



Noise Impact Assessment

Site Address: Watling Inn, 291 Watling Street, Nuneaton, CV11 6BQ

Client Name: The Watling Hotel

Project Reference No: NP-012560



Authorisation and Version Control

Revision	Reported By	Checked By
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Amendment History

Revision	Date	Summary of Amendments
01	29/04/2025	--
02	23/05/2025	AC condenser unit moved and recalculated noise impact.

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Delivering sustainable development by promoting good health and well-being through effective management of noise.

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1. Introduction

NOVA Acoustics Ltd has been commissioned to prepare a noise impact assessment for multiple fixed plant units to service a new hotel wing ('the proposed development') at Watling Inn, 291 Watling Street, Nuneaton, CV11 6BQ ('the site').

The applicant has received conditional approval for planning application No. 22/00065/FUL ('the Application') from Nuneaton & Bedworth Borough Council. This report has been prepared as evidence to discharge condition 7 imposed by the Local Planning Authority ('LPA') within the appeal No. APP/K2420/W/23/3326394.

A noise survey has been undertaken to establish the prevailing background sound levels at the closest Noise Sensitive Receptors ('NSR'). The report details the existing background sound climate and the predicted noise emissions associated with the proposed development. Measures required to mitigate noise impact from the proposed development have been recommended where necessary and assessed in accordance with the relevant performance standards, legislation, policy and guidance.

This noise assessment is necessarily technical in nature; therefore, a glossary of terms is included in Appendix A to assist the reader.

1.1 Standards, Legislation, Policy & Guidance

The following performance standards, legislation, policy and guidance have been considered to ensure good acoustic design in the assessment:

- The LPAs conditional approval; specifically, 'Condition 7'.
- The LPAs technical guidance and policies, specifically; 'Nuneaton & Bedworth Borough Council, Borough Plan, 2011 – 2031'
- National Planning Policy Framework (2024).
- Noise Policy Statement for England (2010).
- British Standard BS4142:2014+A1:2019 – 'Methods for rating and assessing industrial and commercial sound'.

Further information on the legislation can be found in Appendix B.

1.3 Local Planning Authority & Background

The following planning condition imposed on application appeal No. APP/K2420/W/23/3326394 by the LPA requires discharging:

“7.) No development above foundation level shall commence on site until a scheme for protecting nearby dwellings from noise from the proposed development has been submitted to and approved by the Local Planning Authority. All works which form part of the noise mitigation scheme shall be completed before the permitted development first comes into use.”

In light of the above, a noise impact assessment in accordance with BS4142:2014+A1:2019 has been undertaken.

2. Environmental Noise Survey

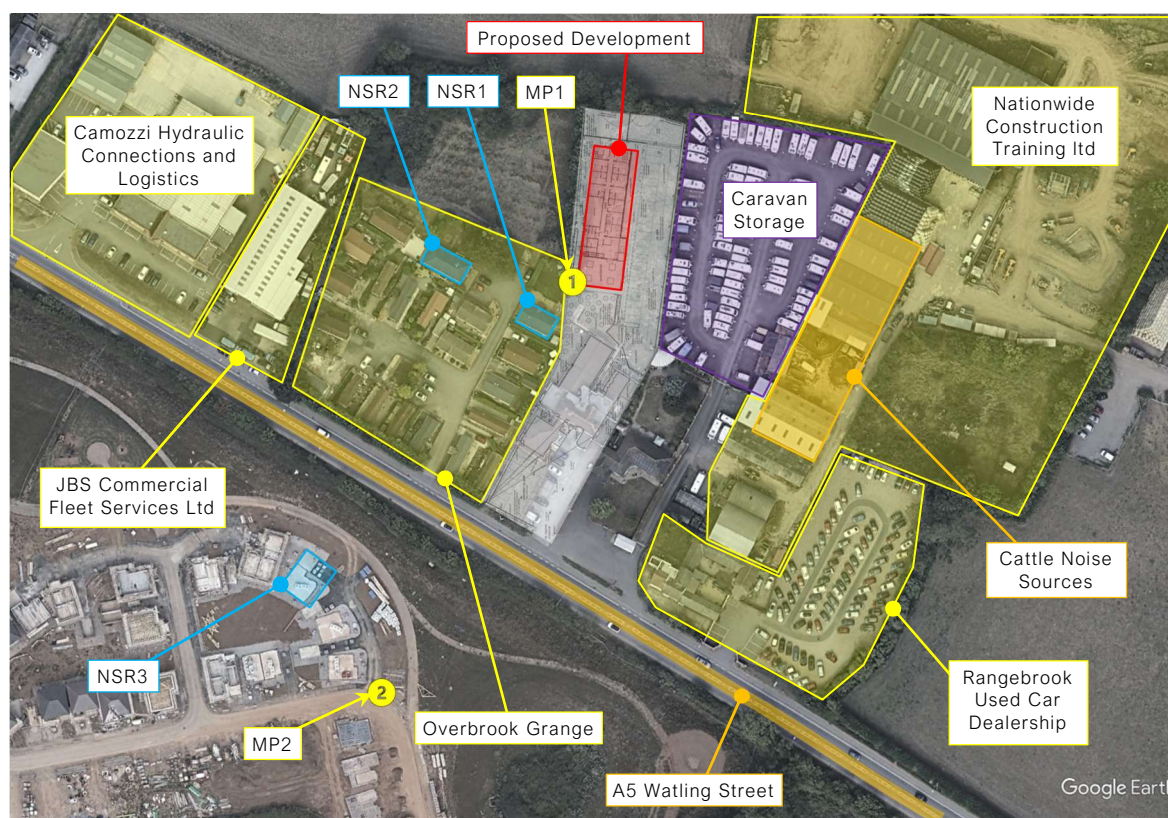
2.1 Measurement Methodology

The following table outlines the measurement dates and particulars. Weather conditions during the environmental sound survey can be found in Appendix D. Both sound level meters were fitted with proprietary outdoor kits and 130mm diameter wind shields.

Location	Survey Dates	Measurement Particulars
MP1	23 – 25/04/25	Sound level meter tripod mounted 2m above the ground adjacent to the boundary between the existing site rear garden and NSR1.
MP2		Sound level meter mounted on a lamppost 4m above ground level overlooking 'Roman Avenue' (to avoid public interference).

Table 1 – Measurement Methodology

The figure below outlines the site surroundings and measurement locations.



Imagery ©2025, Map data ©2025

Figure 2 – Measurement Locations and Site Surroundings

2.1 Context & Subjective Impression

The proposed development site is located between several commercial enterprises and nearby residential neighbourhoods, with agricultural land from the west through north to the east, where the A5 passes through.

Nearby existing commercial noise sources in order of proximity:

- “Overbrook Grange” caravan park – Presumed permanently occupied
- “Caravan Storage” – Open 08:00 – 18:00, Mon – Fri
- “Rangebrook” used car dealership – Open 09:00 – 18:00 Mon – Fri, 09:00 – 17:00 Sat, 10:30 – 17:00 Sun
- “Nationwide Construction Training Ltd”, Test & training area
- Agricultural warehousing used for cattle activity
- “JBS Commercial Fleet Services Ltd” – Open 08:00 – 18:00 Mon - Fri
- “Camozzi Automation Ltd” – Open 08:30 – 17:30 Mon - Fri

The acoustic environment across the site is described as moderate in level and highly dominated by road noise from the nearby A5. During site visits, there was no commercial activity audible over road noise except cattle being moved in nearby warehouses at MP1.

It should be noted that the A5 was highly dominant at MP2, however, there was some mobile plant audible from the south as the new housing estate is presently still under construction.

2.2 Environmental Noise Survey Results

Background Sound Level Analysis

The following figures histogram graphs of the background sound levels measured throughout the entire measurement period at both MP1 and MP2. The time history results can be found in Appendix D.

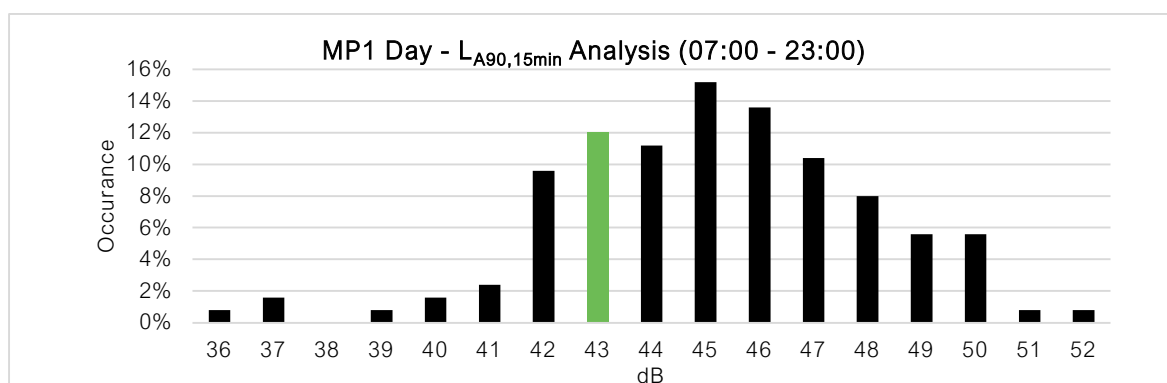


Figure 3 – MP1 Daytime Hours Background Sound Level Analysis

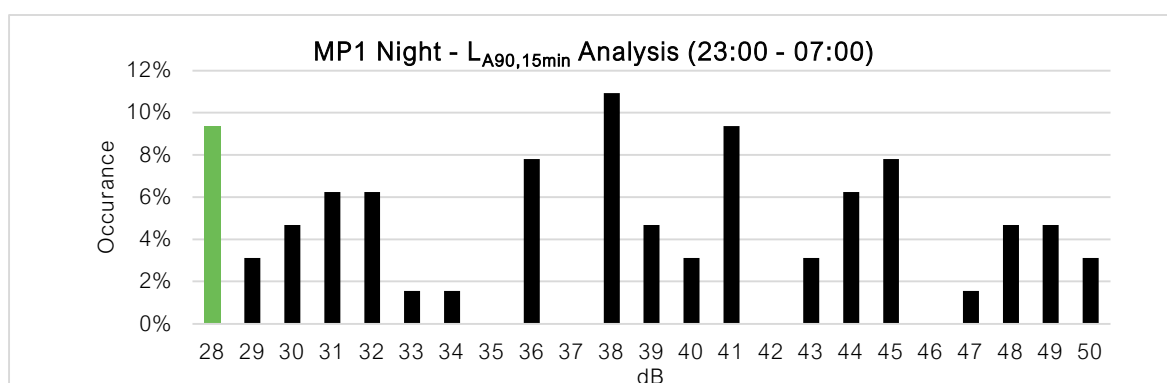


Figure 4 – MP1 Night-time Hours Background Sound Level Analysis

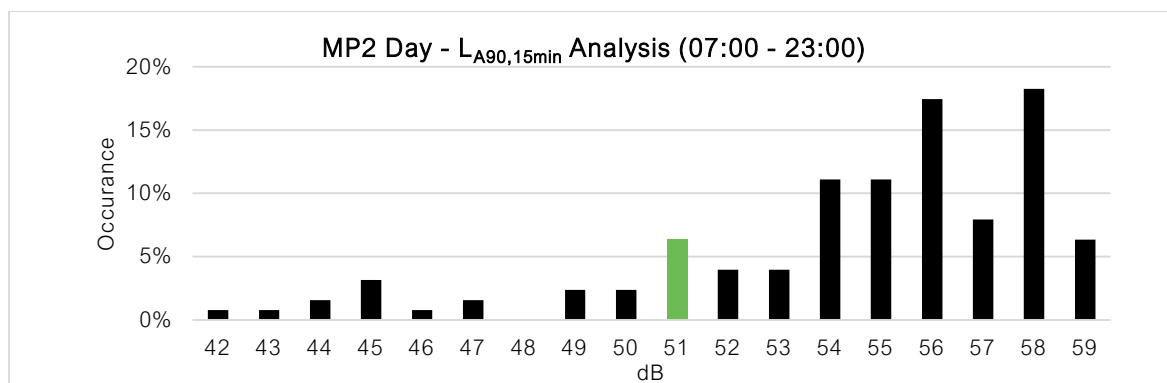


Figure 5 – MP2 Daytime Hours Background Sound Level Analysis

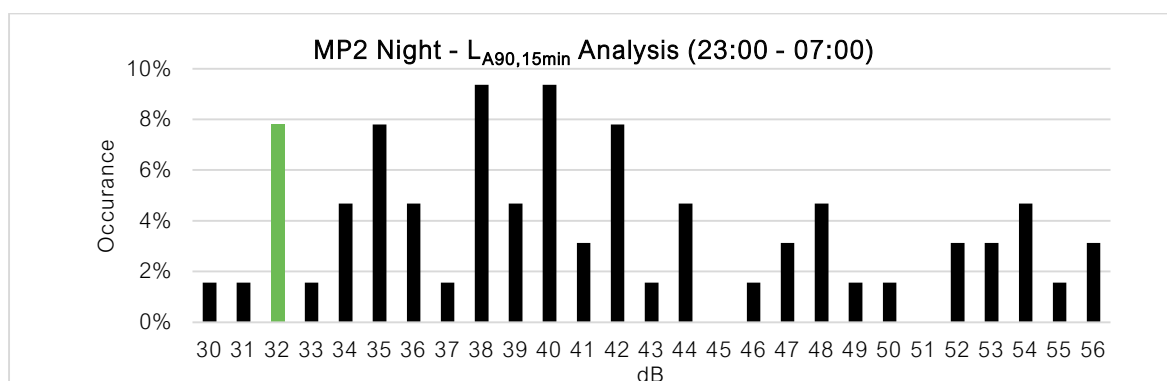


Figure 6 – MP2 Nighttime Hours Background Sound Level Analysis

Summarized below are the 'lowest typical' $L_{A90,15min}$ measurements based on frequency and distribution for MP1 and MP2, which will be used as the baseline for the following BS4142 assessments.

Location	Daytime $L_{A90,15min}$	Nighttime $L_{A90,15min}$
MP1	43	28
MP2	51	32

Table 2 – Summary of Background Noise Criteria

As the kitchen operates from 06:30, which is considered to be part of the night-time operational hours, further background noise analysis has been undertaken.

It was found that between the hours of 06:30 – 10:00, the $L_{A90,15min}$ sound level was circa 45dB at MP1, and 56dB at MP2.

When referencing data shown in the time history for MP1, a background noise level of 44dB $L_{A90,15min}$ is reached and maintained from 05:00 onwards. Therefore, the MP1 daytime $L_{A90,15min}$ figure from Table 2 will be used as it represents a marginally lower background sound level, offering the most robust assessment.

3. BS4142 Noise Impact Assessment

In the following section of the report, the impact of the noise emissions generated by the proposed development is assessed.

3.1 Proposed Fixed Plant & Specific Sound Levels

The following table shows the 1/1 octave frequency band sound power levels of all fixed plant that will be used in the subsequent calculations. Manufacturers data sheets can be found in Appendix E.

Description	1/1 Octave Frequency Band (Hz, L _w dB)								Overall (dBA)
	63	125	250	500	1k	2k	4k	8k	
1no. Strebel S-ASX-NT-70 (AS – Low noise setup)	82	80	78	74	71	67	61	54	77
Insertion of Strebel Enclosure	-8	-11	-16	-23	-26	-28	-30	-28	--
1no. Daikin RXYSQ12TY1	74	69	64	62	60	52	51	44	64
1no. Mitsubishi LGH-250RVXT-E ^[1]	79	78	75	68	63	58	53	48	71
LGH-250RVXT-E Duct Outlet	69	72	70	60	55	54	50	45	65
1no. Ventaxia Lo-Carbon MVDC-MS Outlet ^[2]	76	79	72	70	54	51	48	42	70
Ventaxia Lo-Carbon MVDC-MS Duct Outlet	60	68	65	65	54	51	48	42	64
1no. Ruck MPC 355 D4 F4 T40 Outlet	70	72	79	79	76	73	70	69	81
Ruck MPC 355 D4 F4 T40 Duct Outlet	57	61	69	69	70	67	64	63	74
1no. Colourfan Unit size 5 CAS0545-1 Outlet	70	62	56	51	44	46	41	44	55
Colourfan Unit size 5 CAS0545-1 Duct Outlet	62	57	52	48	44	46	41	44	53
Notes:									
[1] The spectral noise data has been calculated using typical plant spectra corrected to the manufacture's overall loudness data. Refer to appendix of manufactures data for expanded methodology undertaken by Mitsubishi.									
[2] Presently there exists two fan options for the toilet extract system, of which the louder has been chosen for assessment. The alternative was the "Colourfan Unit size 4 CAE0444-1".									

Table 3 – Sound Power Levels of Proposed Fixed Plant

These assessments have been undertaken without considering the in-duct attenuation depicted in provided plans to represent the 'worst-case' scenario. The Daikin AC condenser unit and Strebel ASHP (in enclosure) will be placed with a fence shielding the NSR, which will be taken into consideration.

3.2 BS4142 Noise Impact Assessment

The following tables show the BS4142 assessments for all active elements of plant during daytime (including early morning operational periods) and night-time periods.

It is assumed that should low impact in accordance with BS4142 be achieved at the closest NSR(1), then low impact can also be achieved at NSRs further away.

For full specific sound levels calculations please see Appendix F.

BS4142 Noise Impact Assessment – Daytime									
Description	1/1 Octave Frequency Band (Hz, dB)								Overall (dBA)
	63	125	250	500	1k	2k	4k	8k	
Cumulative Specific Sound Level at NSR1 (L_{eq})	41	43	41	32	26	25	21	16	36
BS4142 Acoustic Feature Correction	<i>A +3 dB penalty has been applied for potentially perceptible intermittent noise emissions.</i>								+3
Rating Sound Level ($L_{Ar,Tr}$)	Specific Sound Level + Rating Penalties								39
Background Sound Level	MP1 Daytime $L_{A90,15min}$ – Figure 2.								43
Exceedance	$L_{Ar,Tr} - L_{A90,15min}$								-4
Initial BS4142 Assessment Outcome	'Low Impact, dependent on context'.								
NPPF & NPSE Outcome	'No Observed Adverse Effect Level ('NOAEL').								

Table 4 – BS4142 Daytime (Operational Hours) Noise Impact Assessment – NSR1

Calculations & BS4142 Noise Impact Assessment – Nighttime									
Description	1/1 Octave Frequency Band (Hz, dB)								Overall (dBA)
	63	125	250	500	1k	2k	4k	8k	
Cumulative Specific Sound Level at NSR1 (L_{eq})	34	28	21	16	12	5	4	3	19
BS4142 Acoustic Feature Correction	<i>A +3 dB penalty has been applied for potentially perceptible intermittent noise emissions.</i>								+3
Rating Sound Level ($L_{Ar,Tr}$)	Specific Sound Level + Rating Penalties								22
Background Sound Level	MP1 Night-time $L_{A90,15min}$ – Figure 3.								28
Exceedance	$L_{Ar,Tr} - L_{A90,15min}$								-6
BS4142 Assessment Outcome	'Low Impact, dependent on context'.								
NPPF & NPSE Outcome	'No Observed Adverse Effect Level ('NOAEL').								

Table 5 – BS4142 Night-time Noise Impact Assessment – NSR1

As can be seen above, the assessments indicate 'low impact, dependent on context' in accordance with BS4142, which in these instances equate a 'No Observed Adverse Effect Level ('NOAEL') in line with the NPPF and NPSE.

These assessments have been undertaken without considering the in-duct attenuation depicted in provided plans to represent the 'worst-case' scenario. Any additional attenuation would only be beneficial from an acoustic point of view.

4. Conclusion and Action Plan

The proposed development has been assessed against the requirements of BS4142, and recommendations have been provided to ensure the criteria can be achieved.

The following 'Action Plan' is outlined to ensure the design considerations and specifications from this report are duly implemented:

1. The makes and models of any plant should not be altered. If alterations to the specification and location of the units are required, then further assessment should be undertaken.
2. The Strebel chiller unit shall be installed using the "AS - Low noise setup" method, and the specified acoustic enclosure installed.
3. A 2m tall close-boarded fence with no gaps and a minimum surface density of 15kg/m² shall be installed in between the proposed development and NSR1.
4. Despite the positive outcome, good acoustic design in the form of in-line duct attenuators would only be beneficial.
5. All installed plant shall be commissioned to run at the lowest possible speed required and maintained to reduce noise output.
6. The proposed plant associated with the kitchen operating times should be restricted via a condition to ensure that the plant does not operate outside the proposed operational hours. The client must have a control system to ensure that the proposed ventilation system does not operate outside the proposed operational hours.

The findings of this report will require written approval from the Local Authority prior to work commencing.

Appendix A – Acoustic Terminology

A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure given by the following formula in decibels (dBA). $L_{pA} = 10 \log_{10} (pA/p_0)^2$. Where: pA is the A-weighted sound pressure in pascals (Pa) and p_0 is the reference sound pressure (20 μ Pa)
Background Sound	Underlying level of sound over a period, T , which might in part be an indication of relative quietness at a given location
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T , has the same mean-squared sound pressure as the sound under consideration that varies with time
Facade level	Sound pressure level 1 m in front of the facade
Free-field level	Sound pressure level away from reflecting surfaces
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants
Noise Criteria	Numerical indices used to define design goals in a given space
Noise Rating (NR)	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves
Octave Band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit
Percentile Level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting “F”, which is exceeded for $N\%$ of a specified time interval
Rating Level, $L_{Ar,Tr}$	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise
Reverberation time, T	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped
Sound Pressure, p	root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound
Sound Pressure Level, L_p	Quantity of sound pressure, in decibels (dB), given by the formula: $L_p = 10 \log_{10} (p/p_0)^2$. Where: p is the root-mean-square sound pressure in pascals (Pa) and p_0 is the reference sound pressure (20 μ Pa)
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies

Appendix B – Standards, Legislation, Policy, and Guidance

This report is to be primarily based on the following standards, legislation, policy and guidance.

B.1 – National Planning Policy Framework (2024)

Government policy on noise is set out in the National Planning Policy Framework (NPPF), published in 2024. This replaced all earlier guidance on noise and places an emphasis on sustainability. In section 15, Conserving and enhancing the natural and local environment, paragraph 187e, it states:

Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

Paragraph 198 states:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

B.2 – Noise Policy Statement for England (2010)

Paragraph 198 of the NPPF also refers to advice on adverse effects of noise given in the Noise Policy Statement for England (NPSE). This document sets out a policy vision to:

Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

To achieve this vision the Statement identifies the following three aims:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life;
- Where possible, contribute to the improvement of health and quality of life.

In achieving these aims the document introduces significance criteria as follows:

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur. It is stated that “significant adverse effects on health and quality of life should be avoided while also considering the guiding principles of sustainable development”.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected. It is stated that the second aim above lies somewhere between LOAEL and SOAEL and requires that: “all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also considering the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.”

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise. This can be related to the third aim above, which seeks: “where possible, positively to improve health and quality of life through the pro-active management of noise while also considering the guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”

This is further expanded using the updated “Noise Exposure Hierarchy Table” which includes an additional level of impact referred to as the ‘No Observed Adverse Effect Level’ (‘NOAEL’). It is stated that at this level: *“noise can be heard, but does not cause any change in behaviour, attitude or other physiological response”*. In addition, noise at this level *“can slightly affect the acoustic character of the area but not such that there is a change in the quality of life”*.

The NPSE recognises that it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations and provides no guidance as to how these criteria should be interpreted. It is clear, however, that there is no requirement to achieve noise levels where there are no observable adverse impacts but that reasonable and practicable steps to reduce adverse noise impacts should be taken in the context of sustainable development and ensure a balance between noise sensitive and the need for noise generating developments.

Any scheme of noise mitigation outlined in this report will, therefore, aim to abide by the above principles of the NPPF and NPSE whilst recognizing the constraints of the site.

B.3 – BS4142:2014+A1:2019 – ‘Methods for rating and assessing industrial and commercial sound’

Overview

BS4142:2014 sets out a method to assess the likely effect of sound from factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises, on people who might be inside or outside a dwelling or premises used for residential purposes in the vicinity.

The procedure contained in BS4142:2014 for assessing the effect of sound on residential receptors is to compare the measured or predicted sound level from the source in question, the $L_{Aeq,T}$ 'specific sound level', immediately outside the dwelling with the $L_{A90,T}$ background sound level.

Where the sound contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific sound level to obtain the $L_{A,r}$ 'rating sound level'. A correction to include the consideration of a level of uncertainty in sound measurements, data and calculations can also be applied when necessary.

Rating Penalty

Section 9 of BS4142:2014 describes how the rating sound level should be derived from the specific sound level, by deriving a rating penalty.

BS4142:2014 states:

"Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level. This can be approached in three ways:

- a) subjective method;*
- b) objective method for tonality;*
- c) reference method."*

Due to the nature of the development the subjective method has been adopted to derive the rating sound level from the specific sound level. This is discussed in Section 9.2 of BS4142:2014, which states:

"Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed. Correct the specific sound level if a tone, impulse or other characteristics occurs, or is expected to be present, for new or modified sound sources."

BS4142:2014 defines four characteristics that should be considered when deriving a rating penalty, namely; tonality; impulsivity; intermittency; and other sound characteristics, which are defined as:

a) Tonality

A rating penalty of +2 dB is applicable for a tone which is "just perceptible", +4 dB where a tone is "clearly perceptible", and +6 dB where a tone is "highly perceptible".

b) Impulsivity

A rating penalty of +3 dB is applicable for impulsivity which is "just perceptible", +6 dB where it is "clearly perceptible", and +9 dB where it is "highly perceptible".

c) Other Sound Characteristics

BS4142:2014 states that where "the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distance against the residual acoustic environment, a penalty of +3 dB can be applied."

d) *Intermittency*

BS4142:2014 states that when the “specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time ... if the intermittency is readily distinctive against the residual acoustic environment, a penalty of +3 dB can be applied.”

Background Sound Level

The background sound level is the underlying level of sound over a period, T, and is indicative of the relative quietness at a given location. It does not reflect the occurrence of transient and/or higher sound level events and is generally governed by continuous or semi-continuous sounds.

To ensure the background sound level values used within the assessment are reliable and suitably represent both the particular circumstance and periods of interest, efforts have been made to quantify a ‘typical’ background sound level for a given period. The purpose has not been to simply select the lowest measured value. Diurnal patterns have also been considered as they can have a major influence on background sound levels, for example, the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night time period for sleep purposes.

Since the intention is to determine a background sound level in the absence of the specific sound that is under consideration, it is necessary to understand that the background sound level can in some circumstances legitimately include industrial and/or commercial sounds that are present as separate to the specific sound.

Assessment of Impact

BS4142:2014 states: “The significance of sound of an industrial and/or commercial nature depends upon both 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”. An estimation of the impact of the specific sound can be obtained by the difference of the rating sound level and the background sound level and considering the following:

- “Typically, the greater this difference, the greater the magnitude of the impact.”
- “A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.”
- “A difference of around +5dB is likely to be an indication of an adverse impact, depending on the 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 sound source having a negligible impact, depending on the context.”

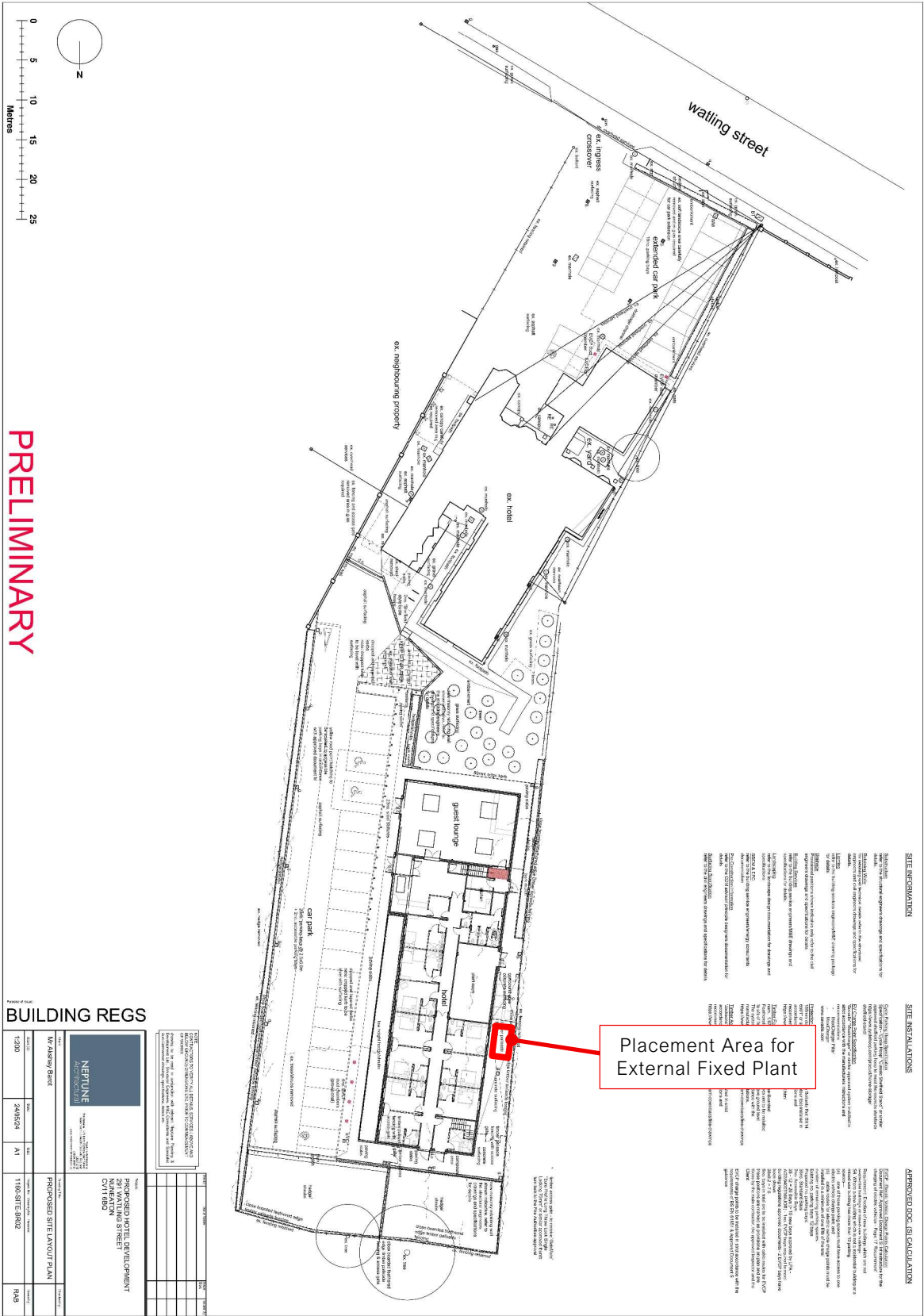
Interpreting the guidance given in BS4142:2014, with consideration of the guidance given in the NPSE and NPPG Noise, an estimation of the impact of the rating sound is summarised in the following text:

- A rating sound level that is +10 dB above the background sound level is likely to be an indication of a Significant Observed Adverse Effect Level;

- A rating sound level that is +5 dB above the background sound level is likely to be an indication of a Lowest Observed Adverse Effect Level;
- The lower the rating sound 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 sound level does not exceed the background sound level, this is an indication of the specific sound source having a negligible impact and would therefore be classified as No Observed Adverse Effect Level.

During the daytime, the assessment is carried out over a reference time period of 1-hour. The periods associated with day or night, for the purposes of the Standard, are 07.00 to 23.00 and 23.00 to 07.00, respectively.

Appendix C – Full Site Plan



Appendix D – Environmental Survey

D.1 – Time History Noise Data

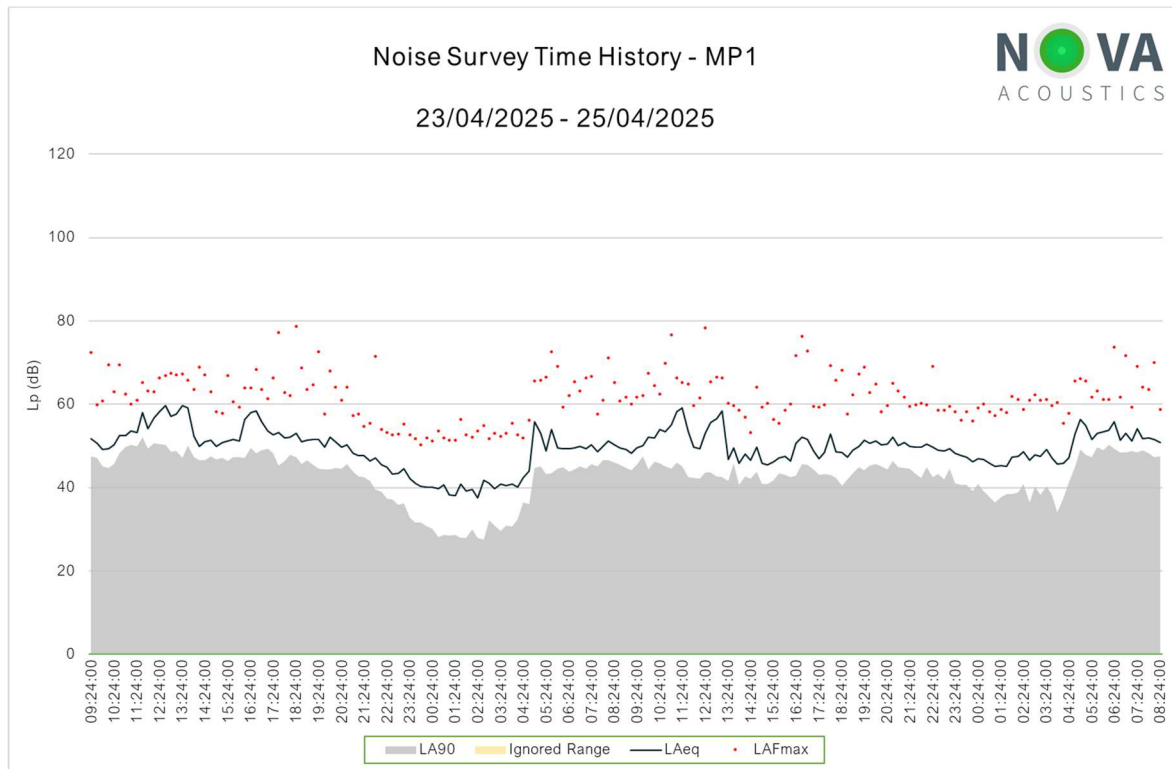


Figure 7 – MP1 Noise Survey Time History

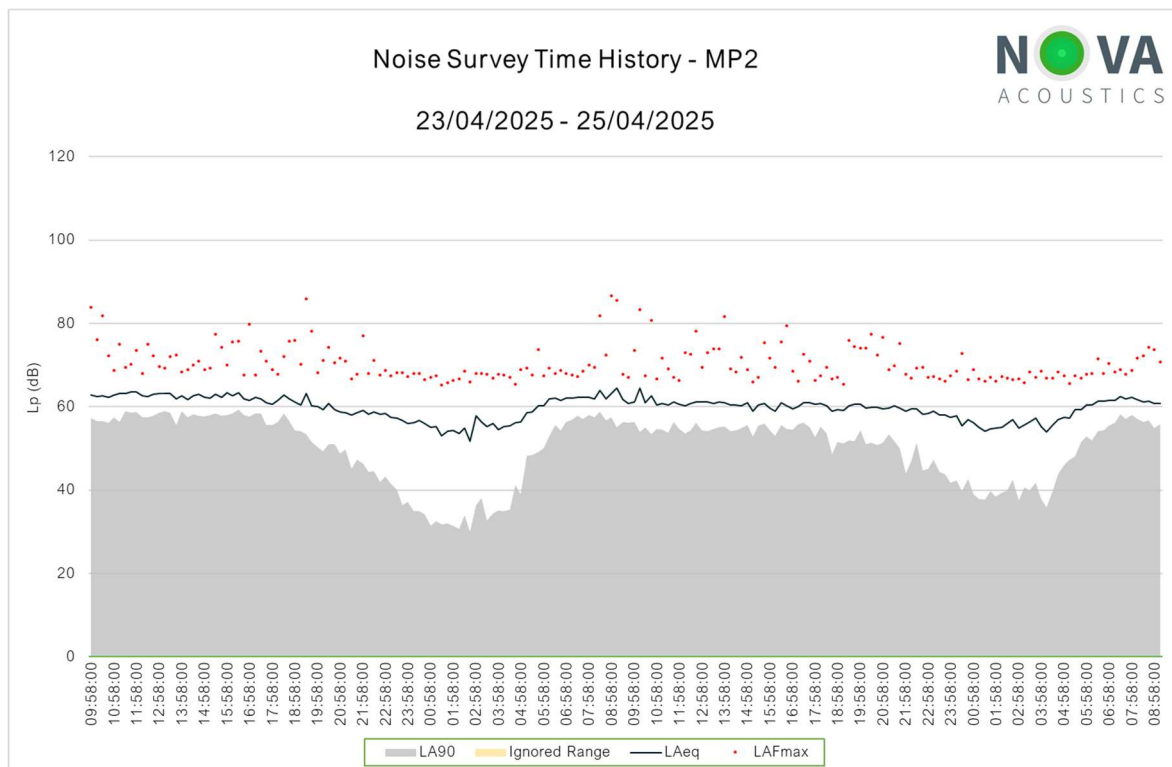


Figure 8 – MP2 Noise Survey Time History

D.2 – Surveying Equipment

Piece of Equipment	Serial No.	Calibration Deviation
Svantek SV971A Class 1 Sound Level Meter	127628	≤0.1
Svantek SV33B Class 1 Calibrator	116639	
Svantek SV977 Class 1 Sound Level Meter	34826	≤0.3
Svantek SV33B Class 1 Calibrator	116639	

Table 6 – Surveying Equipment

All equipment used during the survey was field calibrated at the start and end of the measurement period with a negligible deviation of ≤0.3dB. All sound level meters are calibrated every 24 months and all calibrators are calibrated every 12 months by a third-party calibration laboratory. All microphones were fitted with a protective windshield for the entire measurements period. Calibration certificates can be provided upon request.

D.3 – Meteorological Conditions

As the environmental noise survey was carried out over a long un-manned period no localised records of weather conditions were taken. However, all measurements have been compared with met office weather data of the area, specifically the closest weather station, and the data from the weather station is outlined in the table below. When reviewing the time history of the noise measurements, any scenarios that were considered potentially to be affected by the local weather conditions have been omitted.

The analysis of the noise data includes statistical and percentile analysis and review of minimum and maximum values, which aids in the preclusion of any periods of undesirable weather conditions. The weather conditions were deemed suitable for the measurement of environmental noise in accordance with BS7445 Description and Measurement of Environmental Noise. The table below presents the average temperature, wind speed and rainfall range for each 24-hour period during the entire measurement.

Weather Conditions – Stoke Golding (Approx. 4.3km NE of Site)				
Time Period	Air Temp (°C)	Rainfall (mm/h)	Prevailing Wind Direction	Wind Speed (m/s)
23/04/25: 00:00 – 23:59	7.8 – 15.0	0.0 – 5.1	E	0.0 – 3.1
24/04/25: 00:00 – 23:59	6.3 – 14.1	0.0	ENE	0.0 – 2.2
25/04/25: 00:00 – 23:59	3.5 – 15.1	0.0	ESE	0.0 – 1.3

Table 7 – Survey Weather Conditions

Appendix E – Manufacturers' Data Sheets

TECHNICAL DATA AND PERFORMANCES

Noise Levels

Option "Acoustic setting up": "AB - Base setting up"

Model	Sound power levels [dB] by octave bands [Hz]								Sound power level		Sound pressure level		
	63	125	250	500	1000	2000	4000	8000	[dB]	[dB(A)]	at 1 metre [dB(A)]	at 5 metres [dB(A)]	at 10 metres [dB(A)]
60	85.8	82.4	80.9	76.4	73.3	67.3	59.6	50.3	89	79	61	52	47
70	86.7	83.3	81.8	77.3	74.2	68.2	60.5	51.2	90	80	62	53	48
80	86.8	83.4	81.9	77.4	74.3	68.3	60.6	51.3	90	80	62	53	48
90	87.7	84.3	82.8	78.3	75.2	69.2	61.5	52.2	91	81	62	54	49
100	87.8	84.4	82.9	78.4	75.3	69.3	61.6	52.3	91	81	62	54	49

Reference conditions

Performances referred to units operating in heating mode at nominal conditions A7W35.

Unit placed in free field on reflecting surface (directional factor equal to 2).

The sound power level is measured according to ISO 3744 standard.

The sound pressure level is calculated according to ISO 3744 and is referred to 1 metre from the external surface of the unit.

Option "Acoustic setting up": "AS - Low noise setting up"

Model	Sound power levels [dB] by octave bands [Hz]								Sound power level		Sound pressure level		
	63	125	250	500	1000	2000	4000	8000	[dB]	[dB(A)]	at 1 metre [dB(A)]	at 5 metres [dB(A)]	at 10 metres [dB(A)]
60	81.0	78.9	77.2	73.5	70.0	65.8	60.1	52.6	85	76	58	49	44
70	81.9	79.8	78.1	74.4	70.9	66.7	61.0	53.5	86	77	59	50	45
80	82.0	79.9	78.2	74.5	71.0	66.8	61.1	53.6	86	77	59	50	45
90	82.9	80.8	79.1	75.4	71.9	67.7	62.0	54.5	87	78	59	51	46
100	83.0	80.9	79.2	75.5	72.0	67.8	62.1	54.6	87	78	59	51	46

Reference conditions

Performances referred to units operating in heating mode at nominal conditions A7W35.

Unit placed in free field on reflecting surface (directional factor equal to 2).

The sound power level is measured according to ISO 3744 standard.

The sound pressure level is calculated according to ISO 3744 and is referred to 1 metre from the external surface of the unit.

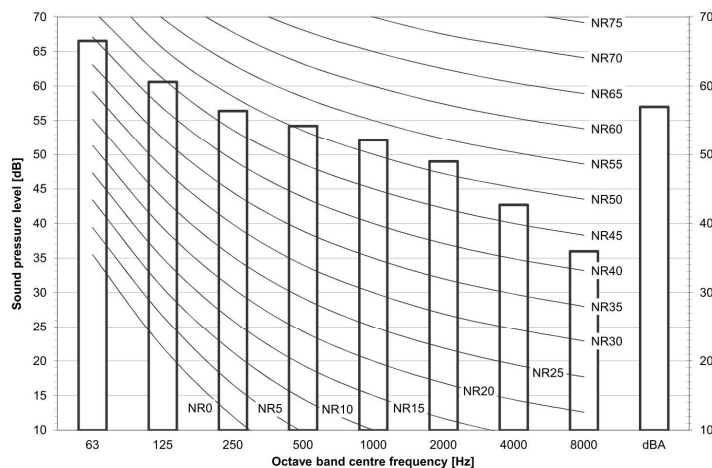
MODEL		LGH-250RVXT-E				SIGN			
Heat exchange system		Heat recovery ventilating system							
Heat exchanger material		Special treated paper plate heat exchanger							
Cladding		Galvanized steel sheet							
Heat insulation material		Self-extinguishing urethane foam							
Motor		EC motor							
Blower		280mm diameter centrifugal fan							
Filter		Non-woven fabrics filter (Gravitational method 82% EU-G3)							
Surrounding air condition		Shall be between -10℃ and 40℃, 80%RH or less							
Suction air condition		Shall be lower than 40℃, 80%RH							
Supply fan operation under low outdoor temperature		-10℃ to -15℃ : Intermittent operation 60 min ON, 10 min OFF. -15℃ or less : Intermittent operation 55 min OFF, 5 min ON.							
Function		Heat recovery ventilation/ Bypass ventilation, Fan speed 1,2,3,4							
Weight		198kg							
Electrical power supply		220-240V/50Hz, 220V/60Hz							
Ventilation mode		Heat recovery mode				Bypass mode			
Fan speed		SP4	SP3	SP2	SP1	SP4	SP3	SP2	SP1
Running current [A]		7.60	3.60	1.40	0.57	6.90	3.10	1.30	0.49
Input power [W]		1,446	687	244	82	1298	587	212	69
SFP [W/(L/s)]		2.1	1.3	0.7	0.5	1.9	1.1	0.6	0.4
Air volume [m³/h]		2,500	1,875	1,250	625	2,500	1,875	1,250	625
[L/s]		694	521	347	174	694	521	347	174
External static pressure [Pa]		175	98	44	11	175	98	44	11
Return [Pa]		100	56	25	6	100	56	25	6
Exchange efficiency [%]		77.0	79.0	80.5	82.5	-	-	-	-
Temperature		68.0	71.5	74.0	79.0	-	-	-	-
Enthalpy Heating		65.5	69.0	71.5	76.5	-	-	-	-
Cooling		43.0	39.0	32.0	24.0	44.0	38.5	31.0	22.5
Noise [dB]									
Insulation resistance		10MΩ or more							
Direct strength		AC 1500V 1 minute							
■Characteristic curve									
■Attention									
1. The running current, the input power, the efficiency and the noise are based on the rating air volume, and 230V/50Hz.									
2. Temperature exchange efficiency (%) is based on winter condition.									
3. Heat recovery ventilation mode starts automatically while detecting OA temperature lower than 8℃, even Bypass mode is selected. Remote controller continues to display "Bypass ventilation" in this case.									
4. Mitsubishi Electric measures figures in the chart according to Japan Industrial Standard (JIS B 8628), therefore the characteristic curves are measured by chamber method.									
5. The noise level at 1.5m away from outlets in the 45° direction is about 15dB greater than the indicated value at fan speed 4.									
6. On-site measurements by pitot tube method could be as much 20% difference from JIS test room conditions. If the measuring point is close to sources of turbulence like bends, contractions and dampers etc., it is difficult to measure air volume correctly. A straight duct length more than 10D (D=duct diameter or equivalent) from the source of turbulence is recommended for correct measurement. On-site measurement should therefore be measured in accordance with BSRIA guideline (Commissioning Air Systems. Application procedures for buildings AG3/89.3(2001)).									
※Specification may be subject to change without notice									
SPECIFICATIONS		DATE		TYPE		CEILING RECESSED LOSSNAY			
		15-Oct-2015		MODEL		LGH-250RVXT-E			
MITSUBISHI ELECTRIC CORPORATION		NUMBER		N15HHGU0030B		1/5			

11 Sound data

11 - 2 Sound Pressure Spectrum

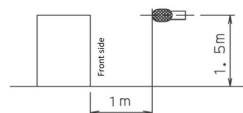
11

RXYSQ12TY1



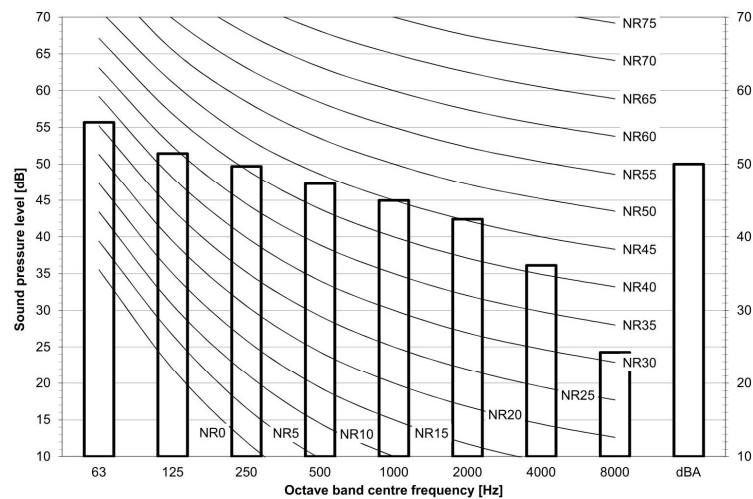
Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa



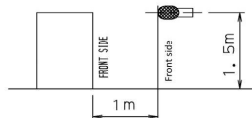
3D098247

RXYSQ4T8Y



Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa



3D098215

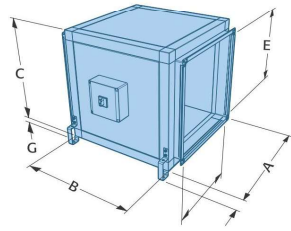
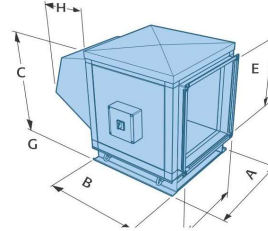
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Premium efficiency extract units

Unit configuration

Configuration and handling

CAE0444-1 / **P** **W** / EE / **LT** **RB** / ISC
RT **LB**

P Plantroom**W** Weatherproof

Unit type	Dimensions (mm)								Weight (kg)	Configuration options					
	A	B	C	D	E	F	G	H		LT	LB	RT	RB	L	R
CAE4 Plantroom extract	600	600	600	500	500	50	25		55	✓	✓	✓	✓		
CAE4 Weatherproof extract	600	600	725	500	500			350	70					✓	✓

Noise and silencer data

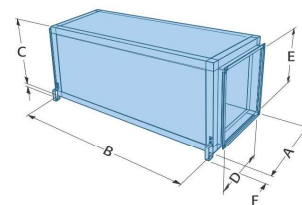
Fan voltage	Fan speed (RPM)	Sound spectrum dB re 10 ⁻¹² w PWL centre frequency (Hz)								Casting noise breakdown			
		63	125	250	500	1k	2k	4k	8k	NR @ 1m	NR @ 3m	dBA @ 1m	dBA @ 3m
100%	2270	72	67	59	53	43	46	41	39	36	28	43	35
90%	2043	73	67	57	50	40	43	38	36	37	28	42	34
80%	1816	68	62	53	46	37	39	34	32	30	22	37	29
70%	1589	67	61	51	42	33	35	29	26	29	21	35	27
60%	1362	68	60	47	38	29	31	24	20	28	19	33	26
Centre frequency						63	125	250	500	1k	2k	4k	8k
Case insertion loss						-3	-5	-14	-19	-26	-22	-22	-15

Note: Independently acoustically tested to BS EN ISO 3744:2010.

Silencer option	Sound spectrum dB re 10 ⁻¹² w PWL centre frequency (Hz)							
CAEVA0400/1200	63	125	250	500	1k	2k	4k	8k
Induct loss	-6	-8	-12	-19	-28	-30	-24	-21
Dimensions (mm)	A	B	C	D	E	F	G	Weight (kg)
Plantroom CAEVA0400/1400/STD	600	1300	600	500	500	50	25	85
Weatherproof CAEVA0400/1400/W/STD	600	1300	725	500	500			105

Note: The silencer will add a maximum of 18 Pa to the external resistance.

Silencer



Note: Data for design guidance only. Detailed information is available upon request.

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ruck**MPC 355 D4 F4 T40**

162906

TECHNISCHE DATEN

Bezeichnung	Wert	Einheit	Formelzeichen
Volumenstrom	2528	m³/h	QV _{calc}
Druck	500	Pa	psf _{calc}
Ventilatorruck	503	Pa	pf
Statischer Ventilatorruck	500	Pa	psf
Stromaufnahme Motor	1	A	I _e
Stromaufnahme Elektrisch	1	A	I _{ed}
Elektrische Leistungsaufnahme	673	W	P _{ek}
Elektrische Leistungsaufnahme	716	W	P _{edk}
Frequenz	64	Hz	f _{rq}
Drehzahl	1852	1/min	N
Statischer Gesamtwirkungsgrad	52	%	etaFaPeK
Statischer Drehzahlgeregelter Gesamtwirkungsgrad	49	%	etaFaPeDK
Gesamtwirkungsgrad	52	%	etatPeK
Drehzahlgeregelter Gesamtwirkungsgrad	49	%	etatPeDK
SFP (Gesamtgerät)	958	W/(m³/s)	sfp _{device}
Schallleistungspegel Ansaug	74	dB(A)	LwA5
Schallleistungspegel Ausblas	81	dB(A)	LwA6
Schallleistungspegel Abstrahl	72	dB(A)	LwA2

SCHALLDATEN

Schallleistung	Mittelfrequenzband										Einheit	Formelzeichen
	Σ	63	125	250	500	1000	2000	4000	8000	16000		
Ansaug	74	39	51	64	71	66	67	64	59	45	dB(A)	LwA5
Ausblas	81	44	56	70	76	76	74	71	68	47	dB(A)	LwA6
Abstrahl	72	41	53	58	71	63	62	55	55	41	dB(A)	LwA2

SCHALLDRUCKPEGELRECHNER

Bezeichnung	Wert	Einheit
Hüllfläche	Halbkugel	
Abstand	3	m

Schalldruck	NR	Mittelfrequenzband										Einheit	Formelzeichen
		Σ	63	125	250	500	1000	2000	4000	8000	16000		
Ansaug	52	57	22	34	47	53	48	49	46	41	27	dB(A)	LwA5
Ausblas	58	64	26	39	52	58	59	56	53	51	30	dB(A)	LwA6
Abstrahl	52	55	24	35	40	53	45	45	37	37	23	dB(A)	LwA2



zur Produktseite

Premium efficiency supply units

Heating and controls

Heating Controls
 CAS0545-1 / P - **W** / EE / LT / G4 / **ISC**
W **E** RT F7 **CPSC**
 RB
 LB

	Technical Data						Heating and control options	
	Air volume m³/s	Maximum leaving air Temp °C	Maximum kW output	Water flow rate l/s	Water pressure kPa	Coil connection size BSP	Control panel	Valve and actuator kit
LPHW Heating	0.300	34.30	14.30	0.32	3.00	1¼"	CPG0-1/W/P/C	CASCWKT0500
	0.350	33.40	16.28	0.36	3.00			
	0.400	32.60	18.22	0.41	3.00			
	0.450	31.90	20.10	0.45	3.00			
	0.500	31.20	21.92	0.49	3.00			

LPHW coil, designed for LPHW 82/71°C, EAT -5°C, LAT 25 °C, coil construction copper tubes, aluminium fins, coil connections ¼" BSP.
 Note: If no control panel is purchased the unit will be supplied with a main isolator.

	Technical Data			Heating and control options	
	Air volume m³/s	Maximum leaving air Temp °C	Maximum kW output	3ph - Electric heater	
Electronic thyristor heating	0.300	24.05	12	Electric heater	Control panel
	0.350	32.50	18	EHCA05/12KW/1X3	CPG0-1/12KW-3P/C
	0.400	32.19		EHCA05/18KW/1X3	CPG0-1/18KW-3P/C
	0.450	28.05			
	0.500	24.05			

Air off temperature based upon entering air of -5°C. Power = Air volume x Constant Temperature rise. kW =m³/s x 1.21 x ΔT°C.
 Note: If no control panel is purchased the unit will be supplied with a main isolator.

SIZE 5 - CAS0545-1

Noise and silencer data

Fan voltage	Fan speed (RPM)	Sound spectrum dB re 10 ⁻¹² w PWL centre frequency (Hz)								Casting noise breakdown			
		63	125	250	500	1k	2k	4k	8k	NR @ 1m	NR @ 3m	dBA @ 1m	dBA @ 3m
100%	2010	70	62	56	51	44	46	41	44	36	30	40	33
90%	1809	68	61	52	48	40	43	38	42	34	28	37	30
80%	1608	66	59	49	45	36	40	34	38	30	24	34	27
70%	1407	63	56	46	41	33	36	30	35	28	21	31	24
60%	1206	64	56	44	38	28	31	26	23	22	14	29	22
Centre frequency		63	125	250	500	1k	2k	4k	8k				
Case insertion loss		-3	-5	-14	-19	-26	-22	-22	-15				

Note: Independently acoustically tested to BS EN ISO 3744:2010.

Silencer option	Sound spectrum dB re 10 ⁻¹² w PWL centre frequency (Hz)							
CASVA0500/1200/STD	63	125	250	500	1k	2k	4k	8k
Induct loss	-6	-8	-12	-19	-26	-32	-24	-21

Note: Each silencer will add a maximum of 25 Pa to the external resistance.

Note: Data for design guidance only. Detailed information is available upon request.

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Appendix F – Full Specific Sound Level Calculations

F.1 – In-Duct Calculations

Mech In-Duct to Atmosphere Calcs

Item / Description		Source / Notes		Ducting Type		dB(A)		1/1 Octave Frequency Band (Hz, dB)							
								63	125	250	500	1000	2000	4000	8000
Mitsubishi LGH-250RVXT-E		0		Rectangular		71		79	78	75	68	63	58	53	48
Uncertainty		No						0	0	0	0	0	0	0	0
Description	Item	Duct Type (Mean Dim/Dia (mm))	Width (mm)	Height (mm)	Quantity (no.)	dB(A)		63	125	250	500	1000	2000	4000	8000
Bend Element Attenuation	No. 1	Mitre Unlined (250-350mm)			1	0.0		0.0	0.0	-1.0	-5.0	-8.0	-4.0	-3.0	-3.0
Total In-Duct Loss		Outlet Type	Height (mm)	Width (mm)	Outlet Dia (mm)	0.0		0.0	0.0	-1.0	-5.0	-8.0	-4.0	-3.0	-3.0
End Reflection	No Grill	Rectangular	450	800		-10		-6	-4	-3	Assumed Negligible				
Outlet Sound Power Level						65		69	72	70	60	55	54	50	45

Mech In-Duct to Atmosphere Calcs

Item / Description		Source / Notes		Ducting Type		dB(A)		1/1 Octave Frequency Band (Hz, dB)							
								63	125	250	500	1000	2000	4000	8000
Ventaxia Lo-Carbon MVDC-MS @Outlet		0		Cylindrical		70		76	79	72	70	54	51	48	42
Uncertainty		No						0	0	0	0	0	0	0	0
Description	Item	Duct Type (Mean Dim/Dia (mm))	Width (mm)	Height (mm)	Quantity (no.)	dB(A)		63	125	250	500	1000	2000	4000	8000
Total In-Duct Loss		Outlet Type	Height (mm)	Width (mm)	Outlet Dia (mm)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End Reflection	No Grill	Rectangular	300	200		-16		-11	-7	-5	Assumed Negligible				
Outlet Sound Power Level						64		60	66	65	65	54	51	48	42

Mech In-Duct to Atmosphere Calcs

Item / Description		Source / Notes		Ducting Type		dB(A)		1/1 Octave Frequency Band (Hz, dB)							
								63	125	250	500	1000	2000	4000	8000
Ruck MPC 355 D4 F4 T40 @Outlet		0		Cylindrical		81		70	72	79	79	76	73	70	69
Uncertainty		No						0	0	0	0	0	0	0	0
Description	Item	Duct Type (Mean Dim/Dia (mm))	Width (mm)	Height (mm)	Quantity (no.)	dB(A)		63	125	250	500	1000	2000	4000	8000
Bend Element Attenuation	No. 1	Round Unlined (200-400mm)			2	0.0		-2.0	-4.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Total In-Duct Loss		Outlet Type	Height (mm)	Width (mm)	Outlet Dia (mm)	0.0		-2.0	-4.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
End Reflection	No Grill	Cylindrical	300	200	400	-14		-9	-5	-4	Assumed Negligible				
Outlet Sound Power Level						74		67	69	69	70	67	64	63	63

Mech In-Duct to Atmosphere Calcs

Item / Description		Source / Notes		Ducting Type		dB(A)		1/1 Octave Frequency Band (Hz, dB)							
								63	125	250	500	1000	2000	4000	8000
Colourfan Unit size 5 CAS0545-1 @Outlet		0		Rectangular		55		70	62	56	51	44	46	41	44
Uncertainty		No						0	0	0	0	0	0	0	0
Description	Item	Duct Type (Mean Dim/Dia (mm))	Width (mm)	Height (mm)	Quantity (no.)	dB(A)		63	125	250	500	1000	2000	4000	8000
Total In-Duct Loss		Outlet Type	Height (mm)	Width (mm)	Outlet Dia (mm)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End Reflection	No Grill	Rectangular	600	1000		-8		-5	-4	-3	Assumed Negligible				
Outlet Sound Power Level						53		62	57	52	48	44	46	41	44

F.2 – External Specific Sound Level Calculations

Daytime

Description		Item	Source Term		Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
Model / Unit	Strebel S-ASX-NT-70		Octave-Band Lw		Lw	76	63	125	250	500	1k	2k	4k	8k
No. of	1						82	80	78	74	71	67	61	54
Data Type	Manufacturers Data			Total Lw	76	76	82	80	78	74	71	67	61	54
Source Mitigation Yes							8	11	16	23	26	28	30	28
Description						58	74	69	62	51	45	39	31	26
Time Corrected Lw of Fixed Plant		On-Time (min)	Time Period		Correction (dB)		74	69	62	51	45	39	31	26
	60		Day		0	58	74	69	62	51	45	39	31	26
Propagation Loss to NSR1 (Point Source)	Distance (m)	Q Factor		Loss (dB)			Shielding (dB)							Yes
	41	4		-37			-5	-6	-7	-8	-10	-13	-16	-19
Specific Sound Level at NSR1						14	32	26	18	6	-2	-11	-22	-30
Propagation Loss to NSR2 (Point Source)	Distance (m)	Q Factor		Loss (dB)			Shielding (dB)							Yes
	46	4		-38			-5	-6	-7	-8	-11	-13	-16	-19
Specific Sound Level at NSR2						13	31	25	17	5	-4	-12	-23	-31

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Daikin RXYSQ12TY1	Octave-Band Lp	Lp at 1m, Q factor (Q=2)	56	66	61	56	54	52	44	43	36
No. of	1											
Data Type	Manufacturers Data		Total Lw	64	74	69	64	62	60	52	51	44
Source Mitigation No												
Description												
Time Corrected Lw of Fixed Plant	On-Time (min)	Time Period	Correction (dB)	64	74	69	64	62	60	52	51	44
	60	Day	0									
Propagation Loss to NSR1 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	34	2	-39		-5	-6	-7	-8	-10	-13	-16	-19
Specific Sound Level at NSR1				17	30	24	18	15	11	0	-4	-14
Propagation Loss to NSR2 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	44	2	-41		-5	-6	-7	-8	-11	-13	-16	-19
Specific Sound Level at NSR2				15	28	22	16	13	8	-2	-6	-16

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Mitsubishi LGH-250RVXT	Octave-Band Lw	Lw	59	69	72	70	60	55	54	50	45
No. of	2											
Data Type	Manufacturers Data		Total Lw	68	72	75	73	63	58	57	53	48
Source Mitigation No												
Description												
Time Corrected Lw of Fixed Plant	On-Time (min)	Time Period	Correction (dB)	68	72	75	73	63	58	57	53	48
	60	Day	0									
Propagation Loss to NSR1 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	17	2	-33									
Specific Sound Level at NSR1				35	40	42	40	30	25	24	20	15
Propagation Loss to NSR2 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	35	2	-39									
Specific Sound Level at NSR2				29	33	36	34	24	19	18	14	9

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Ventaxia Lo-Carbon MVDC	Octave-Band Lw	Lw	64	60	68	65	65	54	51	48	42
No. of	1											
Data Type	Manufacturers Data		Total Lw	64	60	68	65	65	54	51	48	42
Source Mitigation No												
Description												
Time Corrected Lw of Fixed Plant	On-Time (min)	Time Period	Correction (dB)	64	60	68	65	65	54	51	48	42
	60	Day	0									
Propagation Loss to NSR1 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	29	2	-37									
Specific Sound Level at NSR1				27	22	30	28	28	17	14	11	5
Propagation Loss to NSR2 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	38	2	-40									
Specific Sound Level at NSR2				25	20	28	25	26	14	11	8	2

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Ruck MPC 355 D4 F4 T40	Octave-Band Lw	Lw	74	57	61	69	69	70	67	64	63
No. of	1											
Data Type	Manufacturers Data		Total Lw	74	57	61	69	69	70	67	64	63
Source Mitigation No												
Description e.g. Caice Enclosure												
Time Corrected Lw of Fixed Plant	On-Time (min)	Time Period	Correction (dB)	74	57	61	69	69	70	67	64	63
	60	Day	0									
Propagation Loss to NSR1 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	34	2	-39									
Specific Sound Level at NSR1				36	18	23	30	31	31	28	25	24
Propagation Loss to NSR2 (Point Source)	Distance (m)	Q Factor	Loss (dB)									
	41	2	-40									
Specific Sound Level at NSR2				34	16	21	29	29	30	27	24	23

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Colourfan Unit size 5 CAS	Octave-Band Lw	Lw	53	62	57	52	48	44	46	41	44
No. of	1											
Data Type	Manufacturers Data		Total Lw	53	62	57	52	48	44	46	41	44
Source Mitigation No												
Description e.g. Caice Enclosure												
Time Corrected Lw of Fixed Plant	On-Time (min) 60	Time Period Day	Correction (dB) 0	53	62	57	52	48	44	46	41	44
Propagation Loss to NSR1 (Point Source)	Distance (m) 38	Q Factor 2	Loss (dB) -40		Shielding (dB)						No	
Specific Sound Level at NSR1				13	22	17	13	8	4	6	1	4
Propagation Loss to NSR2 (Point Source)	Distance (m) 44	Q Factor 2	Loss (dB) -41		Shielding (dB)						No	
Specific Sound Level at NSR2				12	21	16	11	7	3	5	0	3

Night-time

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Strebel S-ASX-NT-70	Octave-Band Lw	Lw	76	82	80	78	74	71	67	61	54
No. of	1											
Data Type	Manufacturers Data		Total Lw	76	82	80	78	74	71	67	61	54
Source Mitigation Yes					8	11	16	23	26	28	30	28
Description				58	74	69	62	51	45	39	31	26
Time Corrected Lw of Fixed Plant	On-Time (min) 60	Time Period Day	Correction (dB) 0	58	74	69	62	51	45	39	31	26
Propagation Loss to NSR1 (Point Source)	Distance (m) 41	Q Factor 4	Loss (dB) -37		Shielding (dB)						Yes	
Specific Sound Level at NSR1				14	32	26	18	6	-2	-11	-22	-30
Propagation Loss to NSR2 (Point Source)	Distance (m) 46	Q Factor 4	Loss (dB) -38		Shielding (dB)						Yes	
Specific Sound Level at NSR2				13	31	25	17	5	-4	-12	-23	-31

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
					63	125	250	500	1k	2k	4k	8k
Model / Unit	Daikin RXYSQ12TY1	Octave-Band Lp	Lp at 1m, Q factor (Q=2)	56	66	61	56	54	52	44	43	36
No. of	1											
Data Type	Manufacturers Data		Total Lw	64	74	69	64	62	60	52	51	44
Source Mitigation No												
Description												
Time Corrected Lw of Fixed Plant	On-Time (min) 60	Time Period Day	Correction (dB) 0	64	74	69	64	62	60	52	51	44
Propagation Loss to NSR1 (Point Source)	Distance (m) 34	Q Factor 2	Loss (dB) -39		Shielding (dB)						Yes	
Specific Sound Level at NSR1				17	30	24	18	15	11	0	-4	-14
Propagation Loss to NSR2 (Point Source)	Distance (m) 44	Q Factor 2	Loss (dB) -41		Shielding (dB)						Yes	
Specific Sound Level at NSR2				15	28	22	16	13	8	-2	-8	-16



NOVA
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