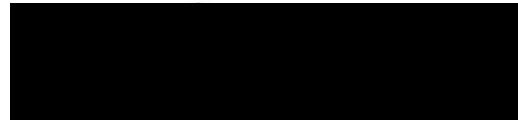


Consultancy Report
Ref: 11832-R01

Submitted to:

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NOISE ASSESSMENT FOR PROPOSED
DEVELOPMENT AT
9 HIGH STREET
EASTLEIGH

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1. Introduction

ISVR Consulting was asked to carry out a noise assessment for the proposed permitted development of 2 flats on the first floor of the existing commercial building at 9 High St, Eastleigh. The noise assessment is intended to assess the noise impact of commercial activities in the vicinity and provide guidance on appropriate noise mitigation if required.

The noise levels in the area have been assessed to meet the interior noise criteria recommended in BS8233:2014. The noise of commercial activities in the vicinity has been assessed with regards to BS4142: 2014. The noise of amplified music in the nearby pub has been assessed specifically.

An unattended noise survey was carried out over a 63 hour period including 3 night time periods. Additional spot measurements were also taken to assess the noise levels of specific plant items. Recommendations have been made to meet the recommended interior noise levels.

2. Site Description and Noise Sources

The proposed development is located on the first floor of the existing building at 9 High St, Eastleigh. The building is currently in use as a model shop with products on display on the first and second floors.

Site visits were carried out during the evening and morning periods during which time a number of local businesses with potential to create a noise impact on the proposed development were identified. These include:

The Spitfire Public House

This building is located approximately 25m from the proposed development. Discussions with the pub landlord suggest that the venue has live or amplified music events approximately 40 times per year, between the hours of 21.30 – 00.00 hrs. At the time of the noise survey no music events were planned therefore the landlord provided amplified music at what he considered to be typical of the noise levels of live and amplified music in order to assess noise propagation from the pub.

Saffron Indian and Bangladeshi Restaurant

This business is located approximately 20m from the proposed development. The operating hours of the business are 17.00 – 23.00 hrs Monday to Saturday. There are 2 A/C units fitted to the site wall of the business approximately 20m from the proposed development.

Pappa Johns Pizza

This business is located approximately 35m from the proposed development. The operating hours of the business are 11.00 – 01.00 hrs Monday to Thursday and 11.00 – 03.00 hrs on Friday and Saturday. There is a kitchen extract system fitted to the rear of the building approximately 35m from the proposed development.

Katrianas Cafe

This business is located approximately 20m from the proposed development. The operating hours of the business are 08.30 – 15.00 hrs daily. There is a kitchen extract system fitted to the rear of the building approximately 20m from the proposed development.

Chalet Sizzler Wine Bar

This business is located approximately 12m from the proposed development. The operating hours of the business are 17.00 – 23.00 hrs Tuesday to Thursday and 14.00 – 00.00 hrs on Friday and Saturday. There is a kitchen extract system fitted to the rear of the building approximately 17m from the rear of the proposed development.

R JS Convenience Store

This business is located approximately 10m from the proposed development. The operating hours of the business are 09.00 – 21.00 hrs daily. There is a chiller system fitted to the rear of the building approximately 14m from the rear of the proposed development.

At the time of the site visits it was considered that the dominant source of noise affecting the proposed development was due to traffic noise in the town. Although the businesses identified above were noted during the site visits while surveying the area around the proposed development site, none of the noise sources were noted to be audible immediately outside the proposed development.

It was also noted that there are existing residential properties nearby on all sides of the proposed development site all of which are sited more closely to potential commercial noise sources than the proposed development.

The site location is shown in Figure 1 including nearby commercial noise sources and existing residential properties. The proposed floorplans of the development are shown in Figure 2.

3. Planning Guidance

The comments from the local authority regarding the noise assessment are shown below:

I refer to the Prior Approval application for change of use of the first-floor commercial premises to residential flats and comment on Environmental Noise Impact. The premises is surrounded by other commercial premises, some will have AC/Extractor units and is opposite is a public house which may produce late night amplified music. The application does not refer to these sources of commercial noise, or the separation of the proposed residential flats from the surrounding premises. Therefore, I would recommend the applicant provides an Acoustic Report from a competent Consultant showing appropriate measurements over a protracted period for BS 8233 ‘guidance on sound insulation for buildings’ showing mitigation for structural elements and ventilation of the rooms to achieve compliance with internal day/night levels. Reference should be made to any private amenity spaces if present. The report must also contain reference to a BS 4142 assessment to mitigate noise from the existing ground floor and adjacent premises above levels required by Building Regulations and noise from nearby businesses to demonstrate regard to ‘the agent of change’ principal.

4. Exterior Noise Survey

In order to assess the exterior noise levels affecting the site an unattended noise survey was carried out over a 63 hour period. The noise monitoring locations are shown in Figure 1 with Position 1 located in the facade condition at first floor level facing the High Stret. Position 2 was located at first floor level on the rear north facade of the building overlooking Hanns Way. An unattended noise survey was carried out between 18.50 hrs on Tuesday 7th January and 10.00 hrs on Friday 10th January 2025.

The weather remained dry with light winds during the measurement period with the exception of Wednesday afternoon, evening and overnight when there was some light precipitation.

The noise levels were measured using a Rion NL31 and a Norsonic Type 121 Logging Sound Level Meter. The meters were calibrated before and after the measurement period. No significant drift was noted in the calibration. The calibration is traceable to National Standards. The microphones were installed in the facade condition.

The results of the noise survey at Positions 1 and 2 are shown in Figures 3-8 showing the ambient noise level (dB $L_{Aeq, 5mins}$), the maximum noise levels (dB $L_{Amax, f 5mins}$), and the background noise levels (dB $L_{A90 5mins}$) throughout the 63 hour measurement period.

In addition to the unattended noise survey, the noise levels of local commercial noise sources were also measured, and the noise levels at the proposed development site has been predicted, taking account of distance and assuming at least 10 dB noise reduction when fully screened.

The Spitfire Public House

In order to assess potential noise impact of live and amplified music at these premises, the landlord provided a demonstration of the typical noise levels associated with live or amplified music during the evening of 7th January. The pub has an entrance lobby with internal and external doors sets. The tests were carried out with just the internal door set closed. During the demonstration noise levels were measured within the pub as well

as immediately outside, and the noise level was assessed immediately outside the proposed development as well as within the proposed development both with windows open and windows closed. The results of the noise survey are shown in Table 1 below:

Position	Noise Level dB L _{Aeq}	Comments
Inside Pub	83	Rock type music with bass and drums
Outside Pub @ 3m from facade	57	Music audible, similar noise level to passing pedestrians and local traffic (See Figure 3)
Outside Proposed Development	Could not be measured against ambient noise levels.	Only barely audible during lulls in ambient noise levels.
Inside Proposed Development, Windows Open	35	Music Noise Completely inaudible
Inside Proposed Development, Windows Closed	22	Music Noise Completely inaudible

Table 1 Music Noise Assessment

Saffron Indian and Bangladeshi Restaurant

The A/C units produced a noise level of 53 dB(A) at a distance of 5m. The units are completely screened from the proposed development.

At a distance of 20m it is predicted that the units will produce a noise level of approximately 31 dB(A) up to 23.00 hrs at which time a typical minimum background noise level of 40 dB L_{A90} may be anticipated.

Pappa Johns Pizza

The extract system produced a noise level of 50 dB(A) at 5m. The extract system is completely screened from the proposed development.

At a distance of 35m it is predicted that the system will produce a noise level of approximately 23 dB(A) up to 01.00 hrs at which time a typical minimum background noise level of 35 dB L_{A90} may be anticipated.

Katrianas Cafe

The extract system produced a noise level of 46 dB(A) at 5m. The extract system is completely screened from the proposed development.

At a distance of 20m it is predicted that the system will produce a noise level of approximately 24 dB(A) between 08.30 – 15.00 hrs at which time a typical minimum background noise level of 42 dB L_{A90} may be anticipated.

Chalet Sizzler Wine Bar

The extract system produced a noise level of 60 dB(A) at 3m. The extract system is completely screened from the proposed development.

At a distance of 17m it is predicted that the system will produce a noise level of approximately 35 dB(A) up to 00.00 hrs at which time a typical minimum background noise level of 37 dB L_{A90} may be anticipated.

R JS Convenience Store

The chiller system produced a noise level of 62 dB(A) at 3m. The chiller system is completely screened from the proposed development.

At a distance of 14m it is predicted that the system will produce a noise level of approximately 39 dB(A) throughout the day and night during which time a typical minimum background noise level of 34 dB L_{A90} may be anticipated. A typical background level at 23.00 hrs is 39 dB L_{A90}.

5. Noise Impact Assessment

BS4142:2014 Noise Impact Assessment

The noise level of the commercial plant items has been assessed with regards to BS4142:2014. The standard compares the 'Rating' noise level of the activity against the background noise level at the noise sensitive property. The greater the difference the greater the magnitude of the impact.

A difference of around + 10 dB or more is likely to be an indication of a significant adverse impact, depending on context.

A difference of around + 5 dB is likely to be an indication of an adverse impact, depending on context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound 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 source having a low impact, depending on the context.

The 'Rating' noise level takes account of the specific noise level of the activity (i.e. measured noise level of activity alone), with penalties applied for acoustic features such as tonality and impulsiveness. Distance and screening between the source and receiver will reduce the specific noise level of the activity, as will the period of use.

For the purpose of this assessment a number of assumptions have been made:

Tonality: The tonality of the different plant items has been considered according to each item.

Impulsivity: It is considered that there would not be impulsivity associated with any of the plant items. As such no penalty has been applied for impulsivity.

Intermittency: It is considered that there would not be intermittency associated with any of the plant items. As such no penalty has been applied for intermittency.

On-time correction: It is assumed that most plant items may operate continuously therefore no 'on-time' correction has been applied. In the case of the chiller units of RJS Convenience store it is considered that this item operates 50% of the time.

Based on the predicted plant noise levels and the above assumptions the noise impact of the different commercial noise sources are shown in Tables 2- 6 below:

Noise Source	Noise Level
Saffron Air Conditioning Units	31 dBA
Acoustic Penalty (Tonality) dB	0 dB
Acoustic Penalty (Impulsivity) dB	0 dB
Acoustic Penalty (Intermittency) dB	0 dB
'On Time' Correction	0 dB
Rating Noise Level dB	31 dB
Typical Background Noise Level dB L _{A90}	40 dB
Excess of Rating over Background	-9 dB
Impact Assessment	No Adverse Impact

Table 2: Noise Impact of Saffron A/C Units

Noise Source	Noise Level
Pappa John Extract System	23 dBA
Acoustic Penalty (Tonality) dB	0 dB
Acoustic Penalty (Impulsivity) dB	0 dB
Acoustic Penalty (Intermittency) dB	0 dB
'On Time' Correction	0 dB
Rating Noise Level dB	23 dB
Typical Background Noise Level dB L _{A90}	35 dB
Excess of Rating over Background	-12 dB
Impact Assessment	No Adverse Impact

Table 3: Noise Impact of Papa John Extract System

Noise Source	Noise Level
Katriana Extract System	24 dBA
Acoustic Penalty (Tonality) dB	0 dB
Acoustic Penalty (Impulsivity) dB	0 dB
Acoustic Penalty (Intermittency) dB	0 dB
'On Time' Correction	0 dB
Rating Noise Level dB	24 dB
Typical Background Noise Level dB L_{A90}	42 dB
Excess of Rating over Background	-18 dB
Impact Assessment	No Adverse Impact

Table 4: Noise Impact of Katriana Extract System

Noise Source	Noise Level
Chalet Extract System	35 dBA
Acoustic Penalty (Tonality) dB	0 dB
Acoustic Penalty (Impulsivity) dB	0 dB
Acoustic Penalty (Intermittency) dB	0 dB
'On Time' Correction	0 dB
Rating Noise Level dB	35 dB
Typical Background Noise Level dB L_{A90}	37 dB
Excess of Rating over Background	-2 dB
Impact Assessment	No Adverse Impact

Table 5: Noise Impact of Chalet Extract System

Noise Source	Noise Level
RJS Chiller System	39 dBA
Acoustic Penalty (Tonality) dB	+2 dB
Acoustic Penalty (Impulsivity) dB	0 dB
Acoustic Penalty (Intermittency) dB	0 dB
'On Time' Correction	-3 dB
Rating Noise Level dB	38 dB
Typical Background Noise Level dB L _{A90}	34 dB at 01.00 hrs, 39 dB at 23.00 hrs.
Excess of Rating over Background	4 dB (01.00 hrs) -1 dB (23.00 hrs)
Impact Assessment	Low Adverse Impact 01.00 hrs No Adverse Impact 23.00 hrs

Table 6: Noise Impact of RJS Chiller System

The assessment indicates that most of the plant items have no adverse impact on the proposed development. The exception is the chiller unit of RJS Convenience Store which may have a low adverse impact during the night time period. The room most affected by the chiller unit is a living room. It may be considered that this room is unlikely to be used during the night time period and as such a background noise level at 23.00 hrs may be a more appropriate assumption. In this case it is predicted that the chiller unit will have no adverse impact.

Music Noise from The Spitfire Public House

The noise of amplified and live music may be assessed in a number of ways, in particular due to the potential for low frequency noise to penetrate noise sensitive premises. The observations carried out during a demonstration of loud music at the pub indicated that music from the pub was completely inaudible within the proposed development despite the very low ambient noise levels measured within the building. Based on this assessment it is considered that live or amplified music at the pub will have no adverse impact on the proposed development.

Noise due to Ground Floor Commercial Operations

The ground floor of the proposed development is used as a retail premises for AC Models. The operating hours of the shop are 10.00 – 16.00 hrs Monday to Saturday.

There is no background music within the shop, and noise levels are limited to customer voices within the building. It is considered that potential noise levels, as well as the limited operating hours of the shop are such that the noise impact due to use of the shop is likely to be less than if the shop was used as a residential property.

Based on this assessment it is considered that the normal Building Regulation level of airborne sound insulation ($D_{nt,w} + C_{tr} \geq 43$ dB) between the ground floor commercial premises and the proposed development will provide adequate sound insulation to protect to occupants of the proposed flats.

Amenity of Rear Roof Terrace Area

BS8233:2014 recommends that the average daytime noise levels in outdoor amenity spaces should not exceed 55 dB $L_{Aeq,16hrs}$.

The measurements taken at Position 2 were used to calculate the average daytime noise levels during the Wednesday and Thursday daytime periods of the noise survey. The average noise level calculated for each day is 55 dB $L_{Aeq,16hrs}$. This would reduce to 52 dB $L_{Aeq,16hr}$ free field noise level.

It is considered that the noise levels of the rear roof terrace are below the limit recommended in BS8233:2014.

6. Recommended Exterior Noise Mitigation

The noise levels recommended by BS8233:2014 suggest interior noise levels of 35 dB $L_{Aeq,16 \text{ hour}}$ in bedrooms and living rooms and 40 dB $L_{Aeq,16 \text{ hour}}$ in dining rooms for the daytime period, and 30 dB $L_{Aeq,8 \text{ hour}}$ within bedrooms for the night time period. It is recommended that the maximum noise levels within bedrooms at night should not regularly exceed 45 dB L_{Amax} .

For a property of traditional construction, the sound insulation provided by the building envelope is normally controlled by the acoustic performance of the glazing system. For standard double glazed units the acoustic performance is typically in the range $R_w = 30 - 35$ dB without trickle vents, reducing to 25 dB with standard trickle vents. The acoustic performance of specialised glazing and vents is provided by the manufacturers. It is typically assumed that the sound insulation provided by an open window is 15 dB.

In order to control the interior noise levels to the required level, the average interior noise levels have been assessed in accordance with the simple method provided in BS8233:2014. Using this method the interior noise level may be predicted by simply subtracting the sound reduction index of the building element from the exterior noise level. This method is deemed sufficiently robust if the predicted interior noise level is at least 5 dB below the required level.

The floor plans indicate that the proposed flats include a living room facing the High Street, with bedrooms and a living room facing Hanns Way to the rear of the site.

It is proposed to develop the site by Permitted Development. As such it is only necessary to assess and mitigate the noise impact of commercial activities. The noise assessment and measurements indicate that the noise of commercial activities is significantly lower than the noise of other sources, in particular noise due to local traffic.

The highest noise level affecting the front facade (High St) is 31 dB(A) due to Saffron A/C units. The highest noise level affecting the rear facades is 39 dB(A) due to the RJS

chiller unit. These noise levels can be adequately mitigated by standard double glazing and trickle vents and it is recommended that standard double glazed units and trickle vents are suitable throughout the proposed development. Even with the windows open it is estimated that this would result in an interior noise level of approximately 24 dB(A) which is well below the recommended level of 30 dB(A) within bedrooms at night.

Based on this assessment it is considered that no additional noise mitigation is required beyond standard double glazed units and trickle vents.

7. Conclusions

ISVR Consulting was asked to carry out a noise assessment for the proposed permitted development of 2 flats on the first floors of 9 High St, Eastleigh. The findings of the assessment are summarised below:

- It is proposed convert the first floor of 9 High St, Eastleigh to provide 2 flats. The ground floor of the building is used as a retail shop by AC Models.
- The site is primarily exposed to local traffic noise although there are a number of commercial premises in the vicinity that have been assessed in order to determine their noise impact on the site.
- An unattended noise survey was carried out over a 63 hour period to quantify the ambient and background noise levels in affecting the site. Additional spot measurements were carried out to quantify the noise levels of identified commercial activities.
- The measured noise levels were used to assess the noise impact on the proposed development of commercial noise sources in the vicinity.
- The assessment indicates that the majority of local commercial activities have no adverse impact on the proposed development.
- It was found that the chiller unit associated with RJS Convenience Store may have a low adverse impact on the living room to the rear of the site, although this would only occur during the night time period. During the daytime and evening periods it is considered that the chiller Unit would have no adverse impact.
- Based upon the measured exterior noise levels affecting the site it is considered that standard double glazed units and trickle vents would provide adequate noise insulation to protect the future residents of the proposed flats from the noise of commercial activities.
- It is considered that the sound insulation of the floor between the ground floor commercial premises and the proposed first floors flats should meet or exceed the levels of sound insulation required by Building Regulations, and that this would provide an adequate level of noise mitigation.

Figures

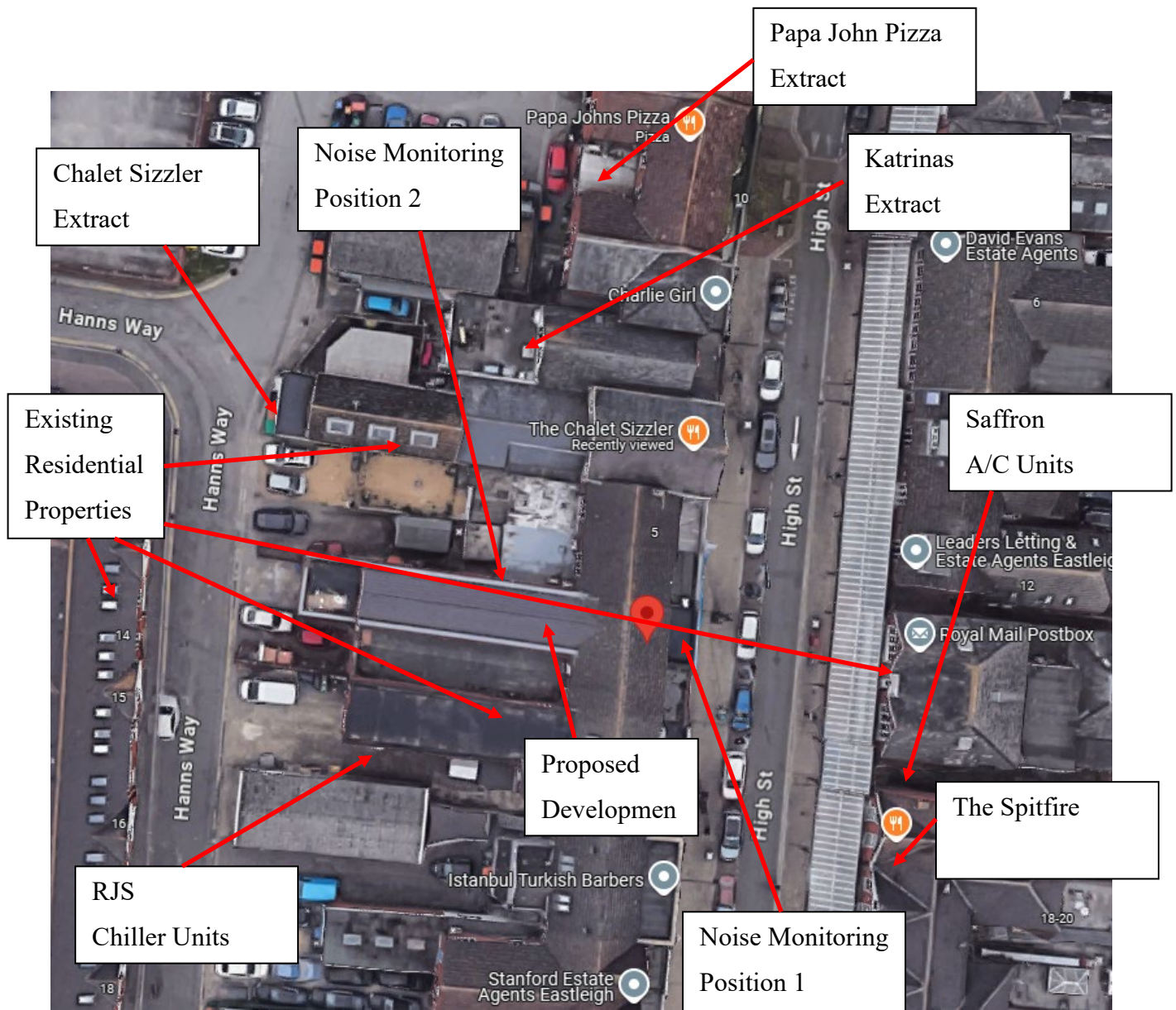


Figure 1: Site Location

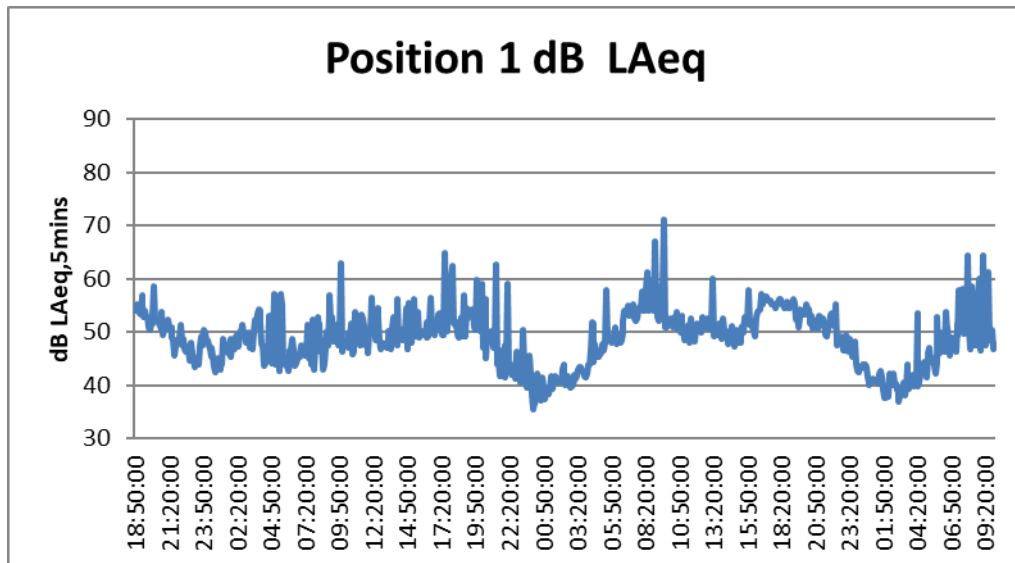


Figure 3: Position 1 Noise Levels dB LAeq,5mins

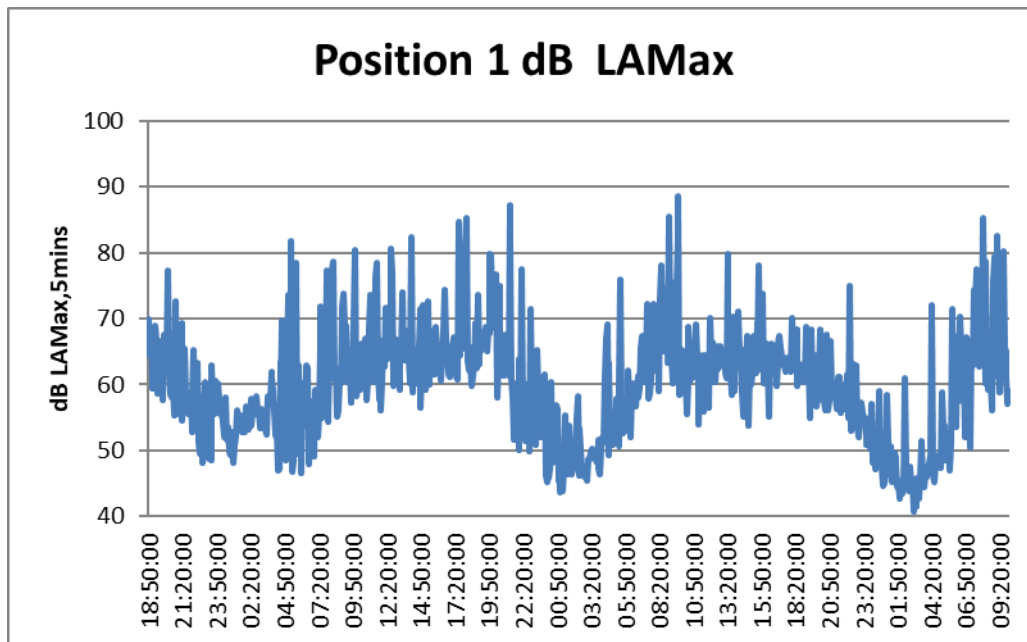


Figure 4: Position 1 Noise Levels dB LAMax,5mins

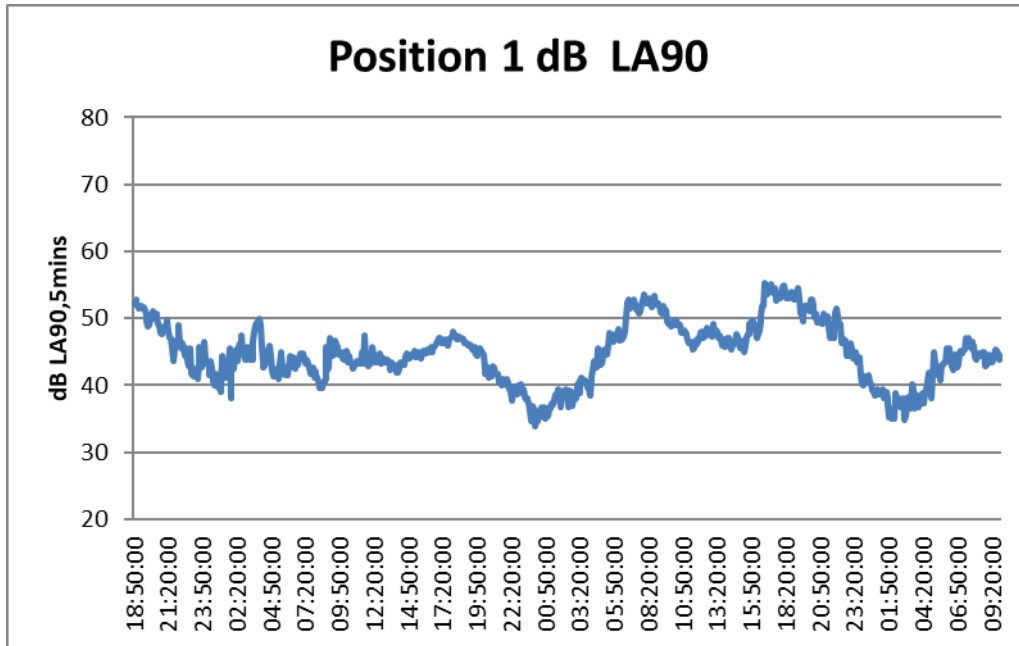


Figure 5: Position 1 Noise Levels dB LA90,5mins

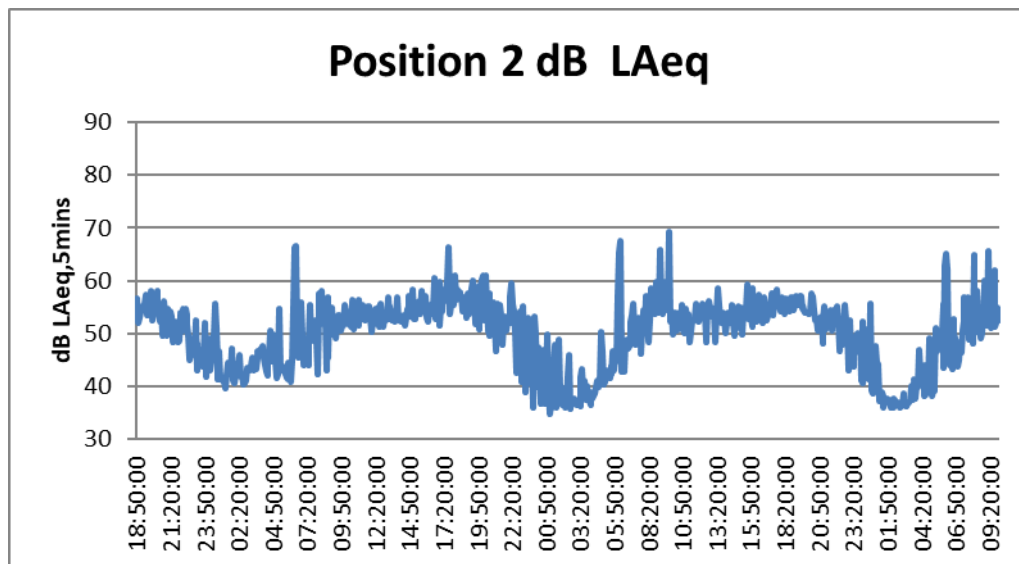


Figure 6: Position 2 Noise Levels dB LAeq,5mins

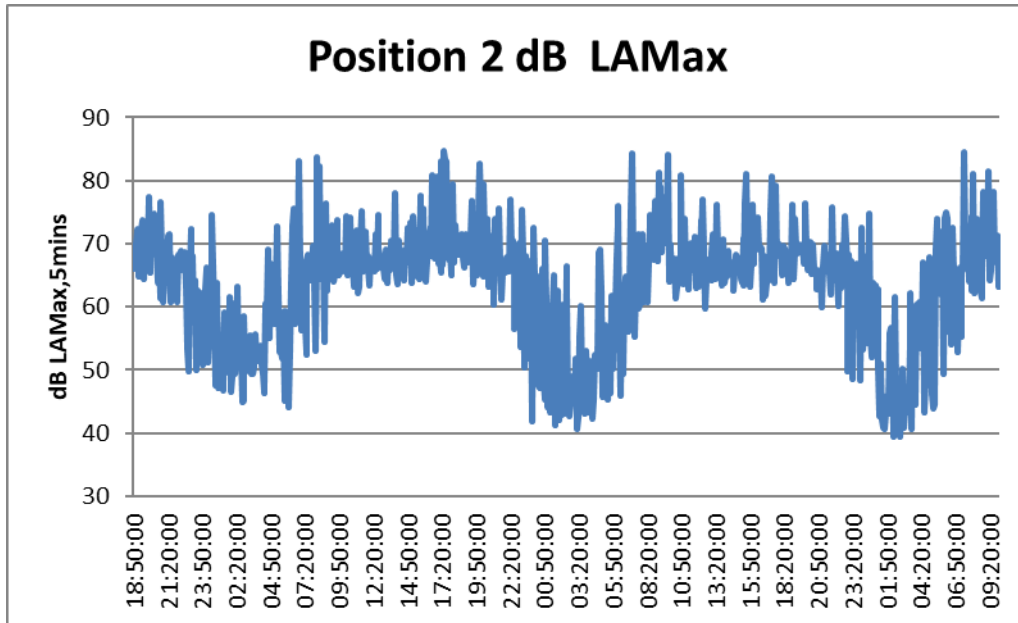


Figure 7: Position 2 Noise Levels dB L_Amax,5mins

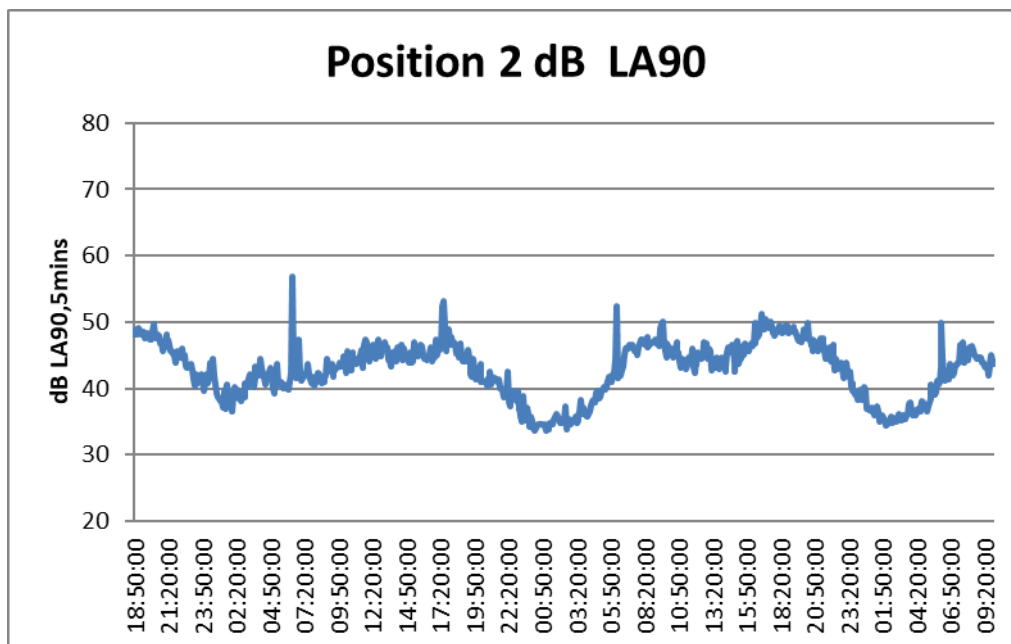


Figure 8: Position 2 Noise Levels dB L_A90,5mins