



**THE FORMER CROWN & THISTLE PH
NO. 44 THE TERRACE, GRAVESEND
KENT DA12 2BJ**

SOUND INSULATION TESTING

(ANC REGISTERED TASK NO. 187160147 : PASSWORD : ECM0TT)

**On behalf of:
Kite Holdings Ltd**

Report No. MRL/100/2183.1v1
July 2025

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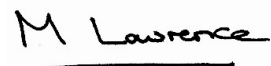
(ANC REGISTERED TASK NO. 187160147 : PASSWORD : ECM0TT)

Report prepared by:
MRL Acoustics Ltd
64 Blackwall Road South
Willesborough Lees
Ashford
Kent
TN24 0FU

On behalf of:
Kite Holdings Ltd
369 Singlewell Road
Gravesend
Kent
DL11 7RL

Report prepared by:

Matthew Lawrence MSc MIOA – Principal Consultant

Handwritten signature of Matthew Lawrence in black ink, with a horizontal line underneath the name.

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Notice to Building Control Officer

Certification of Test Results

ANC operates an online, secure, paperless certification system for sound insulation tests.

The online verification (certification) system means that Building Control Bodies will need to follow the steps below to verify the results quoted in the relevant test report:

1. Go to the ANC secure server at www.theanc.co.uk
2. Navigate to the [ADvANCE](#) page which links to the ANC site available for use by BCOs.
3. Enter the following in the spaces provided:

Task Number: 160147

Task Password: ECM0TT

4. Select role "Building Control Officer" and press "Login"
5. You will then see a summary list of results of all the Tests undertaken to date for this project (Task) as held on the secure primary server and you can print this table for your records.

1.0 SITE & TESTING DETAILS

- 1.1 MRL Acoustics Limited is registered under the Association of Noise Consultants' Registration Scheme to carry out pre-completion sound insulation testing (ANC Registered Organisation No. 187). The testing was carried out by Mr M. Lawrence who is an approved tester (No. 187/1). This report is an ANC Registered Report with the unique Registration Number 160147.

Site Details

- 1.2 The details of the development at which the sound insulation testing was carried out are as follows:

Site address:	The Former Crown & Thistle PH, No. 44 The Terrace, Gravesend, Kent DA12 2BJ
Development type:	Rooms for residential purposes formed by material change of use
No. of dwellings:	5

Testing Details

- 1.3 The test details are as follows:

Test Date(s):	28 th July 2025
No. separating walls tested:	1
No. of separating floors tested:	2
Cupboards, wardrobes etc:	None
Background noise due to:	Intermittent road traffic noise
Furnishings:	None
Floor coverings:	None

- 1.4 Details of the constructions, test rooms and room volumes are given on the charts in Appendix III at the end of this report. The construction details are based on information provided by the client, as indicated overleaf:-

- Existing solid masonry wall with each side lined with 12.5mm plasterboard on dabs;
- Timber joist floor comprising floating resilient floor and suspended ceiling below lined with 2 x 15mm SoundBloc plasterboard.

1.5 The tests detailed in this report have been carried out in full accordance with ISO 140-4 and ISO 140-7. All the relevant procedures described in Annex B of Approved Document E (2003) of the Building Regulations have been followed.

1.6 A glossary of the technical terms used in this report is provided in Appendix I. Testing methodology is described in Appendix II.

Equipment

1.7 Details of the equipment used during the sound insulation tests are shown in Table 1. Current calibration certificates for the equipment can be provided if required.

Table 1: Details of Equipment Used During Sound Insulation Tests

Equipment Description	Manufacturer	Type Number	Serial Number	Date of Expiration of Calibration	Calibration Certification Number
Sound Level Meter	Rion	Type NA-28	01291241	01/07/2026	TCRT24/1484
Pre-Amplifier	Rion	NH-23	81273	01/07/2026	TCRT24/1484
Calibrator	Rion	Type NC-74	35094450	01/07/2026	TCRT24/1480
Tapping Machine	ANV	Type TM01	TM01008	26/06/2026	TCRT24/1469
Power Amplifier	QTX	QX 15A 500W 15" Speaker	-	-	-
Sound Source	Minirator Noise Generator	MR2	681869- 061010459	-	-

2.0 ASSESSMENT OF MEASURED SOUND INSULATION PERFORMANCE

Sound Insulation Test Results

2.1 The results of the sound insulation tests are detailed in Appendix III and are summarised in Table 2.

Table 2: Sound Insulation Test Results

Test No.	Source Room	Receiver Room	Test Type & Required Sound Insulation	Measured Sound Insulation	Pass/Fail †
1	Bedroom 1 (36m ³)	Bedroom 2 (26m ³)	Airborne Wall 43 dB $D_{nT,w} + C_{tr}$ (minimum)	48 dB $D_{nT,w} + C_{tr}$	Pass
2	Bedroom 1 (36m ³)	Bedroom 4 (36m ³)	Airborne Floor 43 dB $D_{nT,w} + C_{tr}$ (minimum)	48 dB $D_{nT,w} + C_{tr}$	Pass
3	Bedroom 4 (36m ³)	Communal Lounge (36m ³)	Airborne Floor 43 dB $D_{nT,w} + C_{tr}$ (minimum)	49 dB $D_{nT,w} + C_{tr}$	Pass
4	Bedroom 1 (36m ³)	Bedroom 4 (36m ³)	Impact Floor 64 dB $L'_{nT,w}$ (maximum)	58 dB $L'_{nT,w}$	Pass
5	Bedroom 4 (36m ³)	Communal Lounge (36m ³)	Impact Floor 64 dB $L'_{nT,w}$ (maximum)	58 dB $L'_{nT,w}$	Pass

Room smaller than recommended volume of 25m³ in Approved Document E (2003) of the Building Regulations

† Responsibility for deciding compliance with Building Regulations lies with the Building Control Body

Conclusion

- 2.2 The results in Table 2 show that the tested party walls and party floors have met the minimum requirements for both airborne and impact sound insulation as specified in Approved Document E (2003) of the Building Regulations for rooms for residential purposes formed by material change of use.
- 2.3 The results of all tests have been registered for certification under the Association of Noise Consultants' Registration Scheme and can be viewed online at <http://www.theanc.co.uk>, then going to 'Building Control' and clicking on the 'ADvANCE' logo, using the Task Reference Number **160147** and Password **ECM0TT**.

APPENDIX I – GLOSSARY OF TERMS

L_{eq} This is the 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, L_{eq} is the level of a continuous noise which has the same total energy as the real fluctuating noise, measured over the same time period.

RT Measured reverberation time in receiver room in seconds.

RT_0 Standard reverberation time of 0.5 seconds

Airborne Sound Insulation Testing

D Level difference, effectively $D = \text{source level} - (\text{receiver level corrected for background level})$

D_{nT} Standardised level difference, standardised to a receiver room reverberation time of 0.5 seconds, $D_{nT} = D + 10 \log (RT/RT_0)$

$D_{nT,w}$ Weighted standardised level difference, a single figure generated by comparing the D_{nT} with a reference curve. The reference curve is shifted in 1 dB steps until the sum of adverse deviation of the test curve, compared to the reference curve, is as large as possible, but no more than 32.0 dB. The value of the shifted reference curve at 500 Hz is taken as the $D_{nT,w}$. N.B. As $D_{nT,w}$ for airborne transmission represents a level difference, an improvement generates a larger figure.

C_{tr} A 'spectrum adaptation term' used to correct the $D_{nT,w}$ in order to reflect low frequency performance of the wall or floor tested.

Impact Sound Insulation Testing

- L Level, effectively L = receiver level corrected for background level
- L'_{nT} Standardised level, standardised to a receiver room reverberation time of 0.5 seconds,
 $L'_{nT} = L - 10 \log (RT/RT_0)$
- $L'_{nT,w}$ Weighted standardised level, a single figure generated by comparing the L'_{nT} with a reference curve. The reference curve is shifted in 1 dB steps until the sum of adverse deviation of the test curve, compared to the reference curve, is as large as possible, but no more than 32.0 dB. The value of the shifted reference curve at 500 Hz is taken as the $L'_{nT,w}$. N.B. As $L'_{nT,w}$ for impact transmission represents an absolute level, an improvement generates a smaller figure.

APPENDIX II – TESTING METHODOLOGY

Testing was carried out in accordance with the relevant sections of the methodology detailed below.

Airborne Sound Insulation Tests

Airborne sound insulation measurements involve generating a high noise level on one side of the test sample (source room) and then measuring the difference in noise levels between the source and receiver rooms. The testing was carried out in full accordance with the requirements of the BS EN ISO 140-4:1998: “Field Measurements of Airborne Sound Insulation between Rooms”. All the relevant procedures described in Annex B of Approved Document E of the Building Regulations have been followed.

Any airborne tests were carried out using a Rion NA-28 Type 1 Sound Level Meter loaded with the Rion NX-28BA Building Acoustics Program Card. A calibration check was carried out before and after the noise measurements and there was no variation in the calibration level.

Pink noise was produced at high volume in the source room and the resultant diffuse sound field was measured in the source room using a ‘sweeping microphone’ method and the transmitted sound was measured using the same method in the receiver room. The source was then moved to a new position and further source room and receiver room measurements were taken. Therefore, a total number of two source room and two receiver room measurements were collected. Measurements were taken for a minimum of thirty seconds at each position in the source and receiver rooms. Testing was carried out with all source room and receiver room doors and windows closed.

Background L_{eq} noise levels were recorded in the receiver room without the sound source operating using the same ‘sweeping microphone’ method. Where applicable, corrections for background noise have been made in accordance with BS EN ISO 140-4, Para 6.6.

Receiver room reverberation time (RT) calculations were made using the interrupted noise method by means of a Minirator MR2 pink noise generator and RT calculation algorithms within the Rion NA-28 sound level meter. A total of six RT measurements were made comprising two speaker positions and measurements at three different microphone positions. The results of the measurements in each room were averaged to establish the RT of the room. All of the above measurements were made over sixteen third-octave bands 100 Hz to 3150 Hz inclusive in accordance with ISO 3382-2 : 2008 (engineering method).

Impact Sound Insulation Tests

Impact sound insulation measurements involve running a specialised tapping machine on a floor in the source room and measuring the resultant noise level in the receiving room below. The testing of party floors was carried out in full accordance with the requirements of the BS EN ISO 140-7:1998: "Field Measurements of Impact Sound Insulation of Floors". All the relevant procedures described in Annex B of Approved Document E of the Building Regulations have been followed.

Any impact tests were carried out using a Rion NA-28 Type 1 Sound Level Meter loaded with the Rion NX-28BA Building Acoustics Program Card. A calibration check was carried out before and after the noise measurements and there was no variation in the calibration level.

An ANV Type TM01 tapping machine was used as the source for the impact testing. For the tests, the tapping machine was placed in four positions in the source room. Measurements of the impact sound pressure level generated by the tapping machine were measured at a total of four microphone positions in the receiver room using a 'sweeping microphone' method. Measurements were taken for a minimum of thirty seconds in the receiver room for each of the four tapping machine positions. Testing was carried out with all source room and receiver room doors and windows closed.

Background L_{eq} noise levels were recorded in the receiver room without the tapping machine operating using the same 'sweeping microphone' method. Where applicable, corrections for background noise have been made in accordance with BS EN ISO 140-7, Para 5.6.

Receiver room reverberation time (RT) calculations were made using the interrupted noise method by means of a Minirator MR2 pink noise generator and RT calculation algorithms within the Rion NA-28 sound level meter. A total of six RT measurements were made comprising two speaker positions and measurements at three different microphone positions. The results of the measurements in each room were averaged to establish the RT of the room. All of the above measurements were made over sixteen third-octave bands 100 Hz to 3150 Hz inclusive in accordance with ISO 3382-2 : 2008 (engineering method).

Sound Insulation Test Results Calculation and Rating

The results of any airborne sound insulation tests have been standardised and rated in accordance with the requirements of EN ISO 717 Part 1: 1997 "Rating of sound insulation in buildings and of building elements - Field measurement of airborne sound insulation between rooms".

The results of any impact sound insulation tests have been standardised and rated in accordance with the requirements of EN ISO 717 Part 2: 1997 "Rating of sound insulation in buildings and of building elements - Field measurement of impact sound insulation of floors".

The single number indices for $D_{nT,w}$, C_{tr} and $L'_{nT,w}$ have been calculated using in-house spreadsheets to ensure that the level differences obtained from each source position have been arithmetically averaged as required in Annex B, Paragraph B2.6 of Approved Document E (2003).

Where the difference between the signal level and background is less than or equal to 6 dB, the measurement is not considered reliable and is deemed to be 'the limit of measurement' so the signal level is estimated by applying a fixed correction of -1.3 dB. Therefore:-

$$L = L_{sb} - 1.3 \text{ dB} \quad (\text{where } L = \text{loudspeaker signal; } L_{sb} = \text{measured receive room level})$$

APPENDIX III – SOUND INSULATION TEST SHEETS

Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Kite Holdings Ltd

Date of Test: 28/07/2025

Test No. 1

Project: The Crow n & Thistle PH, No. 44 The Terrace, Gravesend, Kent

Party Wall: Existing solid masonry wall with each side lined with 12.5mm plasterboard on dabs

Source Room: Bedroom 1

Receiver Room: Bedroom 2

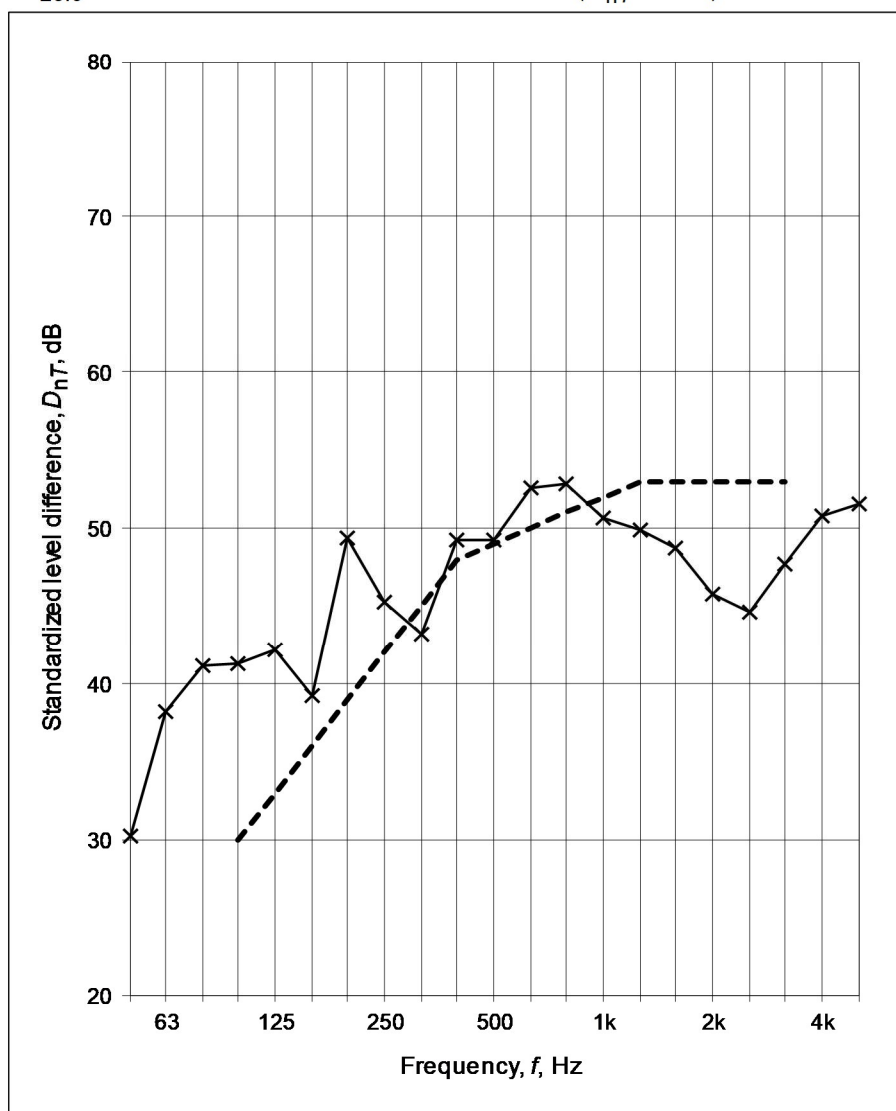
Source room volume (m³): 36.0

Receiving room volume (m³): 26.0

----- Shifted reference curve.

---X---X--- Measurement results (D_{nT} values).

Frequency f Hz	D_{nT} (1/3 octave) dB
50	30.3
63	38.2
80	41.2
100	41.3
125	42.2
160	39.3
200	49.4
250	45.3
315	43.2
400	49.2
500	49.2
630	52.6
800	52.9
1000	50.6
1250	49.9
1600	48.8
2000	45.8
2500	44.6
3150	47.7
4000	50.8
5000	51.6



$\geq$ = 'Limit of Measurement'

Where the difference between the signal level and background is less than or equal to 6 dB

Rating according to ISO 717-1

$$D_{nT,w} (C; C_{tr}) = 49 (-1; -1) \text{ dB}$$

No background noise influence on $D_{nT,w}$

No background noise influence on C and C_{tr}

Evaluation based on field measurement

results obtained by an engineering method

Test Report Number: 160147

Name of Test Institute: MRL Acoustics Ltd

Test No.: 1

Date: 29/07/2025

Signature:

M. Lawrence

Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Kite Holdings Ltd

Date of Test: 28/07/2025

Test No. 2

Project: The Crown & Thistle PH, No. 44 The Terrace, Gravesend, Kent

Party Floor: Timber joist floor comprising floating resilient floor and suspended ceiling below lined with 2 x 15mm SoundBloc plasterboard

Source Room: Bedroom 1

Receiver Room: Bedroom 4

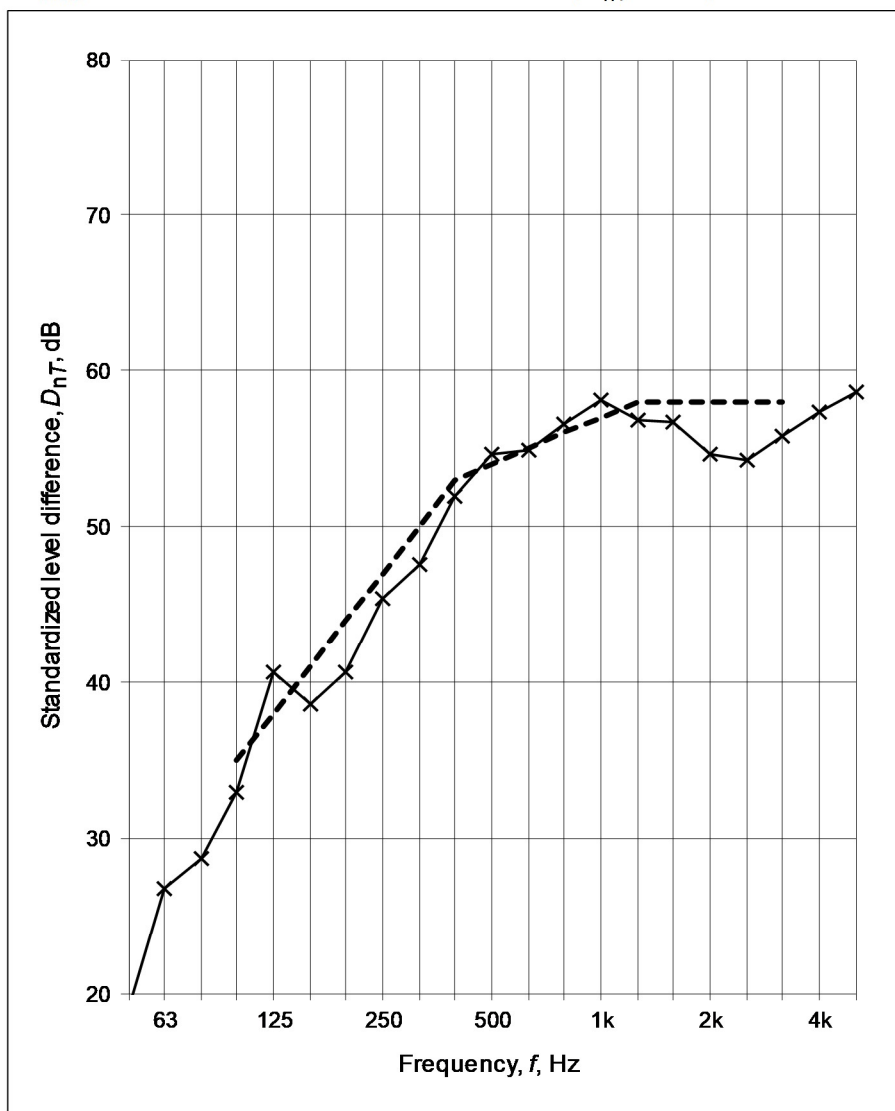
Source room volume (m^3): 36.0

Receiving room volume (m^3): 36.0

----- Shifted reference curve.

--X--X-- Measurement results (D_{nT} values).

Frequency f Hz	D_{nT} (1/3 octave) dB
50	19.2
63	26.8
80	28.7
100	32.9
125	40.6
160	38.6
200	40.6
250	45.4
315	47.6
400	51.9
500	54.6
630	54.9
800	56.6
1000	58.1
1250	56.8
1600	56.7
2000	54.6
2500	54.3
3150	55.8
4000	57.4
5000	58.6



$\geq$ = 'Limit of Measurement'

Where the difference between the signal level and background is less than or equal to 6 dB

Rating according to ISO 717-1

$$D_{nT,w} (C; C_{tr}) = 54 (-2; -6) \text{ dB}$$

No background noise influence on $D_{nT,w}$

No background noise influence on C and C_{tr}

Evaluation based on field measurement
results obtained by an engineering method

Test Report Number: 160147

Name of Test Institute: MRL Acoustics Ltd

Test No.: 2

Date: 29/07/2025

Signature: M. Lawrence

Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Kite Holdings Ltd

Date of Test: 28/07/2025

Test No. 3

Project: The Crow n & Thistle PH, No. 44 The Terrace, Gravesend, Kent

Party Floor: Timber joist floor comprising floating resilient floor and suspended ceiling below lined with 2 x 15mm SoundBloc plasterboard

Source Room: Bedroom 4

Receiver Room: Communal Lounge

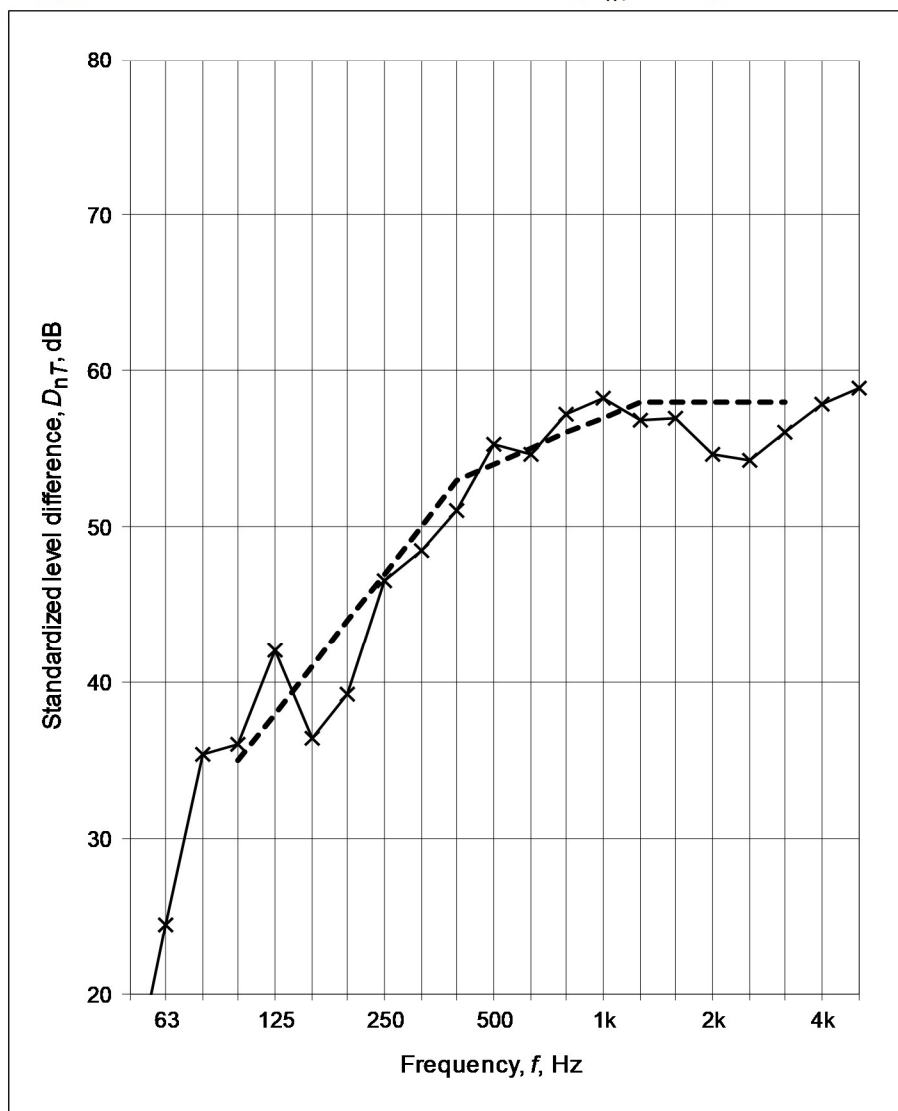
Source room volume (m^3): 36.0

----- Shifted reference curve.

Receiving room volume (m^3): 36.0

---X---X--- Measurement results (D_{nT} values).

Frequency f Hz	D_{nT} (1/3 octave) dB
50	13.6
63	24.5
80	35.4
100	36.0
125	42.1
160	36.4
200	39.3
250	46.6
315	48.5
400	51.1
500	55.3
630	54.6
800	57.2
1000	58.3
1250	56.8
1600	56.9
2000	54.7
2500	54.3
3150	56.1
4000	57.9
5000	58.9



$\geq$ = 'Limit of Measurement'

Where the difference between the signal level and background is less than or equal to 6 dB

Rating according to ISO 717-1

$$D_{nT,w} (C; C_{tr}) = 54 (-2; -5) \text{ dB}$$

No background noise influence on $D_{nT,w}$

No background noise influence on C and C_{tr}

Evaluation based on field measurement
results obtained by an engineering method

Test Report Number: 160147

Name of Test Institute: MRL Acoustics Ltd

Test No.: 3

Date: 29/07/2025

Signature: M Lawrence

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Kite Holdings Ltd

Date of Test: 28/07/2025

Test No. 4

Project: The Crow n & Thistle PH, No. 44 The Terrace, Gravesend, Kent

Party Floor: Timber joist floor comprising floating resilient floor and suspended ceiling below lined with 2 x 15mm SoundBloc plasterboard

Source Room: Bedroom 1

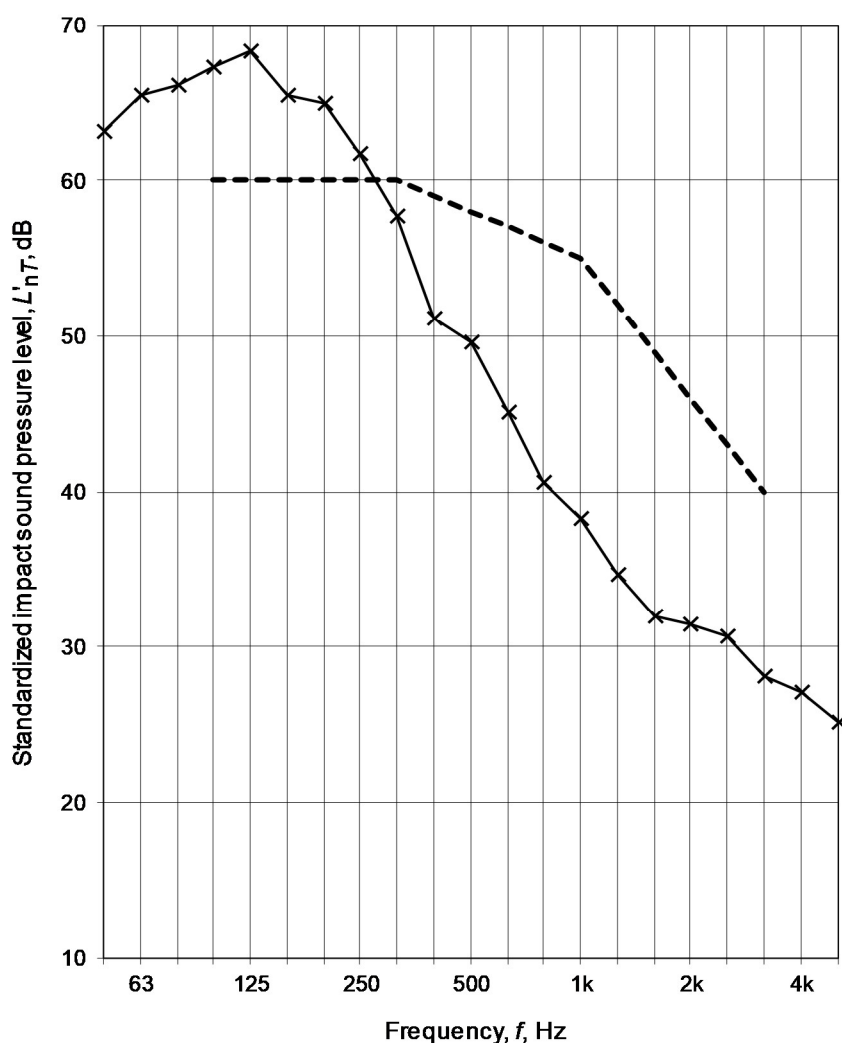
Receiver Room: Bedroom 4

Receiving room volume (m³): 36.0

----- Shifted reference curve.

---X--- Measurement results (L'_{nT} values).

Frequency f Hz	L'_{nT} (1/3 octave) dB
50	63.1
63	65.4
80	66.1
100	67.2
125	68.2
160	65.4
200	64.9
250	61.7
315	57.7
400	51.2
500	49.6
630	45.1
800	40.6
1000	38.2
1250	34.6
1600	32.0
2000	31.4
2500	30.7
3150	28.1
4000	27.1
5000	25.1



$\leq$ = 'Limit of Measurement'

Where the difference between the signal level and background is less than or equal to 6 dB

Rating according to ISO 717-2

$L'_{nT,w} (C_1) = 58 (0) \text{ dB}$

No background noise influence on $L'_{nT,w}$

No background noise influence on C_1

Evaluation based on field measurement
results obtained by an engineering method

Test Report Number: 160147

Name of Test Institute: MRL Acoustics Ltd

Test No.: 4

Date: 29/07/2025

Signature: M. Lawrence

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Kite Holdings Ltd

Date of Test: 28/07/2025

Test No. 5

Project: The Crow n & Thistle PH, No. 44 The Terrace, Gravesend, Kent

Party Floor: Timber joist floor comprising floating resilient floor and suspended ceiling below lined with 2 x 15mm SoundBloc plasterboard

Source Room: Bedroom 4

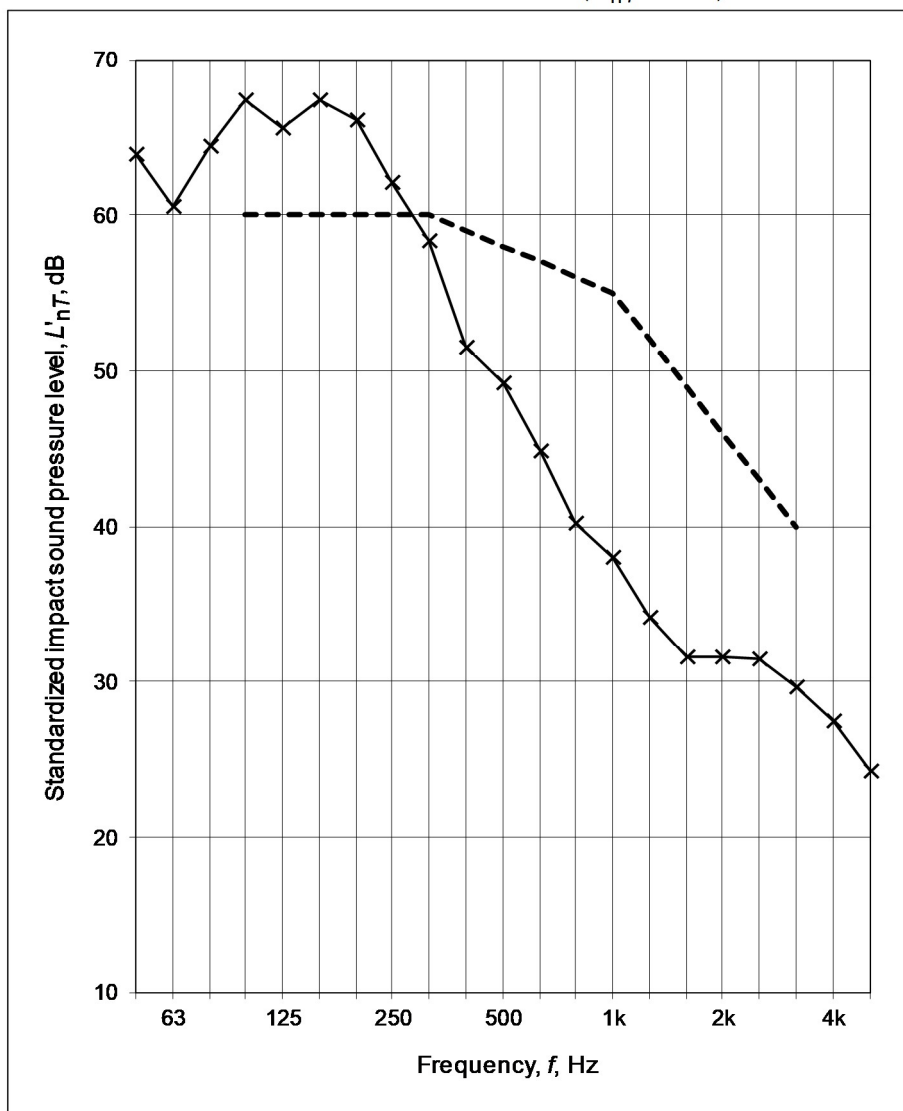
Receiver Room: Communal Lounge

Receiving room volume (m³): 36.0

----- Shifted reference curve.

---X---X--- Measurement results (L'_{nT} values).

Frequency f Hz	L'_{nT} (1/3 octave) dB
50	63.9
63	60.6
80	64.4
100	67.3
125	65.6
160	67.4
200	66.1
250	62.1
315	58.4
400	51.5
500	49.2
630	44.8
800	40.2
1000	38.0
1250	34.2
1600	31.6
2000	31.6
2500	31.4
3150	29.6
4000	27.5
5000	24.2



$\leq$ = 'Limit of Measurement'

Where the difference between the signal level and background is less than or equal to 6 dB

Rating according to ISO 717-2

$$L'_{nT,w} (C_1) = 58 (0) \text{ dB}$$

No background noise influence on $L'_{nT,w}$

No background noise influence on C_1

Evaluation based on field measurement
results obtained by an engineering method

Test Report Number: 160147

Name of Test Institute: MRL Acoustics Ltd

Test No.: 5

Date: 29/07/2025

Signature: M. Lawrence