DG ACOUSTICS

NOISE IMPACT ASSESSMENT REPORT FOR PROPOSED BUILDING SERVICES PLANT AND EQUIPMENT

1148-R01-V0

SEPTEMBER 2026

GREGGS PLC

31B KING STREET

BELPER, DE56 1PX

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DOCUMENT REVISION HISTORY

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Executive Summary (Non-Technical)

DG Acoustics Ltd has undertaken a noise impact assessment in support of the proposed installation of building services plant and equipment associated with the proposed Greggs store at 31B King Street, Belper.

The proposals include external air-conditioning equipment together with oven and WC extract systems located to the rear of the premises. The assessment has considered the potential effect of noise from this equipment upon nearby residential properties.

An environmental sound survey was undertaken to establish the existing sound environment during the periods when the proposed equipment may operate. The proposed plant has then been assessed using a conservative scenario in which all equipment is assumed to operate simultaneously at its highest assessed noise level.

The assessment demonstrates that noise from the proposed equipment would remain below the existing background sound environment at the nearest residential properties and is expected to have a low impact on neighbouring amenity.

Accordingly, the proposed development is considered acceptable in noise terms and no additional acoustic mitigation is considered necessary beyond the plant arrangements assessed within this report.

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1 Introduction

1.1 DG Acoustics Ltd ("DGA") has been instructed by Greggs PLC ("the Client") to prepare this Noise Impact Assessment Report in support of a planning application for the fit-out of a vacant commercial unit at 31B King Street, Belper, DE56 1PX ("the Site").

1.2 The proposed scheme is understood to include the installation of two external air-conditioning condenser units (AC Units), together with external discharge grilles associated with the oven extract and WC extract systems. All equipment assessed within this report will be installed at the rear of the building.

1.3 The purpose of this report is to assess the potential impact of noise associated with the proposed building services plant and equipment at nearby noise-sensitive receptors and, where necessary, identify appropriate mitigation measures.

1.4 This assessment has been undertaken in accordance with BS 4142:2014+A1:2019, having regard to relevant national and local planning policy and guidance, including the National Planning Policy Framework (NPPF), National Planning Practice Guidance (NPPG), the Noise Policy Statement for England (NPSE), and the relevant planning policies and environmental health requirements of Amber Valley Borough Council.

1.5 The structure of this report is as follows:

- **Section 2** summarises the relevant planning policy and guidance;
- **Section 3** describes the site context and development proposals;
- **Section 4** presents details of the baseline sound survey undertaken;
- **Section 5** presents the noise impact assessment; and
- **Section 6** presents the report conclusions.

1.6 As this report is technical in nature, a glossary of commonly used acoustic terminology is provided in **Appendix A**.

2 Planning Policy, Standards and Acoustic Criteria

Overview

2.1 This Noise Impact Assessment Report has been prepared having regard to relevant national and local planning policy, together with applicable technical guidance and recognised industry standards. A summary of the relevant planning policy is provided in **Appendix B**.

2.2 The most relevant guidance to this assessment is summarised below.

Assessment Specific Guidance

2.3 At local level, the Amber Valley Borough Local Plan 2022–2040, adopted in March 2026, provides the relevant development-plan policy.

2.4 Policy EN10 – Pollution requires development to avoid adding materially to existing levels of noise and requires potential adverse effects to be reduced to a minimum through appropriate mitigation. Policy EN15 – Quality and Design of Development additionally requires commercial plant areas to be located so as to minimise noise effects upon existing and proposed sensitive receptors.

2.5 Amber Valley Borough Council does not publish a specific numerical noise limit applicable to fixed building-services plant. Accordingly, the assessment has been undertaken in accordance with BS 4142:2014+A1:2019, having regard to the requirements of Policies EN10 and EN15 of the Amber Valley Borough Local Plan 2022–2040.

2.6 BS 4142 advises that where the Rating Level does not exceed the representative Background Sound Level, this is an indication of a low impact, depending upon the context.

2.7 A review of publicly available planning decisions and supporting acoustic information within Amber Valley Borough indicates that BS 4142 has historically been applied by the Council when considering noise from fixed building-services and commercial/industrial sources. The information reviewed does not indicate that a standard requirement for plant noise to be 5 dB or 10 dB below the prevailing Background Sound Level is routinely applied.

2.8 Notwithstanding the above, to provide an additional degree of protection to neighbouring residential amenity, a more stringent design criterion has been voluntarily adopted for the proposed development. The cumulative Rating Level from the proposed fixed plant is therefore required to be at least 5 dB below the representative Background Sound Level ($L_{Ar,Tr} \leq L_{A90,T} - 5$ dB) at the nearest noise-sensitive receptor.

2.9 The adopted criterion therefore provides an additional margin below the point at which BS 4142 indicates that the Rating Level being equal to or below the Background Sound Level is an indication of a low impact, depending on the context. It is consequently considered to provide a robust design basis for protecting neighbouring residential amenity.

BS 4142 Guidance Summary

2.10 BS 4142:2014+A1:2019 provides a method for assessing the impact of industrial and commercial sound on noise-sensitive receptors by comparing the Rating Level of the specific sound source with the background sound level (L_{A90}).

2.11 The initial estimate of impact is based on the difference between the Rating Level and the background sound level:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact.
- A difference of around +5 dB is likely to be an indication of an adverse impact.
- Where the Rating Level does not exceed the Background Sound Level, this is an indication of the specific sound source having a low impact, depending on the context.

2.12 The Rating Level is derived from the Specific Sound Level (L_{Aeq}) with the addition of acoustic feature corrections, where applicable, to account for characteristics such as tonality, impulsivity, intermittency, or other sound characteristics likely to be perceptible and attract attention.

2.13 Background sound levels used in the assessment should be representative of typical conditions during the relevant assessment periods. Typical reference periods comprise one hour during the daytime (07:00 – 23:00) and 15 minutes during the night-time (23:00 – 07:00), unless alternative periods are demonstrated to be more representative.

2.14 BS 4142 also recognises that where the specific sound is substantially below the prevailing background sound level, the likelihood of the sound being distinguishable from the existing acoustic environment may be reduced. Consequently, where plant noise is well below the prevailing background sound level, the potential for the sound to attract attention or adversely affect residential amenity is generally reduced.

2.15 The assessment also requires consideration of context, including:

- The absolute sound levels in relation to the existing acoustic environment, particularly in very quiet or very noisy environments;
- The character of the sound relative to the existing acoustic environment and its potential to be distinguishable or incongruous; and

- The sensitivity of the receptor, including any existing mitigation such as façade insulation or acoustic screening.

2.16 Accordingly, this assessment applies the methodology of BS 4142:2014+A1:2019 together with the relevant policies and requirements of Amber Valley Borough Council to determine the likely operational noise impact associated with the proposed building services plant and equipment.

3 Site Description

Site Location and Surroundings

3.1 The Site is located at 31B King Street, Belper, DE56 1PX, within Belper town centre. The Site comprises a two-storey commercial premises situated on the northern side of King Street, formerly occupied by Lloyds Bank. The building provides commercial accommodation at ground-floor level with ancillary accommodation at first-floor level and forms part of the established retail frontage along King Street.

3.2 The surrounding area is characterised predominantly by town-centre commercial uses, including a mixture of national and independent retailers, cafés and other service uses extending along King Street and the surrounding streets. Commercial premises immediately adjoin the Site to the east and west, with further commercial development situated opposite on the southern side of King Street.

3.3 From an acoustic perspective, the Site is situated within a typical town-centre mixed-use sound environment. The prevailing sound climate is influenced principally by activity associated with surrounding commercial premises, pedestrian activity along King Street and road and rail traffic within the wider area. Existing building-services plant serving nearby commercial premises may also contribute locally to the prevailing sound environment.

3.4 The Site boundary is shown in **red** in **Figure 3.1** below.

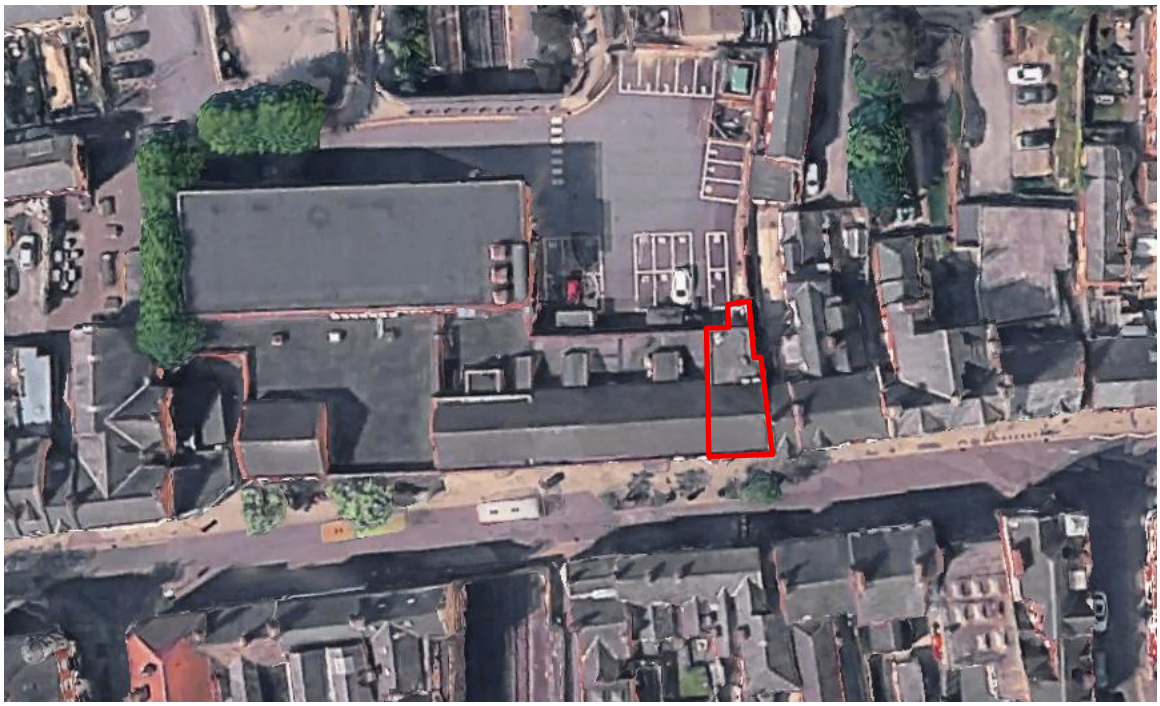

Figure 3.1: Site location

Proposed Development

3.5 The proposal involves the installation of two external air conditioning condenser units (AC Units) and two extract grilles for the oven extract and WC extract, all of which will be installed on the rear elevation of the building.

3.6 The make and model reference of the proposed equipment are shown in **Table 3.1**.

Proposed Building Services Plant and Equipment	Make / Model
Air Conditioning Condensers	1 no. Toshiba RAV-GP803ATP-E/TR 1 no. Toshiba RAV-GP1603AT8P-E/TR
Oven Extract System	1 no. ELTA SEL 355/2-1AC
WC Extract System	1 no. LINDAB ILC 100

Table 3.1: Proposed building services plant and equipment

3.7 A proposed drawing of the rear elevation detailing the proposed plant and equipment is shown in **Figure 3.2**.

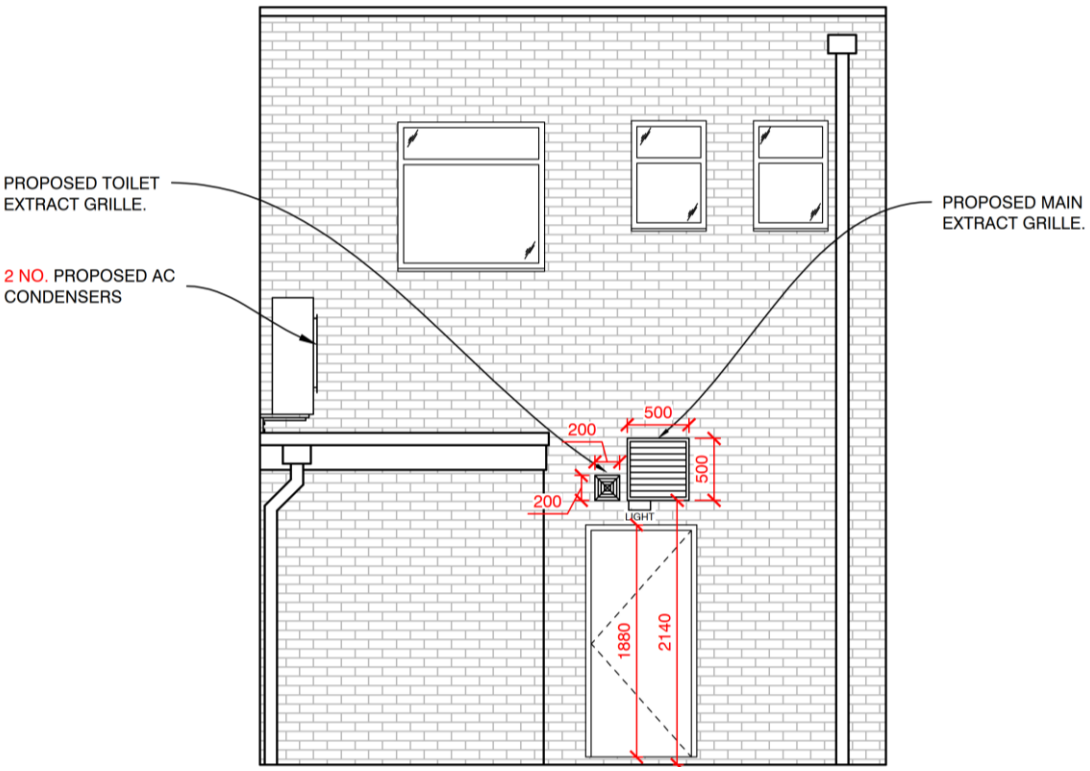

Figure 3.2: Proposed installation location of the building services plant and equipment

3.8 Full details of the proposed building services plant and equipment, including the manufacturers' noise emissions data for the units, are provided in **Appendix C**.

3.9 Manufacturer's overall sound level data are available for the proposed Toshiba condenser units; however, octave-band spectra have not been published. For the purposes of the assessment, representative octave-band spectra have therefore been derived from the expected spectral characteristics of comparable air-conditioning condenser units and

normalised to the manufacturer's published overall sound levels. The derived spectra have been used solely to facilitate frequency-dependent propagation calculations and are considered suitably representative and robust for the purposes of this assessment.

3.10 A summary of the noise emissions data is presented in **Table 3.2**. Manufacturer data are provided as either sound pressure level or sound power level, depending on the manufacturer's published information.

Model	Type	Octave band centre frequency, Hz								dB(A)
		63	125	250	500	1k	2k	4k	8k	
RAV-GP803ATP-E/TR	Sound Pressure Level at 1m	53	52	53	44	43	39	33	27	49
RAV-GP1603AT8P-E/TR		61	59	56	52	49	45	36	31	55
SEL 355/2A-1AC	Sound Power Level, L_w	-	54	70	76	80	77	72	64	83
LINDAB ILC 100		-	44	61	48	51	51	44	33	62

Table 3.2: Noise emissions data of the proposed building services plant and equipment

3.11 The noise data presented above represent the highest operational noise emission mode for each unit. For the condenser units, the heating mode produces higher sound levels than the cooling mode. These values have been adopted within the assessment to provide a robust and conservative assessment.

Closest Noise-Sensitive Receptor

3.12 Based on a review of the surrounding area, the closest identified noise-sensitive receptor to the proposed plant installation is the residential accommodation shown in **Figure 3.3**, approximately 4.5 m from the proposed condenser unit location, and approximately 8 m from the proposed extract grille location.



Figure 3.3: Closest identified noise-sensitive receptor relative to the proposed plant and equipment

3.13 The proposed plant locations are substantially screened from the identified receptor by intervening built form and the existing parapet wall. Sound propagation to the receptor would therefore benefit from geometric divergence together with screening provided by the intervening building structures, as accounted for within the calculations.

4 Baseline Sound Conditions

Introduction

4.1 An environmental sound survey has been undertaken to characterise the prevailing acoustic environment and establish representative background sound levels at a location considered representative of the nearest affected noise-sensitive receptor.

4.2 The survey methodology, instrumentation and subsequent analysis have been selected having regard to relevant British Standards and recognised good practice to provide a robust dataset suitable for determining representative background sound levels for the purposes of the BS 4142 assessment.

Measurement Methodology

4.3 The survey methodology has been developed having regard to BS 7445-1:2003, BS 7445-2:1991 and BS 4142:2014+A1:2019 *'Methods for rating and assessing industrial and commercial sound'*.

4.4 Unattended environmental sound monitoring was undertaken to characterise representative background sound levels at the nearest noise-sensitive receptor in accordance with BS 4142, whilst also providing ambient sound levels and temporal variation within the prevailing acoustic environment to inform the contextual assessment.

4.5 The measurement position is shown in **Figure 4.1** below.

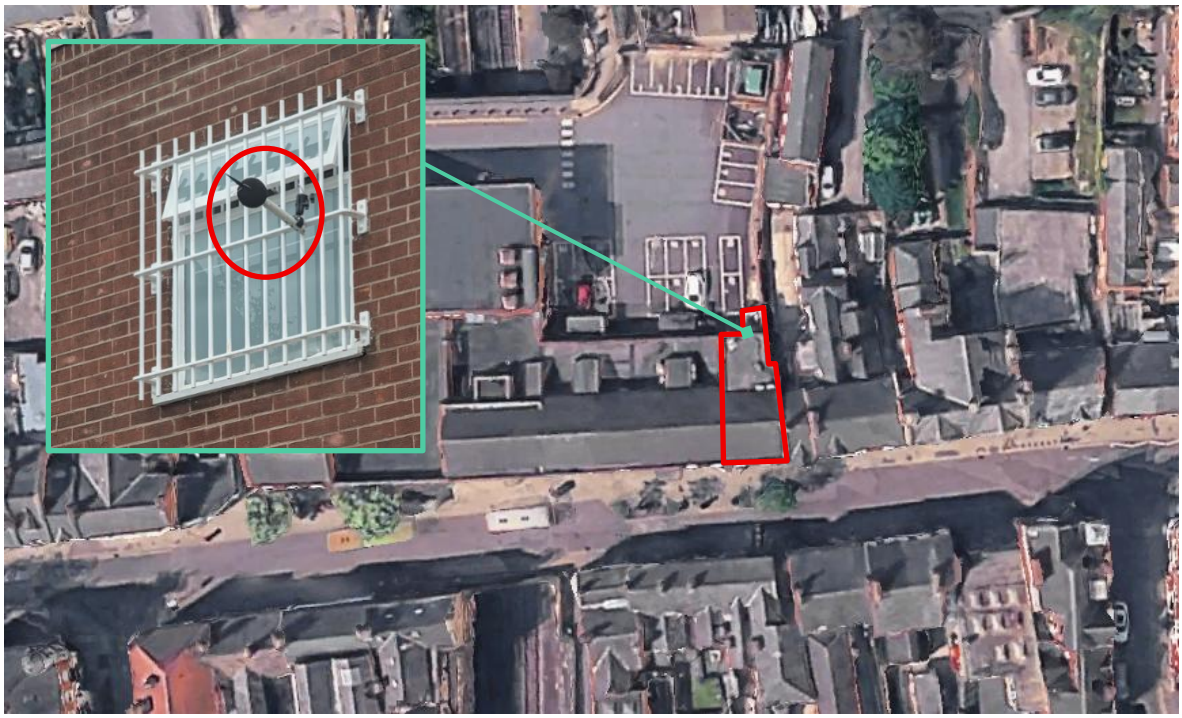

Figure 4.1: Baseline environmental sound monitoring location

Instrumentation

4.6 The measurement equipment is detailed in **Table 4.1**.

Equipment	Make / Model	Serial No.
Sound Level Analyser	Svantek SVAN971A	121150
Microphone Capsule	ACO Pacific 7152	81385
Microphone Preamplifier	Svantek SV18A	121283
Outdoor Microphone Kit	Svantek SA271U	N/A
Calibrator	Svantek SV33	142942

Table 4.1: Baseline environmental sound monitoring equipment

4.7 All measurement equipment was field calibrated immediately before deployment and immediately following completion of the survey using an acoustic calibrator compliant with IEC 60942:2017.

4.8 No significant calibration drift was identified between the pre- and post-survey calibration checks, and the measurement data are therefore considered valid for assessment purposes.

Survey Duration and Timing

4.9 Unattended environmental sound monitoring was undertaken between 10:00 on Thursday 3rd September and 10:00 on Friday 4th September 2026, using consecutive 15-minute measurement periods.

4.10 The survey period was considered sufficient to characterise acoustic conditions during both daytime (07:00–23:00) and night-time (23:00–07:00), and to derive representative ambient ($L_{Aeq,T}$) and background ($L_{A90,T}$) sound levels for the purposes of the assessment.

Weather Conditions

4.11 Weather conditions during the survey were observed to be dry, with light winds and no precipitation.

4.12 A review of historical meteorological data confirms that conditions during the survey period were consistent with those considered appropriate for environmental sound measurement, with no significant wind speeds or rainfall recorded.

4.13 These conditions are in accordance with the recommendations of BS 7445 and are not considered to have adversely influenced the measured sound levels.

Survey Results

4.14 A time history of the measurement data is presented in **Appendix D**, with a summary of the measurement results provided in **Table 4.2**.

4.15 Average ambient sound levels have been derived using logarithmic averaging.

4.16 With regards to the background sound level, BS 4142:2014+A1:2019 notes that *"…it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods."*

4.17 Greggs intends to operate from 06:30–18:00 Monday–Friday, 07:00–18:00 Saturday and 08:00–17:00 on Sunday. To allow for preparation before opening and activities following closure, the proposed building services plant and equipment may operate between approximately 05:30 and 19:00. The assessment has therefore considered this full potential operational period.

4.18 To determine representative background sound levels, a statistical analysis of background sound levels has been undertaken.

4.19 **Figure 4.2** shows the statistical distribution of measured background sound levels during the proposed plant operational period of 05:30–19:00. The early-morning period between 05:30 and 07:00 has also been considered separately, as this represents the period during which background sound levels are generally lowest and residential receptors may be most sensitive.

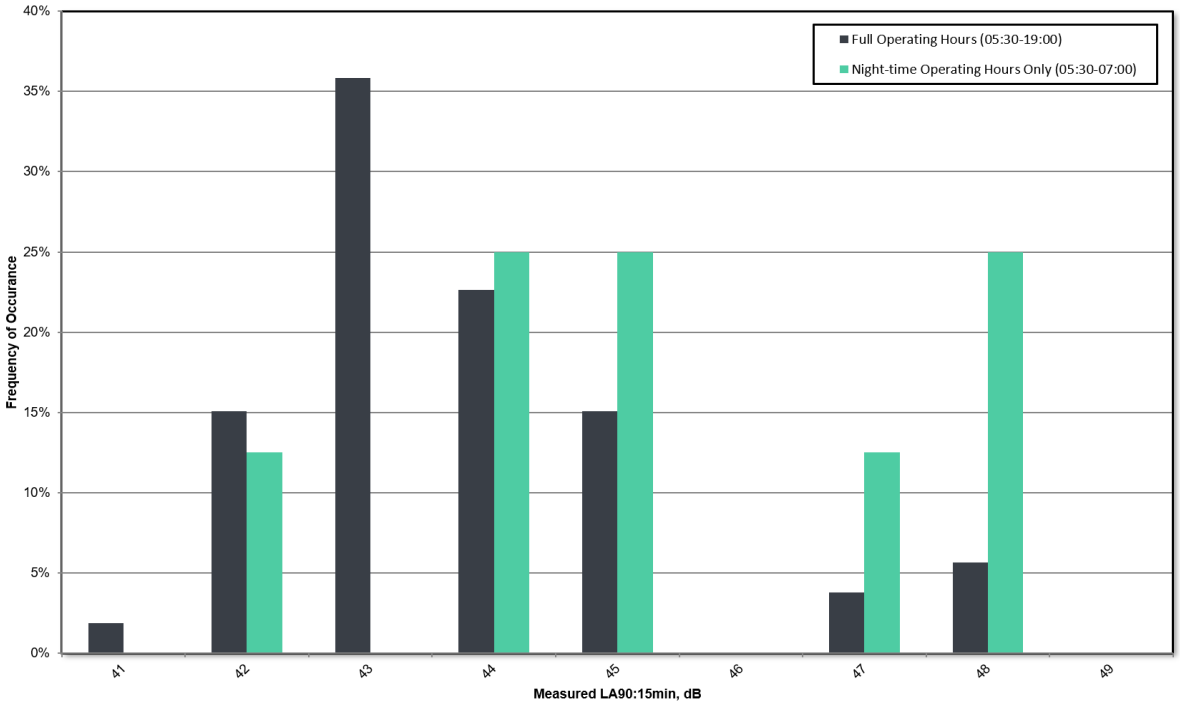

Figure 4.2: Statistical distribution of background sound levels

4.20 Review of the statistical distribution during the full operating hours (05:30–19:00) indicates that background sound levels range from 41 dB(A) to 48 dB(A), with a modal value of 43 dB $L_{A90,\,T}$.

4.21 Review of the statistical distribution during the early-morning period (05:30–07:00) indicates that background sound levels range from 42 dB(A) to 48 dB(A), with a modal value of 44 dB $L_{A90, T}$.

4.22 Due to the location of the receptors and the shielding provided by the surrounding built form from any major environmental noise source, background sound levels are consistent throughout the full proposed plant operating hours.

4.23 A value of 43 dB $L_{A90, T}$ has therefore been adopted as the representative Background Sound Level for the assessment. This value is representative of the full potential operating period and is 1 dB lower than the modal value measured during the full operating hours. Its adoption therefore provides a suitably robust basis for assessment during the potentially most sensitive operating period.

4.24 A summary of the measurement results and representative background sound levels is presented in **Table 4.2**.

Period	Ambient Sound Level $L_{Aeq, T}$ dB	Representative Background Sound Level L_{A90} dB
Full plant operational hours 05:30 – 19:00	54	43
Early morning plant operational hours 05:30 – 07:00	52	

Table 4.2: Measured ambient sound levels and representative background sound levels

Data Reliability and Limitations

4.25 The survey methodology and scope have been designed to provide a robust and representative dataset suitable for informing a planning decision, in accordance with relevant British Standards and established good practice.

4.26 The measurement location was selected to capture background sound levels representative of the closest receptor, and survey durations were sufficient to capture typical temporal variation. The results are therefore considered to provide a reliable basis for assessment.

4.27 Environmental sound surveys inherently represent a snapshot in time; however, consideration of the measurement data, observed site context, meteorological conditions and professional judgement enables a reliable characterisation of the prevailing acoustic environment for the purposes of this assessment.

4.28 Notwithstanding the above, the measured data are considered appropriate for informing the BS 4142 assessment of the proposed building services plant and equipment for planning purposes.

5 Noise Impact Assessment

Specific Sound Level at Closest Noise-Sensitive Receptor

5.1 The Specific Sound Level associated with the proposed building services plant and equipment has been calculated at the closest identified noise-sensitive receptor in accordance with the methodology outlined in BS 4142:2014+A1:2019.

5.2 **Table 5.1** summarises the calculated Specific Sound Level at the closest identified noise-sensitive receptor window, with the detailed octave-band calculations presented in **Appendix E**. The overall Specific Sound Level has been derived by logarithmic summation of the individual plant contributions.

Proposed Building Services Plant and Equipment Type	Make and Model	Calculated Specific Sound Level at Receptor Façade dB $L_s = L_{Aeq, Tr}$
2 no. Condensers	1 no. Toshiba RAV-GP803ATP-E/TR 1 no. Toshiba RAV-GP1603AT8P-E/TR	27 dB(A) 32 dB(A)
1 no. Oven Extract System	1 no. ELTA SEL 355/2-1AC	35 dB(A)
1 no. WC Extract System	1 no. LINDAB ILC 100	14 dB(A)
Total Specific Sound Level		**37 dB(A)**

Table 5.1: Summary of the calculated Specific Sound Level at the closest noise-sensitive receptor

5.3 The calculated Specific Sound Level represents a conservative operational scenario in which all proposed items of plant are assumed to operate simultaneously at their highest assessed noise emission condition.

5.4 In practice, simultaneous operation of all equipment at the maximum assessed duty is unlikely to occur continuously. Typical operational noise levels would therefore be expected to be lower than those presented. Nevertheless, the conservative scenario has been retained for the purposes of the assessment.

Rating Level at Noise-Sensitive Receptor

5.5 In accordance with BS 4142:2014+A1:2019, consideration has been given to whether the specific sound is likely to contain characteristics which would attract attention at the receptor, including tonality, impulsivity, intermittency or other readily distinctive characteristics.

5.6 The calculated combined Specific Sound Level at the receptor is 37 dB $L_{Aeq, Tr}$, approximately 6 dB below the representative background sound level of 43 dB $L_{A90, T}$. At this level, noise from the proposed plant would be expected to be substantially masked by the prevailing acoustic environment.

5.7 Taking account of the nature of the proposed equipment, the predicted sound levels at the receptor and the masking influence of the prevailing acoustic environment, no tonal, impulsive, intermittent or otherwise distinctive characteristics are expected to be readily perceptible at the receptor location. No acoustic character correction has therefore been applied.

5.8 The Rating Level is compared against the background sound level in **Table 5.2**. Full calculations are presented in **Appendix E**.

Background Sound Level dB $L_{A90, T}$	Specific Sound Level at Receptor dB $L_s = L_{Aeq, Tr}$	Rating Level at Receptor dB $L_{Ar, Tr}$	Rating Level – Background Sound Level
43	37	37	-6

Table 5.2: BS 4142 assessment

5.9 BS 4142:2014+A1:2019 indicates that where the Rating Level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending upon the context. In this case, the Rating Level is 6 dB below the representative background sound level and 1 dB below the adopted assessment criterion of -5 dB below background.

Contextual Factors

5.10 In accordance with BS 4142, the quantitative comparison should be considered alongside contextual factors, including absolute sound level, character of the sound, and receptor sensitivity.

5.11 With respect to absolute sound level, the calculated Rating Level of 37 dB $L_{Ar,Tr}$ is relatively low in absolute terms; it is 6 dB below the representative Background Sound Level and satisfies the adopted design criterion of 5 dB below background. The absolute magnitude of the predicted sound, together with its relationship to the prevailing acoustic environment, further supports the conclusion that noise from the proposed plant would be unlikely to adversely affect residential amenity.

5.12 With respect to aspects of character, the receptor is situated within an established town centre mixed-use environment in which the prevailing acoustic climate includes road and rail traffic, commercial activity and existing building services plant. The proposed equipment would therefore not introduce a fundamentally new type of sound source into the local acoustic environment. Furthermore, given the low predicted Specific Sound Level relative to the prevailing Background Sound Level, noise associated with the proposed equipment would be expected to be substantially masked.

5.13 With respect to receptor sensitivity, the nearest receptors comprise residential accommodation and the proposed plant may operate during the early-morning period when occupants may be sleeping. This has been taken into account through assessment against the representative background sound level applicable to the full potential operating period. The predicted external Specific Sound Level of 37 dB $L_{Aeq,Tr}$ is low and is 6 dB below the adopted representative Background Sound Level. Furthermore, even allowing for the relatively limited sound reduction provided by a partially open window, the corresponding internal plant noise level would be expected to remain low. This provides additional contextual support to the primary BS 4142 assessment and indicates that the proposed plant is unlikely to result in material disturbance within the receptor property.

Assessment of Impacts

5.14 As noted in BS 4142:2014+A1:2019, the overall noise impact can only be established once contextual aspects are considered.

5.15 Taking account of the quantitative comparison, whereby the Rating Level is 6 dB below the representative Background Sound Level and satisfies the adopted design criterion, together with the contextual factors discussed above, noise from the proposed building services plant and equipment is considered to represent a low impact in accordance with BS 4142:2014+A1:2019.

5.16 The proposed installation is therefore considered consistent with the noise and amenity objectives of Policy EN10 (Pollution) and EN15 (Quality and Design of Development) of the Amber Valley Borough Local Plan 2022–2040.

6 Conclusion

6.1 DG Acoustics Ltd has undertaken an assessment of noise associated with the proposed building services plant and equipment serving the proposed Greggs store at 31B King Street, Belper.

6.2 An environmental sound survey was undertaken to establish the prevailing acoustic conditions at a position representative of the nearest noise-sensitive receptors. A representative Background Sound Level of 43 dB $L_{A90,T}$ has been adopted for the assessment.

6.3 The assessment has considered the cumulative operation of the proposed condenser and extract equipment under a conservative scenario in which all items of plant are assumed to operate simultaneously at their highest assessed noise emission condition. The resulting Specific Sound Level at the nearest identified noise-sensitive receptor is 37 dB $L_{Aeq,Tr}$.

6.4 No readily perceptible tonal, impulsive, intermittent or otherwise distinctive acoustic characteristics are expected at the receptor and, accordingly, no acoustic character correction has been applied. The resulting Rating Level is therefore 37 dB $L_{Ar,Tr}$.

6.5 The calculated Rating Level is 6 dB below the representative Background Sound Level and satisfies the project design criterion requiring plant noise to be at least 5 dB below background. BS 4142:2014+A1:2019 indicates that where the Rating Level does not exceed the Background Sound Level, this is an indication of a low impact, depending upon the context.

6.6 Having regard to the quantitative BS 4142 comparison together with the relevant contextual factors, including the absolute magnitude of the predicted sound level, the existing mixed-use acoustic environment and the sensitivity of the nearby residential receptors, noise from the proposed building services plant and equipment is considered to represent a low impact in accordance with BS 4142:2014+A1:2019.

6.7 The proposed installation is therefore considered consistent with the noise and amenity objectives of Policies EN10 and EN15 of the Amber Valley Borough Local Plan 2022–2040, and no additional acoustic mitigation is considered necessary beyond the plant configuration and specifications assessed within this report.

APPENDIX A: Acoustic Glossary

DG ACOUSTICS

Acoustic Glossary of Terms

Absorption

The process by which sound energy is converted into heat when it strikes a surface, reducing reflected sound within a space.

Absorption Coefficient (α)

A value between 0 and 1 describing how much sound a material absorbs at a given frequency. A value of 0 indicates total reflection; 1 indicates total absorption.

Addition of Noise Sources

Because decibels are logarithmic, multiple sound sources combine logarithmically rather than arithmetically; two equal sound levels increase the overall level by 3 dB (e.g. 60 dB + 60 dB = 63 dB), and a tenfold increase in sound energy results in a 10 dB increase.

Ambient Noise Level

The prevailing background noise level at a location, typically measured over a representative period and expressed as L_{Aeq}.

Airborne Sound

Sound transmitted through the air (e.g., speech, music, traffic noise).

Airborne Sound Insulation

The ability of a building element (wall, floor, façade) to reduce airborne sound transmission between spaces.

Break-In Noise

External noise entering a building through façades, glazing, ventilation systems, or building elements.

Break-Out Noise

Noise generated inside a building that escapes to the external environment.

dB (Decibel)

A logarithmic unit used to express sound level. Because the scale is logarithmic, a 10 dB increase represents a tenfold increase in sound energy.

dB(A)

A-weighted decibels. A measurement scale that adjusts sound levels to reflect human hearing sensitivity.

Flanking Transmission

Sound transmission that bypasses the main separating element via adjoining structures (e.g., floors, ceilings, cavity walls).

Frequency (Hz)

The rate at which a sound wave oscillates, measured in Hertz (Hz). Low frequencies are perceived as bass; high frequencies as treble.

Impact Sound

Sound generated by direct physical contact with a structure (e.g., footsteps on a floor).

Impact Sound Insulation

The ability of a floor/ceiling system to reduce transmission of impact sound, typically expressed as $L_{nT,w}$ or $L'_{nT,w}$.

$L_{Aeq,T}$

The equivalent continuous A-weighted sound level over a measurement period T.

L_{Amax}

The maximum instantaneous A-weighted sound level recorded during a measurement period.

L_{A90}

The A-weighted sound level exceeded for 90% of the measurement period; commonly used to describe background noise.

Noise Rating (NR)

A method used to assess internal noise from building services against standardised curves.

Octave Band

A frequency band where the upper limit is twice the lower limit. Used for detailed acoustic analysis.

Peak Particle Velocity (PPV)

The maximum instantaneous velocity of a vibrating particle in a structure, typically expressed in mm/s, used to assess the potential for building damage and, in some cases, human perception of vibration.

Rating Level ($L_{Ar,Tr}$)

The specific sound level plus any applicable acoustic feature corrections (e.g., tonal or impulsive characteristics), as defined in BS 4142.

Reverberation Time (RT60)

The time taken for sound to decay by 60 dB within a room after the source has stopped. A key parameter in room acoustics.

R_w (Weighted Sound Reduction Index)

A single-number rating of airborne sound insulation performance for walls and floors, measured in laboratory conditions.

Sound Pressure Level (SPL)

The measured level of sound at a specific location, expressed in decibels (dB).

Sound Reduction Index (R)

A measure of a building element's resistance to airborne sound transmission.

Sound Insulation

The reduction of sound transmission between spaces.

Structure-Borne Sound

Sound transmitted through solid building elements rather than through the air.

Subjective Impression of Noise

Human response to sound is highly individualised and often based on psychological factors such as emotion and expectation. Sensitivity to sound typically depends on the loudness, pitch, duration of the occurrence, and time of occurrence (e.g. a sound source could cause annoyance during the night where it would not during the day). The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level	Change in perceived loudness
1 dB	Imperceptible
3 dB	Just barely perceptible
6 dB	Clearly noticeable
10 dB	About twice as loud

Third-Octave Band

A frequency band one-third the width of an octave band, allowing for more detailed analysis.

Vibration Dose Value (VDV)

A cumulative measure of vibration exposure over time, expressed in $m/s^{1.75}$, used to assess human response to intermittent or transient vibration (e.g. as defined in BS 6472-1).

APPENDIX B: Planning Policy Summary

Planning Policy and Acoustic Guidance Summary

1 National Policy

National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) sets out the Government's overarching planning policies for England.

Policy P3, Living conditions and pollution, requires development proposals to be appropriate for their location, taking into account the likely effects, including cumulative effects, of pollution on health, living conditions and the natural environment. This includes both pollution arising from the proposed development and the effects of pre-existing conditions within its vicinity.

In relation to noise, Policy P3 requires development proposals to:

- Provide healthy living conditions for occupiers and users by avoiding exposure to noise levels that could have an unacceptable adverse effect on health or quality of life, incorporating suitable mitigation where necessary;
- Avoid giving rise to, or contributing to, unacceptable levels of noise on or beyond the site, with adverse effects avoided where possible or otherwise mitigated to an acceptable degree;
- Mitigate and reduce to a minimum potential adverse impacts resulting from noise;
- Not result in noise exposure that would have a significant observed adverse effect; and
- Maintain the character of tranquil areas that have remained relatively undisturbed by human-generated noise and are valued for their recreational and amenity qualities.

Policy P4, Impact of development on existing activities, also establishes the agent of change principle. Existing businesses, community facilities, public services and other established activities should not have unreasonable restrictions placed on their current or permitted operation as a result of subsequent development. Where an existing activity could have a significant adverse effect on a proposed development, the applicant should identify the potential impacts and demonstrate that suitable mitigation can be provided before the development is first occupied.

Noise Policy Statement for England (NPSE)

The Noise Policy Statement for England (NPSE) was developed by DEFRA and published in March 2010. The long-term vision of the Government noise policy is to '*Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development*.'

The NPSE vision noted above is supported by the following 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; and
- Where possible, contribute to the improvement of health and quality of life

The NPSE outlines observed effect levels relating to the above, as follows:

- No observed effect level (NOEL): this is the level of noise exposure below which no effect at all on health or quality of life can be detected;
- Lowest observed adverse effect level (LOAEL): this is the level of noise exposure above which adverse effects on health and quality of life can be detected;
- Significant observed adverse effect level (SOAEL): This is the level of noise exposure above which significant adverse effects on health and quality of life occur;

Noise effect levels are not set at absolute noise level targets, but instead vary depending on the context and character of the noise and site-specific factors which may impact on the severity of the effect. The NPSE states:

'It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may

constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.'

National Planning Practice Guidance (NPPG)

The NPPG provides practical guidance on how the NPPF should be applied as well as and guidance on the factors influencing whether noise may be a concern at the planning stage and how adverse effects can be mitigated. The table below summarises the effect levels presented within the NPSE, as follows:

Response	Examples of Outcomes	Increasing Effect Level	Action
Not present	No Effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific Measures required
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate & reduce to a minimum
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

2 Local Policy

Amber Valley Borough Local Plan 2022–2040

The Amber Valley Borough Local Plan 2022–2040 was adopted on 2 March 2026 and replaces the former 2006 Amber Valley Borough Local Plan in its entirety. The new Local Plan therefore carries full development-plan weight in the determination of the application.

The principal policy relevant to operational noise is Policy EN10 – Pollution.

Policy EN10 requires the Borough Council to ensure that new development is appropriate for its location, taking account of:

- the Agent of Change principle;
- the effects of potentially polluting development upon health, living and working conditions, the natural environment and general amenity; and
- the sensitivity of the surrounding area.

The policy states that development should integrate effectively with existing residential, business and community facilities and should not itself result in an increase in adverse impacts, including cumulative effects, or add to existing levels of noise or nuisance.

Where potential adverse impacts are identified, these should be reduced to a minimum through appropriate and adequate mitigation measures, identified through an assessment submitted to and approved by the Borough Council. The policy indicates that planning permission is unlikely to be granted where adequate mitigation cannot be achieved.

Accordingly, Policy EN10 provides the principal local-policy basis for the assessment of noise emissions from the proposed Greggs building-services plant.

Policy EN15 also has some relevance to the proposed development. In respect of commercial development, the policy requires adequate provision for servicing and plant and expressly states that:

"New delivery/plant areas should be appropriately located to minimise the impact associated with noise on proposed/existing sensitive receptors."

This reinforces the requirement for plant location and design to form part of the overall approach to protecting neighbouring amenity.

APPENDIX C: Manufacturers' Noise Emissions Data of Proposed Building Services Plant and Equipment

Model name	Outdoor unit			RAV-GP803ATP-E/TR
Power supply				1 phase 220-240V, 50Hz 1 phase 220V, 60Hz (Power exclusive to outdoor is required.)
Compressor	Type			Hermetic compressor
	Motor		(kW)	2.04
	Pole			8
Refrigerant charged			(kg)	1.9
Refrigerant control				Pulse motor valve
Inter connecting pipe	Standard length		(m)	7.5
	Min. length		(m)	3
	Max. total length		(m)	50
	Additional refrigerant charge under long piping connector			35g/m (31m to 50m)
	Height difference	Outdoor lower	(m)	30
		Outdoor higher	(m)	30
Outer dimension	Height		(mm)	890
	Width		(mm)	900
	Depth		(mm)	320
Appearance				Silky shade (Muncel 1Y8.5/0.5)
Total weight			(kg)	59
Heat exchanger				Finned tube
Fan unit	Fan			Propeller fan
	Standard air flow high		(m^3/min.)	54
	Motor		(W)	60
Connecting pipe	Gas side		(mm)	15.9
	Liquid side		(mm)	9.5
Sound pressure level			Cooling/Heating (dB·A)	48/49
Sound power level			Cooling/Heating (dB·A)	65/65
Sound pressure level night L1/L2/L3			Cooling (dB·A)	43/45/47
Sound pressure level night L1/L2/L3			Heating (dB·A)	43/45/48
Outside air temperature, Cooling			°C (Dry bulb temp.)	-20°C to 52°C
Outside air temperature, Heating			°C (Wet bulb temp.)	-27°C to 15°C

Note :
Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

* The specifications may be subject to change without notice for purpose of improvement.

Model	Outdoor unit RAV-GP		1103AT8P-E/TR	1403AT8P-E/TR	1603AT8P-E/TR
Power supply			3 phase 380-415, 50Hz / 380V, 60Hz (Power exclusive to outdoor is required)		
Compressor	Type		Hermetic compressor		
	Motor	(kW)	2.57	2.57	3.57
	Pole		8	8	6
Refrigerant charged		(kg)	3.3	3.3	3.5
Refrigerant control			Pulse motor valve		
Pipe	Max	(m)	100	100	100
	Min	(m)	3	3	3
	Height difference	Outdoor lower	30	30	30
		Outdoor Height	30	30	30
Outer dimension	Height	(m)	1640	1640	1640
	Width	(m)	1100	1100	1100
	Depth	(m)	460	460	460
Appearance			Silky shade (Munsell 1Y8.5/0.5)		
Total weight		(kg)	126	126	127
Heat exchanger			Finned tube		
Fan unit	Fan		Propeller fan		
	Standard air flow	(m^3/hr)	7000	8000	8800
	Motor	(W)	200	200	200
Connecting pipe (Outdoor unit side)	Gas side	(mm)	15.9	15.9	15.9
	Liquid side	(mm)	9.5	9.5	9.5
Sound pressure level	Cooling/Heating	(dB-A)	50/50	53/53	54/55
Sound power level	Cooling/Heating	(dB-A)	65/65	68/68	69/70
Sound pressure level night L1/L2/L3		Cooling (dB-A)	42/45/47	45/47/49	45/48/51
Sound pressure level night L1/L2/L3		Heating (dB-A)	42/45/47	45/47/49	46/49/52
Outside air temperature cooling		(°C)	52 to -20°C		
Outside air temperature heating		(°C)	18 to -27°C		

Note :
Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

* The specifications may be subject to change without notice for purpose of improvement.

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MULTIFLOW SEL

Sound Data

Single Phase 220V to 240V / 50Hz

Product Code	Sound r/min		Sound Power Level dBW @ Octave Band Hz								Total dB
			63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	
SEL250/2-1AC	2684	Inlet	-	36	47	57	63	66	67	56	70
		Outlet	-	41	57	63	69	69	65	54	74
		Breakout	-	36	35	34	45	44	41	35	49
	2435	Inlet	-	40	45	55	62	65	66	54	70
		Outlet	-	41	57	62	68	69	64	52	73
		Breakout	-	37	34	33	45	44	41	34	49
	2100	Inlet	-	54	40	50	56	56	49	39	61
		Outlet	-	56	47	52	59	58	50	36	63
		Breakout	-	48	36	38	39	38	31	21	49
	1490	Inlet	-	51	36	45	49	44	31	26	54
		Outlet	-	54	49	47	54	50	33	23	59
		Breakout	-	43	34	35	33	28	15	8	45
SEL315/2B-1AC	2776	Inlet	-	48	64	69	70	70	69	66	76
		Outlet	-	50	70	75	78	75	71	65	81
		Breakout	-	46	50	52	57	54	53	46	61
	2540	Inlet	-	44	58	64	66	66	67	64	73
		Outlet	-	42	67	71	73	71	67	62	78
		Breakout	-	44	47	50	53	52	50	43	58
	2295	Inlet	-	45	51	60	62	62	64	58	69
		Outlet	-	42	64	66	69	66	63	56	73
		Breakout	-	42	45	48	50	48	47	39	55
	1760	Inlet	-	44	50	53	56	56	56	43	62
		Outlet	-	52	56	61	64	60	56	45	68
		Breakout	-	37	39	42	42	39	37	25	48
SEL315/2A-1AC	2819	Inlet	-	49	63	68	70	69	66	57	75
		Outlet	-	50	69	73	75	73	66	58	79
		Breakout	-	44	46	49	53	51	49	45	57
	2640	Inlet	-	52	63	68	68	67	63	55	73
		Outlet	-	48	67	71	73	70	64	55	77
		Breakout	-	39	41	45	49	48	45	40	54
	2425	Inlet	-	44	56	63	65	64	59	50	70
		Outlet	-	46	62	67	71	67	60	51	74
		Breakout	-	40	41	44	49	45	41	36	52
	1895	Inlet	-	41	49	60	58	55	47	37	63
		Outlet	-	44	55	63	64	59	50	39	68
		Breakout	-	37	36	39	43	38	32	24	47
SEL355/2-1AC	2776	Inlet	-	47	64	70	75	74	71	64	79
		Outlet	-	54	70	76	80	77	72	64	83
		Breakout	-	45	55	55	58	56	55	45	63
	2530	Inlet	-	46	62	67	72	71	68	60	76
		Outlet	-	50	65	74	77	74	69	60	81
		Breakout	-	44	48	51	55	53	52	40	60
	2295	Inlet	-	48	58	65	68	67	64	55	73
		Outlet	-	49	64	71	72	69	65	55	76
		Breakout	-	41	46	51	52	49	48	35	57
	1825	Inlet	-	42	52	60	61	61	54	44	66
		Outlet	-	52	57	67	66	62	57	44	71
		Breakout	-	40	43	51	45	42	38	23	53

Data provided at standard air density of 1.2 kg/m³.
Tests and preparation of the sound data have been carried out at operating point with the highest static efficiency.
The Sound Power Level Spectra are in dB re-1pW.

Accessories available:

Electronic Speed Controllers
Filter Cassettes
Electric Heater Batteries
Inline Attenuators
Backdraught Shutters
Fast Clamps
Wall/ Roof Terminals

IP44 Protection

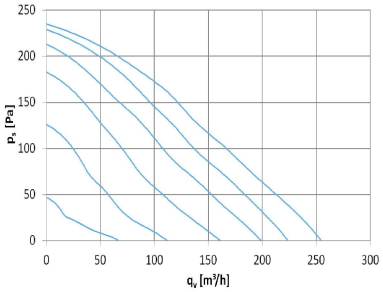
Conform to European Directives for safety and security:

2014/30/EU, 2006/42/EC, and 2006/95/EC

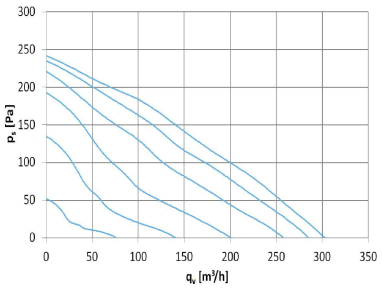
Declarations of conformity available on request

ErP Ready

ILC100



ILC125



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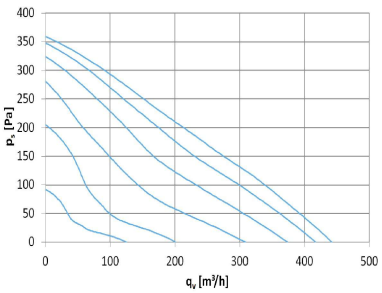

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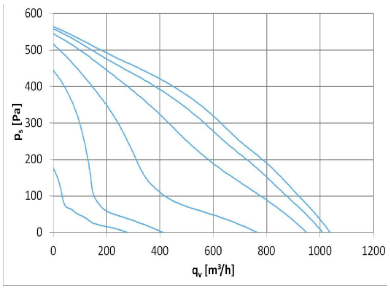

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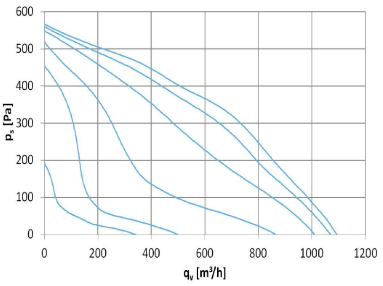
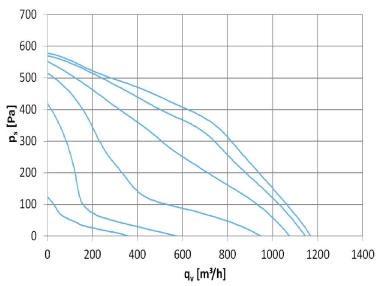


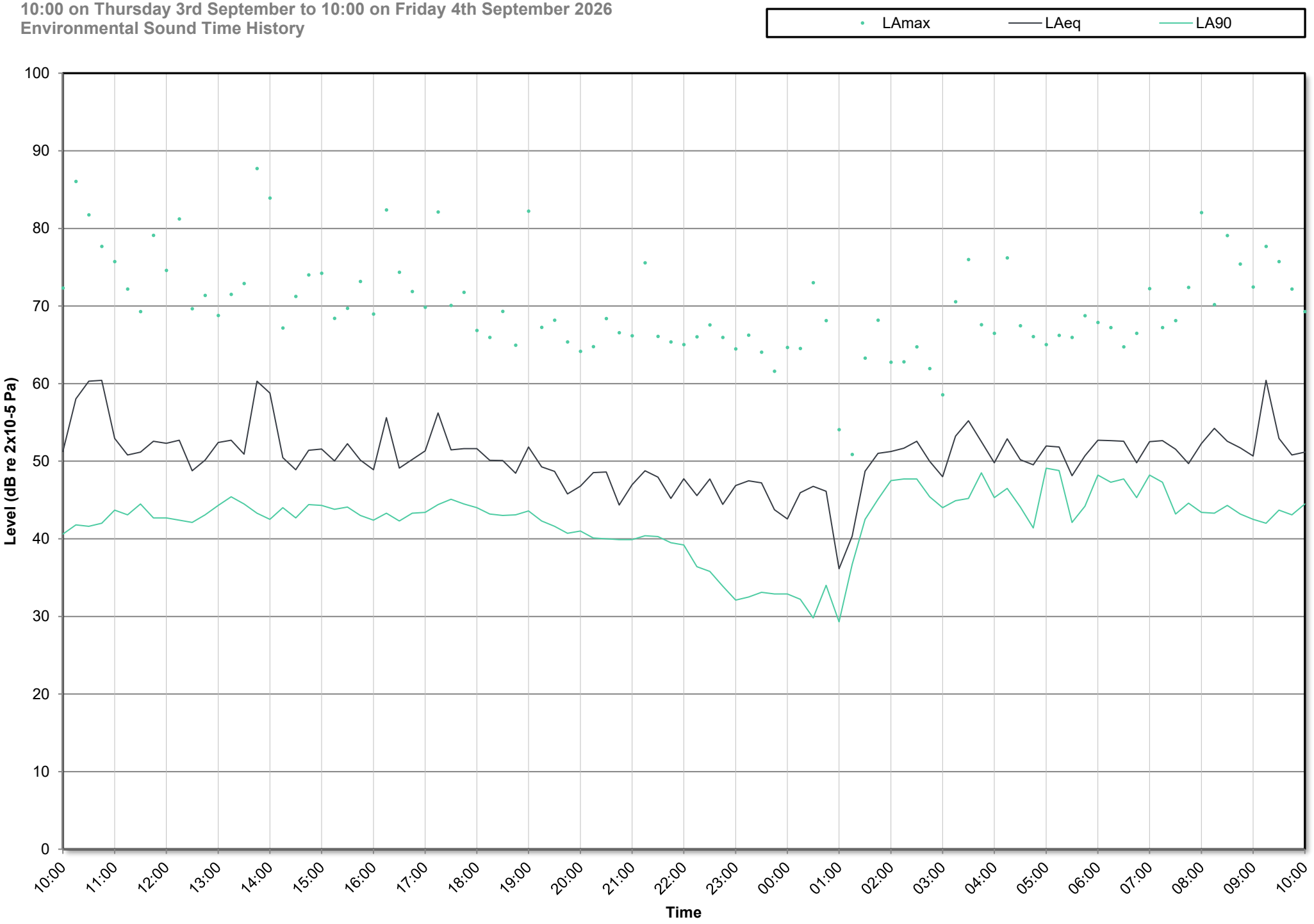
ILC315



Product	Sound-power level L_{WA} dB(A)	Octave-frequency band Hz 125	250	500	1k	2k	4k	8k	Total	
ILC100	to inlet	40	58	53	54	52	44	34	61	measured at 165m3/h 100Pa
	to outlet	44	61	48	51	51	44	33	62	
	to environment	31	34	38	44	41	37	28	48	
ILC125	to inlet	36	46	51	51	51	49	33	57	measured at 196m3/h 100Pa
	to outlet	38	55	47	49	51	48	32	58	
	to environment	31	31	34	40	37	32	23	45	
ILC150	to inlet	43	50	58	60	60	58	47	65	measured at 333m3/h 110Pa
	to outlet	44	58	57	59	59	56	46	65	
	to environment	32	39	42	45	45	40	29	50	
ILC200	to inlet	50	64	64	68	65	64	54	72	measured at 846m3/h 120Pa
	to outlet	52	68	63	68	67	65	55	73	
	to environment	47	49	52	55	58	52	39	61	
ILC250	to inlet	50	61	63	66	63	61	52	71	measured at 810m3/h 120Pa
	to outlet	50	64	64	66	65	63	53	72	
	to environment	45	52	54	55	53	47	35	60	
ILC315	to inlet	50	63	66	70	65	66	60	74	measured at 1080m3/h 150Pa
	to outlet	54	66	68	69	69	69	61	76	
	to environment	47	50	54	57	56	50	42	61	

APPENDIX D: Baseline Environmental Sound Time History

10:00 on Thursday 3rd September to 10:00 on Friday 4th September 2026
Environmental Sound Time History



APPENDIX E: Acoustic Calculations

DG ACOUSTICS

Building Services Plant and Equipment Calculations to Closest Noise Sensitive Receptor	Frequency, Hz								dB(A)
	63	125	250	500	1k	2k	4k	8k	
Air Conditioning Condenser Toshiba RAV-GP803ATP-E/TR - SPL@1m*	53	52	53	44	43	39	33	27	
Correction due to surface reflections at source (2), dB	6	6	6	6	6	6	6	6	
Minimum attenuation provided by building envelope blocking line of sight, dB	-9	-11	-13	-16	-18	-21	-24	-27	
Minimum attenuation provided by distance (4.5m), dB	-13	-13	-13	-13	-13	-13	-13	-13	
Specific Sound Level at Receptor, dB	***37***	***34***	***33***	***21***	***18***	***11***	***2***	***-7***	**27**
Air Conditioning Condenser RAV-GP1603AT8P-E/TR - SPL@1m*	61	59	56	52	49	45	36	31	
Correction due to surface reflections at source (2), dB	6	6	6	6	6	6	6	6	
Minimum attenuation provided by building envelope blocking line of sight, dB	-9	-11	-13	-16	-18	-21	-24	-27	
Minimum attenuation provided by distance (4.5m), dB	-13	-13	-13	-13	-13	-13	-13	-13	
Specific Sound Level at Receptor, dB	***45***	***41***	***36***	***29***	***24***	***17***	***5***	***-3***	**32**
Oven Extract ELTA SEL 355/2-1AC - Sound Power Levels	54	54	70	76	80	77	72	64	
Correction due to surface reflections at source (1), dB	3	3	3	3	3	3	3	3	
Minimum attenuation provided by end reflection (355mm dia), dB	-12	-8	-4	-1	0	0	0	0	
Minimum attenuation provided by combined filter bank attenuation, dB**	0	0	-1	-2	-4	-5	-7	-8	
Minimum attenuation provided by weather louvre, dB	-2	-2	-2	-2	-3	-3	-3	-3	
Minimum attenuation provided by building envelope blocking line of sight, dB	-7	-8	-10	-12	-15	-18	-21	-24	
Minimum attenuation provided by distance (8m), dB	-29	-29	-29	-29	-29	-29	-29	-29	
Specific Sound Level at Receptor, dB	***7***	***10***	***27***	***32***	***32***	***25***	***15***	***3***	**35**
WC Extract LINDAB ILC 100 - Sound Power Levels	44	44	61	48	51	51	44	33	
Correction due to surface reflections at source (1), dB	3	3	3	3	3	3	3	3	
Minimum attenuation provided by end reflection (100mm dia), dB	-17	-12	-8	-4	-1	0	0	0	
Minimum attenuation provided by building envelope blocking line of sight, dB	-7	-8	-10	-12	-15	-18	-21	-24	
Minimum attenuation provided by distance (8m), dB	-29	-29	-29	-29	-29	-29	-29	-29	
Specific Sound Level at Receptor, dB	***-6***	***-2***	***17***	***5***	***9***	***7***	***-3***	***-17***	**14**
Total Specific Sound Level at Receptor, dB	**46**	**42**	**38**	**34**	**33**	**26**	**16**	**4**	**37**
BS4142 Acoustic Feature Corrections									
Tonality									0
Intermittency									0
Impulsivity									0
Total Rating Noise Level at Receptor Window, dB									**37**

*Spectral sound levels derived from a similar fan system due to manufacturer having no data. Single octave band spectrum matches the overall sound pressure level provided by the manufacturer
**Conservative engineering allowances for incidental attenuation through the filtration stages, in the absence of manufacturer-tested acoustic insertion-loss data