

LAND NORTH OF THE OLD BRICKWORKS, SHOREHAM ROAD

HENFIELD, WEST SUSSEX, BN5 9SE

NOISE STATEMENT FOR PLANNING

RWDI # 2505151_01 REV 01

07 November 2024

SUBMITTED TO

DMH Stallard

On Behalf of SABBG Holdings Ltd

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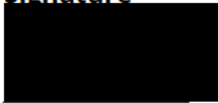
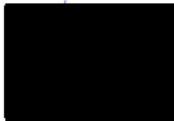
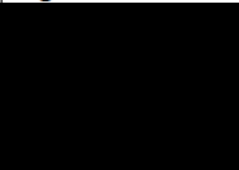
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EXECUTIVE SUMMARY

RWDI has been commissioned to provide a noise statement for planning for the Shoreham Road development.

The proposals include plans to develop 60,000 sqf of class B8/B2/E(g) industrial / commercial properties in 12 units on an existing greenfield site on Shoreham Road.

The Local Authority, Horsham District Council, will require assessments of the acoustic impact on the local amenity.

A noise survey has been undertaken to establish the prevailing noise conditions around the site. The outcome of this survey work has highlighted that the prevailing noise climate is comprised of road traffic on the A2037 and operational noise from the neighbouring industrial estate / builders yard.

An assessment of the noise impact due to road traffic resulting from the development operation has been undertaken and atmospheric noise limits as a result of operation of proposed fixed plant items have been calculated in accordance with the requirements of the Local Authority.

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1.	Project Overview	1
1.2.	Statement of Competency.....	1
2.	DESIGN GUIDANCE.....	2
2.1.	Local Authority Criteria	2
2.2.	British Standard BS 4142:2014+A1:2019	3
2.3.	British Standard BS 8233:2014.....	5
2.4.	World Health Organisation Guidelines (2018)	5
3.	SITE DESCRIPTION.....	6
3.1.	Site Description.....	6
3.2.	Proposed Development.....	6
3.3.	Identified Receptors	6
4.	BASELINE SOUND SURVEY	7
4.1.	Unattended Sound Monitoring.....	7
4.2.	Attended Short Term Sound Survey	7
4.3.	Field Calibration.....	7
4.4.	Weather Conditions	8
5.	SOUND SURVEY RESULTS	8
5.1.	Unattended Sound Survey Results	8
5.3.	Attended Sound Survey Results	10
5.4.	Derivation of Background Sound Assessment Levels.....	10
6.	SOUND ASSESSMENT.....	13
6.1.	Atmospheric Noise Limits.....	13
6.2.	Operational Road Traffic Noise.....	14
7.	CONCLUSIONS	16
8.	REFERENCES	17

APPENDIX A: FIGURES

APPENDIX B: TABLES

APPENDIX C: CALIBRATION CERTIFICATES

1. INTRODUCTION

1.1. Project Overview

RWDI has been commissioned to provide a noise statement for planning for the Shoreham Road development. The proposals include plans to develop 60,000 sqf of class B8/B2/E(g) industrial / commercial properties in 12 units on an existing greenfield site on Shoreham Road. The site can be found immediately adjacent to an existing business park / industrial estate.

Atmospheric noise limits as a result of the operation of proposed fixed plant items have been calculated in accordance with the policies and requirements of Horsham District Council (HDC) using guidance from British Standard BS 4142 [1]. This has been based on a background sound survey taken at and around the site over a typical period.

An assessment of the noise impact due to road traffic resulting from the development operation has been undertaken.

1.2. Statement of Competency

James Green (Associate Member of the Institute of Acoustics, AMIOA) authored the report and undertook the sound assessment calculations.

Robbie Watson (Technician Member of the Institute of Acoustics, TechMIOA) undertook the baseline unattended sound measurements. Robbie has completed the Certificate of Competence in Environmental Noise Measurement at London South Bank University.

Stefan De Vito (Member of the Institute of Acoustics, MIOA) reviewed the technical output of this document.

2. DESIGN GUIDANCE

2.1. Local Authority Criteria

Shoreham Road is located within the administrative area of Horsham District Council (HDC). HDC and other Sussex local authorities have developed guidance on the assessment of noise in response to the introduction of National Planning Policy Framework (NPPF) [2] and other associated national noise planning policy. This guidance is described in Planning Noise Advice Document: Sussex (Updated November 2023) [3].

In relation to new industrial and commercial sound sources, the guidance states:

“The rating level of the industrial or commercial sound source should, where practicable, achieve a level no greater than the representative background sound when measured in accordance with BS 4142:2014+A1:2019”.

After correspondence with Kevin Beer, Environmental Protection Officer at HDC, on 23rd October, the additional information has been provided:

“For reports on BS 4142 assessments within the jurisdiction of HDC we expect the rated sound level to be 2 or 3 dB below the background level”.

To meet the lower range provided by HDC, plant noise rating limits have been set to **3 dB below background level**.

Planning Noise Advice Document: Sussex (November 2023) requires reference to further technical advice and guidance from the national and international documents presented below in Table 1.

Table 1: Technical advice and guidance documents (Planning Noise Advice Document: Sussex)

Development Category	Type of development	Relevant standards	Recommended noise thresholds at the most sensitive noise receptors
Industrial and commercial sites and plant	Factories, industrial premises, fixed installations, or sources of an industrial nature in commercial premises. This includes kennels and other forms of animal breeding and boarding establishments.	BS 4142:2014 + A1:2019 BS 5228-2:2009+A1:2014 BS 6472-1:2008 BS 7385: Part 2 1993 BS 8233:2014 BR ADE DMRB (2020) EMAQ (2018). IOA and CIEH (2022) MC20 NANR45 NR Curves ProPG: (2023) WHO (2009) WHO (2018)	1. The rating level of plant, where practicable, shall be no greater than the existing background sound levels, when measured in accordance with BS 4142. 2. Where background sound levels are low, discussions shall be had with the LPA to agree an objective. 3. Apply the indoor ambient noise levels in Tables 4 and 6 of BS8233. 4. Apply the WHO 2009 Community Noise guidelines for outdoor amenity areas.

Planning Noise Advise Document: Sussex (November 2023) provides the following criteria (from The Department for Transport's Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 [4]) for evaluating both immediate and long term impact of changes in the 18-hour traffic flow (06:00 – 24:00) on noise sensitive receptors.

- Noise level of 1 dB $L_{A10,18h}$ or more in the short term or 3 dB $L_{A10,18h}$ in the long term at any sensitive receptor within the study area.
- Noise level of 3 dB $L_{night\ outside}$ or more in the long term of any sensitive receptor within the study area where an $L_{night\ outside}$ greater than 55 dB is predicted.

2.2. British Standard BS 4142:2014+A1:2019

Guidance on the rating and assessing of sound of an industrial and/or commercial nature is contained in British Standard BS 4142:2014+A1:2019[1] 'Methods for rating and assessing industrial and commercial sound'.

The standard states that:

"This standard is applicable to the determination of the following levels at outdoor locations:

- a) rating levels for sources of sound of an industrial and/or commercial nature; and*
- b) ambient, background and residual sound levels*

for the purposes of:

- 1) investigating complaints;*
- 2) assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and*
- 3) assessing sound at proposed new dwellings or premises used for residential purposes."*

The determination of sound amounting to a nuisance is beyond the scope of BS 4142:2014.

The significance of sound of an industrial and/or commercial nature depends upon the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs.

Typically, the greater the difference between rating level and background sound level, the greater the magnitude of the impact. BS 4142+A1:2019 provides the following guidance when assessing the difference in the rating level and background sound assessment level:

- a difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- a difference of around +5 dB is likely to be an indication of an adverse impact, depending on context; and

- the lower the rating level is relative to the measured background sound level, the less likely it is that the specific source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

Certain acoustic features can increase the significance of the impact over that expected from a basic comparison between specific sound level and the background sound level. These features include tonality and impulsivity, as well as additional characteristics and intermittency of the sound.

Where appropriate, a rating penalty for sound based on a subjective assessment of its characteristics should be established. In other circumstances an objective appraisal of tonal and/or impulsive characteristics may be appropriate.

An individual's response to sound can be subjective and the significance of a sound level impact can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood. BS 4142:2014+A1:2019 therefore recognises the importance of the context in which a sound occurs and has taken into account the acoustical terms 'sound' and 'noise' in its development. BS 4142 refers to 'sound' as being measured by a sound level meter or other measuring system. The Standard refers to 'noise' as relating to a human response and is routinely described as unwanted sound, or sound that is considered undesirable or disruptive.

2.3. British Standard BS 8233:2014

Noise sensitive properties are typically defined as buildings that are residential use. Guidance from British Standard BS8233:2014 [5] offers design ranges for residential receptors.

Table 2: Indoor ambient noise ranges for dwellings from BS8233:2014

Activity	Location	07:00 – 23:00 hrs	23:00 – 07:00 hrs
Resting	Living Room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq,16hr}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

Neighbouring properties to the Shoreham Road site are classed as a commercial properties and are not considered to fall within this category. Guidance from British Standard BS8233:2014 [5] offers design ranges for non-domestic receptors.

Table 3: Design ranges for non-domestic buildings from BS8233:2014

Activity	Location	Design Range dB $L_{Aeq,T}$
Speech or telephone communications	Department store	50 – 55
	Cafeteria, canteen, kitchen	
	Concourse	45 – 55
Study and work requiring concentration	Corridor, circulation space	
	Library, gallery, museum	40 – 50
	Staff / meeting room, training room	35 – 45
	Executive office	35 – 40
Listening	Place of worship, counselling, meditation, relaxation	30 – 35

2.4. World Health Organisation Guidelines (2018)

Guidelines for community noise in specific environments are presented in the World Health Organisation (WHO) document [6] are summarised in Table 4 below.

Table 4: Guideline Values for Community Noise

Specific Environment	Critical Health Effect(s)	$L_{Aeq,T}$ (dB)	Time Base (hours)	$L_{Amax,F}$ (dB)
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedrooms	Sleep disturbance, night-time	30	8	45

3. SITE DESCRIPTION

3.1. Site Description

The proposed development site is located at land north of the Old Brickworks, Shoreham Road, Henfield, West Sussex, BN5 9SE.

The site currently comprises of unoccupied land which lies on a plot of approximately 19,000 m², surrounded by commercial units located to the east and south of the site. There are also scattered residential properties to the north and south.

Sources of local environmental sound are predominantly controlled by road traffic and operations in the adjacent industrial estate / business park / builders yard, however influences from aircraft and birds were also present.

3.2. Proposed Development

The proposed development includes the construction of 12 units over four warehouses to create approximately 60,000 ft² of B8/B2/E(g) industrial and commercial using spaces. The main road access is expected to be via the southern adjacent site onto south of Shoreham Road. The proposed car parking comprises 99 standard vehicles spaces including electric vehicle (EV) charging points and blue badge users. The development will also have sheltered cycle storage.

At this stage a heating and ventilation strategy has not been developed by the project team. It is expected that this will take the form of Mechanical Ventilation and Air Source Heat Pumps. The locations of these items of plant are to be determined at a later stage of the development design. Operating hours have not been defined, but are currently assumed as 09:00 – 17:00 Monday to Friday.

3.3. Identified Receptors

The closest residential receptor to the proposed site is a detached house (Oak Tree Cottage, Shoreham Road) c. 30m to the north of the site boundary (R1). The next closest residential receptors are c. 120m to the north of the site boundary (R3), c. 250m to the east of the site boundary (R2), and c. 160m to the west of site boundary (R4). The closest worse-case commercial receptors are c. 40m to the east of site boundary (C1). The identified sensitive receptors are presented below in Table 5 and in Appendix A.

Table 5: Identified Sensitive Receptors

Receptor Number	Receptor Type	Address
R1	Residential	Oak Tree Cottage, Shoreham Road
R2	Residential	The Pools, Shoreham Road
R3	Residential	2 Nightingale Hall, Newbarn Lane
R4	Residential	New Barn Bungalow, Newbarn Lane
C1	Commercial	Henfield Business Park, Shoreham Road

4. BASELINE SOUND SURVEY

4.1. Unattended Sound Monitoring

Unattended sound monitoring was undertaken at the locations labelled as LT1 and LT2 on Figure A1 of Appendix A.

At LT1 and LT2, consecutive 15-minute measurements of sound indices which included L_{AFmax} , $L_{Aeq,15min}$ and $L_{A90,15min}$ sound levels were measured over the week-long monitoring period, between 12:00 hrs on Thursday 10th October 2024 and 13:15 hrs on Thursday 17th October 2024.

The monitors were positioned at locations considered to be representative of the sound environment in the vicinity of the closest residential and commercial / industrial properties.

The sound measurements at LT1 and LT2 were obtained using a Rion NL-52 sound level meter. The meter was fitted with a weatherproof windshield. The sound level meter was powered by batteries and stored inside a weatherproof security box. The microphone was positioned 1.5 m above local ground in free-field conditions.

4.2. Attended Short Term Sound Survey

Attended sound measurements were obtained at monitoring locations ST1, ST2 and ST3 as shown on Figure A1 of Appendix A. These measurements were obtained between 09:50 hrs and 13:10 hrs on Thursday 17th October 2024. All sound measurements were made in free-field conditions with the microphone positioned at least 1.5m above local ground.

The sound level meter used to undertake these measurements was a Rion NL-52 precision integrating sound level meter, which was set to measure sound pressure levels with the 'Fast' time weighting and 1/3 octave frequency network applied to the sound pressure level measurements.

All attended measurements were made over sample 15-minute periods and were simultaneous to the unattended measurements.

4.3. Field Calibration

The sound level meters used for the unattended and attended monitoring were calibrated at the start and end of the surveys using a RION NC-74 Class 1 Acoustic Calibrator to generate a calibration level of 94.0 dB at 1 kHz.

The field calibration checks made on the sound level meters indicate that there was no significant drift in the measurements obtained during the surveys. Copies of the laboratory calibration certificates for sound level meters and acoustic calibrators used for the survey are presented in Appendix C of this report.

4.4. Weather Conditions

Weather conditions covering the unattended monitoring period were measured with a Davis Vantage Vue Weather Station installed by LT2. The weather data is presented in Appendix B. Wind speeds remained below averages of 1 m/s.

No noise data from LT1 or LT2 has been discounted due to weather conditions, as analysis of the data showed minimal impact from adverse weather.

5. SOUND SURVEY RESULTS

5.1. Unattended Sound Survey Results

The results of the unattended sound monitoring at LT1 and LT2 are presented graphically on Figure A2 and A3 of Appendix A and a tabulated summary is presented in Tables 2 and 3 below.

Daytime $L_{Aeq,16hr/8hr}$ ambient sound levels presented in Tables 6 and 7 have been calculated using logarithmic averaging. The range of 15-minute values over which each logarithmic value has been calculated is shown in parenthesis. The range of 15 minute values for each period has also been provided for L_{Amax} and L_{A90} .

Table 6: Summary of Unattended Sound Monitoring Results at LT1

Day of Measurement	Date	Measured Sound Levels, dB re. 2 x 10 ⁻⁵ Pa.					
		Day Time (07:00 - 23:00)			Night Time (23:00 - 07:00)		
		$L_{Amax,F[1]}$	$L_{Aeq,T[1]}$	$L_{A90,15min[1]}$	$L_{Amax,F[1]}$	$L_{Aeq,T[1]}$	$L_{A90,15min[1]}$
Thursday ^[2]	10-Oct-24	57-80	50 (42-53)	27-44	35-66	40 (22-49)	20-38
Friday	11-Oct-24	57-77	50 (42-54)	27-44	37-64	39 (24-44)	22-31
Saturday	12-Oct-24	56-76	50 (41-53)	29-46	41-100	52 (25-67)	22-31
Sunday	13-Oct-24	54-80	48 (36-54)	23-40	39-69	45 (23-51)	21-46
Monday	14-Oct-24	56-80	52 (39-58)	24-47	42-71	40 (23-51)	20-35
Tuesday	15-Oct-24	58-73	51 (42-54)	29-45	40-68	41 (25-50)	23-34
Wednesday	16-Oct-24	55-80	52 (41-55)	28-48	44-72	41 (26-51)	21-39
Thursday ^[3]	17-Oct-24	60-74	52 (50-55)	40-45	-	-	-
Cumulative Values		73-80 ^[4]	51 (48-52) ^[5]	23-48	64-100 ^[4]	43 (39-52) ^[5]	20-46

Notes:

[1] range shown is 15-minute levels measured during the monitoring periods;

[2] incomplete daytime periods due to equipment set-up;

[3] incomplete daytime periods due to equipment retrieval;

[4] $L_{Amax,F}$ values presented are range of highest daily $L_{Amax,F}$; and

[5] the range of daily $L_{Aeq,16/8hrs}$ values are shown in parenthesis.

The results of the unattended sound monitoring at LT1 show that during the daytime periods, ambient sound levels ranged between 48 dB and 52 dB $L_{Aeq,16hr}$, with a mean level of 51 dB $L_{Aeq,16hr}$.

The results of the unattended sound monitoring show that during the night-time periods, ambient sound levels ranged between 39 dB and 52 dB $L_{Aeq,8hr}$, with a mean level of 43 dB $L_{Aeq,8hr}$.

Table 7: Summary of Unattended Sound Monitoring Results at LT2

Day of Measurement	Date	Measured Sound Levels, dB re. 2 x 10 ⁻⁵ Pa.					
		Day Time (07:00 - 23:00)			Night Time (23:00 - 07:00)		
		$L_{Amax,F[1]}$	$L_{Aeq,T[1]}$	$L_{A90,T[1]}$	$L_{Amax,F[1]}$	$L_{Aeq,T[1]}$	$L_{A90,T[1]}$
Thursday ^[2]	10-Oct-24	57-80	51 (43-56)	28-52	32-67	42 (23-49)	21-41
Friday	11-Oct-24	57-77	51 (44-55)	27-50	40-63	40 (23-45)	20-33
Saturday	12-Oct-24	55-75	50 (41-54)	27-47	35-68	39 (24-46)	21-32
Sunday	13-Oct-24	55-80	49 (36-54)	24-44	36-68	46 (23-52)	20-48
Monday	14-Oct-24	56-77	53 (40-57)	25-51	35-70	41 (21-50)	19-36
Tuesday	15-Oct-24	59-78	52 (44-56)	30-51	32-69	43 (24-49)	22-36
Wednesday	16-Oct-24	54-78	52 (42-55)	28-51	38-67	41 (22-48)	20-41
Thursday ^[3]	17-Oct-24	58-78	52 (49-55)	39-47	-	-	-
Average Values		75-80 ^[4]	51 (49-53) ^[5]	24-52	63-70 ^[4]	42 (39-46) ^[5]	19-48

Notes:

[1] range shown is 15-minute levels measured during the monitoring periods;

[2] incomplete daytime periods due to equipment set-up;

[3] incomplete daytime periods due to equipment retrieval;

[4] $L_{Amax,F}$ values presented are range of highest daily $L_{Amax,F}$; and

[5] the range of daily $L_{Aeq,16/8hrs}$ values are shown in parenthesis.

The results of the unattended sound monitoring at LT1 show that during the daytime periods, ambient sound levels ranged between 49 dB and 53 dB $L_{Aeq,16hr}$, with a mean level of 51 dB $L_{Aeq,16hr}$.

The results of the unattended sound monitoring show that during the night-time periods, ambient sound levels ranged between 39 dB and 46 dB $L_{Aeq,8hr}$, with a mean level of 42 dB $L_{Aeq,8hr}$.

5.3. Attended Sound Survey Results

The results of the attended measurements at locations local to the site are presented below in Table 8.

Table 8: Summary of Attended Sound Measurement Results

Monitoring Location ID	Measurement Start-time	Measured Sound Pressure Level, dB re. 2 x 10 ⁻⁵ Pa.		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
ST1	09:50	61	41	36
	11:00	56	42	35
	12:08	64	42	38
	Cumul.^[1]	64	42	36
ST2	10:15	84	70	45
	11:23	91	72	46
	12:35	85	71	48
	Cumul.^[1]	91	71	46
ST3	10:35	85	72	48
	11:43	85	72	53
	12:55	85	71	47
	Cumul.^[1]	85	72	49

[1] Cumulative L_{Aeq,T} sound levels have been calculated using logarithmic averaging, whilst mean L_{A90,T} sound levels have been calculated using arithmetic averaging.

Noise sources observed at ST1 during attended measurements included road traffic on the A2037, aircraft, birds, and operations from the adjacent builders yard.

Noise sources observed at ST2 during attended measurements included road traffic on the A2037, aircraft, birds, and operations from the adjacent builders yard / industrial estate.

Noise sources observed at ST3 during attended measurements included road traffic on the A2037, birds, and operations from the adjacent builders yard.

5.4. Derivation of Background Sound Assessment Levels

The results of the unattended sound monitoring at LT1 and LT2 provide an indication of the diurnal variation in sound levels in the vicinity of the Shoreham Road site, whilst the short-term attended sound measurements provide an indication of the variation in sound levels between the unattended monitoring locations and the attended monitoring locations ST1, ST2, and ST3.

Table 9 below presents the modal analysis of the L_{A90,15min} sound levels measured at LT1 and LT2. The operating hours of proposed commercial / industrial development have not yet been specified. To allow for flexibility in planning, a range of periods have been assessed for the modal analysis of L_{A90,15min}, which may be able to inform a more dynamic approach to plant noise limits. Modal analysis at LT1 and LT2 is presented graphically in Appendix A.

Table 9: Modal analysis of $L_{A90,15min}$ at LT1 and LT2

Monitoring Position	Period			Modal Value dB $L_{A90,15min}$
LT1	Monday – Friday:	Daytime	(07:00 – 23:00)	43
	Monday – Friday:	Night	(23:00 – 07:00)	21
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	36
	Saturday – Sunday:	Night	(23:00 – 07:00)	23
LT2	Monday – Friday:	Daytime	(07:00 – 23:00)	47
	Monday – Friday:	Night	(23:00 – 07:00)	21
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	41
	Saturday – Sunday:	Night	(23:00 – 07:00)	21

Table 10 below presents a comparison of the sample $L_{A90,15min}$ sound levels measured at the ST attended locations with the $L_{A90,15min}$ sound levels measured at LT1 and LT2 during coincident measurement periods.

Table 10: Comparison of Background Sound Levels Measured at the Unattended Locations (LT1, LT2) and the Attended Locations (ST1, ST2, ST3) on Thursday 17th October 2024

Measurement Time	Background Sound Level, dB $L_{A90,15min}$			
	LT1	ST1	ST2	ST3
10:15	46	-	45	-
11:00	47	35	-	-
11:43	46	-	-	53
<i>Difference</i>	-	-12 dB	-1 dB	+7 dB
Measurement Time	LT2	ST1	ST2	ST3
10:15	42	-	45	-
11:00	42	35	-	-
11:43	45	-	-	53
<i>Difference</i>	-	-7 dB	+3 dB	+8 dB

At LT1, a difference of -12 dB in the $L_{A90,15min}$ levels was measured at ST1, -1 dB at ST2 and +7 dB at ST3.

At LT2, a difference of -7 dB in the $L_{A90,15min}$ levels was measured at ST1, +3 dB at ST2 and +8 dB at ST3.

Table 11 below presents the derived background sound assessment level for each identified sensitive receptor.

Table 11: Derived Background Sound Levels at Sensitive Residential Receptors

Monitoring Position	Period			Derived Background Sound Level dB L _{A90,15min}
R1 ^[1]	Monday – Friday:	Daytime	(07:00 – 23:00)	43
	Monday – Friday:	Night	(23:00 – 07:00)	21
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	36
	Saturday – Sunday:	Night	(23:00 – 07:00)	23
R2 ^[2]	Monday – Friday:	Daytime	(07:00 – 23:00)	31
	Monday – Friday:	Night	(23:00 – 07:00)	21
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	24
	Saturday – Sunday:	Night	(23:00 – 07:00)	23
R3 ^[1]	Monday – Friday:	Daytime	(07:00 – 23:00)	43
	Monday – Friday:	Night	(23:00 – 07:00)	21
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	36
	Saturday – Sunday:	Night	(23:00 – 07:00)	23
R4 ^[2]	Monday – Friday:	Daytime	(07:00 – 23:00)	31
	Monday – Friday:	Night	(23:00 – 07:00)	21
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	24
	Saturday – Sunday:	Night	(23:00 – 07:00)	23

[1] Background Sound Level based on LT1 modal values; and

[2] Background Sound Level based on LT1 modal values minus ST1 – LT1 difference for daytime.

6. SOUND ASSESSMENT

6.1. Atmospheric Noise Limits

Atmospheric noise limits of the rated sound level from industrial or commercial plant to not exceed 3 dB below the background sound level have been adopted. Table 12 below presents the atmospheric noise limit at each identified sensitive residential receptor, based on the derived background sound levels in Table 11.

Table 12: Atmospheric noise limits from industrial or commercial plant at residential receptors

Receptor Location	Period			Derived Background Sound Level dB L _{A90,15min}	Target Noise Rating Level, dB L _{Ar} (Background Sound Level -3 dB)
R1 ^[1]	Monday – Friday:	Daytime	(07:00 – 23:00)	43	40
	Monday – Friday:	Night	(23:00 – 07:00)	21	18
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	36	33
	Saturday – Sunday:	Night	(23:00 – 07:00)	23	20
R2 ^[2]	Monday – Friday:	Daytime	(07:00 – 23:00)	31	28
	Monday – Friday:	Night	(23:00 – 07:00)	21	18
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	24	21
	Saturday – Sunday:	Night	(23:00 – 07:00)	23	20
R3 ^[1]	Monday – Friday:	Daytime	(07:00 – 23:00)	43	40
	Monday – Friday:	Night	(23:00 – 07:00)	21	18
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	36	33
	Saturday – Sunday:	Night	(23:00 – 07:00)	23	20
R4 ^[2]	Monday – Friday:	Daytime	(07:00 – 23:00)	31	28
	Monday – Friday:	Night	(23:00 – 07:00)	21	18
	Saturday – Sunday:	Daytime	(07:00 – 23:00)	24	21
	Saturday – Sunday:	Night	(23:00 – 07:00)	23	20

[1] Background Sound Level based on LT1 modal values; and

[2] Background Sound Level based on LT1 modal values minus ST1 – LT1 difference for daytime.

Meeting the atmospheric noise limits above, this will also meet the requirements of BS 8233 and WHO for internal ambient noise levels.

For the commercial receptor, C1, BS 8233 offers internal design ranges for an executive office of 35 – 40 dB. Adding +15 dB to these values to account for a partially open window, the external noise limits to achieve these design ranges at commercial receptor C1 are presented below in Table 13.

Table 13: Atmospheric noise limits from industrial or commercial plant at identified sensitive commercial receptor.

Receptor	BS 8233 Internal Design Range, dB	Reduction through partially open window, dB	External Atmospheric Noise Limit, dB $L_{Aeq,T}$
C1	35 - 40	15	40 - 55

6.2. Operational Road Traffic Noise

To consider the effect of road traffic noise change, transport data for 18-hour (06:00 – 24:00) traffic flows have been used for the calculation of the change in the $L_{A10,18hrs}$ on the surrounding road network due to the introduction of the proposed development.

The following road traffic scenarios have been considered:

- A. 2023 Baseline
- B. Future opening year without development
- C. Future opening year with development in operation

Criteria from Planning Noise Advise Document: Sussex (November 2023) states that a change in noise level of 1 dB $L_{A10,18hr}$ or more in the short term, or 3 dB in the long term would cause an impact on noise sensitive receptors.

Full listing of the assumed traffic flows and % HGV for each of the road links considered is presented below in Table 14, along with the calculated $L_{A10,18hrs}$ road traffic noise levels based on AADT flows. The ID locations are presented in Appendix A.

Table 14: Traffic Noise Change

ID	Link	Scenario ^[1]	Average Vehicle Speed (km/h)	Traffic Flow (18hr AADT)		L _{A10,18hr} [dB(A)]	Noise Change from 2023 Baseline dB
				Total Vehicles	% HGV		
1	Site Entrance	A	64	65	62	53	-
		B		66	62	53	0
		C		466	17	57	+5
2	Shoreham Road (A2307) from site entrance to Horn Lane	A	64	4303	5	65	-
		B		4483	5	65	0
		C		4659	5	65	0
5	Shoreham Road (A2307) from site entrance to Barrow Hill	A	64	4336	5	65	-
		B		4517	5	65	0
		C		4741	5	65	0
7	Nep Town Road from Barrow Hill to Golden Square / Brighton Road (A281) Roundabout	A	48	4637	5	65	-
		B		4821	5	65	0
		C		5045	5	65	0
8	High Street (A281) from Golden Square / Brighton Road (A281) Roundabout to Cagefoot Lane	A	48	6319	6	67	-
		B		6682	6	67	0
		C		6814	6	67	0
11	Brighton Road (A281) from Golden Square / High Street (A281) Roundabout to Bramlands Lane	A	48	3954	7	65	-
		B		4159	6	65	0
		C		4251	6	65	0

[1] A: 2023 Baseline

B: Future Opening Year Without Development

C: Future Opening Year With Development in Operation

The traffic link that is close to a sensitive residential receptor (R1) is ID5. With the development in operation, there is no calculated L_{A10,18hr} noise change between the 2023 baseline and the future opening year with or without the development in operation. This is below the 1 dB / 3 dB noise change criteria, indicating no impact on the receptor.

At ID1, there is a calculated L_{A10,18hr} noise change of +5 dB between 2023 baseline and future opening year with development in operation. However, this link is not in the vicinity of any identified sensitive residential receptors.

7. CONCLUSIONS

As part of this noise statement for planning, attended and unattended sound measurements were taken at the proposed site at Shoreham Road to establish the existing sound environment.

Based on these measurements, atmospheric noise limits for industrial / commercial sound sources have been set at the identified worse-case sensitive residential and commercial receptors. These have been informed by guidance from BS 4142:2014+A1:2019 BS 8233:2014, and in accordance with the policies and requirements of Horsham District Council.

Considering the effect of road traffic noise change due to the operation of the proposed development, there is no calculated impact on the noise sensitive residential receptors.

Once industrial / commercial plant has been identified for use in the development, it is recommended that a BS 4142 assessment is undertaken to ensure the atmospheric noise limits are not exceeded. It is recommended that installed plant is commissioned by a suitably qualified acoustician.



8. REFERENCES

1. British Standards Institution (BSI). BS 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound. 2014.
2. Ministry of Housing, Communities & Local Government. National Planning Policy Framework. December 2023
3. Sussex Local Authorities. Planning Noise Advise Document: Sussex. November 2023.
4. Highways England. DMRB: Design Manual for Roads & Bridges, LA111. April 2020.
5. British Standards Institution (BSI). BS 8233:2014. Guidance on sound insulation and noise reduction for buildings. 2014.
6. World Health Organization, Guidelines for Community Noise. 2018.

APPENDIX A: FIGURES



Figure A1: Site Location, Noise Monitoring Locations, Closest Residential Receptor Location

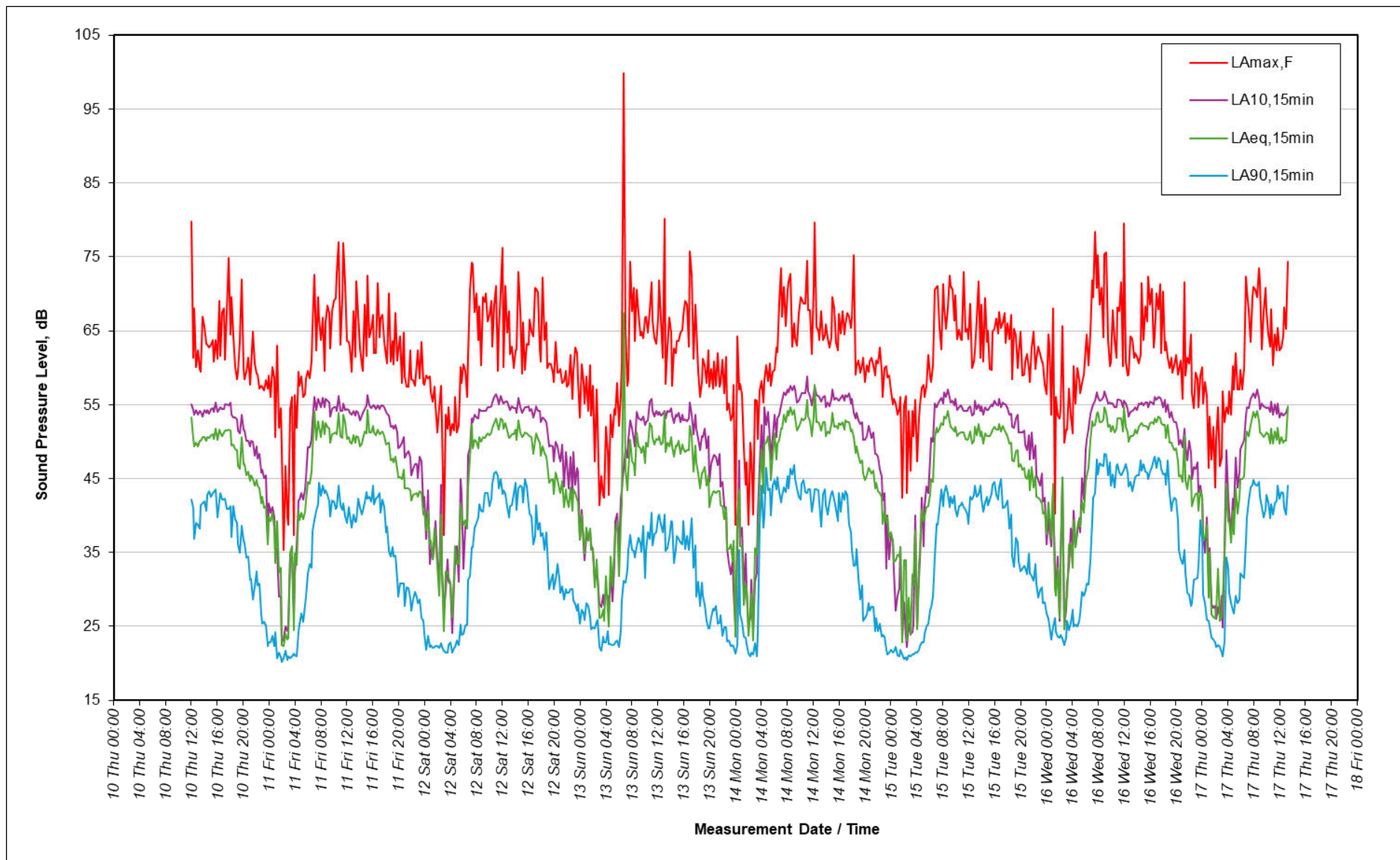


Figure A2: Unattended Sound Monitoring Results at LT1

Note: Results in tabulated format available upon request

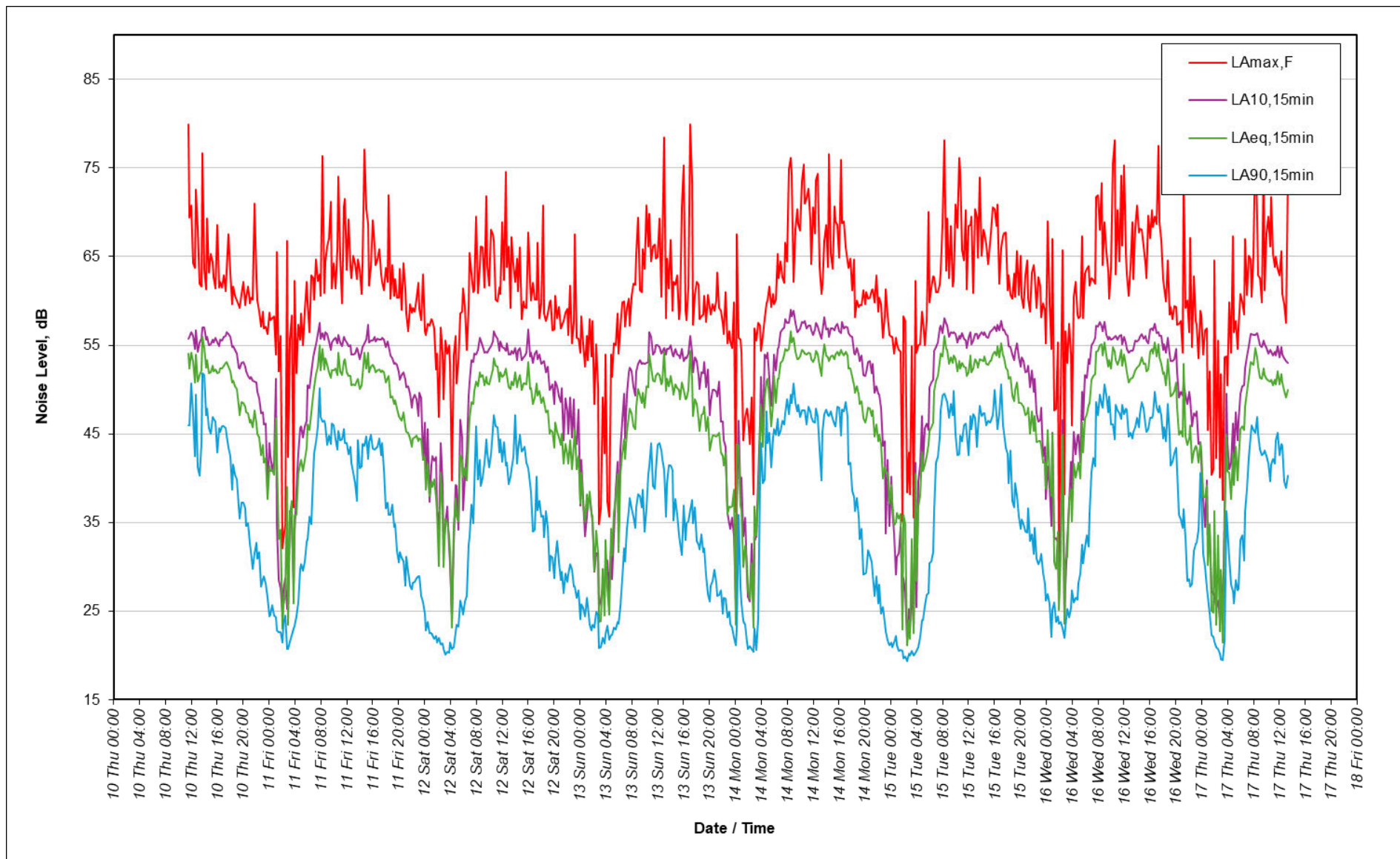


Figure A3: Unattended Sound Monitoring Results at LT2

Note: Results in tabulated format available upon request

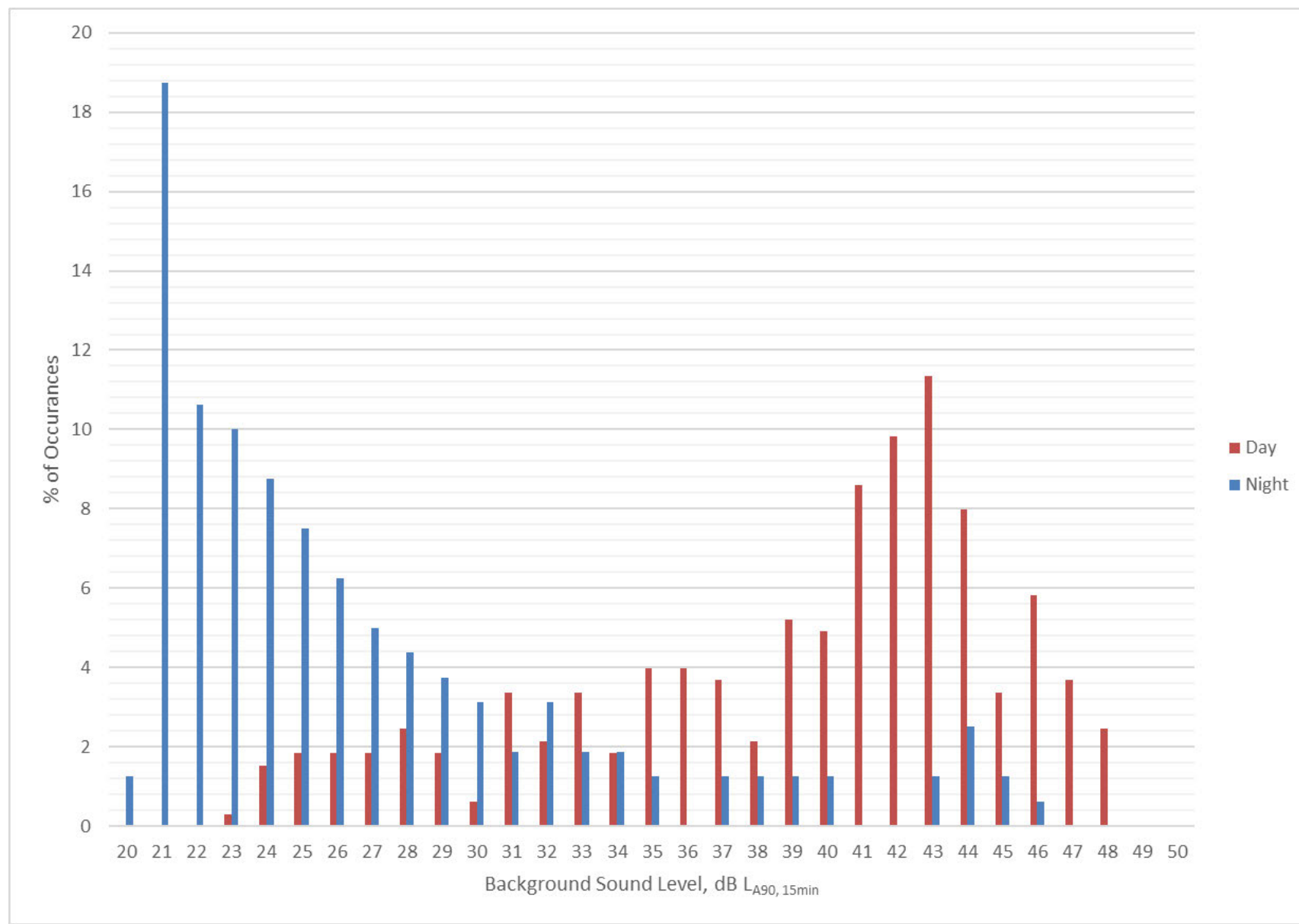


Figure A4: Weekday Modal Background Sound Derivation at LT1

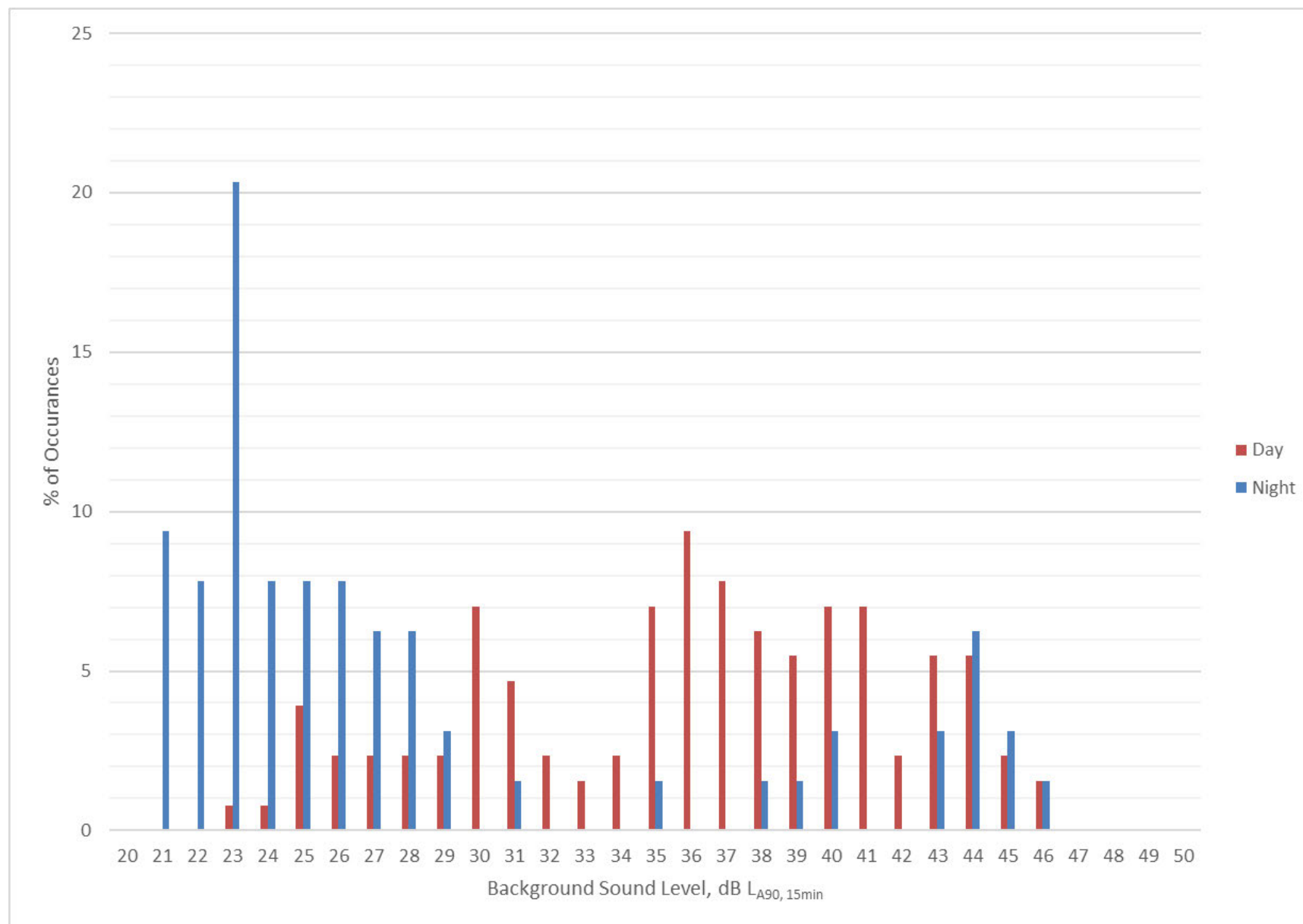


Figure A5: Weekend Modal Background Sound Derivation at LT1

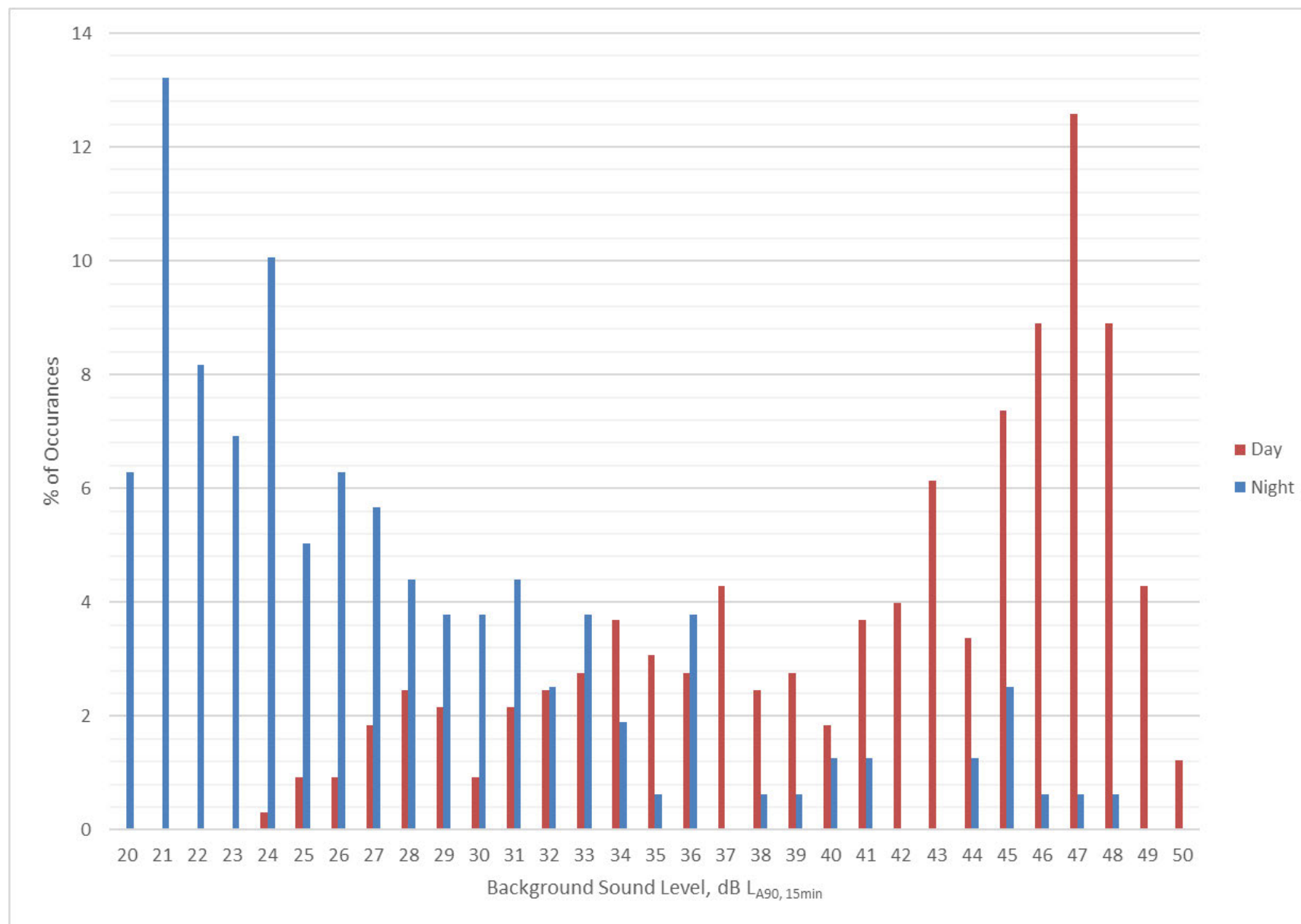


Figure A6: Weekday Modal Background Sound Derivation at LT2

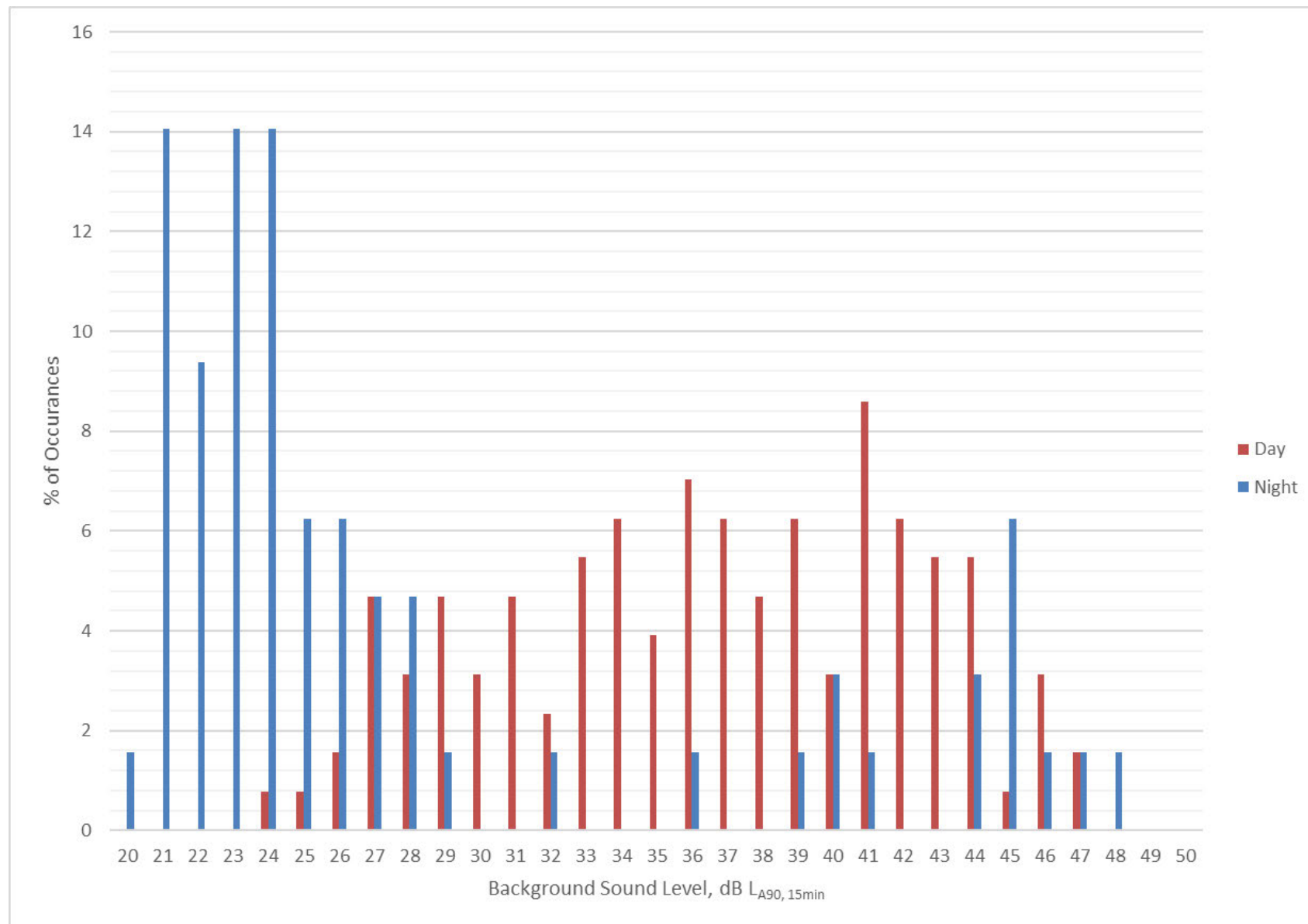


Figure A7: Weekend Modal Background Sound Derivation at LT2



Figure A8: Traffic Link ID Locations



APPENDIX B: TABLES

NOISE STATEMENT FOR PLANNING
LAND NORTH OF THE OLD BRICKWORKS, SHOREHAM ROAD

RWDI # 2505151_01 REV 01

05 November 2024



Table B1: Weather Data Obtained for Survey Period

Date	Day	Temperature (°C)	Relative Humidity (%)			Wind Speed (ms ⁻¹)		Wind Direction	Precipitation (mm)
		Average	Min	Max	Average	Average	Max		
10/10/2024	Thu	8	68	92	80	0.3	3.6	NW	-
11/10/2024	Fri	7	60	96	84	0.1	3.6	NE	0.0
12/10/2024	Sat	11	76	89	84	0.3	4.5	SE	1.0
13/10/2024	Sun	8	70	91	81	0.2	3.6	NE	0.0
14/10/2024	Mon	11	85	93	91	0.3	4.0	NE	16.6
15/10/2024	Tue	14	81	95	89	0.5	5.4	ENE	0.2
16/10/2024	Wed	18	77	92	86	0.8	6.3	ESE	0.8
17/10/2024	Thu	11	0	94	67	0.1	2.7	W	2.4

APPENDIX C: CALIBRATION CERTIFICATES



**CERTIFICATE
OF
CALIBRATION**



Date of Issue: 31 January 2024

Calibrated at & Certificate 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

Certificate Number: UCRT24/1179

Page	1	of	2	Pages
Approved Signatory				
K. Mistry				

Customer Southdowns Environmental Consultants Limited
Suite A3
16 Station Street
Lewes
East Sussex
BN7 2DB

Order No. X_EQUIPMENT/1076

Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification	Manufacturer	Instrument	Type	Serial No. / Version
	Rion	Sound Level Meter	NL-52	00976171
	Rion	Firmware		2.0
	Rion	Pre Amplifier	NH-25	76288
	Rion	Microphone	UC-59	12064
	Rion	Calibrator	NC-75	34334830
		Calibrator adaptor type if applicable		NC-75-022

Performance Class 1

Test Procedure TP 10. SLM 61672-3:2013
Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2013 Yes
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2013

Date Received 30 January 2024 **ANV Job No.** UKAS24/01087

Date Calibrated 31 January 2024

The sound level meter submitted for testing has successfully completed the periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organisation responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 specifications of IEC 61672-1:2013.

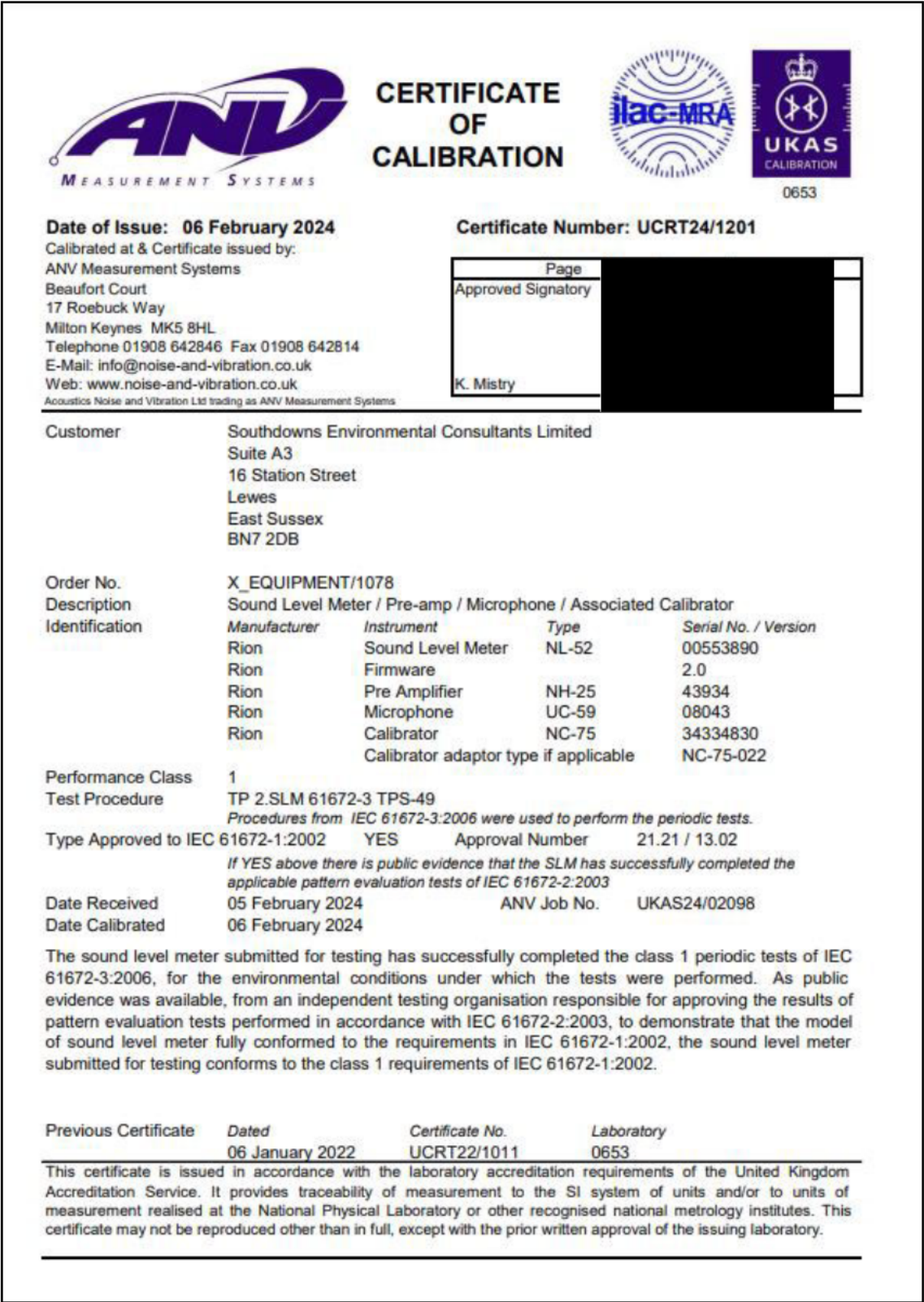
Previous Certificate	Dated	Certificate No.	Laboratory
	18 November 2021	UCRT21/2421	0653

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 C1: LT1 NL-52 SN: 976171 CALIBRATION CERTIFICATE UCRT24/1179

CERTIFICATE OF CALIBRATION				Certificate Number UCRT24/1179						
UKAS Accredited Calibration Laboratory No. 0653				Page 2 of 2 Pages						
Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.										
SLM instruction manual title NL-52/NL-42 Description for IEC 61672-1										
SLM instruction manual ref / issue		No. 56034 21-03		Source Rion						
Date provided or internet download date		19 March 2021								
	Case Corrections	Wind Shield Corrections	Mic Pressure to Free Field Corrections							
Uncertainties provided	Yes	Yes	Yes							
Total expanded uncertainties within the requirements of IEC 61672-1:2013				YES						
Specified or equivalent Calibrator		Specified								
Customer or Lab Calibrator		Lab Calibrator								
Calibrator adaptor type if applicable		NC-75-022								
Calibrator cal. date		22 January 2024								
Calibrator cert. number		UCRT24/1118								
Calibrator cal cert issued by Lab		0653								
Calibrator SPL @ STP		94.00	dB	Calibration reference sound pressure level						
Calibrator frequency		1000.00	Hz	Calibration check frequency						
Reference level range		Single dB								
Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15										
Note - The Extension Cable was used between the SLM and the pre-amp for this calibration.										
Environmental conditions during tests		Start	End							
	Temperature	22.65	22.63	± 0.30 °C						
	Humidity	48.0	49.3	± 3.00 %RH						
	Ambient Pressure	101.70	101.59	± 0.03 kPa						
Indication at the Calibration Check Frequency										
Initial indicated level		94.2	dB	Adjusted indicated level 94.0 dB						
Uncertainty of calibrator used for Indication at the Calibration Check Frequency ±		0.10 dB								
Self Generated Noise										
Microphone installed -		Less Than	20.2	dB	A Weighting					
Microphone replaced with electrical input device -		UR = Under Range indicated								
Weighting		A	C	Z						
		10.5	dB	UR	14.1	dB	UR	19.8	dB	UR
Self Generated Noise reported for information only and not used to assess conformance to a requirement										
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.										
Additional Comments		The results on this certificate only relate to the items calibrated as identified above.								
None										
END										
Calibrated by: kz		R 1								

FIGURE C1 (CTD.): LT1 NL-52 SN: 976171 CALIBRATION CERTIFICATE UCRT24/1179



CERTIFICATE OF CALIBRATION				Certificate Number UCRT24/1201	
UKAS Accredited Calibration Laboratory No. 0653				Page 2 of 2 Pages	

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source		Manufacturer
Internet download date if applicable		N/A
Case corrections available		Yes
Uncertainties of case corrections		Yes
Source of case data		Manufacturer
Wind screen corrections available		Yes
Uncertainties of wind screen corrections		Yes
Source of wind screen data		Manufacturer
Mic pressure to free field corrections		Yes
Uncertainties of Mic to F.F. corrections		Yes
Source of Mic to F.F. corrections		Manufacturer
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator	Specified	
Customer or Lab Calibrator	Lab Calibrator	
Calibrator adaptor type if applicable		NC-75-022
Calibrator cal. date		22 January 2024
Calibrator cert. number		UCRT24/1118
Calibrator cal cert issued by		0653
Calibrator SPL @ STP	94.00	dB Calibration reference sound pressure level
Calibrator frequency	1000.00	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	23.25	22.55	± 0.30 °C
Humidity	54.5	48.9	± 3.00 %RH
Ambient Pressure	99.76	99.73	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.3	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±	0.10 dB				

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device - UR = Under Range indicated

Weighting	A	C	Z
	12.2	15.5	21.5
	dB	dB	dB
	UR	UR	UR

Uncertainty of the electrical self generated noise ± 0.12 dB

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: K. Zablocki R 1

Additional Comments The results on this certificate only relate to the items calibrated as identified above.

None

FIGURE C2 (CTD.): LT2 NL-52 SN: 553890 CALIBRATION CERTIFICATE UCRT24/1201

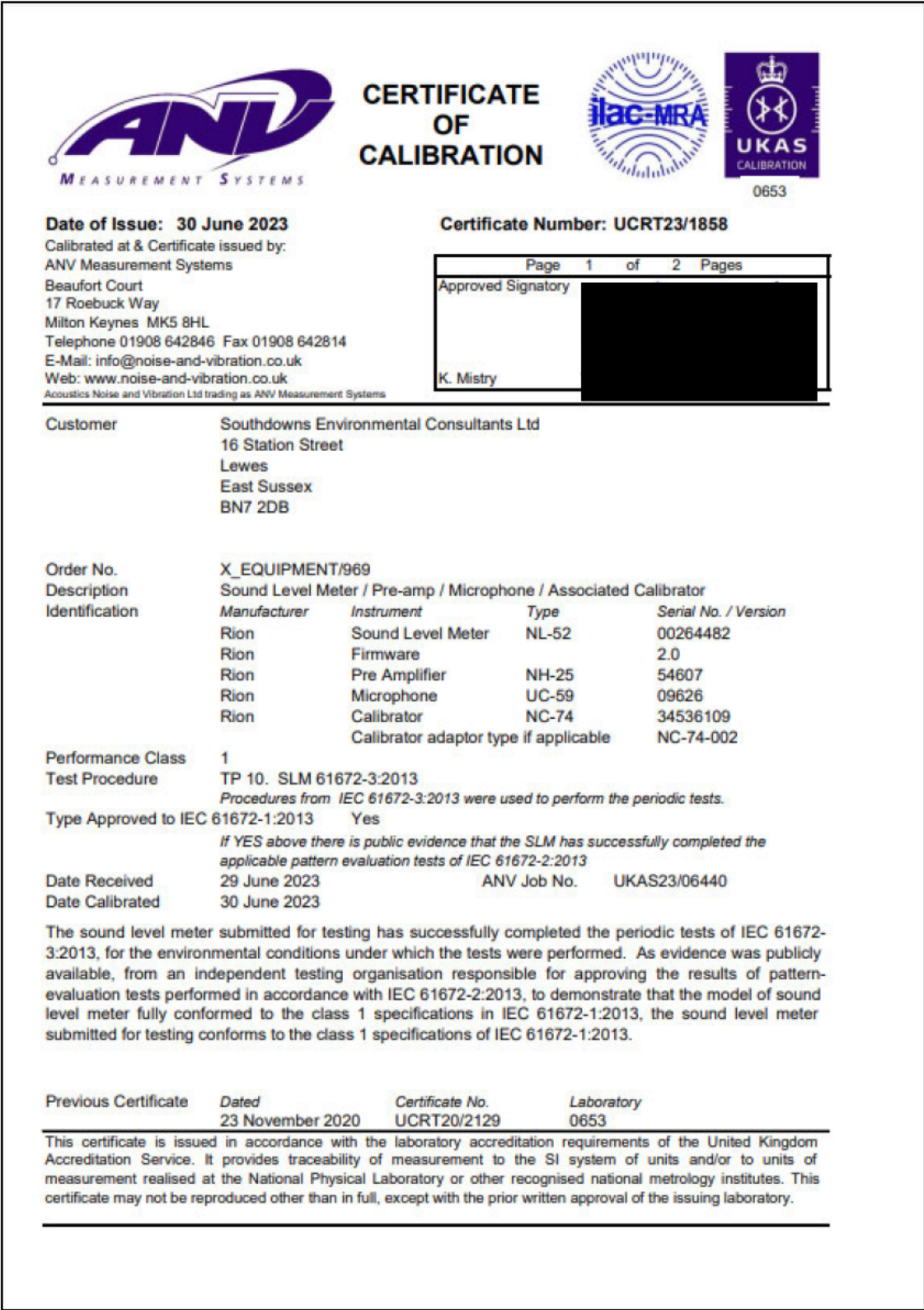


FIGURE C3: ST1/2/3 NL-52 SN: 00264482 CALIBRATION CERTIFICATE UCRT23/1858

CERTIFICATE OF CALIBRATION		Certificate Number UCRT23/1858	
UKAS Accredited Calibration Laboratory No. 0653		Page 2 of 2 Pages	

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title NL-52/NL-42 Description for IEC 61672-1			
SLM instruction manual ref / issue		No. 56034 21-03 Source Rion	
Date provided or internet download date 19 March 2021			
	Case Corrections	Wind Shield Corrections	Mic Pressure to Free Field Corrections
Uncertainties provided	Yes	Yes	Yes
Total expanded uncertainties within the requirements of IEC 61672-1:2013			YES
Specified or equivalent Calibrator		Specified	
Customer or Lab Calibrator		Lab Calibrator	
Calibrator adaptor type if applicable		NC-74-002	
Calibrator cal. date		30 May 2023	
Calibrator cert. number		UCRT23/1727	
Calibrator cal cert issued by Lab		0653	
Calibrator SPL @ STP		94.02	dB Calibration reference sound pressure level
Calibrator frequency		1001.99	Hz Calibration check frequency
Reference level range		Single	dB
Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15			
Note - The Extension Cable was used between the SLM and the pre-amp for this calibration.			

Environmental conditions during tests		Start	End	
	Temperature	23.74	23.81	± 0.30 °C
	Humidity	37.6	36.3	± 3.00 %RH
	Ambient Pressure	99.95	99.79	± 0.03 kPa

Indication at the Calibration Check Frequency			
Initial indicated level	93.8	dB	Adjusted indicated level 94.0 dB
Uncertainty of calibrator used for Indication at the Calibration Check Frequency ±			0.10 dB
Self Generated Noise			
Microphone installed - Less Than		19.0	dB A Weighting
Microphone replaced with electrical input device - UR = Under Range indicated			
Weighting	A	C	Z
	12.4 dB UR	16.1 dB UR	21.5 dB UR

Self Generated Noise reported for information only and not used to assess conformance to a requirement

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Additional Comments The results on this certificate only relate to the items calibrated as identified above.

None

Calibrated by: C. Hirlav

END

R 3

FIGURE C3 (CTD.): ST1/2/3 NL-52 SN: 00264482 CALIBRATION CERTIFICATE UCRT23/1858

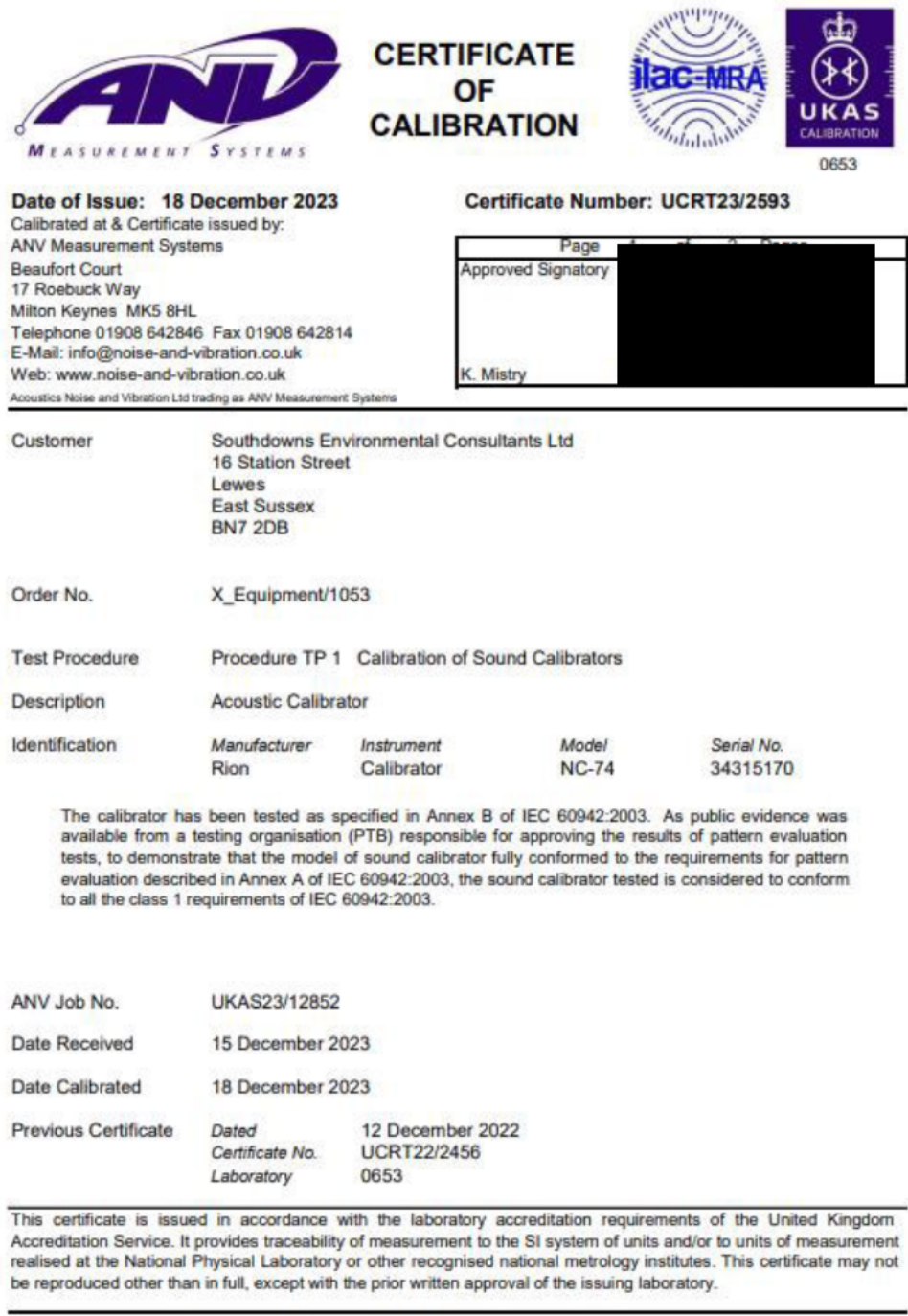


FIGURE C4 : RION NC-74 CALIBRATOR SN: 34315170 CALIBRATION CERTIFICATE UCRT23/2593

CERTIFICATE OF CALIBRATION		Certificate Number
UKAS Accredited Calibration Laboratory No. 0653		UCRT23/2593
		Page 2 of 2 Pages

Measurements

The sound pressure level generated by the calibrator in its WS2 configuration was measured five times by the Insert Voltage Method using a microphone as detailed below. The mean of the results obtained is shown below. It is corrected to the standard atmospheric pressure of 101.3 kPa (1013 mBar) using original manufacturers information.

Test Microphone	Manufacturer	Type
	Brüel & Kjær	4134

Results

The level of the calibrator output under the conditions outlined above was

94.03 ± 0.10 dB rel 20 µPa

Functional Tests and Observations

The frequency of the sound produced was	1001.57 ± 0.12 Hz
The total distortion was	1.61 ± 0.11 % Distortion

During the measurements environmental conditions were

Temperature	22 to 23 °C
Relative Humidity	43 to 49 %
Barometric Pressure	101.5 to 101.6 kPa

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

The uncertainties refer to the measured values only with no account being taken of the ability of the instrument to maintain its calibration.

A small correction factor may need to be applied to the sound pressure level quoted above if the device is used to calibrate a sound level meter which is fitted with a free-field response microphone. See manufacturers handbook for details.

..... END

Note:

Calibrator adjusted prior to calibration?	NO
Initial Level	N/A dB
Initial Frequency	N/A Hz

Additional Comments The results on this certificate only relate to the items calibrated as identified above.

None

Calibrated by: K. Zablocki

R 1

FIGURE C4 (CTD.): RION NC-74 CALIBRATOR SN: 34315170 CALIBRATION CERTIFICATE UCRT23/2593