

Attachment F6

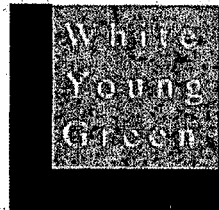
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Molaisín Compost Ltd
Waste Licence Application

Attachment F.6 Noise

Noise monitoring is conducted on site on an annual basis. White Young Green in Cork undertook noise monitoring on site in May 2008. This report is attached

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Environmental Report

Noise Monitoring

for

Molaisín Compost Ltd

May 2008

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Reference: Molaisín Compost Ltd Noise Assessment				
Issue		Prepared by	Checked by	Verified by
V1	20/05/08			
V2	-			
V3	-			
V4	-	Tom McCarthy	Debbie Good	Mervyn Keegan
V5	-	Environmental Scientist	Principal Scientist	Associate

File Reference: CE06847/ P05 project Dev/ 03 Env/ 03 Reports

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FIGURE 1 - **Map showing the Noise Monitoring Locations**

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1.0 INTRODUCTION

White Young Green Environmental (Ireland) Ltd. (WYG) was commissioned by Mc Gill Environmental Systems (Ireland) Ltd. to undertake a noise assessment of the Molaisín Compost Ltd. composting facility at Kilmolash, Cappoquin, Co. Waterford.

The noise survey is part of an Environmental Impact Assessment (EIA) required for a waste licence application. The 6.5 acre site currently operates as a composting facility under a Waterford County Council issued waste permit.

The noise survey was undertaken during the daytime and night-time hours of the 1st of May 2008.

1.1 Site Description

The Molaisín Compost Ltd. site is located in a quiet rural setting approximately 4km from Cappoquin village. The surrounding land is mainly agricultural. The nearest noise sensitive receptors to the site are located approximately 200m west of the site and approximately 300m north of the site.

2.0 MEASUREMENT POSITIONS AND SURVEY DETAILS

For the survey a 30 minute (daytime) and 15 minute (night time) ambient noise level measurement was carried out at six locations, using an integrating sound level meter. Four measurements were carried out at the site boundaries (N1, N2, N3 and N4) and two of the nearest noise sensitive receptors (NSR1 & NSR2). Noise monitoring locations are illustrated in Figure 1 and described in Table 1 below.

Table 1: Description of Noise Monitoring Locations

Location	Description of Location	Justification
N1	Eastern boundary	Boundary location
N2	Northern boundary	Boundary location
N3	Western boundary	Boundary location
N4	Southern boundary	Boundary location
NSR1	Located ~200m from the western boundary	Noise sensitive receptor
NSR2	Located ~300m from the northern boundary	Noise sensitive receptor

Weather conditions during the daytime survey were dry, calm and overcast. Weather conditions during the night-time survey were dry and calm. Wind-speed measured both during the daytime and nighttime monitoring periods was <2 meters per second (m/s).

At all monitoring locations the microphone was mounted on an outdoor microphone stand, which in turn was mounted on a tripod at 1.5m above ground level and at least 2m away from any sound reflecting objects. A windshield was placed on the microphone to reduce any wind interference during measurements.

2.1 Instrumentation and Methodology

The measurements were made according to the requirements of ISO 1996: *Acoustics – Description and Measurement of Environmental Noise, Part 1*, and the EPA "Environmental Noise Guidance Document". The measurements were made using a Cirrus 831A Data logging integrating sound level meter fitted with 1:1 and 1:3 Octave Band Filters. The instrument was calibrated *in situ* at 94 dB prior to and after use, using a Cirrus CR 513A acoustic calibrator. Factory calibration certificates for the noise level meter and acoustic calibrator, detailing equipment serial numbers, calibration traceability and re-calibration dates are presented in Appendix A of this report. The sound level meter was orientated towards the noise source for all measurements. This instrument is a Type 1 instrument in accordance with IEC 651 regulations. The Time Weighting used was Fast and the Frequency Weighting was A-weighted as per IEC 651. A glossary of noise related terms is presented in Appendix B.

2.2 Survey Implementation

The measurement duration was 30 minutes for the daytime survey and 15 minutes for the night time survey. A five minute one third octave reading was also taken at each location. The measurement parameters included meteorological observations of prevailing conditions at the time of the survey. The primary measurement parameter was the equivalent continuous A-Weighted Sound Pressure level, $L_{Aeq, T}$ over 30-minute measurement intervals for the duration of the day-time monitoring survey and 15 minute for the night-time survey.

A statistical analysis of the measurement results was also completed so that the percentile levels, $L_{AN, T}$, for N = 90% and 10% over 30-minute measurement intervals were also recorded.

L_{A10}

The noise level that is equalled or exceeded for 10% of the measurement period. The level is indicative of the contribution from traffic noise at the measurement location.

L_{A90}

The noise level that is equalled or exceeded for 90% of the measurement period. The L_{A90} readings are taken to represent the background noise levels.

L_{Aeq}

Equivalent continuous A-weighted sound level. The continuous steady noise level, which would have the same total A-weighted acoustic energy as the real fluctuating noise measured over the same period of time.

A 1/3rd octave frequency analysis was also carried out to determine whether a tonal character was present at the noise monitoring locations. High or very low frequency is considered to be more disturbing than middle range frequency noise. A tonal element exists if any given 1/3rd octave frequency band exceeds its adjacent bands by 5 dB or more (ISO 1996: Acoustics – Description and Measurement of Environmental Noise, Part 2). All sources of noise were noted, recorded and where possible, identified during each survey.

2.3 Assessment Criteria

The World Health Organization (WHO) recommends guideline values for noise levels in specific environments. Regarding the proposed development, the most applicable levels are presented in Table 2:

Table 2: WHO Recommended Guideline Noise Levels

Specific Environment	Critical Health Effect(s)	L _{Aeq} dB
Outdoor Living Area	Serious annoyance, daytime & evening	55
Outside Bedrooms	Sleep disturbance window open (outdoor values)	45

The noise criteria presented above is applicable at noise sensitive locations only; however, the recorded levels at boundary locations are compared to the above guideline values for comparison purposes only.

The noise limit levels set by the current waste permit levels follow the WHO recommended guideline levels at 55dB for daytime noise and 45 dB for night time noise.

The Environmental Protection Agency (EPA) defines a noise sensitive receptor as "any dwelling, house, hotel or hostel, health building, educational establishment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels".

3.0 NOISE SURVEY RESULTS

The noise measurement results for the day-time and night-time noise monitoring survey are reported in Tables 3 and 4 respectively. A graphical representation of noise measurement spectra, including octave band frequency analysis is presented in Appendix C.

Table 3: Daytime Noise Survey Results

Monitoring Location	Survey Date & Time	L _{Aeq, 30 mins} dB	L _{A10,30 mins} dB	L _{A90,30 mins} dB	Wind speed m/s	Description of Sources
N1	09:55, 01/05/08	40	42	36	<2	A low constant noise from the extractor fans audible from the composting facility, operation of the HGV loaders (x2) audible, and birdsong.
N2	10:38, 01/05/08	67	88	60	<2	Operation of the HGV loaders (x2) plus intermittent reverse alarms dominant, constant noise audible from the extractor fans from the composting facility, and birdsong.
N3	11:10, 01/05/08	42	43	38	<2	Constant noise audible from the extractor fans dominant, operation of the HGV loaders in the composting facility audible, and birdsong.
N4	11:54, 01/05/08	52	74	49	<2	Constant noise audible from the extractor fans dominant, operation of the HGV loaders in the composting facility audible, and birdsong. Water turbulence from the waste water treatment plant, occasional on site HGV movement
NSR1	12:33, 01/05/08	46	48	41	<2	No noise audible from the composting facility, occasional traffic along the local road, farm animal noise audible and bird song
NSR2	13:08, 01/05/08	50	50	34	<2	No noise audible from the composting facility, occasional traffic along the local road, farm animal noise audible and bird song, distant construction noise to the east

Table 4: Night-time Noise Survey Results

Monitoring Location	Survey Date & Time	L _{Aeq} , 15 mins dB	L _{A10,15 mins} dB	L _{A90,15 mins} dB	Wind speed m/s	Description of Sources
N1	22:30, 01/05/08	38	64	27	<2	No audible noise from the composting facility, occasional distant traffic noise audible, bird song and farm animal noise
N2	22:48, 01/05/08	40	40	36	<2	Audible noise from the extractor fans dominant and birdsong.
N3	23:11, 01/05/08	49	63	48	<2	Audible noise from the extractor fans dominant and birdsong.
N4	23:27, 01/05/08	39	39	34	<2	Audible noise from the extractor fans dominant and birdsong.
NSR1	23:53, 01/05/08	50	43	24	<2	No audible noise from the composting facility, distant traffic noise audible, bird song and farm animal noise
NSR2	22:05, 01/05/08	52	51	34	<2	No audible noise from the composting facility, distant traffic noise audible, bird song and farm animal noise

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4.0 DISCUSSION

4.1 Daytime Noise

4.1.1 Site Boundaries

At the Molaisin composting facility the daytime $L_{Aeq,30mins}$ recorded at the site monitoring locations (N1 – N4) ranged from 40 to 67 dB. The L_{A90} , which reflects the background noise level ranged from 36 to 60 dB and the L_{A10} , which represents traffic noise ranged from 42 to 88 dB.

The facility is located in a quiet rural setting. The predominant noise sources noted at the boundary locations comprised of the operation of the heavy goods vehicles (HGV) loaders for transporting the raw materials within the composting facility, the occasional delivery and collection HGV on site. Constant noise audible from the extractor fans from the composting facility, and birdsong.

4.1.2 NSR1 – West of the site

No audible noise from the facility was notable at this location the predominant noise source was distant non-site traffic birdsong and rustling of leaves from a light breeze. The relatively similar L_{Aeq} , L_{A90} and L_{A10} values of 46dB, 41dB and 48dB respectively are typical of the quiet rural setting of the site. The L_{Aeq} is below the recommended WHO guideline value of 55 dB.

4.1.3 NSR2 – North of the site

No audible noise from the facility was notable at this location, the predominant noise source was the occasional passing non-site traffic along the adjacent local road and distant construction noise to the east of the site. Birdsong and the rustling of leaves from a light breeze were also audible. The L_{Aeq} was measured at 50 dB which is below the recommended WHO guideline value of 55 dB. The L_{A10} was also measured at 50 dB. The similar L_{Aeq} and L_{A10} values of 50dB each indicate the dominant noise source to be from passing traffic. The L_{A90} , which represents background noise, was measured at 34 dB. The sound pressure level graphs corresponding to these monitoring locations show a few occasional peaks which can be attributed to short term noise events such as passing vehicles.

4.2 Night-time Noise

4.2.1 Site Boundaries

At the Molaisín composting facility the daytime $L_{Aeq,15mins}$ recorded at the site monitoring locations (N1 – N4) ranged from 38 to 49 dB. The L_{A90} , which reflects the background noise level ranged from 27 to 48 dB and the L_{A10} , which represents traffic noise ranged from 39 to 64 dB.

The predominant noise sources noted at the boundary locations comprised of the low hum of the extractor fan located in the south western corner of the site and distant non-site traffic. Birdsong and the rustling of leaves were also audible.

4.2.2 NSR1 – East of the site

The predominant noise source at this location was the distant traffic flow to the east of the site; birdsong and the rustling of leaves were also audible. The L_{Aeq} value of 50 dB was recorded with an L_{A10} value of 43dB indicating traffic noise being the predominant noise while the L_{A90} , which indicates the background noise level, was 24 dB.

4.2.2 NSR2 – North of the site

The predominant noise source at this location was the distant traffic flow to the east of the site, birdsong and the rustling of leaves were also audible. The L_{Aeq} value of 52 dB was recorded with an L_{A10} value of 51 dB indicating traffic noise being the predominant noise while the L_{A90} , which indicates the background noise level, was 34 dB.

4.3 Octave Band Frequency Analysis

An octave band frequency analysis was also carried out as part of this assessment to obtain more detailed information regarding any potential tonal components at each of the noise monitoring locations. High or very low frequency noise is generally considered to be more disturbing than middle range frequency noise. In general, in order to minimise the potential for a noise source to be a nuisance or cause disturbance, any given 1/3-octave band must not exceed its adjacent band by 5 dB or more (cf ISO 1996 Part 2). The frequency spectra are presented in Appendix C.

The frequency spectra for day and night time monitoring are presented in tables 4 and 5 below and in graphical form in Appendix C.

Table 5: Day-Time Tonal Noise Survey Results

Location	Frequency at which Tonal Noise was detected	Description of Sources
N1	8kHz, 12.5kHz	The operation of extractor fans from the composting facility and the operation of the HGV loaders
N2	31Hz, 10kHz, 12.5kHz	The operation of extractor fans from the composting facility and the operation of the HGV loaders
N3	31Hz, 12.5kHz	The operation of extractor fans from the composting facility and the operation of the HGV loaders
N4	31Hz, 2.5kHz, 8kHz, 12.5kHz	The operation of extractor fans from the composting facility and the operation of the HGV loaders
NSR1	31Hz, 2.5kHz, 8kHz, 12.5kHz	Unidentifiable tonal noise. No audible tonal noise from the composting facility
NSR2	31Hz, 12.5kHz	Unidentifiable tonal noise. No audible tonal noise from the composting facility

Table 6: Night-Time Tonal Noise Results

Location	Frequency at which Tonal Noise was detected	Description of Sources
N1	630Hz, 12.5kHz	Unidentifiable tonal noise.
N2	31Hz	The operation of extractor fans from the composting facility
N3	200Hz, 12.5kHz	The operation of extractor fans from the composting facility
N4	31Hz, 3.15kHz, 12.5kHz	The operation of extractor fans from the composting facility
NSR1	12.5kHz	Unidentifiable tonal noise. No audible tonal noise from the composting facility
NSR2	80Hz, 800Hz, 8kHz	Unidentifiable tonal noise. No audible tonal noise from the composting facility

5.0 Summary

- For the daytime survey, one of the four boundary monitoring locations (N2) exceeded the guideline value of $L_{Aeq,30mins}$ 55 dB. The predominant noise at this location was mainly the operation of the loader HGV within the composting facility. The $L_{Aeq,30mins}$ at both NSR's were below the WHO recommended guideline value of 55 dB.
- For the night-time survey, one of the four boundary monitoring locations (N3) exceeded the guideline value of $L_{Aeq,15mins}$ 45 dB. The predominant noise at this location was the operation of the extractor fan within the composting facility. The $L_{Aeq,15mins}$ at both NSR1 and NSR2 exceeded the WHO recommended guideline value of 45 dB at levels of 50dB and 52 dB respectively.
- Tonal noise was detected at all noise monitoring locations
- No audible noise from the facility was notable at either NSR location during the day and night surveys. The predominant noise at both locations was distant traffic noise.

6.0 RECOMMENDATIONS

In order to minimize as far as practicable the noise impact of the Molaisin composting facility and other on-site noise generating activities the following mitigation measures are recommended:

- An investigation should be carried out into the source of the tonal noise noted during the survey. Once the source is identified mitigation measures should be developed in order to reduce the noise.
- The main access doors of the composting building should remain closed during the operation of the HGV loaders, to reduce noise emanating from the facility.
- Where practicable the use of quiet working methods should be selected and the most suitable plant should be selected for each activity, having due regard to the need for noise control.
- All mechanical plant used on site should be fitted with effective exhaust silencers and should be maintained in good working order. Where practicable, machines should be operated at low speeds and will be shut down when not in use.
- Where practicable the number of machines in simultaneous operation should be minimised.
- Plant and machinery used on-site should comply with the EC (Construction Plant and Equipment) Permissible, Noise Levels Regulations, 1988 (S.I. No. 320 of 1988).

7.0 REFERENCES

- British Standard 5228, Noise Control on Construction and Open Sites – 1997, Part 1, 2 and 4
- EPA *Environmental Noise Guidance Document, 2004*
- Integrated Pollution Prevention Control (IPPC) Licence No. 645
- Environmental Protection Agency (1995). *Guidance Note for Noise in relation to scheduled activities*. EPA, Wexford Ireland.
- *ISO 1996: Acoustics – Description and Measurement of Environmental Noise Parts 1, 2 and 3*

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Figures

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LEGEND

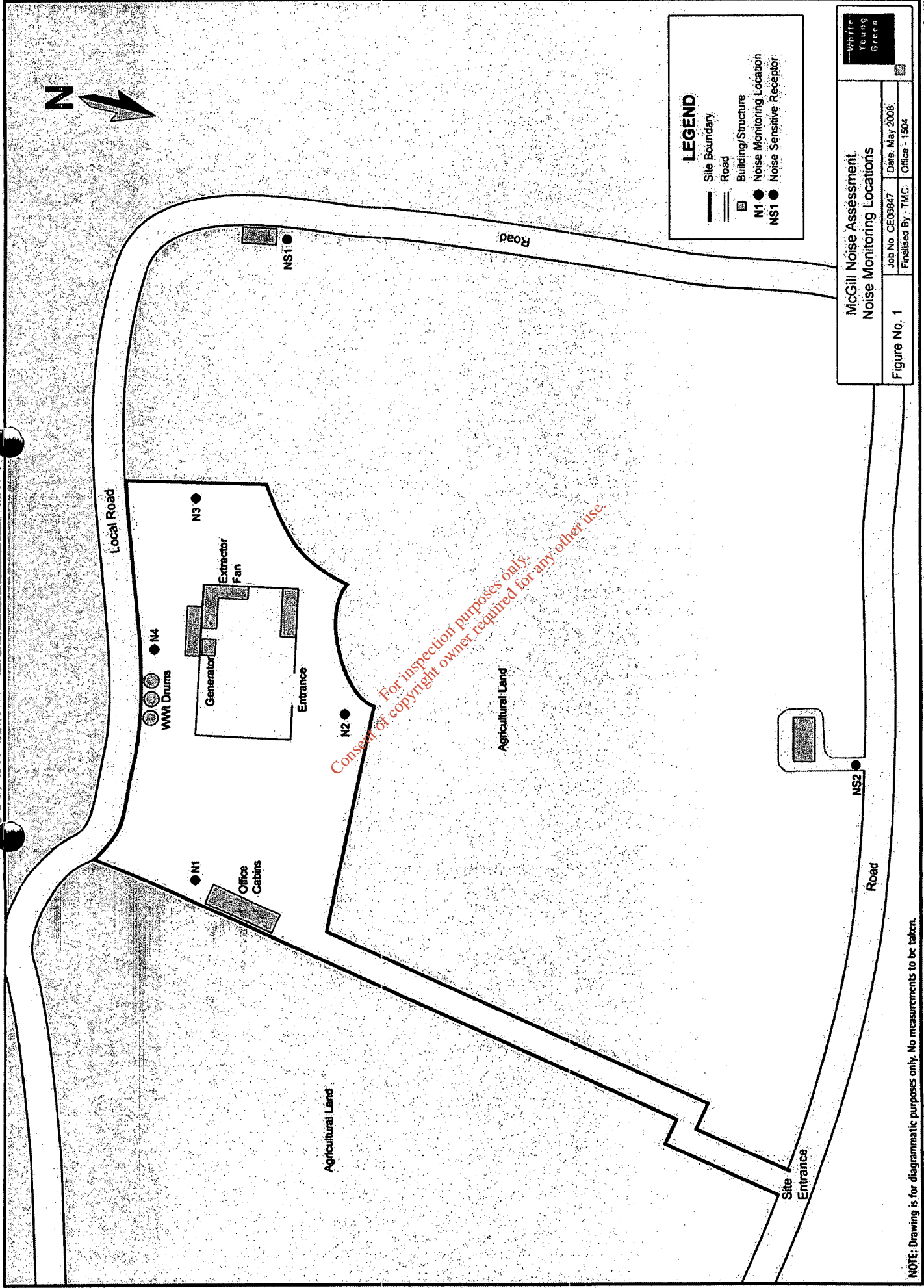
- Site Boundary
- Road
- ▭ Building/Structure
- N1 Noise Monitoring Location
- NS1 Noise Sensitive Receptor

**McGill Noise Assessment
Noise Monitoring Locations**

Figure No. 1

Job No. CE6847 Date: May 2008
Finalised By: TMC Office - 1504

White Young Green



NOTE: Drawing is for diagrammatic purposes only. No measurements to be taken.

Appendix A

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Certificate of Calibration



Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	Sound Level Meter
Model Number	CR:831B
Serial Number	C18693FF

Calibration Procedure

The instrument detailed above has been calibrated to the published test and calibration data as detailed in the instrument handbook, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983 and ANSI S1.43-1997 where applicable.

Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc, which are traceable to the appropriate National Standards.

The Cirrus Research plc calibration laboratory standards are:

Microphone Type	B&K4192	Serial Number	1920791	Calibration Ref.	S 5170
Pistonphone Type	B&K4220	Serial Number	613843	Calibration Ref.	S 5291

Calibrated By

Calibration Date

4 August 2006

Calibration Certificate Number

141905

This Calibration Certificate is valid for 12 months from the date above.

Acoustic House Bridlington Road Hunmanby North Yorkshire YO14 0PH
Telephone 01723 891655 Fax 01723 891742

Certificate of Calibration



Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	Outdoor Microphone
Model Number	Mk:438
Serial Number	41887

Calibration Procedure

The instrument detailed above has been calibrated to the published test and calibration data as detailed in the instrument handbook, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983 and ANSI S1.43-1997 where applicable.

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Microphone Type	B&K4192	Serial Number	1920791	Calibration Ref.	S 5170
Pistonphone Type	B&K4220	Serial Number	613843	Calibration Ref.	S 5291

Calibrated By

Calibration Date

4 August 2006

Calibration Certificate Number

141906

This Calibration Certificate is valid for 12 months from the date above.

Acoustic House Bridlington Road Hunmanby North Yorkshire YO14 0PH
Telephone 01723 891655 Fax 01723 891742

Appendix B

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GLOSSARY

Ambient Noise

Totally encompassing sound in a given situation at a given time usually composed of a sound from many sources near and far.

Background noise level

The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T measured using time weighting F, and quoted to the nearest whole number of decibels.

Day:
0800 hrs to 2200 hrs

Night:
2200 hrs to 0800 hrs

Decibel (dB)

The unit of sound pressure level, calculated as a logarithm of the intensity of sound. 0 dB is the threshold of hearing, 140 dB is the threshold of pain. A change of 1 dB is detectable only under laboratory conditions. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound.

dB(A)

Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sound of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with peoples assessment of loudness.

Hertz (Hz)

Unit of frequency (pitch) of a sound.

Impulsive Noise

A noise which is of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background.

1/3 Octave band analysis

Frequency analysis of sound such that the frequency spectrum is sub divided into bands of one third of an octave each. An octave is taken to be the frequency interval, the upper limit of which is twice the lower limit (in Hertz).

L_{eq}

Equivalent Continuous A-weighted Sound Level. The continuous steady noise level, which would have the same total A-weighted acoustic energy as the real fluctuating noise measured over the same period of time.

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L(A)₁₀

The noise level that is equaled or exceeded for 10% of the measurement period.

L(A)₉₀

The noise level that is equaled or exceeded for 90% of the measurement period.

Noise

Unwanted sound. Any sound which has the potential to cause disturbance, discomfort or psychological stress to a subject exposed to it, or any sound which has the potential to cause actual physiological harm to a subject exposed to it or physical damage to any structure exposed to it, is known as noise.

Noise Sensitive Receptor

A noise sensitive receptor is regarded as any dwelling house, hotel or hostel, health building, educational establishment, places of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

Rating level L_{Arr}

The specific noise level plus any adjustment for the characteristic features of the noise.

Residual Noise

The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise.

Sound Power

The energy output from a source. It is measured in Watts (W).

Specific Noise source

The noise source under investigation for assessing the likelihood of complaints.

Tone

A noise with a narrow frequency composition.

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Appendix C

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Measurement Report

Measurement Details

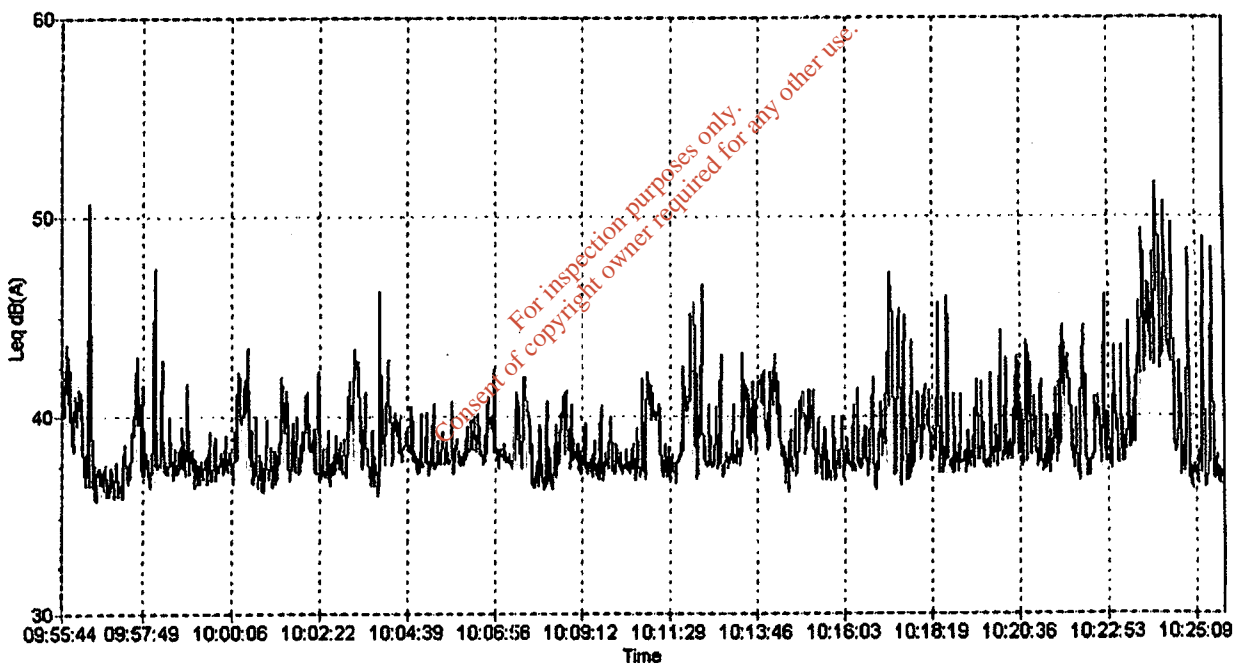
Date and Time: 01/05/2008 09:55
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:30:00 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: N1_BB_Day

Notes:

Noise Monitoring Location N1, Broadband Analysis

Data

Leq	39.9 dBA	L1.0	47.3 dBA
Lepd	27.8 dBA	L10.0	41.5 dBA
LAE	72.2 dBA	L50.0	37.8 dBA
LAFmax	57.2 dBA	L90.0	36.4 dBA
Peak	80.7 dBC	L95.0	36.2 dBA
		Lmin	34.4 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 10:27
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:04:16 hh:mm:ss
Range: 30-100 dB
Location: N1_F_Day

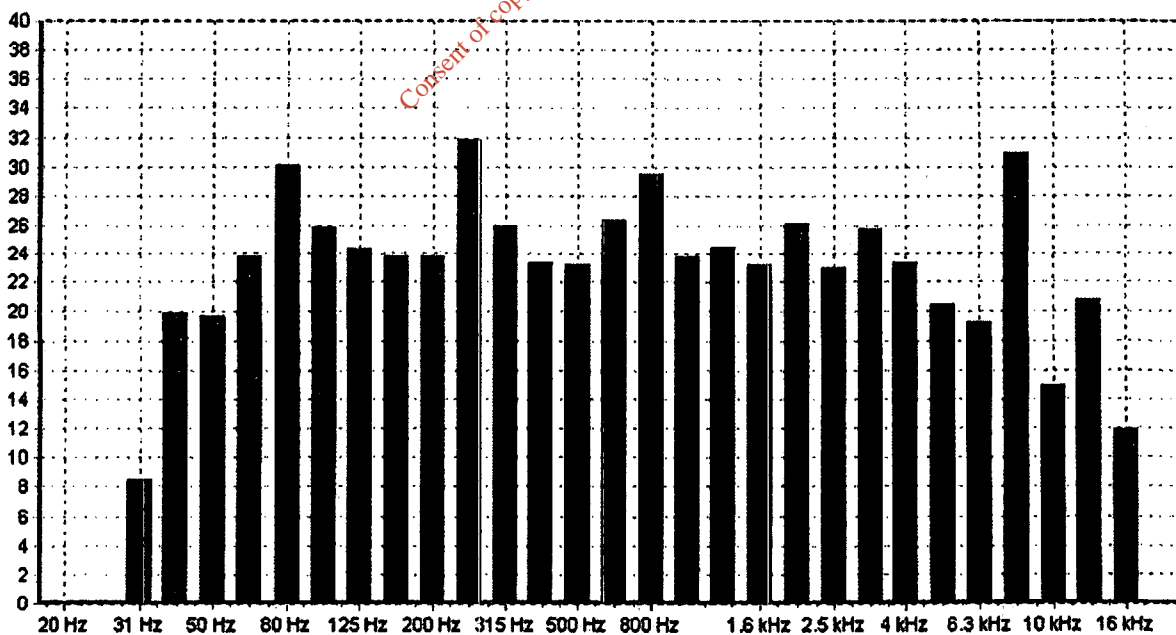
Notes:

Noise Monitoring Location N1, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	dB			250 Hz	31.8 dBA	8		3.15 kHz	25.7 dBA	8	
25 Hz	0.0 dBA	8		315 Hz	26.0 dBA	8		4 kHz	23.3 dBA	8	
31 Hz	8.5 dBA	8		400 Hz	23.3 dBA	8		5 kHz	20.5 dBA	8	
40 Hz	20.0 dBA	8		500 Hz	23.2 dBA	8		6.3 kHz	19.2 dBA	8	
50 Hz	19.7 dBA	8		630 Hz	26.4 dBA	8		8 kHz	30.9 dBA	8	
63 Hz	23.8 dBA	8		800 Hz	29.5 dBA	8		10 kHz	14.9 dBA	8	
80 Hz	30.1 dBA	8		1 kHz	23.8 dBA	8		12.5 kHz	20.7 dBA	8	
100 Hz	25.9 dBA	8		1.25 kHz	24.5 dBA	8		16 kHz	11.9 dBA	8	
125 Hz	24.4 dBA	8		1.6 kHz	23.2 dBA	8		20 kHz	dB		
160 Hz	23.8 dBA	8		2 kHz	26.2 dBA	8					
200 Hz	23.8 dBA	8		2.5 kHz	23.0 dBA	8					

Band	LZeq,t	Time s	Overload
LAeq	45.0 dBA	8	
LCeq	59.9 dBC	8	
LZeq	73.6 dBZ	8	



Measurement Report

Measurement Details

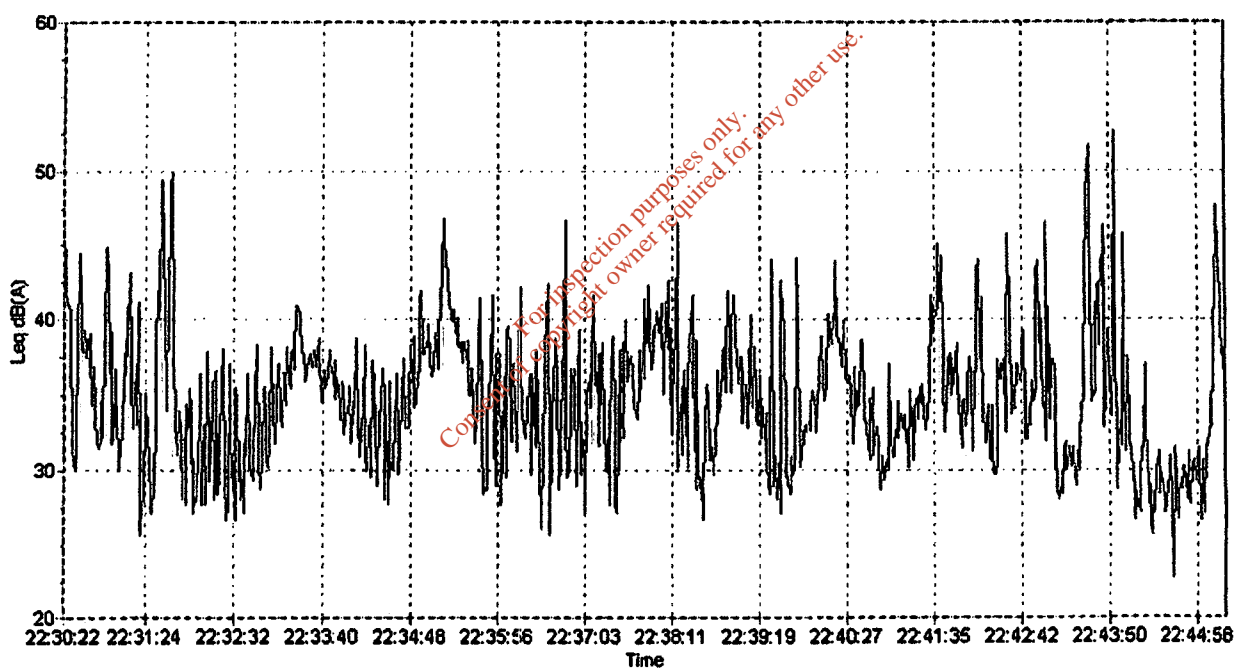
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Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:14:59 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: N1_BB_Night

Notes:

Noise Monitoring Location N1, Broadband Analysis

Data

Leq	37.8 dBA	L1.0	60.5 dBA
Lepd	22.7 dBA	L10.0	63.8 dBA
LAE	67.2 dBA	L50.0	33.9 dBA
LAFmax	60.5 dBA	L90.0	27.2 dBA
Peak	88.0 dBC	L95.0	26.3 dBA
		Lmin	24.3 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 22:25
 Sound Level Meter: Cirrus Research plc
 Recalibration Due: 31/08/2008
 Run Duration: 00:02:08 hh:mm:ss
 Range: 30-100 dB
 Location: N1_F_Night

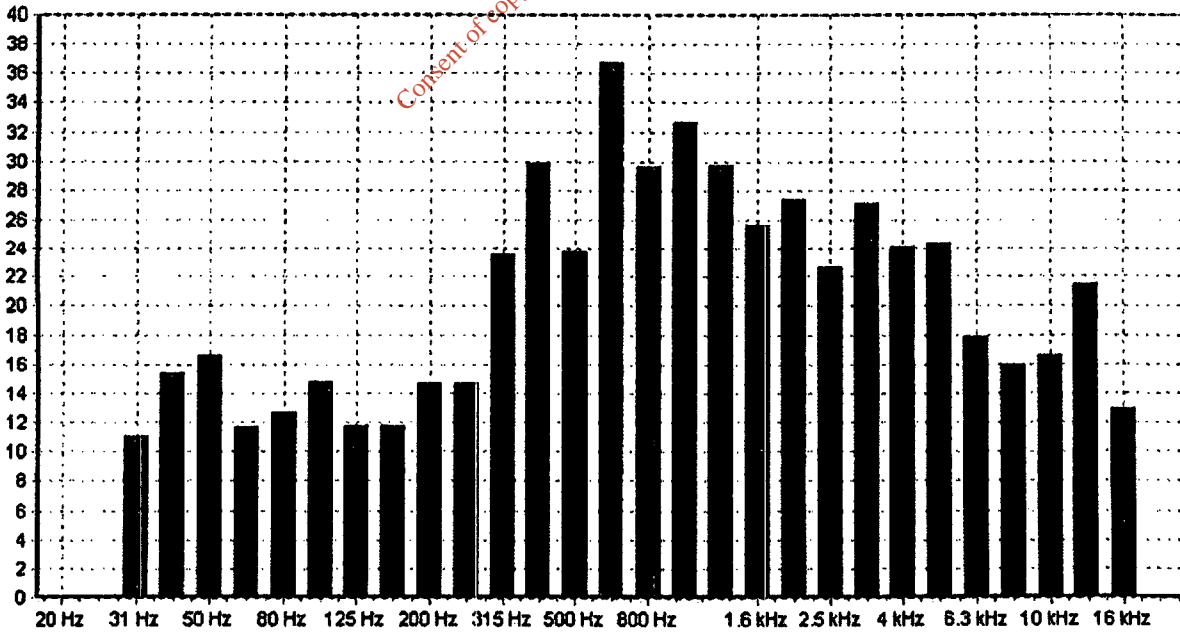
Notes:

Noise Monitoring Location N1, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	dBA			250 Hz	14.7 dBA	4		3.15 kHz	27.1 dBA	4	
25 Hz	0.0 dBA	4		315 Hz	23.5 dBA	4		4 kHz	24.2 dBA	4	
31 Hz	11.1 dBA	4		400 Hz	29.8 dBA	4		5 kHz	24.4 dBA	4	
40 Hz	15.4 dBA	4		500 Hz	23.8 dBA	4		6.3 kHz	17.8 dBA	4	
50 Hz	16.5 dBA	4		630 Hz	36.8 dBA	4		8 kHz	15.9 dBA	4	
63 Hz	11.7 dBA	4		800 Hz	29.6 dBA	4		10 kHz	16.6 dBA	4	
80 Hz	12.8 dBA	4		1 kHz	32.7 dBA	4		12.5 kHz	21.5 dBA	4	
100 Hz	14.8 dBA	4		1.25 kHz	29.8 dBA	4		16 kHz	12.9 dBA	4	
125 Hz	11.8 dBA	4		1.6 kHz	25.7 dBA	4		20 kHz	dBA		
160 Hz	11.8 dBA	4		2 kHz	27.4 dBA	4					
200 Hz	14.7 dBA	4		2.5 kHz	22.6 dBA	4					

Band	Leq,t	Time s	Overload
LAeq	59.0 dBA	4	
LCeq	59.8 dBC	4	
LZeq	61.3 dBZ	4	



Measurement Report

Measurement Details

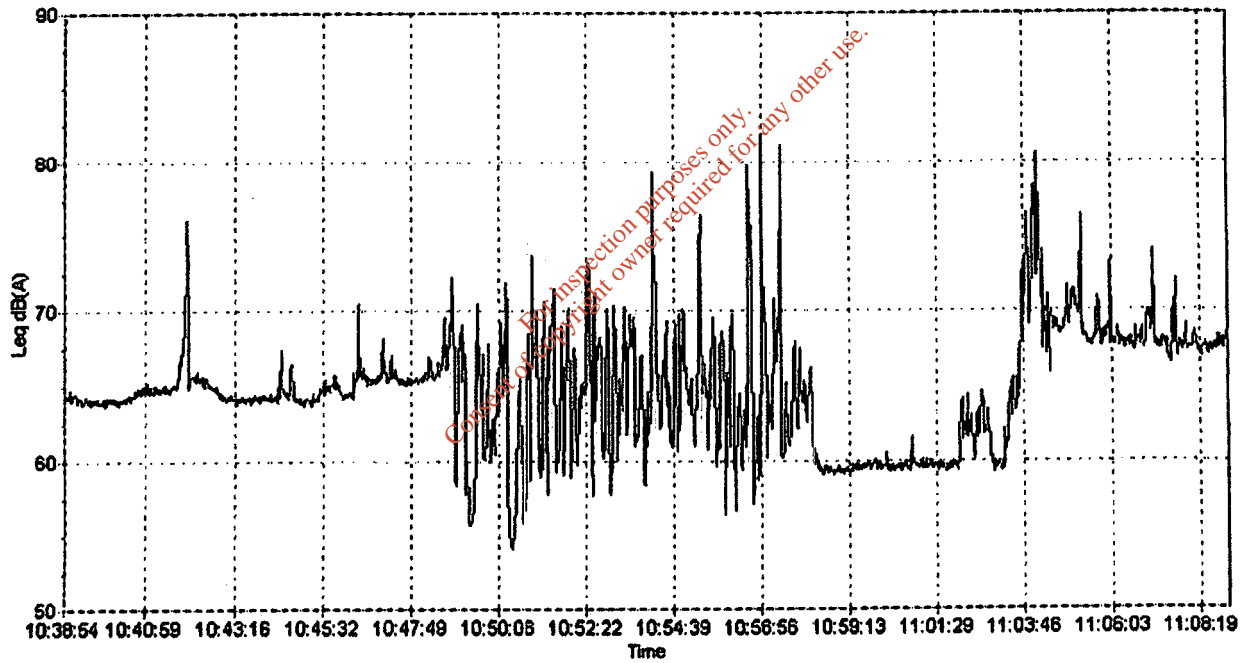
Date and Time: 01/05/2008 10:38
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:30:01 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: N2_BB_Day

Notes:

Noise Monitoring Location N2, Broadband Analysis

Data

Leq	66.8 dBA	L1.0	87.8 dBA
Lepd	54.7 dBA	L10.0	87.8 dBA
LAE	99.1 dBA	L50.0	65.2 dBA
LAFmax	87.8 dBA	L90.0	59.6 dBA
Peak	107.7 dBC	L95.0	58.9 dBA
		Lmin	53.4 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 10:33
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:04:16 hh:mm:ss
Range: 30-100 dB
Location: N2_F_Day

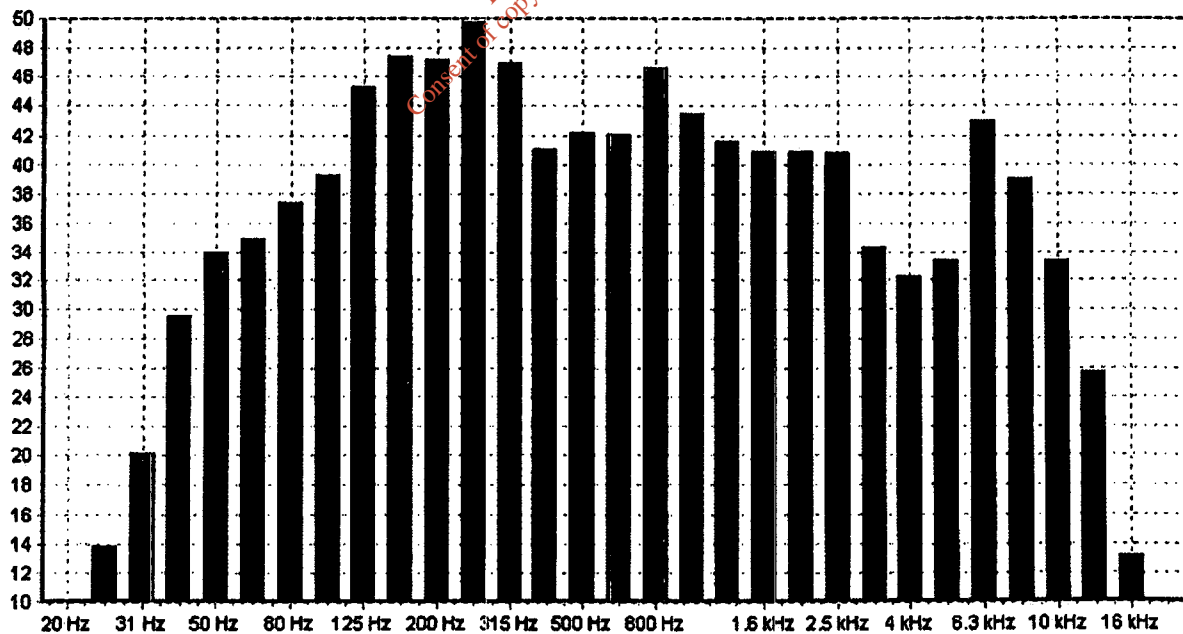
Notes:

Noise Monitoring Location N2, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	13.4 dBA	8		250 Hz	49.8 dBA	8		3.15 kHz	34.4 dBA	8	
25 Hz	13.8 dBA	8		315 Hz	47.0 dBA	8		4 kHz	32.2 dBA	8	
31 Hz	20.2 dBA	8		400 Hz	41.0 dBA	8		5 kHz	33.4 dBA	8	
40 Hz	29.6 dBA	8		500 Hz	42.1 dBA	8		6.3 kHz	43.0 dBA	8	
50 Hz	34.0 dBA	8		630 Hz	42.1 dBA	8		8 kHz	39.0 dBA	8	
63 Hz	34.9 dBA	8		800 Hz	46.7 dBA	8		10 kHz	33.5 dBA	8	
80 Hz	37.4 dBA	8		1 kHz	43.5 dBA	8		12.5 kHz	25.7 dBA	8	
100 Hz	39.3 dBA	8		1.25 kHz	41.6 dBA	8		16 kHz	13.1 dBA	8	
125 Hz	45.3 dBA	8		1.6 kHz	40.9 dBA	8		20 kHz	dBA		
160 Hz	47.5 dBA	8		2 kHz	40.9 dBA	8					
200 Hz	47.2 dBA	8		2.5 kHz	40.8 dBA	8					

Band	Leq,t	Time s	Overload
L _{Aeq}	65.2 dBA	8	
L _{Ceq}	70.0 dBC	8	
L _{Zeq}	73.4 dBZ	8	



Measurement Report

Measurement Details

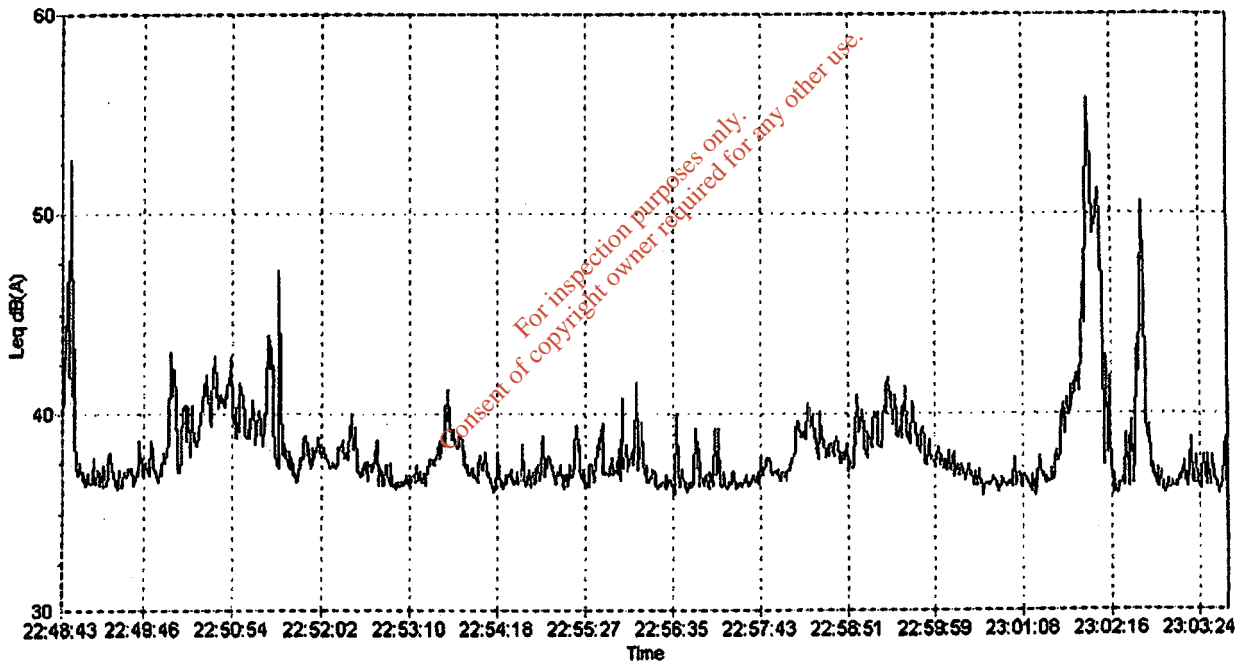
Date and Time: 01/05/2008 22:48
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:14:59 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: N2_BB_Night

Notes:

Noise Monitoring Location N2, Broadband Analysis

Data

Leq	39.6 dBA	L1.0	48.6 dBA
Lepd	24.6 dBA	L10.0	39.9 dBA
LAE	60.0 dBA	L50.0	36.7 dBA
LAFmax	60.7 dBA	L90.0	35.7 dBA
Peak	69.3 dBC	L95.0	35.5 dBA
		Lmin	34.4 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 23:04
 Sound Level Meter: Cirrus Research plc
 Recalibration Due: 31/08/2008
 Run Duration: 00:02:08 hh:mm:ss
 Range: 40-110 dB
 Location: N2_F_Night

Notes:

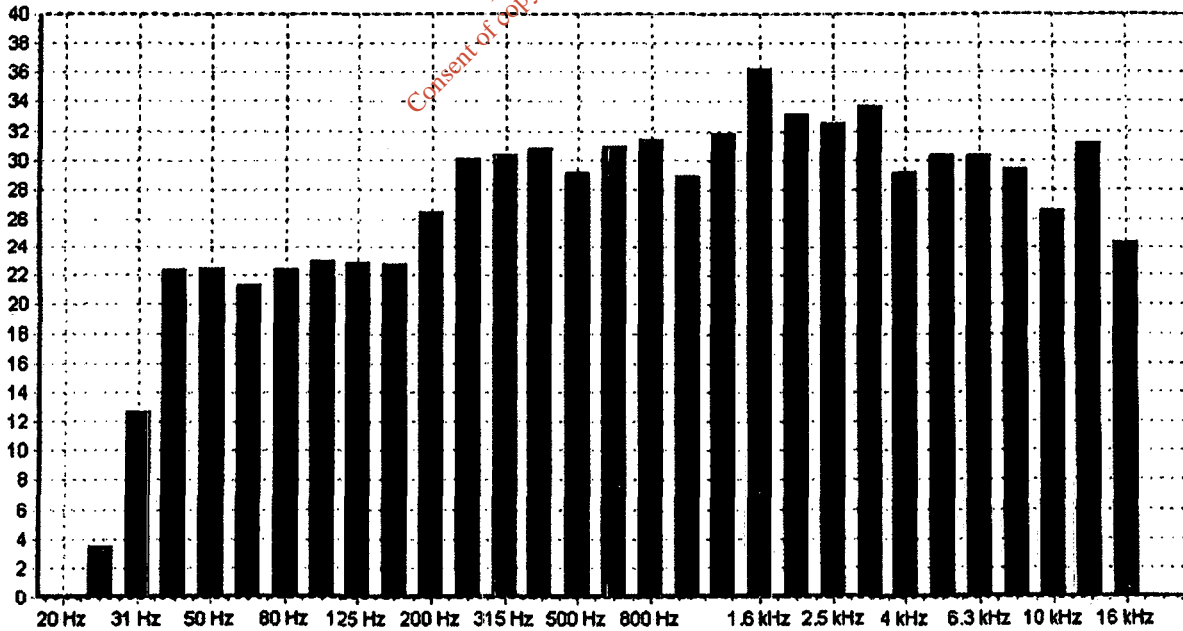
Noise Monitoring Location N2, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	3.5 dBA	4		250 Hz	30.1 dBA	4		3.15 kHz	33.7 dBA	4	
25 Hz	12.7 dBA	4		315 Hz	30.4 dBA	4		4 kHz	29.2 dBA	4	
31 Hz	22.4 dBA	4		400 Hz	30.7 dBA	4		5 kHz	30.3 dBA	4	
40 Hz	22.5 dBA	4		500 Hz	29.1 dBA	4		6.3 kHz	30.3 dBA	4	
50 Hz	21.3 dBA	4		630 Hz	30.9 dBA	4		8 kHz	29.4 dBA	4	
63 Hz	22.4 dBA	4		800 Hz	31.3 dBA	4		10 kHz	28.6 dBA	4	
80 Hz	23.0 dBA	4		1 kHz	29.0 dBA	4		12.5 kHz	31.1 dBA	4	
100 Hz	22.8 dBA	4		1.25 kHz	31.8 dBA	4		16 kHz	24.4 dBA	4	
125 Hz	22.7 dBA	4		1.6 kHz	36.3 dBA	4		20 kHz	dBA		
160 Hz	26.5 dBA	4		2 kHz	33.2 dBA	4					
200 Hz				2.5 kHz	32.5 dBA	4					

Band	Leq,t	Time s	Overload
LAeq	48.1 dBA	4	
LCeq	69.6 dBC	4	
LZeq	71.2 dBZ	4	

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Measurement Report

Measurement Details

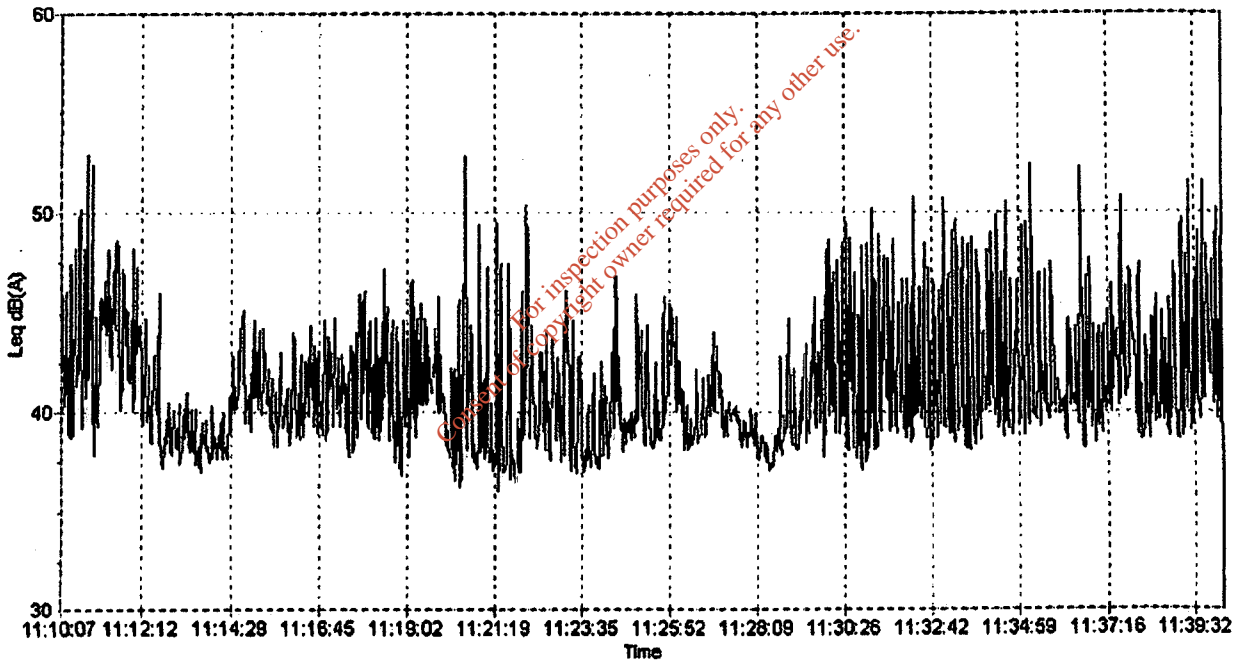
Date and Time: 01/05/2008 11:10
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:30:02 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: N3_BB_Day

Notes:

Noise Monitoring Location N3, Broadband Analysis

Data

Leq	42.4 dBA	L1.0	45.3 dBA
Lepd	30.4 dBA	L10.0	43.4 dBA
LAE	74.8 dBA	L50.0	39.6 dBA
LAFmax	57.7 dBA	L90.0	37.5 dBA
Peak	85.9 dBC	L95.0	37.0 dBA
		Lmin	35.1 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 11:40
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:04:18 hh:mm:ss
Range: 30-100 dB
Location: N3_F_Day

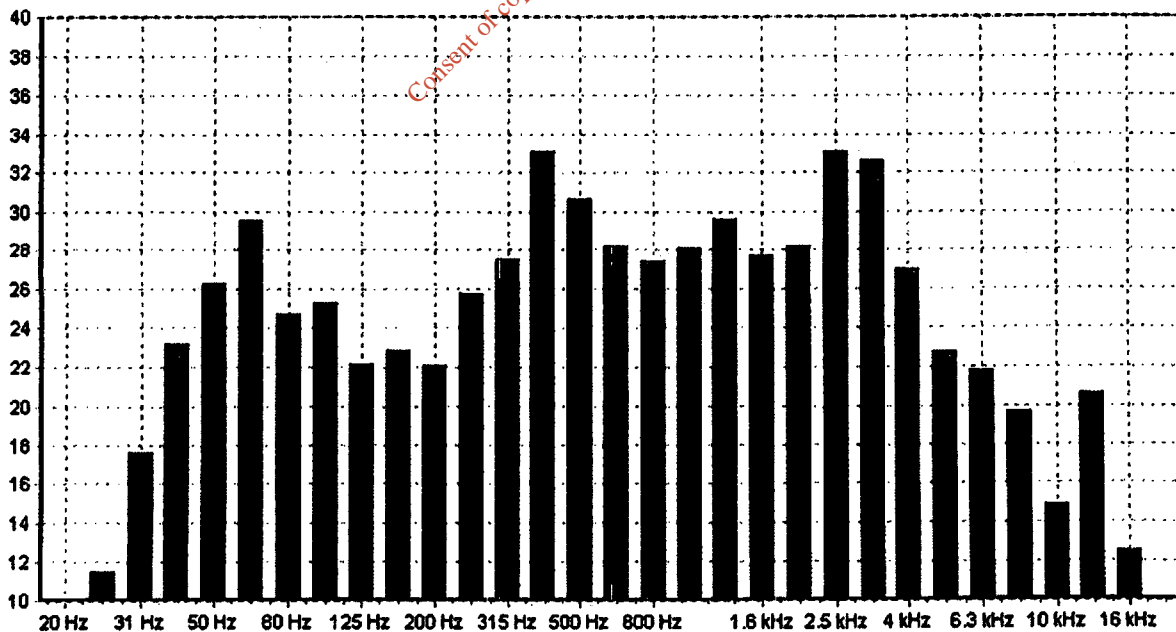
Notes:

Noise Monitoring Location N3, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	dBA			250 Hz	25.7 dBA	9		3.15 kHz	32.6 dBA	8	
25 Hz	11.5 dBA	8		315 Hz	27.5 dBA	8		4 kHz	27.0 dBA	8	
31 Hz	17.6 dBA	8		400 Hz	33.1 dBA	8		5 kHz	22.8 dBA	8	
40 Hz	23.2 dBA	8		500 Hz	30.6 dBA	8		6.3 kHz	21.8 dBA	8	
50 Hz	26.2 dBA	8		630 Hz	28.2 dBA	8		8 kHz	19.7 dBA	8	
63 Hz	29.5 dBA	8		800 Hz	27.4 dBA	8		10 kHz	14.9 dBA	8	
80 Hz	24.7 dBA	8		1 kHz	28.1 dBA	8		12.5 kHz	20.6 dBA	9	
100 Hz	25.3 dBA	8		1.25 kHz	29.7 dBA	8		16 kHz	12.6 dBA	8	
125 Hz	22.2 dBA	8		1.6 kHz	27.6 dBA	8		20 kHz	dBA		
160 Hz	22.9 dBA	8		2 kHz	28.2 dBA	8					
200 Hz	22.1 dBA	8		2.5 kHz	33.1 dBA	8					

Band	Leq,t	Time s	Overload
L _{Aeq}	42.1 dBA	8	
L _{Ceq}	60.8 dBC	8	
L _{Zeq}	65.2 dBZ	8	



Measurement Report

Measurement Details

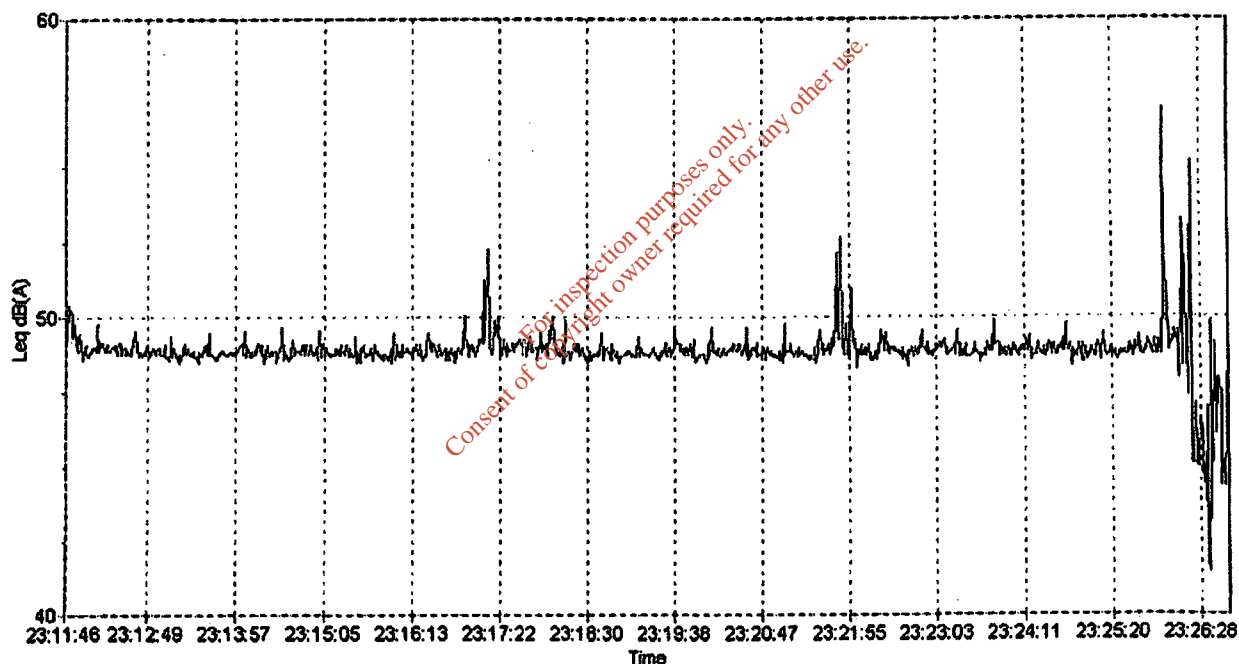
Date and Time: 01/05/2008 23:11
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:15:00 hh:mm:ss
Range: 40-110 dB
Overload: no
Location: N3_BB_Night

Notes:

Noise Monitoring Location N3, Broadband Analysis

Data

Leq	49.0 dBA	L1.0	63.2 dBA
Lepd	33.9 dBA	L10.0	63.2 dBA
LAE	78.4 dBA	L50.0	48.8 dBA
LAFmax	63.2 dBA	L90.0	47.9 dBA
Peak	91.9 dBC	L95.0	45.8 dBA
		Lmin	39.4 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 23:08
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:02:08 hh:mm:ss
Range: 40-110 dB
Location: N3_F_Night

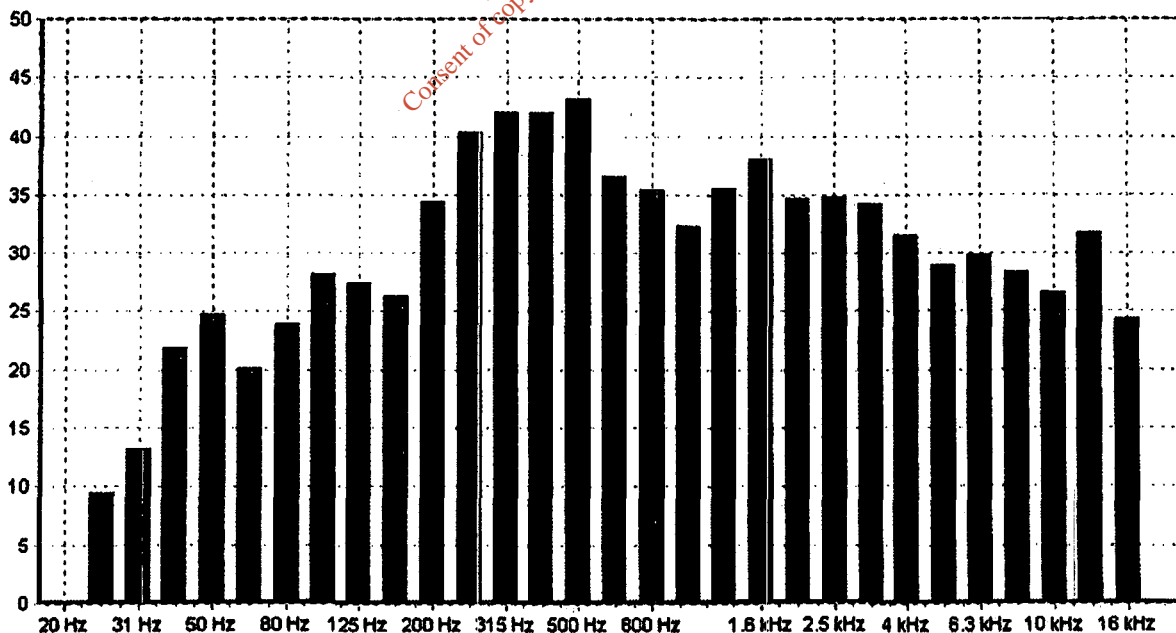
Notes:

Noise Monitoring Location N3, 1/3 Octave Frequency Analysis

Data

Band	LZeq,l	Time s	Overload	Band	LZeq,l	Time s	Overload	Band	LZeq,l	Time s	Overload
20 Hz	dB			250 Hz	40.4 dBA	4		3.15 kHz	34.3 dBA	4	
25 Hz	9.5 dBA	4		315 Hz	41.9 dBA	4		4 kHz	31.7 dBA	4	
31 Hz	13.1 dBA	4		400 Hz	42.0 dBA	4		5 kHz	28.8 dBA	4	
40 Hz	21.8 dBA	4		500 Hz	43.1 dBA	4		6.3 kHz	29.8 dBA	4	
50 Hz	24.7 dBA	4		630 Hz	36.6 dBA	4		8 kHz	28.3 dBA	4	
63 Hz	20.1 dBA	4		800 Hz	35.4 dBA	4		10 kHz	26.6 dBA	4	
80 Hz	23.9 dBA	4		1 kHz	32.3 dBA	4		12.5 kHz	31.8 dBA	4	
100 Hz	28.2 dBA	4		1.25 kHz	35.5 dBA	4		16 kHz	24.4 dBA	4	
125 Hz	27.5 dBA	4		1.6 kHz	38.0 dBA	4		20 kHz	dB		
160 Hz	26.2 dBA	4		2 kHz	34.6 dBA	4					
200 Hz	34.4 dBA	4		2.5 kHz	34.8 dBA	4					

Band	Leq,l	Time s	Overload
LAeq	51.8 dBA	4	
LCeq	69.8 dBC	4	
LZeq	71.5 dBZ	4	



Measurement Report

Measurement Details

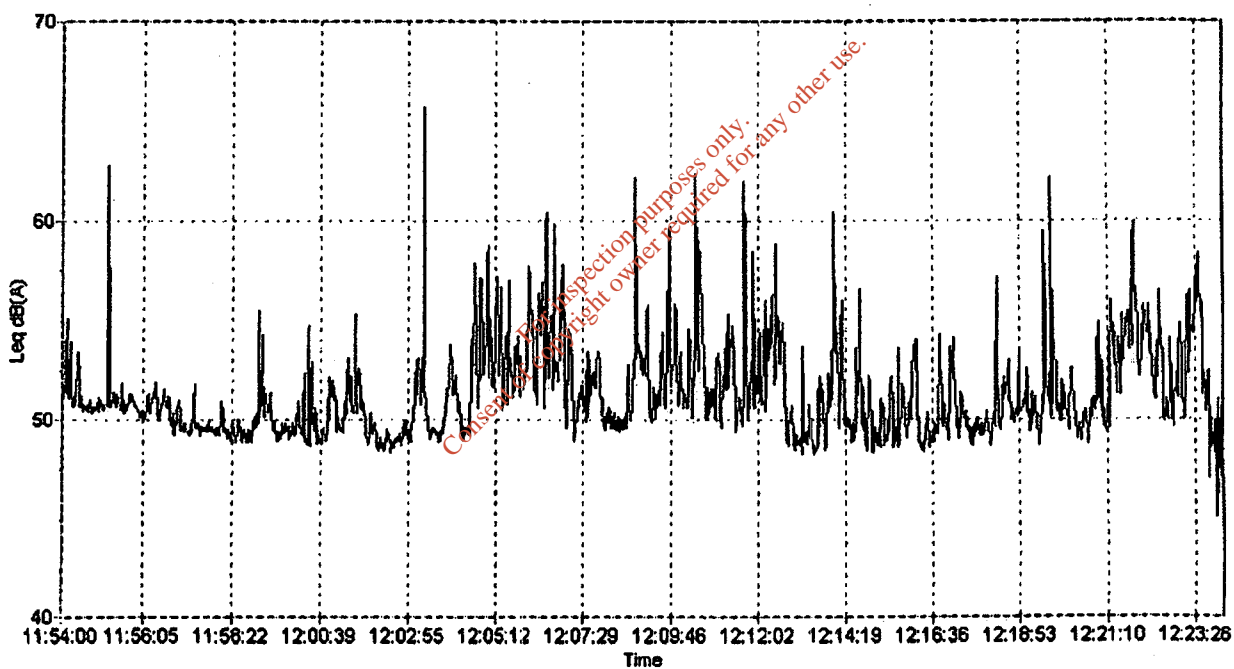
Date and Time: 01/05/2008 11:54
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:30:01 hh:mm:ss
Range: 40-110 dB
Overload: no
Location: N4_BB_Day

Notes:

Noise Monitoring Location N4, Broadband Analysis

Data

Leq	52.0 dBA	L1.0	73.6 dBA
Lepd	40.0 dBA	L10.0	73.6 dBA
LAE	84.4 dBA	L50.0	50.9 dBA
LAFmax	73.6 dBA	L90.0	48.7 dBA
Peak	97.3 dBC	L95.0	48.2 dBA
		Lmin	42.5 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 11:48
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:04:16 hh:mm:ss
Range: 40-110 dB
Location: N4_F_Day

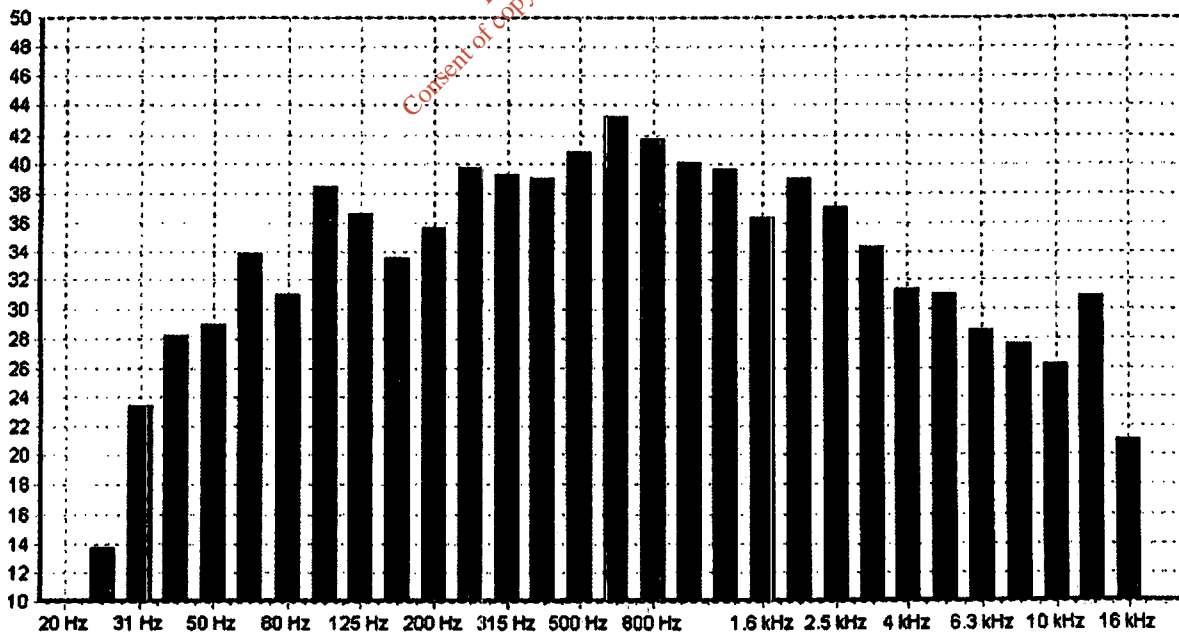
Notes:

Noise Monitoring Location N4, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	dBA			250 Hz	39.7 dBA	8		3.15 kHz	34.4 dBA	8	
25 Hz	13.7 dBA	8		315 Hz	39.3 dBA	8		4 kHz	31.3 dBA	8	
31 Hz	23.4 dBA	8		400 Hz	39.0 dBA	8		5 kHz	31.0 dBA	8	
40 Hz	28.2 dBA	8		500 Hz	40.8 dBA	8		6.3 kHz	28.6 dBA	8	
50 Hz	29.0 dBA	8		630 Hz	43.3 dBA	8		8 kHz	27.6 dBA	8	
63 Hz	33.8 dBA	8		800 Hz	41.7 dBA	8		10 kHz	26.2 dBA	8	
80 Hz	31.0 dBA	8		1 kHz	40.1 dBA	8		12.5 kHz	30.8 dBA	8	
100 Hz	38.4 dBA	8		1.25 kHz	39.7 dBA	8		16 kHz	21.1 dBA	8	
125 Hz	36.6 dBA	8		1.6 kHz	36.3 dBA	8		20 kHz	dBA		
160 Hz	33.5 dBA	8		2 kHz	39.1 dBA	8					
200 Hz	35.7 dBA	8		2.5 kHz	37.1 dBA	8					

Band	Leq,t	Time s	Overload
LAeq	51.8 dBA	8	
LCeq	69.6 dBC	8	
LZeq	72.5 dBZ	8	



Measurement Report

Measurement Details

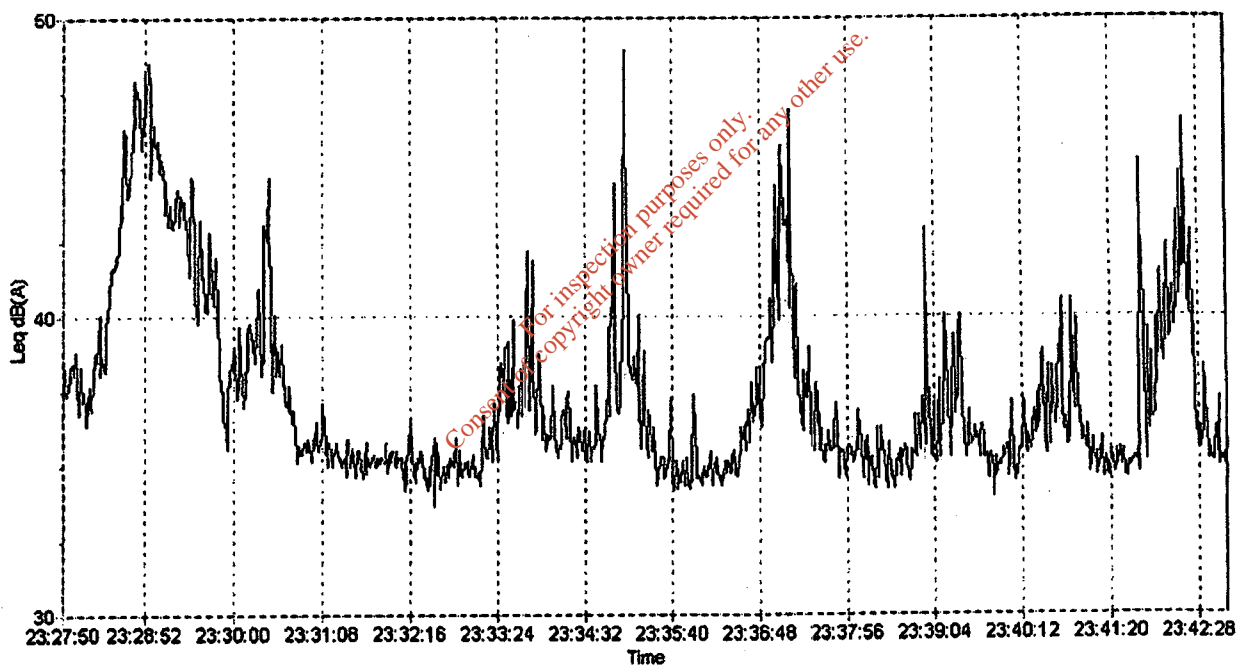
Date and Time: 01/05/2008 23:27
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:18:00 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: N4_BB_Night

Notes:

Noise Monitoring Location N4, Broadband Analysis

Data

Leq	38.8 dBA	L1.0	41.9 dBA
Lepd	23.8 dBA	L10.0	39.1 dBA
LAE	88.2 dBA	L50.0	35.3 dBA
LAFmax	51.7 dBA	L90.0	33.9 dBA
Peak	78.6 dBC	L95.0	33.6 dBA
		Lmin	32.5 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 23:43
 Sound Level Meter: Cirrus Research plc
 Recalibration Due: 31/08/2008
 Run Duration: 00:02:08 hh:mm:ss
 Range: 30-100 dB
 Location: N4_F_Night

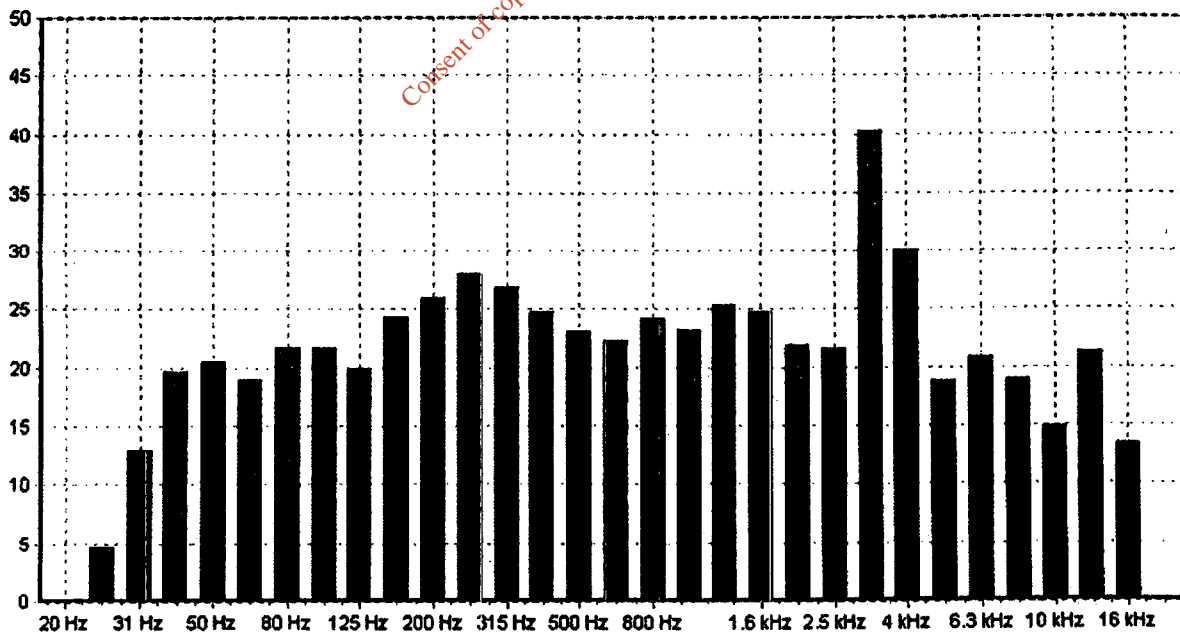
Notes:

Noise Monitoring Location N4, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	dB			250 Hz	27.9 dBA	4		3.15 kHz	40.3 dBA	4	
25 Hz	4.7 dBA	4		315 Hz	26.8 dBA	4		4 kHz	30.1 dBA	4	
31 Hz	13.0 dBA	4		400 Hz	24.7 dBA	4		5 kHz	18.9 dBA	4	
40 Hz	19.7 dBA	4		500 Hz	23.0 dBA	4		6.3 kHz	20.8 dBA	4	
50 Hz	20.5 dBA	4		630 Hz	22.4 dBA	4		8 kHz	18.9 dBA	4	
63 Hz	18.9 dBA	4		800 Hz	24.2 dBA	4		10 kHz	14.8 dBA	4	
80 Hz	21.7 dBA	4		1 kHz	23.2 dBA	4		12.5 kHz	21.3 dBA	4	
100 Hz	21.6 dBA	4		1.25 kHz	25.4 dBA	4		16 kHz	13.5 dBA	4	
125 Hz	19.9 dBA	4		1.6 kHz	24.7 dBA	4		20 kHz	dB		
160 Hz	24.3 dBA	4		2 kHz	21.9 dBA	4					
200 Hz	26.0 dBA	4		2.5 kHz	21.6 dBA	4					

Band	Leq,t	Time s	Overload
LAeq	40.7 dBA	4	
LCeq	60.6 dBC	4	
LZeq	63.1 dBZ	4	



Measurement Report

Measurement Details

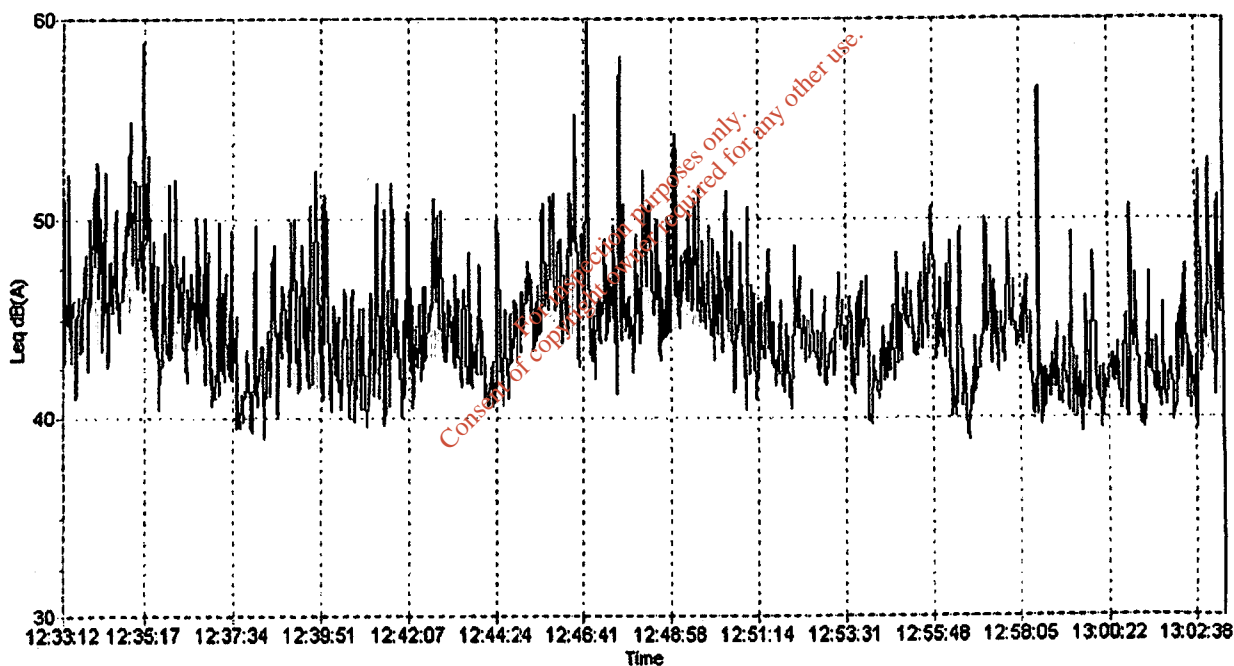
Date and Time: 01/05/2008 12:33
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:30:02 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: NSR1_BB_Day

Notes:

Noise Monitoring Location NSR1, Broadband Analysis

Data

Leq	46.0 dBA	L1.0	53.2 dBA
Lepd	34.0 dBA	L10.0	48.4 dBA
LAE	78.4 dBA	L50.0	43.9 dBA
LAFmax	64.5 dBA	L90.0	40.7 dBA
Peak	92.2 dBC	L95.0	40.0 dBA
		Lmin	37.4 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 13:03
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/09/2008
Run Duration: 00:04:16 hh:mm:ss
Range: 30-100 dB
Location: NSR1_F_Day

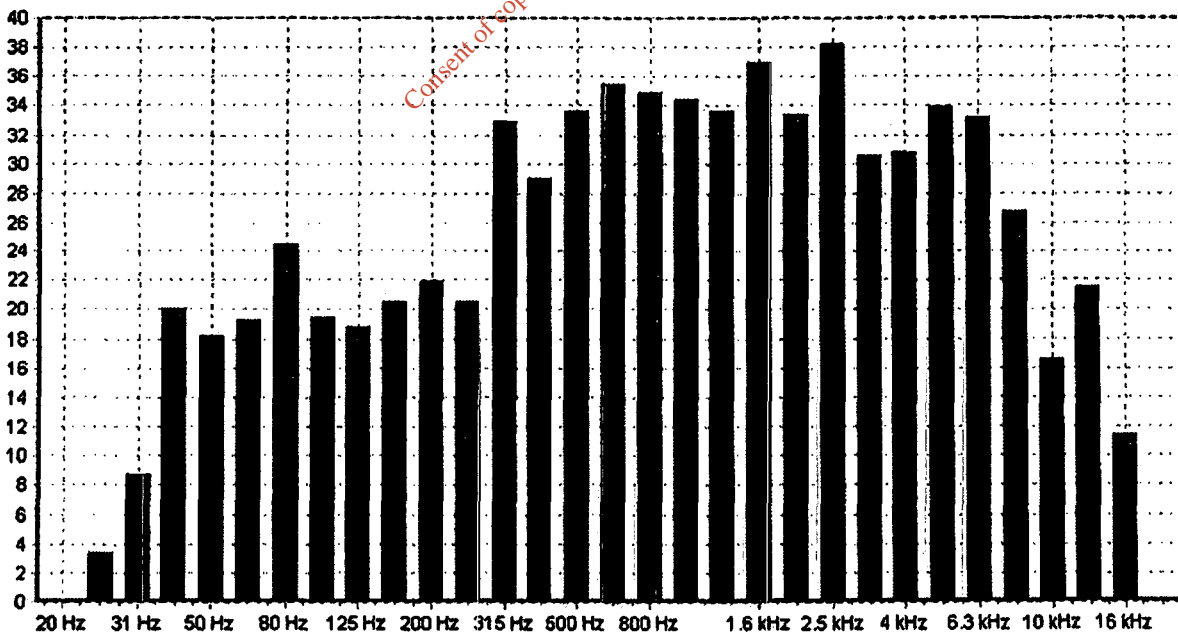
Notes:

Noise Monitoring Location NSR1, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz				250 Hz	20.5 dBA	8		3.15 kHz	30.6 dBA	8	
25 Hz	3.3 dBA	8		315 Hz	32.9 dBA	8		4 kHz	30.8 dBA	8	
31 Hz	8.7 dBA	8		400 Hz	29.0 dBA	8		5 kHz	34.0 dBA	8	
40 Hz	20.1 dBA	8		500 Hz	33.5 dBA	8		6.3 kHz	33.1 dBA	8	
50 Hz	18.2 dBA	8		630 Hz	35.4 dBA	8		8 kHz	26.8 dBA	8	
63 Hz	19.2 dBA	8		800 Hz	34.9 dBA	8		10 kHz	16.5 dBA	8	
80 Hz	24.5 dBA	8		1 kHz	34.4 dBA	8		12.5 kHz	21.4 dBA	8	
100 Hz	19.5 dBA	8		1.25 kHz	33.6 dBA	8		16 kHz	11.5 dBA	8	
125 Hz	18.7 dBA	8		1.6 kHz	37.0 dBA	8		20 kHz			
160 Hz	20.6 dBA	8		2 kHz	33.3 dBA	8					
200 Hz	22.0 dBA	8		2.5 kHz	38.2 dBA	8					

Band	Leq,t	Time s	Overload
LAeq	46.8 dBA	8	
LCeq	59.9 dBC	8	
LZeq	67.7 dBZ	8	



Measurement Report

Measurement Details

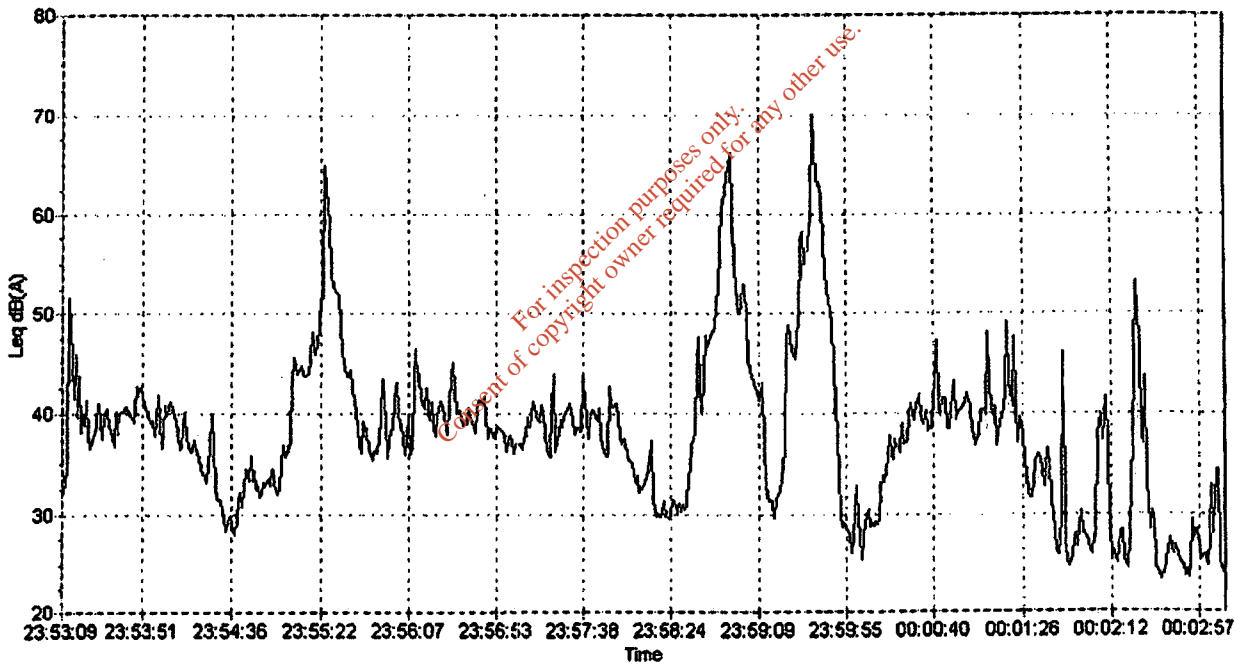
Date and Time: 01/05/2008 23:53
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:10:02 hh:mm:ss
Range: 20-90 dB
Overload: no
Location: NSR1_BB_Night

Notes:

Noise Monitoring Location NSR1, Broadband Analysis

Data

Leq	49.8 dBA	L1.0	50.4 dBA
Lepd	33.0 dBA	L10.0	42.7 dBA
LAE	77.4 dBA	L50.0	33.5 dBA
LAFmax	74.4 dBA	L90.0	23.9 dBA
Peak	95.3 dBC	L95.0	22.8 dBA
		Lmin	21.8 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 23:49
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:02:10 hh:mm:ss
Range: 30-100 dB
Location: NSR1_F_Night

Notes:

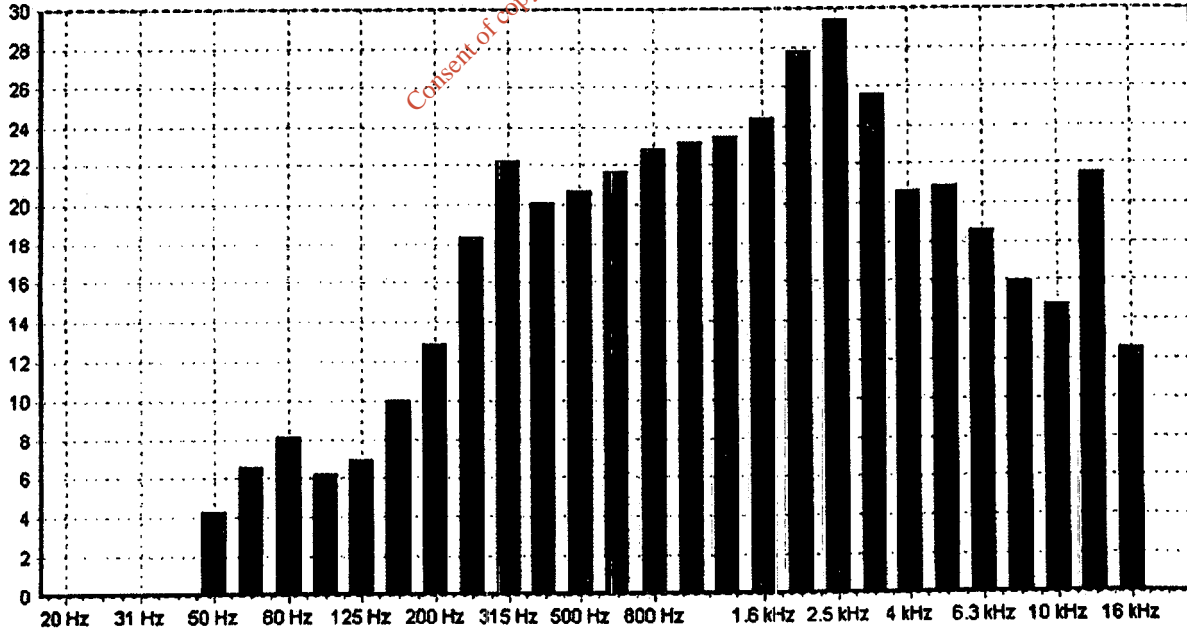
Noise Monitoring Location NSR1, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s Overload	Band	LZeq,t	Time s Overload	Band	LZeq,t	Time s Overload
20 Hz	dBA		250 Hz	18.3 dBA	4	3.15 kHz	25.5 dBA	4
25 Hz	0.0 dBA	4	315 Hz	22.2 dBA	4	4 kHz	20.7 dBA	4
31 Hz	0.0 dBA	4	400 Hz	20.1 dBA	4	5 kHz	20.9 dBA	4
40 Hz	0.1 dBA	4	500 Hz	20.7 dBA	4	6.3 kHz	18.8 dBA	4
50 Hz	4.3 dBA	4	630 Hz	21.7 dBA	4	8 kHz	15.9 dBA	4
63 Hz	6.6 dBA	4	800 Hz	22.8 dBA	4	10 kHz	14.8 dBA	4
80 Hz	8.1 dBA	4	1 kHz	23.2 dBA	4	12.5 kHz	21.5 dBA	4
100 Hz	6.2 dBA	4	1.25 kHz	23.4 dBA	4	16 kHz	12.5 dBA	5
125 Hz	6.9 dBA	4	1.6 kHz	24.4 dBA	4	20 kHz	dBA	
160 Hz	10.0 dBA	4	2 kHz	27.8 dBA	4			
200 Hz	12.9 dBA	4	2.5 kHz	29.4 dBA	5			

Band	Leq,t	Time s Overload
LAeq	38.3 dBA	4
LCeq	59.4 dBC	4
LZeq	60.7 dBZ	4

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Measurement Report

Measurement Details

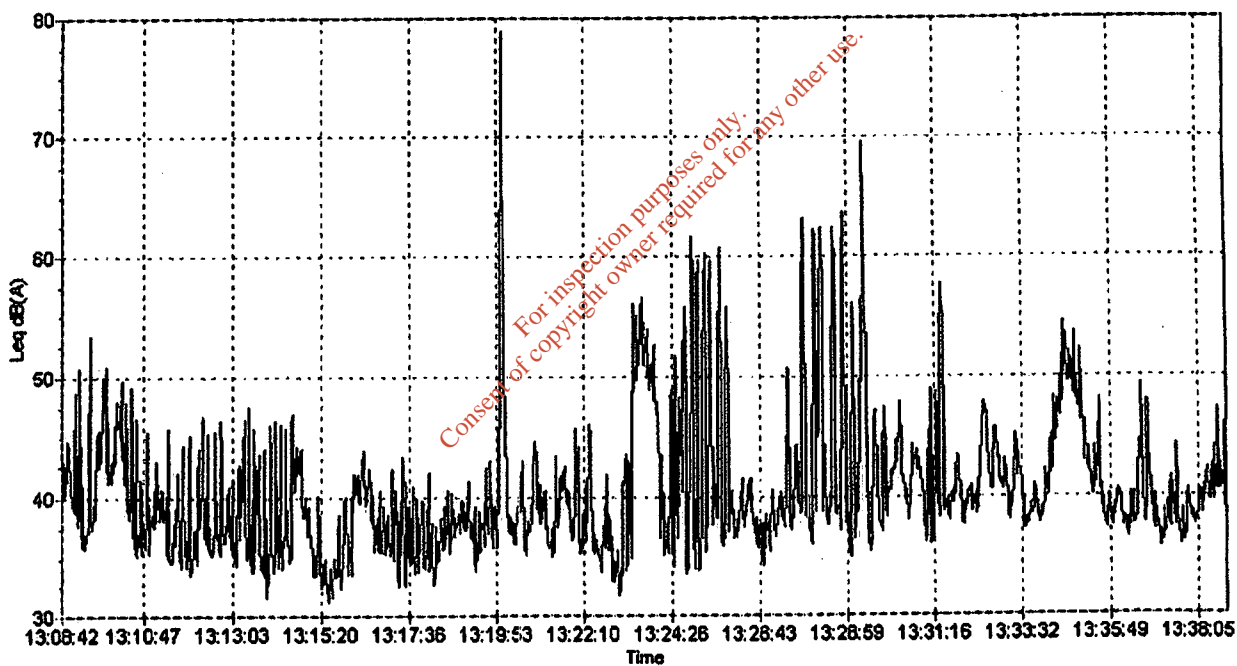
Date and Time: 01/05/2008 13:08
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:30:00 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: NSR2_BB_Day

Notes:

Noise Monitoring Location NSR2, Broadband Analysis

Data

Leq	60.3 dBA	L1.0	80.9 dBA
Lepd	38.2 dBA	L10.0	49.8 dBA
LAE	82.6 dBA	L50.0	38.7 dBA
LAFmax	80.9 dBA	L90.0	34.0 dBA
Peak	103.2 dBC	L95.0	32.8 dBA
		Lmin	29.3 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 13:40
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:04:17 hh:mm:ss
Range: 40-110 dB
Location: NSR2_F_Day

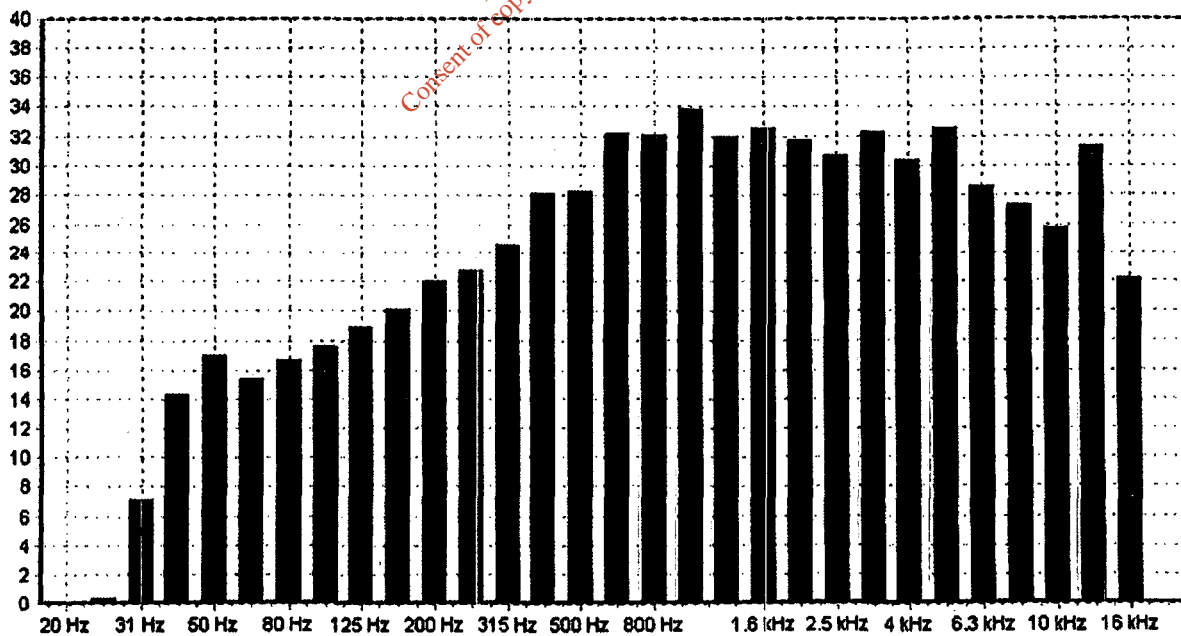
Notes:

Noise Monitoring Location NSR2, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload	Band	LZeq,t	Time s	Overload
20 Hz	dBA			250 Hz	22.7 dBA	8		3.15 kHz	32.3 dBA	8	
25 Hz	0.4 dBA	8		315 Hz	24.6 dBA	8		4 kHz	30.3 dBA	8	
31 Hz	7.1 dBA	8		400 Hz	28.1 dBA	8		5 kHz	32.6 dBA	8	
40 Hz	14.3 dBA	8		500 Hz	29.2 dBA	9		6.3 kHz	28.6 dBA	8	
50 Hz	17.1 dBA	8		630 Hz	32.2 dBA	8		8 kHz	27.3 dBA	8	
63 Hz	15.4 dBA	8		800 Hz	32.1 dBA	8		10 kHz	25.8 dBA	8	
80 Hz	18.6 dBA	8		1 kHz	33.8 dBA	8		12.5 kHz	31.2 dBA	8	
100 Hz	17.6 dBA	8		1.25 kHz	32.0 dBA	8		16 kHz	22.2 dBA	8	
125 Hz	18.9 dBA	8		1.6 kHz	32.5 dBA	8		20 kHz	dBA		
160 Hz	20.2 dBA	8		2 kHz	31.7 dBA	8					
200 Hz	22.1 dBA	8		2.5 kHz	30.7 dBA	8					

Band	Leq,t	Time s	Overload
LAeq	48.1 dBA	8	
LCeq	65.5 dBC	8	
LZeq	67.6 dBZ	8	



Measurement Report

Measurement Details

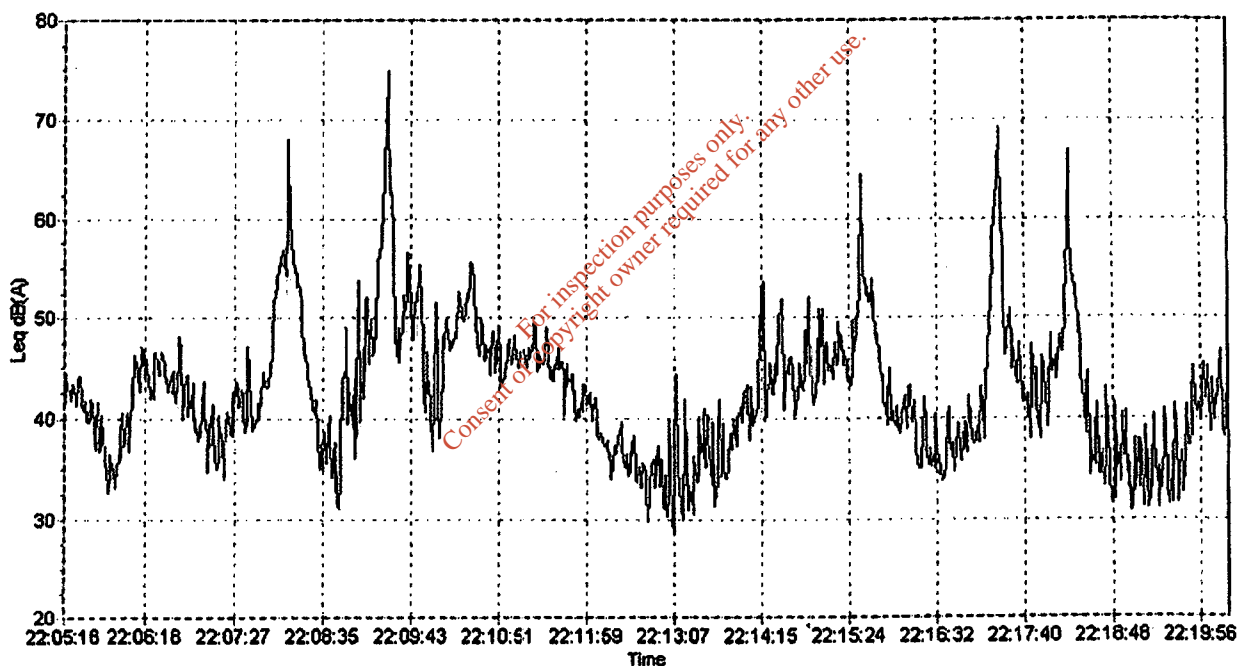
Date and Time: 01/05/2008 22:05
Sound Level Meter: Cirrus Research plc
Recalibration Due: 31/08/2008
Run Duration: 00:14:59 hh:mm:ss
Range: 30-100 dB
Overload: no
Location: NSR2_BB_Night

Notes:

Noise Monitoring Location NSR2, Broadband Analysis

Data

Leq	51.9 dBA	L1.0	63.0 dBA
Lepd	36.8 dBA	L10.0	51.3 dBA
LAE	81.3 dBA	L50.0	41.6 dBA
LAFmax	79.3 dBA	L90.0	33.5 dBA
Peak	94.5 dBC	L95.0	31.9 dBA
		Lmin	27.0 dBA



Measurement Report

Measurement Details

Date and Time: 01/05/2008 22:20
 Sound Level Meter: Cirrus Research plc
 Recalibration Due: 31/08/2008
 Run Duration: 00:02:08 hh:mm:ss
 Range: 30-100 dB

Notes:

Noise Monitoring Location NSR2, 1/3 Octave Frequency Analysis

Data

Band	LZeq,t	Time s Overload	Band	LZeq,t	Time s Overload	Band	LZeq,t	Time s Overload
20 Hz	dBA		250 Hz	16.1 dBA	4	3.15 kHz	25.7 dBA	4
25 Hz	0.0 dBA	4	315 Hz	21.9 dBA	4	4 kHz	24.5 dBA	4
31 Hz	0.0 dBA	4	400 Hz	21.2 dBA	4	5 kHz	20.3 dBA	4
40 Hz	1.1 dBA	4	500 Hz	22.8 dBA	4	6.3 kHz	19.8 dBA	4
50 Hz	3.0 dBA	4	630 Hz	27.3 dBA	4	8 kHz	26.1 dBA	4
63 Hz	7.7 dBA	4	800 Hz	37.8 dBA	4	10 kHz	17.3 dBA	4
80 Hz	13.1 dBA	4	1 kHz	33.9 dBA	4	12.5 kHz	21.7 dBA	4
100 Hz	7.5 dBA	4	1.25 kHz	31.9 dBA	4	16 kHz	13.4 dBA	4
125 Hz	5.9 dBA	4	1.6 kHz	30.5 dBA	4	20 kHz	dBA	
160 Hz	9.1 dBA	4	2 kHz	28.8 dBA	4			
200 Hz	12.9 dBA	4	2.5 kHz	27.3 dBA	4			

Band	Leq,t	Time s Overload
LAeq	50.5 dBA	4
LCeq	59.5 dBC	4
LZeq	61.0 dBZ	4

