

atspaceltd.co.uk

Acoustic Design Assessment Report

26b The Street, Holywell Row, Mildenhall

Residential Development

Reference: Q07175-ENV-JRH-270722-R1

27 July 2022



Head Office

ATSPACE Ltd
Units 3 & 4, Cokenach Estate,
Barkway, Royston, Hertfordshire SG8 8DL
e. info@atspaceltd.co.uk

Call us today on 0800 917 8922
to speak with an advisor or visit
www.atspaceltd.co.uk

REVISION	DESCRIPTION	DATE	ISSUED BY	REVIEWED BY
RO	Initial Report	27/07/22	JRH	PW

This report is provided for the stated purposes and for the sole use of the named Client. It will be confidential to the Client and the client's professional advisers. ATSPACE Ltd accepts responsibility to the Client alone that the report has been prepared with the skill, care and diligence of a competent engineer, but accepts no responsibility whatsoever to any parties other than the Client. Any such parties rely upon the report at their own risk. Neither the whole nor any part of the report nor reference to it may be included in any published document, circular or statement nor published in any way without ATSPACE Ltd written approval of the form and content in which it may appear.

1.	INTRODUCTION.....	4
2.	SITE DESCRIPTION	5
3.	ACOUSTIC DESIGN ASSESSMENT	6
3.1	Stage 1 – Initial Site Noise Risk Assessment	6
3.2	Stage 2 – Assessment of Four Key Elements	7
4.	ACOUSTIC DESIGN STATEMENT.....	10
5.	CONCLUSION.....	11

1. INTRODUCTION

ATSPACE Ltd have been instructed to undertake an investigation into the environmental noise impact on land at 26b The Street, Holywell Row, Mildenhall. It is proposed to construct a new dwelling on the site. An Acoustic Design Statement has therefore been carried out according to the requirements of the ProPG document 'Planning and Noise' 2017.

This has required long term noise measurements to be undertaken at the site, in order to assess the impact of ambient noise sources including, notably, military aircraft from the nearby air force bases. This report details the results of site measurements, assesses the potential impact and recommends appropriate sound insulation measures to meet the ProPG guidance.

2. SITE DESCRIPTION

The site is located on The Street, as shown in Figure 1.

Figure 1: Approximate site location and noise measurement position



As stated in the introduction, the development proposal for the site, is to construct a new dwelling at the frontage of the site.

3. ACOUSTIC DESIGN ASSESSMENT

The design assessment is carried out in two stages. The first stage is a noise risk assessment of the proposed site and the second is a systematic consideration of four key elements.

3.1 Stage 1 – Initial Site Noise Risk Assessment

The primary source of the highest noise levels affecting the site is from aircraft activity from Air Force bases at Mildenhall and Lakenheath. This is an intermittent noise source with movements occurring on most weekdays during the daytime hours. Movements of high noise aircraft should not occur at night by agreement between the Local Authority and the Airbase, other than in the event of an emergency.

In order to determine the typical 24-hour noise exposure, a measurement survey was carried out at the site, as indicated in Figure 1. The microphone was positioned at ground level at a height of 1.5m. Levels were recorded in 15-minute samples from 19th to 26th July 2022, to determine the equivalent continuous sound level, L_{Aeq} , the night time L_{Amax} values and the percentile L_{A90} (background noise level).

Weather conditions over the course of the survey period were checked on the Time and Date Weather records website for the nearest station at Mildenhall. Throughout the measurement period, weather conditions were in accordance with BS7445 (Measurement and Description of Environmental Noise). Winds were mainly light westerly to south-westerly with negligible precipitation over the 7-day period. This would not have affected the validity of the results as the microphone was fitted with an outdoor weather protection system.

Measurements were made with calibrated, precision grade sound level meter in accordance with BS EN 60651 and BS 7445:2003. Details of the equipment used are provided in Appendix 2 – List of Measurement Equipment. All equipment was calibration-checked before and after the survey; no significant drift was observed. The results of the survey are summarised in Table 1 and shown in detail in Appendix 3. Appendix 4 shows the graphical results.

Table 1: Summary of measured noise levels

Date	Time Period	$L_{Aeq,T}$	$L_{Amax\#}$
		[dB]	[dB]
19/07/2022	11:45 - 23:00	43.4	
19/07/2022	23:00 - 07:00	42.1	69
20/07/2022	07:00 - 23:00	48.8	
20/07/2022	23:00 - 07:00	38.5	66
21/07/2022	07:00 - 23:00	48.6	
21/07/2022	23:00 - 07:00	32.5	58

28/07/2022

Date	Time Period	L _{Aeq,T}	L _{Amax} #
		[dB]	[dB]
22/07/2022	07:00 - 23:00	54.4	
22/07/2022	23:00 - 07:00	39.4	69
23/07/2022	07:00 - 23:00	40.9	
23/07/2022	23:00 - 07:00	35.5	63
24/07/2022	07:00 - 23:00	43.6	
24/07/2022	23:00 - 07:00	39.9	66
25/07/2022	07:00 - 23:00	50.5	
25/07/2022	23:00 - 07:00	37.7	74
26/07/2022	07:00 - 11:00	47.6	
26/07/2022	23:00 - 07:00	0.0	
27/07/2022	07:00 - 10:45	0.0	

Level exceeded no more than 3 times

The highest measured daytime level was $L_{Aeq,16hr}$ 54dB and the highest night time was $L_{Aeq,8hr}$ 42dB. The L_{Amax} was determined from the distribution of all night time values over the seven-day period and was taken as 74dB, the value exceeded on only three occasions. All values were to the nearest decibel.

This meant that the initial site noise risk assessment was assessed as low to medium, according to Figure 1 of ProPG Planning and Noise. Consequently, further consideration should be undertaken in Stage 2 of the assessment process.

3.2 Stage 2 – Assessment of Four Key Elements

Element 1 – Good Acoustic Design Process

As the major noise source is from military aircraft and the site is intended for only one dwelling, the acoustic design options are severely limited. It is not practicable to reduce or screen the noise source within the confines of the site, in order to reduce external noise levels at the dwelling and in amenity areas such as gardens. Alternative layout and orientation of the dwelling would not have any significant effect on noise impact at the building facades due to the overhead nature of the source.

The only practicable acoustic design measure would be through building construction to minimise window areas and to ensure a high standard of internal noise levels through sound insulation measures, as considered in Element 2.

Element 2 – Internal Noise Level Guidelines

It would not be possible to achieve the ProPG Noise Level Guidelines using standard openable windows as means of ventilation. It would be necessary for windows to remain closed with alternative ventilation measures provided.

From the noise measurement data, façade sound insulation requirements were recommended, in order to achieve the internal noise guidelines. The measured free-field levels were used to determine the required sound reduction as shown in Table 2.

Table 2: Summary of Façade Sound Attenuation needed to meet BS8233 criteria

Room/period	External	BS8233/WHO Guideline	Facade reduction needed
	[dB]	[dB]	[dB]
Living Room LAeq,T (0700-2300)	54	35	19
Bedroom LAeq,T (2300-0700)	42	30	12
Bedroom LAm _{ax} (2300-0700)	74	45	29

Façades of the proposed dwelling containing windows to living rooms, should provide a minimum composite sound reduction of at least 19dB(A) in order to meet the recommendations of the ProPG Guidelines, while façades of the dwellings containing windows to bedrooms should provide a minimum composite sound reduction of at least 29dB(A).

The façade construction of the new buildings would be cavity masonry providing a typical attenuation of R_w 55dB. The overall façade sound attenuation has been calculated according to the rigorous method of BS8233:2014 Annexe G2. This calculation includes a façade reflection correction of +3dB. Typical dimensions were used for the living and bedroom room sizes.

The free-field spectrum of the noise source was averaged from the measured data over a 6-hour daytime period on the morning of 22nd July and a 6-hour night time period on 25th July, when there the highest average noise levels were recorded. An enhanced sound insulation of the roof was assumed, consisting of a ceiling construction of 2 x 12.5mm layers of acoustic plasterboard (such as Gyproc Soundbloc) and 50mm dense acoustic insulation (such as Rockwool RWA45) above the ceiling. The façade calculations are shown in Appendix 5.

For the bedrooms, a façade attenuation of 33dB would be achieved using 6-16-6.8 laminated acoustic double-glazed units together with the AWW39 acoustic ventilator from Greenwood Airvac or the AAB acoustic air-brick, also from Greenwood Airvac, thus adequately meeting the 29dB required attenuation.

For the living room a façade attenuation of 23dB would be achieved using 6-16-4 enhanced double-glazed units together with, the same ventilators as for the bedrooms, thus

adequately meeting the 19dB required attenuation. However, although not required to meet BS8233, it is recommended to use the same acoustic glazing as for the bedrooms as this would provide an additional 10dB attenuation of peak aircraft noise levels, thus improving the internal noise environment.

The windows would need to meet a minimum manufacturer's specification of R_w 40dB. Through wall or trickle ventilators should specify a minimum sound attenuation $D_{ne,w}$ 39dB. It is recommended that whole-house mechanical ventilation, MVHR, is installed, as windows can remain closed in all rooms with adequate ventilation being provided. The system would need to be designed by the M&E engineer, to ensure adequate air changes and to ensure that noise from the vents does not exceed the BS8233 guidelines.

Satisfactory internal noise levels can therefore be achieved according to ProPG Guidelines by incorporating the recommended glazing and ventilation measures within the building design.

Element 3 – External Amenity Area Noise

BS8233:2014 states that the acoustic environment of external amenity areas should always be assessed as part of the overall design and noise levels should ideally not be above 50-55dB $L_{Aeq,16hr}$. It is recognised that these guideline values may not be achievable in all circumstances thus the development should be designed to achieve the lowest practicable noise levels in amenity spaces but should not be prohibited.

Based on the average daytime noise exposure over the 7-day period, the garden of the proposed dwelling would be exposed to $L_{Aeq,16hr}$ 50dB thus meeting the recommended range of 50-55dB.

Element 4 – Assessment of other relevant issues

The proposed development would comply with national and local planning policy and meet the general requirements of ProPG Noise Guidelines. External noise levels in amenity areas would also meet the guideline recommendations. It is considered that future occupants of the dwelling would be well aware of very high maximum noise levels from military aircraft affecting the site during the daytime and would take this into account in their decision as to whether to live there.

4. ACOUSTIC DESIGN STATEMENT

The acoustic design statement has taken account of the findings of the Acoustic Design Assessment. The following issues have been considered:

- Relevant noise sources have been identified as arising from military aircraft from RAF Mildenhall
- Based on measured noise data the site was assessed as between low and medium risk according to ProPG criteria.
- Due to the overhead nature of the noise source, options for mitigation are severely limited. Source separation, use of buildings as screens, noise barriers, use of quiet facades for noise sensitive rooms and site layout options were not practicable measures to reduce the impact of aircraft noise.
- Calculations of façade sound attenuation have been carried out according to BS8233:2014 Annex G2 and appropriate glazing measures recommended to meet the ProPG Internal Noise Guidelines.
- Enhanced sound insulation of the roof has been recommended.
- As windows would need to remain closed, acoustic ventilation measures have been considered and taken into account in the façade attenuation calculations. MVHR whole-house ventilation is recommended.
- Average daytime noise levels in the proposed garden area would meet the recommended guidelines for noise in amenity areas.

5. CONCLUSION

Survey work carried out at this site indicates that the overall noise climate is dominated by intermittent noise from military aircraft at RAF Mildenhall.

The site has been assessed as between a low and medium site noise risk according to ProPG Planning and Noise and the ProPG internal and external noise guidelines can be met using the recommended glazing and ventilation measures.

It is recommended that planning consent should be granted with suitable conditions relating to meeting internal noise guidelines.

APPENDIX 1 – GLOSSARY OF TERMS

Decibel (dB)

The decibel is the unit used to quantify sound pressure levels. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). Therefore, a logarithmic scale is used to describe sound pressure levels and also sound intensity and power levels. The logarithms are taken to base 10. Hence an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pascals). Subjectively, this increase would correspond to a doubling of the perceived loudness of sound.

A-Weighting

The 'A' weighting is a correction term applied to the frequency range in order to mimic the sensitivity of the human ear to noise. It is generally used to obtain an overall noise level from octave or third octave band frequencies. An 'A' weighted value would be written as dB(A).

$L_{Aeq,T}$

The A-Weighted equivalent continuous sound level – the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

$L_{A90,T}$

The A-Weighted noise level exceeded for 90% of the specified measurement period (T). This is generally taken to indicate the prevailing background noise level.

L_{Amax}

The highest A-Weighted noise level recorded during a noise event.

APPENDIX 2 – LIST OF MEASUREMENT EQUIPMENT

Measurements

SVAN 955 Sound Level Meter S/N 27330

Additional Equipment

Rion NC-74 Calibrator S/N 34167512

The above equipment fulfils IEC 61672 Class 1 and is traceable to calibration under BS7580: Part 1:1997.

The equipment was calibration-checked before and after measurement – no adverse deviation was observed.

APPENDIX 3 – RESULTS OF NOISE MEASUREMENTS

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
19/07/2022 11:00	56.1	39.1	34.6
19/07/2022 11:15	52.9	39.6	36.2
19/07/2022 11:30	56.0	42.0	37.7
19/07/2022 11:45	53.3	40.8	37.3
19/07/2022 12:00	54.8	39.8	35.9
19/07/2022 12:15	51.1	40.5	36.9
19/07/2022 12:30	50.5	39.9	37.0
19/07/2022 12:45	52.2	40.1	36.9
19/07/2022 13:00	65.4	39.4	35.5
19/07/2022 13:15	61.9	41.9	35.4
19/07/2022 13:30	68.8	48.1	34.4
19/07/2022 13:45	63.1	42.5	36.1
19/07/2022 14:00	52.1	40.9	36.7
19/07/2022 14:15	48.7	39.7	36.3
19/07/2022 14:30	59.0	42.8	38.5
19/07/2022 14:45	53.0	42.6	39.1
19/07/2022 15:00	55.9	43.1	38.4
19/07/2022 15:15	70.1	47.0	37.5
19/07/2022 15:30	65.3	45.7	37.7
19/07/2022 15:45	54.6	43.3	39.0
19/07/2022 16:00	56.3	41.3	37.5
19/07/2022 16:15	52.5	40.9	37.1
19/07/2022 16:30	59.5	44.1	36.9
19/07/2022 16:45	56.6	42.1	37.4
19/07/2022 17:00	52.8	41.8	37.9
19/07/2022 17:15	54.6	41.3	36.8
19/07/2022 17:30	63.1	42.5	37.0
19/07/2022 17:45	64.8	45.7	37.1
19/07/2022 18:00	57.2	39.1	35.8
19/07/2022 18:15	54.8	38.2	34.9
19/07/2022 18:30	51.8	38.4	34.9
19/07/2022 18:45	52.9	38.9	34.2
19/07/2022 19:00	54.6	40.0	34.4
19/07/2022 19:15	56.9	40.9	35.7
19/07/2022 19:30	76.7	45.8	34.0
19/07/2022 19:45	59.0	39.9	34.1
19/07/2022 20:00	68.9	48.1	33.7
19/07/2022 20:15	70.9	50.6	35.3
19/07/2022 20:30	67.1	47.3	34.9
19/07/2022 20:45	66.5	47.6	35.1
19/07/2022 21:00	55.9	38.2	34.1
19/07/2022 21:15	69.7	47.0	33.8
19/07/2022 21:30	56.9	35.4	32.3
19/07/2022 21:45	73.1	39.5	32.9
19/07/2022 22:00	62.0	45.0	35.2
19/07/2022 22:15	53.7	37.7	35.0

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
19/07/2022 22:30	53.9	37.9	33.4
19/07/2022 22:45	52.3	39.7	34.1
19/07/2022 23:00	48.5	37.6	32.0
19/07/2022 23:15	57.1	35.4	30.9
19/07/2022 23:30	45.4	36.5	33.3
19/07/2022 23:45	68.5	50.1	31.7
20/07/2022 00:00	48.5	33.8	25.4
20/07/2022 00:15	48.7	29.7	24.3
20/07/2022 00:30	43.6	34.8	29.6
20/07/2022 00:45	69.1	49.0	33.1
20/07/2022 01:00	50.7	39.8	35.0
20/07/2022 01:15	71.9	52.2	37.7
20/07/2022 01:30	49.1	37.8	33.4
20/07/2022 01:45	47.4	35.5	30.9
20/07/2022 02:00	44.9	36.3	32.6
20/07/2022 02:15	45.7	36.6	33.1
20/07/2022 02:30	45.3	37.0	32.5
20/07/2022 02:45	47.7	34.6	31.1
20/07/2022 03:00	46.0	33.7	30.4
20/07/2022 03:15	49.3	34.6	28.7
20/07/2022 03:30	42.9	34.4	29.2
20/07/2022 03:45	41.3	33.4	30.0
20/07/2022 04:00	42.7	33.0	29.4
20/07/2022 04:15	44.3	33.6	29.4
20/07/2022 04:30	62.4	36.3	30.8
20/07/2022 04:45	65.1	40.0	32.2
20/07/2022 05:00	64.4	40.5	32.8
20/07/2022 05:15	62.4	40.9	32.7
20/07/2022 05:30	55.4	37.3	33.4
20/07/2022 05:45	48.7	37.8	34.2
20/07/2022 06:00	47.1	37.8	34.4
20/07/2022 06:15	53.8	40.1	36.3
20/07/2022 06:30	55.2	42.9	38.5
20/07/2022 06:45	50.6	41.3	38.6
20/07/2022 07:00	66.0	46.4	40.3
20/07/2022 07:15	58.1	43.6	41.0
20/07/2022 07:30	54.8	43.9	41.1
20/07/2022 07:45	63.9	49.3	42.1
20/07/2022 08:00	69.9	51.7	41.2
20/07/2022 08:15	65.2	43.2	40.2
20/07/2022 08:30	57.7	42.2	39.8
20/07/2022 08:45	64.5	42.8	39.6
20/07/2022 09:00	53.9	42.6	39.1
20/07/2022 09:15	58.3	43.2	37.6
20/07/2022 09:30	81.3	57.0	38.0
20/07/2022 09:45	64.9	49.5	38.3

28/07/2022

ACOUSTIC DESIGN ASSESSMENT

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
20/07/2022 10:00	70.3	46.4	36.1
20/07/2022 10:15	71.2	49.9	37.1
20/07/2022 10:30	56.1	40.5	36.8
20/07/2022 10:45	67.9	45.8	35.6
20/07/2022 11:00	70.0	50.1	36.2
20/07/2022 11:15	58.8	41.9	36.4
20/07/2022 11:30	65.5	43.5	35.4
20/07/2022 11:45	55.7	42.4	36.1
20/07/2022 12:00	50.9	41.0	35.6
20/07/2022 12:15	64.2	50.7	38.1
20/07/2022 12:30	50.8	37.3	33.8
20/07/2022 12:45	65.6	45.9	35.3
20/07/2022 13:00	53.7	37.1	33.2
20/07/2022 13:15	57.0	36.2	32.6
20/07/2022 13:30	58.3	40.4	34.4
20/07/2022 13:45	67.7	46.0	35.5
20/07/2022 14:00	57.2	40.3	35.6
20/07/2022 14:15	54.7	39.2	35.0
20/07/2022 14:30	47.4	37.1	34.2
20/07/2022 14:45	47.3	37.8	34.6
20/07/2022 15:00	62.7	41.7	35.2
20/07/2022 15:15	59.0	41.9	37.7
20/07/2022 15:30	58.7	42.4	37.7
20/07/2022 15:45	55.0	40.0	34.6
20/07/2022 16:00	69.1	49.3	35.6
20/07/2022 16:15	55.1	40.5	36.2
20/07/2022 16:30	63.3	42.2	36.6
20/07/2022 16:45	50.3	38.6	36.0
20/07/2022 17:00	57.7	40.8	36.1
20/07/2022 17:15	51.0	38.0	35.0
20/07/2022 17:30	62.6	43.3	35.0
20/07/2022 17:45	84.2	63.2	34.6
20/07/2022 18:00	52.9	38.3	34.8
20/07/2022 18:15	56.6	40.0	34.2
20/07/2022 18:30	52.9	37.5	33.3
20/07/2022 18:45	68.1	47.4	34.6
20/07/2022 19:00	68.3	53.2	36.1
20/07/2022 19:15	79.0	49.3	34.5
20/07/2022 19:30	60.6	46.4	36.4
20/07/2022 19:45	68.6	52.8	36.7
20/07/2022 20:00	59.1	40.4	34.3
20/07/2022 20:15	65.4	45.5	34.6
20/07/2022 20:30	67.2	47.9	31.2
20/07/2022 20:45	57.6	36.6	29.2
20/07/2022 21:00	71.2	52.3	29.9
20/07/2022 21:15	57.9	36.3	29.1
20/07/2022 21:30	53.5	33.9	27.1

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
20/07/2022 21:45	50.4	32.6	26.6
20/07/2022 22:00	75.6	43.5	27.8
20/07/2022 22:15	55.6	32.6	25.6
20/07/2022 22:30	55.8	31.5	25.2
20/07/2022 22:45	49.5	31.0	24.1
20/07/2022 23:00	51.5	32.3	23.6
20/07/2022 23:15	53.5	30.4	23.6
20/07/2022 23:30	51.1	27.7	22.5
20/07/2022 23:45	59.0	42.0	24.1
21/07/2022 00:00	51.8	32.1	25.1
21/07/2022 00:15	39.2	27.9	22.5
21/07/2022 00:30	53.9	30.2	23.2
21/07/2022 00:45	69.6	48.9	23.7
21/07/2022 01:00	53.1	30.3	24.1
21/07/2022 01:15	59.9	27.6	21.1
21/07/2022 01:30	65.7	49.5	33.4
21/07/2022 01:45	48.1	32.3	29.1
21/07/2022 02:00	43.3	29.6	26.0
21/07/2022 02:15	45.5	28.3	21.2
21/07/2022 02:30	44.2	24.0	20.4
21/07/2022 02:45	39.0	25.5	20.7
21/07/2022 03:00	38.9	23.9	20.4
21/07/2022 03:15	41.5	23.9	20.5
21/07/2022 03:30	42.2	25.6	20.9
21/07/2022 03:45	37.4	25.4	20.9
21/07/2022 04:00	48.4	27.6	22.2
21/07/2022 04:15	47.9	29.5	22.9
21/07/2022 04:30	49.9	31.1	23.1
21/07/2022 04:45	63.3	37.1	24.4
21/07/2022 05:00	50.2	30.8	24.5
21/07/2022 05:15	54.1	33.6	26.0
21/07/2022 05:30	51.4	33.6	25.4
21/07/2022 05:45	56.8	35.8	26.6
21/07/2022 06:00	51.0	36.5	27.4
21/07/2022 06:15	57.5	35.0	28.3
21/07/2022 06:30	49.2	34.3	27.8
21/07/2022 06:45	49.7	35.0	30.4
21/07/2022 07:00	47.3	35.3	29.9
21/07/2022 07:15	48.8	35.0	30.0
21/07/2022 07:30	56.3	39.3	32.4
21/07/2022 07:45	59.9	41.0	34.0
21/07/2022 08:00	60.4	41.1	35.4
21/07/2022 08:15	58.5	40.8	34.8
21/07/2022 08:30	58.4	40.3	35.1
21/07/2022 08:45	55.8	39.4	34.5
21/07/2022 09:00	55.9	38.7	32.7
21/07/2022 09:15	54.4	38.2	31.7

28/07/2022

ACOUSTIC DESIGN ASSESSMENT

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
21/07/2022 09:30	76.1	45.4	33.4
21/07/2022 09:45	63.0	42.1	33.2
21/07/2022 10:00	61.0	40.0	32.6
21/07/2022 10:15	57.5	38.8	32.5
21/07/2022 10:30	58.4	42.4	32.2
21/07/2022 10:45	66.8	42.4	33.5
21/07/2022 11:00	59.3	41.7	32.1
21/07/2022 11:15	81.4	55.0	30.9
21/07/2022 11:30	50.4	35.8	29.6
21/07/2022 11:45	53.0	34.7	30.2
21/07/2022 12:00	48.6	36.2	31.8
21/07/2022 12:15	49.9	36.5	33.3
21/07/2022 12:30	55.3	40.3	35.0
21/07/2022 12:45	56.6	38.5	32.8
21/07/2022 13:00	60.1	39.2	31.7
21/07/2022 13:15	54.0	37.4	31.4
21/07/2022 13:30	58.4	39.2	29.0
21/07/2022 13:45	53.1	34.3	27.6
21/07/2022 14:00	71.8	49.6	29.6
21/07/2022 14:15	55.5	36.8	27.5
21/07/2022 14:30	80.1	58.0	29.0
21/07/2022 14:45	57.9	40.4	31.6
21/07/2022 15:00	71.5	50.5	32.3
21/07/2022 15:15	82.7	52.4	30.0
21/07/2022 15:30	51.0	35.0	29.3
21/07/2022 15:45	56.5	37.3	30.7
21/07/2022 16:00	53.0	35.7	30.0
21/07/2022 16:15	50.3	37.4	31.0
21/07/2022 16:30	81.2	54.3	32.1
21/07/2022 16:45	51.1	36.0	31.8
21/07/2022 17:00	67.0	43.1	31.9
21/07/2022 17:15	90.2	63.6	31.5
21/07/2022 17:30	61.6	42.4	32.2
21/07/2022 17:45	73.3	41.6	33.0
21/07/2022 18:00	51.5	36.8	31.8
21/07/2022 18:15	68.9	44.4	31.0
21/07/2022 18:30	53.1	36.3	32.2
21/07/2022 18:45	55.1	37.0	30.4
21/07/2022 19:00	56.7	35.0	30.1
21/07/2022 19:15	57.4	35.0	30.3
21/07/2022 19:30	71.9	38.5	31.0
21/07/2022 19:45	72.7	48.8	30.7
21/07/2022 20:00	52.5	36.1	31.3
21/07/2022 20:15	54.5	34.9	30.3
21/07/2022 20:30	68.7	45.1	29.3
21/07/2022 20:45	74.8	51.3	29.6
21/07/2022 21:00	50.5	37.0	30.4

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
21/07/2022 21:15	53.1	35.3	29.0
21/07/2022 21:30	53.3	35.6	28.6
21/07/2022 21:45	60.3	33.8	28.9
21/07/2022 22:00	42.2	31.6	27.8
21/07/2022 22:15	68.4	35.9	27.7
21/07/2022 22:30	57.6	36.4	27.8
21/07/2022 22:45	72.5	50.7	27.0
21/07/2022 23:00	52.6	30.8	25.8
21/07/2022 23:15	53.8	31.6	24.0
21/07/2022 23:30	51.3	30.9	24.6
21/07/2022 23:45	40.1	29.2	26.0
22/07/2022 00:00	57.3	33.0	23.8
22/07/2022 00:15	40.3	26.9	23.8
22/07/2022 00:30	39.6	26.3	22.4
22/07/2022 00:45	45.5	25.4	22.0
22/07/2022 01:00	46.7	25.0	21.0
22/07/2022 01:15	55.0	36.3	22.3
22/07/2022 01:30	43.0	25.0	21.6
22/07/2022 01:45	55.0	27.6	21.0
22/07/2022 02:00	41.3	26.7	21.2
22/07/2022 02:15	39.1	26.4	20.8
22/07/2022 02:30	39.5	26.4	21.6
22/07/2022 02:45	36.5	23.9	21.2
22/07/2022 03:00	49.6	31.5	21.7
22/07/2022 03:15	40.1	25.3	21.6
22/07/2022 03:30	42.5	27.4	21.9
22/07/2022 03:45	36.7	26.1	22.6
22/07/2022 04:00	32.8	24.9	22.0
22/07/2022 04:15	48.9	26.1	23.1
22/07/2022 04:30	35.9	26.8	23.5
22/07/2022 04:45	40.0	28.1	25.1
22/07/2022 05:00	38.7	27.8	25.2
22/07/2022 05:15	58.4	35.8	26.0
22/07/2022 05:30	57.1	39.2	28.2
22/07/2022 05:45	57.5	37.0	30.2
22/07/2022 06:00	51.8	36.3	30.2
22/07/2022 06:15	53.6	36.0	30.1
22/07/2022 06:30	60.5	37.8	31.1
22/07/2022 06:45	51.4	36.7	32.5
22/07/2022 07:00	60.9	36.4	32.4
22/07/2022 07:15	71.3	40.4	32.4
22/07/2022 07:30	58.4	39.4	31.7
22/07/2022 07:45	65.9	38.6	32.7
22/07/2022 08:00	65.4	45.0	33.0
22/07/2022 08:15	64.3	41.6	31.5
22/07/2022 08:30	70.9	40.2	31.1
22/07/2022 08:45	63.8	40.4	31.1

28/07/2022

ACOUSTIC DESIGN ASSESSMENT

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
22/07/2022 09:00	58.6	39.3	32.5
22/07/2022 09:15	57.0	38.5	32.1
22/07/2022 09:30	54.7	35.2	30.0
22/07/2022 09:45	61.7	37.1	30.3
22/07/2022 10:00	73.8	50.6	31.4
22/07/2022 10:15	73.7	50.4	31.8
22/07/2022 10:30	58.7	35.4	31.2
22/07/2022 10:45	80.1	50.8	32.2
22/07/2022 11:00	75.0	52.8	31.5
22/07/2022 11:15	70.9	45.4	30.6
22/07/2022 11:30	81.3	58.3	32.1
22/07/2022 11:45	69.6	50.5	31.2
22/07/2022 12:00	78.8	55.7	30.8
22/07/2022 12:15	72.0	46.3	30.5
22/07/2022 12:30	75.5	64.0	31.9
22/07/2022 12:45	94.2	69.0	33.2
22/07/2022 13:00	68.1	47.5	31.3
22/07/2022 13:15	66.9	48.4	32.1
22/07/2022 13:30	66.5	47.0	31.4
22/07/2022 13:45	72.9	46.9	31.2
22/07/2022 14:00	59.4	37.1	31.4
22/07/2022 14:15	83.2	58.6	32.6
22/07/2022 14:30	89.9	64.4	34.6
22/07/2022 14:45	53.3	36.9	30.2
22/07/2022 15:00	58.6	39.1	31.0
22/07/2022 15:15	52.5	35.3	31.0
22/07/2022 15:30	66.4	43.7	31.3
22/07/2022 15:45	68.6	45.9	31.4
22/07/2022 16:00	68.3	49.0	31.2
22/07/2022 16:15	58.2	39.3	32.4
22/07/2022 16:30	65.4	43.9	32.4
22/07/2022 16:45	64.7	40.0	31.8
22/07/2022 17:00	61.8	42.1	32.7
22/07/2022 17:15	59.7	39.5	33.5
22/07/2022 17:30	56.5	39.7	34.2
22/07/2022 17:45	62.5	43.0	34.6
22/07/2022 18:00	64.2	42.0	35.0
22/07/2022 18:15	75.8	55.8	35.0
22/07/2022 18:30	84.6	58.3	33.4
22/07/2022 18:45	61.4	39.3	34.2
22/07/2022 19:00	60.8	40.2	35.1
22/07/2022 19:15	56.0	40.0	34.9
22/07/2022 19:30	58.7	38.2	33.2
22/07/2022 19:45	56.6	38.2	33.3
22/07/2022 20:00	69.5	43.1	33.5
22/07/2022 20:15	63.2	43.1	39.0
22/07/2022 20:30	52.6	42.2	38.3

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
22/07/2022 20:45	52.7	41.0	34.6
22/07/2022 21:00	58.8	38.6	33.1
22/07/2022 21:15	57.0	35.5	31.3
22/07/2022 21:30	49.6	34.4	29.6
22/07/2022 21:45	51.4	36.4	31.1
22/07/2022 22:00	44.2	33.9	29.9
22/07/2022 22:15	43.3	32.8	28.7
22/07/2022 22:30	45.0	33.2	29.1
22/07/2022 22:45	61.1	36.5	26.8
22/07/2022 23:00	45.4	32.6	27.6
22/07/2022 23:15	54.3	34.0	27.4
22/07/2022 23:30	54.1	35.1	28.1
22/07/2022 23:45	51.7	31.3	26.4
23/07/2022 00:00	46.2	31.0	26.0
23/07/2022 00:15	50.6	29.8	25.4
23/07/2022 00:30	40.0	28.8	25.1
23/07/2022 00:45	42.1	28.5	24.3
23/07/2022 01:00	42.5	27.3	23.3
23/07/2022 01:15	42.9	27.1	22.9
23/07/2022 01:30	39.8	28.0	22.3
23/07/2022 01:45	39.9	28.0	22.4
23/07/2022 02:00	40.5	29.0	23.5
23/07/2022 02:15	52.1	31.2	21.6
23/07/2022 02:30	41.8	29.5	23.9
23/07/2022 02:45	40.2	28.3	24.0
23/07/2022 03:00	63.0	35.4	23.9
23/07/2022 03:15	47.4	28.0	24.1
23/07/2022 03:30	42.7	26.5	23.0
23/07/2022 03:45	44.2	30.2	24.8
23/07/2022 04:00	53.7	28.7	23.7
23/07/2022 04:15	41.6	30.7	24.9
23/07/2022 04:30	41.9	30.6	25.3
23/07/2022 04:45	53.8	33.0	25.1
23/07/2022 05:00	65.3	38.4	26.7
23/07/2022 05:15	65.7	43.8	29.2
23/07/2022 05:30	68.9	47.2	29.3
23/07/2022 05:45	55.2	36.0	28.4
23/07/2022 06:00	62.4	42.6	29.4
23/07/2022 06:15	72.4	51.5	29.4
23/07/2022 06:30	44.7	33.3	28.0
23/07/2022 06:45	46.9	33.4	29.2
23/07/2022 07:00	63.6	40.6	34.1
23/07/2022 07:15	70.5	48.0	35.7
23/07/2022 07:30	72.5	48.5	30.1
23/07/2022 07:45	64.5	43.2	30.4
23/07/2022 08:00	66.1	40.1	31.4
23/07/2022 08:15	60.2	40.1	31.3

28/07/2022

ACOUSTIC DESIGN ASSESSMENT

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
23/07/2022 08:30	60.5	37.4	30.9
23/07/2022 08:45	59.1	38.2	31.5
23/07/2022 09:00	55.6	37.9	32.6
23/07/2022 09:15	66.6	47.8	32.2
23/07/2022 09:30	57.8	36.8	30.6
23/07/2022 09:45	71.9	39.8	31.3
23/07/2022 10:00	56.5	36.6	32.3
23/07/2022 10:15	51.8	36.2	31.8
23/07/2022 10:30	53.6	36.6	30.2
23/07/2022 10:45	57.9	39.9	30.9
23/07/2022 11:00	51.3	38.3	34.6
23/07/2022 11:15	54.3	37.5	34.3
23/07/2022 11:30	58.2	38.8	34.6
23/07/2022 11:45	73.1	45.1	34.5
23/07/2022 12:00	63.5	40.0	35.5
23/07/2022 12:15	68.5	40.3	33.7
23/07/2022 12:30	66.4	39.2	34.0
23/07/2022 12:45	67.5	44.8	34.1
23/07/2022 13:00	62.9	37.6	31.6
23/07/2022 13:15	68.4	48.8	34.1
23/07/2022 13:30	53.3	36.6	33.1
23/07/2022 13:45	50.7	37.6	34.1
23/07/2022 14:00	54.6	36.7	32.1
23/07/2022 14:15	57.3	39.6	32.1
23/07/2022 14:30	53.4	36.0	32.0
23/07/2022 14:45	59.6	38.5	32.7
23/07/2022 15:00	55.4	39.7	33.7
23/07/2022 15:15	47.1	36.6	33.5
23/07/2022 15:30	48.0	35.8	32.8
23/07/2022 15:45	49.9	37.3	34.1
23/07/2022 16:00	48.1	38.1	34.6
23/07/2022 16:15	48.5	36.6	33.6
23/07/2022 16:30	46.2	36.7	34.2
23/07/2022 16:45	68.4	46.7	33.0
23/07/2022 17:00	74.0	40.7	31.5
23/07/2022 17:15	53.4	37.0	32.4
23/07/2022 17:30	54.1	37.4	32.9
23/07/2022 17:45	55.3	39.2	32.8
23/07/2022 18:00	56.9	38.0	33.5
23/07/2022 18:15	66.0	38.4	31.7
23/07/2022 18:30	59.5	37.4	33.0
23/07/2022 18:45	65.2	42.3	32.3
23/07/2022 19:00	56.8	37.5	32.3
23/07/2022 19:15	56.6	38.6	32.2
23/07/2022 19:30	52.1	36.6	32.8
23/07/2022 19:45	47.2	35.6	32.0
23/07/2022 20:00	66.8	40.4	33.0

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
23/07/2022 20:15	56.1	38.3	33.0
23/07/2022 20:30	56.7	36.3	32.6
23/07/2022 20:45	70.3	40.8	32.2
23/07/2022 21:00	58.3	38.4	32.9
23/07/2022 21:15	62.3	41.3	32.9
23/07/2022 21:30	44.9	34.5	30.1
23/07/2022 21:45	60.5	37.5	30.5
23/07/2022 22:00	51.9	36.4	31.7
23/07/2022 22:15	60.9	36.8	29.4
23/07/2022 22:30	58.5	38.2	30.6
23/07/2022 22:45	56.0	36.3	30.0
23/07/2022 23:00	50.3	34.6	27.7
23/07/2022 23:15	55.4	34.3	28.8
23/07/2022 23:30	43.6	34.0	28.6
23/07/2022 23:45	48.0	33.7	29.5
24/07/2022 00:00	46.8	33.1	27.8
24/07/2022 00:15	53.0	35.0	30.0
24/07/2022 00:30	60.9	35.1	28.3
24/07/2022 00:45	53.8	33.2	27.1
24/07/2022 01:00	43.6	32.0	26.3
24/07/2022 01:15	48.0	32.5	27.1
24/07/2022 01:30	45.2	32.9	27.1
24/07/2022 01:45	47.0	32.9	28.1
24/07/2022 02:00	45.3	32.7	26.8
24/07/2022 02:15	42.7	33.9	30.2
24/07/2022 02:30	50.6	33.2	27.5
24/07/2022 02:45	51.8	36.3	31.3
24/07/2022 03:00	54.9	36.3	31.0
24/07/2022 03:15	46.7	33.9	28.2
24/07/2022 03:30	47.3	35.9	28.0
24/07/2022 03:45	43.1	34.4	28.7
24/07/2022 04:00	46.5	34.4	28.8
24/07/2022 04:15	52.5	35.5	30.0
24/07/2022 04:30	47.5	34.6	29.8
24/07/2022 04:45	59.9	36.7	26.2
24/07/2022 05:00	67.1	42.1	30.2
24/07/2022 05:15	56.6	37.9	30.3
24/07/2022 05:30	53.6	38.5	31.4
24/07/2022 05:45	62.7	40.4	33.7
24/07/2022 06:00	58.8	41.9	30.3
24/07/2022 06:15	56.0	38.1	31.5
24/07/2022 06:30	59.7	41.3	32.2
24/07/2022 06:45	62.7	41.4	32.6
24/07/2022 07:00	67.8	49.3	35.7
24/07/2022 07:15	67.1	47.6	33.5
24/07/2022 07:30	55.0	38.5	33.2
24/07/2022 07:45	61.0	41.6	34.2

28/07/2022

ACOUSTIC DESIGN ASSESSMENT

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
24/07/2022 08:00	53.6	42.1	37.2
24/07/2022 08:15	58.3	38.6	34.4
24/07/2022 08:30	58.7	39.1	34.0
24/07/2022 08:45	57.0	41.3	34.9
24/07/2022 09:00	58.3	42.0	35.9
24/07/2022 09:15	58.1	38.7	34.3
24/07/2022 09:30	49.1	40.3	36.1
24/07/2022 09:45	55.4	38.9	34.3
24/07/2022 10:00	49.0	39.7	36.1
24/07/2022 10:15	48.9	38.8	35.4
24/07/2022 10:30	53.0	39.5	34.2
24/07/2022 10:45	66.3	42.8	36.6
24/07/2022 11:00	49.2	39.9	36.2
24/07/2022 11:15	69.1	49.5	37.6
24/07/2022 11:30	56.5	39.8	35.3
24/07/2022 11:45	59.1	42.4	34.5
24/07/2022 12:00	50.3	40.3	35.5
24/07/2022 12:15	55.4	40.8	35.8
24/07/2022 12:30	54.2	41.9	35.8
24/07/2022 12:45	53.6	41.5	36.7
24/07/2022 13:00	56.7	41.5	36.1
24/07/2022 13:15	54.5	40.0	35.4
24/07/2022 13:30	60.1	43.2	37.5
24/07/2022 13:45	61.6	44.4	39.0
24/07/2022 14:00	55.1	42.2	37.5
24/07/2022 14:15	62.8	41.2	36.3
24/07/2022 14:30	61.3	42.2	38.2
24/07/2022 14:45	78.4	52.3	38.6
24/07/2022 15:00	59.9	41.9	36.7
24/07/2022 15:15	62.5	43.0	36.8
24/07/2022 15:30	61.5	46.1	39.4
24/07/2022 15:45	69.3	47.8	41.1
24/07/2022 16:00	59.1	45.2	40.2
24/07/2022 16:15	61.4	44.2	39.1
24/07/2022 16:30	59.1	45.1	38.2
24/07/2022 16:45	56.8	42.6	37.9
24/07/2022 17:00	50.0	41.4	36.9
24/07/2022 17:15	64.7	42.2	36.6
24/07/2022 17:30	64.8	44.7	39.4
24/07/2022 17:45	56.7	42.2	37.5
24/07/2022 18:00	67.0	46.8	41.3
24/07/2022 18:15	65.9	44.5	38.1
24/07/2022 18:30	57.3	41.4	36.9
24/07/2022 18:45	57.3	43.8	38.8
24/07/2022 19:00	57.6	41.7	37.2
24/07/2022 19:15	60.1	41.9	36.8
24/07/2022 19:30	59.5	45.6	39.4

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
24/07/2022 19:45	60.7	42.5	37.3
24/07/2022 20:00	65.2	42.3	36.7
24/07/2022 20:15	61.0	45.0	38.2
24/07/2022 20:30	59.2	41.8	36.8
24/07/2022 20:45	63.0	41.8	36.0
24/07/2022 21:00	50.5	39.4	35.0
24/07/2022 21:15	58.7	40.3	34.4
24/07/2022 21:30	48.2	38.1	33.5
24/07/2022 21:45	56.8	40.2	32.8
24/07/2022 22:00	80.5	48.4	33.0
24/07/2022 22:15	49.0	37.2	32.1
24/07/2022 22:30	46.8	35.6	31.3
24/07/2022 22:45	59.3	37.6	31.1
24/07/2022 23:00	52.8	35.7	29.1
24/07/2022 23:15	50.1	35.5	28.5
24/07/2022 23:30	48.1	35.8	30.1
24/07/2022 23:45	58.7	38.7	31.1
25/07/2022 00:00	48.4	32.6	26.3
25/07/2022 00:15	44.6	32.3	27.2
25/07/2022 00:30	54.0	32.4	27.5
25/07/2022 00:45	47.3	31.7	26.6
25/07/2022 01:00	45.3	32.5	27.5
25/07/2022 01:15	47.6	34.0	29.4
25/07/2022 01:30	43.8	31.6	28.5
25/07/2022 01:45	43.2	30.9	26.2
25/07/2022 02:00	44.7	30.2	25.0
25/07/2022 02:15	54.2	30.5	24.5
25/07/2022 02:30	57.2	30.7	25.9
25/07/2022 02:45	40.9	30.9	27.7
25/07/2022 03:00	59.2	30.9	25.7
25/07/2022 03:15	49.2	36.3	25.5
25/07/2022 03:30	54.3	44.6	25.5
25/07/2022 03:45	45.0	30.2	23.8
25/07/2022 04:00	44.7	28.4	23.4
25/07/2022 04:15	44.4	29.4	24.4
25/07/2022 04:30	54.9	35.7	29.5
25/07/2022 04:45	55.7	35.8	27.7
25/07/2022 05:00	55.9	37.0	28.9
25/07/2022 05:15	65.3	43.7	31.4
25/07/2022 05:30	65.9	46.6	31.9
25/07/2022 05:45	66.2	45.6	32.2
25/07/2022 06:00	53.7	37.0	33.2
25/07/2022 06:15	63.6	48.4	39.0
25/07/2022 06:30	63.0	44.5	35.8
25/07/2022 06:45	62.6	42.9	37.1
25/07/2022 07:00	61.5	42.0	38.1
25/07/2022 07:15	58.5	40.5	38.1

28/07/2022

ACOUSTIC DESIGN ASSESSMENT

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
25/07/2022 07:30	51.0	40.4	37.5
25/07/2022 07:45	49.7	40.5	38.1
25/07/2022 08:00	62.8	46.3	40.8
25/07/2022 08:15	69.4	55.0	45.1
25/07/2022 08:30	66.3	50.1	38.5
25/07/2022 08:45	73.8	44.9	39.6
25/07/2022 09:00	83.6	61.4	39.2
25/07/2022 09:15	70.5	52.0	37.3
25/07/2022 09:30	67.3	44.4	38.8
25/07/2022 09:45	68.6	49.5	39.1
25/07/2022 10:00	72.2	50.0	38.7
25/07/2022 10:15	62.6	46.3	37.1
25/07/2022 10:30	66.5	46.4	37.0
25/07/2022 10:45	75.1	51.9	36.7
25/07/2022 11:00	70.3	53.4	39.0
25/07/2022 11:15	56.3	40.3	37.0
25/07/2022 11:30	73.8	51.3	36.7
25/07/2022 11:45	76.0	52.5	37.2
25/07/2022 12:00	54.4	41.0	37.7
25/07/2022 12:15	77.6	56.2	37.4
25/07/2022 12:30	77.0	53.3	37.0
25/07/2022 12:45	45.2	38.6	36.0
25/07/2022 13:00	49.8	38.5	35.8
25/07/2022 13:15	58.9	41.5	36.5
25/07/2022 13:30	45.6	38.4	36.4
25/07/2022 13:45	52.3	40.0	37.5
25/07/2022 14:00	51.4	41.0	38.0
25/07/2022 14:15	72.7	51.5	36.6
25/07/2022 14:30	65.5	45.5	37.4
25/07/2022 14:45	46.9	38.4	36.3
25/07/2022 15:00	47.8	38.4	35.8
25/07/2022 15:15	49.2	39.9	36.7
25/07/2022 15:30	48.3	38.5	36.0
25/07/2022 15:45	57.9	42.9	36.3
25/07/2022 16:00	84.1	59.8	38.4
25/07/2022 16:15	87.3	61.4	42.1
25/07/2022 16:30	59.1	46.1	41.4
25/07/2022 16:45	76.0	48.1	38.6
25/07/2022 17:00	59.7	45.1	39.5
25/07/2022 17:15	54.0	43.8	39.7
25/07/2022 17:30	66.9	45.5	38.0
25/07/2022 17:45	67.2	47.1	36.6
25/07/2022 18:00	68.1	41.5	37.5
25/07/2022 18:15	60.7	45.7	37.5
25/07/2022 18:30	60.3	42.7	38.6
25/07/2022 18:45	84.8	50.5	37.2
25/07/2022 19:00	62.2	41.8	35.7

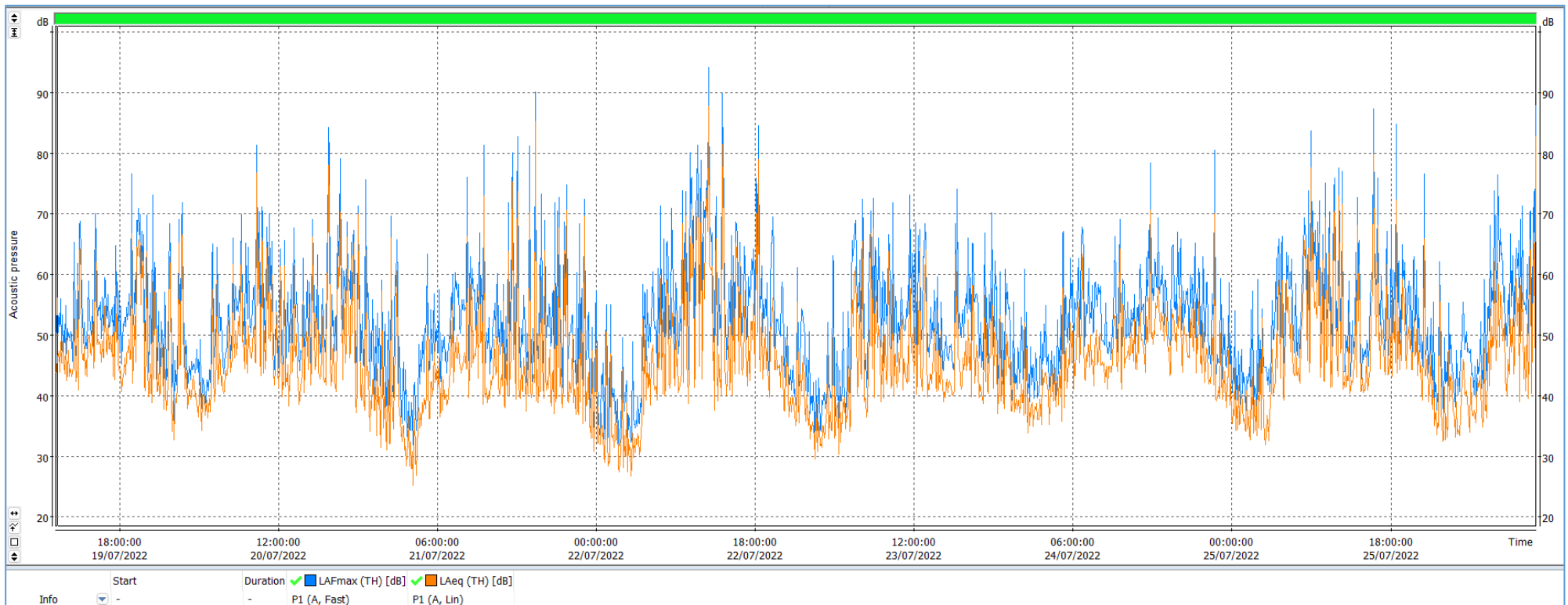
Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
25/07/2022 19:15	64.8	43.9	35.4
25/07/2022 19:30	60.2	49.5	39.8
25/07/2022 19:45	62.0	43.6	40.0
25/07/2022 20:00	57.4	43.9	39.7
25/07/2022 20:15	58.9	43.0	37.3
25/07/2022 20:30	61.9	39.8	33.4
25/07/2022 20:45	63.0	43.3	38.1
25/07/2022 21:00	60.7	40.7	35.4
25/07/2022 21:15	56.1	39.5	34.7
25/07/2022 21:30	49.8	37.1	32.3
25/07/2022 21:45	53.1	36.8	31.4
25/07/2022 22:00	76.6	51.5	32.0
25/07/2022 22:15	51.3	37.3	31.1
25/07/2022 22:30	47.2	36.3	32.6
25/07/2022 22:45	52.7	35.0	30.0
25/07/2022 23:00	55.4	32.2	27.5
25/07/2022 23:15	42.1	31.6	27.9
25/07/2022 23:30	40.6	31.0	27.4
25/07/2022 23:45	62.0	45.2	28.8
26/07/2022 00:00	41.1	29.5	25.8
26/07/2022 00:15	49.6	30.0	25.8
26/07/2022 00:30	45.5	28.8	24.6
26/07/2022 00:45	55.3	35.3	28.1
26/07/2022 01:00	46.7	35.3	28.4
26/07/2022 01:15	41.9	32.4	28.5
26/07/2022 01:30	47.5	29.4	25.7
26/07/2022 01:45	43.1	31.2	27.4
26/07/2022 02:00	47.5	31.7	25.6
26/07/2022 02:15	55.4	40.9	35.5
26/07/2022 02:30	49.6	33.4	24.7
26/07/2022 02:45	50.5	36.2	29.0
26/07/2022 03:00	47.1	31.5	24.3
26/07/2022 03:15	47.6	33.5	27.9
26/07/2022 03:30	44.8	32.0	27.8
26/07/2022 03:45	40.9	30.6	26.4
26/07/2022 04:00	46.0	35.5	28.4
26/07/2022 04:15	52.2	34.5	24.5
26/07/2022 04:30	44.2	29.5	23.8
26/07/2022 04:45	59.2	32.2	24.5
26/07/2022 05:00	54.6	33.2	24.8
26/07/2022 05:15	68.0	40.0	28.3
26/07/2022 05:30	57.7	39.5	29.4
26/07/2022 05:45	73.8	42.1	30.0
26/07/2022 06:00	65.9	38.8	30.2
26/07/2022 06:15	76.4	43.1	33.1
26/07/2022 06:30	67.5	43.8	34.6
26/07/2022 06:45	61.1	41.1	32.8

28/07/2022

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
26/07/2022 07:00	57.7	39.0	31.9
26/07/2022 07:15	56.7	38.6	31.8
26/07/2022 07:30	66.7	38.8	32.8
26/07/2022 07:45	58.9	42.1	36.0
26/07/2022 08:00	63.1	44.1	32.8
26/07/2022 08:15	64.3	48.7	33.2
26/07/2022 08:30	65.5	43.7	31.5
26/07/2022 08:45	69.1	42.0	29.8
26/07/2022 09:00	71.3	43.3	32.0

Date & time	LAFmax [dB]	LAeq [dB]	LA90 [dB]
26/07/2022 09:15	55.3	38.4	29.7
26/07/2022 09:30	61.7	37.4	29.6
26/07/2022 09:45	70.4	50.6	31.0
26/07/2022 10:00	55.1	36.7	29.4
26/07/2022 10:15	73.6	46.0	31.4
26/07/2022 10:30	88.1	65.2	33.2

APPENDIX 4 – GRAPHICAL RESULTS OF NOISE MEASUREMENTS



28/07/2022

Units 3 & 4 The Cokenach Estate, Barkway, Royston, Herts SG8 8DL | T: 01763 268 685

Registered in England No. 8086772. VAT No. 934 3705 24

E: info@atspaceltd.co.uk www.atspaceltd.co.uk

APPENDIX 5 – FAÇADE SOUND INSULATION CALCULATIONS

BS8233:2014 Annexe G2 - Rigorous Calculation of Façade Sound Insulation							
Typical Bedroom							
Wall area		10.8					
Window Area		2.4					
Ceiling/Roof		12.5					
Room Vol.		31					
Frequency (Hz)		125	250	500	1000	2000	LAeq
Measured Façade Leq		52.8	55.8	52.5	49.0	42.4	53.9
Ventilator Dne	GAV AWV39	38	37	38	39	47	
Window R	6/16/6.8	21	28	37	48	48	
Wall R	Masonry Cavity	40	44	45	51	56	
Ceiling/Roof R	Roof	33	39	45	50	54	
Absorption		11	14	16	16	15	
Vent		0.000068	0.000086	0.000068	0.000054	0.000009	
		-41.7	-40.7	-41.7	-42.7	-50.7	
Windows		0.000818	0.000163	0.000021	0.000002	0.000002	
		-30.9	-37.9	-46.9	-57.9	-57.9	
Ext. Wall		0.000036	0.000014	0.000011	0.000003	0.000001	
		-44.4	-48.4	-49.4	-55.4	-60.4	
Ceiling/roof		0.000269	0.000068	0.000017	0.000005	0.000002	
		-35.7	-41.7	-47.7	-52.7	-56.7	
Composite R		-29.2	-34.8	-39.3	-41.9	-48.8	
Abs. Correction		3.3	2.2	1.6	1.6	1.9	
Leq (int)		29.8	26.2	17.8	11.7	-1.4	
A-Weighting		-16.1	-8.6	-3.2	0	1.2	
LAeq (internal)		13.7	17.6	14.6	11.7	-0.2	21.0
Façade Atten.		32.9 dB					

BS8233:2014 Annexe G2 - Rigorous Calculation of Façade Sound Insulation							
Living Room							
Wall area		23.8					
Window Area		7.5					
Ceiling/Roof		0.0					
Room Vol.		49					
Frequency (Hz)		125	250	500	1000	2000	L _{Aeq}
Measured Façade Leq		62.5	60.7	56.3	51.0	45.5	57.6
Ventilator Dne	GAV AWW39	38	37	38	39	47	
Window R	6/16/6.8	21	28	37	48	48	
Wall R	Masonry Cavity	40	44	45	51	56	
Ceiling/Roof R	Roof	33	39	45	50	54	
Absorption		11	14	16	16	15	
Vent		0.000067	0.000084	0.000067	0.000053	0.000008	
		-41.8	-40.8	-41.8	-42.8	-50.8	
Windows		0.002502	0.000499	0.000063	0.000005	0.000005	
		-26.0	-33.0	-42.0	-53.0	-53.0	
Ext. Wall		0.000068	0.000027	0.000022	0.000005	0.000002	
		-41.6	-45.6	-46.6	-52.6	-57.6	
Ceiling/roof		0.000000	0.000000	0.000000	0.000000	0.000000	
		-66.8	-72.8	-78.8	-83.8	-87.8	
Composite R		-25.8	-32.1	-38.2	-42.0	-48.2	
Abs. Correction		3.4	2.3	1.7	1.7	2.0	
Leq (int)		43.1	33.9	22.9	13.8	2.3	
A-Weighting		-16.1	-8.6	-3.2	0	1.2	
L _{Aeq} (internal)		27.0	25.3	19.7	13.8	3.5	29.8
Façade Atten.		27.8	dB				