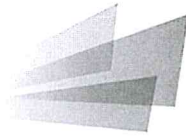


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ANNEX 4.1

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**Sunset Music Festival – Sunset Collective
East Pidsley Farm, Devon
Background Noise Assessment**

July 2013

Project no: AM20130728 Sunset Festival
Sunset Collective

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Acoustic Consultant

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Principal Acoustic Consultant



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Executive Summary

Acoustic Dimensions has measured the background noise in the vicinity of East Pidsley farm as part of a noise management plan for the proposed Sunset Festival.

The representative night-time background noise level is 18 dB L_{AF90} .

The representative daytime background noise level is 21 dB L_{AF90} .

We propose a daytime noise level limit at nearby dwellings of 65 dB $L_{Aeq,T}$.

We propose a night-time noise level limit at nearby dwellings of 45 dB $L_{Aeq,T}$.

These proposed limits are based on allowing reasonable noise levels at the Festival site.

1.0 Introduction

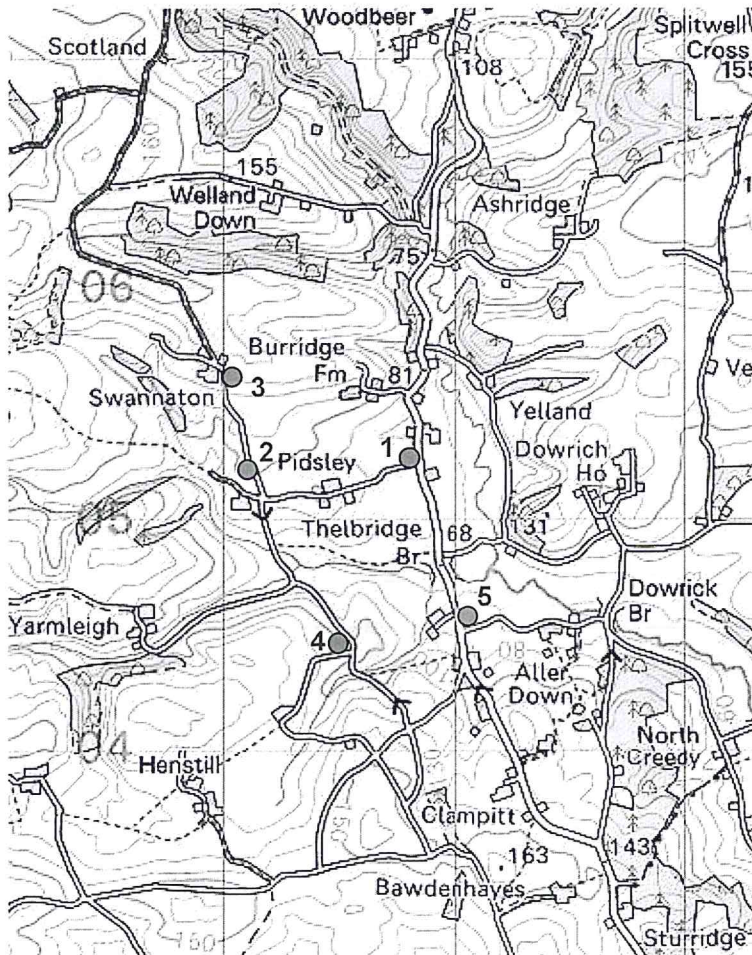
1.1 We measured the background noise in the vicinity of East Pidsley farm on 25 and 26 July 2013.

1.2 The information presented here will form part of a noise management plan for the Sunset Festival on 29 August to 2 September 2013.

2.0 Assessment

2.1 Noise Survey Results

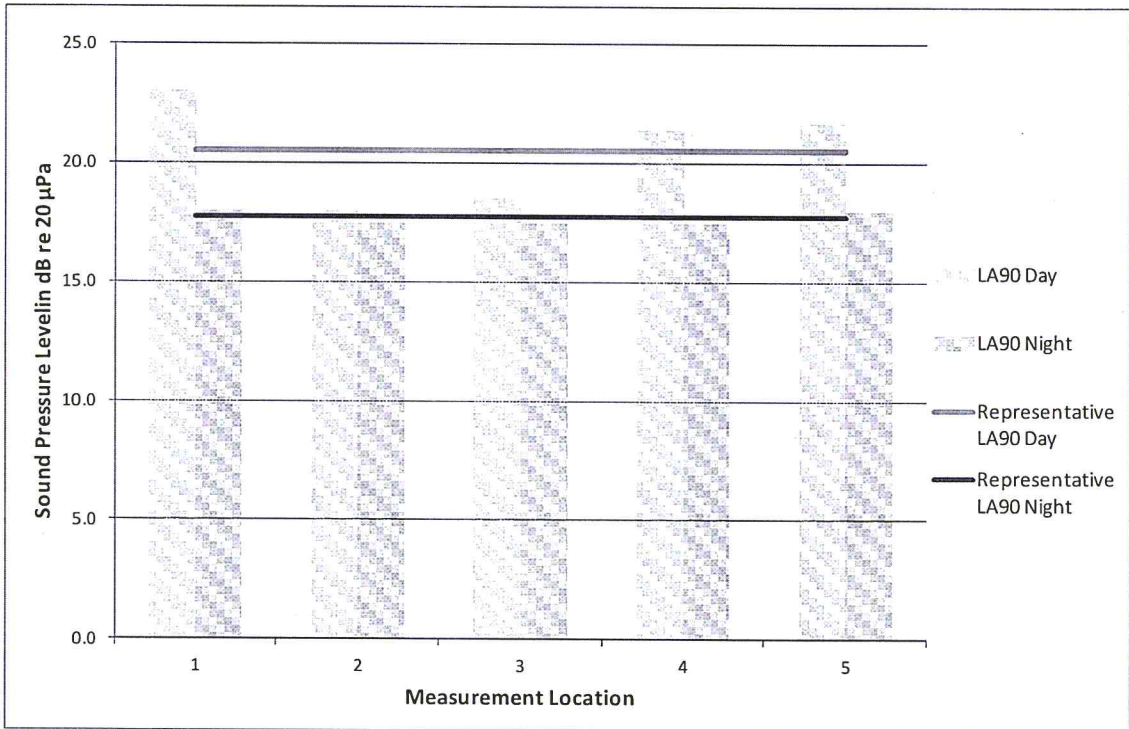
2.1.1 We measured the background noise at the following locations:



Site Plan Showing Measurement Locations

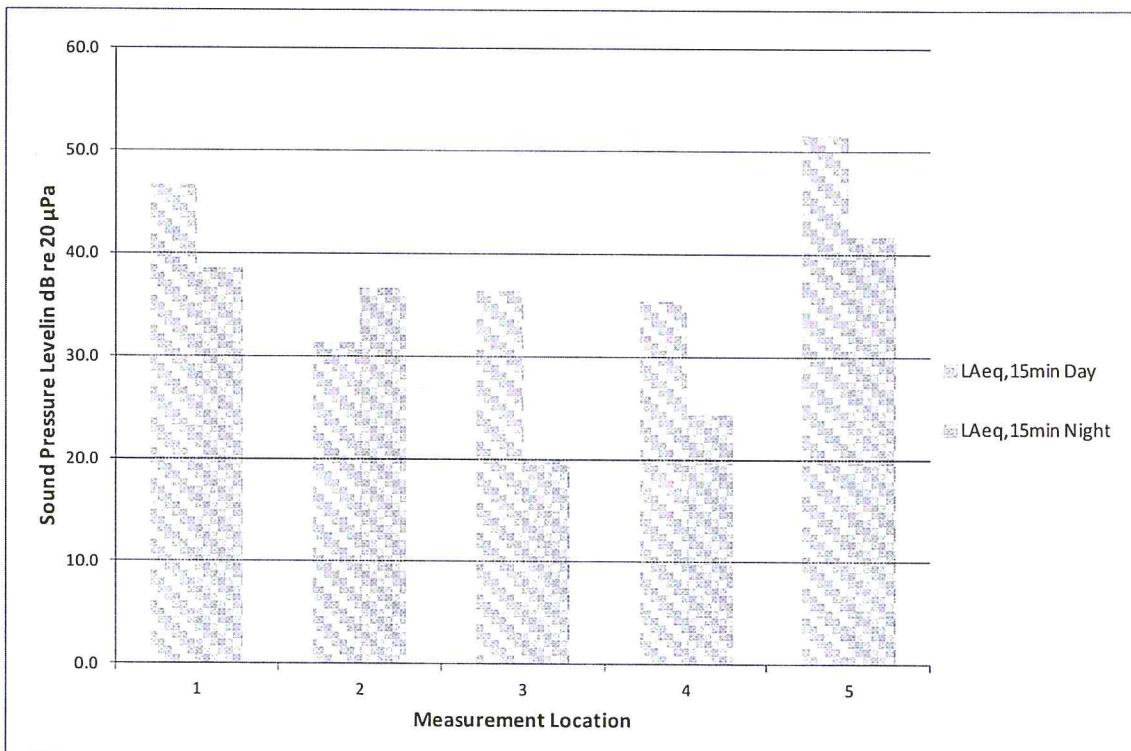


2.1.2 The following graphs show results for noise measurements made on 26 and 27 July 2013 in the vicinity of East Pidsley farm.



Background Noise Levels (dB L_{A90}) Measured at Locations 1 to 5 on 26 and 27 July 2013

2.1.3 We have calculated the representative background noise level for daytime and night-time periods as the ninetieth percentile of the measured levels.



Continuous Equivalent Noise Levels (dB $L_{Aeq,15min}$) Measured at Locations 1 to 5 on 26 and 27 July 2013



2.1.4 Full measurement results are shown in Appendix B.

3.0 Discussions

3.1.1 The representative night-time Background Noise Level in the vicinity of East Pidsley farm is 18 dB L_{A90} . We understand that the management plan states that noise from the proposed music festival should not exceed this level at nearby residences (18 dB $L_{Aeq,T}$).

3.1.2 The representative daytime Background Noise Level in the vicinity of East Pidsley farm is 21 dB L_{A90} . We understand that the management plan states that noise from the proposed music festival should not exceed a level 15 dB above this at nearby residences (36 dB $L_{Aeq,T}$).

3.1.3 Based on our site assessment and outline calculations, our conclusion is that noise from the festival cannot meet the criteria suggested in the festival's noise management plan because of the extremely low levels of background noise at the site.

3.1.4 The source noise limits required for music to achieve the current noise management plan would be extremely quiet and would not be considered normal for an event of this type.

4.0 Proposals

4.1 We propose alternative criteria to form the basis of a revised noise management plan for the Sunset Festival based on the guidance summarised in Appendix A:

Daytime (07:00-23:00)

4.2 We propose a daytime noise level limit at nearby dwellings of 65 dB $L_{Aeq,T}$ in accordance with the recommendations The Noise Council '*Code of Practice on Noise Control at Concerts*' for events that run 1 to 3 days per year.

We understand that Sunset Festival will run for 5 days but feel that our proposal sets a reasonable daytime noise limit where sleep disturbance is not of concern. As stated, the noise limit for an event running 4 to 12 days ($L_{A90} + 15$ dB) would require unusually low limits for music at the festival site.

Night-time (23:00-07:00)

4.3 We propose a night-time noise level limit at nearby dwellings of 45 dB $L_{Aeq,T}$ to achieve BS 8233:1999 '*Reasonable*' for indoor ambient noise levels in bedrooms (35 dB $L_{Aeq,(23:00-07:00)}$).

4.4 It is generally accepted that a level difference of 10 to 15 dB can be achieved across an open window. As such, BS 8233:1999 '*Reasonable*' could be achieved with an outside noise level limit of 45 dB $L_{Aeq,T}$.

4.5 Lower internal noise levels could be achieved in dwellings with windows closed.

4.6 Noise from the festival would be audible at nearby dwellings due to the extremely low background noise levels but we feel that the proposed noise level limit is reasonable within the context of generally accepted standards and guidance that we have considered as part of our assessment.



Appendix A: Summary of Relevant Guidance for Entertainment Noise

This appendix provides a summary of the relevant standards and guidance.

Code of Practice on Environmental Noise Control at Concerts

The Noise Council '*Code of Practice on Noise Control at Concerts*' provides guidance for noise from outdoor music events. The recommended noise limits for events held between 09:00 and 23:00 are given in the following:

Concert days per calendar year, per venue	Venue Category	Guideline
1 to 3	Urban stadia or arenas	The MNL should not exceed 75 dB(A) over a fifteen minute period
1 to 3	Other urban and rural venues	The MNL should not exceed 65 dB(A) over a 15 minute period
4 to 12	All venues	The MNL should not exceed the background noise level by more than 15 dB(A) over a 15 minute period.

The Noise Council – Recommended Limits for Noise from Concerts

For events continuing or held between the hours of 23:00 and 09:00 the music noise should not be audible within noise-sensitive premises with windows open in a typical manner for ventilation. It is taken that if noise is barely audible outside of a dwelling then it will typically be inaudible inside with windows open.

The accompany foot notes state: '*The use of inaudibility as a guideline is not universally accepted as an appropriate method of control.*'

This is especially relevant in the case of East Pidsley farm where extremely low levels of background noise mean that achieving inaudibility or levels close to inaudible is not practical.

BS 8233:1999

BS 8233:1999 '*Sound insulation and noise reduction for buildings – Code of practice*' recommends criteria for indoor ambient noise levels in dwellings. For bedrooms at night the document recommends limits according to '*Good*' and '*Reasonable*' standards:

Criterion	Typical situation	Design range dB $L_{Aeq,T}$	
		Good	Reasonable
Reasonable resting/sleeping conditions	Living rooms	30	40
	Bedrooms	30	35

BS 8233:1999 Recommendations for Indoor Ambient Noise in Dwellings

World Health Organization

World Health Organization '*Guidelines on Community Noise*' recommends a similar criterion to BS8233:1999 for bedrooms at night which is 30 dB $L_{Aeq,T}$ (T typically 23:00-07:00) for continuous noise.

The document also recommends a limit for external noise levels of 45 dB $L_{Aeq,T}$ at night on the basis that the level difference across an open window can be 15 dB.

Noise from Pubs and Clubs (DEFRA Phase II)

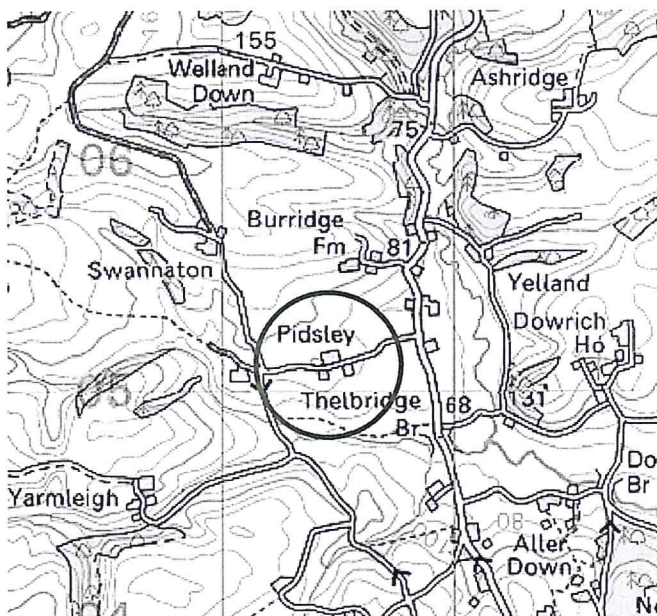
This document provides a relevant study of music noise from events held during the night (23:00-07:00). The A-weighted continuous equivalent noise level ($L_{Aeq,T}$) is recommended as the best descriptor for the assessment of noise from music. Further, an indoor ambient noise level limit of 34 dB $L_{Aeq,T}$ is recommended in bedrooms with windows closed for events that are considered infrequent. This would be equivalent to 34 dB plus approximately 25 dB level difference across the building envelope which equals 59 dB outside (34 dB $L_{Aeq,T}$ + 25 dB D_w = 59 dB $L_{Aeq,T}$).



Appendix B: Noise Survey

Site and Surroundings

East Pidsley farm is near the village of Sandford in a rural part of Devon. The following shows the location of the farm and nearby dwellings.



Map of Showing East Pidsley Farm nearby Dwellings

The dominant noise sources in the vicinity of East Pidsley farm include road traffic, light aircraft and noise associated with agricultural activities and livestock.

We observed very little general activity during the night-time period and noise levels were very low -- especially at locations away from the main through road (Wadderly Hill and Stone's Hill).

Methodology

We made attended noise measurements on 26 and 27 July 2013 in the vicinity of East Pidsley farm using the following equipment:

Equipment Item	Serial Number
B&K Type 2238 Sound Level Meter	2448204
B&K Type 4231 Sound Calibrator	2450834

Equipment

The sound level meter was field calibrated at the start and end of each survey period and no drift in the calibration was observed. The accuracy of the sound calibrator used can be traced to National Physical Laboratory standards.

Weather conditions at the time of the survey were suitable to make environmental noise measurements. There was little to no wind and the daytime temperature was approximately 25 °C. There was a brief light shower on 27 July 2013 and measurements were paused. There were no other periods of rain. Weather conditions did not significantly affect the measurement results.

All measurements were undertaken in free-field conditions with the microphone approximately 1.5 m off the ground.

Full Measurement Results

Location	Start Time	Duration	L _{AF,max}	L _{AF,min}	L _{Aeq,5min}	L _{AF1}	L _{AF10}	L _{A90}
Location 1	13:24	00:05:00	63.4	26.2	44.1	59.5	43.5	28.0
Location 1	13:29	00:05:00	61.0	27.4	44.0	56.5	45.5	30.0
Location 1	13:34	00:05:00	61.8	29.1	41.2	54.0	42.0	31.0
Location 1	15:33	00:05:00	74.9	27.7	52.5	66.5	47.0	29.5
Location 1	15:38	00:05:00	65.9	27.3	46.7	60.5	48.0	31.0
Location 1	15:43	00:05:00	64.9	27.5	47.1	61.0	47.5	29.5
Location 1	19:38	00:05:00	66.6	21.8	47.1	61.5	45.5	23.5
Location 1	19:43	00:05:00	60.5	21.9	38.3	47.5	37.5	23.5
Location 1	19:48	00:05:00	68.5	22.8	51.4	65.5	51.5	24.5
Location 1	21:39	00:05:00	72.5	18.6	47.8	60.0	37.5	20.5
Location 1	21:44	00:05:00	78.4	18.9	57.8	73.0	49.5	22.0
Location 1	21:49	00:05:00	71.4	28.3	47.3	55.0	40.0	31.0
Location 1	23:54	00:05:00	66.8	17.7	43.2	55.0	28.0	18.5
Location 1	23:59	00:05:00	27.4	17.4	19.6	23.0	21.5	18.0
Location 1	00:04	00:05:00	33.7	17.4	22.8	30.0	25.5	18.0
Location 1	10:09	00:05:00	62.5	23.6	42.7	56.5	42.5	25.5
Location 1	10:14	00:05:00	62.0	23.3	38.9	48.5	35.0	24.5
Location 1	10:19	00:05:00	62.0	23.5	43.4	57.0	45.5	25.0
Location 1	12:04	00:05:00	60.8	24.1	43.3	57.0	44.5	26.0
Location 1	12:09	00:05:00	59.0	22.9	39.5	55.5	34.5	24.5
Location 1	12:14	00:05:00	61.9	22.6	44.4	53.5	47.5	31.5

Values are sound pressure levels in dB re 20 µPa

Measurement Results Location 1 on 26 and 27 July 2013

Location	Start Time	Duration	L _{AF,max}	L _{AF,min}	L _{Aeq,5min}	L _{AF1}	L _{AF10}	L _{A90}
Location 2	13:58	00:05:00	51.8	25.1	35.6	45.0	38.5	27.0
Location 2	14:03	00:05:00	43.0	25.0	32.7	39.5	35.5	27.0
Location 2	14:08	00:05:00	51.3	30.8	36.4	43.0	38.5	32.5
Location 2	15:56	00:05:00	47.9	23.9	29.5	38.0	31.5	25.0
Location 2	16:01	00:05:00	43.0	22.9	28.0	36.0	29.5	24.0
Location 2	16:06	00:05:00	47.8	22.7	28.0	38.0	29.0	23.5
Location 2	20:00	00:05:00	51.2	22.2	32.1	42.5	35.0	24.0
Location 2	20:05	00:05:00	58.7	21.9	33.3	44.0	31.0	24.0
Location 2	20:10	00:05:00	48.7	20.8	28.6	37.5	31.0	22.5
Location 2	22:12	00:05:00	49.4	17.6	26.5	39.0	26.0	18.0
Location 2	22:17	00:05:00	61.2	17.5	28.2	25.5	19.5	18.0
Location 2	22:22	00:05:00	32.2	17.6	20.7	29.5	22.0	18.0
Location 2	00:20	00:05:00	60.2	17.7	41.3	53.5	44.5	18.0
Location 2	00:25	00:05:00	38.9	17.4	20.6	31.0	19.5	17.5
Location 2	00:30	00:05:00	32.8	17.5	19.7	25.0	21.5	17.5
Location 2	10:32	00:05:00	45.2	22.6	29.0	38.5	31.0	24.0
Location 2	10:37	00:05:00	49.8	23.1	35.1	45.0	39.0	24.5
Location 2	10:42	00:05:00	50.5	22.4	33.9	45.5	37.5	24.0
Location 2	12:32	00:05:00	48.5	22.7	28.8	37.5	31.5	23.5
Location 2	12:37	00:05:00	53.5	23.6	34.8	45.5	37.0	25.5
Location 2	12:42	00:05:00	50.2	22.9	32.2	46.0	31.5	24.0

Values are sound pressure levels in dB re 20 µPa

Measurement Results Location 2 on 26 and 27 July 2013



Location	Start Time	Duration	L _{AF,max}	L _{AF,min}	L _{Aeq,5min}	L _{AF1}	L _{AF10}	L _{A90}
Location 3	14:19	00:05:00	59.5	29.9	41.4	51.5	44.5	32.5
Location 3	14:24	00:05:00	57.5	26.6	40.8	51.5	44.0	31.0
Location 3	14:29	00:05:00	67.3	26.2	40.8	50.5	42.5	29.5
Location 3	16:16	00:05:00	57.7	23.4	42.7	53.5	46.5	28.5
Location 3	16:21	00:05:00	58.7	24.5	40.2	51.5	43.0	27.0
Location 3	16:26	00:05:00	56.3	24.1	43.3	54.0	48.0	27.0
Location 3	20:20	00:05:00	51.8	19.7	33.0	43.5	35.5	22.0
Location 3	20:25	00:05:00	67.0	19.3	39.2	47.5	37.0	22.0
Location 3	20:32	00:05:00	51.5	20.4	32.0	42.0	34.0	24.0
Location 3	22:35	00:05:00	57.6	17.7	27.0	32.0	24.0	18.5
Location 3	22:40	00:05:00	34.2	17.8	19.9	24.5	20.5	18.5
Location 3	22:45	00:05:00	28.6	17.4	19.4	23.0	20.5	18.0
Location 3	00:43	00:05:00	46.1	17.6	21.7	31.5	21.5	18.0
Location 3	00:48	00:05:00	36.8	17.5	19.1	22.0	20.0	18.0
Location 3	00:53	00:05:00	33.6	17.4	18.3	20.0	18.5	17.5
Location 3	10:52	00:05:00	59.5	23.3	39.7	50.0	43.5	28.5
Location 3	10:57	00:05:00	55.1	23.1	39.3	47.5	42.5	30.0
Location 3	11:02	00:05:00	57.5	25.3	42.4	52.5	45.5	32.0
Location 3	12:52	00:05:00	47.7	20.8	29.7	39.0	33.0	23.0
Location 3	12:57	00:05:00	57.8	21.1	36.4	50.5	34.0	22.5
Location 3	13:02	00:05:00	56.1	21.3	35.2	47.0	36.5	23.5

Values are sound pressure levels in dB re 20 µPa

Measurement Results Location 3 on 26 and 27 July 2013

Location	Start Time	Duration	L _{AF,max}	L _{AF,min}	L _{Aeq,5min}	L _{AF1}	L _{AF10}	L _{A90}
Location 4	14:48	00:05:00	56.3	29.6	37.0	44.0	39.0	31.0
Location 4	14:53	00:05:00	43.2	29.2	35.2	39.5	37.5	31.5
Location 4	14:58	00:05:00	58.5	27.5	40.2	49.0	44.5	29.5
Location 4	16:39	00:05:00	58.4	23.7	38.8	52.5	37.0	25.5
Location 4	16:46	00:05:00	45.2	22.8	27.4	34.0	28.5	24.5
Location 4	16:51	00:05:00	48.6	23.0	29.6	39.0	31.0	24.5
Location 4	20:47	00:05:00	64.4	19.2	34.5	41.0	32.5	21.0
Location 4	20:53	00:05:00	41.1	19.5	27.6	34.5	30.5	22.0
Location 4	20:58	00:05:00	52.7	19.2	28.8	37.0	30.5	21.0
Location 4	23:04	00:05:00	47.2	17.6	27.9	37.0	31.5	18.5
Location 4	23:09	00:05:00	32.0	17.4	20.8	29.0	23.0	17.5
Location 4	23:14	00:05:00	33.5	17.4	19.7	26.0	21.5	17.5
Location 4	11:18	00:05:00	66.0	21.9	43.5	58.5	35.5	24.0
Location 4	11:25	00:05:00	46.8	21.8	29.5	37.0	32.5	24.0
Location 4	11:30	00:05:00	47.7	21.4	27.9	36.0	31.0	22.5
Location 4	13:15	00:05:00	48.9	21.2	29.5	39.0	32.0	22.5
Location 4	13:20	00:05:00	57.7	23.4	37.1	48.0	40.0	25.0
Location 4	13:25	00:05:00	48.0	21.4	26.2	32.5	27.5	22.5

Values are sound pressure levels in dB re 20 µPa

Measurement Results Location 4 on 26 and 27 July 2013

Location	Start Time	Duration	L _{AF,max}	L _{AF,min}	L _{Aeq,5min}	L _{AF1}	L _{AF10}	L _{A90}
Location 5	15:12	00:05:00	75.9	28.9	53.9	68.5	49.5	31.0
Location 5	15:17	00:05:00	73.7	27.4	53.4	68.0	48.0	29.5
Location 5	15:22	00:05:00	73.8	26.4	52.1	67.0	48.5	28.5
Location 5	17:04	00:05:00	74.0	24.1	51.0	66.0	44.5	26.0
Location 5	17:09	00:05:00	70.4	26.2	49.0	62.5	46.5	28.0
Location 5	17:14	00:05:00	72.8	25.4	51.7	66.5	47.5	27.0
Location 5	21:10	00:05:00	73.2	25.9	54.8	68.0	55.0	29.5
Location 5	21:23	00:05:00	71.5	19.1	50.4	64.5	47.5	20.5
Location 5	21:28	00:05:00	64.3	18.9	44.8	59.5	45.5	20.0
Location 5	23:29	00:05:00	59.7	17.4	39.0	53.0	33.5	18.0
Location 5	23:34	00:05:00	69.6	18.3	45.5	54.5	33.5	19.5
Location 5	23:39	00:05:00	31.1	17.5	22.3	28.5	25.5	18.0
Location 5	11:44	00:05:00	71.2	22.4	52.1	65.5	54.0	26.0
Location 5	11:49	00:05:00	73.5	24.3	50.6	63.0	48.0	27.5
Location 5	11:54	00:05:00	73.3	25.2	49.3	61.0	45.0	28.5
Location 5	13:37	00:05:00	70.7	23.1	50.1	65.5	45.5	26.0
Location 5	13:43	00:05:00	72.8	24.5	53.2	68.0	50.5	27.5
Location 5	13:48	00:05:00	72.9	24.2	49.9	62.5	42.0	27.0

Values are sound pressure levels in dB re 20 µPa

Measurement Results Location 5 on 26 and 27 July 2013

