Verizon UK5
Camden

ENVIRONMENTAL NOISE SURVEY
REPORT 16306/ENS1rev1

For :

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1.0 INTRODUCTION

New building services plant is proposed at Verizon UK5 which is an internet data centre located at 3-6 St Pancras Way, London NW1 0QG. The proposed new plant will be located on the roof and at ground floor level.

Hann Tucker Associates have therefore been commissioned to undertake a detailed environmental noise survey of the site.

2.0 OBJECTIVES

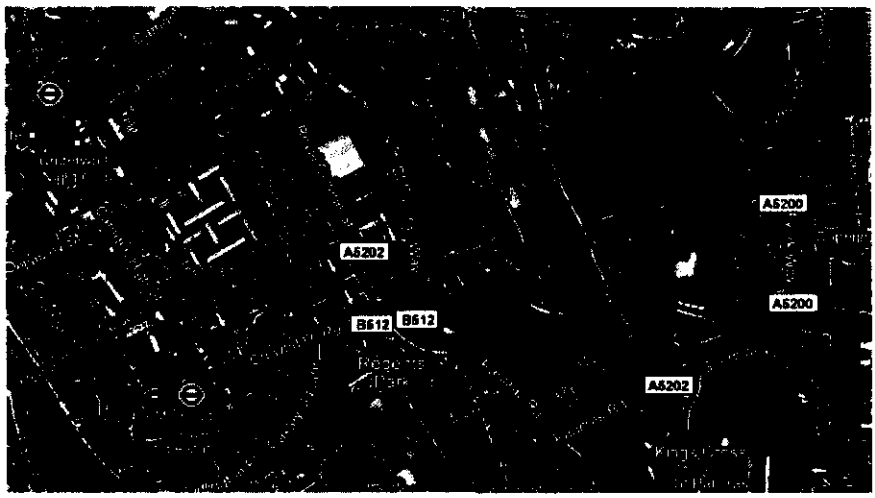
To establish, by means of detailed 72 hour fully automated environmental noise monitoring, the existing A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} environmental noise levels at selected accessible roof level positions around the site.

Based on the results of the noise survey, and in conjunction with the Local Authority, to recommend suitable plant noise emission criteria.

3.0 SITE DESCRIPTION

3.1 Location

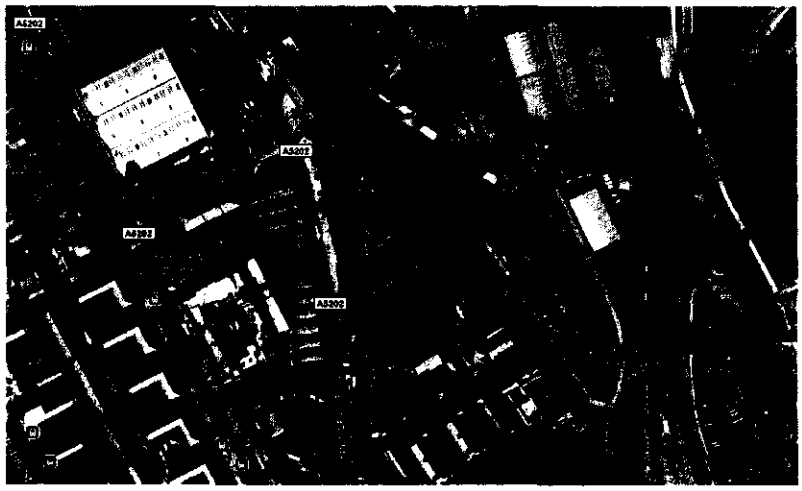
The site is located at 3-6 St. Pancras Way and falls within the London Borough of Camden jurisdiction. See Location Map below.



Location Map (maps.google.co.uk)

3.2 Description

The Verizon UK5 site is bounded to the North and East by the Grand Union Canal. On the East bank of the canal are various commercial units. The West of the site is bounded by St. Pancras Way. On the opposite side of St. Pancras Way is a large builders merchants site and various hospital and residential buildings. The South of the site is bounded by Granary Street. On the opposite side of Granary Street are various office buildings of lesser height than the Verizon UK5 building. There are residential/hospital buildings further South which are of equal or greater height than the Verizon UK5 building.



Site Plan (maps.google.co.uk)

4.0 ACOUSTIC TERMINOLOGY

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

5.0 METHODOLOGY

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 12:00 hours on Friday 12th March 2010 to 10:30 hours on Monday 15th March 2010.

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately comment on the weather conditions throughout the entire survey period. However at the beginning and end of the survey period the wind conditions were calm. The sky was generally patchy cloud. We understand that generally throughout the survey period the weather conditions were calm and dry. These conditions are considered suitable for obtaining representative measurement results.

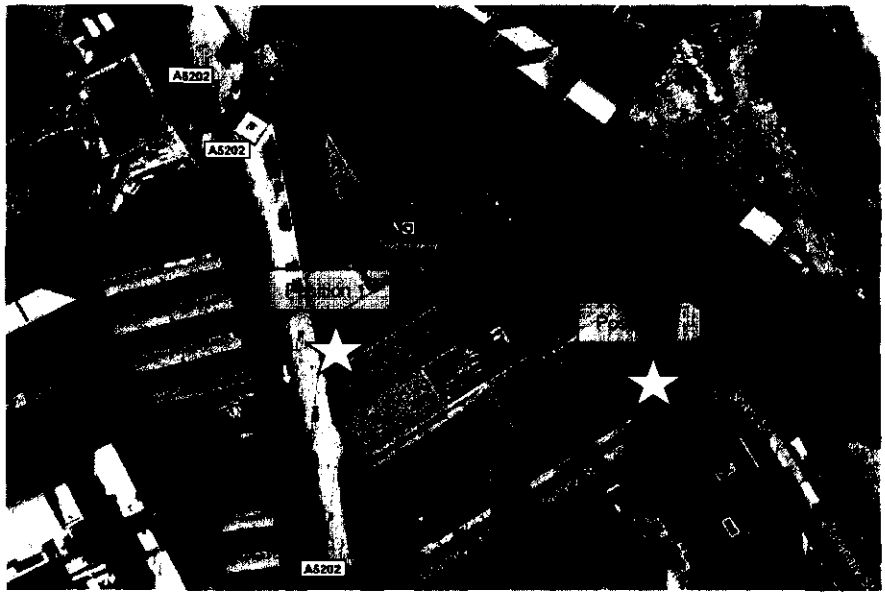
Measurements were taken continuously of the A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} sound pressure levels over 15 minute periods.

5.2 Measurement Positions

The noise level measurements were undertaken at two positions around the site. The measurement positions are described in the table below.

Position No	Description
1	The sound level meter was located on the Western side of the roof overlooking St. Pancras Way. The microphone was positioned approximately 1m above roof level in free field conditions.
2	The sound level meter was located on the South Eastern corner of the roof overlooking Granary Street / Grand Union Canal. The microphone was positioned approximately 1m above roof level in free field conditions.

The positions were selected in order to assess typical noise levels at the site for subsequent use in setting plant noise emission criteria and are shown on the plan below.



Plan Showing Unmanned Measurement Positions (maps.google.co.uk)

5.3 Instrumentation

The instrumentation used during the survey is presented in the Table below:

Description	Manufacturer	Type
2 No. Type 1 Data Logging Sound Level Meter	Larson Davis	824
Type 1 Calibrator	Larson Davis	CAL200

Each sound level meter, including the extension cable, was calibrated prior to and on completion of the survey. No significant changes were found to have occurred (no more than 0.1dB).

Each sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. Each microphone was fitted with a Larson Davis windshield.

6.0 RESULTS

The results have been plotted on Time History Graphs 16306/TH1 to 16306/TH4 enclosed presenting the 15 minute A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} levels at each measurement position throughout the duration of the survey.

Position	Lowest Measured Background Noise Level L_{90} dBA	
	Daytime (07:00 – 23:00 hours)	Night Time (23:00 – 07:00 hours)
1	61dB(A)	61dB(A)
2	51dB(A)	50dB(A)

7.0 DISCUSSION OF NOISE CLIMATE

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period.

However at the beginning and end of the survey period the dominant noise sources at Position 1 overlooking St. Pancras Way were building services plant from the buildings on the opposite side of St. Pancras Way and local road traffic movements. The background noise level was flat across the duration of the survey due to the constant high noise level emitted by the plant on the opposite side of St. Pancras Way. Position 1 was not affected by plant located in/on Verizon UK5.

The dominant noise sources at Position 2 overlooking Granary Street / Grand Union Canal were local road traffic, distant aircraft noise and plant noise from the plant room louvers at roof level on Verizon UK5. The background noise level was relatively flat across the duration of the survey probably due to plant noise emitted through the plant room louvers at roof level.

8.0 PLANT NOISE EMISSION CRITERIA

Camden Council noise standards for planning applications:

1a (CG08)

Noise levels at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (L_{A90}), expressed in dB(A) when all plant/equipment are in operation. Where it is anticipated that any plant/equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps) special attention should be given to reducing the noise levels from that piece of plant/equipment at any sensitive facade to at least 10dB(A) below the L_{A90}, expressed in dB(A).

Based on the above Camden Council requirements and the lowest measured background noise levels we propose the following cumulative plant noise emission limits at 1 metre from the nearest sensitive façade:

	Noise Emission Limits to be achieved at 1m from the nearest sensitive façade.		
Position	**Daytime (07:00 – 23:00 hours)**	**Night Time (23:00 – 07:00 hours)**	**24 Hours**
1	56dB(A)	56dB(A)	56dBA
2	46dB(A) **	45dB(A) **	45dBA **

** we believe the background noise levels were artificially elevated by the existing Verizon UK5 plant near Position 2 and therefore propose a 24 hour noise emission limit at this position of 40dBA to be achieved at the nearest sensitive façade.

9.0 PLANT NOISE ASSESSMENT

We understand the proposed plant consists the following items:

Plant Items	Noise Rating Level dBA
3 No. Chillers	65dBA @ 10m each
3 No. Dry Air Coolers	52dBA @ 10m each

The nearest office window (Ted Baker Office at Roof Level) which is near our Measurement Position 1 is approximately 35m from the proposed plant enclosure. The existing roof level plant enclosure offers significant acoustic screening between the proposed plant enclosure and the Ted Baker Offices. Our calculations indicate a noise level emission level of approximately 49dBA which is 12dBA below the lowest measured background noise level at this position.

10.0 CONCLUSIONS

A detailed 72 hour fully automated environmental noise survey has been undertaken in order to establish the currently prevailing roof level environmental noise climate around the site.

Plant noise emission criteria have been recommended based on the results of the noise survey and in conjunction with the Local Authority.

A plant noise assessment has been undertaken to determine the likely noise impact at the adjacent Ted Baker Offices. Our calculations indicate a plant noise emission level approximately 12dBA below the lowest measured background noise level.

Prepared by
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Director
HANN TUCKER ASSOCIATES

Appendix A

The acoustic terms used in this report are as follows:

dB : Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.

dB(A) : The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dB(A) level.

Because of being a logarithmic scale noise levels in dB(A) do not have a linear relationship to each other. For similar noises, a change in noise level of 10dB(A) represents a doubling or halving of subjective loudness. A change of 3dB(A) is just perceptible.

L_{10} & L_{90}: If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the average minimum level and is often used to describe the background noise.

It is common practice to use the L_{10} index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

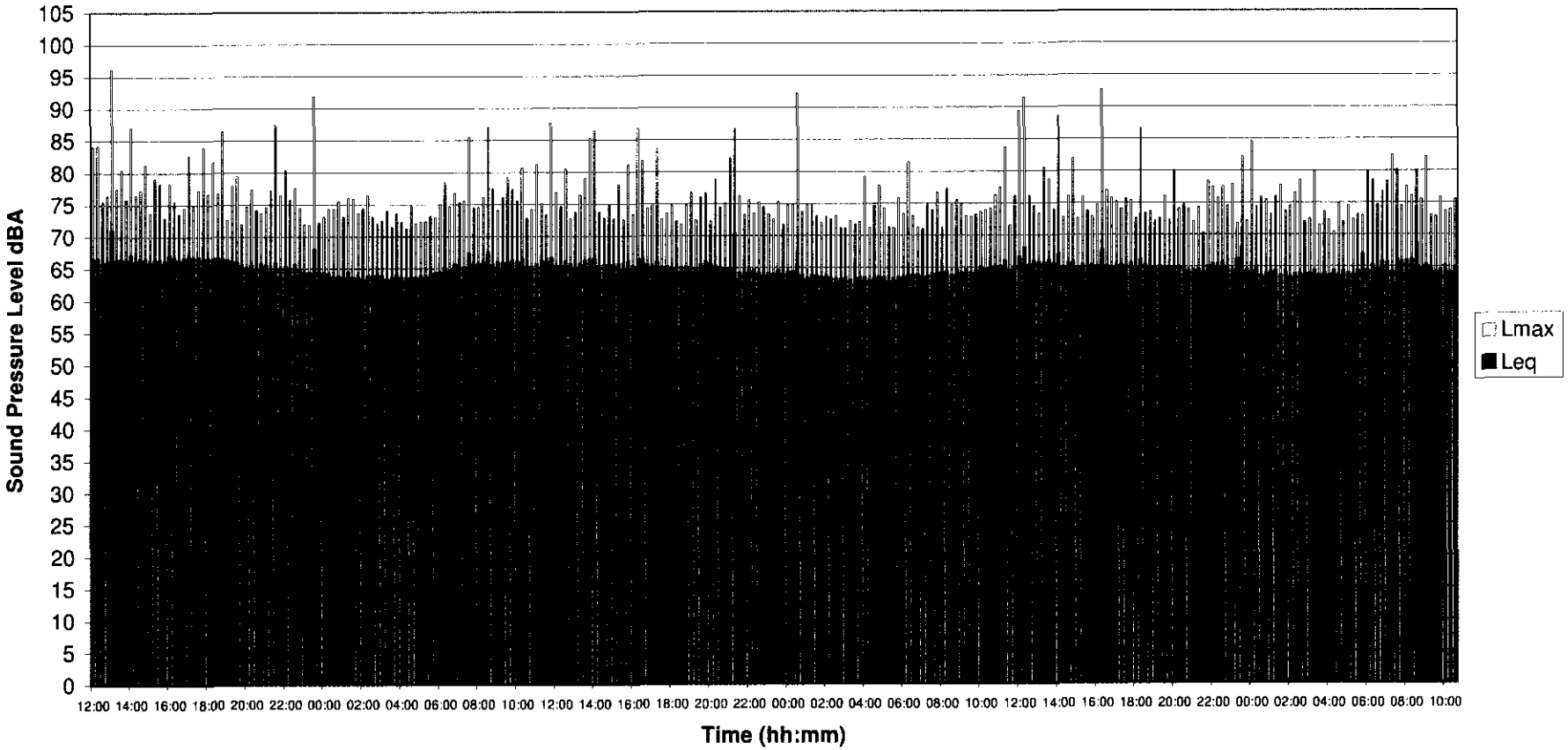
L_{eq} : The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 1 hour).

The use of digital technology in sound level meters now makes the measurement of L_{eq} very straightforward.

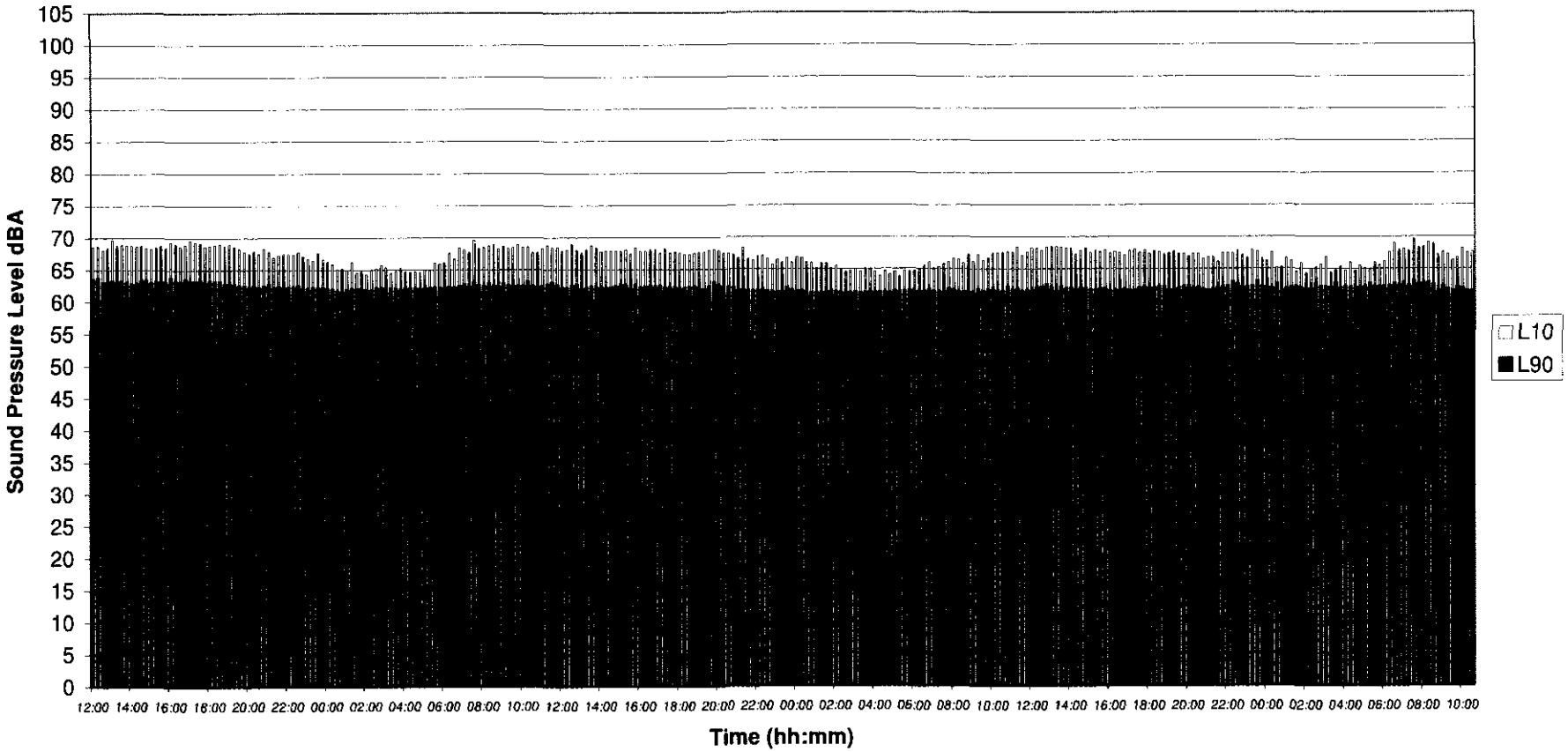
L_{max} : L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

Environmental Noise Survey
Verizon UK5
12 March 2010 - 15 March 2010
Position 1



16306/TH3

Environmental Noise Survey
Verizon UK5
12 March 2010 - 15 March 2010
Position 1



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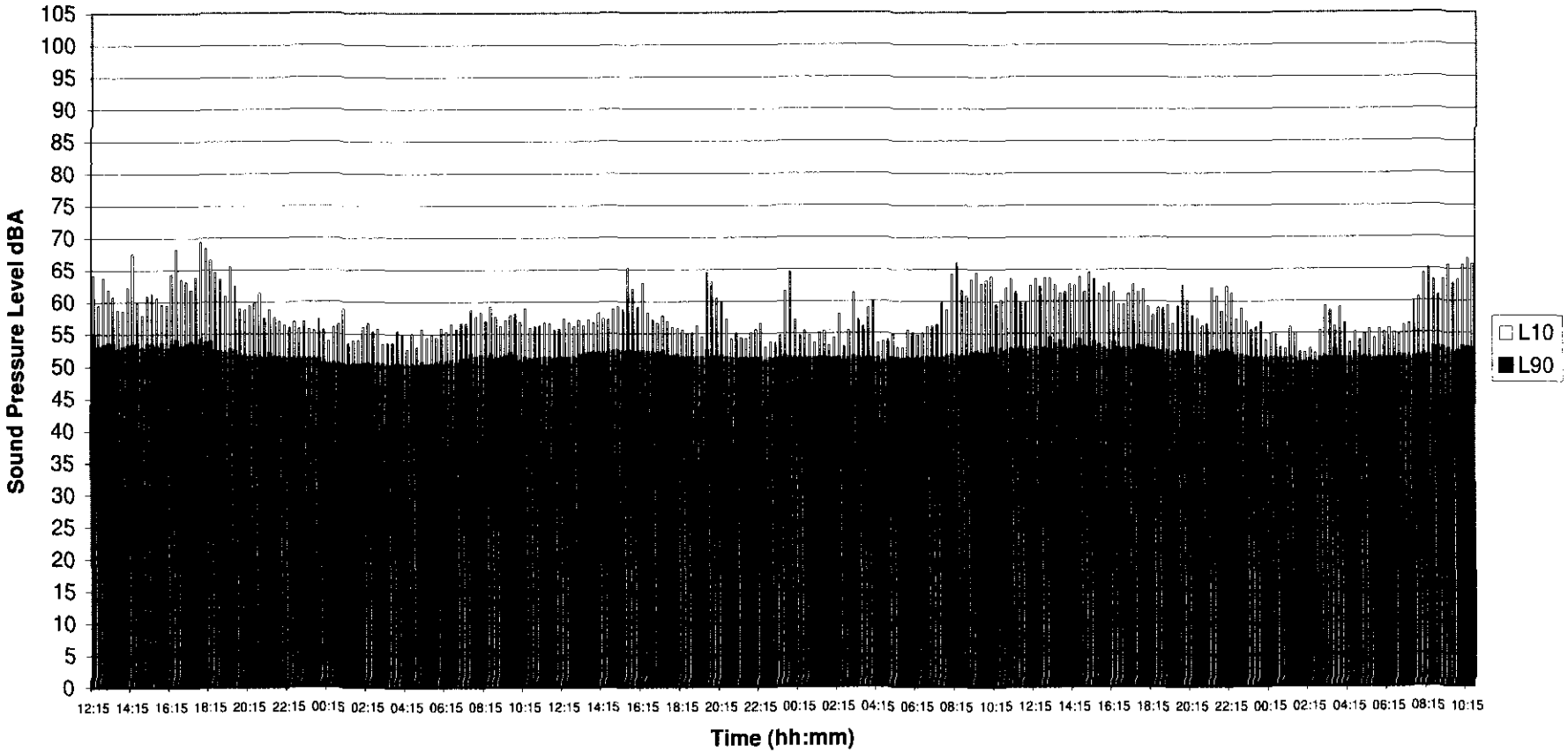
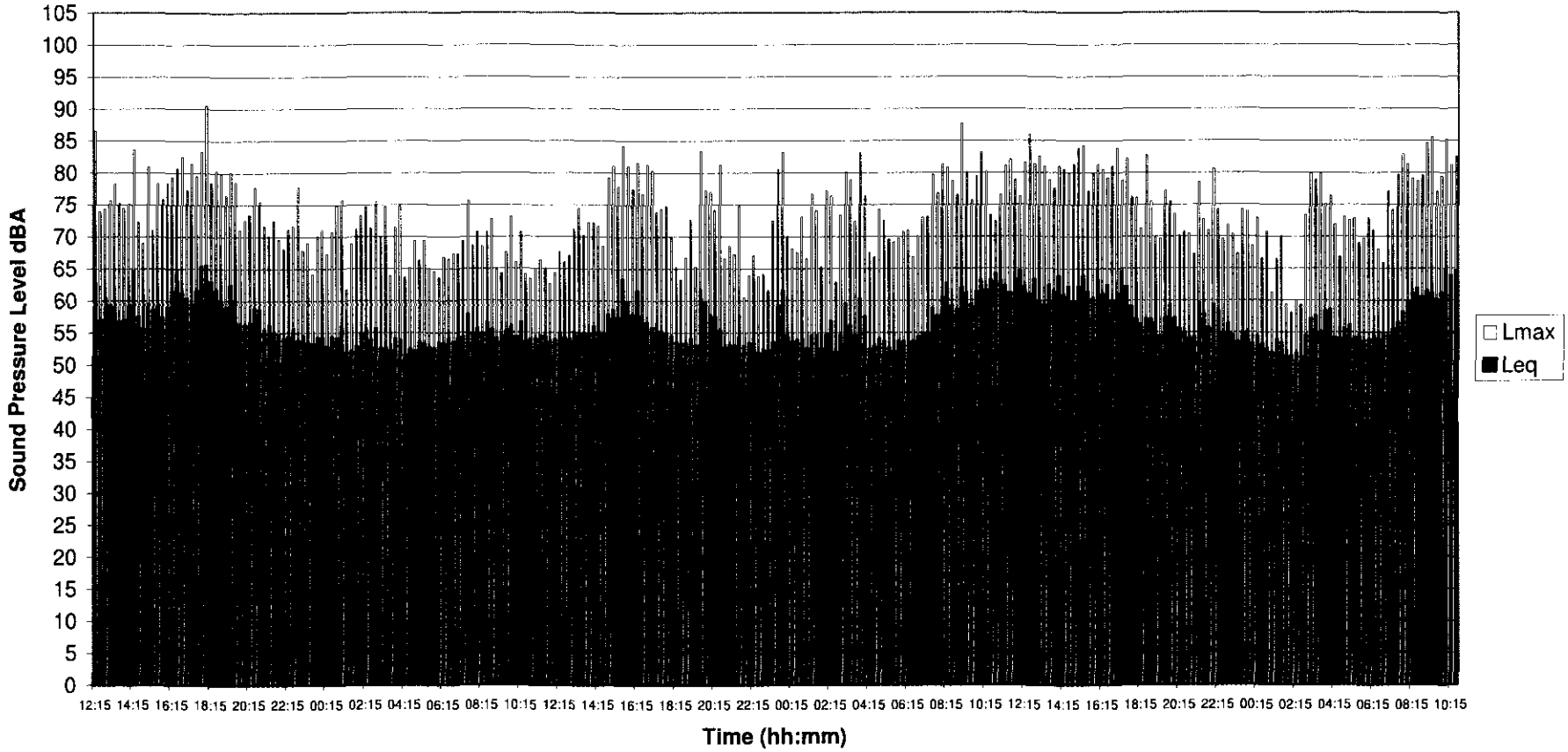
Environmental Noise Survey
Verizon UK5
12 March 22 - 15 March 2010
Position 2



16306/TH2

Environmental Noise Survey
Verizon UK5
12 March 22 - 15 March 2010
Position 2



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