SUNNICA ENERGY FARM

EN010106

Volume 6

Environmental Statement

6.2 Appendix 11C: Baseline Noise Survey

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

18 November 2021
Version number: 00

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Sunnica Energy Farm

Environmental Statement
Appendix 11C: Baseline Noise Survey

Regulation Reference:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	EN010106
Application Document Reference	EN010106/APP/6.2
Author	Sunnica Energy Farm Project Team

Version	Date	Status of Version
Rev 00	18 November 2021	Application Version

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1 Baseline Noise Survey

1.1 Monitoring Equipment

1.1.1 The following equipment was used for the baseline noise surveys.

Table 1-1 Noise Monitoring Equipment

Type	Supplier	Model	Serial Number	Location(s) Used
Sound Level Meter	RION	NL-52	420763	LT1,LT5
Sound Level Meter	RION	NL-52	542907	LT2
Sound Level Meter	RION	NL-52	420764	LT3,LT7
Sound Level Meter	RION	NL-52	542906	LT4,LT6,ST1,ST2
Sound Level Meter	01dB	DUO	12081	LT8
Sound level Meter (used with weather station)	01dB	DUO	12076	LT3,LT8
Weather Station	L1920417	Vaisala	WXT520	LT3,LT8
Calibrator	RION	NC-74	50541127	All locations

1.1.2 The noise monitoring was undertaken following the principles of BS 7445-1 and BS 4142:2014. The long-term measurement was undertaken with the sound level meter stored in a weather proof peli case with the microphone attached to a pole secured onto the peli case at approximately 1.2m. Short term Measurements were undertaken with the microphone fixed on a tripod at a height of approximately 1.2 m. Measurements were taken under free-field conditions.

1.1.3 The calibration of the equipment was checked before and after each set of measurements and there was no drift in calibration levels (± 0.5dB).

1.2 Survey Dates and Measurement Locations

1.2.1 Long-term (LT) noise measurements were undertaken from 5th November to 19th November 2019. Short term (ST) noise measurements were undertaken during the setup of the LT monitors. Measurement locations are illustrated in **Figure 11-1** of the Environmental Statement **[EN010106/APP/6.3].**

Table 1-2 Noise Monitoring locations

Measurement type	Location ID	Receptor
Long-term unattended	LT1	R1 Residential properties, Weirs Grove / Hythe Ln, Burwell, Cambridge CB25 0EH
	LT2	R3 Biggin Stud farmhouse, Newmarket Road A142, Fordham, Ely CB7 5WW

Measurement type	Location ID	Receptor
	LT3	R4 Residential properties, The Green, Snailwell, Newmarket CB8 7LT
	LT4	R5 Arran House Stud Bed & Breakfast, Norwich Road, Kennett, Newmarket CB8 7RQ / RF R6 Tillbrook & Sons farmhouse, La Hogue Hall, Ely CB7 5PZ R7 Dane Hill Farm, Newmarket, CB8 7QX
	LT5	R8 Residential properties, Acacia Close, Red Lodge, Bury Saint Edmunds, IP28 8WS
	LT6	R10 Residential properties, Beck Rd, Isleham, Ely CB7 5QP
	LT7	R11 Residential properties, East View, Freckenham. Bury Saint Edmunds, IP28 8H
	LT8	R12 Residential properties, Walnut Grove, Freckenham Road B1102, Worlington, Bury Saint Edmunds IP28 8SJ
Short-term attended	ST1	R2 Fuller KW & Son farmhouse, Ness Farm, Ness Road B1102, Cambridge CB25 0DB
	ST2	R9 Residential properties, Badlingham Road, Ely CB7 5QQ

1.3 Description of Noise Climate

1.3.1 During the surveys the dominant noise source at the majority of the locations was observed to be road traffic from the surrounding road network. During site attendance, LT1 was also influenced by aircraft noise and ST2 was influenced by leaves blowing in the wind. Aircraft noise was also noted at LT3, LT6, and ST2.

1.4 Meteorological Data

1.4.1 A weather station was set up along with the noise monitor to measure the meteorological conditions during the survey. Periods that are not seen as conductive to environmental noise measurements as per guidance in BS 4142 (i.e. wind speeds greater than 5 m/s and/or precipitation) were removed from the analysis and shown in red on the time history graphs below. Daily weather data can be found below.

Table 1-3 Meteorological Data

Day/Date	Wind Direction	Wind Speed (m/s)		Maximum Temperature (°C)	Total Rainfall (mm)
		Average	Maximum		
05/11/2019	NW	1.7	5.5	13.0	0.0
06/11/2019	SW	0.7	2.8	9.0	0.0
07/11/2019	SSE	1.0	4.3	9.2	1.0
08/11/2019	SEE	1.1	4.5	8.3	1.8

Day/Date	Wind Direction	Wind Speed (m/s)		Maximum Temperature (°C)	Total Rainfall (mm)
		Average	Maximum		
09/11/2019	SSE	0.8	2.9	7.8	0.0
10/11/2019	SSE	0.6	2.4	11.3	0.0
11/11/2019	SW	1.7	7.9	8.7	2.6
12/11/2019	NW	1.0	4.5	8.3	0.0
13/11/2019	NW	0.6	2.6	8.8	0.0
14/11/2019	SWW	0.5	2.2	7.0	6.0
15/11/2019	S	0.7	3.9	8.3	1.0
16/11/2019	NWW	0.4	1.6	7.6	0.0
17/11/2019	W	0.5	1.8	7.9	0.0
18/11/2019	S	1.6	5.7	8.4	0.0
19/11/2019	NW	0.7	2.3	8.4	0.0

1.5 Survey Results

1.5.1 A summary of the measured long-term noise levels are presented below. All noise levels are in dB re. 20µPa, free-field, fast time-weighting and have been presented as described below.

1.5.2 Noise levels have been calculated over daytime periods of 07:00 – 23:00 and night periods of 23:00 – 07:00 for all noise levels.

1.5.3 The $L_{Aeq,T}$ level for each period is the logarithmic average of all logged $L_{Aeq,15min}$ levels over that period.

1.5.4 The $L_{A90,15min}$ level for each period is the mode of all recorded $L_{A90.15min}$ levels over that period.

1.5.5 Time history charts of the long-term measurements are presented below.

Table 1-4 Long Term 1 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,16hr}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,8hr}$ dB	$L_{A90,15min}$ dB
05/11/2019[1]	52	37	39	30
06/11/2019	48	36	42	35
07/11/2019	48	35	37	27
08/11/2019	45	36	35	26
09/11/2019	48	36	34	27
10/11/2019	50	37	40	33
11/11/2019	48	40	43	33
12/11/2019[2]	50	41	-	-
Overall	49	36	40	29

[1] Start Time 12:45pm , [2] Stop Time 10:30 am.

Figure 1-1 Long Term 1 Time History

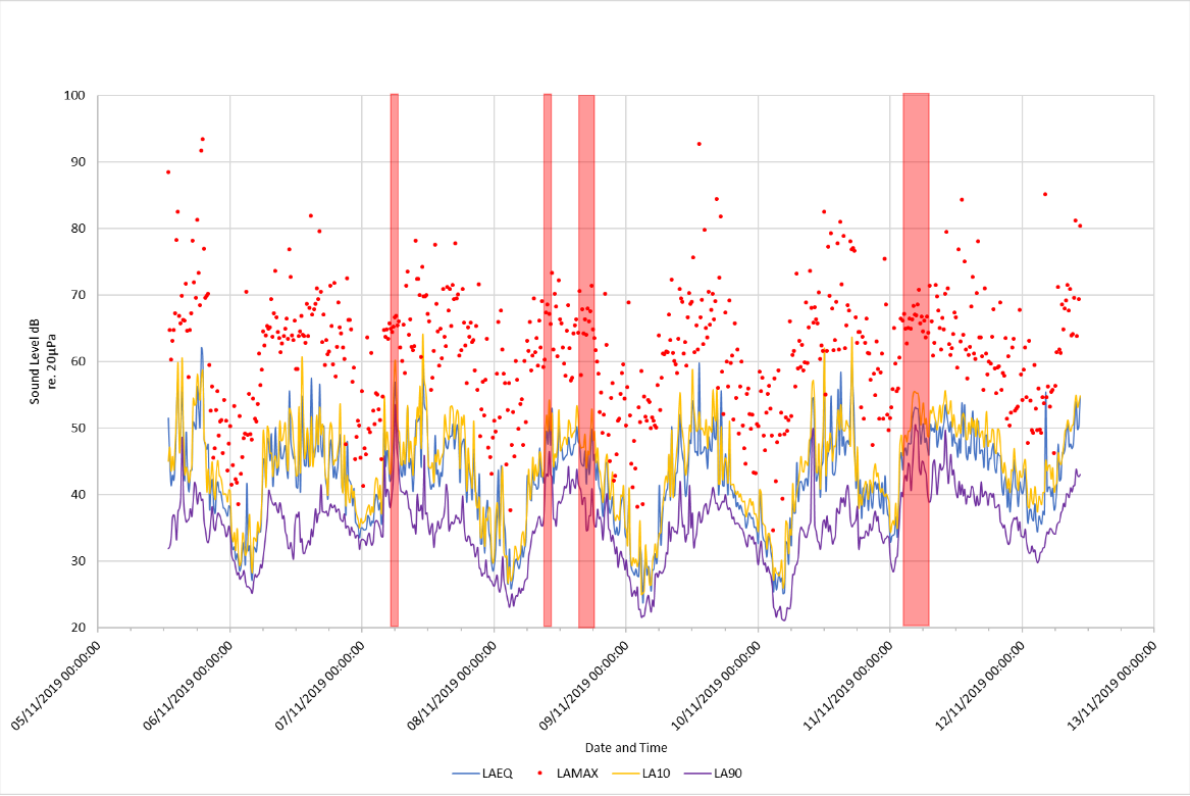

Table 1-5 Long Term 2 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
05/11/2019[1]	75	58	71	46
06/11/2019	75	61	70	45
07/11/2019[2]	76	63	68	46
Overall	75	62	70	46

[1]Start Time 13:45pm, [2] Stop Time 00:30 am.

Figure 1-2 Long Term 2 Time History

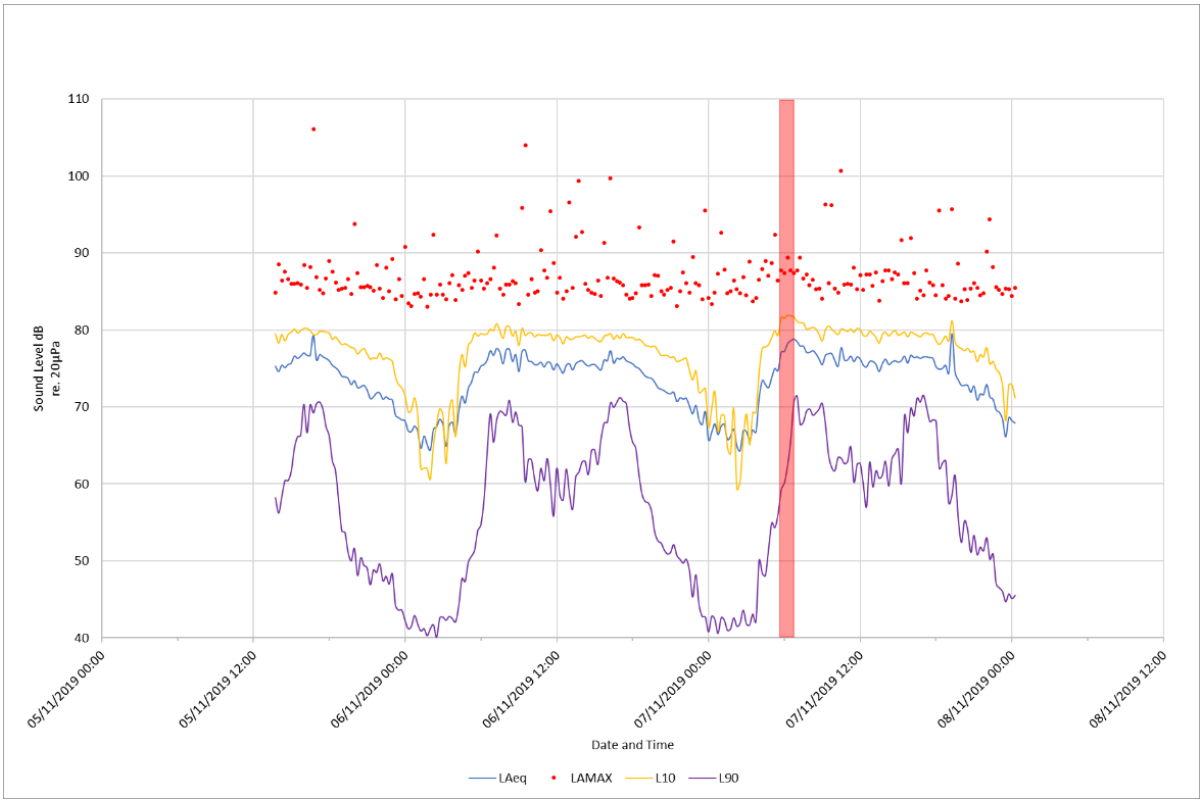

Table 1-6 Long Term 3 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
05/11/2019[1]	57	43	50	39
06/11/2019	58	45	59	45
07/11/2019	59	49	51	43
08/11/2019	60	46	52	40
09/11/2019	59	42	48	32
10/11/2019	56	40	47	41
11/11/2019	61	50	58	44
12/11/2019[2]	61	53	-	-
Overall	58	46	54	40

[1] Start Time 14:45pm , [2] Stop Time 11:30am

Figure 1-3 Long Term 3 Time History

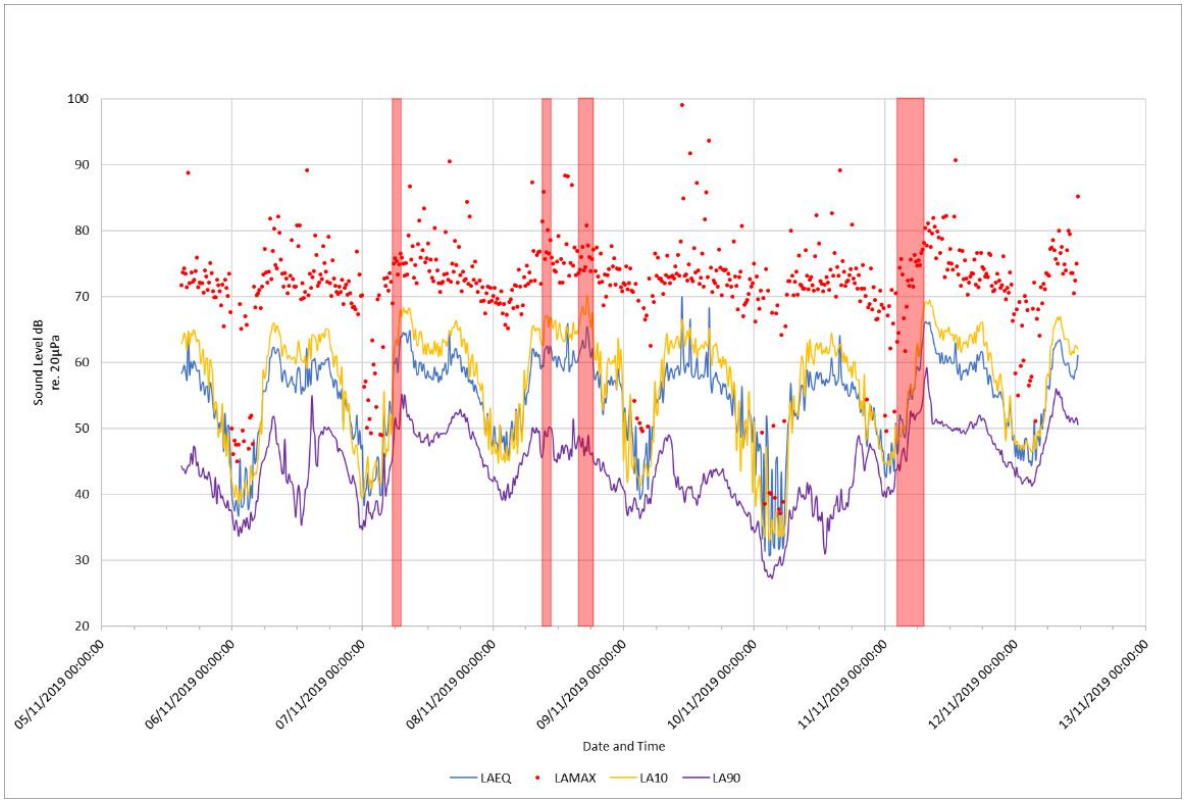

Table 1-7 Long Term 4 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
05/11/2019[1]	63	56	56	47
06/11/2019	65	55	57	46
07/11/2019	66	59	60	50
08/11/2019	67	61	59	50
09/11/2019	63	55	55	46
10/11/2019	63	56	62	51
11/11/2019	67	60	60	51
12/11/2019[2]	68	61	-	-
Overall	66	58	59	48

[1] Start Time 16:15pm , [2] Stop Time 12:15pm

Figure 1-4 Long Term 4 Time History

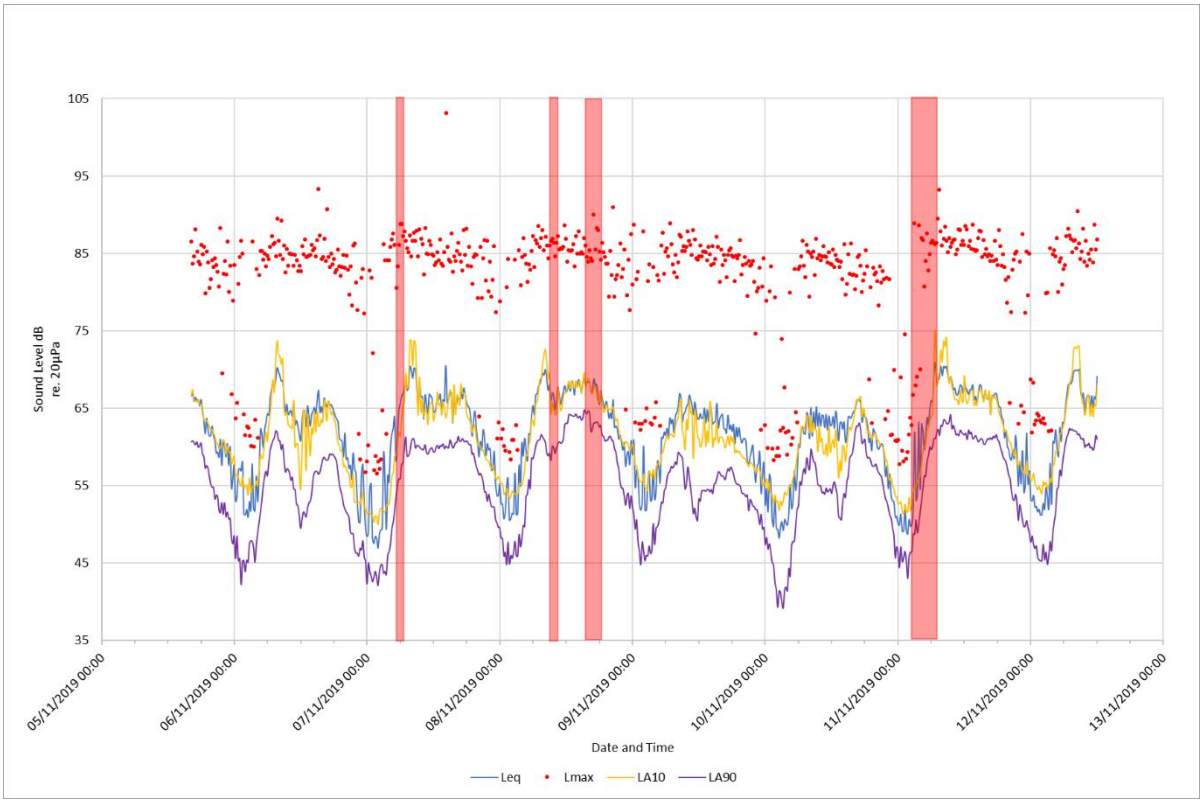

Table 1-8 Long Term 5 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
12/11/2019[1]	61	56	54	40
13/11/2019	57	52	46	38
14/11/2019	55	50	54	39
15/11/2019	62	56	51	39
16/11/2019	57	53	49	40
17/11/2019	56	51	59	44
18/11/2019	64	57	54	37
19/11/2019[2]	59	56	-	-
Overall	60	54	54	40

[1] Start Time 13:30pm , [2] Stop Time 11:00am

Figure 1-5 Long Term 5 Time History

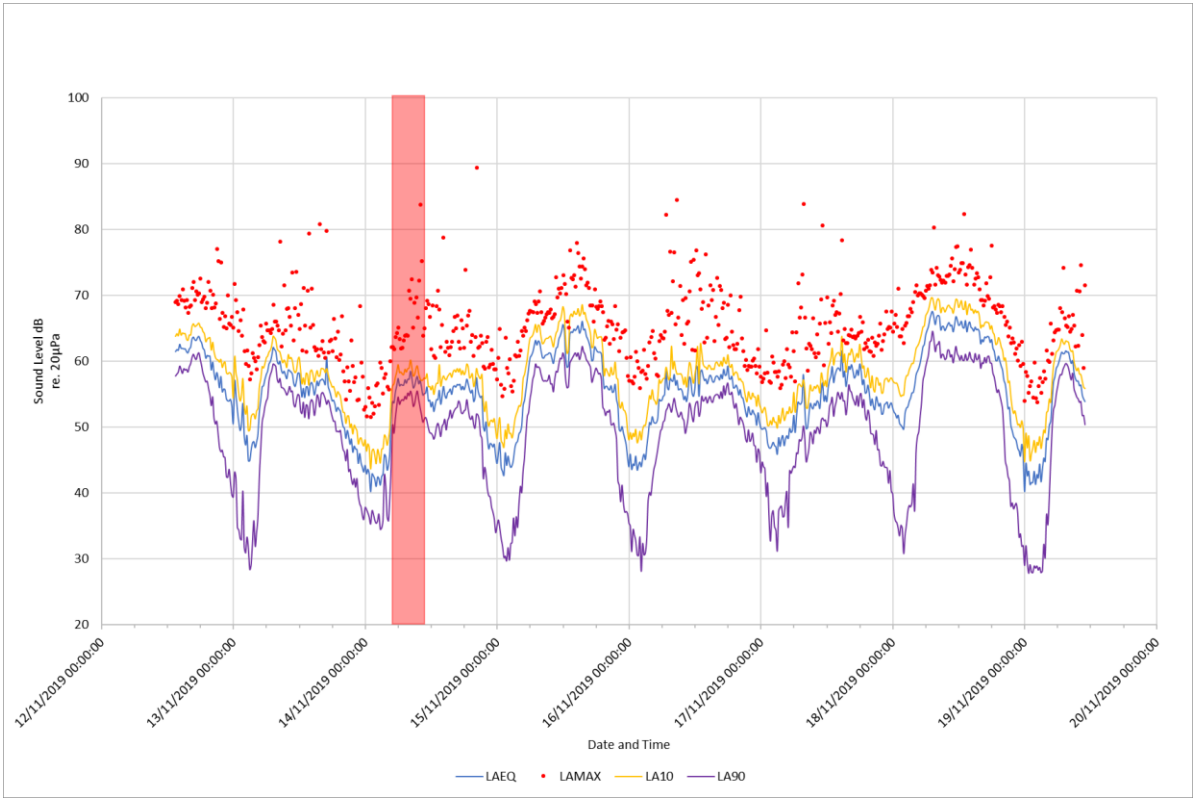

Table 1-9 Long Term 6 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
05/11/2019[1]	63	38	57	30
06/11/2019	65	40	52	37
07/11/2019	65	37	59	28
08/11/2019	65	38	55	26
09/11/2019	63	35	51	25
10/11/2019	62	32	58	34
11/11/2019	65	39	58	32
12/11/2019[2]	73	43	-	-
Overall	67	38	57	30

[1] Start Time 16:00pm , [2] Stop Time 12:15pm

Figure 1-6 Long Term 6 Time History

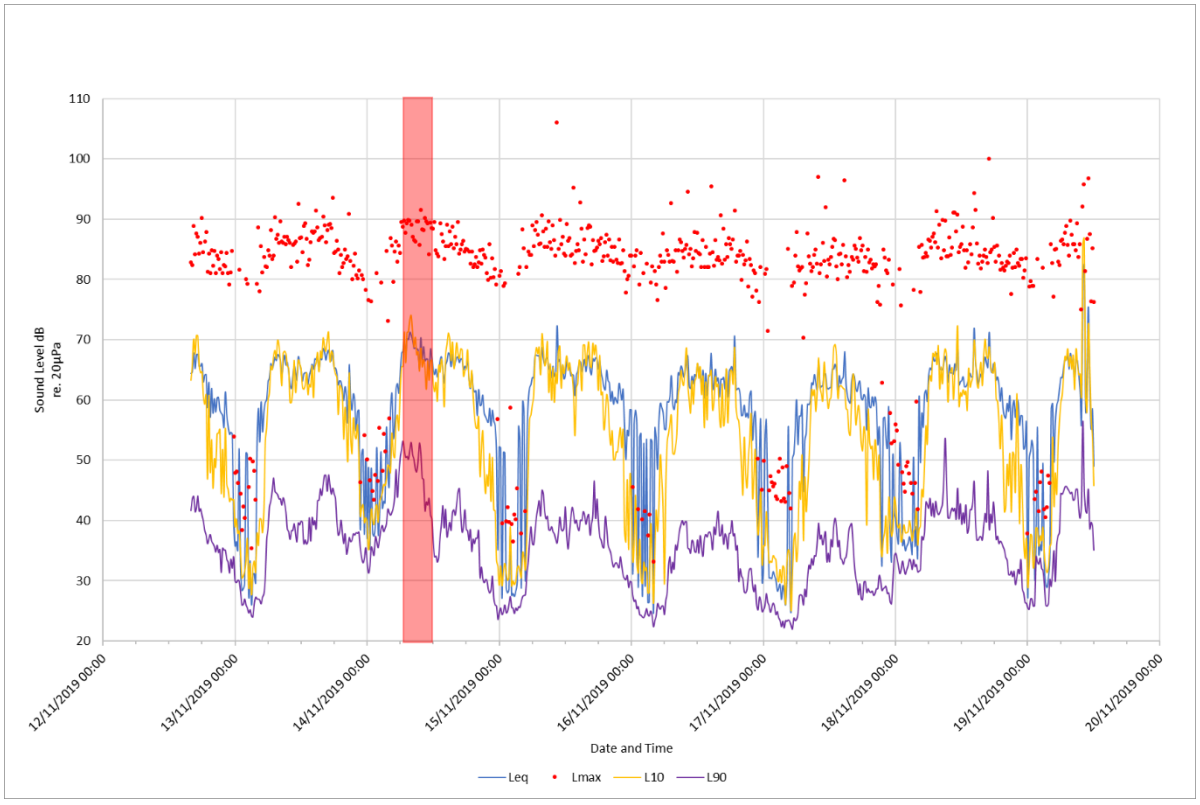

Table 1-10 Long Term 7 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
12/11/2019[1]	68	44	63	35
13/11/2019	69	39	60	35
14/11/2019[2]	69	46	-	-
Overall	69	43	62	35

[1] Start Time 14:15pm , [2] Stop Time 11:00am

Figure 1-7 Long Term 7 Time History

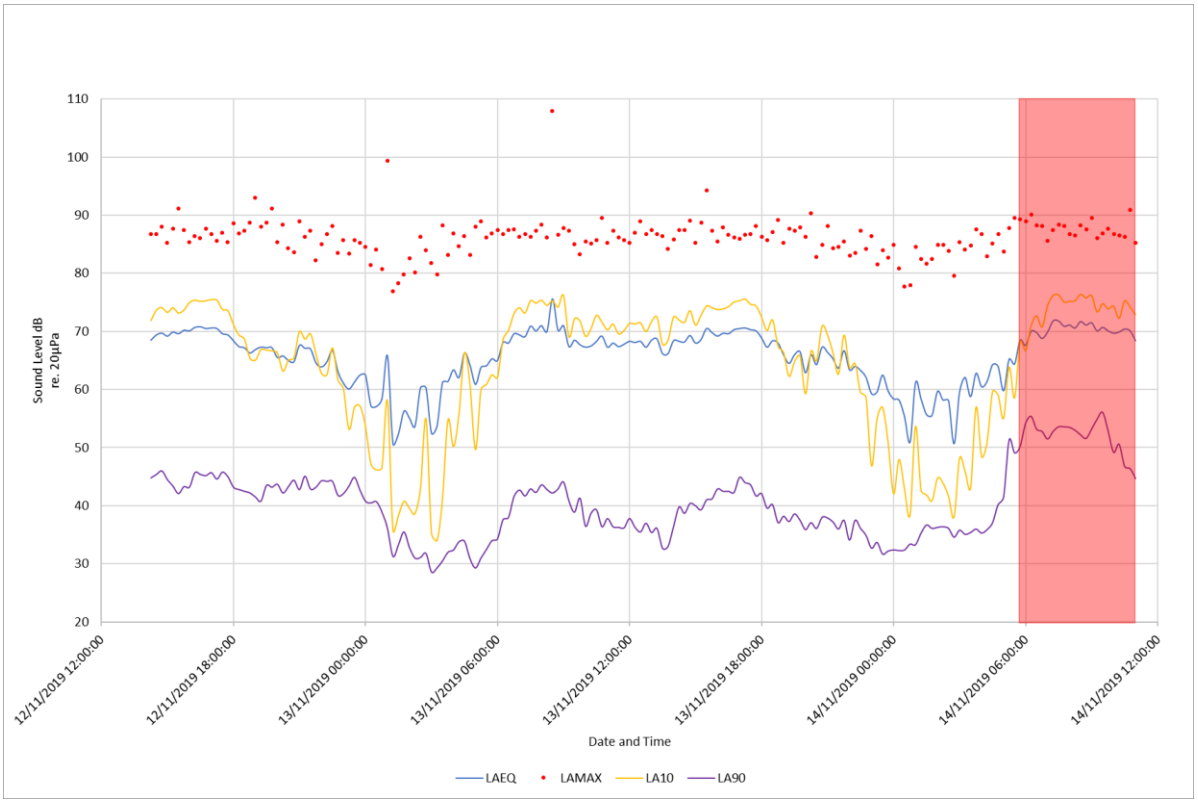

Table 1-11 Long Term 8 results

Day/Date	Day 07:00-23:00		Night 23:00-07:00	
	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB	$L_{Aeq,T}$ dB	$L_{A90,15min}$ dB
05/11/2019[1]	60	45	55	36
06/11/2019	61	44	53	38
07/11/2019	61	44	56	35
08/11/2019	61	44	54	32
09/11/2019	59	40	48	28
10/11/2019	58	35	54	38
11/11/2019	61	45	56	37
12/11/2019[2]	62	46	-	-
Overall	60	45	54	35

[1] Start Time 15:00pm , [2] Stop Time 11:45am

Figure 1-8 Long Term 8 Time History

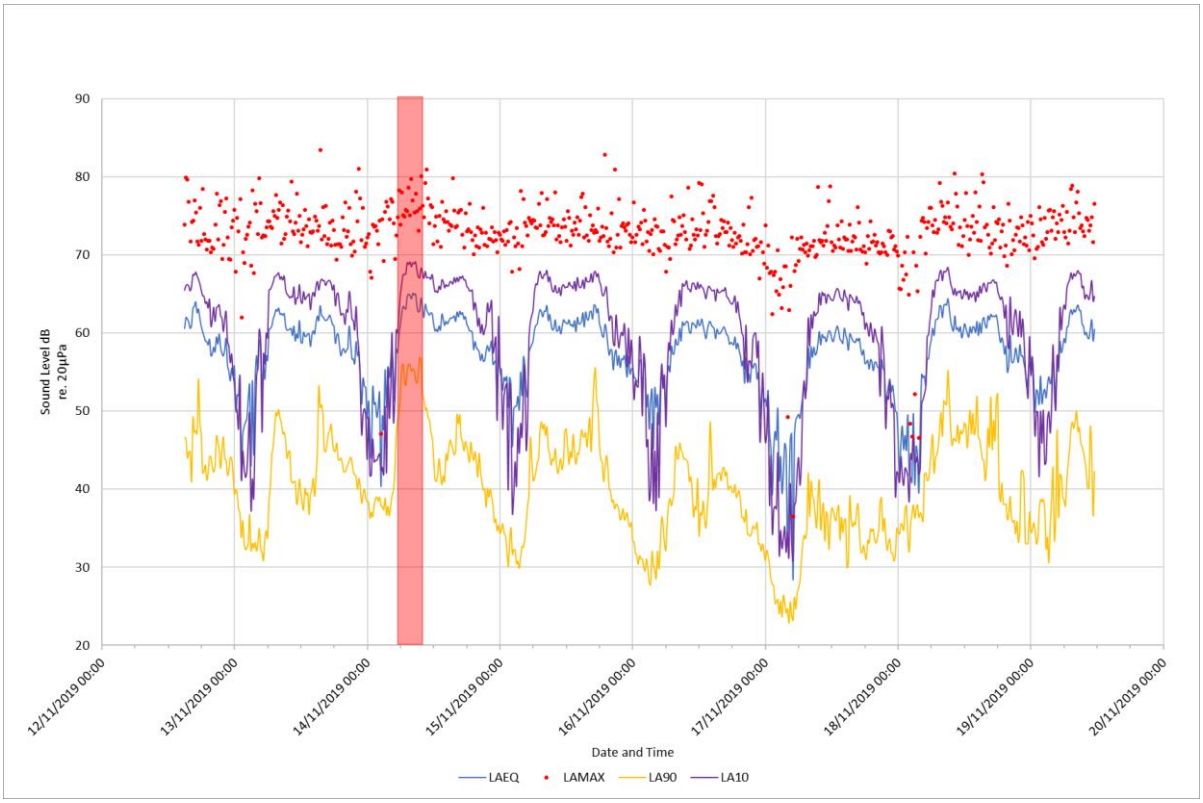

Table 1-12 Short Term 1 results

Date and Time	Duration (Minutes)	L_{Aeq}	L_{A90}
05/11/2019 12:00-13:00	60	70	47
05/11/2019 13:00-14:00	60	70	47
05/11/2019 14:00-15:00	60	71	49
Overall 12:00-15:00	180	70	48

Table 1-13 Short Term 2 results

Date and Time	Duration (Minutes)	L_{Aeq}	L_{A90}
12/11/2019 12:00-13:00	60	52	46
12/11/2019 13:00-14:00	60	52	46
12/11/2019 14:00-15:00	60	63	48
Overall 12:00-15:00	180	60	47

1.6 Analysis of the frequency spectrum data from LT1

1.6.1 Further analysis of the octave band data collected at location LT1 is presented below. The minimum, maximum, mean, 90th and 10th percentiles of the measured $L_{Aeq,15minute}$ and $L_{A90,15minute}$ noise levels and their associated octave band data throughout the entire monitoring period have been reviewed. The octave band data does not indicate any noticeable low frequency noise components.

Table 1-14 Long Term 1 Spectrum results – $L_{Aeq,15minutes}$

Period	Statistical analysis	Octave band levels (Hz), dB											$L_{Aeq,15minute}$ (dB)
		16	31.5	63	125	250	500	1k	2k	4k	8k	16k	
All	Minimum	36	30	30	22	14	16	11	7	7	9	11	24
	Maximum	62	66	63	59	57	57	57	50	47	45	45	62
	Mean	46	45	43	38	32	33	32	29	26	24	16	42
	90th percentile	52	53	51	47	42	43	41	38	36	34	24	51
	10th percentile	40	36	35	28	23	22	21	20	14	12	11	32
Daytime	Minimum	40	36	34	28	21	22	22	16	10	10	11	31
	Maximum	62	66	63	59	57	57	57	50	47	45	45	62

Period	Statistical analysis	Octave band levels (Hz), dB										$L_{Aeq,15minute}$ (dB)
		16	31.5	63	125	250	500	1k	2k	4k	8k	16k	
07:00 – 23:00	Mean	48	48	46	41	36	36	36	32	29	26	17	45
	90th percentile	54	55	52	49	44	45	41	38	36	34	24	51
	10th percentile	42	41	40	34	29	29	29	25	21	17	11	39
Night-time 23:00 – 07:00	Minimum	36	30	30	22	14	16	11	7	7	9	11	24
	Maximum	54	51	54	49	41	39	44	48	46	43	34	57
	Mean	43	38	37	31	26	26	25	24	21	20	15	37
	90th percentile	49	44	43	37	33	33	35	37	35	33	24	47
	10th percentile	37	33	32	26	19	19	16	13	10	10	11	29
Week end daytime 07:00 – 23:00	Minimum	40	38	37	28	24	26	25	21	10	10	11	35
	Maximum	59	66	63	55	56	51	57	50	45	41	28	62
	Mean	45	48	47	40	35	35	36	31	26	22	14	44
	90th percentile	49	56	54	48	42	44	42	38	34	32	18	53
	10th percentile	41	40	39	32	28	29	30	23	18	13	11	38
Week end night-time 23:00 – 07:00	Minimum	36	30	30	22	14	16	12	7	7	10	11	24
	Maximum	43	51	43	37	41	31	32	34	29	33	17	41
	Mean	38	35	35	28	22	22	21	19	15	14	11	32
	90th percentile	41	39	38	33	27	26	28	27	23	21	13	39
	10th percentile	36	32	32	24	17	17	15	11	8	10	11	27

Table 1-15 Long Term 1 Spectrum results – $L_{A90,15minutes}$

Period	Statistical analysis	Octave band levels (Hz), dB										$L_{A90,15minute}$ (dB)
		16	31.5	63	125	250	500	1k	2k	4k	8k	16k	
All	Minimum	30	25	24	20	12	12	6	5	6	9	11	21
	Maximum	47	55	48	49	43	40	40	43	42	40	31	54

Period	Statistical analysis	Octave band levels (Hz), dB											$L_{A90,15minute}$ (dB)
		16	31.5	63	125	250	500	1k	2k	4k	8k	16k	
	Mean	38	37	36	30	25	25	24	19	17	15	12	35
	90th percentile	42	42	41	36	31	31	31	28	28	25	15	41
	10th percentile	33	30	30	25	18	17	14	8	8	9	11	28
Daytime 07:00 – 23:00	Minimum	33	31	29	23	18	17	15	10	7	9	11	28
	Maximum	47	55	48	49	43	40	39	38	37	34	26	50
	Mean	39	39	38	32	27	27	27	22	19	16	12	37
	90th percentile	43	43	43	36	31	31	31	28	28	25	15	41
	10th percentile	35	35	34	28	22	22	22	16	11	10	11	33
Night-time 23:00 – 07:00	Minimum	30	25	24	20	12	12	6	5	6	9	11	21
	Maximum	44	41	41	35	33	36	40	43	42	40	31	54
	Mean	35	32	32	27	21	21	18	15	15	14	12	31
	90th percentile	40	37	38	31	27	29	29	30	29	26	18	41
	10th percentile	31	28	27	22	15	15	9	5	7	9	11	23
Week end daytime 07:00 – 23:00	Minimum	33	33	30	23	19	19	18	11	7	9	11	29
	Maximum	42	51	48	49	43	40	39	34	30	24	13	50
	Mean	36	38	37	30	25	26	27	20	15	12	11	36
	90th percentile	39	42	40	34	28	30	31	25	19	15	11	39
	10th percentile	34	35	34	27	21	22	23	15	9	10	11	33
Week end night-time 23:00 – 07:00	Minimum	30	25	26	20	12	12	7	5	6	9	11	21
	Maximum	36	36	34	28	23	25	25	20	20	15	11	34
	Mean	32	30	30	24	17	17	14	9	9	10	11	26
	90th percentile	34	33	33	27	21	22	21	15	16	13	11	31

Period	Statistical analysis	Octave band levels (Hz), dB										$L_{A90,15minute}$ (dB)
		16	31.5	63	125	250	500	1k	2k	4k	8k	16k
	10^{th} percentile	30	27	27	20	14	13	8	5	7	9	11	22

1.7 Equipment Calibration Certificates

Figure 1-9 NL-52 420763

ANV MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

UKAS CALIBRATION 0653

Date of Issue: 04 July 2018 **Certificate Number: UCRT18/1675**

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

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Approved Signatory [redacted]

K. Mistry

Customer	AECOM Ltd St Georges House 5 St Georges Road London SW19 4DR			
Order No.	08215735-Gen_Gen			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00420763
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	20812
	Rion	Microphone	UC-59	05741
	Brüel & Kjær	Calibrator	4231	3002998
		Calibrator adaptor type if applicable		UC 0210
Performance Class	1			
Test Procedure	TP 2.SLM 61672-3 TPS-49			
	Procedures from IEC 61672-3:2006 were used to perform the periodic tests.			
Type Approved to IEC 61672-1:2002	YES	Approval Number	21.21 / 13.02	
	If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003			
Date Received	03 July 2018	ANV Job No.	UKAS18/07417	
Date Calibrated	04 July 2018			

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	28 Jun 2016	UCRT16/1210	7623

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Figure 1-10 NL-52 542907

ANV MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

UKAS CALIBRATION 0653

Date of Issue: 06 March 2019

Certificate Number: UCRT19/1286

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Approved Signatory [redacted]

K. Mistry

Customer	AECOM Limited St.George's House 5 St. George's Road Wimbledon London SW19 4DR			
Order No.	08215735-GEN_GEN			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00542907
	Rion	Firmware		2.0
	Rion	Pre Amplifier	NH-25	42935
	Rion	Microphone	UC-59	06485
	Rion	Calibrator	NC-74	34536109
		Calibrator adaptor type if applicable		NC-74-002
Performance Class	1			
Test Procedure	TP 2.SLM 61672-3 TPS-49 *Procedures from IEC 61672-3:2006 were used to perform the periodic tests.*			
Type Approved to IEC 61672-1:2002	YES	Approval Number	21.21 / 13.02	
	If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003			
Date Received	05 March 2019	ANV Job No.	UKAS19/03144	
Date Calibrated	06 March 2019			

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	22 February 2017	UCRT17/1069	7623

Figure 1-11 NL-52 420764

ANV MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

UKAS CALIBRATION
0653

Date of Issue: 05 July 2018

Certificate Number: UCRT18/1678

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Approved Signatory [redacted]

K. Mistry

Customer	AECOM Ltd St Georges House 5 St Georges Road London SW19 4DR
Order No.	08215735-Gen_Gen
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00420764
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	20813
	Rion	Microphone	UC-59	03573
	Brüel & Kjær	Calibrator	4231	3002998
		Calibrator adaptor type if applicable		UC 0210

Performance Class	1
Test Procedure	TP 2.SLM 61672-3 TPS-49
	Procedures from IEC 61672-3:2006 were used to perform the periodic tests.
Type Approved to IEC 61672-1:2002	YES Approval Number 21.21 / 13.02
	If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003
Date Received	03 July 2018 ANV Job No. UKAS18/07417
Date Calibrated	05 July 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	28 June 2016	UCRT16/1212	7623

Figure 1-12 NL-52 542906

ANV MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

0653

Date of Issue: 22 August 2018 **Certificate Number: UCRT18/1868**

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Approved Signatory [redacted]

K. Mistry

Customer	AECOM Limited St George's House 5 St George's Road London SW19 4DR
Order No.	08215735 - GEN_GEN
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00542906
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	42934
	Rion	Microphone	UC-59	06484
	Rion	Calibrator	NC-74	34536109
		Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.
Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003
Date Received 21 August 2018 ANV Job No. UKAS18/08537
Date Calibrated 22 August 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	17 August 2016	UCRT16/1260	7623

Figure 1-13 DUO 12081

Certificate of Calibration

Issued by University of Salford (Acoustics Calibration Laboratory)
UKAS ACCREDITED CALIBRATION LABORATORY NO. 0801

Page 1 of 3

APPROVED SIGNATORIES
Claire Lomax [x] Andy Moorhouse [ ]
Gary Phillips [ ] Danny McCaul [ ]

acoustic calibration laboratory
The University of Salford, Salford, Greater Manchester, M5 4WT, UK
http://www.acoustics.salford.ac.uk
t 0161 295 3030/0161 295 3319 f 0161 295 4456 e c.lomax1@salford.ac.uk

UKAS CALIBRATION 0801

University of Salford MANCHESTER

Certificate Number: 03639/1 Date of Issue: 13 March 2018

PERIODIC TEST OF A SOUND LEVEL METER to IEC 61672-3:2006

FOR:	Aecom St George's House 5 St George's Road Wimbledon London SW19 4DR
FOR THE ATTENTION OF:	Thomas Citrine
PERIODIC TEST DATE:	12/03/2018
TEST PROCEDURE:	CTP12 (Laboratory Manual)

Sound Level Meter Details

Manufacturer	01dB	
Model	DUO	
Serial number	12081	
Class	1	
Hardware version	LIS1005G	Application FW: 2.35. Metrology FW: 2.12

Associated Items	**Microphone**
Manu	GRAS
Model	40CD
Serial Number	231578

Test Engineer (initial): [redacted] Name: Gary Phillips

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to the units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full except with the prior written approval of the issuing laboratory.

Figure 1-14 DUO 12076

Certificate of Calibration

Issued by University of Salford (Acoustics Calibration Laboratory)
UKAS ACCREDITED CALIBRATION LABORATORY NO. 0801

Page 1 of 3

APPROVED SIGNATORIES
Claire Lomax [x] Andy Moorhouse [ ]
Gary Phillips [ ] Danny McCaul [ ]

acoustic calibration laboratory
The University of Salford, Salford, Greater Manchester, M5 4WT, UK
http://www.acoustics.salford.ac.uk
t 0161 295 3030/0161 295 3319 f 0161 295 4456 e c.lomax1@salford.ac.uk

UKAS CALIBRATION 0801

University of Salford MANCHESTER

Certificate Number: 03639/3 Date of Issue: 13 March 2018

PERIODIC TEST OF A SOUND LEVEL METER to IEC 61672-3:2006

FOR:	Aecom St George's House 5 St George's Road Wimbledon London SW19 4DR
FOR THE ATTENTION OF:	Thomas Citrine
PERIODIC TEST DATE:	12th and 13th March 2018
TEST PROCEDURE:	CTP12 (Laboratory Manual)

Sound Level Meter Details

Manufacturer	01dB	
Model	DUO	
Serial number	12076	
Class	1	
Hardware version	LIS1005G	Application FW: 2.35. Metrology FW: 2.12

Associated Items	**Microphone**
Manu	GRAS
Model	40CD
Serial Number	209841

Test Engineer (initial): Name: Gary Phillips

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to the units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full except with the prior written approval of the issuing laboratory.

Figure 1-15 NC-74 50541127

CERTIFICATE OF CALIBRATION

0653

Date of Issue: 30 November 2018 **Certificate Number: UCRT18/2191**

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Approved Signatory [redacted]

K. Mistry

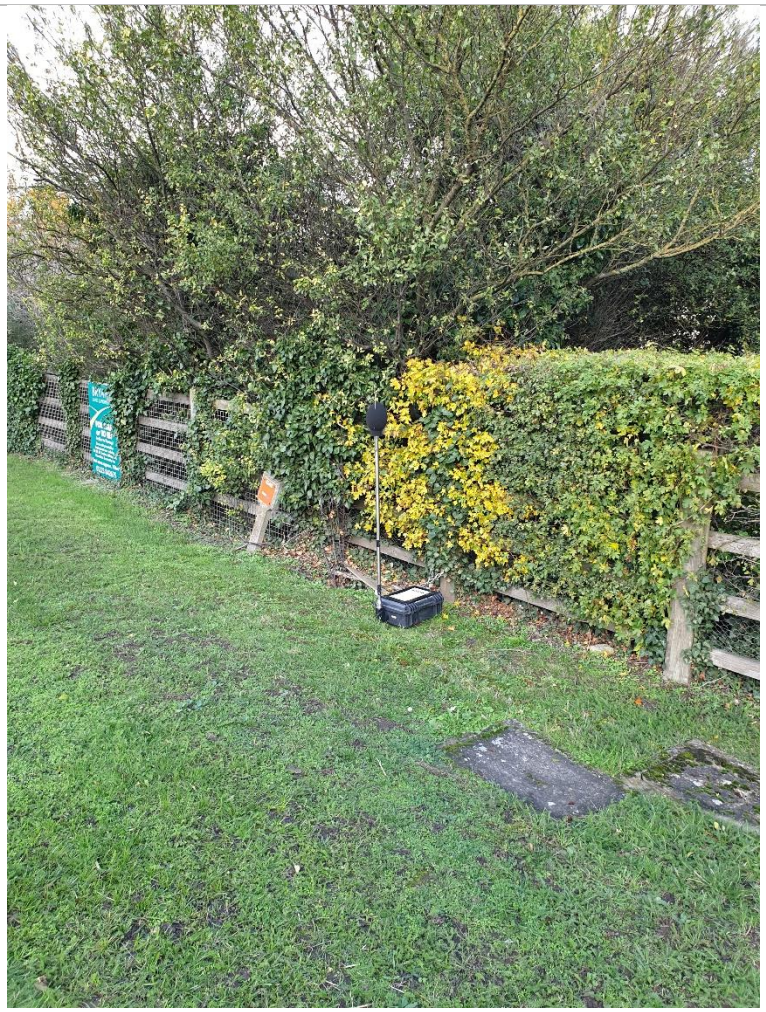
Customer	AECOM Ltd St George's House 5 St George's Road Wimbledon London SW19 4DR
Order No.	08215735 - GEN_GEN
Test Procedure	Procedure TP 1 Calibration of Sound Calibrators
Description	Acoustic Calibrator

Identification	*Manufacturer*	*Instrument*	*Model*	*Serial No.*
	Rion	Calibrator	NC-74	50541127

The calibrator has been tested as specified in Annex B of IEC 60942:2003. As public evidence was available from a testing organisation (PTB) responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of IEC 60942:2003.

ANV Job No.	UKAS18/11736	
Date Received	29 November 2018	
Date Calibrated	30 November 2018	
Previous Certificate	*Dated*	20 November 2017
	Certificate No.	UCRT17/2044
	Laboratory	0653

1.8 Location Photographs

Long Term 1	
Long Term 2	

Long Term 3	
Long Term 4	

Long Term 5	
Long Term 6	

Long Term 7	
Long Term 8	

Short Term 1	
Short Term 2