Rating level' between 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings**	Outside bedroom window (façade)	Night	'Rating level' 10dB* below background and no events exceeding 57dBL_{Amax}	'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L_{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dBL_{Amax}

*10dB should be increased to 15dB if the noise contains audible tonal elements (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.

**levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.

3 EXTERNAL NOISE SURVEY

3.1 INTRODUCTION

3.1.1 To establish the existing background noise levels at the rear of the hotel, an external noise survey was undertaken at a location to the rear of the property. The data from this survey have been used to establish a noise emission limit for the new or replacement plant associated with the hotel refurbishment.

3.2 MEASUREMENT METHODOLOGY

3.2.1 Continuous, unattended noise level measurements were conducted at a single location on the existing 6th floor roof to the rear of the hotel. The measurement microphone was mounted about 1.5m above the terrace and about 3m from the nearest wall. The results are presented as free field values. The measurement location was selected so as to be as screened as possible from noise from existing plant on the hotel.

3.2.2 The measurement location is shown superimposed upon an aerial photograph of the rear of the hotel in Figure 3.1.

3.2.3 The measurements were undertaken between 09:40 Monday 16th November and 09:00 Tuesday 17th November 2015. Statistical and spectral data were recorded continuously throughout the measurement period in 10-minute samples.

3.2.4 The following equipment was used for the noise survey:

Equipment	Type	Serial No.
Norsonic 131	Environmental Noise Meter	1312730
Norsonic 1218	Microphone protection system	n/a
Bruel & Kjaer 4231	Calibrator	2291098

Table 3.1: Noise measurement equipment

3.2.5 The calibration of the sound level meter and associated microphone were checked prior to and on completion of the measurement period in accordance with recommended practice. No significant drift in calibration occurred during the measurement period. The accuracy of the calibrator can be traced to National Physical Laboratory Standards.

3.2.6 The weather conditions throughout the measurement period were wet with a gentle to moderate breeze. Given the generally enclosed nature of the rear of the hotel, the weather conditions are not considered to have had a detrimental influence on the measurement results.

Image courtesy of Google Maps

Figure 3.1: Rear of hotel showing measurement location

3.3 MEASUREMENT RESULTS

3.3.1 The measurement results are presented in Appendix A. A graph showing the time history for the measurements is presented in Figure 3.2.

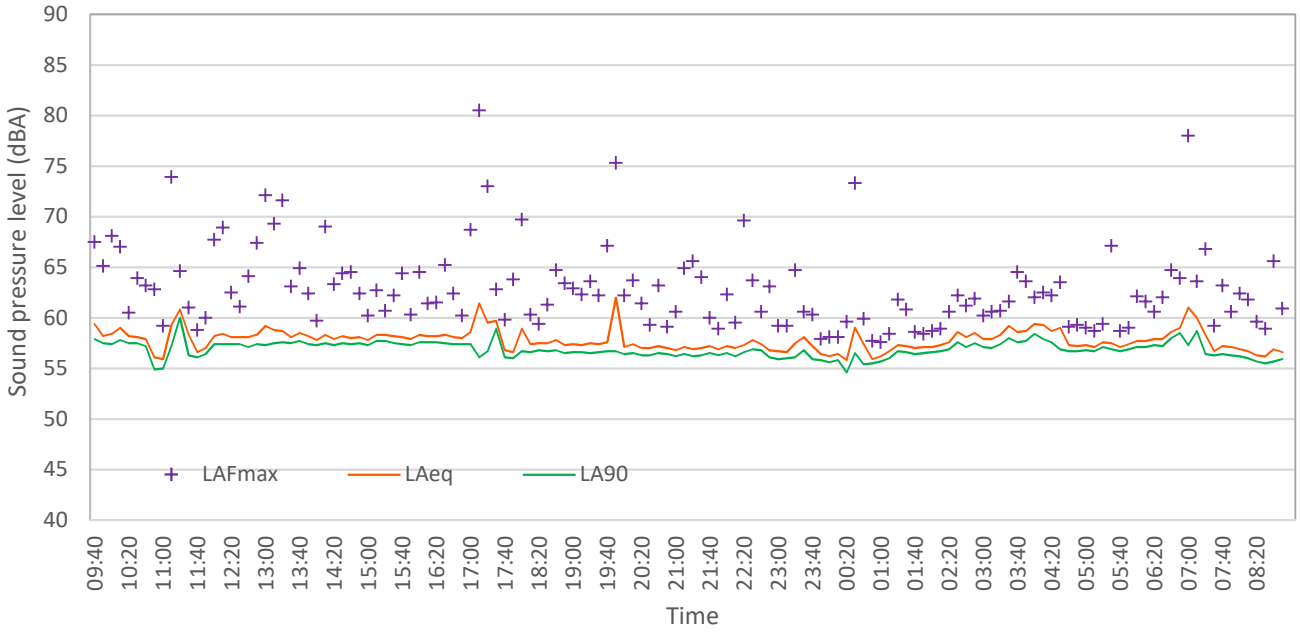

Figure 3.2: External noise levels, 16-17 November 2015

3.3.2 Following a review of the survey data, the daytime and night-time average ambient levels were 58dB $L_{Aeq,16hr}$ and 58dB $L_{Aeq,8hr}$ respectively. It can also be seen from Figure 3.2 that background noise levels vary very little day or night and are always between 55-60dB $L_{A90,}$ throughout the whole survey period. This is perhaps not surprising given the dominant source of noise in this area is building services plant associated with the hotel and the neighbouring premises.

3.3.3 Given these consistent noise levels, day and night it is considered that the lowest background noise level for the purposes of this assessment is 57dB L_{A90}.

3.4 COMMENTARY

3.4.1 Noise levels at the rear of the hotel are dominated by building services noise from plant associated both with the hotel and with neighbouring properties. This is consistent throughout the day and night.

4 NOISE EMISSION

4.1 CRITERIA

4.1.1 Based on the London Borough of Camden's guidance set down in Section 2 of this report, normally to achieve a LOAEL effect level at a neighbouring residential window would require noise emission from plant to be controlled to 10dB below the background noise level. If this plant noise includes some acoustic feature such as a distinctive tone or impulsive character, then the limit is made more onerous and reduced to 15dB below the underlying background noise level.

4.1.2 It is important to appreciate however that these limits, as presented in Table C of the Local Plan, are applicable when the noise sensitive receptors are dwellings. The footnotes to Table C make it clear the *"levels given are for dwellings, however, levels are use-specific and different levels will apply dependent on the use of the premises.*" Consequently, it is reasonable to review the objective standards in light of the particular circumstances at the Kingsway Hall Hotel.

4.1.3 The new plant proposed as part of this application is to replace and supplement the existing plant serving the hotel. The existing acoustic environment at the rear of the hotel where this will be located, and at the facades of the neighbouring properties that overlook the plant, is already dominated by building services noise as evidenced by the data from the noise survey. Importantly, none of the properties which overlook the rear of the hotel are residential in nature. It is therefore considered reasonable to assess what is acceptable by way of noise emission separately from the objective standards prescribed in Table C.

4.1.4 For example, if it is assumed that all of this building services noise is associated with the existing plant serving the hotel, it would be reasonable to select a noise limit the same as the existing background noise level, thus maintaining the status quo. If it is assumed that half of the noise is associated with the hotel and half is from plant serving other neighbouring buildings, then a limit 3dB below the existing background noise level would result in no change to the current acoustic environment.

4.1.5 If a level 5dB below the existing noise level is selected this is likely to result in a reduction in overall noise levels at the rear of the hotel. This approach supports the principle set out in Para 109 of the National Planning Policy Framework which requires "new and existing development from contributing to... unacceptable levels of... noise pollution."

4.1.6 A noise emission limit 5dB below the prevailing lowest background noise level has therefore been selected.

4.2 BUILDING SERVICES EQUIPMENT

4.2.1 The noise generating plant associated with this refurbishment includes heat rejection plant and ventilation plant. The precise selections are not known at this stage as these will be subject to final selection by the design and build contractor. The extent of building services plant is not expected to significantly increase as the building already utilises air conditioning and ventilation and will still continue to function as a hotel.

4.2.2 More specific information about the current plant proposals and locations are provided elsewhere in documents accompanying the planning application.

4.3 BACKGROUND NOISE LEVELS

4.3.1. Given the consistent nature and character of the prevailing background noise, the background noise level, as reported in Section 3.3.2 is considered to be suitable for setting a noise emission limit for the building services plant serving the hotel and this has been taken to be 57dB L_{A90}.

4.4 NEAREST NOISE SENSITIVE NEIGHBOURS

4.4.1 The nearest neighbouring façades to the new plant enclosure are the numerous neighbours surrounding the rear of the hotel generally between 10 and 15m from the rear roofs of the hotel.

4.5 NOISE EMISSION LIMIT

4.5.1 Based upon a noise emission limit of 5dB below the the underlying background noise level, which has been taken to be 57dB L_{A90}, a noise emission limit of 52dB L_{pA} has been determined.

4.5.2 This limit assumes that the proposed building services plant does not have any particular acoustic feature or distinctive character. If the final plant selections are to possess any acoustic features then this limit will need to be made 5dB more onerous ie 47dB L_{pA}.

4.5.3 This limit is to apply at 1m from the window of any neighbouring property when all hotel plant is operating simultaneously. Once specific plant selections are known then the achievement of this limit can be confirmed.

5 CONCLUSIONS

5.1 A noise impact assessment has been undertaken for the proposed replacement of external plant associated with the refurbishment of the Kingsway Hall Hotel. Based on a noise survey undertaken to the rear of the site where this plant is to be located, it is clear the acoustic environment is already dominated by noise from building services plant associated both with the hotel and other neighbouring properties.

5.2 A noise emission limit of 52dB L_{pA} at 1m from the window of any neighbouring noise sensitive property when all plant is operating simultaneously has been determined as the basis for plant selection following consideration of the survey data. The adoption of this limit is considered to be in line with the guidance provided by London Borough of Camden for noise emission of this nature from commercial properties.

5.3 It is concluded that achievement of this limit should enable compliance with any reasonable Condition to Planning imposed by the Authority. There is no reason to presume, given the current and intended usage of the hotel, that this limit could not be achieved once actual plant selections have been finalised.

APPENDIX A - NOISE LEVEL DATA

The measured noise level data are presented in the tables in this appendix.

All values are sound pressure levels in dB re $2x10^{-5}$Pa.

Time	L_{Amax}	L_{Aeq}	L_{A10}	L_{A90}	L_{Amin}
09:40 - 09:50	67.5	59.4	60.7	57.9	56.4
09:50 - 10:00	65.1	58.2	58.9	57.5	56.6
10:00 - 10:10	68.1	58.4	59.1	57.4	56.3
10:10 - 10:20	67.0	59.0	59.8	57.8	56.6
10:20 - 10:30	60.5	58.2	59.0	57.5	56.4
10:30 - 10:40	63.9	58.1	58.8	57.5	56.5
10:40 - 10:50	63.2	57.9	58.5	57.2	56.3
10:50 - 11:00	62.8	56.1	57.4	54.9	53.7
11:00 - 11:10	59.2	55.9	57.0	55.0	54.1
11:10 - 11:20	73.9	59.3	60.8	57.2	56.0
11:20 - 11:30	64.6	60.8	61.6	60.0	58.7
11:30 - 11:40	61.0	58.3	59.8	56.3	55.6
11:40 - 11:50	58.8	56.6	57.0	56.1	55.5
11:50 - 12:00	60.0	57.0	57.7	56.4	55.7
12:00 - 12:10	67.7	58.2	58.8	57.4	56.5
12:10 - 12:20	68.9	58.4	59.0	57.4	56.3
12:20 - 12:30	62.5	58.1	58.8	57.4	56.5
12:30 - 12:40	61.1	58.1	58.8	57.4	56.4
12:40 - 12:50	64.1	58.1	59.0	57.1	56.1
12:50 - 13:00	67.4	58.3	59.1	57.4	56.6
13:00 - 13:10	72.1	59.2	61.0	57.3	56.4
13:10 - 13:20	69.3	58.8	59.6	57.5	56.6
13:20 - 13:30	71.6	58.7	58.9	57.6	56.8
13:30 - 13:40	63.1	58.1	58.6	57.5	56.4
13:40 - 13:50	64.9	58.5	59.1	57.7	56.7
13:50 - 14:00	62.4	58.2	59.0	57.4	56.3
14:00 - 14:10	59.7	57.8	58.3	57.3	56.6
14:10 - 14:20	69.0	58.3	58.9	57.5	56.7
14:20 - 14:30	63.3	57.9	58.5	57.3	56.2
14:30 - 14:40	64.4	58.2	58.9	57.5	56.7
14:40 - 14:50	64.5	58.0	58.6	57.4	56.4
14:50 - 15:00	62.4	58.1	58.8	57.5	56.6
15:00 - 15:10	60.2	57.8	58.3	57.3	56.5
15:10 - 15:20	62.7	58.3	58.9	57.7	56.6
15:20 - 15:30	60.7	58.3	59.0	57.7	56.6
15:30 - 15:40	62.2	58.2	58.8	57.5	56.6
15:40 - 15:50	64.4	58.1	58.8	57.4	56.5
15:50 - 16:00	60.3	57.9	58.5	57.3	56.3
16:00 - 16:10	64.5	58.3	59.0	57.6	56.5
16:10 - 16:20	61.4	58.2	58.8	57.6	56.5
16:20 - 16:30	61.5	58.2	58.7	57.6	56.6
16:30 - 16:40	65.2	58.3	58.9	57.5	56.7
16:40 - 16:50	62.4	58.1	58.6	57.4	56.7
16:50 - 17:00	60.2	58.0	58.5	57.4	56.6
17:00 - 17:10	68.7	58.6	59.8	57.4	56.3
17:10 - 17:20	80.5	61.4	63.4	56.1	54.5
17:20 - 17:30	73.0	59.5	60.2	56.7	55.3
17:30 - 17:40	62.8	59.7	60.8	58.9	58.0
17:40 - 17:50	59.8	56.8	57.4	56.1	55.3
17:50 - 18:00	63.8	56.6	57.1	56.0	55.2
18:00 - 18:10	69.7	58.9	60.9	56.7	55.3
18:10 - 18:20	60.3	57.4	58.2	56.6	55.5
18:20 - 18:30	59.4	57.5	58.1	56.8	55.5
18:30 - 18:40	61.3	57.5	58.2	56.7	55.7
18:40 - 18:50	64.7	57.8	58.9	56.8	55.4
18:50 –19:00	63.4	57.3	57.9	56.5	55.3
19:00 - 19:10	62.9	57.4	58.0	56.6	55.4
19:10 - 19:20	62.3	57.3	57.9	56.6	55.7
19:20 - 19:30	63.6	57.5	58.2	56.5	55.3
19:30 - 19:40	62.2	57.4	58.1	56.6	55.4
19:40 - 19:50	67.1	57.6	58.3	56.7	55.6
19:50 - 20:00	75.3	62.0	66.0	56.7	55.7
20:00 - 20:10	62.2	57.1	57.7	56.4	55.5
20:10 - 20:20	63.7	57.4	58.1	56.5	55.6
20:20 - 20:30	61.4	57.0	57.7	56.3	55.5
20:30 - 20:40	59.3	57.0	57.7	56.3	55.2
20:40 - 20:50	63.2	57.2	57.8	56.5	55.5
20:50 - 21:00	59.1	57.0	57.6	56.4	55.5
21:00 - 21:10	60.6	56.8	57.5	56.2	55.4
21:10 - 21:20	64.9	57.1	57.7	56.4	55.5
21:20 - 21:30	65.6	56.9	57.4	56.2	55.6
21:30 - 21:40	64.0	57.0	57.6	56.3	55.2
21:40 - 21:50	60.0	57.2	57.8	56.5	55.1
21:50 - 22:00	58.9	56.9	57.5	56.3	55.0
22:00 - 22:10	62.3	57.2	57.8	56.5	55.5
22:10 - 22:20	59.5	57.0	57.8	56.2	55.1
22:20 - 22:30	69.6	57.3	57.8	56.6	55.4
22:30 - 22:40	63.7	57.8	58.6	56.9	56.0
22:40 - 22:50	60.6	57.4	58.0	56.8	55.6
22:50 - 23:00	63.1	56.8	57.6	56.1	55.1
23:00 - 23:10	59.2	56.7	57.3	55.9	55.2
23:10 - 23:20	59.2	56.6	57.2	56.0	55.1
23:20 - 23:30	64.7	57.5	58.4	56.1	55.1
23:30 - 23:40	60.6	58.1	59.2	56.8	55.6
23:40 - 23:50	60.3	57.2	58.6	55.9	55.0
23:50 - 00:00	57.9	56.4	56.9	55.8	54.7
00:00 - 00:10	58.1	56.2	56.8	55.6	54.8
00:10 - 00:20	58.1	56.4	57.0	55.8	54.5
00:20 - 00:30	59.6	55.8	56.8	54.6	52.7
00:30 - 00:40	73.3	59.0	60.0	56.5	55.7
00:40 - 00:50	59.9	57.4	58.9	55.4	54.5
00:50 - 01:00	57.7	55.9	56.3	55.5	55.0
01:00 - 01:10	57.6	56.2	56.6	55.7	54.8
01:10 - 01:20	58.4	56.7	57.4	56.0	55.2
01:20 - 01:30	61.8	57.3	57.8	56.7	55.9
01:30 - 01:40	60.8	57.2	57.7	56.6	55.7
01:40 - 01:50	58.6	57.0	57.5	56.4	55.6
01:50 - 02:00	58.4	57.1	57.7	56.5	55.5
02:00 - 02:10	58.7	57.1	57.6	56.6	55.8
02:10 - 02:20	58.9	57.3	57.8	56.7	55.6
02:20 - 02:30	60.6	57.6	58.3	56.9	55.7
02:30 - 02:40	62.2	58.6	59.5	57.6	56.3
02:40 - 02:50	61.2	58.1	59.2	57.1	55.8
02:50 - 03:00	61.9	58.5	59.4	57.5	56.2
03:00 - 03:10	60.2	57.9	58.7	57.1	55.9
03:10 - 03:20	60.6	57.9	58.7	57.0	55.9
03:20 - 03:30	60.7	58.3	59.2	57.4	56.1
03:30 - 03:40	61.6	59.2	60.3	58.0	56.4
03:40 - 03:50	64.5	58.6	59.4	57.6	56.3
03:50 - 04:00	63.6	58.7	59.6	57.7	56.3
04:00 - 04:10	62.0	59.4	60.3	58.4	56.8
04:10 - 04:20	62.5	59.3	60.6	57.9	56.4
04:20 - 04:30	62.2	58.7	59.8	57.6	56.3
04:30 - 04:40	63.5	59.0	60.9	56.9	55.9
04:40 - 04:50	59.1	57.3	57.8	56.7	55.9
04:50 - 05:00	59.3	57.2	57.7	56.7	55.9
05:00 - 05:10	59.0	57.3	57.8	56.8	55.9
05:10 - 05:20	58.7	57.1	57.6	56.7	55.7
05:20 - 05:30	59.4	57.6	58.2	57.1	56.3
05:30 - 05:40	67.1	57.5	58.1	56.9	56.2
05:40 - 05:50	58.7	57.1	57.6	56.7	55.9
05:50 –06:00	59.0	57.4	57.9	56.9	56.0
06:00 - 06:10	62.1	57.7	58.2	57.1	56.4
06:10 - 06:20	61.6	57.7	58.3	57.1	56.3
06:20 - 06:30	60.6	57.9	58.5	57.3	56.6
06:30 - 06:40	62.0	57.9	58.6	57.2	56.3
06:40 - 06:50	64.7	58.6	59.2	58.0	56.9
06:50 - 07:00	63.9	59.0	59.5	58.5	57.4
07:00 - 07:10	78.0	61.0	60.0	57.3	56.2
07:10 - 07:20	63.6	60.0	60.7	58.7	56.8
07:20 - 07:30	66.8	58.3	59.6	56.4	55.4
07:30 - 07:40	59.2	56.7	57.2	56.3	55.6
07:40 - 07:50	63.2	57.2	58.0	56.4	55.5
07:50 - 08:00	60.6	57.1	58.0	56.3	55.3
08:00 - 08:10	62.4	56.9	57.5	56.2	55.3
08:10 - 08:20	61.8	56.7	57.3	56.0	55.0
08:20 - 08:30	59.6	56.3	57.0	55.7	54.9
08:30 - 08:40	58.9	56.2	56.8	55.5	54.5
08:40 - 08:50	65.6	56.9	57.5	55.7	54.4
08:50 - 09:00	60.9	56.6	57.3	55.9	54.9

Table A1: Statistical data, 16-17 November 2015

	Frequency								Frequency							
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
09:40 - 09:50	65.3	61.4	59.1	57.4	53.2	51.8	45.3	31.6	62.3	59.9	57.8	55.8	52.3	47.0	42.8	28.0
09:50 - 10:00	63.4	61.2	58.7	56.8	52.7	47.6	44.1	30.4	61.5	59.7	57.7	55.4	52.0	46.7	42.1	27.9
10:00 - 10:10	65.3	61.3	58.7	56.9	53.3	47.3	44.2	30.3	62.1	59.9	57.5	54.9	52.1	46.3	42.2	28.0
10:10 - 10:20	64.1	61.0	58.7	58.0	53.5	47.9	43.9	29.9	61.6	59.5	57.6	55.6	52.2	46.5	42.1	27.9
10:20 - 10:30	63.4	61.0	58.7	56.8	52.7	47.4	43.9	29.6	61.5	59.6	57.7	55.1	52.0	46.5	42.1	27.8
10:30 - 10:40	64.8	61.2	58.6	56.1	52.9	48.2	44.1	30.2	62.1	59.9	57.7	54.8	52.1	47.2	42.2	28.0
10:40 - 10:50	64.7	61.4	58.5	56.0	52.6	47.3	43.8	30.2	62.1	60.1	57.6	54.8	51.8	46.5	42.0	27.7
10:50 - 11:00	63.5	61.1	57.2	54.1	50.4	45.4	43.8	29.6	61.6	59.5	55.9	52.2	48.8	44.2	41.9	27.1
11:00 - 11:10	65.4	60.9	57.2	53.7	50.1	45.2	43.6	29.6	62.6	59.5	55.9	52.6	48.9	44.2	41.7	27.3
11:10 - 11:20	65.7	61.7	60.6	57.1	54.5	48.1	44.0	30.4	63.6	60.2	57.8	54.7	52.0	46.2	42.2	27.9
11:20 - 11:30	65.8	62.4	62.6	58.8	55.4	50.0	44.5	30.7	63.6	61.1	61.7	57.2	54.4	48.4	42.7	29.1
11:30 - 11:40	63.3	61.4	60.5	55.8	52.9	47.2	43.9	30.2	61.5	59.9	57.4	53.9	51.0	45.3	42.0	27.6
11:40 - 11:50	63.4	60.8	58.0	54.4	51.3	45.7	43.5	29.7	61.4	59.4	57.0	53.7	50.8	45.1	41.4	27.4
11:50 - 12:00	63.0	60.8	58.1	55.0	51.8	46.4	43.7	29.5	61.2	59.4	57.1	54.1	51.0	45.5	41.7	27.4
12:00 - 12:10	65.4	61.3	58.6	56.3	53.1	47.6	43.9	29.9	62.1	59.9	57.5	54.9	52.1	46.5	41.9	27.6
12:10 - 12:20	63.4	61.3	58.9	56.7	53.3	47.6	43.8	29.6	61.4	59.7	57.6	55.1	52.0	46.6	41.8	27.6
12:20 - 12:30	63.2	61.0	58.7	56.3	52.8	47.5	43.7	29.7	61.3	59.6	57.7	55.0	52.1	46.6	41.8	27.6
12:30 - 12:40	65.1	61.2	58.7	56.3	52.9	47.2	43.7	29.9	62.2	59.8	57.8	54.9	52.1	46.5	41.7	27.6
12:40 - 12:50	63.6	61.2	58.7	56.3	52.9	47.3	43.5	29.6	61.4	59.6	57.5	54.7	51.9	46.2	41.6	26.9
12:50 - 13:00	63.4	61.3	59.0	56.6	53.1	47.8	43.7	29.7	61.6	59.8	57.8	55.0	52.0	46.6	41.7	27.6
13:00 - 13:10	64.2	62.1	60.1	57.6	54.0	48.4	44.2	30.4	61.6	59.9	58.0	55.0	51.9	46.5	41.9	27.7
13:10 - 13:20	65.1	61.4	59.3	57.4	53.3	47.7	43.8	30.6	62.2	60.0	58.0	55.1	52.1	46.6	41.9	27.7
13:20 - 13:30	63.7	61.6	59.5	56.7	53.8	47.8	43.7	30.3	61.5	59.9	58.1	55.0	52.3	46.7	41.7	27.5
13:30 - 13:40	63.2	61.1	58.8	56.2	53.0	47.4	43.7	30.0	61.4	59.8	57.9	55.0	52.2	46.6	41.7	27.3
13:40 - 13:50	65.5	61.7	59.3	56.8	53.0	47.6	44.0	30.3	62.5	60.2	58.0	55.3	52.2	46.7	41.7	27.4
13:50 - 14:00	63.2	61.1	58.7	56.9	52.7	47.1	43.5	29.7	61.4	59.7	57.7	55.4	52.0	46.3	41.5	27.2
14:00 - 14:10	63.2	61.2	58.8	55.9	52.6	47.3	43.6	29.3	61.4	59.8	57.9	54.9	51.9	46.6	41.6	27.4
14:10 - 14:20	65.0	61.7	59.0	56.2	53.1	48.3	43.6	29.5	61.9	60.1	58.0	55.0	52.2	46.5	41.5	27.1
14:20 - 14:30	63.1	61.3	58.8	56.1	52.8	47.2	43.7	29.2	61.3	59.9	57.8	55.0	52.1	46.5	41.7	27.1
14:30 - 14:40	63.5	61.2	58.8	56.6	53.0	47.3	43.8	29.6	61.5	59.9	57.8	55.0	52.2	46.6	41.7	27.3
14:40 - 14:50	65.1	61.3	58.7	56.0	52.9	47.2	43.6	29.1	61.9	60.0	57.7	55.0	52.1	46.4	41.4	27.1
14:50 - 15:00	63.7	61.3	58.7	56.2	53.0	47.7	43.8	29.6	61.6	59.9	57.8	55.0	52.2	46.6	41.6	27.2
15:00 - 15:10	63.1	61.2	58.6	55.9	52.7	47.1	43.5	29.5	61.3	59.9	57.7	54.9	52.0	46.5	41.6	27.3
15:10 - 15:20	64.9	61.5	59.0	56.8	52.9	47.3	43.7	29.6	61.9	60.1	58.1	55.4	52.2	46.7	41.7	27.3
15:20 - 15:30	63.4	61.3	58.8	56.7	53.3	47.3	43.6	28.9	61.4	60.0	57.8	55.4	52.5	46.6	41.7	27.1
15:30 - 15:40	63.1	61.1	58.7	56.6	53.1	47.2	43.5	28.9	61.3	59.8	57.7	55.3	52.1	46.5	41.5	26.9
15:40 - 15:50	65.2	61.5	58.9	56.5	52.8	47.0	43.1	28.7	62.1	60.1	57.9	55.1	52.0	46.3	41.1	26.7
15:50 - 16:00	63.0	61.1	58.6	56.2	52.7	47.0	43.1	28.5	61.2	59.8	57.7	55.1	52.0	46.3	41.2	26.8
16:00 - 16:10	63.2	62.9	58.9	56.5	53.3	47.1	43.2	28.2	61.4	60.1	57.8	55.3	52.3	46.3	41.1	26.8
16:10 - 16:20	65.1	61.5	58.5	56.9	53.0	46.9	43.2	29.0	62.2	60.2	57.5	55.5	52.2	46.1	41.1	26.7
16:20 - 16:30	63.1	61.2	58.4	56.9	53.0	47.0	43.3	28.8	61.2	59.8	57.5	55.8	52.1	46.1	41.2	26.7
16:30 - 16:40	63.5	61.5	58.7	56.8	53.1	47.1	43.4	29.2	61.4	60.0	57.7	55.4	52.3	46.2	41.3	26.9
16:40 - 16:50	65.0	61.6	59.0	56.0	53.1	47.2	43.8	29.8	62.1	60.2	58.0	55.0	52.1	46.2	41.4	27.2
16:50 - 17:00	63.5	61.6	58.7	56.1	52.9	46.9	43.5	29.0	61.5	60.2	57.7	55.0	52.1	46.3	41.5	27.1
17:00 - 17:10	63.3	62.1	59.2	57.1	53.7	47.3	43.6	29.1	61.4	60.1	57.7	55.2	52.1	46.1	41.4	26.9
17:10 - 17:20	66.5	65.7	63.7	60.9	55.0	47.5	43.2	28.7	62.3	60.4	57.2	53.8	50.3	44.8	41.1	26.8
17:20 - 17:30	64.0	62.1	61.4	57.8	53.8	46.9	43.2	29.1	61.9	60.5	57.7	54.8	51.0	45.0	41.1	27.0
17:30 - 17:40	65.0	62.6	60.6	57.8	55.2	48.6	43.9	30.0	62.4	61.3	59.6	56.4	53.9	47.9	41.9	28.2
17:40 - 17:50	64.5	62.0	58.2	54.9	51.3	45.8	43.2	29.0	61.8	60.5	57.0	53.9	50.3	44.7	40.9	26.7
17:50 - 18:00	63.1	61.9	58.3	54.8	50.9	45.4	43.4	29.3	61.2	60.3	57.0	53.8	50.2	44.7	41.1	26.9
18:00 - 18:10	63.3	61.8	59.3	58.0	53.4	46.4	43.2	28.6	61.4	60.2	57.7	54.2	50.9	45.0	41.2	27.1
18:10 - 18:20	65.3	61.7	58.2	55.3	52.7	45.9	43.1	28.5	62.5	60.4	57.1	54.0	51.0	44.9	41.1	27.1
18:20 - 18:30	63.4	61.7	57.9	55.1	53.0	46.5	43.4	29.3	61.6	60.2	56.9	54.1	51.8	45.4	41.2	27.0
18:30 - 18:40	63.1	61.4	58.0	54.8	53.1	46.6	43.7	29.1	61.3	60.0	57.0	53.9	51.4	45.5	41.0	26.9
18:40 - 18:50	65.0	61.7	58.3	55.5	53.4	46.9	43.4	29.1	62.0	60.1	57.1	53.9	51.8	45.5	41.2	26.9
18:50 –19:00	63.5	61.6	58.1	54.5	52.9	46.5	43.3	29.7	61.4	60.1	57.0	53.5	51.4	45.1	41.2	27.0
19:00 - 19:10	64.9	61.4	57.9	54.7	53.0	46.8	43.7	29.8	61.8	60.1	56.9	53.9	51.3	45.3	41.3	27.0
19:10 - 19:20	63.5	61.5	57.7	54.5	53.0	46.6	43.7	29.6	61.5	59.9	56.8	53.7	51.5	45.3	41.4	27.1
19:20 - 19:30	63.4	61.2	57.8	54.7	53.3	47.2	43.7	30.4	61.4	59.9	56.8	53.6	51.3	45.1	41.6	27.1
19:30 - 19:40	64.7	61.4	57.8	54.7	53.1	46.2	44.6	32.4	61.9	59.9	56.8	53.5	51.6	45.2	43.0	31.7
19:40 - 19:50	62.9	61.3	58.1	55.5	53.2	46.0	44.2	31.6	61.1	59.8	56.7	54.0	51.5	45.1	42.3	29.7
19:50 - 20:00	65.9	64.5	62.1	59.9	57.6	51.9	45.4	31.8	61.3	60.2	57.2	54.2	51.6	45.2	42.5	29.5
20:00 - 20:10	63.0	61.1	57.8	54.9	52.4	46.0	44.1	31.5	61.1	59.7	56.6	53.8	50.9	45.1	42.1	27.6
20:10 - 20:20	65.3	61.4	57.7	54.9	53.1	46.1	43.8	30.7	61.9	59.9	56.7	53.9	51.3	45.1	41.8	29.5
20:20 - 20:30	63.0	61.1	57.5	55.0	52.0	46.1	44.3	31.1	61.1	59.7	56.5	54.1	50.5	45.0	42.1	29.8
20:30 - 20:40	62.5	60.8	57.4	54.2	52.6	46.2	44.5	31.0	60.8	59.4	56.5	53.3	51.0	45.0	42.5	27.4
20:40 - 20:50	65.3	61.1	57.8	54.4	52.9	46.1	44.7	32.7	62.5	59.7	56.6	53.4	51.3	44.8	43.1	32.0
20:50 - 21:00	62.8	61.0	57.5	54.6	52.6	46.1	43.9	30.3	60.9	59.5	56.5	53.7	51.0	45.0	41.6	27.5
21:00 - 21:10	62.6	60.8	57.4	54.9	52.0	45.6	43.4	30.3	60.9	59.4	56.4	54.1	50.6	44.8	41.3	27.4
21:10 - 21:20	64.3	60.8	57.5	54.8	52.4	45.7	45.0	33.4	61.1	59.5	56.6	53.9	50.7	44.7	43.4	32.1
21:20 - 21:30	63.8	61.0	57.4	54.8	51.8	46.0	44.4	31.6	61.2	59.5	56.5	53.9	50.3	45.0	42.3	27.7
21:30 - 21:40	62.6	60.6	57.6	54.8	52.5	45.6	44.1	31.1	60.7	59.2	56.4	53.7	51.1	44.5	41.8	27.6
21:40 - 21:50	64.2	60.7	57.4	55.1	52.2	46.1	44.4	32.3	61.2	59.4	56.4	53.9	50.6	45.0	42.1	28.1
21:50 - 22:00	63.5	60.7	57.5	54.2	52.5	46.4	43.5	29.9	61.0	59.3	56.5	53.3	51.4	45.0	41.4	27.7

Table A2: L_{eq} and L_{90} frequency data, 16 November 2015

	Frequency								Frequency							
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
22:00 - 22:10	62.6	60.7	57.4	55.1	52.2	46.4	44.8	33.5	60.8	59.4	56.4	53.9	50.5	45.2	42.5	29.5
22:10 - 22:20	64.5	60.9	57.3	54.6	52.0	46.3	44.7	34.3	61.3	59.6	56.4	53.4	50.7	45.2	42.5	30.7
22:20 - 22:30	63.1	60.7	57.3	55.4	52.2	46.7	44.9	36.4	60.9	59.3	56.3	54.1	50.8	45.4	42.6	29.1
22:30 - 22:40	64.7	60.8	57.5	55.3	52.4	47.6	47.0	42.6	61.5	59.5	56.4	54.3	51.1	45.8	44.2	37.2
22:40 - 22:50	62.7	60.6	57.1	55.1	52.9	46.4	45.4	37.4	60.8	59.3	56.2	54.2	51.5	45.4	43.3	34.0
22:50 - 23:00	62.5	60.8	57.1	54.3	52.2	46.5	44.5	34.3	60.6	59.5	56.1	53.2	50.3	45.4	42.0	28.9
23:00 - 23:10	64.8	60.8	57.0	54.4	51.9	45.6	43.8	29.4	61.4	59.4	56.1	53.6	50.1	44.9	41.5	28.3
23:10 - 23:20	62.6	60.7	57.0	54.6	51.5	45.7	43.9	28.9	60.7	59.2	56.0	53.8	50.1	45.0	41.7	28.1
23:20 - 23:30	62.5	60.6	57.2	56.8	51.2	45.4	43.8	29.7	60.6	58.9	55.9	54.2	50.1	44.6	41.6	28.4
23:30 - 23:40	64.2	60.1	56.7	58.2	51.1	45.2	43.6	29.7	60.8	58.7	55.8	55.9	50.2	44.5	41.4	28.5
23:40 - 23:50	62.8	60.3	56.6	55.2	52.7	45.8	44.0	29.7	60.5	58.9	55.6	53.3	50.6	44.8	41.8	28.3
23:50 - 00:00	62.2	60.3	56.9	53.6	52.0	45.7	43.7	28.8	60.4	58.8	55.9	52.6	51.0	44.7	41.5	28.0
00:00 - 00:10	63.1	59.9	56.8	53.3	51.9	45.4	43.8	29.0	60.4	58.6	55.7	52.5	50.6	44.4	41.6	28.0
00:10 - 00:20	63.9	60.1	57.0	53.1	52.0	45.5	45.0	29.8	60.8	58.8	56.1	52.3	50.7	44.6	42.6	28.7
00:20 - 00:30	61.7	60.0	56.6	53.4	50.5	45.2	44.8	30.1	60.0	58.5	55.3	51.9	48.6	43.6	42.4	28.9
00:30 - 00:40	62.5	61.1	60.9	56.3	53.8	48.1	45.7	32.2	60.6	59.3	57.1	54.2	51.3	46.0	43.1	30.0
00:40 - 00:50	62.1	60.4	58.8	54.9	52.4	46.8	44.8	30.7	60.1	58.6	56.0	53.0	50.2	44.4	42.4	28.9
00:50 - 01:00	64.4	60.1	56.9	53.5	50.9	44.9	44.1	30.0	60.7	58.7	56.0	52.9	50.3	44.3	41.8	29.1
01:00 - 01:10	61.6	59.8	57.0	53.7	51.4	45.2	44.5	30.1	59.9	58.5	56.1	53.0	50.6	44.4	42.1	29.2
01:10 - 01:20	61.7	60.0	57.0	54.7	51.8	45.7	44.4	30.4	59.9	58.6	56.1	53.5	50.9	44.9	42.1	29.2
01:20 - 01:30	61.7	59.9	57.1	55.7	52.2	45.8	44.8	30.4	60.0	58.6	56.1	54.6	51.4	45.1	42.5	29.2
01:30 - 01:40	64.2	60.1	57.4	55.2	52.2	46.1	44.7	30.5	60.4	58.7	56.4	54.2	51.5	45.2	42.5	29.2
01:40 - 01:50	61.6	59.7	57.2	54.8	52.2	46.0	44.6	30.3	59.9	58.4	56.3	53.7	51.4	45.2	42.4	29.2
01:50 - 02:00	61.6	59.8	57.3	54.9	52.4	46.0	44.9	30.5	59.9	58.5	56.3	53.8	51.5	45.3	42.7	29.3
02:00 - 02:10	61.7	60.0	57.3	54.9	52.5	46.0	44.7	30.5	60.0	58.5	56.4	53.9	51.7	45.3	42.5	29.2
02:10 - 02:20	61.6	59.9	57.3	54.9	52.8	46.1	44.9	30.2	59.9	58.6	56.4	53.8	51.9	45.4	42.8	29.2
02:20 - 02:30	64.4	60.1	57.3	55.7	52.5	46.5	45.0	30.1	60.6	58.6	56.4	54.1	51.5	45.7	42.8	29.3
02:30 - 02:40	61.6	59.8	57.1	58.2	52.5	46.2	44.8	30.2	59.8	58.4	56.1	56.3	51.7	45.5	42.3	29.4
02:40 - 02:50	61.6	59.8	57.1	57.4	52.4	46.2	44.6	30.2	59.9	58.4	56.1	55.2	51.6	45.5	42.4	29.3
02:50 - 03:00	61.6	59.9	57.1	58.0	52.6	46.2	44.8	29.9	60.0	58.5	56.1	56.1	51.7	45.4	42.3	29.3
03:00 - 03:10	63.8	60.1	57.2	56.8	52.5	46.2	44.6	30.6	60.4	58.8	56.3	55.0	51.7	45.5	42.4	29.4
03:10 - 03:20	62.4	59.9	57.2	56.7	52.5	46.3	44.5	30.1	60.1	58.6	56.2	54.8	51.6	45.6	42.4	29.4
03:20 - 03:30	61.6	59.8	57.2	57.7	52.5	46.2	44.7	30.0	59.9	58.5	56.2	55.9	51.6	45.5	42.4	29.3
03:30 - 03:40	61.5	59.8	57.7	59.2	52.5	46.4	44.6	31.6	59.9	58.5	56.8	57.1	51.7	45.7	42.4	29.6
03:40 - 03:50	62.9	60.2	57.3	58.0	52.3	46.7	45.3	35.8	60.1	58.8	56.3	56.3	51.5	45.8	43.0	32.0
03:50 - 04:00	64.2	60.8	57.7	58.2	52.6	46.8	45.0	33.9	61.0	59.5	56.7	56.2	51.8	46.1	42.9	31.0
04:00 - 04:10	62.4	60.8	57.9	59.5	52.8	46.6	44.7	31.7	60.7	59.5	56.9	57.6	52.0	45.8	42.5	29.1
04:10 - 04:20	62.4	60.7	57.8	59.2	52.7	46.5	44.8	29.8	60.6	59.4	56.8	56.7	52.0	45.8	42.5	29.0
04:20 - 04:30	62.3	60.8	57.7	58.2	52.6	46.4	44.8	30.1	60.5	59.4	56.7	55.9	51.8	45.7	42.6	29.1
04:30 - 04:40	64.7	60.9	57.8	58.7	52.7	46.4	44.7	30.3	61.0	59.5	56.9	54.2	51.7	45.6	42.4	29.0
04:40 - 04:50	62.2	60.6	57.6	55.0	52.4	46.4	44.7	30.0	60.6	59.3	56.6	53.9	51.7	45.7	42.4	28.7
04:50 - 05:00	62.2	60.4	57.5	54.9	52.4	46.4	44.6	29.7	60.5	59.1	56.5	53.9	51.7	45.8	42.5	28.6
05:00 - 05:10	62.5	60.7	57.9	55.1	52.4	46.5	44.2	29.5	60.8	59.4	56.9	54.2	51.7	45.8	42.2	28.5
05:10 - 05:20	63.7	60.8	57.7	54.7	52.4	46.3	44.3	29.0	60.7	59.5	56.8	53.8	51.7	45.7	42.2	28.2
05:20 - 05:30	63.6	60.8	58.5	55.7	52.4	46.7	44.2	28.9	61.0	59.5	57.5	54.5	51.7	46.1	42.1	28.1
05:30 - 05:40	62.3	60.6	58.5	55.7	52.3	46.8	44.4	29.4	60.5	59.3	57.5	54.5	51.6	45.9	42.0	28.0
05:40 - 05:50	62.5	60.3	58.0	55.1	52.0	46.2	44.2	30.1	60.5	59.0	57.1	54.2	51.4	45.6	42.1	28.1
05:50 –06:00	64.0	60.8	58.2	55.1	52.5	46.5	44.4	29.9	60.8	59.4	57.3	54.2	51.8	45.8	42.2	28.0
06:00 - 06:10	63.9	61.1	58.6	55.6	52.6	46.7	44.6	30.3	61.0	59.6	57.5	54.5	51.9	46.1	42.4	28.2
06:10 - 06:20	62.5	60.8	58.5	55.6	52.6	47.0	44.8	30.3	60.6	59.4	57.5	54.5	51.8	46.2	42.5	28.5
06:20 - 06:30	65.1	61.2	58.7	55.9	52.7	47.0	44.8	30.9	61.7	59.7	57.7	54.7	52.0	46.3	42.6	28.4
06:30 - 06:40	63.0	61.1	58.8	55.8	53.0	47.0	44.7	30.5	61.1	59.6	57.7	54.8	51.9	46.3	42.5	28.3
06:40 - 06:50	65.6	62.2	59.5	56.6	53.7	47.3	44.5	29.3	62.5	60.7	58.5	55.6	52.6	46.6	42.3	27.8
06:50 - 07:00	66.2	62.6	60.0	57.2	54.0	47.5	44.4	30.0	63.4	61.3	59.0	56.3	53.1	46.8	42.0	27.4
07:00 - 07:10	68.2	67.4	63.1	58.8	55.4	49.0	44.6	30.3	63.2	61.2	58.6	54.8	51.5	45.5	41.6	27.1
07:10 - 07:20	66.2	62.9	61.7	57.7	55.0	48.5	44.9	32.1	63.8	61.6	60.4	56.1	53.3	47.4	42.7	29.3
07:20 - 07:30	65.3	62.3	59.6	56.3	53.0	47.1	45.1	31.8	62.7	60.7	57.4	53.9	50.6	45.2	42.7	29.7
07:30 - 07:40	66.2	62.2	58.1	54.4	50.9	46.0	44.7	32.1	64.0	60.8	57.1	53.7	50.3	45.3	42.7	30.0
07:40 - 07:50	64.4	62.0	58.6	55.0	51.4	46.4	44.9	32.1	62.0	60.3	57.4	53.9	50.5	45.4	42.7	30.0
07:50 - 08:00	64.2	61.3	57.8	54.5	52.5	46.0	44.6	32.1	61.6	59.8	56.7	53.2	50.7	45.2	42.4	30.3
08:00 - 08:10	64.7	61.1	57.3	53.8	52.7	46.2	44.7	32.3	61.9	59.5	56.2	52.7	51.1	45.2	42.8	30.4
08:10 - 08:20	63.0	60.5	56.8	53.3	53.0	46.0	44.3	33.3	60.7	58.9	55.7	52.4	51.5	45.1	42.3	30.5
08:20 - 08:30	63.6	60.4	56.5	53.2	52.2	45.7	44.5	33.0	60.9	58.8	55.5	52.2	50.5	44.8	42.6	30.9
08:30 - 08:40	62.0	59.9	56.6	52.9	52.2	45.2	44.3	33.1	60.2	58.3	55.3	52.1	50.6	44.4	42.3	31.1
08:40 - 08:50	63.7	60.1	56.6	53.2	53.3	46.9	44.5	33.3	60.8	58.7	55.5	52.2	51.0	44.7	42.6	31.0
08:50 - 09:00	62.1	59.7	56.5	53.2	52.9	45.9	45.0	34.5	60.2	58.3	55.5	52.3	51.3	45.0	43.2	32.3

Table A3: L_{eq} and L_{90} frequency data, 16-17 November 2015

APPENDIX B - REPORT CHECKLIST

Camden

Acoustic report checklist for planning applications

Please fill in the checklist and attach to the acoustic report with your planning application.

Please place a tick against one box for every item in each category, to indicate whether the relevant information has been included in the report, excluded, or does not apply.

Category ITEM	Yes	No	Not applicable- state why?
1. Introduction & Description of Development	√		
2. Authors name and qualifications	√		
3. Maps/Plans included			See other documents submitted with application
4. Photo of site and surroundings			See other documents submitted with application
5. Guidance/Standards Quoted?	√		
6. Calibration and Sound Level Meter details	√		
7. Is Development considered Noise Sensitive?	√		
8. Is Development Potentially Noisy (see LAQs)?	√		
9. Existing Noise Environment assessed?	√		
10. Impact of Noise Sources?	√		
11. Proposed Working Hours and Methods?			24 hour operation assumed
12. Distance (nearest Noise sensitive receptor)?	√		
13. Boundary Noise Limits?	√		

Acoustic report checklist April 2014

Category ITEM	Yes	No	Not applicable – state why?
14. Building Orientation/Construction?		√	See other documents submitted with application
15. Noise Barriers/ attenuation proposed?		√	
16. Equipment Specification?		√	Final plant selections not yet known
17. Noise Management Plan?		√	
18. Background Noise measurement (General)?	√		
19. Background Noise (Worse Case)?	√		
20. LB Camden's Noise Conditions considered under DP28/DP29?	√		
21. Evaluation/Analysis of measured levels?	√		
22. Frequency Analysis done?		√	
23. Vibration analysis done?		√	
Other Considerations/comments (please specify)			

Signed..... Print name.....John Lloyd

Company details.....Scotch Partners LLP

Date.....

If you have any queries on filling in this form please see further guidance on the planning website, email helen.masterson@camden.gov.uk or ring our Noise duty officer on 0207 974 2163.

Acoustic report checklist April 2014

Date Created:	19 May 2017	
Revision 1:	21 August 2017	revised assessment to suit *Local Plan Adoption Version, June 2017*

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