Residential Property, Elsworthy Road, London, NW3

Sound Assessment Report

Quinn London Limited

February 2015

Notice

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Table of contents

Chapter		Pages
Executive Summary		**4**
1.	**Introduction**	**5**
2.	**Criteria**	**6**
Planning Conditions		6
Code for Sustainable Homes		6
3.	**Baseline Data Collection**	**7**
4.	**Assessment**	**9**
Planning Conditions		9
5.	**Mitigation**	**12**
6.	**Conclusions**	**13**
APPENDICES		**14**

Tables

Table 1: Noise levels used for assessment 8
Table 2 Minimum required insertion losses for sound attenuators 12
Table 3 Nuaire sound attenuator selection 12

Figures

Figure 1 Location of the proposed development and closest noise sensitive receivers 5
Figure 2 Sound monitoring location 7
Figure 3 Plant Room location ï Basement Level 2 9
Figure 3 Extract and supply duct terminations at Ground Floor Level 10

Executive Summary

This report outlines the assessment and findings relating to a noise assessment for a proposed residential property on Elsworthy Road, London NW3.

The property is subject to Planning Conditions, namely 5 and 13, as issued by Camden Borough Council. The details of these planning conditions are outlined in Section 2 of this report.

Representative sound measurements were taken on Elsworthy Road to establish the prevailing sound environment. The measurement data has been used to establish a maximum required level at adjacent receivers, in order for the development to comply with the Planning Conditions.

Our assessment of the plant associated with the development shows that sound attenuators are required to be installed into the intake and discharge ducts from the Nuaire heat exchanger located in the Basement plant room to external. Section 5 of this report outlines the specification for sound attenuators.

As the property is detached, there are no requirements relating to sound insulation in accordance with Code for Sustainable Homes or Approved Document E of the Building Regulations.

Therefore, as long as the proposed attenuators are installed into the heat exchanger duct work, the required planning conditions will be achieved.

1. Introduction

1.1. CDC has been commissioned by Quinn London Limited, to undertake a sound assessment relating to the development of a residential property in Elsworthy Road, London, NW3.

1.2. The property is subject to a Planning Condition relating to noise emissions from fixed plant to adjacent properties. This relevant Planning Conditions are 5 and 13 of Application Reference 2011/1828/P.

1.3. The development has an aspiration to achieve Code for Sustainable Homes Level 4. Within this there are requirements under Health and Wellbeing and Pollution. These are outlined within this document.

1.4. A survey has been undertaken during representative day time hours to establish the existing sound environment at the property location. These levels have been used as the basis for the assessment in order to discharge the Planning Conditions.

1.5. The following figure outlines the location of new residential development and the closest noise sensitive receivers, defined as NSR1 and NSR2 in the figure. NSR1 is 27 Elsworthy Road and NSR2 is 15 Elsworthy Terrace, although the concerned area of this property is located on Elsworthy Road.

Figure 1 Location of the proposed development and closest noise sensitive receivers

2. Criteria

Planning Conditions

2.1. A notice to grant planning permission for the development was issued by Camden Borough Council on the 17th January 2012. The permission was subject to planning conditions, two of which relate to noise. These are as follows:

5. Noise levels at a point 1meter external to sensitive facades shall be at least 5 dB(A) less than the existing background measurement (LA90), expressed in dB(A), when all plant/equipment (or part of it) is in operation unless the plant /equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech hum) and / or if there are distinct impulses (bangs, clicks, clatters, thumps), then the noise levels from the piece of plant/equipment at any sensitive façade shall be at least 10dB(A) below the LA90 expressed in dB(A).

Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local development Framework Development Policies.

13. Before the use commences, a detailed report prepared by a suitably qualified engineer including details of existing noise levels on site and demonstrating how the noise from any mechanical equipment installed on site shall meet with the Councilôs noise standards as set out in Condition 5, shall be submitted to and approved in writing by the Council. Any acoustic or vibration mitigation measures recommended as necessary in the report shall be installed prior to first use of the equipment and shall thereafter be retained and maintained in accordance with the manufacturersôstandards.

Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local development Framework Development Policies.

Code for Sustainable Homes

2.2. The Code for Sustainable Homes (the Code) is an environmental assessment method for rating and certifying the performance of new homes. It is a national standard for use in the design and construction of new homes with a view to encouraging continuous improvement in sustainable home building. It was launched in December 2006 with the publication of Code for Sustainable Homes: A step-change in sustainable home building practice (Communities and Local Government, 2006) and became operational in April 2007. Where Building Regulations apply, compliance is necessary at all times.

2.3. It is understood that the Elsworthy Road development is targeting Level 4 of the Code.

2.4. The Code works on a credit based system. The credits available for acoustic design are incorporated into Category 7 - Health and Wellbeing. Within this HEA 2 relates specifically to Sound Insulation with a maximum 4 credits being available.

2.5. Acoustic insulation is also referenced within Category 6 ï Pollution, whereby confirmation is required that Acoustic Insulation has been installed into walls. This forms part of a wider requirement under Pollution, to achieve one credit.

2.6. Further consideration of these elements are offered in Section 4 of this report.

3. Baseline Data Collection

3.1. Baseline measurements were taken at the site on 17th November 2014. Measurements were taken between the hours of 0900 hours to1200 hours.

3.2. Meteorological conditions during the measurement period were in line with recommendations for environmental noise surveys with minimal wind (<1m/s) and an air temperature of 12°C. The skies were clear during the measurement period with minimal cloud cover.

3.3. The general sound environment on Elsworthy Road consists of noise from birds and occasional passing traffic, mainly from local residents. Elsworthy Road is a residential road, with very little through traffic. When road traffic was not audible the soundscape was calm, with minimal environmental noise sources evident.

3.4. As the proposed site was under development during the survey, equivalent locations were chosen on Elsworthy Road. The chosen locations were exposed to the same noise sources as the proposed site. Measurements were taken at a distance of 1m from road side at both locations. Construction noise from the site could not be heard at either location.

Figure 2 Sound monitoring locations

3.5. The nearest noise sensitive receivers (NSRs) were established to be the two properties directly adjacent to the site, namely 25 Elsworthy Road and 15 Elsworthy Terrace. These properties are shown in Figure 1. Number 25 Elsworthy Road is a three storey residential property with windows to the side elevation facing the site. The rear façade of 15 Elsworthy Terrace faces the site and has windows and balconies overlooking the site. This building is a five story residential property, separated into number of dwellings.

3.6. A summary of the measurement results are outlined below. Full details of the measurements are provided in Appendix A.

Table 1: Summary of noise levels used for assessment

Location	Date of measurement	Time	L_{Aeq} dB	L_{Amax} (dB)	L_{A90} (dB)
Elsworthy Road, position 1	17/11/14	0900	66.1	81.2	45.7
Elsworthy Road, position 1	17/11/14	0915	66.6	81.3	46.0
Elsworthy Road, position 1	17/11/14	1040	63.2	77.2	47.0
Elsworthy Road, position 1	17/11/14	1055	61.6	75.6	44.2
Elsworthy Road, position 1	17/11/14	1110	61	76.2	44.4
Elsworthy Road, position 1	17/11/14	1125	60.6	75.9	44.8
Elsworthy Road, position 2	17/11/14	0935	66.4	81.6	45.3
Elsworthy Road, position 2	17/11/14	0950	66.2	84.3	44.9
Elsworthy Road, position 2	17/11/14	1005	63.8	81.3	44.8

3.7. The results of background sound (L_{A90} dB) measurements are consistent over the time period, ranging from 44 to 47 dB L_{A90}. The ambient sound measurements (L_{Aeq} dB), have a wider range of variation between 61 and 67 dB L_{Aeq}.

3.8. The lowest measured background noise level was 44 dB L_{A90}. This lower level was due to limited impact from road traffic. This would be similar to evening time periods when the sound environment would also have limited road traffic noise. Therefore, this level has been taken as the representative level in order to fulfil the planning conditions.

3.9. It should also be noted that the plant equipment will not be operational throughout the night time hours. Therefore the 44 dB L_{A90} representative assumption is considered appropriate.

3.10. The above results form the basis of the assessment undertaken in this report.

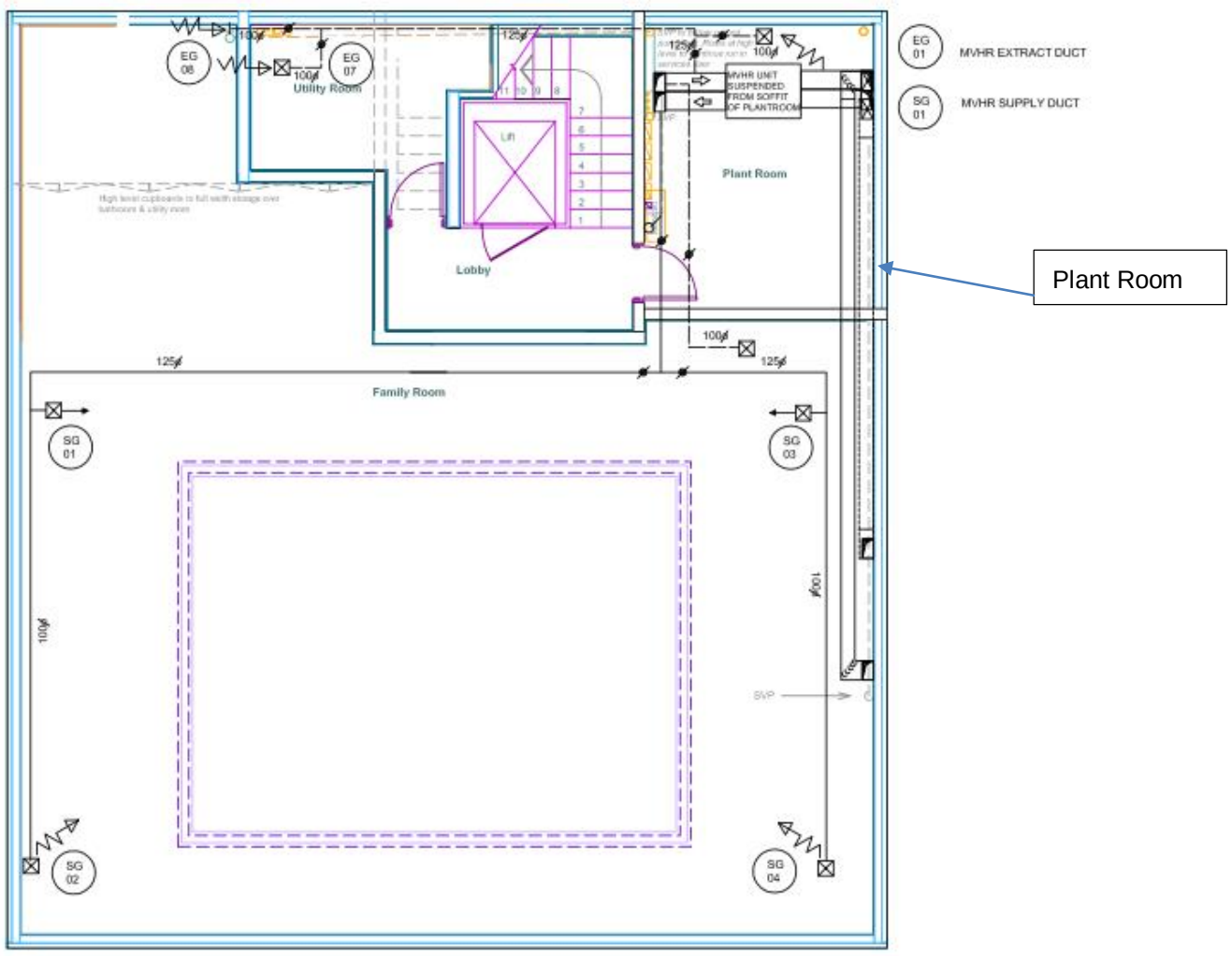
4. Assessment

Planning Conditions

4.1. The planning condition outlined in the introduction to this report outlines the requirements for sound levels from fixed plant / equipment to noise sensitive receivers.

4.2. MEP layout drawings have been provided to CDC for the purposes of assessment. Equipment within the building is proposed to be installed in a purpose built Plant Room located on Basement Level 2. The location of the Plant Room is shown on the following figure.

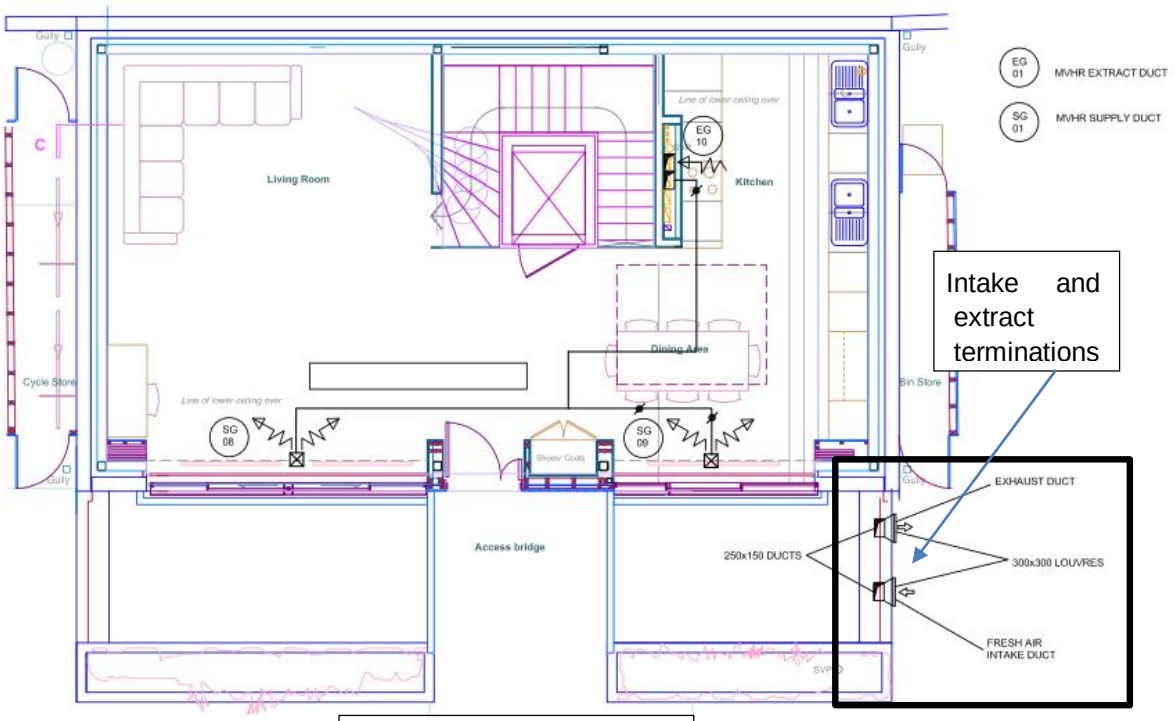
Figure 3 Plant Room location – Basement Level 2



Front elevation of property

4.3. Air is supplied and extracted from Basement Level 2 directly from Ground Floor. The location of the intake and extract duct terminations to external are shown in the following figure.

Figure 4 Extract and supply duct terminations at Ground Floor Level



Front elevation of property

4.4. The intake and extract ducts enter / exit the building directly adjacent to 27 Elsworthy Road side façade.

4.5. The closest distance between the proposed building and 27 Elsworthy Road is 2.5m. The closest distance between the proposed building and 15 Elsworthy Terrace is 2m. The set back from the road for the effected facades of all buildings is approximately 12m. As the lowest L_{A90} levels measured comprised of general environmental sounds and were not dominated by road traffic noise, distance corrections have not been applied to the nearest façade. The levels at the facades under study are expected to be the same as those measured.

4.6. Based upon measured data and in accordance with the requirements of the planning conditions, noise levels at 1m from the nearest façade should not exceed 34 dB L_{Aeq}. As the side elevations of the proposed building are within 2m of the nearest receiver facades, the design criterion from 1m from the proposed development also is 34 dB L_{Aeq} at 1m.

Code for Sustainable Homes

4.7. As outlined within Section 2 of this report, the development is targeting Code for Sustainable Home Level 4. As the proposed building is ôDetachedõ, the Code defines ôDetached Dwellingsõ as a ôDefault Caseõ and 4 Credits can be awarded by default.

4.8. Therefore, the proposed development achieves 4 Credits with reference to HEA2 ôSound Insulationõ of the Code for Sustainable Homes.

4.9. With regards to Category 6 Pollution. Sound Insulating elements have been incorporated into wall cavities. Therefore this element can be included in the one overall credit available for

Pollution. It should be noted that other non-acoustic requirements also need to be achieved in order to gain this Credit.

5. Mitigation

5.1. In order to achieve the outlined 34 dB L_{Aeq} at the nearest receiver to the intake and extract termination, ductwork attenuation is required.

5.2. Based upon received data for the heat exchanger system located in the plantroom (heat exchanger unit ref. Nuaire XBC15), both the intake and extract ducts will require attenuators fitted into the duct systems.

5.3. Calculations indicate that the following minimum insertion losses should be achieved across the selected attenuator:

Table 2 Minimum required insertion losses for sound attenuators

Frequency (Hz)	63	125	250	500	1k	2k	4k
Insertion Losses (dB)	0	1	8	6	3	15	15

5.4. The above insertion losses could generally be achieved with a typical 600mm long sound attenuator. A 900mm attenuator may be required if the air gaps need to be Ó200mm in order to minimise pressure loss across the attenuator.

5.5. From manufacturers data, it seems that Nuaire offer sound attenuators with the heat exchanger. In order to meet the planning conditions for the property a Nuaire attenuator with the following characteristics should be installed into both intake and extract ducts. It is should be noted that this is the shortest attenuator they supply.

Table 3 Nuaire sound attenuator selection

				Insertion Losses							
Attenuator Ref.	**Length**	**Width**	**Height**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
XBC15-HS-MS10	1050mm	340mm	225mm	5	11	12	19	27	28	24	19

5.6. Installation of the above will ensure that noise levels do not exceed the outlined 34 dB L_{Aeq} at 1m from the facade.

6. Conclusions

6.1. This report outlines the assessment and findings relating to a noise assessment for a proposed residential property on Elsworthy Road, London NW3.

6.2. The property is subject to Planning Conditions, namely 5 and 13, as issued by Camden Borough Council. The details of these planning conditions are outlined in Section 2 of this report.

6.3. Representative sound measurements were taken on Elsworthy Road to establish the prevailing sound environment. The measurement data has been used to establish a maximum required level at adjacent receivers, in order for the development to comply with the Planning Conditions.

6.4. Our assessment of the plant associated with the development shows that sound attenuators are required to be installed into the intake and discharge ducts from the Nuaire heat exchanger located in the Basement plant room to external. Section 5 of this report outlines the specification for sound attenuators.

6.5. As the property is detached, there are no requirements relating to sound insulation in accordance with Code for Sustainable Homes or Approved Document E of the Building Regulations.

6.6. Therefore, as long as the proposed attenuators are installed into the heat exchanger duct work, the required planning conditions will be achieved.

APPENDICES

APPENDIX A – Measurement Results

LOCATION 1

Start Time	17/11/2014 09:00																							
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	66.1	64.2	64.6	60	55.4	58.5	54.9	54.1	54.9	54.8	52.6	53.8	54.5	56.6	56	54.7	54.3	54.9	55.2	54.8	54.6	53	51.3	49.4	46.7
L90	45.7	49.2	50.4	53.5	42.1	41.5	39.8	39	38.3	37.8	35.6	35.5	35.5	36.1	36	34.7	33.6	32.1	30.9	29.8	27.9	26	23.5	21.2	18.1
Lmax	81.2	86.1	85.8	82.6	76.8	83.7	77.6	75.6	79.6	80.6	68.4	76	71.3	76.1	70	68.1	69.4	70.9	72.1	71.7	71.1	70	68.6	66.4	63.5
Lmin	41.2	40.9	43.9	47.1	34.7	32.8	32.7	32.1	32.5	30.9	28.8	29.8	29.9	31.1	31	28.6	27.6	26.4	24.2	23.9	22.5	20	17.6	14.8	12.9
Start Time	17/11/2014 09:15																								
Measurement Time	00d 00:15:00.0																								
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	66.6	67.2	65.6	62.2	57.8	60.2	56.9	56	55.8	56.3	54.1	55	54.5	56.9	57	55.4	54.7	55	55.5	55.1	54.7	53	51.6	49.5	46.7
L90	46	49.2	49.9	54.4	41.9	40	38.6	38.7	38.2	36.1	35.4	35.7	36.3	37.6	37	35.3	34.1	32.6	31	29.3	27.9	25	22.1	19.3	15.7
Lmax	81.3	87.6	88.1	83.2	79.2	88.4	80.1	75.4	76.2	73.4	71.6	72.8	72.2	72.9	73	72.6	70.2	71.3	72.5	71.8	70.6	70	67.8	66.2	63.6
Lmin	40.1	41.1	43.8	48.8	34.6	31.9	31.4	31.7	30.9	29.4	28.3	30	30.4	29.8	30	28.1	26.2	25	22.7	20.5	19.4	16	14.6	12.5	10.6
Start Time	17/11/2014 10:39																								
Measurement Time	00d 00:15:00.0																								
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz

Leq	63.2	65.2	62.7	63	55.3	53.6	53.6	54	53.8	53.3	52.1	52	52.8	54.9	54	52.4	51.8	51.7	50.7	50	49.6	48	46.7	44.9	42.1
L90	47	49	48.2	50.8	42	40.8	40.7	39.3	39.7	39.1	37.7	37.7	36.4	36.5	37	35.5	34.5	32.8	30.5	28.7	26.4	23	19.8	16.7	13.4
Lmax	77.2	87	84.4	91.9	77.9	74.3	74.2	74.1	74.8	70.9	69.8	71.5	69.7	70.7	70	67.3	66.3	69.1	68.6	65.5	67	65	64.1	61.6	58.3
Lmin	41.5	39.7	42.3	43.4	36.4	32.4	33.2	32.6	32.9	32.8	32.2	31.1	30.4	30.7	31	28.8	27.7	25	22	19.5	17	15	12.4	10.8	9
Start Time	17/11/2014 10:54																								
Measurement Time	00d 00:15:00.0																								
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	61.6	62	65.4	57.9	52.8	56.9	51.2	52.7	51.4	50.7	49.2	49.4	50.8	53	53	51.1	50.3	50.1	49.2	48.7	48.3	47	45.4	43.6	40.5
L90	44.2	48.1	48.4	50.4	41.5	41.1	38.4	37.5	37.9	36.7	35.8	35.3	34.9	35.1	35	32.9	31.5	29.9	27.5	26	23.9	21	18.4	15.5	12.1
Lmax	75.6	81.9	93	78	73	82.7	69.3	75.3	66.7	64.2	65.3	63.9	66.1	70	70	67.3	65.3	65.1	64.8	63.9	63.8	63	61.7	60.4	57.8
Lmin	41.6	40	41.5	42.4	34.2	34.8	32.9	31.7	33.6	32.4	31.8	31.3	31.1	31.7	32	29.2	28.1	25.7	23.7	22.1	19.3	16	13.7	11	8.9
Start Time	17/11/2014 11:09																								
Measurement Time	00d 00:15:00.0																								
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	61	64.2	62.7	57	53.3	52.1	50.3	49.6	49.8	49.7	49.6	49.5	50.4	52.5	53	50.8	50.2	49.6	48.3	47.6	47.1	45	44.2	42.5	39.5
L90	44.4	48.3	47.4	50.3	41.4	41	38.2	37.3	37.5	36.2	34.6	34.8	35.4	35.4	35	32.8	31.5	30	27.7	25.7	23.2	20	17.1	13.6	10.3
Lmax	76.2	88.9	87.9	80.1	72.7	73.1	71.4	67.4	65	66.9	70.6	67.8	70.1	69.3	70	66.7	65.2	69.8	66.7	65.5	66.3	65	62.1	61.8	58.4
Lmin	40.6	39.4	42.1	44.3	35.7	35.1	33	32.4	32.7	30.2	29.6	30.6	30.6	30.7	30	27.6	26.1	23.4	20.1	18	15.7	14	10.7	9.1	8.1

Start Time	17/11/2014 11:24																							
Measurement Time	00d 00:15:00.0																							
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	60.6	63.5	58.8	56.1	52.5	54.2	51.8	51.7	50.6	50.9	49.2	49.3	50.2	52.3	52	50.4	49.9	49.1	48	46.9	45.9	44	43.1	41.5	38.6
L90	44.8	49.7	49.8	49.7	42.2	42.5	39.8	39	38.5	37.3	36.5	35.6	35.4	35.1	35	32.7	31.5	29.9	29	26.7	24.8	22	19.3	17	14.4
Lmax	75.9	83.2	79.1	73.9	69.5	81.1	74	72.3	65.7	70.1	68.1	67.6	66.7	70.9	70	66.8	66	66.5	65.7	65.6	61.8	61	60.7	59.4	60.2
Lmin	41.3	42.7	43.4	43.5	36.2	36.4	33.4	31.2	31.8	31	30.5	31.2	31.4	31.4	31	28.5	27.1	26.2	23.7	23.1	21	18	14.6	12.5	10.6
Start Time	17/11/2014 11:39																							
Measurement Time	00d 00:00:00.9																							
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	68.6	74.8	67.8	60.4	61	55.8	64.7	55.8	56	58.6	58.9	56.3	58.4	62.5	60	57.8	58.1	56.3	54.2	51.7	51.7	52	52	51.5	49.4
L90	65.9	71	62.6	57.2	57.2	54.6	61.6	53.7	54.7	54.4	53.9	54.1	54.8	60.9	58	54.1	54.7	51.9	49.7	47.5	45.9	45	43.1	41.6	38.1
Lmax	71.1	76.5	70.9	61.9	64	58.2	70.5	59.5	57.9	62.1	62.9	58.1	61.4	64.4	63	60.6	60.6	59.8	58.3	55.4	55.9	56	56.6	56.1	54.3
Lmin	65.8	68.7	62.6	56.4	56.9	53.9	61.5	53.7	54.7	54	53.4	53.4	54.8	60.6	57	54	54.5	51.5	49.5	47.4	45.7	45	42.9	41.4	38

LOCATION 2

Start Time	17/11/2014 09:35																							
Measurement Time	00d 00:15:00.0																							
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	66.4	65.8	61.2	57.6	55.2	53.2	54.8	53.5	54.2	54.9	54.2	54.6	55.7	58.9	60.2	57.7	56	54.3	51.6	48.8	47.4	45.7	43.8	41.6	38.8
L90	45.3	48.6	47.1	46.2	42.8	41	39.6	39.4	39.5	38.2	36.2	35.8	35.7	36.2	36.4	34.3	33.3	30.9	28.1	25.5	23.1	20	16.3	13.4	10.5
Lmax	81.6	92.1	82	78.1	79.7	73.3	73.4	73.2	71.3	70.7	69.8	71	72.2	76.3	77.1	74.5	71.4	70.9	68.3	67.8	68.1	67.4	64.5	61.7	58.9
Lmin	41.2	40.3	39.6	39.1	36	34.8	33.9	33	33.4	32.2	31.1	31.8	31.2	32.2	31.5	29.9	28.8	26.2	23.5	20.5	19.4	16	12.3	9.6	8.6
Start Time	17/11/2014 09:50																							
Measurement Time	00d 00:15:00.0																							
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	66.2	65.3	61.4	57.9	57.4	59.1	54.8	54	55.9	55.5	53.8	54.8	56	58.8	59.5	57.5	55.7	54.5	52.2	49.5	47.5	45.6	43.4	41.2	38.3
L90	44.9	48.1	46.6	44.9	41.5	40.2	38.5	38.6	38.9	38.2	36.4	35.9	36.3	36.1	36	34.1	32.9	30.3	27.8	25.6	23.5	20.2	16.7	13.3	10.3
Lmax	84.3	88.4	84.9	79.8	80.1	83.3	77.7	77.3	83.7	81.1	74.9	74.9	76	78.5	79.3	76.6	74.8	75.7	74.7	72.8	70.2	68	64.1	61	59.3
Lmin	41.1	40.4	40	38.7	35.3	34.1	31.8	32.6	32.2	32.9	31.8	30.5	31.4	31.9	31.9	30	28.4	24.8	22.5	19.8	18.7	16	12.4	10.3	8.6
Start Time	17/11/2014 10:05																							
Measurement Time	00d 00:15:00.0																							
	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Leq	63.8	63	61.1	61.3	55.8	52.1	54.7	52.6	52.9	52.6	51.9	52.5	53.5	56.9	56.9	54.8	53.3	51.8	49.5	47.1	45.3	43.5	41.8	40	37.5

L90	44.8	48	46	45.9	41.7	40	38.8	38.1	38.1	37.6	35.5	34.9	35.5	36	35.5	33.7	32.2	30.3	28.2	26.2	24.6	21.7	19.1	16.2	12.9
Lmax	81.3	85.5	84.6	85	75.9	73.5	81.1	72.6	74.9	68.8	69	70.9	71.2	81.3	75.5	73.1	71.7	71	67.8	70.5	67.8	66.8	64.9	62.9	60
Lmin	41.7	40.1	40.5	40.1	35.2	34.8	33.2	32.8	33	31.8	31	30.6	31.7	32.2	31.7	30.2	28.9	26.7	24.4	22	19.7	15.7	12.1	9.5	8.2