

Sound Insulation Test Report

Measurements to British Standard BS EN ISO 140-4 & 7 (1998) and BS EN ISO 717-1 & 2 (1997), following the test procedures in Annex B of Approved Document E of The Building Regulations at:

60 Oldham Street
Manchester
Greater Manchester
M4 1LE

Tom Bunting

Approved Test Technician - Peak Acoustics Ltd

Notes:

- All partitions referenced in this report were tested in an 'as found' condition.
- This report should not be reproduced except in full, without written approval of the laboratory.

Ref: 0912192BCN

Property Type: Change of use - Flats

Test	Source Room	Receiving Room	Measured $D_{nT,w}$ + C_{tr} (dB)	Required Level $D_{nT,w}$ + C_{tr} (dB)	Measured $L'_{nT,w}$ (dB)	Required Level $L'_{nT,w}$ (dB)	Pass/Fail	Improvement on Building Regulations (dB)	Test Type
1	Apartment 2 Living / Kitchen	Apartment 3 Living / Kitchen	54	43			Pass	11	ABF
2	Apartment 2 Living / Kitchen	Apartment 1 Living / Kitchen	50	43			Pass	7	ABF
3	Apartment 2 Bedroom	Apartment 1 Bedroom			43	64	Pass	21	IMP
4	Ground Floor Commercial	Apartment 1 Living / Kitchen	54	43			Pass	11	ABF
5	Ground Floor Commercial	Apartment 1 Bedroom	52	43			Pass	9	ABF

ABW - Airborne Wall

ABF - Airborne Floor

IMP - Impact

0912192BCN

Testing commissioned by:

Richard Frain
101 Hulton Street
Salford, Greater Manchester
M5 3WQ

Test Date:

08/01/2020

Details of non-conformance:

Tested rooms were carpeted

Equipment: Kit 3

Svantek 977 Class 1 SLM Serial No. 36815
Svantek SV 33 Acoustic Calibrator Serial No. 32507
Norsonic Type 277 Tapping Machine, Serial No. 2776064
Qsources Qam Amplifier - SN 3126
Aco Pacific type 7052E microphone Serial No. 63891
Qsources Qohm Dodec Source - 8105

Ref: 0912192BCN

Standardised level difference according to ISO 140-4
Field measurements of airborne sound insulation between rooms

Client: Richard Frain
 Certificate: Airborne 1

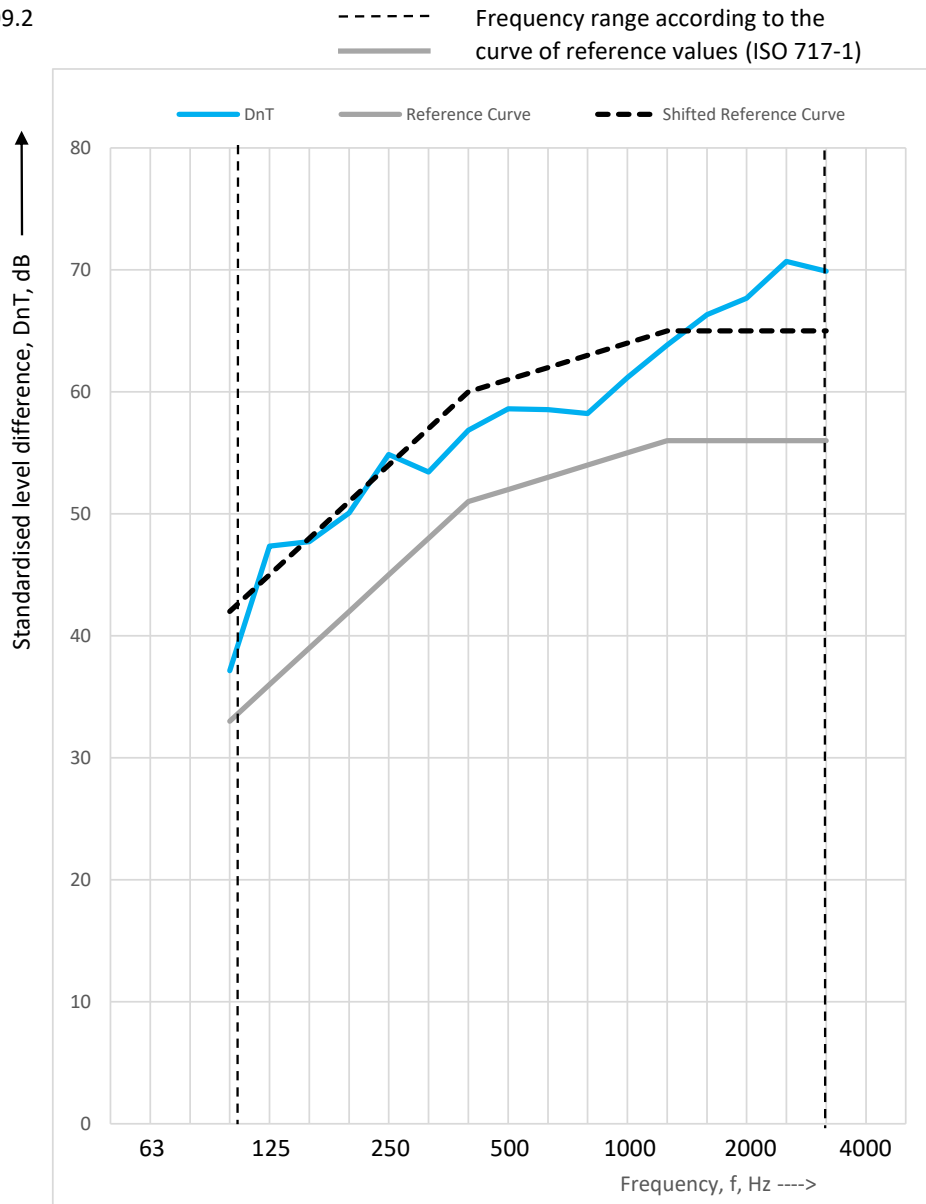
Date of test: 08/01/2020

Project: 0912192BCN

Source: Apartment 2 Living / Kitchen
 Receiver: Apartment 3 Living / Kitchen

Source room volume (m³): 109.2
 Receiver room volume (m³): 109.2

Frequency (Hz)	DnT 1/3 octave (dB)
50	
63	
80	
100	37.1
125	47.4
160	47.7
200	50.1
250	54.9
315	53.4
400	56.8
500	58.6
630	58.6
800	58.2
1000	61.2
1250	63.8
1600	66.3
2000	67.7
2500	70.7
3150	69.9
4000	
5000	



Rating according to ISO 717-1

DnT,w (C; Ctr) = 61 (-2; -7) dB

Evaluation based on field measurement
 results obtained by an engineering method

Signed: Tom Bunting

b: background corrected, B: maximum correction

Result corrected for background noise

Certificate Ref: 0912192BCN - 1

Test Institute:

Peak Acoustics Ltd

Date: 08/01/2020

Standardised level difference according to ISO 140-4
Field measurements of airborne sound insulation between rooms

Client: Richard Frain
 Certificate: Airborne 2

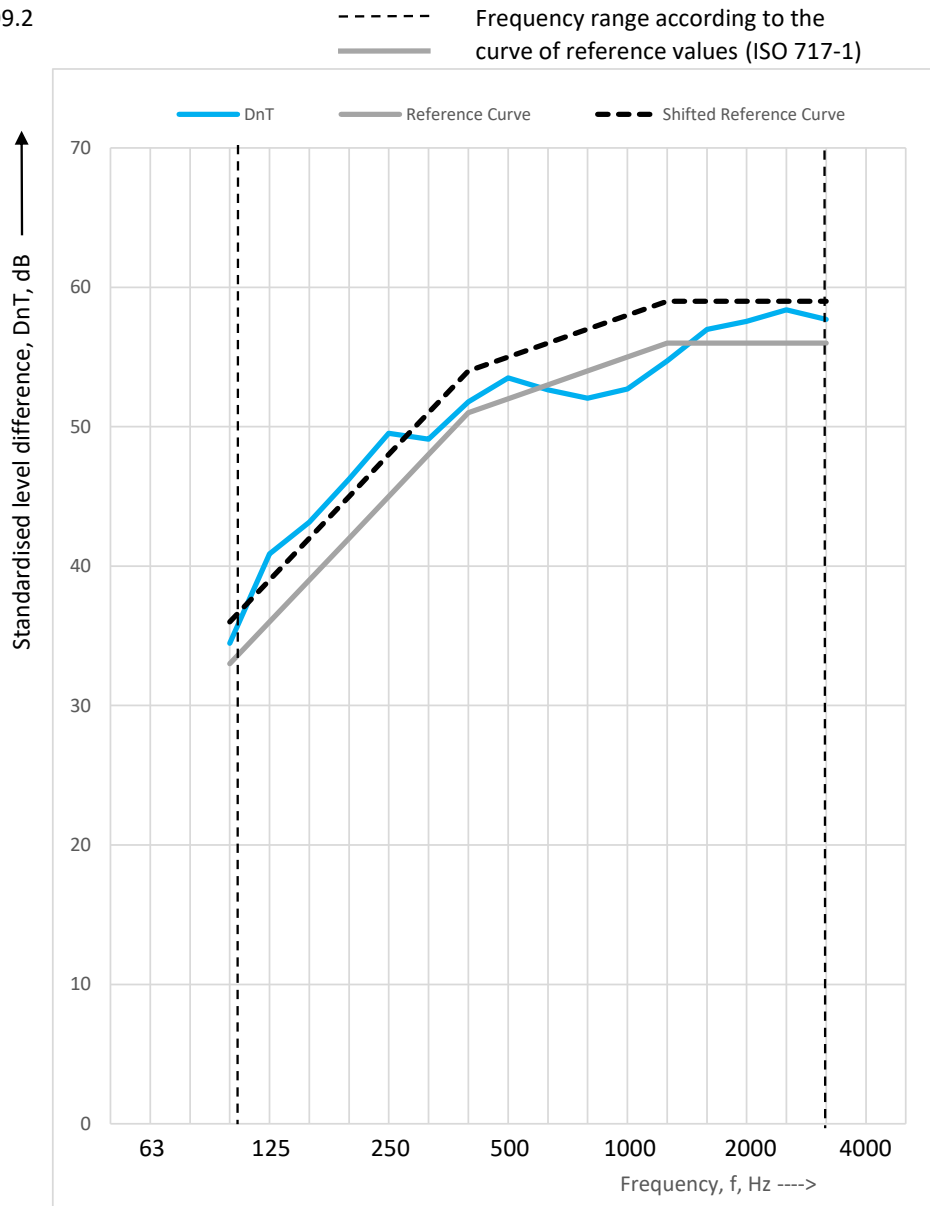
Date of test: 08/01/2020

Project: 0912192BCN

Source: Apartment 2 Living / Kitchen
 Receiver: Apartment 1 Living / Kitchen

Source room volume (m³): 109.2
 Receiver room volume (m³): 109.2

Frequency (Hz)	DnT 1/3 octave (dB)
50	
63	
80	
100	34.5
125	40.9
160	43.2
200	46.3
250	49.5
315	49.1
400	51.8
500	53.5
630	52.6
800	52.0
1000	52.7
1250	54.7
1600	57.0
2000	57.6
2500	58.4
3150	57.7
4000	
5000	



Rating according to ISO 717-1

DnT,w (C; Ctr) = 55 (-2; -5) dB

Evaluation based on field measurement
 results obtained by an engineering method

Signed: Tom Bunting

b: background corrected, B: maximum correction
 No background noise influence on measured result

Certificate Ref: 0912192BCN - 2

Test Institute:

Peak Acoustics Ltd

Date: 08/01/2020

Standardised impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Richard Frain
Certificate: Impact 3

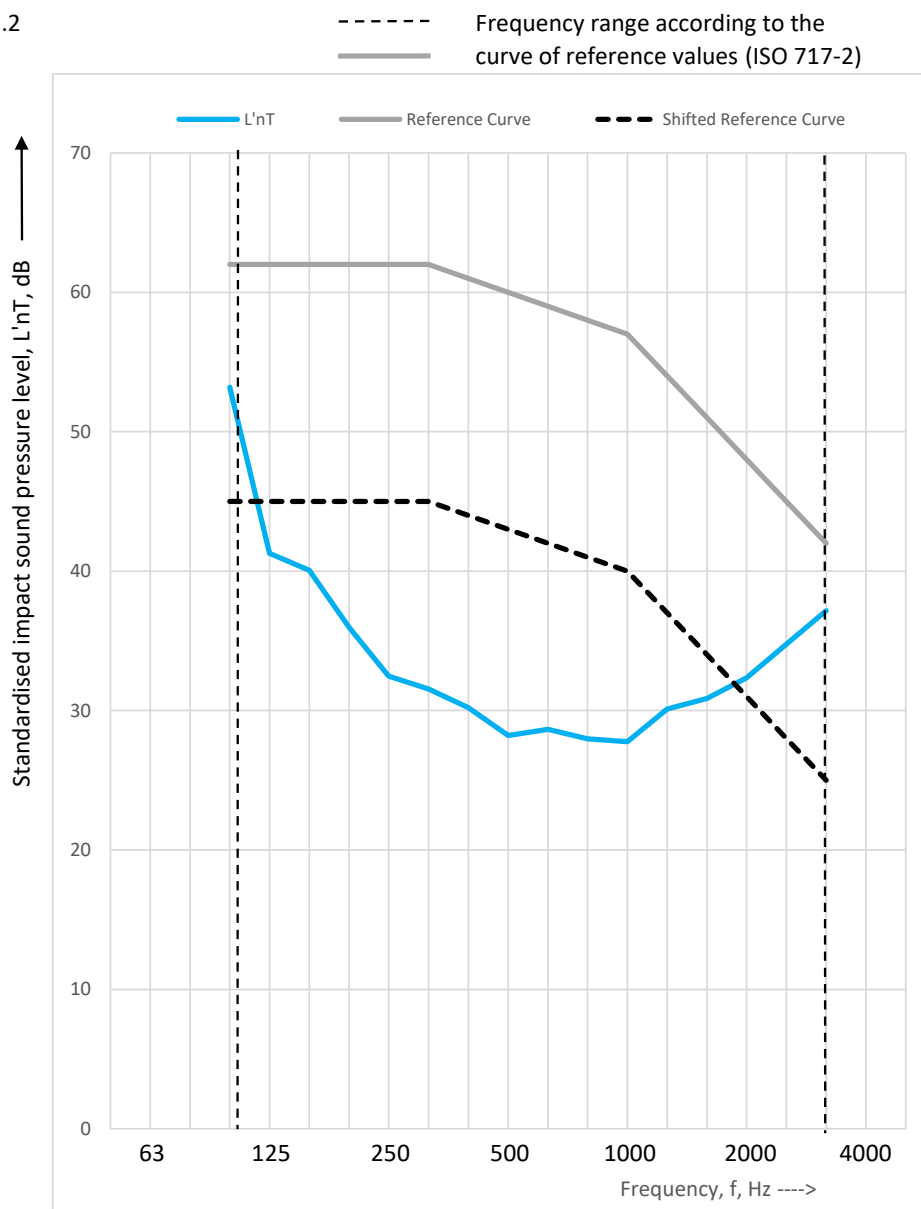
Date of test: 08/01/2020

Project: 0912192BCN

Source: Apartment 2 Bedroom
Receiver: Apartment 1 Bedroom

Source room volume (m³): 31.2
Receiver room volume (m³): 31.2

Frequency (Hz)	L'nT 1/3 octave (dB)
50	
63	
80	
100	53.2
125	41.3
160	40.1
200	36.0
250	32.5
315	31.6
400	30.2
500	28.2
630	28.7
800	28.0
1000	27.8
1250	30.1
1600	30.9
2000	32.4
2500	34.8
3150	37.2
4000	
5000	



Rating according to ISO 717-2

L'nT,w = 43 dB

Evaluation based on field measurement
results obtained by an engineering method

Signed: Tom Bunting

b: background corrected, B: maximum correction
Result corrected for background noise

Certificate Ref: 0912192BCN - 4

Test Institute:

Peak Acoustics Ltd

Date: 08/01/2020

Standardised level difference according to ISO 140-4
Field measurements of airborne sound insulation between rooms

Client: Richard Frain
 Certificate: Airborne 4

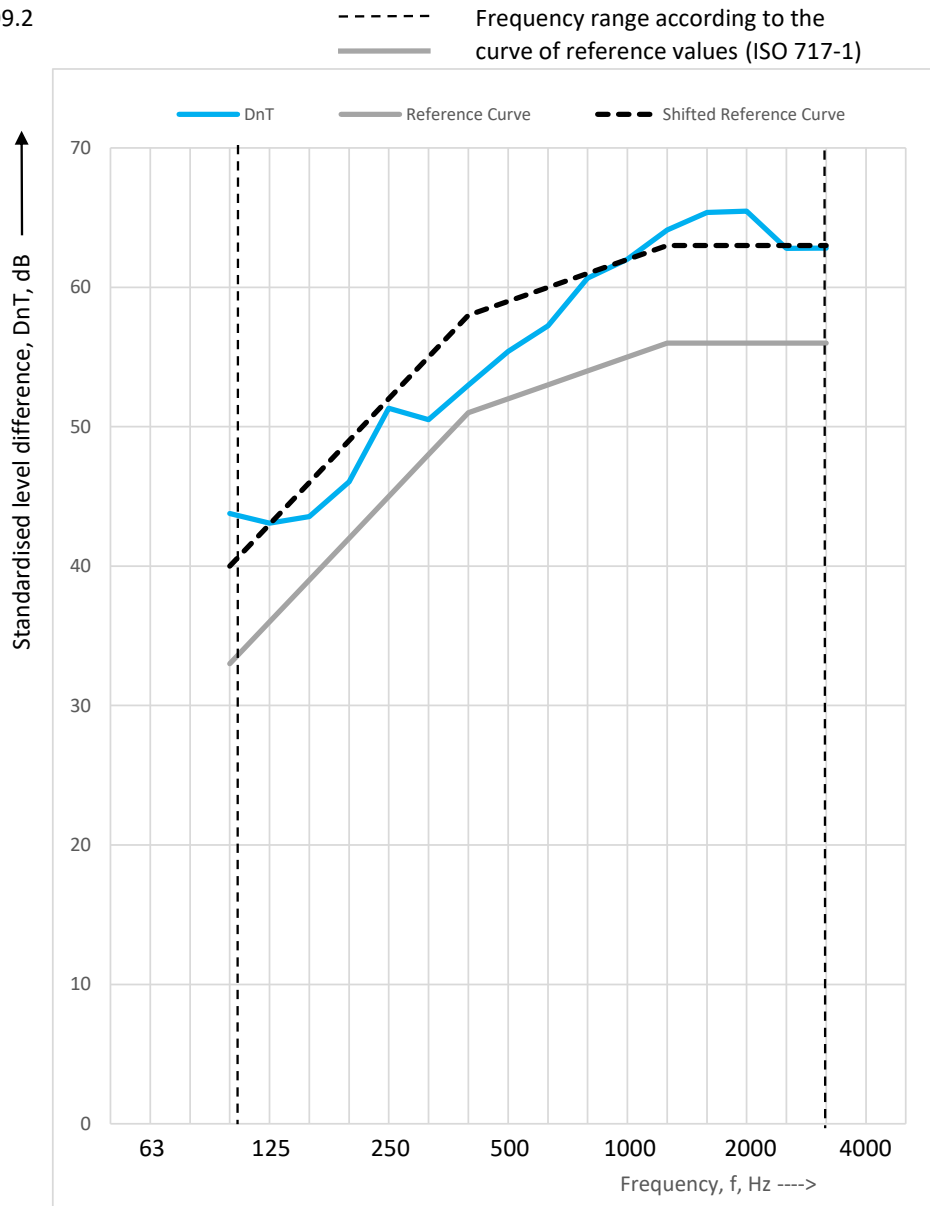
Date of test: 08/01/2020

Project: 0912192BCN

Source: Ground Floor Commercial
 Receiver: Apartment 1 Living / Kitchen

Source room volume (m³): 396.4
 Receiver room volume (m³): 109.2

Frequency (Hz)	DnT 1/3 octave (dB)
50	
63	
80	
100	43.8
125	43.1
160	43.6
200	46.1
250	51.3
315	50.5
400	53.0
500	55.4
630	57.2
800	60.6
1000	62.0
1250	64.1
1600	65.4
2000	65.5
2500	62.8
3150	62.8
4000	
5000	



Rating according to ISO 717-1

DnT,w (C; Ctr) = 59 (-1; -5) dB

Evaluation based on field measurement
 results obtained by an engineering method

Signed: Tom Bunting

b: background corrected, B: maximum correction

Result corrected for background noise

Certificate Ref: 0912192BCN - 5

Test Institute:

Peak Acoustics Ltd

Date: 08/01/2020

Standardised level difference according to ISO 140-4
Field measurements of airborne sound insulation between rooms

Client: Richard Frain
 Certificate: Airborne 5

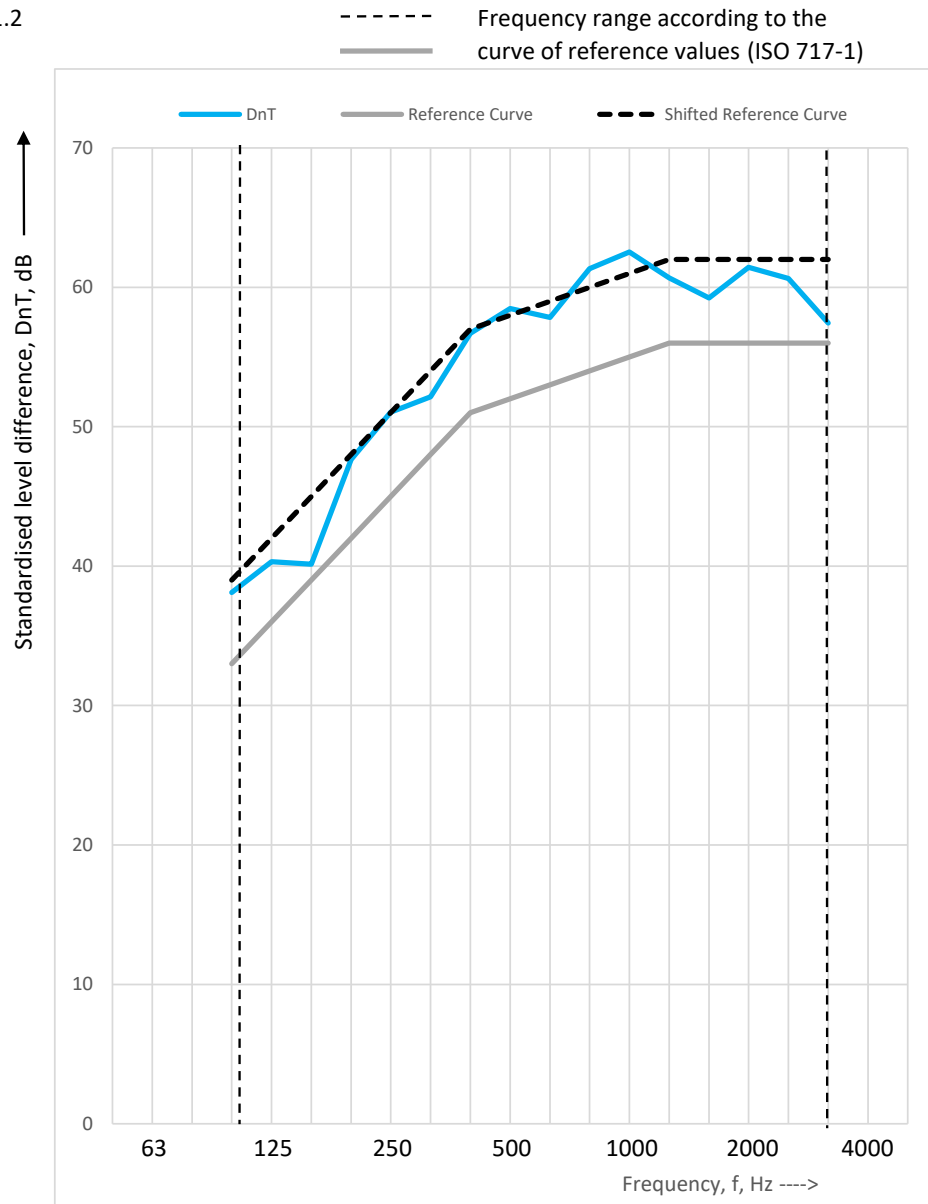
Date of test: 08/01/2020

Project: 0912192BCN

Source: Ground Floor Commercial
 Receiver: Apartment 1 Bedroom

Source room volume (m³): 396.4
 Receiver room volume (m³): 31.2

Frequency (Hz)	DnT 1/3 octave (dB)
50	
63	
80	
100	38.1
125	40.3
160	40.1
200	47.6
250	51.0
315	52.1
400	56.7
500	58.5
630	57.8
800	61.3
1000	62.5
1250	60.7
1600	59.2
2000	61.4
2500	60.6
3150	57.4
4000	
5000	



Rating according to ISO 717-1

DnT,w (C; Ctr) = 58 (-2; -6) dB

Evaluation based on field measurement
 results obtained by an engineering method

Signed: Tom Bunting

b: background corrected, B: maximum correction
 Result corrected for background noise

Certificate Ref: 0912192BCN - 6

Test Institute:

Peak Acoustics Ltd

Date: 08/01/2020

References

Peak Acoustics were unable to determine the construction materials used in forming the sampled partitions referenced in this report and no information was available from the client in this regard immediately prior to testing commencing.

Test Procedure - Airborne Sound Insulation

Airborne sound insulation measurements are taken to a recommended procedure summarised below:-

- A pink noise source generates a steady and continuous spectrum across the required frequency bands.
- Measurements, following the International Standard (2), of the sound levels are taken at one-third octave intervals from 100Hz to 3150Hz, in the source and receiver room using fixed microphone positions.
- An average sound pressure level, representative of the space in each room is established.
- Reverberation time measurements are made in the receiver room (3).
- The standardised level difference (DnT) in decibels (dB) is calculated in each frequency band using the equation: $DnT = L1 - L2 + 10 \lg T/T0$.

DnT is the Standardised Level Difference (dB)

L1 is the average sound pressure level in the source room (dB)

L2 is the average sound pressure level in the receiver room (dB)

T is the average reverberation time of the receiver room (seconds)

T0 is the reference reverberation time of 0.5 seconds.

- The Weighted Standardised Level Difference (DnT,w) in decibels and Spectrum Adaptation Terms (C and Ctr) , are calculated in accordance with BS EN ISO 717-1:1997(4)

Test Procedure - Impact Sound Transmission

Impact sound insulation measurements are taken to a recommended procedure summarised below:-

- An industry standard *tapping machine* is used as the impact noise source.
- Measurements, following the International Standard (5), if the sound level are taken at one-third octave bands intervals from 100Hz to 3150Hz in the receiver room using fixed microphone positions.
- An average sound pressure level representative of the space in each room is established.
- Reverberation time measurements are made in the receiver room (3)
- The Standardised Impact Sound Pressure Level (L'nT) in decibels (dB) is calculated in each frequency band using the equation: $Lnt = L1 - 10 \lg T/T0$

where L'nT is the Standardised Level Difference (dB)

L1 is the average sound pressure level in the source room (dB)

L2 is the average sound pressure level in the receiver room (dB)

T is the average reverberation time of the receiver room (seconds)

T0 is the reference reverberation time of 0.5 seconds.

- The Weighted Standardised Impact Sound Pressure Level (L'nT,w) in decibels (dB) is calculated in accordance with BS EN ISO 717-2:1997 (6).

Reference Documents

1. The Building Regulations 2015 - Approved Document E: Resistance to the passage of sound.
2. BS EN ISO 140-4:1998 Acoustics - Measurements of sound insulation in buildings and of building elements.
3. BS EN ISO 354:2003 Acoustics - Measurement of sound absorption in a reverberation room.
4. BS EN ISO 717-1:1997 (Incorporating Amendment 1) Rating of sound insulation in buildings and of building elements.
5. BS EN ISO 140-7:1998 Field Measurements of impact sound insulation of floors.
6. BS EN ISO 717-2:1997 (Incorporating Amendment 1) Acoustics. Rating of sound insulation in buildings and