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20th October 2023

Luxury Living

Assessment of noise impact for proposed basement apartments at Globe House, M3 1LG.

Prepared for :-

Luxury Living
Globe House 30-34
Southall Street
Manchester
M3 1LG

Prepared by :-

Andrew Raymond

ADC Acoustics is a trading name of Acoustic Design & Control Limited
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1.0 SUMMARY

The noise was dominated at all times by traffic on Southall Street. During the daytime there was also significant construction noise. During the evening and night time more distant traffic was also audible, along with occasional voices.

Ignoring changes to windows, ventilation, room layouts and fit out, etc. reductions of up to 27 dB are likely to be required to meet all criteria in full. Windows would need to remain shut to achieve all criteria in full and it is likely that ventilation will need to be provided which gives occupants the realistic option of doing so.

With relatively minor upgrades to basic glazing, and moderate performance acoustic vents, all criteria should be achieved.

A R Raymond

P J Durell

2.0 INTRODUCTION

ADC was asked to carry out an independent assessment of the above site with regards to its suitability for residential development from a noise perspective.

This report begins by summarising assessment standards and, where appropriate, discusses alternative interpretations.

After a brief statement of survey details we discuss basic results and the resulting assessment, along with any mitigation which might be implied. We sum-up and conclude at the end, along with brief recommendations.

3.0 ASSESSMENT STANDARDS

3.1 NPPF, NPSE and NPPG

The National Planning Policy Framework (NPPF), the Noise Policy Statement for England (NPSE) and the National Planning Practice Guidance (NPPG) provide nothing in the way of quantitative criteria but instead provide general policy aims and statements and some guidance on how certain situations can be interpreted.

The NPPF's main statement on noise is to be found in paragraph 185:-

> 185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:
>
> a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life[65];
>
> b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
>
> c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

Paragraph 187 is also relevant:-

187.	Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

The NPPF refers to the NPSE which sets out the following aims:-

1. *avoid significant adverse impacts on health and quality of life;*

2. *mitigate and minimise adverse impacts on health and quality of life;*

   and

3. *where possible, contribute to the improvement of health and quality of life.*

It also introduces the concepts of:

- *NOEL – No Observed Effect Level. 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.*

- *SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.*

SOAEL is clearly something the policy seeks to avoid in aim 1. Aim 2 represents situations between SOAEL and LOAEL, and seeks to minimise and mitigate the effects.

The NPPG section on noise adds some further detail, much of it reproducing the NPPF and NPSE, but some useful qualitative guidance is provided Noise Exposure Hierarchy, as follows:-

Response	***Examples of outcomes***	***Increasing effect level***	***Action***
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

It also makes the point that the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation, including the level of the noise in absolute terms and how it might compare with the underlying background noise, the impulsiveness or intermittence pattern of the noise, its spectral content, and the time of day. It discusses in very general terms the issues to consider when introducing noise sources to existing noise sensitive area, new residential development in areas affected by existing noise sources (most of which have their own specific guidance, such as BS 4142, BS 8233, etc.) and the potential impact on wildlife.

3.2 BS8233 and WHO

BS 8233 was updated in March 2014. Quantitatively, however, the design criteria are little changed – just expressed differently to reduce ambiguity in certain situations.

The criteria in Table 4 of BS 8233 are based on WHO guidance and give the desirable criteria for indoor ambient noise levels for dwellings as follows:-

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,8hour}$	30 dB $L_{Aeq,8hour}$

Note that the standard accepts the widely used rule of thumb that, for a partly open window, the levels just outside will be 15dB higher than those just inside. This brings us to an external equivalent of the above table, as follows:-

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	50 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	55 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	50 dB $L_{Aeq,8hour}$	45 dB $L_{Aeq,8hour}$

It goes on to state that, where necessary, the criteria can be relaxed by up to 5 dB and still achieve reasonable conditions.

Note that the new version does not explicitly state criteria for bedroom noise in terms of dB L_{Amax} but the WHO Guidelines for Community Noise (or similar) are widely used with a recommendation that the noise inside bedrooms should not typically exceed 45 dB L_{Amax}, for instance no more than 10 to 15 times a night.

Garden area criteria are unchanged with 50 dB L_{Aeq} and 55 dB L_{Aeq} being considered desirable and reasonable respectively.

Note that the new version of BS8233 more explicitly specifies the assessment periods as 16 hour and 8 hour for daytime and night time respectively.

3.3 Local Authority

As far as we are aware no planning conditions have been proposed. However, Manchester City Council has produced a useful document *"Planning and Noise – Technical Guidance".* Section 3.6.1.1 deals with criteria for internal and garden levels for residential developments.

- *Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events should not normally exceed 45 dB $L_{Amax,F}$ by more than 15 times)*
- *Living Rooms (daytime - 07.00 - 23.00) 35 dB L_{Aeq}*
- *Gardens and terraces (daytime) 55 dB L_{Aeq}*

The document gives a number of reasons for these criteria, but essentially they are at the more stringent end of the criteria suggested in BS 8233 and the WHO Guide. The document justifies the stringent end of the criteria by stating that the acoustic performance of is often less in practice than specified by manufacturers/suppliers, which is reasonable enough. They also state that glazing acoustic performance does not usually take vents into account, which again is true.

However, we must emphasise that our calculations are based on in-situ measurements. We allow for on-site performance and our calculations always include for trickle vents, unless mechanical ventilation is proposed such that there are no trickle vents proposed.

4.0 GUIDE TO MODELLING

Full details of calculations are given in Appendix 2. The basic approach is as follows.

1. The external noise break-in is based on the level of external noise just outside the façade(s), the area of the façade(s), the sound insulation properties of the façade(s) and the internal absorption of the room.

2. Measurements were made within two of the worst affected. At face value, the measured levels should be reasonably representative of the proposed internal levels. However, we also need to incorporate changes, such as room sizes and layouts, glazing, vents, carpeting, etc.

3. We begin by analysing the existing room, and then comparing it to the proposed room(s) where different. The first input to the calculation process is the area of the exposed façade. Where more than one façade is exposed, then they can all be entered. The room depth is also entered so as to derive the room volume. Where the room is not a straight forward rectangular shape, an “effective depth” is sometimes entered so as to derive the approximate room volume. Judgement may occasionally be used if the room is not simple, such as a very unusual shape or a multi-use room such as a through-kitchen/dining room/living room, or studio-style area.

4. The reverberation time (RT) is entered. Usually this is a standardised 0.5 seconds for a completed and fitted out room and represents the absorption properties of the room. For an undeveloped site it is usually longer due to the absence of carpets and furnishings.

5. Two corrections result from the above inputs. Firstly, we have the Area Correction. Put simply, the greater the exposed area, the more noise will break in. The correction is 10 x log(Effective Area) and is usually a positive number. Note that the “Effective Area” takes account of the method of modelling vents – see later. The Room Correction takes account of the room absorption (more absorption reduces the noise) and the room volume (a larger volume disperses,

and so reduces, the noise). The correction is 10 x log(RT/0.163/Volume) and is usually a negative number.

6. These corrections, together with the sound insulation properties of the façade(s) give us the basic outside-to-inside level difference. The sound insulation properties of the façade(s), known as the Sound Reduction Index (SRI or just R) are effectively the sound insulation of $1m^2$ of material (apart from vents – see later). Of course, a façade is usually made up of more than one element – windows and walls for instance. The overall SRI or R is referred to as the Composite SRI or composite R and is related to the SRI or R or the individual elements and their respective areas. SRI or R figures are usually based on laboratory tests and therefore somewhat idealised.

7. An additional complication is that performance data for vents is generally standardised to $10m^2$. The area of a vent is therefore usually entered as $10m^2$, even though its actual area will usually be nowhere near that much.

8. So, the composite SRI or R, combined with the areas and room corrections gives us the basic level difference to be expected under perfect (laboratory) conditions. However, actual site conditions are affected by workmanship, which can never be guaranteed to be perfect, and flanking paths (noise paths other than straight through the façade(s)). Measured internal noise does not usually require a correction for this but it can be added if circumstances require it.

9. The calculated inside-to-outside level difference for the existing rooms is set against the actual measured levels when looking at the proposed rooms so that any changes (room sizes and layouts, glazing, vents, absorption (fit-out), etc.) can be taken into account and used to calculate the proposed internal levels.

10. The process is repeated in octave bands across the frequency range to derive the predicted internal levels.

5.0 SURVEY DETAILS

5.1 Site Times and Personnel

The measurements were carried out by Mark Pimlett of ADC Acoustics.

Measurements were carried out on from shortly before 15:00 on 26th September 2023 through to shortly after 11:00 the following morning. The measurements were periodically attended.

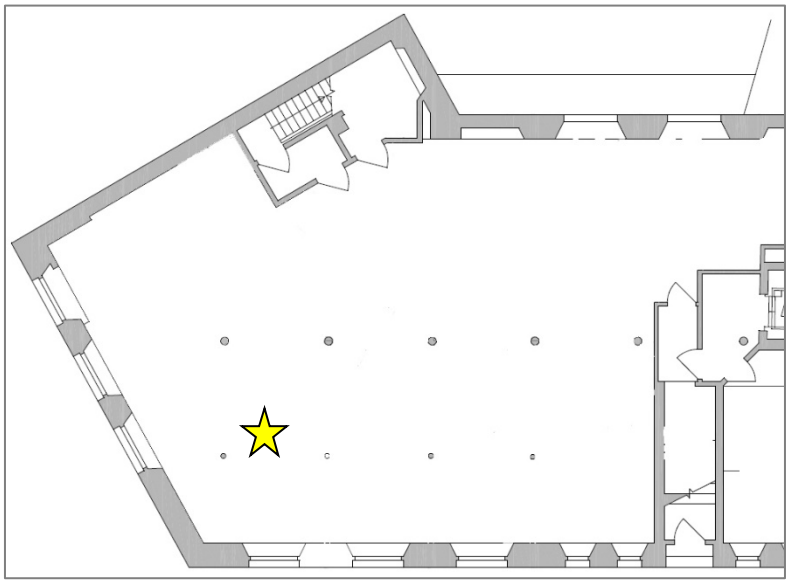
5.2 Instrumentation

Instrumentation used was a Rion NL-52 Class I sound level meter which holds a current calibration certificate and which was field-calibrated as necessary with no drift noted. The meter was set up to measure continuous 5 minute samples in terms of dB L_{eq}, dB L_{max} and dB L_{90} in

overall A-weighted terms, and in octave bands across the frequency range. See Definition of Acoustic Terms in Appendix 1.

5.3 Measurement Positions

The main measurement position was in the basement at a position roughly central for the proposed large Kitchen/Lounge. It was approximately as shown by the yellow star on the following plan.



The microphone was 1.3 m above ground and away from other reflective surfaces and obstacles.

5.4 Survey Conditions

We have no reason to believe that the conditions we found on the survey were anything other than representative of normal conditions. As the measurements were internal, the weather was not crucial but, for the record, there was no rain and roads were dry, and there was negligible wind.

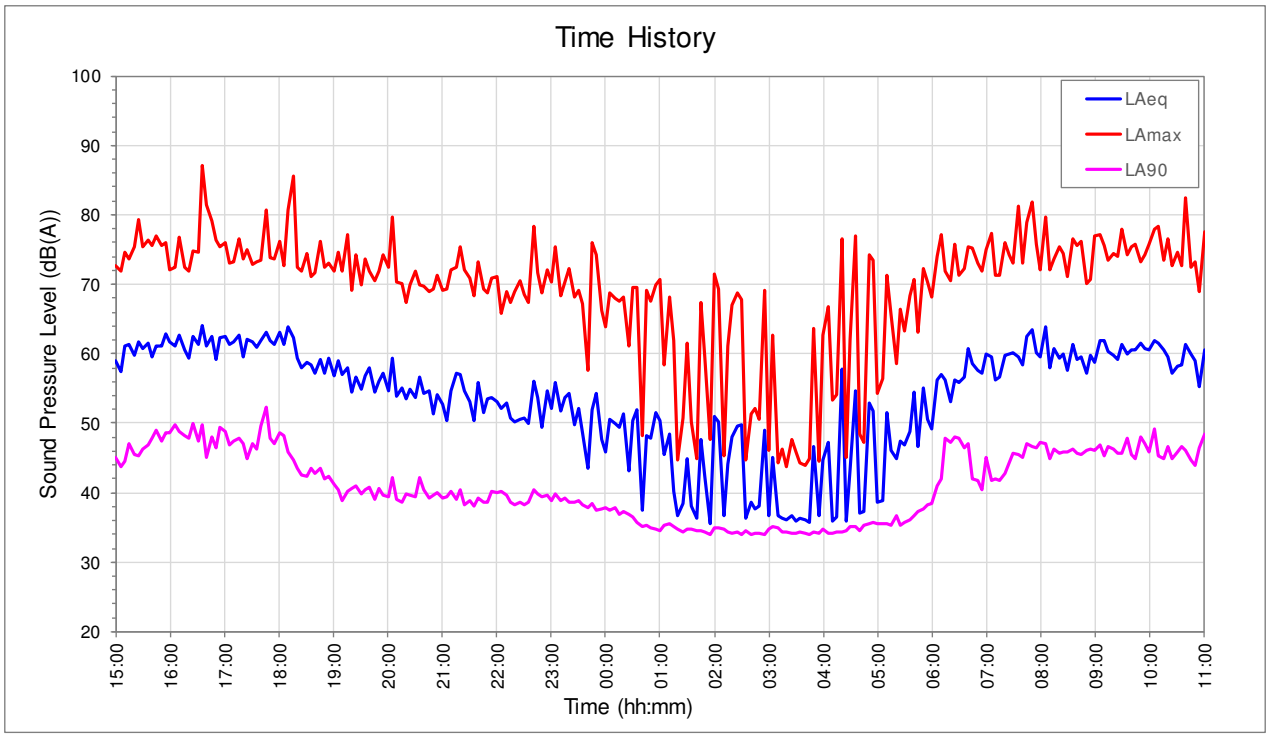
The car park was predominantly concrete, painted brickwork and painted plasterboard, as well as three cars which did not move during the course of the survey. Windows were open to the pavement level.

6.0 RESULTS AND DISCUSSIONS

The noise was dominated at all times by traffic on Southall Street. During the daytime there was also significant construction noise. During the evening and night time more distant traffic was also audible, along with occasional voices.

6.1 Basic Results

Results are presented graphically as follows:-



A summary of overall levels is as follows:-

Time Period	*Index*	***dB(A)***
Overall Daytime	Leq	**61**
	Lmax	**77**
	L90	**47**
Overall Evening	Leq	**55**
	Lmax	**72**
	L90	**40**
Overall Night Time	Leq	**51**
	Lmax*	**69**
	Lmax**	**72**
	L90	**39**

* Log Average

** Level Exceed 15 times (used in calcs)

6.2 Assessments

The above results give the following assessments.

In terms of BS 8233, we are mainly concerned with the dB(A) L_{eq} values, or the dB L_{Aeq} levels. See definition of Acoustic terms in Appendix 1.

The new version of BS 8233 no longer has night time criteria in terms of dB(A) L_{max} values, or dB L_{Amax} values as they have little basis in reser5ach and are rarely achieved is urban environments. They are used in MCC criteria (see discussion in 3.3 above).

The measured levels appear to suggest that sound insulation will ideally need to be designed to reduce external noise break-in as follows:

Position	*Environment*	*Reductions for BS8233 desirable* and MCC*	*Reductions for WHO-Type Criteria and MCC*
Main	Living Rooms	26 dB L_{Aeq}	-
	Bedrooms	21 dB L_{Aeq}	27 dB L_{Amax}

* BS 8233 considers a 5 dB relaxation would still provide *reasonable* conditions

So, ignoring for now changes to windows, ventilation, room layouts and fit out, etc. reductions of up to 27 dB are likely to be required to meet all criteria in full.

6.3 Modelled Levels and Mitigation

The levels suggest that windows would need to remain shut to achieve all criteria in full. In order to assume that windows are shut, it is likely that ventilation will need to be provided which gives occupants the realistic option of doing so. This can be achieved using active or passive ventilation which provides a suitable sound insulation. This could take the form of ventilation through acoustic or non-acoustic vents or a whole house-type system which does not require any wall or window vents.

Note that this assessment provides the specification for the acoustic performance of vents. Actual ventilation needs should be determined by others.

A summary of mitigation (or building elements assumed in our calculations) is as follows:-

Façade	*Room Type*	*Make-Up on Which Calculations are Based*
3 Bed Apartment	Kitchen / Lounge	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
3 Bed Apartment	Bedroom 1	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
3 Bed Apartment	Bedroom 2	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
3 Bed Apartment	Bedroom 3	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
1 Bed Apartment	Kitchen / Lounge	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
1 Bed Apartment	Bedroom	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450

NB. R_w should come with a negative C_{tr} term, usually around -5 dB, eg. 35 dB R_w and -5 dB C_{tr} is 30 dB R_w+C_{tr}

Note that the table provides the acoustic specifications (such as R_w for windows) to meet appropriate criteria. The glazing build-ups and vent models which are also shown are examples and many other options achieving the same acoustic performance are available.

Full calculation details are shown in Appendix 2 and a summary of predicted internal noise levels is as follows:-

Façade	*Room Type*	*Time*	*Index*	***dB(A)***
3 Bed Apartment	Kitchen / Lounge	Rush	Leq	**35**
		Night	Leq	**26**
			Lmax	**46**
3 Bed Apartment	Bedroom 1	Rush	Leq	**33**
		Night	Leq	**24**
			Lmax	**44**
3 Bed Apartment	Bedroom 2	Rush	Leq	**34**
		Night	Leq	**25**
			Lmax	**44**
3 Bed Apartment	Bedroom 3	Rush	Leq	**34**
		Night	Leq	**25**
			Lmax	**44**
1 Bed Apartment	Kitchen / Lounge	Rush	Leq	**34**
		Night	Leq	**25**
			Lmax	**44**
1 Bed Apartment	Bedroom	Rush	Leq	**34**
		Night	Leq	**25**
			Lmax	**45**

All criteria would appear to be met, albeit by a small margin in some instances. However, all calculations and assumptions err on the cautious side and so the assessments should be reasonably robust.

7.0 CONCLUSIONS/RECOMMENDATIONS

Ignoring changes to windows, ventilation, room layouts and fit out, etc. reductions of up to 27 dB are likely to be required to meet all criteria in full. Windows would need to remain shut to achieve all criteria in full and it is likely that ventilation will need to be provided which gives occupants the realistic option of doing so.

Note that this assessment provides the specification for the acoustic performance of vents. Actual ventilation needs should be determined by others.

With relatively minor upgrades to basic glazing and moderate performance acoustic vents, all criteria should be achieved.

We recommend that you issue this report to Planners and we would encourage Officers to contact us directly with any queries.

Appendix 1

Definition of Acoustic Terms

The Decibel

The decibel is the basic unit of noise measurement and is denoted dB. Technically, it is a means of expressing the difference in noise level between the measured noise and a standard level of noise. Most often the threshold of human hearing is used as the standard reference but is really should be stated. The threshold of human hearing is a sound pressure of 20µPa or a sound power of 1pW.

A sound pressure level or SPL should be expressed in dB(re. 20µPa). A sound power level or SWL should be expressed in dB(re. 1pW). If the reference levels are omitted, it will often (but not always) be safe to assume that they are referenced to the threshold of human hearing.

A-Weighting and dB(A)

The human hearing system responds differently to different frequencies. The A-weighting system takes account of this by emphasising mid and high frequencies more than low frequencies to given an overall level. An A-Weighted noise level, therefore, reflects the way normal, healthy hearing would perceive the overall level of the noise. The basic unit is dB(A), although other systems of expressing an A-weighted level are discussed below.

Other weighting systems, such as C-Weighting, denoted dB(C), reflect the human hearing system's response at higher noise levels.

Equivalent Continuous Sound Level, L_{eq}

This is a kind of mean noise level.

The unit is dB L_{eq}. For A-weighted levels the unit is dB(A) L_{eq} or, in more modern units, dB L_{Aeq}. The Noise at Work Regulations use $L_{eq(s)}$ which refers to a sample level.

Maximum Level, L_{max}

This is the maximum level reached (usually for a fraction of a second) in the measurement period.

The unit is dB L_{max}. For A-weighted levels the unit is dB(A) L_{max} or, in more modern units, dB L_{Amax}.

Statistical (Percentile) Levels, L_n

During a measurement of fluctuating noise, it is often useful to establish the levels exceed for a percentage of the time. L_n is the index representing the level exceeded for n% of the measurement period.

The unit is dB L_n. For A-weighted levels, the unit is dB(A) L_n or, in more modern units, dB L_{An}.

Common examples are as follows :-

dB L_{A90} is the A-weighted level exceeded for 90% of the time and is often used to describe the underlying background noise.

dB L_{A50} is the A-weighted level exceed for 50% of the time. Mathematically, it is the median, another kind of average.

dB L_{A10} is the A-weighted level exceeded for 10% of the time and has traditionally been used to describe the intermittent highs in the noise climate such as passing cars or aircraft.

Frequency Analysis

Here the audible frequency range is divided up into bands and the noise level is expressed in each frequency band form low pitches to high pitches.

Octave Band analysis is where the frequency range is divided into 8 bands from 63 Hz to 8kHz, or sometimes into 10 bands from 31.5 Hz to 16kHz.

1/3 Octave Band analysis provides more detailed subdivision into 24 bands from 50 Hz to 10kHz, or sometimes into 30 bands from 20Hz to 20kHz.

Narrow Band analysis takes this further with the possibility of many thousands of bands, possibly only 1Hz wide, or even less.

In all types of frequency analysis, the level in each band can be expressed in terms of L_{eq}, L_{max}, L_n, etc. as defined above.

Appendix 2

Measurement and Calculation Details

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
14:30	Leq	**62**	68	60	60	57	59	53	44	33
	Lmax	**74**	88	76	72	69	70	63	56	47
	L90	**48**	53	48	48	45	45	39	30	18
14:35	Leq	**61**	63	59	59	57	58	52	45	35
	Lmax	**75**	81	75	71	71	71	65	61	55
	L90	**49**	54	50	49	46	45	40	32	18
14:40	Leq	**62**	65	59	60	58	60	53	46	38
	Lmax	**79**	82	74	76	76	73	73	70	66
	L90	**51**	54	51	51	48	47	42	32	21
14:45	Leq	**60**	63	55	56	56	57	51	41	29
	Lmax	**73**	85	74	69	69	71	64	54	45
	L90	**46**	51	47	46	43	43	37	27	16
14:50	Leq	**60**	68	62	59	56	57	51	42	32
	Lmax	**75**	85	85	74	69	70	64	57	52
	L90	**46**	52	47	46	43	43	37	27	16
14:55	Leq	**59**	57	53	54	54	56	49	39	28
	Lmax	**73**	71	66	68	67	72	64	59	51
	L90	**45**	49	46	44	42	41	35	24	15

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
15:00	Leq	**59**	59	54	55	54	57	50	39	28
	Lmax	**73**	72	71	67	68	71	62	54	46
	L90	**45**	50	47	45	42	42	35	24	14
15:05	Leq	**57**	58	53	53	53	55	49	41	33
	Lmax	**72**	74	67	68	66	69	65	59	54
	L90	**44**	50	46	44	41	40	34	23	14
15:10	Leq	**61**	59	56	57	56	59	52	41	29
	Lmax	**75**	73	73	71	70	72	65	56	47
	L90	**45**	50	46	45	42	41	35	24	14
15:15	Leq	**61**	62	59	58	57	59	53	44	33
	Lmax	**74**	78	73	73	71	70	64	59	49
	L90	**47**	51	47	46	44	44	37	26	15
15:20	Leq	**60**	69	63	58	55	57	51	40	32
	Lmax	**75**	93	85	76	69	70	62	52	56
	L90	**46**	52	48	46	42	42	35	25	15
15:25	Leq	**62**	61	57	57	56	59	53	48	31
	Lmax	**79**	77	73	71	73	76	69	73	50
	L90	**45**	50	47	45	43	42	35	24	15
15:30	Leq	**61**	62	57	57	56	58	52	43	32
	Lmax	**75**	79	71	74	72	72	67	61	51
	L90	**46**	52	48	46	43	43	36	27	16
15:35	Leq	**61**	63	59	58	57	59	52	43	32
	Lmax	**76**	80	76	71	69	75	67	60	49
	L90	**47**	51	48	47	43	43	37	29	17
15:40	Leq	**60**	61	56	56	55	57	50	41	30
	Lmax	**76**	77	72	68	69	74	66	57	47
	L90	**48**	52	48	47	45	45	38	29	17
15:45	Leq	**61**	63	59	58	57	58	52	43	34
	Lmax	**77**	81	73	70	68	73	72	55	51
	L90	**49**	52	48	48	46	45	40	30	18
15:50	Leq	**61**	63	60	58	57	59	52	44	42
	Lmax	**76**	76	76	71	69	72	69	61	64
	L90	**48**	52	48	47	45	44	38	30	19
15:55	Leq	**63**	63	59	59	58	61	54	43	31
	Lmax	**76**	77	73	72	71	74	67	56	46
	L90	**49**	54	50	48	45	45	40	29	16
16:00	Leq	**62**	63	57	58	57	60	52	41	29
	Lmax	**72**	80	69	67	67	70	62	53	44
	L90	**49**	53	50	48	45	45	39	29	16
16:05	Leq	**61**	61	56	57	56	59	52	41	30
	Lmax	**72**	77	68	67	67	70	63	52	43
	L90	**50**	52	49	49	46	47	41	31	18
16:10	Leq	**63**	63	59	59	58	60	54	46	37
	Lmax	**77**	78	73	71	70	72	71	65	59
	L90	**49**	52	48	48	46	45	41	31	17
16:15	Leq	**61**	65	61	58	56	58	51	42	31
	Lmax	**72**	83	81	73	68	68	62	56	45
	L90	**48**	53	49	47	45	45	38	28	16
16:20	Leq	**59**	61	56	56	55	57	51	41	29
	Lmax	**72**	74	73	68	66	70	62	54	45
	L90	**48**	51	47	47	45	44	38	29	16
16:25	Leq	**63**	64	60	59	58	60	54	43	32
	Lmax	**75**	80	77	71	71	72	66	58	49
	L90	**50**	53	49	49	47	46	41	32	20
16:30	Leq	**61**	62	56	57	57	59	52	43	31
	Lmax	**75**	76	75	70	72	71	66	61	51
	L90	**47**	52	48	47	44	44	38	28	15
16:35	Leq	**64**	67	67	62	60	61	56	47	38
	Lmax	**87**	91	89	81	83	84	80	67	57
	L90	**50**	51	47	48	46	47	41	30	17
16:40	Leq	**61**	63	59	57	57	59	52	43	35
	Lmax	**81**	88	80	75	79	78	73	63	60
	L90	**45**	50	45	45	43	41	35	26	15
16:45	Leq	**62**	67	62	59	58	60	54	45	35
	Lmax	**79**	82	83	75	75	75	73	65	54
	L90	**48**	52	48	48	45	45	38	29	16
16:50	Leq	**59**	60	56	56	54	57	51	42	31
	Lmax	**76**	74	69	70	71	74	68	59	51
	L90	**46**	51	46	45	43	43	37	28	16
16:55	Leq	**62**	66	61	60	58	60	53	42	29
	Lmax	**75**	90	81	73	71	72	64	54	42
	L90	**49**	53	50	49	46	46	40	30	17

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
17:00	Leq	**62**	65	57	58	58	60	53	43	33
	Lmax	**76**	82	70	70	72	74	67	56	50
	L90	**49**	54	48	48	46	45	40	30	17
17:05	Leq	**61**	62	57	58	56	59	52	42	31
	Lmax	**73**	76	73	70	69	70	64	57	47
	L90	**47**	52	47	46	44	44	37	27	16
17:10	Leq	**62**	61	56	57	57	60	53	41	28
	Lmax	**73**	73	67	68	69	71	63	53	47
	L90	**47**	53	49	47	44	44	38	27	14
17:15	Leq	**63**	63	59	59	58	60	54	44	33
	Lmax	**77**	79	74	72	73	74	67	60	53
	L90	**48**	52	47	47	45	44	39	29	16
17:20	Leq	**60**	58	54	56	55	57	51	39	27
	Lmax	**74**	72	66	70	68	71	65	53	43
	L90	**47**	50	47	46	44	44	37	27	16
17:25	Leq	**62**	61	57	58	57	60	53	42	29
	Lmax	**75**	75	72	72	71	73	65	57	46
	L90	**45**	50	45	44	41	42	36	25	15
17:30	Leq	**62**	60	55	58	56	60	53	41	28
	Lmax	**73**	73	67	69	68	71	65	55	43
	L90	**47**	51	47	46	43	44	38	27	14
17:35	Leq	**61**	62	57	58	56	59	52	42	33
	Lmax	**73**	76	70	69	68	71	65	55	57
	L90	**46**	52	46	46	43	43	36	26	14
17:40	Leq	**62**	61	57	58	57	60	53	43	33
	Lmax	**73**	74	69	69	68	71	64	54	46
	L90	**50**	52	49	48	45	46	42	32	17
17:45	Leq	**63**	65	65	61	58	61	54	43	32
	Lmax	**81**	87	87	82	78	76	70	56	53
	L90	**52**	52	48	50	48	50	44	34	22
17:50	Leq	**62**	61	58	60	58	60	52	41	29
	Lmax	**74**	77	74	73	68	72	64	53	43
	L90	**48**	51	47	47	44	45	37	25	15
17:55	Leq	**61**	61	58	58	56	59	52	42	30
	Lmax	**74**	78	78	72	69	71	63	57	44
	L90	**47**	51	46	45	43	44	38	26	16
18:00	Leq	**63**	62	59	60	59	61	55	45	31
	Lmax	**76**	82	76	75	74	72	67	62	52
	L90	**49**	52	48	47	45	46	40	27	15
18:05	Leq	**61**	63	56	57	56	59	52	42	29
	Lmax	**73**	77	68	69	68	70	63	56	42
	L90	**48**	52	47	46	43	46	39	26	15
18:10	Leq	**64**	68	67	61	59	61	55	46	37
	Lmax	**81**	86	85	79	78	77	71	65	58
	L90	**46**	50	45	44	41	43	37	25	17
18:15	Leq	**62**	65	59	57	57	60	54	44	33
	Lmax	**86**	90	79	79	82	83	78	64	52
	L90	**45**	50	45	43	40	42	35	24	15
18:20	Leq	**59**	58	55	56	54	57	50	39	27
	Lmax	**72**	70	73	69	66	71	63	51	39
	L90	**44**	50	45	42	40	41	33	22	14
18:25	Leq	**58**	58	51	53	53	56	49	40	28
	Lmax	**72**	75	66	66	67	70	62	55	44
	L90	**42**	48	43	41	39	40	33	23	15
18:30	Leq	**59**	57	54	54	54	57	50	40	29
	Lmax	**74**	72	73	69	70	72	66	58	49
	L90	**42**	48	43	41	38	40	32	21	14
18:35	Leq	**58**	55	51	54	53	56	50	39	29
	Lmax	**71**	72	66	69	65	69	61	56	47
	L90	**44**	49	43	42	40	41	34	22	14
18:40	Leq	**57**	57	53	53	52	55	49	37	26
	Lmax	**72**	73	71	68	66	69	64	54	44
	L90	**43**	49	43	42	39	40	33	23	15
18:45	Leq	**59**	66	56	56	55	57	50	42	31
	Lmax	**76**	92	77	73	71	73	66	64	48
	L90	**44**	48	44	43	40	41	34	23	14
18:50	Leq	**57**	58	52	53	52	55	48	37	27
	Lmax	**72**	79	70	66	64	71	62	55	48
	L90	**42**	47	44	41	39	39	32	22	14
18:55	Leq	**59**	57	54	55	54	57	51	39	30
	Lmax	**73**	72	70	68	67	71	65	52	59
	L90	**42**	48	44	42	39	39	32	21	14

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
19:00	Leq	**57**	59	53	53	52	54	48	40	30
	Lmax	**72**	75	67	66	67	69	63	59	51
	L90	**41**	49	43	40	38	38	32	22	15
19:05	Leq	**59**	60	56	55	54	57	50	40	28
	Lmax	**75**	80	77	69	70	72	65	57	46
	L90	**40**	48	43	40	36	37	31	21	14
19:10	Leq	**57**	55	51	52	52	55	49	38	27
	Lmax	**72**	68	67	66	67	70	62	54	42
	L90	**39**	47	41	38	35	36	28	20	16
19:15	Leq	**58**	58	54	54	52	56	49	37	26
	Lmax	**77**	76	74	72	70	76	67	55	41
	L90	**40**	48	42	39	37	37	30	20	14
19:20	Leq	**54**	55	51	51	50	52	46	37	26
	Lmax	**69**	72	69	64	64	66	62	53	44
	L90	**41**	49	43	40	37	37	30	22	14
19:25	Leq	**57**	57	51	51	51	55	48	36	24
	Lmax	**74**	73	65	68	68	73	65	53	40
	L90	**41**	48	43	41	38	38	30	20	14
19:30	Leq	**55**	59	49	50	49	53	46	35	24
	Lmax	**70**	81	67	64	63	68	62	50	36
	L90	**40**	46	42	39	36	37	29	20	15
19:35	Leq	**57**	59	53	53	52	55	48	37	28
	Lmax	**74**	81	75	71	67	72	64	56	51
	L90	**40**	46	42	39	36	38	30	20	14
19:40	Leq	**58**	57	52	54	53	56	49	38	30
	Lmax	**72**	71	66	67	67	70	63	53	59
	L90	**41**	47	42	41	37	38	30	19	14
19:45	Leq	**55**	55	50	51	49	53	45	35	26
	Lmax	**71**	72	66	66	64	69	60	52	44
	L90	**39**	46	42	38	35	36	29	18	13
19:50	Leq	**56**	60	53	52	51	53	48	38	27
	Lmax	**72**	77	70	69	67	69	65	55	46
	L90	**41**	47	43	39	36	38	30	20	14
19:55	Leq	**57**	57	55	52	52	55	48	37	30
	Lmax	**74**	75	80	68	70	71	64	57	53
	L90	**40**	46	42	39	36	37	29	19	14
20:00	Leq	**55**	57	51	50	50	52	47	38	29
	Lmax	**72**	75	71	67	68	70	64	57	51
	L90	**39**	47	42	39	36	36	29	18	13
20:05	Leq	**59**	61	56	55	53	58	50	39	27
	Lmax	**80**	77	73	77	73	78	69	55	43
	L90	**42**	47	43	41	38	40	32	21	15
20:10	Leq	**54**	50	47	49	48	52	46	33	19
	Lmax	**70**	62	64	66	66	68	62	50	36
	L90	**39**	45	40	38	35	37	29	17	13
20:15	Leq	**55**	57	49	51	49	53	47	35	23
	Lmax	**70**	75	66	65	64	68	63	52	37
	L90	**39**	45	40	38	35	36	28	17	13
20:20	Leq	**53**	56	51	50	49	51	45	34	23
	Lmax	**67**	78	68	63	62	65	59	50	39
	L90	**40**	46	41	39	36	37	30	18	13
20:25	Leq	**55**	59	53	51	49	53	46	35	24
	Lmax	**70**	76	69	66	64	68	59	47	36
	L90	**40**	45	40	38	36	37	30	19	14
20:30	Leq	**54**	49	47	48	49	52	45	31	18
	Lmax	**72**	62	60	66	68	70	62	48	34
	L90	**40**	45	40	39	36	37	29	17	13
20:35	Leq	**57**	55	51	53	52	54	48	36	24
	Lmax	**70**	73	67	69	65	67	60	50	40
	L90	**42**	46	42	41	39	40	32	20	14
20:40	Leq	**54**	56	48	50	49	52	46	34	21
	Lmax	**70**	75	63	65	65	68	60	49	39
	L90	**40**	46	41	39	36	38	30	18	13
20:45	Leq	**55**	56	49	51	49	52	46	35	22
	Lmax	**69**	73	63	64	63	67	61	51	39
	L90	**39**	46	41	38	35	37	29	18	13
20:50	Leq	**51**	54	49	48	47	49	42	37	26
	Lmax	**69**	71	65	63	64	67	61	58	48
	L90	**40**	46	41	39	36	37	29	19	14
20:55	Leq	**54**	53	48	49	48	52	46	37	26
	Lmax	**71**	70	67	65	65	69	64	56	45
	L90	**40**	46	41	39	36	37	29	19	13

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
21:00	Leq	**53**	52	48	49	47	51	44	32	21
	Lmax	**69**	75	65	65	61	67	60	48	39
	L90	**39**	45	39	38	35	37	29	18	13
21:05	Leq	**50**	54	47	47	45	47	42	40	23
	Lmax	**69**	70	62	60	60	63	58	66	40
	L90	**39**	45	41	39	36	37	29	18	13
21:10	Leq	**55**	53	49	51	51	52	45	36	27
	Lmax	**72**	71	63	67	69	70	61	53	46
	L90	**40**	46	40	39	36	38	30	18	13
21:15	Leq	**57**	57	53	53	52	55	49	38	29
	Lmax	**72**	73	69	67	68	70	64	55	54
	L90	**39**	46	41	38	35	36	28	17	13
21:20	Leq	**57**	54	51	52	52	55	48	37	25
	Lmax	**75**	70	68	71	69	74	66	54	47
	L90	**40**	46	41	39	36	38	31	19	13
21:25	Leq	**55**	54	48	49	49	53	45	33	22
	Lmax	**72**	72	67	65	67	70	63	52	42
	L90	**38**	45	39	38	34	35	28	17	13
21:30	Leq	**53**	52	48	49	49	51	45	36	27
	Lmax	**71**	72	66	67	67	69	62	54	49
	L90	**39**	46	40	39	35	36	29	17	13
21:35	Leq	**50**	49	44	46	45	48	41	30	21
	Lmax	**68**	64	64	65	63	67	59	48	36
	L90	**38**	45	40	38	34	35	28	20	14
21:40	Leq	**56**	60	59	54	52	53	46	35	26
	Lmax	**73**	83	79	70	69	70	63	52	47
	L90	**39**	45	40	38	35	37	29	19	14
21:45	Leq	**52**	57	50	48	46	49	43	33	30
	Lmax	**69**	71	67	65	63	67	60	51	60
	L90	**39**	45	39	38	35	36	28	17	13
21:50	Leq	**53**	55	50	49	48	51	44	35	24
	Lmax	**69**	73	68	63	63	67	59	51	41
	L90	**39**	46	40	39	35	36	28	19	14
21:55	Leq	**54**	55	49	50	48	51	46	36	25
	Lmax	**71**	75	64	63	64	69	63	52	43
	L90	**40**	46	41	40	36	37	29	18	14
22:00	Leq	**53**	55	50	50	49	50	45	39	28
	Lmax	**71**	72	68	66	64	68	63	62	51
	L90	**40**	47	40	39	36	37	30	19	14
22:05	Leq	**52**	55	47	49	49	49	44	35	28
	Lmax	**66**	70	64	62	60	63	58	49	55
	L90	**40**	48	41	40	36	38	29	17	13
22:10	Leq	**53**	57	49	49	48	51	44	34	23
	Lmax	**69**	78	68	63	65	67	59	50	40
	L90	**40**	46	39	38	35	37	30	18	14
22:15	Leq	**51**	49	44	46	45	49	41	32	19
	Lmax	**67**	61	58	63	61	66	57	49	38
	L90	**39**	45	39	37	34	36	29	18	14
22:20	Leq	**50**	51	45	46	45	48	41	29	19
	Lmax	**69**	67	61	63	64	67	59	47	41
	L90	**38**	46	40	38	34	35	28	18	13
22:25	Leq	**51**	51	46	45	45	49	42	31	20
	Lmax	**70**	68	64	64	65	69	61	50	37
	L90	**39**	46	40	38	35	36	28	17	13
22:30	Leq	**51**	57	50	48	46	48	42	33	24
	Lmax	**69**	78	71	66	65	65	60	52	43
	L90	**38**	46	40	38	34	35	28	18	13
22:35	Leq	**50**	52	45	46	45	48	42	31	19
	Lmax	**67**	69	63	62	62	65	59	49	38
	L90	**39**	46	40	38	35	36	29	18	13
22:40	Leq	**56**	55	50	51	50	54	48	36	24
	Lmax	**78**	76	71	72	73	77	70	57	44
	L90	**40**	46	41	39	36	38	30	19	14
22:45	Leq	**54**	55	49	49	48	52	45	35	23
	Lmax	**72**	78	66	66	66	70	63	53	41
	L90	**40**	46	40	38	35	37	30	19	14
22:50	Leq	**49**	52	47	46	45	47	41	31	21
	Lmax	**69**	72	66	64	65	66	60	51	40
	L90	**40**	46	40	38	35	37	30	19	14
22:55	Leq	**55**	55	49	49	49	53	46	34	23
	Lmax	**72**	75	70	65	66	70	63	53	41
	L90	**40**	45	40	38	36	37	29	18	13

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
23:00	Leq	**52**	49	44	47	46	50	45	33	20
	Lmax	**70**	63	64	66	65	68	62	51	39
	L90	**39**	45	39	38	35	36	28	18	13
23:05	Leq	**56**	52	46	49	50	54	47	34	22
	Lmax	**75**	71	62	65	69	74	65	53	39
	L90	**40**	45	40	39	36	37	30	18	13
23:10	Leq	**52**	48	45	47	46	50	43	31	18
	Lmax	**68**	63	62	63	63	66	59	48	34
	L90	**39**	44	39	38	35	36	28	17	13
23:15	Leq	**54**	57	49	50	48	52	45	35	23
	Lmax	**70**	79	69	65	65	68	61	53	43
	L90	**39**	45	40	39	36	36	29	18	13
23:20	Leq	**54**	54	53	55	49	51	45	35	23
	Lmax	**72**	74	71	76	67	68	60	53	45
	L90	**39**	45	40	38	35	36	28	18	13
23:25	Leq	**50**	51	45	46	45	47	41	31	22
	Lmax	**68**	69	61	64	62	66	59	53	47
	L90	**39**	44	39	38	35	36	28	18	13
23:30	Leq	**52**	53	52	49	48	49	44	34	29
	Lmax	**69**	76	73	66	65	66	60	51	54
	L90	**39**	45	40	38	35	36	29	18	13
23:35	Leq	**49**	52	47	45	43	46	40	28	17
	Lmax	**67**	73	66	60	61	65	58	48	34
	L90	**38**	44	39	37	34	35	28	18	13
23:40	Leq	**43**	48	43	44	39	40	34	26	21
	Lmax	**58**	64	60	61	52	53	46	38	33
	L90	**38**	43	39	37	34	35	28	17	13
23:45	Leq	**52**	50	45	54	46	49	43	31	20
	Lmax	**76**	64	62	84	63	65	59	48	37
	L90	**38**	44	39	37	34	36	28	17	13
23:50	Leq	**54**	53	53	52	51	51	46	39	31
	Lmax	**74**	71	76	71	72	70	66	60	51
	L90	**37**	43	39	37	34	35	27	17	13
23:55	Leq	**48**	47	42	45	44	45	38	26	17
	Lmax	**66**	61	59	64	62	64	56	44	31
	L90	**38**	43	38	36	34	35	28	17	13
00:00	Leq	**46**	48	44	44	41	43	37	26	17
	Lmax	**64**	64	58	62	58	62	55	46	34
	L90	**38**	43	38	36	34	35	27	17	13
00:05	Leq	**51**	50	46	48	46	48	41	30	21
	Lmax	**69**	70	61	65	64	66	60	46	37
	L90	**38**	43	39	37	34	35	27	16	13
00:10	Leq	**50**	52	45	46	44	48	42	35	26
	Lmax	**68**	71	64	63	62	66	59	54	49
	L90	**38**	43	39	37	34	35	27	17	13
00:15	Leq	**49**	50	45	45	44	47	41	29	19
	Lmax	**68**	66	64	65	62	66	57	46	35
	L90	**37**	43	38	35	33	34	27	16	13
00:20	Leq	**51**	61	53	50	47	49	41	28	19
	Lmax	**68**	84	72	70	64	64	56	46	40
	L90	**37**	42	38	36	33	35	27	16	13
00:25	Leq	**43**	45	41	42	39	41	32	21	15
	Lmax	**61**	59	60	62	57	58	49	39	29
	L90	**37**	42	37	35	32	34	27	16	13
00:30	Leq	**50**	52	45	45	45	49	41	29	18
	Lmax	**70**	72	63	63	63	68	60	48	34
	L90	**36**	42	37	35	32	34	27	16	13
00:35	Leq	**52**	52	46	47	47	50	44	33	22
	Lmax	**69**	70	64	64	64	67	61	52	43
	L90	**36**	42	37	35	31	33	26	16	13
00:40	Leq	**37**	44	38	35	33	35	28	20	16
	Lmax	**48**	57	47	44	45	43	41	37	32
	L90	**35**	41	36	34	31	32	25	16	13
00:45	Leq	**48**	44	40	43	42	47	39	26	15
	Lmax	**69**	57	58	65	62	67	60	46	33
	L90	**35**	41	36	34	31	33	26	16	13
00:50	Leq	**48**	47	42	46	42	45	40	29	17
	Lmax	**68**	63	61	66	61	65	59	49	36
	L90	**35**	41	37	34	31	32	25	16	13
00:55	Leq	**52**	53	44	47	48	48	44	35	28
	Lmax	**70**	74	65	66	68	66	62	54	47
	L90	**35**	42	36	34	30	32	25	16	13

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
01:00	Leq	**50**	46	41	43	43	48	43	32	21
	Lmax	**71**	65	61	64	63	69	63	52	40
	L90	**35**	41	36	34	31	32	25	16	13
01:05	Leq	**46**	51	45	43	41	42	38	30	22
	Lmax	**58**	70	61	56	54	55	51	40	35
	L90	**35**	43	38	35	31	32	26	16	13
01:10	Leq	**48**	45	42	44	42	46	41	29	20
	Lmax	**68**	59	60	64	62	66	60	50	39
	L90	**36**	42	38	35	32	32	25	16	13
01:15	Leq	**40**	45	43	42	38	36	30	21	14
	Lmax	**62**	61	67	66	60	53	49	40	26
	L90	**35**	42	37	34	31	32	25	16	13
01:20	Leq	**37**	44	39	36	33	34	27	19	15
	Lmax	**45**	53	49	43	44	39	34	30	22
	L90	**35**	41	37	34	31	32	25	16	13
01:25	Leq	**38**	44	38	36	34	36	30	22	16
	Lmax	**51**	54	46	49	45	49	40	35	30
	L90	**34**	41	36	34	30	31	25	16	13
01:30	Leq	**45**	50	45	43	41	41	37	31	21
	Lmax	**62**	67	63	60	58	58	53	49	38
	L90	**35**	42	37	34	31	32	25	16	13
01:35	Leq	**38**	44	38	36	32	34	31	25	20
	Lmax	**50**	57	47	45	45	45	45	38	32
	L90	**35**	41	36	34	31	32	25	16	13
01:40	Leq	**36**	43	38	35	32	34	26	17	13
	Lmax	**45**	51	47	42	44	40	34	31	28
	L90	**35**	41	36	34	30	32	25	16	13
01:45	Leq	**48**	48	41	43	41	46	38	25	15
	Lmax	**67**	69	62	65	61	66	58	46	33
	L90	**35**	41	36	33	30	32	25	16	13
01:50	Leq	**42**	45	39	39	37	40	34	24	16
	Lmax	**60**	60	55	55	55	57	51	39	34
	L90	**34**	41	36	33	30	31	25	16	13
01:55	Leq	**35**	43	37	34	31	32	26	18	14
	Lmax	**48**	50	49	47	47	43	34	31	23
	L90	**34**	41	36	33	30	31	24	16	13
02:00	Leq	**51**	47	42	44	45	49	43	32	19
	Lmax	**72**	66	63	65	65	70	63	53	40
	L90	**35**	41	36	34	31	32	25	16	13
02:05	Leq	**50**	44	41	45	44	48	41	29	18
	Lmax	**69**	59	60	66	64	68	60	48	32
	L90	**35**	40	36	34	31	32	25	16	13
02:10	Leq	**37**	42	38	35	32	34	26	17	13
	Lmax	**45**	48	43	42	45	41	35	28	20
	L90	**35**	40	36	33	30	32	25	16	13
02:15	Leq	**44**	48	41	41	39	42	35	23	15
	Lmax	**61**	64	58	57	56	59	53	40	30
	L90	**34**	40	36	34	30	31	25	16	13
02:20	Leq	**48**	49	42	44	42	46	38	27	19
	Lmax	**67**	70	61	61	59	66	57	47	41
	L90	**34**	41	36	33	30	31	24	16	13
02:25	Leq	**50**	45	42	44	43	48	41	27	16
	Lmax	**69**	62	63	63	62	67	60	47	33
	L90	**34**	40	36	33	30	31	25	16	13
02:30	Leq	**50**	47	44	46	44	48	42	32	22
	Lmax	**68**	65	62	64	62	66	58	50	49
	L90	**34**	41	36	33	30	31	24	16	13
02:35	Leq	**36**	43	37	35	32	34	26	17	13
	Lmax	**45**	52	43	44	39	42	34	31	22
	L90	**34**	41	36	33	31	32	24	16	13
02:40	Leq	**39**	46	43	41	35	34	28	18	13
	Lmax	**51**	60	57	56	49	43	40	32	20
	L90	**34**	41	37	33	30	31	24	16	13
02:45	Leq	**38**	43	39	37	34	35	28	17	13
	Lmax	**52**	58	55	49	47	50	42	30	19
	L90	**34**	40	36	33	30	31	24	16	13
02:50	Leq	**38**	44	39	37	34	35	28	18	13
	Lmax	**51**	56	54	51	46	47	41	33	21
	L90	**34**	41	36	34	30	31	24	16	13
02:55	Leq	**49**	46	41	45	44	47	40	28	16
	Lmax	**69**	66	61	65	64	67	60	49	37
	L90	**34**	40	36	33	30	31	24	16	13

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
03:00	Leq	**37**	43	39	35	32	34	27	20	16
	Lmax	**46**	55	46	43	38	41	40	37	33
	L90	**35**	41	37	34	30	32	24	16	13
03:05	Leq	**45**	46	43	45	40	42	37	30	21
	Lmax	**63**	67	59	64	59	58	56	50	43
	L90	**35**	41	37	33	30	33	25	16	13
03:10	Leq	**37**	43	38	34	32	35	26	18	14
	Lmax	**44**	49	45	39	41	42	30	30	22
	L90	**35**	41	37	33	30	32	25	16	13
03:15	Leq	**36**	42	38	35	32	33	28	18	14
	Lmax	**46**	49	42	40	37	40	43	31	19
	L90	**34**	40	36	33	30	31	25	16	13
03:20	Leq	**36**	42	37	35	32	33	26	20	14
	Lmax	**44**	49	43	41	40	41	32	32	22
	L90	**34**	40	36	33	30	31	25	16	13
03:25	Leq	**37**	42	39	35	33	34	27	19	15
	Lmax	**48**	52	55	49	45	43	37	28	25
	L90	**34**	40	36	33	30	31	25	16	13
03:30	Leq	**36**	42	37	34	32	33	26	17	13
	Lmax	**46**	49	43	42	46	40	37	31	22
	L90	**34**	40	36	33	30	31	25	16	13
03:35	Leq	**36**	42	37	35	32	34	26	17	14
	Lmax	**44**	50	43	45	38	42	32	29	22
	L90	**34**	40	36	33	30	31	25	16	13
03:40	Leq	**36**	44	38	35	32	33	26	16	13
	Lmax	**44**	53	44	40	39	42	35	24	17
	L90	**34**	41	36	34	30	31	25	16	13
03:45	Leq	**36**	43	37	34	32	33	26	17	13
	Lmax	**45**	49	44	41	45	39	34	29	20
	L90	**34**	40	36	33	30	31	24	16	13
03:50	Leq	**47**	47	42	44	41	44	38	27	17
	Lmax	**64**	65	58	61	58	62	55	45	33
	L90	**34**	40	36	33	30	31	25	16	13
03:55	Leq	**37**	43	38	35	32	34	27	19	15
	Lmax	**45**	53	47	41	40	42	33	31	24
	L90	**34**	40	36	33	30	31	25	16	13
04:00	Leq	**45**	46	42	43	40	42	36	27	17
	Lmax	**63**	59	58	62	57	60	52	44	29
	L90	**35**	41	37	34	30	32	25	17	14
04:05	Leq	**47**	45	42	44	42	45	38	28	18
	Lmax	**67**	62	64	64	63	64	58	49	38
	L90	**34**	41	36	34	30	31	24	16	13
04:10	Leq	**36**	42	38	34	31	33	26	21	16
	Lmax	**53**	47	45	42	46	47	46	48	42
	L90	**34**	40	36	33	29	31	24	16	13
04:15	Leq	**37**	43	38	35	32	34	27	23	18
	Lmax	**54**	56	43	39	46	45	48	49	44
	L90	**34**	41	36	33	30	32	24	16	13
04:20	Leq	**58**	59	52	54	55	55	48	38	31
	Lmax	**77**	81	72	74	75	73	65	57	52
	L90	**34**	41	36	34	30	31	24	16	13
04:25	Leq	**36**	43	37	35	32	33	26	16	13
	Lmax	**45**	53	44	42	45	38	35	30	21
	L90	**35**	40	36	33	30	32	25	16	13
04:30	Leq	**43**	45	40	40	38	41	36	25	16
	Lmax	**62**	58	57	60	57	59	55	45	31
	L90	**35**	41	36	34	31	32	25	16	13
04:35	Leq	**55**	56	56	54	51	50	46	42	38
	Lmax	**77**	81	79	76	72	72	69	66	61
	L90	**35**	41	36	34	31	32	25	16	13
04:40	Leq	**37**	44	38	36	33	34	26	17	14
	Lmax	**48**	56	51	50	47	43	36	31	23
	L90	**35**	41	36	33	31	32	25	16	13
04:45	Leq	**37**	44	38	36	33	35	27	18	14
	Lmax	**47**	53	47	42	40	46	34	28	21
	L90	**35**	41	37	34	31	32	25	16	13
04:50	Leq	**53**	51	51	55	48	48	45	41	33
	Lmax	**74**	70	72	78	67	70	64	63	56
	L90	**36**	42	37	35	32	32	26	17	13
04:55	Leq	**52**	50	44	45	47	50	43	31	21
	Lmax	**73**	68	68	68	69	72	64	52	42
	L90	**36**	42	37	34	32	33	26	16	13

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
05:00	Leq	**39**	45	41	38	35	36	27	17	18
	Lmax	**54**	59	57	56	53	49	39	25	28
	L90	**36**	42	37	34	31	33	25	16	13
05:05	Leq	**39**	46	42	40	35	35	29	20	14
	Lmax	**56**	57	58	57	52	47	52	41	29
	L90	**36**	42	37	35	32	32	26	16	13
05:10	Leq	**52**	57	48	47	48	49	44	34	22
	Lmax	**71**	77	67	64	67	69	63	53	42
	L90	**36**	42	38	35	32	32	25	16	13
05:15	Leq	**46**	48	41	41	41	44	37	25	15
	Lmax	**66**	66	57	59	62	64	56	46	33
	L90	**35**	42	37	34	32	32	25	16	13
05:20	Leq	**45**	47	44	43	41	42	35	26	18
	Lmax	**59**	60	62	58	56	55	49	44	39
	L90	**37**	42	37	35	33	34	26	16	13
05:25	Leq	**47**	47	43	47	42	45	37	28	17
	Lmax	**66**	68	63	69	60	63	55	48	36
	L90	**35**	42	37	35	32	32	25	16	13
05:30	Leq	**47**	47	43	44	42	45	37	27	18
	Lmax	**63**	64	61	61	60	61	53	45	37
	L90	**36**	42	37	35	32	33	25	16	13
05:35	Leq	**49**	48	41	43	43	47	40	27	16
	Lmax	**68**	65	58	62	62	67	59	47	33
	L90	**36**	43	38	35	32	33	26	16	13
05:40	Leq	**55**	54	49	50	49	52	46	36	25
	Lmax	**71**	70	68	65	65	69	62	51	40
	L90	**37**	43	38	36	33	34	26	17	13
05:45	Leq	**47**	50	44	44	42	44	39	28	18
	Lmax	**63**	73	61	62	58	60	54	45	36
	L90	**37**	43	38	36	33	35	27	17	13
05:50	Leq	**55**	51	47	49	49	53	46	35	24
	Lmax	**72**	65	65	66	66	71	63	53	46
	L90	**38**	44	39	37	34	35	27	17	13
05:55	Leq	**51**	59	47	49	47	48	41	34	22
	Lmax	**70**	80	68	69	67	67	61	55	43
	L90	**38**	45	39	37	34	36	27	17	13
06:00	Leq	**49**	51	44	45	45	47	41	31	21
	Lmax	**68**	67	62	63	64	66	59	50	40
	L90	**38**	45	40	38	35	35	28	17	13
06:05	Leq	**56**	56	49	50	51	54	48	35	22
	Lmax	**74**	78	71	68	70	72	66	54	41
	L90	**41**	45	40	39	37	39	31	18	13
06:10	Leq	**57**	69	55	53	52	54	49	42	32
	Lmax	**77**	93	73	71	73	74	68	60	52
	L90	**42**	47	42	41	38	39	32	21	14
06:15	Leq	**56**	62	54	55	52	53	48	41	37
	Lmax	**72**	74	69	67	67	67	63	62	66
	L90	**48**	58	49	51	45	42	37	29	17
06:20	Leq	**53**	64	52	52	48	50	44	33	22
	Lmax	**70**	79	65	63	63	69	62	52	41
	L90	**47**	60	49	51	45	41	37	29	17
06:25	Leq	**56**	68	55	55	51	54	47	37	26
	Lmax	**76**	79	68	68	69	74	67	55	47
	L90	**48**	60	50	51	46	42	38	31	19
06:30	Leq	**56**	62	53	55	52	53	46	36	26
	Lmax	**71**	73	66	68	68	69	61	51	42
	L90	**48**	59	49	51	45	42	38	29	18
06:35	Leq	**57**	66	56	54	52	54	48	40	30
	Lmax	**72**	78	66	68	64	67	67	61	53
	L90	**46**	61	50	48	43	41	36	27	16
06:40	Leq	**61**	67	59	59	57	58	52	44	33
	Lmax	**75**	77	70	76	71	72	65	61	52
	L90	**47**	58	52	49	44	42	37	29	18
06:45	Leq	**59**	63	63	56	54	55	50	45	39
	Lmax	**75**	81	83	72	70	71	65	66	63
	L90	**42**	48	44	41	38	39	32	24	15
06:50	Leq	**58**	59	55	54	52	55	49	40	28
	Lmax	**73**	76	72	66	66	71	65	53	50
	L90	**42**	49	43	41	38	39	32	21	15
06:55	Leq	**57**	58	54	54	52	55	48	36	25
	Lmax	**72**	74	73	66	66	70	64	53	43
	L90	**40**	48	42	40	37	37	30	19	14

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
07:00	Leq	**60**	62	58	55	54	58	51	41	30
	Lmax	**75**	85	81	70	68	73	66	59	49
	L90	**45**	50	45	44	42	42	36	27	17
07:05	Leq	**59**	57	57	58	54	57	51	42	32
	Lmax	**77**	74	75	77	70	75	68	60	51
	L90	**42**	48	43	41	39	39	31	21	14
07:10	Leq	**56**	57	54	53	52	54	48	39	30
	Lmax	**71**	73	72	68	65	69	63	54	49
	L90	**42**	49	44	42	39	38	32	22	15
07:15	Leq	**57**	58	53	53	51	54	48	38	28
	Lmax	**71**	79	69	67	65	69	62	54	48
	L90	**42**	49	43	41	39	38	31	24	15
07:20	Leq	**60**	59	54	54	54	58	51	41	30
	Lmax	**76**	76	70	68	69	75	67	55	46
	L90	**43**	51	46	43	40	39	32	22	14
07:25	Leq	**60**	61	53	55	54	58	52	40	30
	Lmax	**74**	79	67	67	67	72	66	55	50
	L90	**44**	50	45	44	42	41	35	25	17
07:30	Leq	**60**	60	55	56	55	58	52	43	34
	Lmax	**73**	78	69	70	67	70	64	60	55
	L90	**46**	51	46	45	43	42	36	27	16
07:35	Leq	**59**	60	58	55	55	57	51	44	36
	Lmax	**81**	87	77	75	79	78	72	65	59
	L90	**45**	51	47	46	42	42	36	29	19
07:40	Leq	**58**	57	52	54	53	56	50	39	29
	Lmax	**73**	73	64	67	66	71	64	52	55
	L90	**45**	50	46	45	42	41	36	26	15
07:45	Leq	**63**	61	69	60	58	60	53	41	31
	Lmax	**79**	80	90	79	73	74	67	59	51
	L90	**47**	51	47	47	44	44	38	28	17
07:50	Leq	**63**	71	65	60	59	60	56	47	39
	Lmax	**82**	88	84	79	78	79	73	64	61
	L90	**47**	52	48	47	44	43	37	29	18
07:55	Leq	**60**	60	57	58	57	57	51	42	29
	Lmax	**76**	78	75	74	73	72	67	62	48
	L90	**46**	51	48	46	43	43	36	27	16
08:00	Leq	**60**	59	54	55	54	58	51	39	27
	Lmax	**72**	78	69	67	67	70	62	51	43
	L90	**47**	51	48	46	44	44	38	29	16
08:05	Leq	**64**	60	56	57	57	62	55	43	30
	Lmax	**80**	78	72	70	72	78	71	58	46
	L90	**47**	52	48	47	44	43	38	30	18
08:10	Leq	**58**	61	53	54	52	56	50	38	27
	Lmax	**72**	76	65	66	66	70	64	53	40
	L90	**45**	52	47	45	42	41	36	26	14
08:15	Leq	**61**	61	56	56	55	59	52	41	29
	Lmax	**74**	80	71	68	69	72	64	55	45
	L90	**46**	52	47	46	43	43	37	27	15
08:20	Leq	**59**	59	54	54	54	57	50	38	25
	Lmax	**75**	76	67	67	70	74	65	53	40
	L90	**46**	51	47	45	43	42	36	26	14
08:25	Leq	**60**	59	55	56	55	58	51	39	42
	Lmax	**74**	74	72	69	71	71	63	53	66
	L90	**46**	51	46	45	43	42	36	27	14
08:30	Leq	**58**	58	54	54	53	55	49	38	27
	Lmax	**71**	74	69	64	65	69	63	50	41
	L90	**46**	51	47	46	43	43	36	25	15
08:35	Leq	**61**	59	57	59	58	58	52	44	36
	Lmax	**77**	75	75	77	75	72	67	63	59
	L90	**46**	51	47	46	43	43	36	25	14
08:40	Leq	**59**	66	58	59	54	55	51	44	44
	Lmax	**76**	84	76	74	70	69	66	65	71
	L90	**46**	51	46	45	43	42	35	25	14
08:45	Leq	**60**	62	56	55	55	57	51	40	33
	Lmax	**76**	81	72	68	71	75	67	54	55
	L90	**46**	52	47	45	43	42	35	26	15
08:50	Leq	**57**	59	54	54	52	55	48	38	26
	Lmax	**70**	80	66	65	65	68	60	51	42
	L90	**46**	52	48	47	44	42	35	25	14
08:55	Leq	**60**	60	55	55	55	57	51	40	29
	Lmax	**71**	77	73	66	67	68	61	52	42
	L90	**46**	51	47	46	43	43	37	27	14

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
09:00	Leq	**59**	63	55	55	53	56	52	40	29
	Lmax	**77**	83	72	66	64	68	75	55	42
	L90	**46**	51	47	46	43	43	36	26	14
09:05	Leq	**62**	62	60	60	58	59	53	44	37
	Lmax	**77**	85	76	76	74	74	67	63	56
	L90	**47**	52	48	46	45	43	37	27	14
09:10	Leq	**62**	60	57	58	56	59	55	43	30
	Lmax	**76**	80	72	70	68	73	69	57	45
	L90	**45**	52	47	46	43	42	35	26	15
09:15	Leq	**60**	59	55	56	56	58	53	40	29
	Lmax	**73**	76	71	68	70	70	66	57	47
	L90	**47**	51	47	46	44	43	37	27	14
09:20	Leq	**60**	59	57	59	56	57	50	42	33
	Lmax	**74**	75	71	77	70	71	63	58	52
	L90	**46**	51	46	45	44	43	36	27	14
09:25	Leq	**59**	65	57	55	55	57	51	41	30
	Lmax	**74**	85	74	68	71	71	64	56	49
	L90	**46**	52	47	46	43	42	36	26	14
09:30	Leq	**61**	59	54	56	57	59	53	41	30
	Lmax	**78**	75	68	69	70	76	70	58	47
	L90	**46**	51	46	45	43	42	35	26	14
09:35	Leq	**60**	60	56	56	56	57	51	43	33
	Lmax	**74**	74	73	71	71	71	65	60	53
	L90	**48**	51	47	47	45	44	38	28	16
09:40	Leq	**61**	59	58	57	57	58	51	42	31
	Lmax	**75**	77	77	74	75	71	64	58	53
	L90	**46**	51	46	45	43	42	36	26	14
09:45	Leq	**61**	60	58	57	58	58	51	40	30
	Lmax	**76**	75	73	72	74	73	65	57	52
	L90	**45**	51	46	45	42	41	35	25	15
09:50	Leq	**62**	60	57	58	57	59	52	42	31
	Lmax	**73**	72	75	73	70	70	63	55	53
	L90	**48**	52	49	48	45	45	38	27	15
09:55	Leq	**61**	60	56	57	57	58	52	42	28
	Lmax	**74**	78	70	74	70	71	65	59	44
	L90	**47**	52	48	46	45	43	37	28	16
10:00	Leq	**60**	58	54	56	55	58	52	40	27
	Lmax	**76**	73	67	72	71	74	67	56	41
	L90	**46**	51	47	46	43	42	36	26	15
10:05	Leq	**62**	62	60	59	59	59	54	47	38
	Lmax	**78**	77	79	77	77	72	68	64	56
	L90	**49**	52	49	48	47	45	40	30	16
10:10	Leq	**61**	63	58	59	58	58	53	47	38
	Lmax	**78**	80	74	77	78	71	70	66	57
	L90	**45**	51	47	46	42	42	35	25	14
10:15	Leq	**60**	59	57	57	57	57	52	45	34
	Lmax	**73**	73	72	71	71	68	66	61	51
	L90	**45**	50	46	45	42	41	35	24	14
10:20	Leq	**59**	62	56	56	55	57	51	42	31
	Lmax	**77**	85	73	72	71	71	72	64	53
	L90	**47**	51	47	46	44	43	38	26	14
10:25	Leq	**57**	59	55	55	53	54	49	40	29
	Lmax	**73**	76	74	72	70	68	64	59	48
	L90	**45**	51	46	45	43	41	35	25	14
10:30	Leq	**58**	58	54	55	55	56	49	40	29
	Lmax	**75**	74	70	70	69	73	66	55	46
	L90	**46**	51	46	45	44	42	36	27	15
10:35	Leq	**58**	57	54	55	55	56	50	39	28
	Lmax	**73**	73	72	69	71	69	63	53	44
	L90	**47**	51	46	46	45	43	37	28	16
10:40	Leq	**61**	62	59	61	58	59	51	42	31
	Lmax	**82**	82	77	81	77	80	72	64	51
	L90	**46**	51	46	46	44	42	37	27	15
10:45	Leq	**60**	59	54	56	55	58	52	42	32
	Lmax	**72**	78	67	67	68	70	63	56	49
	L90	**45**	50	46	45	42	41	35	25	15
10:50	Leq	**59**	61	57	57	55	56	50	41	30
	Lmax	**73**	77	72	71	70	70	63	57	46
	L90	**44**	50	45	44	41	40	34	25	16
10:55	Leq	**55**	55	51	52	51	53	46	36	26
	Lmax	**69**	70	65	63	64	67	59	50	45
	L90	**47**	49	46	46	45	42	36	28	15
11:00	Leq	**61**	64	58	60	57	57	53	43	38
	Lmax	**78**	82	73	77	76	71	70	59	59
	L90	**48**	51	48	49	46	44	39	30	18
11:05	Leq	**55**	58	54	52	52	51	48	41	33
	Lmax	**72**	70	73	67	68	67	67	61	52
	L90	**48**	51	47	47	45	44	38	30	17

Time Period	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
Overall Daytime	Leq	**61**	62	59	57	56	58	52	42	33
	Lmax	**77**	82	78	73	72	74	68	61	56
	L90	**47**	51	47	46	44	43	37	28	16
Overall Evening	Leq	**55**	56	51	51	50	53	46	36	26
	Lmax	**72**	75	70	67	67	70	63	55	49
	L90	**40**	46	41	39	36	37	29	19	14
Overall Night Time	Leq	**51**	56	49	49	46	49	42	34	26
	Lmax*	**69**	76	68	68	64	66	60	54	50
	Lmax**	**72**	75	68	68	67	69	63	53	47
	L90	**39**	48	41	40	35	35	29	20	14

* Log Average

** Level Exceed 15 times

Measurement Summary

Position	*Time*	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
Main	Overall Daytime	Leq	**61**	62	59	57	56	58	52	42	33
		Lmax	**77**	82	78	73	72	74	68	61	56
		L90	**47**	51	47	46	44	43	37	28	16
	Overall Night Time	Leq	**51**	56	49	49	46	49	42	34	26
		Lmax	**72**	75	68	68	67	69	63	53	47
		L90	**39**	48	41	40	35	35	29	20	14

Required Reductions for BS 8233 Guidelines

Position	*Environment*	*Reductions for BS8233 desirable* and MCC*	*Reductions for WHO-Type Criteria and MCC*
Main	Living Rooms	26 dB L_{Aeq}	-
	Bedrooms	21 dB L_{Aeq}	27 dB L_{Amax}

* BS 8233 considers a 5 dB relaxation would still provide *reasonable* conditions

Mitigation Summary

Façade	*Room Type*	*Make-Up on Which Calculations are Based*
3 Bed Apartment	Kitchen / Lounge	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
3 Bed Apartment	Bedroom 1	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
3 Bed Apartment	Bedroom 2	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
3 Bed Apartment	Bedroom 3	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
1 Bed Apartment	Kitchen / Lounge	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450
1 Bed Apartment	Bedroom	Walls: Traditional Masonry
		Glazing: 30 dB Rw+Ctr eg.10+14+4
		Vents: 40 dB Dn,e,w eg. Glidevale TVALdB 450

NB. R_w should come with a negative C_{tr} term, usually around -5 dB, eg. 35 dB R_w and -5 dB C_{tr} is 30 dB R_w+C_{tr}

Predicted Summary

Façade	*Room Type*	*Time*	*Index*	***dB(A)***	*63*	*125*	*250*	*500*	*1k*	*2k*	*4k*	*8k*
3 Bed Apartment	Kitchen / Lounge	Rush	Leq	**35**	50	40	40	30	29	19	5	-2
		Night	Leq	**26**	44	31	31	21	19	9	-4	-10
			Lmax	**46**	62	50	50	41	39	30	16	11
3 Bed Apartment	Bedroom 1	Rush	Leq	**33**	48	37	37	30	27	19	5	-2
		Night	Leq	**24**	42	28	28	20	17	10	-3	-9
			Lmax	**44**	60	47	47	40	38	31	16	11
3 Bed Apartment	Bedroom 2	Rush	Leq	**34**	47	37	37	30	29	19	3	-4
		Night	Leq	**25**	41	28	28	21	19	10	-5	-12
			Lmax	**44**	59	47	48	41	39	31	14	9
3 Bed Apartment	Bedroom 3	Rush	Leq	**34**	47	37	38	30	28	19	3	-4
		Night	Leq	**25**	41	28	29	20	18	9	-5	-12
			Lmax	**44**	59	47	48	40	39	30	14	9
1 Bed Apartment	Kitchen / Lounge	Rush	Leq	**34**	48	38	37	30	28	19	3	-4
		Night	Leq	**25**	42	28	28	20	19	10	-6	-12
			Lmax	**44**	60	48	47	41	39	31	14	9
1 Bed Apartment	Bedroom	Rush	Leq	**34**	48	38	38	31	29	19	4	-3
		Night	Leq	**25**	42	29	30	21	19	10	-5	-11
			Lmax	**45**	60	48	49	41	40	31	15	10