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30th May 2012

ACOUSTIC
CONSULTANTS

15 – 27 BRITANNIA STREET, LONDON
STUDENT ACCOMODATION
NOISE & VIBRATION IMPACT ASSESSMENT

architectural

environmental

occupational

industrial

noise control at source

project management

planning

legal services

expert witness

Prepared for:

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1.0 SUMMARY

PDA were commissioned by Watkin Jones Group to carry out an acoustic assessment of the external ambient noise at the proposed development at Britannia Street, London.

The results of the survey were used to evaluate the sound insulation of the building envelope and to assess compliance Camden Development Policy DP28 and the guidance contained within WHO Guidelines for Community Noise. These assessments have demonstrated that utilising the window and ventilation specification recommended within this report the internal ambient noise levels comply with the design criteria.

In addition a vibration survey has been undertaken at the site of the proposed development. The results have been compared with the criteria contained within Camden Development Policy DP28. The results of this assessment have indicated that vibration levels are below the criteria for adverse comment and comply with the design criteria.

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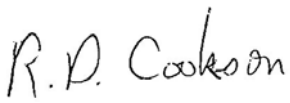

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2.0 INTRODUCTION

2.1 Site Description

The proposed development site is located at the junction of Britannia Street and Wicklow Street, approximately 50 meters to the east of Grays Inn Road behind the Royal National Throat Nose and Ear Hospital.

Britannia Street forms the north-western site boundary, with Wicklow Street wrapping around the west, south and south-east sides. To the north-east is a railway running in a cutting, which forms one of the approaches to Kings Cross Station about 200 metres away to the north-west.

The site is located in the Kings Cross Conservation Area, and the surrounding area comprises a mixture of residential and commercial development.

2.2 Proposed Development

The proposed development will consist of the following:

Applications for planning permission and conservation area consent associated with the partial demolition, rebuilding and extension of 15-27 Britannia Street in connection with the re-use of the site as student accommodation (226 bedspaces) with the provision of communal areas and an external courtyard, the creation of offices, the change of use of unnumbered properties on Wicklow Street to residential accommodation (two studio apartments) and a performance space/ gallery area.

3.0 NOISE ASSESSMENT CRITERIA

3.1 National Planning Policy Framework

National Planning Policy is guided by the National Planning Policy Framework. With regard to Noise the Framework states the following;

Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

The terms ‘significant adverse impact’ and ‘other adverse impacts’ are defined in the explanatory notes of the ‘Noise Policy Statement for England (NPSE) which states;

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

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.

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 notes also offer an explanation of the term 'other adverse impacts' as follows;

… 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.

It should be noted that no specific noise limits for LOAEL and SOAEL have yet been specifically defined, however, guidance from other acoustic standards may be employed to determine suitable levels within the overall principal of the National Planning Policy Framework.

Please note that the above guidance supersedes PPG 24 which has now been withdrawn.

3.2 Camden Development Policy DP28

Policy DP28 of the current (2010) Camden Development Policies provides noise and vibration thresholds for sites that are required for new developments. These are highlighted as follows:

28.4 In assessing applications, we will have regard to the Noise and Vibration Thresholds, set out below. These represent an interpretation of the standards in PPG24 and include an evening period in addition to the day and night standards contained in the PPG, which provide a greater degree of control over noise and vibration during a period when noise is often an issue in the borough.

Table A: Noise levels on residential sites adjoining railways and roads at which planning permission will not be granted

Noise description and location of measurement	Period	Time	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day	0700-1900	74 dB L_{Aeq}.12h	72 dB L_{Aeq}.12h
Noise at 1 metre external to a sensitive façade	Evening	1900-2300	74 dB L_{Aeq}.4h	72 dB L_{Aeq}.4h
Noise at 1 metre external to a sensitive façade	Night	2300-0700	66 dB L_{Aeq}.8h	66 dB L_{Aeq}.8h

Table B: Noise levels on residential streets adjoining railways and roads at and above which attenuation measures will be required

Noise description and location of measurement	Period	Time	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day	0700-1900	65 dB L_{Aeq}.12h	62 dB L_{Aeq}.12h
Noise at 1 metre external to a sensitive façade	Evening	1900-2300	60 dB L_{Aeq}.4h	57 dB L_{Aeq}.4h
Noise at 1 metre external to a sensitive façade	Night	2300-0700	55 dB L_{Aeq}.1h	52 dB L_{Aeq}.1h
Individual noise events several times an hour	Night	2300-0700	>82dB L_{Amax} (S time weighting)	>82dB L_{Amax} (S time weighting)

Table C: Vibration levels on residential sites adjoining railways and roads at which planning permission will not be granted

Vibration description and location of measurement	Period	Time	Vibration levels
Vibration inside critical areas such as a hospital operating theatre	Day, evening and night	0000-2400	0.1 VDV ms-1.75
Vibration inside dwellings	Day and evening	0700-2300	0.2 to 0.4 VDV ms-1.75
Vibration inside dwellings	Night	2300-0700	0.13 VDV ms-1.75
Vibration inside offices	Day, evening and night	0000-2400	0.4 VDV ms-1.75
Vibration inside workshops	Day, evening and night	0000-2400	0.8 VDV ms-1.75
Where dwellings may be affected by ground-borne regenerated noise internally from, for example, railways or underground trains within tunnels, noise levels within the rooms should not be greater than 35dB(A)max			

3.2 WHO Guidelines for Community Noise 1999

The building envelope will be assessed with reference to the obtained L_{eq} levels from the survey, to ensure that the internal noise environment will comply with the following criterion:

Table 1: Guideline values for community noise in specific environments.

Specific environment	Critical health effect(s)	L_{Aeq} [dB]	Time base [hours]
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16
Inside bedrooms	Sleep disturbance, night-time	30	8

4.0 SURVEY DETAILS

4.1 Survey Times

The survey was undertaken on the 16th and 17th May 2012 with all measurements being undertaken by Sam Catterall of PDA Ltd.

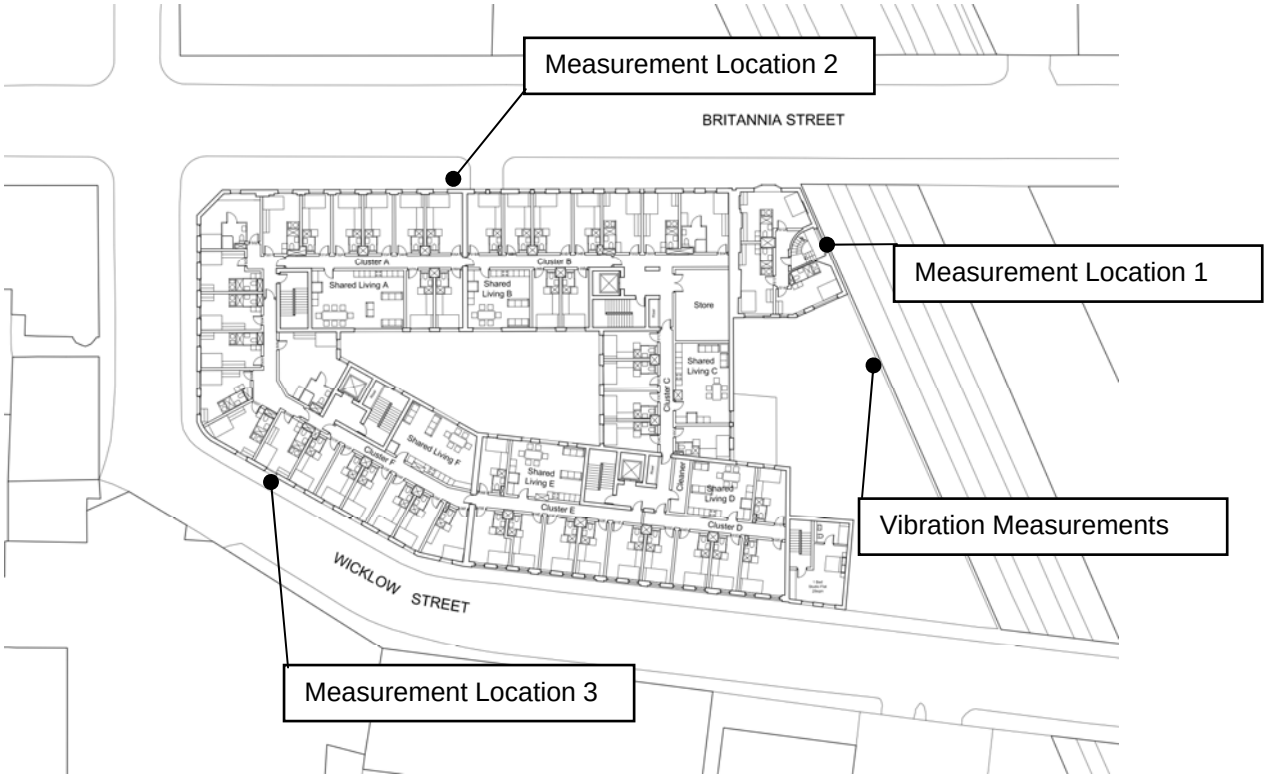
4.2 Weather

Weather conditions varied throughout the measurement periods, however noise measurements were only conducted when weather conditions were conducive to do so.

4.3 Measurement Locations

The measurements were undertaken at three locations on the site. The measurement locations are detailed as follows:

Figure 1. Measurement Locations



4.4 Measurement Equipment

The noise survey was conducted with NTi XL2 and CEL 573 sound level meters. The sound level meters are type 1 (as per BS EN 60651: 1994 and IEC 651) computing sound level meter capable of operating as integrating sound level meters in compliance with BS EN 60204:1994 (IEC 804). The meters were calibrated directly before any measurement took place and immediately afterwards and no significant drift was observed.

The vibration measurements were undertaken utilising a Svan 958 noise and vibration analyser. The Svan 912A conforms to ISO8041, ISO2631 and ISO5349 meeting the

requirements for a Type 1 meter. A high sensitivity tri-axial accelerometer was utilised to measure incident vibration levels

4.5 Measurement Procedure

4.5.1 Noise Levels

Measurements Position 1 was set up to continuously log 5-minute noise levels between 15:00 – 09:00. The meter was mounted on an extension pole and protruded out of a first floor window overlooking the train cutting

A Shorter term survey was undertaken at positions 1 and 2. The measurements were undertaken between 16:00 – 19:00 and 23:00 – 01:00. These measurements correspond to peak noise levels of the day and night. The sound level meter was mounted on an extension pole out of a first floor window during the daytime. As we were unable to gain access to the building at night the noise measurements were undertaken on the street at the same approximate locations.

All measurements were set to log octave band L_{Aeq}, L_{A90} and $L_{Amax,f}$ every 5 minutes. In addition all measurements were made at approximately 1m from the façade of the existing building.

4.5.2 Vibration Levels

A series of 10 minute tri-axial VDV measurements were undertaken within the ground floor of the existing building. The accelerometer was located on the concrete ground floor adjacent to the railway line.

4.6 Description of Noise Sources

4.6.1 Position 1

The dominant noise source was train noise from the adjacent railway cutting, however between the hours of 01:00 – 05:00 there was little train activity. During this period the dominant noise is likely to be distant traffic sources

4.6.2 Position 2

The dominant noise source was road traffic on Britannia Street with some contributions from train noise sources.

4.6.3 Position 3

This position experienced similar noise climate to measurement Position 2, however traffic noise was significantly reduced as there was little traffic on Wicklow Street. In addition plant noise was audible from the hospital building opposite the proposed development.

4.7 Measured Results

4.7.1 Noise Level Measurements

The noise measurements from the survey conducted by PDA are summarised in the tables below. Average L_{Aeq} levels are the logarithmic average of all the measured noise levels; Maximum noise data is the representative L_{Amax} that occurred at each position. Please note that all measurements were undertaken in close proximity to the façade of the existing buildings therefore the noise levels have been corrected by 3dB to correspond to the equivalent free-field noise level.

Table 2. Summary of Measurements

Measurement Position	Daytime Noise Level L_{Aeq}	Night-time Noise level L_{Aeq}	Night-time $L_{Amax(Fast)}$
1	67	63	83
2	62	59	80
3	55	51	73

4.7.2 Vibration Measurements

The vibration measurements are summarised within the table below. Vibration levels have been assessed by taking the highest measured 10 min level and assuming the vibration levels are constant through the 16-hour daytime period and 8-hour night-time period. Please note that this is a worst case assessment as there is unlikely to be any vibration between 01:00 – 05:00 due to reduced train activity.

Table 3. Summary of Vibration Measurements

Daytime Vibration Level VDV 16-hours, $m/s^{1.75}$	Night-time Vibration level VDV 8-hours, $m/s^{1.75}$
0.084	0.071

5.0 NOISE & VIBRATION LEVEL ASSESSMENT

5.1 Noise Levels

Reviewing the measured noise levels it can be seen that the levels do not exceed the limits at which planning permission would not be granted. However the average levels do exceed the criteria where attenuation measures would be required.

It should be noted however that during the night-time noise assessment levels do not regularly exceed the 82 dB(A) $L_{(s)max}$ criteria.

Please note that all our measurements have been undertaken utilising a fast time weighting which will result in higher L_{max} levels than using the slow time weighting. We would expect that the difference between fast and slow time weightings would be a reduction in measured L_{Amax} noise level of between 2 – 8dB.

5.2 Vibration Levels

The existing vibration levels measured are significantly below the daytime and night-time criteria detailed within Camden Development Policy DP28.

6.0 NOISE MITIGATION MEASURES

As previously discussed the major noise sources are road and rail traffic, we would therefore recommend that the noise mitigation scheme should be associated with the building fabric.

The sound insulation provided by the building envelope is a combination of the sound reduction indices of the individual façade elements and the area of the façade they cover. The result is a composite sound insulation value for the whole façade.

It is likely, however, that the acoustically weak areas that will dominate the sound insulation performance of the building envelope will be the windows and any ventilation inlets directly into the living spaces.

6.1 External Element Construction Details Recommendations

In order to meet the internal noise criteria detailed within Section 3.3 above we would recommend the following external element construction details:

6.1.1 External Walls

There are a number of external wall constructions for this proposed development, our recommendations regarding these are as follows:

Existing Wall Construction: At lower levels the development is proposed to utilise the existing masonry external wall façade. It is assumed that this will either be solid masonry or a cavity masonry and as such the acoustic performance will high in comparison with the other elements.

Extension wall construction: Above the existing external walls the development is to be extended. We have been informed that the wall construction will be of a cavity masonry construction and as such will have a high performance in comparison with the other building envelope elements

Mansard Roof: The details indicate a zinc clad mansard roof on third floor. In order to meet the requirements we would recommend that the mansard roof is constructed as follows. Zinc cladding composite panels on a minimum of 10mm fibre cement boards (min density 1250kg/m^2), 150mm cavity with a minimum of 60mm insulation quilt lined with 2 layers 15mm Gyproc wallboard. Please note that thermal insulation may be incorporated between the zinc cladding and the sheathing board if required.

6.1.2 Roof

It should be noted that as the dominant noise are low level sources such as rail traffic and road traffic the roof will be well shielded from all major noise sources.

We have been informed that the new flat roof construction will be a green roof and as such the mass associated with this type of roof is likely to meet the requirements.

The specification of the mansard roof is given in section 6.1.1 above.

It should be noted that there there is section of the development that is utilise the existing roof construction. Specifically these areas refer to the one bed studio flats adjacent to the railway line. Assuming the roof construction is ‘traditional’ pitched roofs comprising slate/concrete tiles on softwood battens on sarking felt on trussed rafters, we would recommend the ceiling is to consist of a minimum of 2 layers of 12.5 mm plasterboard and 100mm mineral wool laid on top.

- Glazing and Ventilation Inlets (where required)

As the glazing and ventilation inlets directly into habitable rooms are the acoustically weak area, the noise level incident on the façade will determine the type of window glazing used. Our calculations have indicated that the minimum requirements for each section of the building are as follows:

Figure 3. Glazing and Vent Requirements

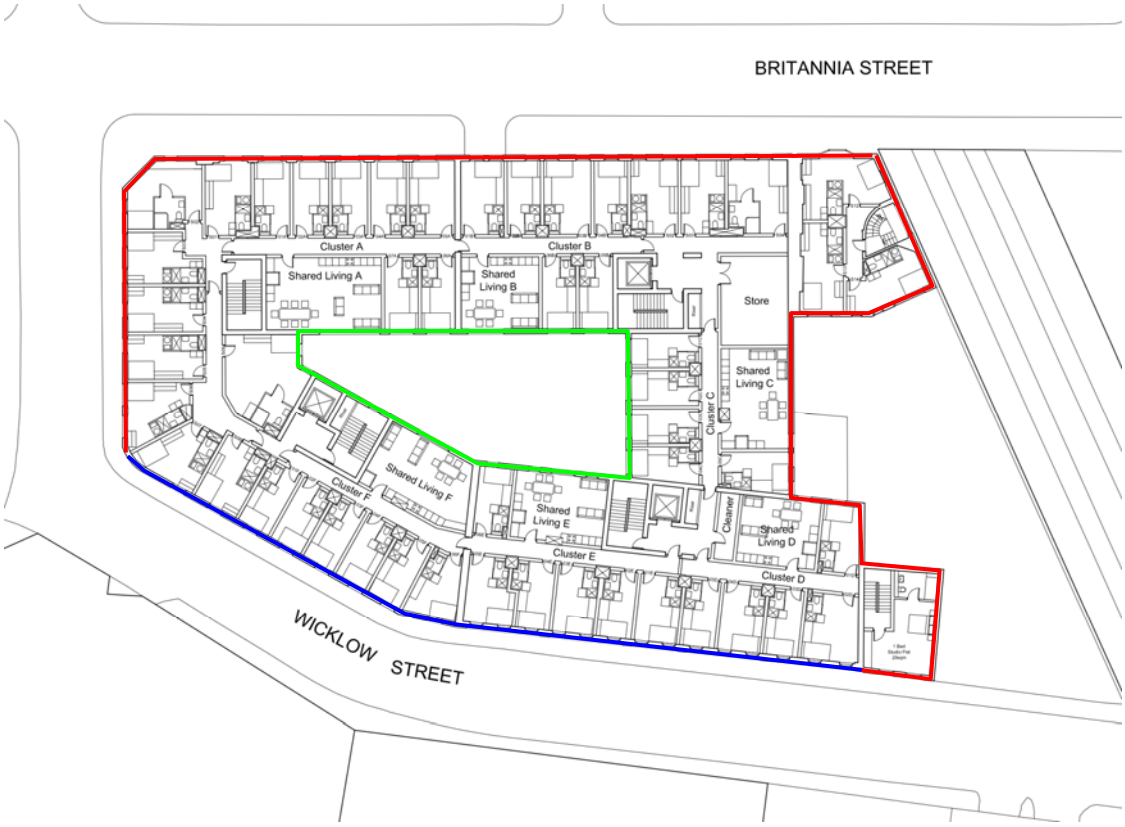


Table 4. Façade acoustic requirements

Section	Glazing	Vent
———	Double glazed 6mm pane, 12mm cavity, 10mm pane. Minimum acoustic performance to achieve 37dB R_w and 34dB R_{tra}	Passivent AldB 450. Any alternative product may be used as long as the acoustic rating is at least 40dB $D_{ne,w}$.
———	Double glazed 6mm pane, 12mm cavity, 6mm pane. Minimum acoustic performance to achieve 33dB R_w and 30dB R_{tra}.	RW Simon Acoustic EHA. Any alternative product may be used as long as the acoustic rating is at least 36dB $D_{ne,w}$.
———	As this section of the development is shielded from all noise sources we would consider that glazing and ventilation requirements are not critical for noise ingress into habitable spaces.	

6.2 Design Assumptions

Assessment and specification of the acoustic performance of the building envelope has been undertaken based on achieving the internal ambient acoustic conditions highlighted in Section 3.2 above.

Information on the sound insulation properties for specific element details have either been sourced from manufacturers literature or from Insul® Sound insulation prediction software.

The reverberation time within habitable rooms has been assumed as 0.5secs.

Calculations have been conducted on a representative sample of rooms. All room and façade dimensions have been scaled from the drawings supplied by Careyjones Chapmantolcher.

6.3 Glazing Specification

It must be ensured that the acoustic performance of the window frames must not reduce the performance of the glazing that is fitted within them. Glazing framing systems must be fully sealed with any small gaps (<10mm nominal) around perimeter to be stuffed with dense mineral wool to full frame depth and sealed both sides with acoustic non-setting mastic. No gaps should be left unsealed, and in no instance should lightweight foams be used as a sealant behind weathering protection.

6.4 Ventilation Requirements

Where our calculations indicate, the ventilator requirements described above are predicted to have adequate sound insulation to maintain the required internal noise level. It should be noted however that the inclusion of ventilators alone does not ensure compliance with Building Regulations requirements for ventilation. The ventilation strategy will need to be checked by others. Each habitable room needing façade ventilation inlets will need to incorporate no more than one of such inlets to achieve acceptable internal noise levels.

7.0 CONTROL OF NOISE EMISSION

7.1 Criteria

Noise emission from the development (i.e. mainly from any external mechanical plant) will need to be controlled to achieve acceptable levels of environmental noise in the surrounding areas.

The effect of industrial noise sources on the nearest noise sensitive residence should be assessed in accordance with BS4142:1997 – 'Method for rating industrial noise affecting mixed residential and industrial areas'.

This standard describes a method of determining the level of noise of an industrial nature, together with procedures for assessing whether the noise in question is likely to give rise to complaints from persons living in the vicinity.

The standard may be thought of as a procedure for comparing the noise from industrial sources with background noise levels in the absence of the industrial noise and determining the likelihood of complaints.

In accordance with BS 4142, the background noise level is the A-weighted sound pressure level at the assessment position that is exceeded for 90% of a given time interval (L_{A90}). The specific noise level is the equivalent continuous (L_{Aeq}) sound pressure level at the assessment position produced by the noise source over a given time interval.

Certain acoustic features can increase the likelihood of complaint over that expected from a simple comparison between the specific noise level and the background level. Where such features are present, these are taken into account by adding 5 dB to the specific noise level this is called the rating level.

This 5 dB correction should be applied if one or more of the following features occur, or are expected to be present.

- The noise contains a distinguishable, discrete, continuous tone (whine, hiss, screech, hum, etc.)
- The noise contains distinct impulses (bangs, clicks, clatters, or thumps)
- The noise is irregular enough to attract attention.

From the above the rating level is established, this being the value that is compared with the background noise.

The criteria specified within Camden Development Policy DP28 indicates that the noise from the equipment will need to be 5dB below the existing background

7.2 Noise Limits

Based upon the the quietest L_{A90} measurements undertaken during the survey the noise limits are detailed within the table below:

Table 5. Derived Noise Limits

Measurement Position	Cumulative Noise Limits dB $L_{Aeq,5mins}$
1	38
2	40
3	39

8.0 INTERNAL ACOUSTIC SEPERATION

It is noted that the proposed development includes a performance / gallery space to be occupied by university institutions that the development will serve and a ground floor common room and TV room. At this stage detailed information regarding the proposed constructions between spaces has not yet been developed.

It is possible that the proposed performance space may contain noise generating activities that may impact on adjacent residential properties. The likely activities associated with the proposed use are not yet known, however it is not considered that this space will be used for loud amplified music as would typically be found in a night club or bar.

Reviewing the location of the performance space the drawings indicate that the only habitable spaces that may be adjacent to the performance space are three studio bedrooms on the mezzanine level. No other habitable spaces are adjacent or above and therefore the only sound transmission path is likely to be via structural transmission and noise breakout from the roof.

The extract from Camden Development Policy DP28 detailing the entertainment noise criteria are as follows:

Table D: Noise levels from places of entertainment on adjoining residential sites at which planning permission will not be granted

Noise description and measurement location	Period	Time	Sites adjoining places of entertainment
Noise at 1 metre external to a sensitive façade	Day and evening	0700-2300	L_{Aeq}, 5m shall not increase by more than 5dB*
Noise at 1 metre external to a sensitive façade	Night	2300-0700	L_{Aeq}, 5m shall not increase by more than 3dB*
Noise inside any living room of any noise sensitive premises, with the windows open or closed	Night	2300-0700	L_{Aeq}, 5m (in the 63Hz Octave band measured using the 'fast' time constant) should show no increase in dB*
* As compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place			

We would consider that due to the fairly high level noise level from the rail line the noise limits detailed above should be fairly straight forward. Suitable measures that could be employed include wall linings, isolated floor slab and a high performance roof structure, such a concrete roof or a multi-layered buildup.

In respect to the ground floor common room we would consider that a floor designed to meet the requirements of the Building Regulations Approved Document E should provide sufficient resistance to the passage of noise.

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Appendix A: Measured Levels

L_{Aeq} Measurement Position 1

Date	Time	L_{Aeq} Broadband	L_{eq} Octave Band Centre Frequency							
			63	125	250	500	1000	2000	4000	8000
16-May-12	15:11:33	70.1	68.1	66.5	70.9	68.9	65.6	60	54.5	47.6
16-May-12	15:16:33	69.3	67.2	65.9	70.5	68.3	64.4	59	54.9	48.7
16-May-12	15:21:33	69.4	68	65.7	71	68.5	64.6	58.7	53.1	44.4
16-May-12	15:26:33	71.3	68.1	67.5	72.3	70.6	66.6	61.3	56.4	50.8
16-May-12	15:31:33	70.3	69.1	69	71.5	69.3	65.6	60.4	56	51
16-May-12	15:36:33	66.7	63.2	62.6	67	65.7	62.4	56.4	50.3	43.6
16-May-12	15:41:33	71.6	69.1	67.7	72.8	70.7	66.9	61.7	56.5	50.5
16-May-12	15:46:33	70.8	69.3	67.2	71.8	69.7	66.2	61.3	56.4	49.4
16-May-12	15:51:33	69.7	67	65.4	70.4	68.9	65.1	59.3	54.2	48.2
16-May-12	15:56:33	70.6	71.3	67.9	72.1	69.5	65.6	60.8	56.2	49.8
16-May-12	16:01:33	70.6	67.8	67.3	71.4	69.7	66	61.1	56	49.2
16-May-12	16:06:33	72.3	70.2	68.6	73.9	71.4	67.4	62	57.7	51.5
16-May-12	16:11:33	71.8	68.8	67.6	71.9	69.6	65.8	61	64.1	59.5
16-May-12	16:16:33	69.6	67.8	66.3	71.4	68.8	64.7	58.5	54.4	45.9
16-May-12	16:21:33	68.9	65.2	65.5	69.8	68.2	64	58.6	52.8	45
16-May-12	16:26:33	70.5	69.7	67.9	71.8	69	66.1	60.7	56.3	47.4
16-May-12	16:31:33	71.6	69.6	67.8	72.5	70.7	66.7	61.5	56.8	49.5
16-May-12	16:36:33	70.5	69.9	67.8	72	69.4	65.9	60.8	57	51.3
16-May-12	16:41:33	68.9	68.7	66.4	70.6	67.8	64.1	58.4	53.6	45.5
16-May-12	16:46:33	72.7	69.9	69.2	73.9	71.9	68	62.6	58.1	51.9
16-May-12	16:51:33	70.5	68.5	67.1	72.2	70.1	64.9	59.3	54.8	47.2
16-May-12	16:56:33	69.5	68.1	66.6	70.8	68.5	64.7	59.4	54.7	46.2
16-May-12	17:01:33	71.6	69.8	67.7	73.2	70.8	66.6	61	56.2	48.8
16-May-12	17:06:33	69.9	68.7	66.6	71.4	69.1	65	59.3	54.4	47.3
16-May-12	17:11:33	71.2	69.5	68	72.7	70.2	66.1	61.2	57.1	49.3
16-May-12	17:16:33	72.5	70	68.4	73.5	71.7	67.6	62.3	57.5	50.7
16-May-12	17:21:33	70.1	67.9	67.3	71.1	69.5	65	59.4	54.4	46.2
16-May-12	17:26:33	71.7	69.5	68.2	72.7	70.8	66.9	61.6	56.8	53.9
16-May-12	17:31:33	69.8	69.3	66.3	71.3	69	64.9	59.9	54.9	48.3
16-May-12	17:36:33	70.4	69	68.2	71.7	69.5	65.7	59.7	54.8	47.9
16-May-12	17:41:33	70.8	68.9	67.3	71.9	69.9	66	60.2	55.2	48.4
16-May-12	17:46:33	72.6	70.3	68.9	74.2	71.8	67.7	62.1	57.2	50.3
16-May-12	17:51:33	70.8	70.3	68.2	72.9	69.9	65.6	59.9	55.8	47.2
16-May-12	17:56:33	68.4	67.5	65.7	69.5	67.9	63.3	57.3	53.8	45.6
16-May-12	18:01:33	71.5	69.5	68	72.6	70.2	67	61.7	56.7	48.3
16-May-12	18:06:33	70.3	68.5	66.6	71.9	69.5	65.4	59.5	54.1	46.8
16-May-12	18:11:33	70.6	69.4	67.4	72.3	69.4	65.6	60.4	55.4	47.3
16-May-12	18:16:33	71.5	69.2	68.2	73.1	70.2	66.1	60.8	59.9	50.2
16-May-12	18:21:33	69.9	68	66.9	72	69.2	64.5	58.8	54.2	47.3
16-May-12	18:26:33	70.7	69.4	67.5	71.8	69.8	65.8	60.7	55.4	48
16-May-12	18:31:33	68.2	67.3	66.2	69.2	66.8	63.7	58.5	54.4	48.4
16-May-12	18:36:33	71.4	70.5	69.4	73	70.4	66.4	61	56.5	49.5
16-May-12	18:41:33	71.1	68.3	67.1	72	70.3	66.6	60.2	55.1	46.8
16-May-12	18:46:33	72.7	70.9	69.6	73.7	71.5	67.9	62.7	58.3	51.6
16-May-12	18:51:33	69.3	68.3	67.1	71.3	68.2	64.4	59.1	54.4	45.9
16-May-12	18:56:33	68	67.5	66.5	70.2	66.2	62.5	57.7	57.8	49.1
16-May-12	19:01:33	67.4	67.6	65.5	69.5	65.6	62.5	57.1	51.8	49.7
16-May-12	19:06:33	68.4	68.6	66.6	71.1	66.6	63.2	57.7	55.2	45.6
16-May-12	19:11:33	69.9	68.4	66.9	71.8	68.8	65	59.2	54.1	46.4
16-May-12	19:16:33	70.2	67.6	66.4	71.3	69.2	65.4	59.5	54	45
16-May-12	19:21:33	71.2	69.3	67	71.6	70.4	66.5	61	55.9	48.5
16-May-12	19:26:33	68.3	66.5	65.6	70.1	67.7	63.1	57.1	52.4	47.3
16-May-12	19:31:33	69.7	68.4	66.5	71.9	68.9	64.5	58.7	54.1	46.8
16-May-12	19:36:33	71.3	69.1	67.7	72.9	70.8	66.2	60.1	55.4	49.1
16-May-12	19:41:33	71.3	69	67.1	73	70.5	66.2	60.8	56.1	50.1
16-May-12	19:46:33	70.9	69	67.3	71.8	69.6	66.3	61.2	56.1	50
16-May-12	19:51:33	68.2	66.3	65.9	69.9	67.1	62.8	57	56.7	52
16-May-12	19:56:33	66.9	65.7	64.7	68.6	66.1	62.1	55.5	49.3	41.9

16-May-12	20:01:33	71.6	68.3	67.5	72.6	69.6	65.9	60.2	63.7	54.3
16-May-12	20:06:33	69.2	67.9	66.9	71.6	68	63.9	58.5	53.7	45.9
16-May-12	20:11:33	69.1	67.4	66.1	70.7	68.1	64.3	58.4	53.3	45
16-May-12	20:16:33	70	67.3	66.3	71.1	70	64.2	58.4	53.3	46.8
16-May-12	20:21:33	70.1	68.4	68	71.3	68.9	65.6	59.7	54.6	47.5
16-May-12	20:26:33	70.5	67.9	67.2	71.7	69.5	65.6	59.9	55	49.5
16-May-12	20:31:33	70.4	68.6	67.4	72.4	69.2	65.4	60.1	55.4	53.5
16-May-12	20:36:33	67.1	66.6	64.9	69.1	66.1	62	56.6	52	44.7
16-May-12	20:41:33	66.1	65.9	63.9	68.9	65.7	60.1	53.7	49.3	40.8
16-May-12	20:46:33	69.1	68.2	65.9	70.7	67.9	64.3	58.9	54.1	44.6
16-May-12	20:51:33	71.8	69.3	67.8	72.9	71.3	66.8	60.7	55.9	51.5
16-May-12	20:56:33	69.5	67.5	65.7	70.6	68.9	64.3	58.6	54.8	46.9
16-May-12	21:01:33	69.6	67	65.6	70.5	68.4	65	59.6	55.3	49.8
16-May-12	21:06:33	68.9	67.1	65	69.7	66.9	63	57.2	61.8	51.5
16-May-12	21:11:33	69.3	65.3	66.2	70.6	68.8	64.4	58.6	53.5	47
16-May-12	21:16:33	69.1	67.6	65.6	70.2	67.5	64.5	59.2	54.7	49.8
16-May-12	21:21:33	70.1	68.1	66.5	71.8	69.4	64.8	59	55.7	52.7
16-May-12	21:26:33	69.4	66.9	66.4	70	68.5	64.4	58.6	54.5	51.2
16-May-12	21:31:33	71.6	69.1	67.7	73	70	66.4	60.6	61.6	53.8
16-May-12	21:36:33	69.8	68.7	65.5	70.6	68.8	65.4	59.1	54.1	47.8
16-May-12	21:41:33	68	64.2	63.7	67.8	67.6	63.3	57.1	51.9	45.1
16-May-12	21:46:33	69	68.1	65.6	70.5	67.3	64.1	58.8	57.6	47.7
16-May-12	21:51:33	69.7	67.4	66	70.9	68.8	65	58.8	53.7	45.4
16-May-12	21:56:33	68.8	65.6	64.2	69.5	67.5	64.4	59.3	54.9	48.8
16-May-12	22:01:33	71.5	68.2	67	72.4	70.5	66.7	61.3	56.7	50.9
16-May-12	22:06:33	67.4	65.6	63.4	67.5	66.4	63	57.1	52.8	50.3
16-May-12	22:11:33	69.3	67.2	65.7	70.6	67.9	64.2	59.6	55.8	49.7
16-May-12	22:16:33	67.9	63.9	64.4	68.5	67.2	63.1	58.2	53.4	46.4
16-May-12	22:21:33	70.4	67.5	66	71.3	69.4	65.7	60.2	55.9	52
16-May-12	22:26:33	69.8	66.4	65.5	70.4	68.7	65.3	59.6	55.6	50.1
16-May-12	22:31:33	65	62.8	61.8	65.4	63.3	60.7	55.4	50.6	42.5
16-May-12	22:36:33	70.3	67.9	66.4	72	69.1	65.5	60.8	57.1	53
16-May-12	22:41:33	71.9	70.4	68.4	73.8	70.7	67	61.7	57.7	50.6
16-May-12	22:46:33	69.3	67.6	65.5	70.8	67.7	64.5	59	56.8	50.2
16-May-12	22:51:33	70.2	68.3	66.2	71.7	69.2	65.5	59.7	55.1	48.5
16-May-12	22:56:33	69.2	66.4	65.7	70.3	68.1	64.3	59	54.5	47.7
16-May-12	23:01:33	71.4	68.2	66.6	71.9	70.4	66.8	61.3	56.7	50.6
16-May-12	23:06:33	64	65.1	60.6	66.1	62.2	59.3	53.7	49.4	39.2
16-May-12	23:11:33	68	67.2	65.1	69.6	66.5	63.2	58	53.8	48.2
16-May-12	23:16:33	70.1	67.9	66.3	71.2	69.2	65.2	59.5	55.1	48.7
16-May-12	23:21:33	70.7	68.3	66.3	71.7	69.7	66	60.6	55.9	50.7
16-May-12	23:26:33	68.5	68.8	66.2	71.1	67.1	63.2	58	53.3	47.9
16-May-12	23:31:33	68.3	67	65.3	69.6	66.5	64.1	58.8	53.3	48.2
16-May-12	23:36:33	67.2	66.9	64.6	69.5	65.6	62.2	56.4	53.4	49
16-May-12	23:41:33	69.7	64.3	64.2	69	68.7	65.6	59.7	55.5	52.4
16-May-12	23:46:33	71.9	67.7	66.2	71.5	69.4	66.1	60	65.8	55.3
16-May-12	23:51:33	69.2	64.7	63.9	69.5	68.3	64.7	59.4	54.5	49.4
16-May-12	23:56:33	68.3	65.6	63.3	68.8	67.5	63.8	57.6	52.3	45.6
17-May-12	00:01:33	69.7	66.9	65	70.8	68.6	64.9	59.7	54.4	48.3
17-May-12	00:06:33	67.3	65.6	64.7	69.7	66.3	62	55.8	54.1	44.8
17-May-12	00:11:33	68.7	64.8	64	69.6	68	63.3	57	57.8	49.6
17-May-12	00:16:33	67.5	64.5	64	69.3	67	62.2	56	51	43.1
17-May-12	00:21:33	68	64.5	63.3	69.1	67.1	63.5	57	51.7	46.1
17-May-12	00:26:33	66.2	61.8	61.6	65.8	65	62.3	56.2	50.5	44.1
17-May-12	00:31:33	65.6	63	61.7	67.3	64.2	60.4	55.5	55.7	48.1
17-May-12	00:36:33	67.1	61.8	61.9	66.7	65.9	63.2	57.7	53.1	48.6
17-May-12	00:41:33	54.2	56.3	53	51.1	49.1	51.5	46.7	35	23.9
17-May-12	00:46:33	59.3	55.1	53.5	52.1	52.6	57.2	52.1	42.6	34
17-May-12	00:51:33	54.5	59.2	54.1	51.7	50.3	51.5	47	38	28.4
17-May-12	00:56:33	50.6	55.2	50.7	49	47.7	47.4	41.9	31	20.3
17-May-12	01:01:33	50.2	55.2	50.8	49.2	47.1	46.9	41.6	31.3	22.7
17-May-12	01:06:33	55.4	59.1	52.3	51.6	50.8	53	47.4	36.4	26.8
17-May-12	01:11:33	51.5	55.2	51.5	49.3	47.3	48.4	43.8	33.5	22.4
17-May-12	01:16:33	54.5	58.7	53.6	51.2	50.5	50.9	47.3	40.6	33

17-May-12	01:21:33	55.9	60.1	57.1	52.6	49.7	53.5	48.1	35.9	23.3
17-May-12	01:26:33	49.8	53.7	50.4	48.7	46.8	46.4	41.2	30.7	19
17-May-12	01:31:33	50.3	54	50.8	48.5	46.5	47.3	42.1	32.6	22.7
17-May-12	01:36:33	64	60.4	58.7	59.1	60.4	59.8	57.1	53.2	42.1
17-May-12	01:41:33	56.1	54.5	52.9	53.5	53.2	52.9	47.5	40.2	26
17-May-12	01:46:33	52.4	59	50.6	49.1	47.5	49.8	44.7	33.8	24.5
17-May-12	01:51:33	58.3	57.4	66.2	59.7	53.5	52.3	50.9	45.5	39.4
17-May-12	01:56:33	55.2	54.5	51.2	51	50	52.6	47.8	36.2	25
17-May-12	02:01:33	49.4	53	49.2	47.8	46.1	46.1	41.1	31.2	19.9
17-May-12	02:06:33	59.5	61.2	70.8	59.2	55.6	54.1	49.5	45.2	42.1
17-May-12	02:11:33	57.1	58.4	51.9	51.9	51.1	54.5	50.2	41.4	32
17-May-12	02:16:33	52	55.2	50.5	49	47.7	49.1	44.3	33.9	23.5
17-May-12	02:21:33	51.3	54.6	52	49.8	46.9	47.2	44.6	37.5	30.1
17-May-12	02:26:33	49.2	52.9	48.5	47.6	45.7	46	41	32	21.4
17-May-12	02:31:33	55.4	55.5	52.3	50.3	48.9	49.8	48.9	47.5	45.3
17-May-12	02:36:33	49.2	51.9	48.3	47.3	45.7	46.3	40.7	29.2	17.1
17-May-12	02:41:33	50	54.8	49.8	48.5	46.6	46.7	41.6	33.4	23.8
17-May-12	02:46:33	52.1	56.8	50.4	49	47.5	48.8	45.1	37.2	26.8
17-May-12	02:51:33	49.7	55.1	52.4	49.7	46.6	46.1	41.1	30.5	18.5
17-May-12	02:56:33	55.4	57.9	52.3	52	50.9	52.7	47.5	40.1	30.6
17-May-12	03:01:33	54.6	55.2	52.3	52.9	51.9	50.9	46.4	40.2	33.1
17-May-12	03:06:33	53.6	56.7	52.7	50.7	49.5	50.3	46.4	38.7	31.5
17-May-12	03:11:33	51.5	55	52	49.8	47.9	48.3	43.1	33.9	23.1
17-May-12	03:16:33	57.5	55.7	54.1	53	52.4	55	50	39	29.2
17-May-12	03:21:33	50	56.1	51.5	49.3	46.6	46.6	41.6	32.2	21.8
17-May-12	03:26:33	52.7	54.9	50.5	50	48.8	49.9	44.5	36.3	28.4
17-May-12	03:31:33	49.5	53.2	49.7	48.4	46.3	46.3	40.8	30.6	19.5
17-May-12	03:36:33	49.1	52.9	49.5	47.8	45.7	45.8	40.8	30.8	18.9
17-May-12	03:41:33	50.1	55.2	50.6	48.7	46.5	46.8	42.1	32.3	20.5
17-May-12	03:46:33	53.1	61.3	52.8	50.4	48.8	50.3	44.9	36	24.9
17-May-12	03:51:33	49.7	56.3	49.8	48.2	45.8	46.5	42	31.7	18.1
17-May-12	03:56:33	50.2	55.6	50.8	49.2	46.5	46.9	42.3	32	18.2
17-May-12	04:01:33	49.8	54.5	52.1	49	46.1	46.2	41.8	31.7	19.2
17-May-12	04:06:33	55.1	58.3	56	53.1	50.2	51.7	48.2	40.1	33.1
17-May-12	04:11:33	58.3	60.6	60.5	55.9	54.3	55	50.3	42.9	37.1
17-May-12	04:16:33	53	54.7	55.4	50.7	48.5	48.9	46.4	39.6	33
17-May-12	04:21:33	58.5	62.4	59	61.5	58	51.9	46.4	40.5	34.2
17-May-12	04:26:33	58.1	59.8	53.9	52.5	51.7	55.6	51.4	40.5	30.2
17-May-12	04:31:33	55.6	57.6	53.5	52.3	51.6	52.6	47.9	40	32.1
17-May-12	04:36:33	56.9	55.6	56.6	59.2	56.1	51.4	45.5	36.7	28
17-May-12	04:41:33	57.5	60.4	64.1	59.9	56.4	51.3	46.1	37.4	29
17-May-12	04:46:33	67.4	64.6	63.7	69.1	67	62	56.2	51.8	45.8
17-May-12	04:51:33	49.9	54.6	51.2	49.1	46.8	46.6	41.4	30.8	18.2
17-May-12	04:56:33	68.1	64	64	69.2	67.6	62.9	56.6	55.4	47.9
17-May-12	05:01:33	65.1	60.8	61.9	66.1	65.3	59.3	53.1	47.2	39.3
17-May-12	05:06:33	66.3	64	62.7	67.7	65.3	61.5	55.8	51	44.1
17-May-12	05:11:33	64.9	60.3	60.6	66.1	64.5	59.7	53.5	48.8	41.3
17-May-12	05:16:33	69.6	64.6	65.1	71.2	69.3	64.1	58.3	55.2	48.8
17-May-12	05:21:33	63.4	63.2	62.3	65.7	61.8	59	52	46.1	38.1
17-May-12	05:26:33	67.1	63.7	63	67.3	66.5	62.1	56	54.5	44.7
17-May-12	05:31:33	63.7	63.4	61.9	65.9	62.7	58.6	52.5	47.7	41.9
17-May-12	05:36:33	68.5	65.3	64.3	69.5	68	63.6	57.5	53.3	50.7
17-May-12	05:41:33	68.3	65.9	65.4	70.2	67.6	63.1	57.5	52.7	46.3
17-May-12	05:46:33	69	64.8	64.4	70.1	67.3	62.3	56.2	62.4	53.9
17-May-12	05:51:33	71	67.3	66.8	71.8	70.3	66.3	61.1	57.2	52.3
17-May-12	05:56:33	70.8	67.8	66.9	71.9	70.3	65.4	59.8	55.8	54.9
17-May-12	06:01:33	68.3	66.9	65.6	69.3	66.5	63	57.9	56.5	57.3
17-May-12	06:06:33	69.9	67.2	66.4	71.7	69.2	64.6	59	54.5	46.8
17-May-12	06:11:33	68.8	67	65.5	69.7	67.9	64.1	59	54.7	49.9
17-May-12	06:16:33	70.5	68.6	66.9	71.7	69.1	65.8	60.9	56.3	49.9
17-May-12	06:21:33	69.6	68.9	66.4	70.9	68.6	65	59.5	55.3	49.8
17-May-12	06:26:33	71.3	69.5	67.4	72.4	70.2	66.8	61.6	56.9	52
17-May-12	06:31:33	70.7	66.9	66.6	71.2	69.8	66	60.7	56.2	55.5
17-May-12	06:36:33	68	68.5	66.2	70.5	67	62.7	57.1	52.3	47.1

17-May-12	06:41:33	69.6	66.2	66	70.2	68.9	64.6	58.9	55.5	49.4
17-May-12	06:46:33	73	69.4	68.9	73.8	72	67.5	62.3	62.2	55.4
17-May-12	06:51:33	69.1	70	66.4	70.9	68	64	58.8	54.8	48.6
17-May-12	06:56:33	68.7	67	65.6	69.8	67.8	63.9	58.3	53.8	46.2
17-May-12	07:01:33	71	67.6	67.3	71.6	70.4	66.3	60.6	56.4	51.3
17-May-12	07:06:33	68.1	67.6	66	70.3	67.3	62.5	56.9	53	44.1
17-May-12	07:11:33	70.7	69.1	68.1	71.9	69.6	65.7	60.9	56.7	50.9
17-May-12	07:16:33	70.4	69.1	67.6	72.4	69.1	65.1	60	57.2	50.4
17-May-12	07:21:33	67.5	66.9	65.4	69.7	66.2	62.4	57.2	52.3	45.6
17-May-12	07:26:33	70.3	68.5	67.3	71.4	69.1	65.5	60.2	55.6	46.9
17-May-12	07:31:33	70.2	69	67.5	72.2	68.9	65.3	59.7	55.8	47.4
17-May-12	07:36:33	71.1	69.9	68.1	72.6	70.1	66.1	61	56.1	51
17-May-12	07:41:33	71.5	71.2	69	72.8	70.4	66.7	61.8	57.2	51.6
17-May-12	07:46:33	69.6	68.5	67.5	72	68.5	64.3	59	56.2	50.1
17-May-12	07:51:33	70.6	69.8	67.6	71.9	69.2	65.6	60.9	56.6	47.9
17-May-12	07:56:33	71	69.2	67.5	72.1	70.1	66.3	61.2	57.1	50.9
17-May-12	08:01:33	69.6	68.8	67.9	71.6	68.5	64.5	58.9	54.3	46
17-May-12	08:06:33	70.2	69.2	67.1	71.7	69.4	65.2	60.2	55.5	48.7
17-May-12	08:11:33	71	69.2	67.3	72.3	70.1	65.9	60.4	57.3	52.2
17-May-12	08:16:33	70.5	69	67.9	71.7	69.3	65.7	60.8	56.6	49.1
17-May-12	08:21:33	66.7	66.4	66.3	68.7	66.2	61.1	55.2	50.1	43.4
17-May-12	08:26:33	69.2	67.9	66.5	70.6	68.1	62.6	56.6	61	52.7
17-May-12	08:31:33	68.6	67.9	66.8	69.8	67.5	63.7	58.6	53.4	44.5
17-May-12	08:36:33	68.9	67.6	66.7	70.7	68.6	63.2	57.8	52.8	47.2
17-May-12	08:41:33	71.2	69.7	68.7	72.7	70.5	66	60.6	56.3	51.5
17-May-12	08:46:33	70.1	69	67.5	71.6	69	65.2	59.5	54.9	50.5
17-May-12	08:51:33	70.8	68.9	68	72.1	69.2	65.5	60.7	59.2	56
17-May-12	08:56:33	70.1	69	68.1	71.7	68.6	65.1	59.6	56.7	55.9
17-May-12	09:01:33	68.6	67.5	66.6	69.9	68.1	63.2	58.1	53.9	47.6
17-May-12	09:06:33	69.1	68.5	66.9	70.2	68.5	64.1	58.4	54.1	48.4
17-May-12	09:11:33	68.6	67.1	65.2	70	67.4	63.6	58.6	53.6	49.8

L_{Amax} Measurement Position 1

Date	Time	L_{Amax}	L_{max} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16-May-12	15:11:33	83.1	81.6	78.5	84.5	82.7	79.6	74.8	70.2	66.6
16-May-12	15:16:33	85.2	82.3	80.8	85.2	84.2	80.4	78.1	74.9	71
16-May-12	15:21:33	83	82.1	79.2	85.5	83	77.3	76	74.1	71.2
16-May-12	15:26:33	83.8	82.5	79.3	85.4	83.3	80.2	76.9	72.6	69.7
16-May-12	15:31:33	83.4	83.5	85.2	84.7	82.7	79.2	75.1	72.5	72.8
16-May-12	15:36:33	82.7	78.7	78.9	83.7	82.4	79.4	73.9	70.6	66.5
16-May-12	15:41:33	83.5	82.4	80.2	85.2	82.6	79.6	77	73.3	70.2
16-May-12	15:46:33	84.5	83.2	79.8	86.3	84.3	80.1	76.4	72.4	69.3
16-May-12	15:51:33	86.3	80.7	79.3	85.9	85.8	82.4	78.6	76.1	71.3
16-May-12	15:56:33	84.3	89.8	81.9	85.1	81.1	77.8	75.7	74.4	71
16-May-12	16:01:33	83.4	82.2	80.5	85.6	82.7	79.5	75.4	73.1	69.3
16-May-12	16:06:33	82.7	82.7	79.2	85.7	82.6	79	75.8	72.5	69.4
16-May-12	16:11:33	90.3	81.7	80.5	84.5	82.7	78.5	75.3	88.4	83.9
16-May-12	16:16:33	83.1	82.7	77.8	84.5	84.2	79.3	73.2	72.2	65.4
16-May-12	16:21:33	83.2	80.1	79.3	83.9	82.7	80.2	75.7	71.9	69.2
16-May-12	16:26:33	82.1	82.6	80.3	83.7	80.7	78.4	73	73.4	66.1
16-May-12	16:31:33	83.9	86.2	79.7	85.1	83.9	80.2	75.5	71.7	69
16-May-12	16:36:33	81.9	83	80.2	83.4	81.5	78.8	76.7	73.3	70.4
16-May-12	16:41:33	82	84.5	80.3	82.9	80.4	78.5	72.9	69	64.7
16-May-12	16:46:33	84.7	83.7	79.6	85.7	83.7	80.9	77.9	73.3	70
16-May-12	16:51:33	85	83.9	80.1	84.8	86.6	77.9	72.8	70.7	66.8
16-May-12	16:56:33	82.1	83.1	78.9	84.3	80.7	78.4	73.8	71.6	67.2
16-May-12	17:01:33	82.8	83.1	79.3	85	83.5	79.1	74	73.8	68.6
16-May-12	17:06:33	83	81.3	78.9	83.6	82	78.1	74.6	69.4	68
16-May-12	17:11:33	82.9	81.7	79.4	83.8	81.7	78.3	73.9	72.5	68.8
16-May-12	17:16:33	86.5	84.2	80.3	85.6	85.6	82.8	78.5	73.7	70.4
16-May-12	17:21:33	83	82	79.7	83.5	83.5	78.7	74.1	71.3	66.7
16-May-12	17:26:33	83.6	83.2	81	84.7	83.4	78.8	75.6	72.4	76.2
16-May-12	17:31:33	83.3	83.5	78.7	84.3	82.2	79.5	75.3	72.3	68.6
16-May-12	17:36:33	82.4	82.7	83.5	83.3	83.3	80.6	75.4	74.1	68.6
16-May-12	17:41:33	84.9	83.4	79.1	85.1	84	80.7	76.9	74.1	69.9
16-May-12	17:46:33	85.7	82.9	80.5	86.6	85.1	81.6	77.8	74.5	70.8
16-May-12	17:51:33	82.6	83.9	79.2	84.9	80.2	79.8	73.9	74	65.5
16-May-12	17:56:33	83	81	79.2	83.3	82.9	79.2	75	74	69.5
16-May-12	18:01:33	83.5	81.7	79.4	84.2	81.8	80.5	74.9	73.3	69.5
16-May-12	18:06:33	85.2	82.9	78.5	85	85.3	80.8	77.2	72.9	69.9
16-May-12	18:11:33	81.5	82.9	78.3	84.9	79.9	77.7	72.2	68.1	67.9
16-May-12	18:16:33	85	81.6	81.4	86.5	82.1	77.7	73.9	83.6	72.5
16-May-12	18:21:33	84.9	81.3	79.5	87	84.8	80.6	75.7	72.5	70
16-May-12	18:26:33	83.3	84.6	80.4	84.5	85.5	78.8	76.6	69.6	68.2
16-May-12	18:31:33	81.9	81.8	80.5	84.1	80.9	78.1	73.2	76.2	74.5
16-May-12	18:36:33	82.2	87.1	87	86.7	82	78.4	74.5	74.3	67.8
16-May-12	18:41:33	85	82.2	78.6	85.5	85.5	81.3	76.2	73.8	69.3
16-May-12	18:46:33	89.7	86	85.1	86.9	89.2	85.8	83.5	79.9	73.9
16-May-12	18:51:33	80.8	82.8	79	84	80.4	77.3	72.6	70.3	65.6
16-May-12	18:56:33	85	81.4	79.8	84.2	81.9	77.2	72.8	83.2	72.8
16-May-12	19:01:33	78.9	82.2	76.9	83	77.4	75.1	72.5	70.6	76
16-May-12	19:06:33	80.2	80.2	78.2	84.4	79.1	76.5	72.8	72.4	65.9
16-May-12	19:11:33	83.9	81.5	79.6	83.9	83.5	79.8	76	72.5	69.1
16-May-12	19:16:33	82.8	80.5	80	85.6	83.2	78.9	72.2	68.3	63.7
16-May-12	19:21:33	86.9	87.9	79.3	85.3	86.9	82.1	77.6	73.8	70.1
16-May-12	19:26:33	82.5	81.3	79.1	83.9	82	77.7	73.6	70.1	70.7
16-May-12	19:31:33	82.3	81.9	78.9	84.6	81.2	78.8	73.8	70.2	67.3
16-May-12	19:36:33	85	83.5	79.9	84.7	84.4	80.9	76.5	74.4	69.2
16-May-12	19:41:33	84.5	80.6	80.1	86.1	83.5	80.6	77.2	73	72.2
16-May-12	19:46:33	83	83.5	78.9	85.5	82.3	79.2	75.1	72.8	72
16-May-12	19:51:33	83	81.7	78.6	83.6	82.7	77.1	73.7	81.7	72.6
16-May-12	19:56:33	82.6	80.6	79.8	83	82.1	78.5	72.2	67.3	64.9
16-May-12	20:01:33	88.7	82	79.9	85.3	81.8	77.9	73.6	87.5	78.7
16-May-12	20:06:33	81.7	81.9	80	85	81.6	76.7	72.4	76.9	66.5

16-May-12	20:11:33	82	80.8	79.5	83.4	81.5	78.1	73	70.7	68
16-May-12	20:16:33	87.6	81.7	79.8	83.9	88.6	82.7	79.2	73.5	70.4
16-May-12	20:21:33	83.1	82.2	82.6	83.7	82.5	79.3	74.3	69.5	70
16-May-12	20:26:33	83.2	83.5	80.2	85.6	83.8	78.6	73.6	73.5	74.3
16-May-12	20:31:33	83.5	83.8	80	85.7	81.5	80.1	76.1	72.4	78.4
16-May-12	20:36:33	82.6	85	78.9	85.1	80.6	79	73.8	70.4	67.8
16-May-12	20:41:33	79.9	79.2	77.2	83.7	78.6	75.7	69.2	66.7	60.5
16-May-12	20:46:33	83.7	81.7	79.3	86.2	83.3	78.3	72.7	67.8	62.6
16-May-12	20:51:33	86	82	79.1	86	86.2	81.6	75.8	72.8	73.8
16-May-12	20:56:33	85.4	82.4	78.5	85	86.9	79.7	74.8	74.3	68.4
16-May-12	21:01:33	84.9	81.5	81.3	84.6	83.7	80.7	76.7	74.3	72.7
16-May-12	21:06:33	86.6	85.2	79	83.4	80.5	77.8	72.6	85.5	75.5
16-May-12	21:11:33	83.2	79	79.2	84.4	83.3	79	74.3	72	71.7
16-May-12	21:16:33	82.4	81.4	78.2	83.5	81.7	78.1	72.8	69.8	74
16-May-12	21:21:33	83.5	82.8	79.8	85.6	83.2	78.8	75.9	72.6	75.8
16-May-12	21:26:33	82.2	81.5	78.4	82.7	82.7	78.6	71.9	69.3	73.3
16-May-12	21:31:33	89.2	83.4	81.3	86	83.2	77.7	72.8	87.9	80.3
16-May-12	21:36:33	85.6	86.9	79.4	85.4	85.1	82	77.2	73.4	70
16-May-12	21:41:33	85.5	79.8	80.4	84.1	87	80	76.6	72.8	68.9
16-May-12	21:46:33	82.2	82	78.9	83.9	80.6	78	72.4	78.9	69.2
16-May-12	21:51:33	83.3	81.8	79.8	84.2	83.2	78.3	73.6	70.9	67.9
16-May-12	21:56:33	85.6	81	79.2	84.8	83.5	81.7	77.9	74.8	70.4
16-May-12	22:01:33	84.2	82.4	79.7	85.2	83.1	80.2	75.6	72.9	71.8
16-May-12	22:06:33	83.9	80.6	79.7	83.3	83.8	80.1	75	71.1	75
16-May-12	22:11:33	82.3	82.8	78.2	84.1	80.3	77.2	73.4	78.7	73.2
16-May-12	22:16:33	82.3	79.6	79.3	84	81.7	78	75.3	71.4	66.7
16-May-12	22:21:33	85.3	84.3	80.8	85.4	84.6	81.1	77.3	74.8	76.4
16-May-12	22:26:33	83.9	80.6	79.4	84.9	84.1	79.8	75.9	73.1	71.4
16-May-12	22:31:33	81.2	80.2	79.3	83	79.8	77.4	71.8	68	63.6
16-May-12	22:36:33	84.1	81.6	79.8	85.8	83.1	80.3	76.6	75.6	74.6
16-May-12	22:41:33	83.3	83.7	80.5	85.6	83.2	78.5	74.5	70.8	67.6
16-May-12	22:46:33	82.5	80.1	79.2	84	80.7	77.6	71.6	81.1	72.9
16-May-12	22:51:33	83.3	83	79.9	85.2	82.4	78.9	75	73.2	68.7
16-May-12	22:56:33	82.3	81.4	79.2	85.7	83.4	77.8	72.3	68.9	72.1
16-May-12	23:01:33	86.7	81.4	80.5	86.4	86.9	82.8	78.8	74.8	71.7
16-May-12	23:06:33	79.8	82.8	76.2	82.7	77.9	75.4	69	65	55.4
16-May-12	23:11:33	82.2	82.4	79.9	84.5	81	78.6	74.3	75.3	72.6
16-May-12	23:16:33	86.5	80.2	80.3	85.4	86.8	80.4	76.3	72.5	70.2
16-May-12	23:21:33	86.8	81.6	80	86.6	85.8	82.2	79.2	75.3	72.6
16-May-12	23:26:33	80.8	84.4	79.3	84.2	80	76.5	71.8	68.7	71.5
16-May-12	23:31:33	81.3	85.6	79.9	84.4	80.6	79.1	74.2	71.9	73.9
16-May-12	23:36:33	79.7	79.2	79.3	82.7	78.6	75.9	70.8	70.2	72.3
16-May-12	23:41:33	85.4	81.5	81.6	85.1	84.3	80.8	78.4	73.7	75.1
16-May-12	23:46:33	88.3	81.4	78.8	84.3	82.5	81	74.7	87.3	76.8
16-May-12	23:51:33	84.7	82.3	79.8	85.6	84.7	80.5	77	73.6	70.1
16-May-12	23:56:33	84	81	79.1	85.2	83.9	80.1	75.3	70.6	68.6
17-May-12	00:01:33	86.1	80.9	79.4	86.5	85.3	82.2	77.4	75.3	69.8
17-May-12	00:06:33	82.4	81.1	80.1	84.5	82.9	76.9	73.2	78.4	67.9
17-May-12	00:11:33	85.8	81.1	80.2	85.8	83	78.4	73	83.4	74.8
17-May-12	00:16:33	82.2	81.3	78.9	85.4	82.8	76.9	71.7	67.6	64.2
17-May-12	00:21:33	83.8	80.8	79.4	86.3	83.5	80.3	74.2	70.9	67.7
17-May-12	00:26:33	83.2	79.2	79.1	83.7	83	79.3	74.2	71.4	67.3
17-May-12	00:31:33	84.1	81.9	78.8	85.8	82.2	79.3	75.3	77.8	72.7
17-May-12	00:36:33	85.7	81.1	82.5	85.3	83.8	81.2	78	74.1	70.1
17-May-12	00:41:33	72.6	72.9	70.5	65.1	65.3	71	65.9	52.7	40.9
17-May-12	00:46:33	80.6	67.9	69.5	70.3	72.7	78.9	74.4	65.9	58.6
17-May-12	00:51:33	69.9	77.6	65.8	63.8	65.9	67.3	62.8	56	46.1
17-May-12	00:56:33	57.7	66.8	59.6	57.1	55.8	54.8	50.8	43	40.3
17-May-12	01:01:33	56.3	63.6	64.3	62.7	55.5	53.2	48.7	47.5	45.6
17-May-12	01:06:33	71.5	80.2	66	67	67.6	69.6	62.9	51.9	44.4
17-May-12	01:11:33	66.5	68.7	64.9	61.4	61.2	64.6	58.9	51.1	41.8
17-May-12	01:16:33	71.3	78.2	70.5	66	66.9	68.5	65.2	60.5	54.6
17-May-12	01:21:33	73.9	79.1	74.6	67.9	66.6	72.1	67.6	54.5	42.1
17-May-12	01:26:33	57.5	66.4	59.1	53.9	58.5	53.5	48.7	43.8	34.8

17-May-12	01:31:33	64.1	64.8	65.7	60.2	60.3	62	55.6	49.9	42.6
17-May-12	01:36:33	83.3	79.4	79.9	78.1	79.9	78.8	77.3	74.3	63.1
17-May-12	01:41:33	74.7	68	69.8	71.8	72.1	70.8	67.3	61.5	49.5
17-May-12	01:46:33	70.7	82	64	63	64.4	68.9	63	52.4	45.6
17-May-12	01:51:33	80.8	75.3	88.2	81.7	76	74.9	75.7	70.8	67.2
17-May-12	01:56:33	72.4	64.6	62.7	64.4	66.2	70.9	65.5	53.3	43.9
17-May-12	02:01:33	63.8	65.6	59.2	56	60.1	60.4	57.9	50.7	36.9
17-May-12	02:06:33	84.7	84.3	91.1	82.9	83.4	80.6	77.4	74.4	71.8
17-May-12	02:11:33	72.9	78.9	64.1	64.5	66.6	71.4	65.3	58.5	51.5
17-May-12	02:16:33	69.8	72.5	61.4	63	64	68.3	62.8	54.3	44.8
17-May-12	02:21:33	68.9	73.3	69.8	66.6	61.7	63.6	64.4	58.7	52.3
17-May-12	02:26:33	60.1	67.3	56.1	54.2	54.9	54.6	55.5	53.3	43.7
17-May-12	02:31:33	81.9	69.4	66	71.1	70.9	76.9	76.4	75.3	75.1
17-May-12	02:36:33	57	62.3	57.3	52.1	54.8	55.1	50.1	37.7	28.5
17-May-12	02:41:33	60.8	68.6	62	60.7	59.9	59.6	54.5	57.1	48.7
17-May-12	02:46:33	70	79.8	64.9	64.3	63.6	67.5	64.7	57.8	47.6
17-May-12	02:51:33	58.8	68.6	66.6	65.6	56.7	53.4	51.1	46.7	33.2
17-May-12	02:56:33	71.6	77.6	68.2	64.8	65.6	69.8	63.8	62.9	53.5
17-May-12	03:01:33	71	72.5	68	70.7	70.5	67	62.6	57.2	49.2
17-May-12	03:06:33	71.1	72.7	66.7	66.3	68.4	68.2	65.3	57.8	52.3
17-May-12	03:11:33	68.4	66.4	64.7	64.9	65.3	66.3	59.2	51.5	42.7
17-May-12	03:16:33	75.2	73.3	69.1	67.8	70.4	73.2	68	57.5	48.9
17-May-12	03:21:33	57.8	71	63.9	56.5	55.2	55.3	49.5	44.2	40.2
17-May-12	03:26:33	70.7	71.4	60.6	66	67	68.1	63.1	57.6	50.9
17-May-12	03:31:33	56	66	62.1	57.8	57.4	53.8	47.5	41.2	34.4
17-May-12	03:36:33	56.8	65.9	61.7	54.3	53.4	53.6	50.2	46.2	34.3
17-May-12	03:41:33	57.5	70.6	66.4	58.1	53.9	54.1	50.4	42.1	34.1
17-May-12	03:46:33	70.7	75.1	64.4	64.5	66.1	69.5	61.4	53.8	44.4
17-May-12	03:51:33	55.1	70.3	62.9	53.4	50.3	51.9	49.8	43.7	30.2
17-May-12	03:56:33	56.8	67	65	56.6	53.5	54.3	50.1	42.4	30.6
17-May-12	04:01:33	56.1	67.9	69	59	53.5	52	49.1	40.9	30.7
17-May-12	04:06:33	70.2	74.6	71.4	70.9	66.2	67.1	65	59.3	53.7
17-May-12	04:11:33	79.9	84.4	81.6	77.3	76.3	76.7	72.7	66.2	61.4
17-May-12	04:16:33	69.2	67.2	73.6	65.3	63.4	63.5	65.3	59.8	54.1
17-May-12	04:21:33	72	83.4	74.4	76.6	72.5	65.5	63.1	60.9	57
17-May-12	04:26:33	74.5	79.5	69.6	65.8	67	72	69.3	57.6	47.6
17-May-12	04:31:33	71.5	74.5	70.3	67.9	67.9	69.1	65.2	57.5	49.4
17-May-12	04:36:33	72.9	70.4	75.7	77.4	72.7	69.5	64.2	55.7	51.1
17-May-12	04:41:33	74.2	80.3	89.5	74.7	70.3	69	64.2	56.1	50.1
17-May-12	04:46:33	83.6	82.2	78.9	84.2	82.7	79.4	75.2	73.8	70.5
17-May-12	04:51:33	59.3	64.8	59.4	55	58.4	55.6	51.1	44.4	29.1
17-May-12	04:56:33	84.1	79.3	79.2	83.4	83.5	80.5	74.8	79.8	68.9
17-May-12	05:01:33	81.6	75.3	79.3	83.9	81.8	77.3	71.7	64	57.7
17-May-12	05:06:33	83.1	80.7	79	84.8	83.3	79.6	75.1	71.1	66.9
17-May-12	05:11:33	82.4	78.7	78.9	85.8	82.6	76.9	71	66.8	65.1
17-May-12	05:16:33	86.5	80.6	79.8	86.9	85	82	78.1	76.2	70.9
17-May-12	05:21:33	78.5	80.1	77.4	81.9	77.1	76.2	67.9	65	62
17-May-12	05:26:33	83.2	79.7	79.1	83.7	84	78.7	75.1	76.9	67.5
17-May-12	05:31:33	79.4	80.9	76.5	83.1	78.6	75	67.4	66.2	61.6
17-May-12	05:36:33	85.8	81.8	79.9	86.1	84.7	81.5	77	74.1	76.4
17-May-12	05:41:33	82.2	81.9	79.9	85.5	81.8	78.2	73.6	68.6	68.3
17-May-12	05:46:33	88.6	81.3	78.9	86.1	82.7	76.7	72.6	87.3	79.7
17-May-12	05:51:33	84.6	83	80.1	85.6	85	79.9	76.8	74.1	72
17-May-12	05:56:33	84.5	82.2	80.7	85.9	84.7	79.4	75.6	71.8	79.6
17-May-12	06:01:33	81.6	85.6	80.4	83.1	80.2	76.2	71.9	80.5	79.8
17-May-12	06:06:33	83.2	80	79.4	84	82.8	78.6	74.8	71	65.7
17-May-12	06:11:33	83.9	82.1	79.9	85.1	83.1	79.7	76.3	73.2	70.4
17-May-12	06:16:33	83.3	83.2	79.4	86	82.6	79.3	75.4	71.9	69.2
17-May-12	06:21:33	85.5	84.9	79.4	85.5	83.9	81.4	78.3	74.6	71.3
17-May-12	06:26:33	84.3	83.3	79.2	85.4	84.3	81.2	77.6	74.6	74.3
17-May-12	06:31:33	84	82.8	80.2	85.2	83.1	80.7	76.2	74.8	80.7
17-May-12	06:36:33	81.2	82.8	79	84.8	80.2	76.6	72.9	70	69
17-May-12	06:41:33	82.8	80.3	79.8	84.4	83.1	78.2	72.5	74.9	71.4
17-May-12	06:46:33	90.2	82.4	82.9	86.2	84.8	82.4	79.3	88.6	82.8

17-May-12	06:51:33	82.3	88.7	79.5	85.3	83.2	77.3	72.9	70.7	71.6
17-May-12	06:56:33	84.3	83.1	79.3	84.6	85.5	78.5	74	71.3	66
17-May-12	07:01:33	84.7	82.1	79.5	83.5	85.8	81.4	76.5	74.4	73.1
17-May-12	07:06:33	80.8	81.9	80.1	84.5	79.5	76.8	71.9	72.2	66.2
17-May-12	07:11:33	85.2	79.5	83.8	85.7	84.9	80.2	76.2	74.9	70.5
17-May-12	07:16:33	83.4	81.5	79.2	84.9	80.6	77.7	72.9	79.1	74.2
17-May-12	07:21:33	81.5	81.8	78.6	83.8	79.3	77.2	71.9	67.6	68
17-May-12	07:26:33	81.6	82.4	79.6	83.8	83.4	77.7	73	69.9	66.8
17-May-12	07:31:33	81.3	83.7	79.5	83.7	79.9	77.2	73	73.6	67.6
17-May-12	07:36:33	83	85	79.5	85	81.9	79.1	74.8	71.2	76.4
17-May-12	07:41:33	84.1	85.9	82	84.6	82.7	79.8	77.8	74.2	75
17-May-12	07:46:33	81.9	82.8	79.5	84.3	80.5	77.9	74.3	74.2	69.2
17-May-12	07:51:33	81.4	84.6	78.6	84	81.1	76.6	72.8	69.6	66
17-May-12	07:56:33	85.9	82.5	80.3	86.1	84.7	82.1	77.9	76.6	72.3
17-May-12	08:01:33	81.8	81.2	84.6	84.7	82.5	77.5	71.8	69.7	65.1
17-May-12	08:06:33	83.4	83.3	79.4	85.5	83.4	79.3	74.8	72.2	69.1
17-May-12	08:11:33	85.3	82	79	85.8	84.5	82.1	77	76.1	76.2
17-May-12	08:16:33	82	80.8	80	84.1	80.9	78.3	75.4	73.1	71.2
17-May-12	08:21:33	79.7	79.5	78.7	81.5	79.9	75.8	72.6	69.4	65.2
17-May-12	08:26:33	88.8	82.2	78.2	84	82.7	80.9	75.3	87.8	78.6
17-May-12	08:31:33	82	81.3	79.5	82.9	81.8	77.9	74.1	69.4	64
17-May-12	08:36:33	82.2	83.1	80.6	86	82.3	78	74	69.7	69.7
17-May-12	08:41:33	84.6	83.1	80.4	85.8	85.2	79.2	75	73.7	72.6
17-May-12	08:46:33	80.5	82.1	80.6	83.2	80.3	79.4	72.3	72.7	74.5
17-May-12	08:51:33	84.2	83.4	79.4	85.3	83.8	79	75.3	82.5	78.6
17-May-12	08:56:33	82.7	81.4	80.5	84.1	81.1	81.7	72.9	76.2	80.9
17-May-12	09:01:33	83.5	82.3	80.1	85.3	84.9	80.1	75.7	72.8	70
17-May-12	09:06:33	84	82.8	80.9	84.5	84.1	79.3	74.2	74.9	71.3
17-May-12	09:11:33	83.6	83.5	81.1	85.7	82.9	79.6	75.4	70.9	71.6

L_{A90} Measurement Position 1

Date	Time	L_{A90}	L_{90} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16-May-12	15:11:33	51	56	53	51	49	47	42	31	17
16-May-12	15:16:33	51	57	54	52	49	47	41	30	17
16-May-12	15:21:33	52	58	54	51	49	48	42	32	19
16-May-12	15:26:33	53	58	55	53	51	48	43	32	18
16-May-12	15:31:33	52	58	55	52	50	48	42	32	19
16-May-12	15:36:33	51	56	53	50	48	47	41	30	17
16-May-12	15:41:33	52	56	52	51	49	48	43	33	20
16-May-12	15:46:33	54	59	55	52	51	50	45	36	23
16-May-12	15:51:33	53	58	54	51	49	48	43	34	19
16-May-12	15:56:33	54	58	55	52	51	50	46	36	23
16-May-12	16:01:33	53	56	53	51	50	49	44	33	19
16-May-12	16:06:33	53	58	55	52	50	49	44	33	19
16-May-12	16:11:33	53	57	54	52	51	49	44	34	20
16-May-12	16:16:33	52	57	54	52	50	48	42	32	18
16-May-12	16:21:33	50	56	53	50	48	46	41	29	16
16-May-12	16:26:33	53	57	53	51	49	49	44	32	18
16-May-12	16:31:33	53	58	56	52	50	49	44	33	19
16-May-12	16:36:33	53	59	56	53	50	49	44	34	23
16-May-12	16:41:33	53	58	55	53	50	48	42	31	17
16-May-12	16:46:33	53	57	55	53	50	48	43	33	18
16-May-12	16:51:33	50	56	52	50	48	46	40	29	16
16-May-12	16:56:33	51	56	53	51	48	46	41	30	17
16-May-12	17:01:33	51	57	53	51	49	47	41	32	20
16-May-12	17:06:33	51	57	54	51	49	47	41	31	17
16-May-12	17:11:33	52	58	54	51	49	48	43	34	20
16-May-12	17:16:33	51	57	53	51	49	47	42	31	17
16-May-12	17:21:33	52	57	55	52	49	47	43	33	19
16-May-12	17:26:33	52	57	54	51	50	48	43	33	19
16-May-12	17:31:33	53	58	55	53	51	48	43	32	18
16-May-12	17:36:33	52	57	54	52	50	48	42	31	18
16-May-12	17:41:33	52	58	54	51	49	47	42	31	18
16-May-12	17:46:33	52	57	54	51	49	48	42	31	17
16-May-12	17:51:33	54	59	57	53	51	50	44	34	21
16-May-12	17:56:33	52	57	54	51	50	48	42	33	21
16-May-12	18:01:33	52	57	54	51	49	48	42	31	17
16-May-12	18:06:33	52	57	54	51	49	47	43	33	20
16-May-12	18:11:33	53	57	53	51	51	49	44	33	19
16-May-12	18:16:33	51	56	54	51	48	47	42	31	17
16-May-12	18:21:33	52	57	55	52	49	48	43	33	20
16-May-12	18:26:33	51	57	53	50	48	48	42	31	17
16-May-12	18:31:33	51	56	53	50	49	47	42	31	17
16-May-12	18:36:33	52	58	55	53	50	48	42	30	16
16-May-12	18:41:33	51	56	53	51	48	47	41	30	17
16-May-12	18:46:33	52	57	54	52	49	48	42	31	17
16-May-12	18:51:33	52	57	55	51	48	48	42	31	16
16-May-12	18:56:33	52	57	53	51	49	47	42	31	18
16-May-12	19:01:33	51	57	54	50	48	47	42	31	17
16-May-12	19:06:33	51	55	53	50	48	47	41	30	16
16-May-12	19:11:33	50	54	52	49	47	46	40	29	16
16-May-12	19:16:33	52	57	54	52	49	48	43	32	18
16-May-12	19:21:33	52	56	53	51	49	48	42	31	17
16-May-12	19:26:33	51	56	53	51	49	47	40	28	16
16-May-12	19:31:33	51	56	53	51	49	47	41	29	16
16-May-12	19:36:33	52	55	54	52	49	47	41	29	16
16-May-12	19:41:33	51	55	52	50	48	46	41	29	16
16-May-12	19:46:33	51	57	53	50	48	47	41	29	16
16-May-12	19:51:33	49	55	52	49	47	45	39	27	15
16-May-12	19:56:33	52	56	53	51	49	47	41	29	16
16-May-12	20:01:33	51	56	52	50	48	48	41	29	16
16-May-12	20:06:33	51	56	52	50	48	46	41	29	16

16-May-12	20:11:33	49	55	50	48	47	45	39	27	16
16-May-12	20:16:33	50	55	52	49	47	46	40	28	16
16-May-12	20:21:33	49	55	51	49	46	45	39	28	15
16-May-12	20:26:33	51	56	53	51	49	47	42	30	16
16-May-12	20:31:33	50	56	53	50	47	46	40	29	17
16-May-12	20:36:33	50	55	51	48	46	46	40	28	16
16-May-12	20:41:33	51	55	52	50	48	46	41	29	16
16-May-12	20:46:33	51	57	51	49	48	47	42	31	18
16-May-12	20:51:33	50	56	52	50	47	47	41	29	16
16-May-12	20:56:33	49	56	51	49	47	45	40	28	16
16-May-12	21:01:33	50	56	52	50	48	47	41	30	17
16-May-12	21:06:33	52	56	53	51	49	48	42	32	20
16-May-12	21:11:33	51	55	52	50	48	47	41	31	19
16-May-12	21:16:33	50	55	52	50	48	46	40	30	17
16-May-12	21:21:33	51	56	52	50	48	47	41	30	17
16-May-12	21:26:33	51	56	52	49	47	47	42	31	17
16-May-12	21:31:33	51	55	51	49	48	47	42	32	18
16-May-12	21:36:33	50	54	51	49	46	46	41	30	17
16-May-12	21:41:33	50	55	51	49	47	46	41	30	17
16-May-12	21:46:33	50	54	51	49	47	46	41	30	17
16-May-12	21:51:33	51	56	52	50	47	47	42	32	18
16-May-12	21:56:33	50	54	51	49	47	46	41	30	17
16-May-12	22:01:33	51	55	52	50	48	47	42	32	18
16-May-12	22:06:33	49	53	50	48	47	46	40	29	17
16-May-12	22:11:33	51	54	50	49	47	47	42	30	17
16-May-12	22:16:33	49	54	50	48	46	46	41	29	17
16-May-12	22:21:33	50	54	50	49	47	47	42	30	17
16-May-12	22:26:33	51	55	51	49	48	47	42	31	18
16-May-12	22:31:33	49	54	50	48	46	45	40	29	17
16-May-12	22:36:33	51	55	51	49	47	47	42	31	18
16-May-12	22:41:33	51	57	51	50	48	47	42	32	18
16-May-12	22:46:33	49	54	50	49	46	45	40	30	17
16-May-12	22:51:33	51	57	52	50	48	47	42	32	19
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16-May-12	23:31:33	52	58	54	51	48	48	43	32	19
16-May-12	23:36:33	51	54	50	49	47	47	42	32	19
16-May-12	23:41:33	50	54	50	49	47	47	42	30	17
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17-May-12	00:36:33	48	52	48	47	45	44	39	28	16
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17-May-12	00:51:33	48	50	48	47	45	44	39	27	16
17-May-12	00:56:33	48	50	48	47	45	44	38	27	16
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17-May-12	01:06:33	47	50	47	47	44	43	37	27	16
17-May-12	01:11:33	47	51	48	47	44	43	38	27	16
17-May-12	01:16:33	47	50	47	47	44	44	39	27	16
17-May-12	01:21:33	47	51	48	47	44	43	37	26	16
17-May-12	01:26:33	47	49	47	47	44	43	37	26	16

17-May-12	01:31:33	47	49	47	46	44	43	37	26	16
17-May-12	01:36:33	47	48	47	47	44	43	37	26	16
17-May-12	01:41:33	47	49	47	46	44	44	38	27	16
17-May-12	01:46:33	47	49	47	46	44	43	37	26	16
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17-May-12	01:56:33	47	49	47	47	45	44	38	27	16
17-May-12	02:01:33	47	49	47	46	44	43	37	27	16
17-May-12	02:06:33	47	48	47	47	44	43	37	26	16
17-May-12	02:11:33	46	48	46	46	43	42	37	26	16
17-May-12	02:16:33	47	48	46	46	44	43	37	26	16
17-May-12	02:21:33	46	48	46	46	43	42	36	26	16
17-May-12	02:26:33	46	48	46	46	44	42	37	26	16
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17-May-12	03:11:33	45	49	47	46	43	41	35	25	16
17-May-12	03:16:33	46	49	47	46	44	42	37	26	16
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17-May-12	03:36:33	46	48	46	46	44	42	36	26	16
17-May-12	03:41:33	47	50	47	47	44	43	38	27	16
17-May-12	03:46:33	48	52	49	47	44	44	40	30	17
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17-May-12	03:56:33	46	49	46	46	43	42	37	27	16
17-May-12	04:01:33	47	48	46	47	44	43	38	27	17
17-May-12	04:06:33	47	49	47	46	44	44	39	28	17
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17-May-12	04:31:33	48	50	47	47	44	44	39	28	17
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17-May-12	05:31:33	48	52	49	48	45	44	39	28	16
17-May-12	05:36:33	48	52	48	48	45	45	40	29	17
17-May-12	05:41:33	49	53	50	49	46	46	40	30	17
17-May-12	05:46:33	50	54	49	48	46	46	41	30	17
17-May-12	05:51:33	50	53	50	48	47	46	41	30	17
17-May-12	05:56:33	52	56	52	50	48	48	43	32	19
17-May-12	06:01:33	51	54	51	49	48	48	43	32	19
17-May-12	06:06:33	51	56	52	50	48	48	43	32	18
17-May-12	06:11:33	51	55	51	50	48	48	43	32	18
17-May-12	06:16:33	51	55	51	50	48	48	43	32	18
17-May-12	06:21:33	52	57	53	51	48	48	43	33	19
17-May-12	06:26:33	52	58	54	51	49	49	44	34	19
17-May-12	06:31:33	50	56	52	49	47	47	42	31	18
17-May-12	06:36:33	53	58	54	52	49	49	44	34	21
17-May-12	06:41:33	52	56	53	51	50	48	43	33	19
17-May-12	06:46:33	52	58	54	52	49	49	44	33	19

17-May-12	06:51:33	51	57	53	51	48	47	42	32	18
17-May-12	06:56:33	51	56	53	50	48	48	43	32	18
17-May-12	07:01:33	52	57	54	52	49	48	43	33	19
17-May-12	07:06:33	52	57	54	51	49	47	43	32	18
17-May-12	07:11:33	53	59	54	52	50	49	45	34	20
17-May-12	07:16:33	53	58	54	52	50	49	45	35	21
17-May-12	07:21:33	52	57	53	51	49	48	44	34	21
17-May-12	07:26:33	53	58	54	52	50	49	44	34	21
17-May-12	07:31:33	51	56	53	51	48	48	42	32	19
17-May-12	07:36:33	54	58	54	52	50	49	45	35	21
17-May-12	07:41:33	54	59	55	52	51	49	45	35	20
17-May-12	07:46:33	53	58	54	53	50	49	44	35	21
17-May-12	07:51:33	54	58	56	53	51	50	45	35	20
17-May-12	07:56:33	53	57	55	52	50	49	44	34	19
17-May-12	08:01:33	53	58	55	52	50	49	44	34	20
17-May-12	08:06:33	52	57	54	51	49	48	44	36	21
17-May-12	08:11:33	54	57	55	53	51	50	46	38	25
17-May-12	08:16:33	55	57	55	53	51	51	47	40	28
17-May-12	08:21:33	54	58	56	53	51	49	45	38	25
17-May-12	08:26:33	53	58	57	54	50	48	44	35	22
17-May-12	08:31:33	53	58	55	52	49	48	44	36	22
17-May-12	08:36:33	53	57	55	52	50	48	43	35	22
17-May-12	08:41:33	53	59	56	53	50	49	44	35	22
17-May-12	08:46:33	54	60	56	53	51	49	44	35	22
17-May-12	08:51:33	53	59	54	52	50	49	44	35	22
17-May-12	08:56:33	53	58	55	52	50	48	44	35	22
17-May-12	09:01:33	53	58	56	53	50	48	43	34	22
17-May-12	09:06:33	53	58	55	53	50	48	44	35	23
17-May-12	09:11:33	51	56	53	50	47	46	42	32	19

L_{Aeq} Measurement Position 2

Date	Time	L_{Aeq}	L_{eq} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16/05/2012	16:00:02	66.9	70.7	64.3	61.9	62.6	63	60.2	53.7	44.7
16/05/2012	16:05:02	65.3	73.6	63.7	62.9	60.6	61.5	58.4	51.3	43.7
16/05/2012	16:10:02	65.6	71.1	63.3	62.8	61.3	62.3	58	50	40.6
16/05/2012	16:15:02	66.7	75.6	63	61	60	63	61.2	50.4	44.2
16/05/2012	16:48:18	66.3	72.1	65.3	62.6	61.5	62.6	59.8	51.8	42.9
16/05/2012	16:53:18	64.9	71.8	63.8	62.3	60.6	61.7	56.8	48.7	38.3
16/05/2012	16:58:18	63.4	69.4	63.9	62.2	60.1	60.3	54.1	43.6	32.9
16/05/2012	17:03:18	64.0	70.9	62	62.9	61.1	60.6	54.7	46	35.1
16/05/2012	17:29:10	66.1	68.2	63.7	61.6	61	63	59.4	49.7	41.5
16/05/2012	17:34:10	64.6	69.3	65.5	62.7	61.6	60.4	56.8	50.2	41.3
16/05/2012	17:39:10	61.8	65	61.5	61.1	59	58.1	53.1	45.1	33.9
16/05/2012	17:44:10	64.0	68.8	63.9	61.9	61.1	60.6	54.9	45.7	34.7
16/05/2012	18:12:20	65.6	71.8	66.3	62.7	62	61.5	58.5	51.5	43.7
16/05/2012	18:17:20	62.2	66.7	63.6	60.7	59	58.6	53.6	45.5	35.3
16/05/2012	18:22:20	65.8	67.4	63.7	63	61.2	61.8	59.5	49.3	41.2
16/05/2012	22:57:30	62.9	67.8	60	59.3	58.7	60	54.8	46.3	36.7
16/05/2012	23:02:30	64.7	67.5	63.3	60.1	59.6	62.2	56.7	48.9	38.7
16/05/2012	23:07:30	60.2	66.5	60.4	58.5	57	56.5	51.7	43.6	34
16/05/2012	23:12:30	63.0	66.6	60.6	59.3	58.9	59.7	55.3	48.7	38.2
16/05/2012	23:41:26	60.3	71.6	63.5	59	55.7	57.5	51.6	40.5	30.9
16/05/2012	23:46:26	63.4	70.9	63.4	59.3	57.7	60.5	56.4	46.4	37
16/05/2012	23:51:26	62.1	65.5	63.2	57.9	57.7	59.2	53.8	45.8	37.4
16/05/2012	23:56:26	62.8	64.1	58.2	57.6	56.9	60.5	55.2	43.2	30.8
17/05/2012	00:26:48	55.7	64.3	58	54	52.3	52	47.6	38.8	23.7
17/05/2012	00:31:48	59.4	64.1	57.9	54.9	54.5	57.2	50.5	40.1	29.6
17/05/2012	00:36:48	62.2	64	59.9	58.2	57.5	59.9	53.6	45.5	37.8

L_{Amax} Measurement Position 2

Date	Time	L_{Amax}	L_{max} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16/05/2012	16:00:02	85.3	82.1	76	76.3	81.2	73.5	67.2	62.5	51.9
16/05/2012	16:05:02	90.3	75.7	78.3	72.4	76	73.6	69.5	60.6	52.9
16/05/2012	16:10:02	90	79.7	75.3	76	76.6	77.6	69.8	61.9	57.8
16/05/2012	16:15:02	99.3	81	76.5	75.6	83.3	83.4	70.4	68	56.1
16/05/2012	16:48:18	89.9	82.1	74.1	74.1	83.3	80.8	67.6	61.8	55.6
16/05/2012	16:53:18	86.7	80	79.4	77.1	75.4	70.4	69.2	55.8	45.1
16/05/2012	16:58:18	83.4	80	72.3	72.7	75.7	66	58	49.1	50.1
16/05/2012	17:03:18	83.7	73.6	72.5	70.5	72.3	65.1	57.9	48.5	41.4
16/05/2012	17:29:10	80	78.5	73.8	74	83.7	80.9	69.8	63.2	60.2
16/05/2012	17:34:10	82.4	83.2	76.3	78.1	75.4	73.5	68.2	60.3	52.5
16/05/2012	17:39:10	76.2	76.6	78.1	70.2	73.4	71	66.5	54.6	43.6
16/05/2012	17:44:10	83.8	80.7	73.1	78.5	79.8	71.2	62.1	52.7	39.6
16/05/2012	18:12:20	90.9	88.8	79.1	78.4	75.6	77.8	71.6	65.2	59.6
16/05/2012	18:17:20	81	78.9	72.9	72	76	68.2	67.6	57.9	41
16/05/2012	18:22:20	83.8	77.8	80.3	78.1	78.6	79.5	66	60.7	50.8
16/05/2012	22:57:30	84.4	75.3	74	75.7	77	70.7	65.2	55.1	57.1
16/05/2012	23:02:30	83.9	85.2	74.9	77.2	80.7	74.1	70.3	59.7	52.4
16/05/2012	23:07:30	77.2	78.7	72.5	70.9	73.5	67.5	63.1	54.6	41.3
16/05/2012	23:12:30	87.5	78.5	75.1	75.3	77	73.6	72	61.9	51.5
16/05/2012	23:41:26	82.4	73.1	71.9	70.8	74.5	66.7	56.4	50.2	44
16/05/2012	23:46:26	79.3	80.4	74	75.4	78.5	73.5	66.6	58.7	50.2
16/05/2012	23:51:26	76.2	88	76.1	76.8	79.7	71.7	68	60.6	51.7
16/05/2012	23:56:26	73.3	73	75.5	73.9	78.8	74.7	60.1	48.6	40.6
17/05/2012	00:26:48	81.6	75.5	68.8	68	62.4	61.8	59.8	45.2	32.3
17/05/2012	00:31:48	80	76.9	72.7	75	78.6	69.5	60.3	52.8	42.9
17/05/2012	00:36:48	79.2	80.1	75.9	76.9	81.4	71.3	67.4	61.3	54

L_{A90} Measurement Position 2

Date	Time	L_{A90}	L_{90} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16/05/2012	16:00:02	57	63	58	54	53	53	49	41	27
16/05/2012	16:05:02	56	65	58	54	52	51	46	37	23
16/05/2012	16:10:02	56	63	57	54	53	52	48	39	24
16/05/2012	16:15:02	56	61	55	53	51	51	47	36	22
16/05/2012	16:48:18	57	61	58	54	53	52	47	36	22
16/05/2012	16:53:18	57	64	57	55	53	53	48	39	24
16/05/2012	16:58:18	54	62	56	54	52	49	44	33	20
16/05/2012	17:03:18	56	62	56	54	52	51	47	37	22
16/05/2012	17:29:10	55	60	56	53	52	51	46	35	21
16/05/2012	17:34:10	56	61	57	54	53	52	48	37	22
16/05/2012	17:39:10	55	60	56	53	52	50	45	35	21
16/05/2012	17:44:10	56	59	56	53	53	51	46	35	20
16/05/2012	18:12:20	55	61	56	53	51	50	45	35	23
16/05/2012	18:17:20	55	60	56	52	51	50	45	34	21
16/05/2012	18:22:20	55	60	56	53	52	50	45	34	22
16/05/2012	22:57:30	54	59	53	51	50	50	45	34	21
16/05/2012	23:02:30	50	57	53	50	47	45	40	30	19
16/05/2012	23:07:30	53	60	53	51	49	49	43	34	20
16/05/2012	23:12:30	51	58	52	50	49	46	41	31	19
16/05/2012	23:41:26	53	70	61	55	48	46	42	32	20
16/05/2012	23:46:26	52	63	56	53	47	46	42	31	19
16/05/2012	23:51:26	50	59	52	50	47	46	41	31	20
16/05/2012	23:56:26	51	58	52	50	46	46	42	31	19
17/05/2012	00:26:48	49	56	50	48	45	43	40	29	19
17/05/2012	00:31:48	49	57	51	49	46	44	40	29	18
17/05/2012	00:36:48	48	57	51	49	45	43	39	29	19

L_{Aeq} Measurement Position 3

Date	Time	L_{Aeq}	L_{eq} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16/05/2012	16:24:26	58	62.2	58.2	57.4	56.3	53.1	48.4	41.2	30.9
16/05/2012	16:29:26	56	60.2	58.3	55	53.7	52.5	47.7	40.9	28.3
16/05/2012	16:34:26	55	59.7	57.8	56.8	53.1	50.6	46.2	38.5	27.4
16/05/2012	16:39:26	57	60.3	55.9	54.6	51.9	53.6	49.1	38	28
16/05/2012	17:07:02	55	60.6	56.6	56.3	52.7	49.7	46.2	39.6	28.3
16/05/2012	17:12:02	59	63.2	59.8	56.9	54.8	54.7	53.1	46.6	36.4
16/05/2012	17:17:02	57	62.1	57.6	56.5	54.7	52.8	48	41.3	31
16/05/2012	17:22:02	59	67.9	60.5	58.5	55.9	55.1	50	43	33.3
16/05/2012	17:50:46	57	63.3	63.2	58.2	54.4	51.9	47.2	38.8	28.1
16/05/2012	17:55:46	57	62.5	59.5	56.4	53.9	52.6	50.1	38.8	28.4
16/05/2012	18:00:46	57	61.5	57.9	56.9	54.5	52.5	46.9	39.5	29
16/05/2012	18:05:46	63	74	73.5	65.1	59.5	57	52.1	46.3	41.3
16/05/2012	18:28:44	57	62.2	58.1	57.5	53.8	52.7	47.7	39.4	29.1
16/05/2012	18:33:44	56	61.1	58.1	56.9	53	52.2	46.8	39.3	28.7
16/05/2012	18:38:44	56	60.8	59.7	56.4	53.3	51.2	46.9	39.2	28.4
16/05/2012	23:19:22	53	62.5	53.5	53.3	50.3	47.8	44.3	36.3	26.8
16/05/2012	23:24:22	54	62.8	54.6	55	50.4	50.3	45.2	37.6	27.5
16/05/2012	23:29:22	53	62.4	53.5	53.4	49.3	48.9	43.7	35.1	25.1
16/05/2012	23:34:22	53	64	53.4	54.1	50.5	48.6	43.7	35.2	24.8
17/05/2012	00:04:22	54	61.4	52.7	53.7	49.9	49.8	45.1	36.2	26
17/05/2012	00:09:22	55	63.6	55.3	53.8	51.3	51	47.3	38.1	28.8
17/05/2012	00:14:22	56	61.6	53.2	54	49.1	51.8	51.5	36	24.5
17/05/2012	00:19:22	59	66.7	58.6	57.6	55	55.1	49.6	41.7	32.6
17/05/2012	00:44:28	51	61.3	52.3	53.1	48.6	46.6	42.6	34.8	25.2
17/05/2012	00:49:28	51	60.9	51.2	52	47.3	46.3	42.2	33.3	24
17/05/2012	00:54:28	49	59.4	49.1	51.3	45.8	45.1	40.4	31.9	22.3

L_{Amax} Measurement Position 3

Date	Time	L_{Amax}	L_{max} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16/05/2012	16:24:26	70.4	76.4	69.1	65.5	68.9	70.4	61.2	57.7	48.7
16/05/2012	16:29:26	76.1	70.2	73.4	63	65.7	75.2	68.8	63.1	42
16/05/2012	16:34:26	69.1	68.1	70.6	66.7	68.6	65.4	63	56.7	42.6
16/05/2012	16:39:26	73.4	70.7	68.1	66	65.7	71.3	68.7	59.4	48.9
16/05/2012	17:07:02	69.4	70	66.8	69.5	65.2	65.5	63	57.2	45.8
16/05/2012	17:12:02	76.3	80.5	78.6	71.2	70.7	72	71	64.7	55.7
16/05/2012	17:17:02	68.7	73.4	68.9	65.7	64.4	68	61.8	58.1	50.5
16/05/2012	17:22:02	69.7	87	74	68.9	67.4	67.5	61.4	53.9	46
16/05/2012	17:50:46	66.4	76	79.2	69.8	66.3	63.7	60	50.9	42.4
16/05/2012	17:55:46	70.3	75.2	70.4	65.2	64.7	69.3	65.7	47.7	43.3
16/05/2012	18:00:46	70.1	73.8	68.4	67.1	67.2	67.4	60.4	52.5	47
16/05/2012	18:05:46	80.6	92.2	95	84.1	76.8	73.3	65.6	60.7	63.5
16/05/2012	18:28:44	65.4	77.4	67.5	68.1	62.2	63.2	57.7	52	46.1
16/05/2012	18:33:44	68.4	70.4	72.9	68.4	65.1	64.7	61.9	55.9	47.6
16/05/2012	18:38:44	67.6	67.3	69	65.7	63.5	63.4	62	49.6	38.3
16/05/2012	23:19:22	74.5	78.5	76.9	75.2	74	67.5	69.7	62.3	51.8
16/05/2012	23:24:22	67.2	74	69.2	70.4	62.5	63.8	61.3	55.2	45.9
16/05/2012	23:29:22	67.9	73.9	69.2	64	63.5	65.2	60.6	54.1	43.3
16/05/2012	23:34:22	74.0	76	75.5	68.6	74.8	67.4	64.2	58.1	46.9
17/05/2012	00:04:22	71.3	80.1	67.7	70.3	67.7	69.2	63.6	55.7	43.5
17/05/2012	00:09:22	70.1	75.2	69.9	66.7	66.4	68.5	64.3	54.2	49.8
17/05/2012	00:14:22	70.2	73	65.1	61.6	56.7	67.2	68.3	45.9	34.1
17/05/2012	00:19:22	74.7	85.4	74.8	73.4	70.2	72.5	67	64.7	52.3
17/05/2012	00:44:28	70.4	78.5	74.3	70.4	68.4	64	62.3	57	49.1
17/05/2012	00:49:28	59.6	72.8	62.6	58.6	56.3	55.4	56.1	42.5	34.9
17/05/2012	00:54:28	56.3	66.9	57	56.1	54	50.5	51	45.7	35.3

L_{A90} Measurement Position 3

Date	Time	L_{A90}	L_{90} Octave Band Centre Frequency							
		Broadband	63	125	250	500	1000	2000	4000	8000
16/05/2012	16:24:26	54	58	55	53	50	48	43	35	24
16/05/2012	16:29:26	53	57	54	52	50	47	43	36	26
16/05/2012	16:34:26	52	56	54	53	50	47	42	35	25
16/05/2012	16:39:26	52	57	53	51	49	46	42	34	24
16/05/2012	17:07:02	53	57	54	52	49	47	43	37	26
16/05/2012	17:12:02	52	57	54	52	49	47	43	36	25
16/05/2012	17:17:02	53	57	54	52	51	48	44	36	25
16/05/2012	17:22:02	54	59	55	53	51	49	46	40	29
16/05/2012	17:50:46	53	58	55	53	50	47	43	36	25
16/05/2012	17:55:46	53	58	55	52	50	47	43	36	25
16/05/2012	18:00:46	53	57	54	52	50	47	43	36	25
16/05/2012	18:05:46	53	59	54	53	50	47	43	35	23
16/05/2012	18:28:44	53	57	54	53	50	47	43	35	25
16/05/2012	18:33:44	52	57	54	52	49	46	42	34	24
16/05/2012	18:38:44	53	58	56	53	50	48	44	37	26
16/05/2012	23:19:22	49	58	49	50	46	44	40	32	22
16/05/2012	23:24:22	49	58	50	51	46	44	39	32	21
16/05/2012	23:29:22	50	58	50	50	47	45	40	32	22
16/05/2012	23:34:22	49	60	50	50	46	44	39	32	22
17/05/2012	00:04:22	50	57	50	50	47	45	41	33	23
17/05/2012	00:09:22	50	58	50	50	47	44	41	33	24
17/05/2012	00:14:22	50	57	50	51	47	44	40	33	23
17/05/2012	00:19:22	50	57	51	50	47	44	40	33	23
17/05/2012	00:44:28	49	58	49	50	46	43	40	33	23
17/05/2012	00:49:28	48	56	47	48	44	42	38	31	21
17/05/2012	00:54:28	47	55	46	48	43	41	37	30	20

Appendix B. Definition of Acoustic Terms

The decibel
This is the basic unit of noise, denoted dB.

A Weighting
This is a weighting process which simulates the human ear's different sensitivity at different frequencies. A weighting can be shown two typical ways, 50 dB(A) L_{eq} or 50 dB L_{Aeq}. Both mean the same thing. (See below for a definition of L_{eq}). The dB(A) level can be regarded as the overall level perceived by human beings.

L_{eq}* and *$L_{eq(s)}$
This is the equivalent continuous noise level which contains the same acoustic energy as the actual time-varying sound. In other words it is a kind of average noise level. It is denoted dB L_{eq} or, for A-weighted figures dB(A) L_{eq} or dB L_{Aeq}. It can also be expressed in terms of frequency analysis (see later). $L_{eq(s)}$ is the sample L_{eq} level.

L_n
This is the level exceeded for n% of the time. It is denoted dB L_n or, for A-weighted figures dB(A) L_n or dB $_{LAn.}$ It can be expressed in terms of frequency analysis (see later). L_{90} is the level exceeded for 90% of the time and is a measure of the lowest level typically reached. L_{10} is the level exceeded for 10% of the time and is the highest level typically reached. L_{50} is the level exceeded for 50% of the time and, mathematically, it is the median.

L_{max}
This is the maximum level reached during a measurement period. The "time constant", or the ability of the equipment to respond to impulses is usually expressed along with it, e.g. "Fast", "Slow", etc. It is denoted dB L_{max} or, for A-weighted figures dB(A) L_{max}, dB L_{Amax}, etc. It can also be expressed in terms of frequency analysis.

Frequency Analysis
Whereas dB(A) gives a very useful overall figure, it has its limitations in that it cannot be used to model or predict the effect of noise control and mitigation as this nearly always has radically different performance at different frequencies.

Frequency analysis expresses an overall noise level at each frequency or band of frequencies in the audible range. Octave band analysis divides the audible range into 10 bands from 31.5 Hz to 16 kHz and the noise level in each band can be expressed in any form e.g. L_{eq}, L_{90}, L_{max} etc. One third octave band analysis uses 30 bands.

Narrow band analysis takes the process to resolutions of less than 1 Hz. This is useful for identifying the existence of tones (whines, hums, etc.) and in pin-pointing the sources.