

Description of Test Site:

Revision No. 1

A new development of five apartments.

Floor Construction:

Engineered oak flooring,
15mm dB matting,
22mm Chipboard,
Timber joists with 100mm Rockwool,
30mm Resilient bar,
15mm Fire board,
15mm Sound board.

Wall Construction:

15mm SoundBloc,
Battens with 25mm insulation,
100mm Block,
90mm Recticel insulation,
100mm Block,
Battens with 25mm insulation,
15mm SoundBloc.

Test Conditions:

Rooms were all complete and ready to test, builders tools and materials were present in some of the rooms tested. The impact tests were performed over engineered oak flooring. Apartments 4&5 were furnished.

The volume of some of the rooms tested did not meet the required volume of 25m³ or greater. However, the critical dimensions between room boundaries, measurement microphone and sound source, as stated in BS EN ISO 140, could be observed.

Test quantity reduced due to room layout.

Building Regulation Performance Requirements:

Revision No. 1

"In the secretary of state's view the normal way of satisfying Requirement E1 will be to build separating walls, separating floors, and stairs that have a separating function, together with the associated flanking construction, in such a way that they achieve the sound insulation values for dwelling houses and flats, and the values for rooms for residential purposes"

Purpose built dwelling-houses and flats

Separating walls:	airborne	$D_{nT,w} + C_{tr}$	= 45dB or higher
Separating floors:	airborne	$D_{nT,w} + C_{tr}$	= 45dB or higher
Separating floors:	impact	$L'_{nT,w}$	= 62dB or lower

Dwelling-houses and flats formed by material change of use.

Separating walls:	airborne	$D_{nT,w} + C_{tr}$	= 43dB or higher
Separating floors:	airborne	$D_{nT,w} + C_{tr}$	= 43dB or higher
Separating floors:	impact	$L'_{nT,w}$	= 64dB or lower

Purpose built rooms for residential purposes.

Separating walls:	airborne	$D_{nT,w} + C_{tr}$	= 43dB or higher
Separating floors:	airborne	$D_{nT,w} + C_{tr}$	= 45dB or higher
Separating floors:	impact	$L'_{nT,w}$	= 62dB or lower

Rooms for residential purposes formed by material change of use.

Separating walls:	airborne	$D_{nT,w} + C_{tr}$	= 43dB or higher
Separating floors:	airborne	$D_{nT,w} + C_{tr}$	= 43dB or higher
Separating floors:	impact	$L'_{nT,w}$	= 64dB or lower

Results:

Revision No. 1

Table 1. Vertical (airborne) across separating floors.

Test	Source Room	Volume	Receiver Room	Volume	$D_{nT,w}+C_{tr}$	Comment
11119S-1	1st Floor, Apartment 3, Bedroom	25.3m ³	2nd Floor, Apartment 3, Bedroom	16.3m ³	52 dB	PASS
11119S-3	1st Floor, Apartment 4, Kitchen/Living Room	40.2m ³	Ground Floor, Apartment 2, Kitchen/Living Room	38.0m ³	50 dB	PASS
A 45dB or higher $D_{nT,w}+C_{tr}$ value is required to achieve a 'pass'						

Table 2. Vertical (impact) across separating floors.

Test	Source Room	Volume	Receiver Room	Volume	$L'_{nT,w}$	Comment
11119S-2	2nd Floor, Apartment 3, Bedroom	16.3m ³	1st Floor, Apartment 3, Bedroom	25.3m ³	57 dB	PASS ¹
11119S-4	1st Floor, Apartment 4, Kitchen/Living Room	40.2m ³	Ground Floor, Apartment 2, Kitchen/Living Room	38.0m ³	54 dB	PASS ¹
A 62dB or lower $L'_{nT,w}$ value is required to achieve a 'pass'						

Table 3. Horizontal (airborne) across separating wall.

Test	Source Room	Volume	Receiver Room	Volume	$D_{nT,w}+C_{tr}$	Comment
11119S-5	Ground Floor, Apartment 1, Bedroom	28.6m ³	Ground Floor, Apartment 2, Bedroom	26.3m ³	51 dB	PASS
A 45dB or higher $D_{nT,w}+C_{tr}$ value is required to achieve a 'pass'						

¹Should be taken as a guidance result as impact tests were performed over engineered oak flooring.

BS EN ISO 140-4:1998 Standardised Level Difference

Revision No. 1

Field measurements of airborne sound insulation between rooms

Client: Floorscan Acoustics Ltd

Date of test: 15/05/2018

Description and identification of the building construction and test arrangement, direction of measurement:

Source Room: 1st Floor, Apartment 3, Bedroom

Source room volume: 25.3m³

Receiver room: 2nd Floor, Apartment 3, Bedroom

Receiver room volume: 16.3m³

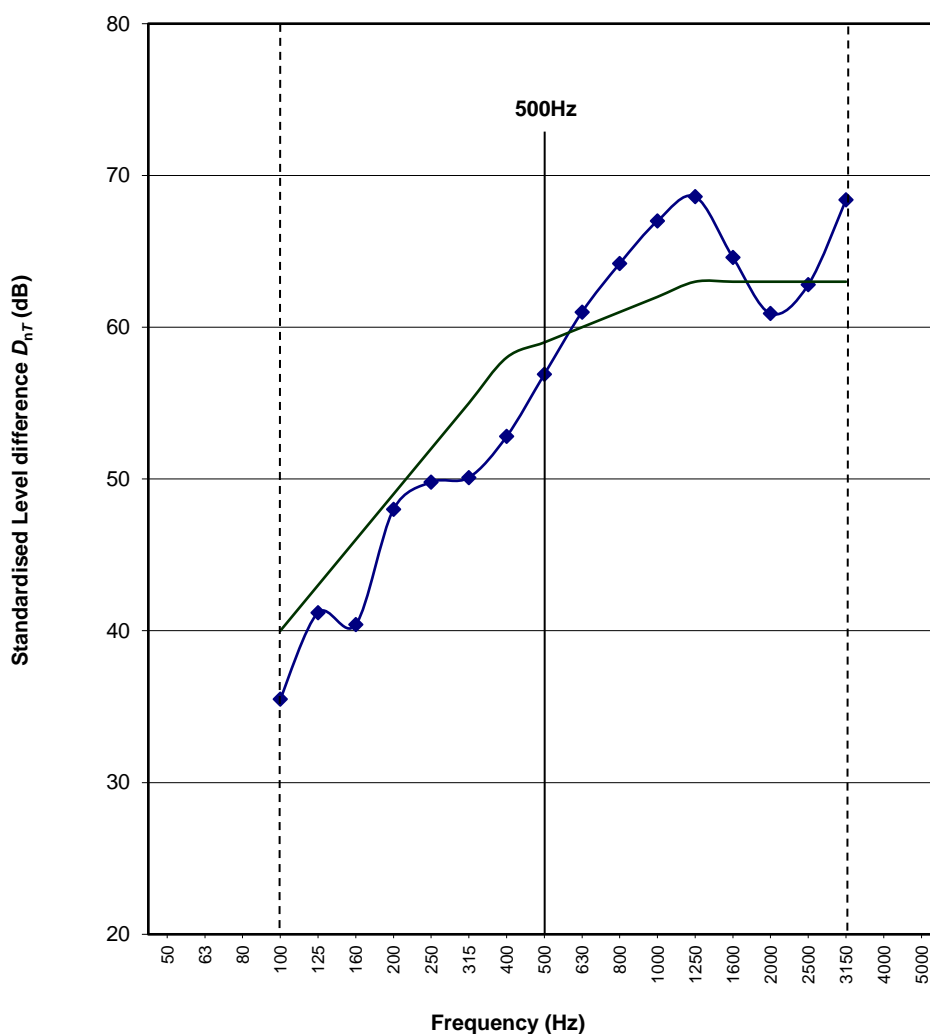
Direction of test: Vertical

Floor Construction: Engineered oak flooring, 15mm dB matting, 22mm Chipboard, Timber joists with 100mm Rockwool, 30mm Resilient bar, 15mm Fire board, 15mm Sound board.

Frequency (Hz)	D_{nT} (1/3 oct) dB
50	N/A
63	N/A
80	N/A
100	35.5
125	41.2
160	40.4
200	48.0
250	49.8
315	50.1
400	52.8
500	56.9
630	61.0
800	≥64.2*
1000	≥67.0*
1250	≥68.6*
1600	≥64.6*
2000	60.9
2500	62.8
3150	≥68.4*
4000	N/A
5000	N/A

* Value is at the limit of measurement due to the influence of background noise

Frequency range according to the curve of reference values (ISO 717-1)



Rating according to ISO 717-1

$$D_{nT,w} (C_{tr}) = 59 \text{ (-7) dB}$$


$$D_{nT,w} + C_{tr} = 52 \text{ dB}$$

Evaluation based on field measurement results obtained by an engineering method

Test report: 11119S-1

Name of test institute: Soundtesting.co.uk Ltd

Date of report: 24/05/2018

Signature:  Engineer: B. Bielicki, BSc Audio Technology, AMIOA

File Ref: 11119S

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ISO 140-7:1998 Standardised Impact Sound Pressure Level

Revision No. 1

Field measurements of impact isolation of floors

Client: Floorscan Acoustics Ltd

Date of test: 15/05/2018

Description and identification of the building construction and test arrangement, direction of measurement:

Source Room: 2nd Floor, Apartment 3, Bedroom

Source room volume: 16.3m³

Receiver room: 1st Floor, Apartment 3, Bedroom

Receiver room volume: 25.3m³

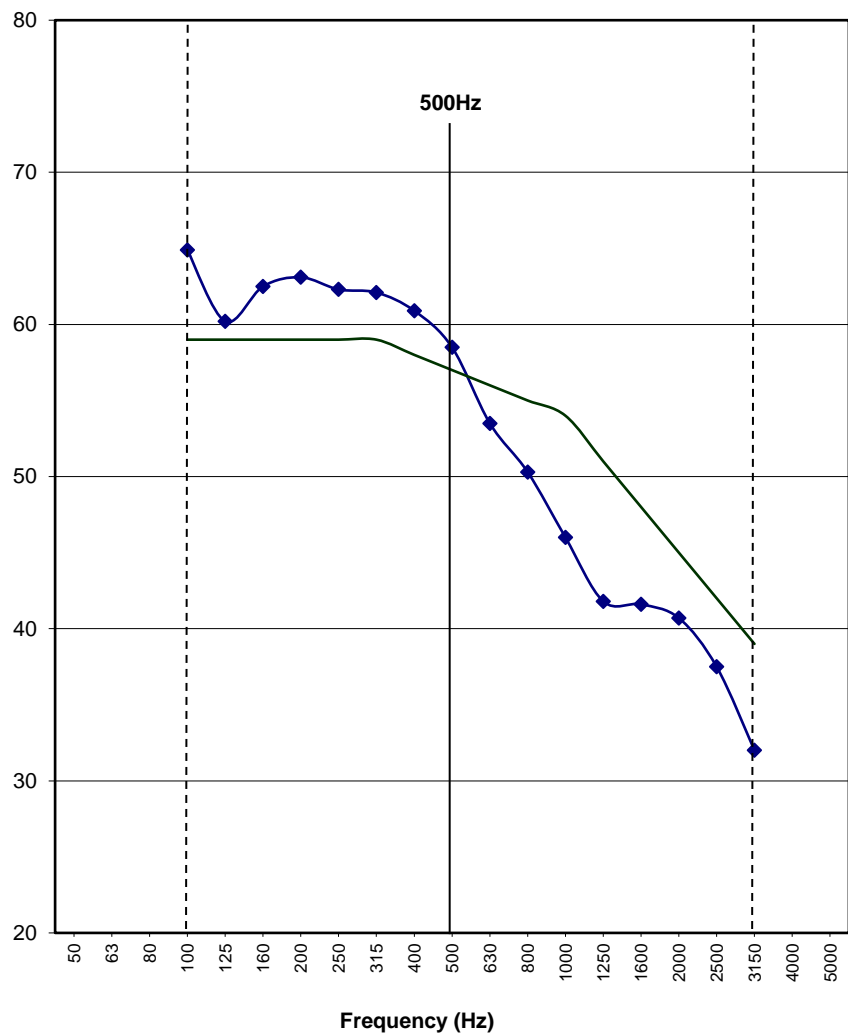
Direction of test: Vertical

Floor Construction: Engineered oak flooring, 15mm dB matting, 22mm Chipboard, Timber joists with 100mm Rockwool, 30mm Resilient bar, 15mm Fire board, 15mm Sound board.

Frequency (Hz)	L'_{nT} (1/3 oct) dB
50	N/A
63	N/A
80	N/A
100	64.9
125	60.2
160	62.5
200	63.1
250	62.3
315	62.1
400	60.9
500	58.5
630	53.5
800	50.3
1000	46.0
1250	41.8
1600	41.6
2000	40.7
2500	37.5
3150	32.0
4000	N/A
5000	N/A

Weighted Impact Sound Pressure Level, L'_{nT} (dB)

Frequency range according to the curve of reference values (ISO 717-2)



Rating according to ISO 717-2


$$L'_{nT,w} = 57 \text{ dB}$$

Evaluation based on field measurement results obtained by an engineering method

Test report: 11119S-2

Name of test institute: Soundtesting.co.uk Ltd

Date of report: 24/05/2018

Signature:  Engineer: B. Bielicki, BSc Audio Technology, AMIOA

File Ref: 11119S

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BS EN ISO 140-4:1998 Standardised Level Difference

Revision No. 1

Field measurements of airborne sound insulation between rooms

Client: Floorscan Acoustics Ltd

Date of test: 15/05/2018

Description and identification of the building construction and test arrangement, direction of measurement:

Source Room: 1st Floor, Apartment 4, Kitchen/Living Room

Source room volume: 40.2m³

Receiver room: Ground Floor, Apartment 2, Kitchen/Living Room

Receiver room volume: 38.0m³

Direction of test: Vertical

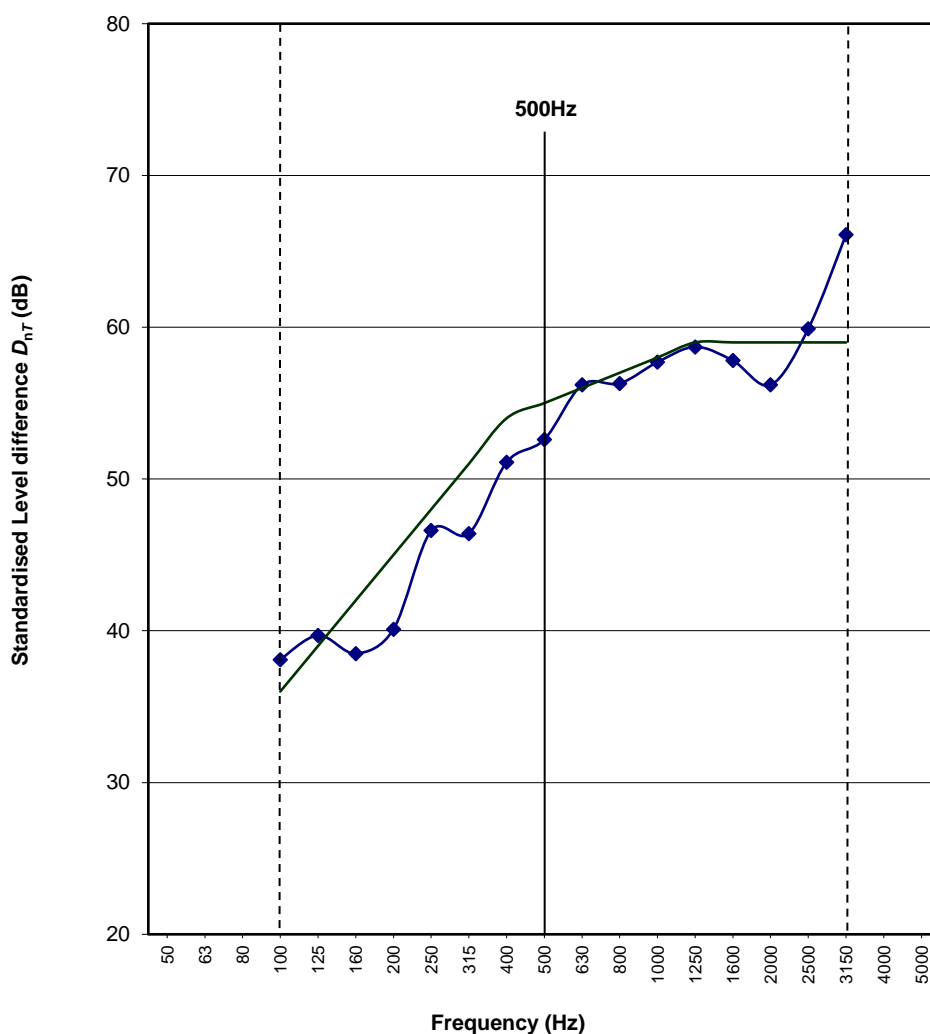
Area of common partition: 16.0m²

Floor Construction: Engineered oak flooring, 15mm dB matting, 22mm Chipboard, Timber joists with 100mm Rockwool, 30mm Resilient bar, 15mm Fire board, 15mm Sound board.

Frequency (Hz)	D_{nT} (1/3 oct) dB
50	N/A
63	N/A
80	N/A
100	38.1
125	39.7
160	38.5
200	40.1
250	46.6
315	46.4
400	51.1
500	52.6
630	56.2
800	56.3
1000	57.7
1250	58.7
1600	57.8
2000	56.2
2500	59.9
3150	≥66.1*
4000	N/A
5000	N/A

* Value is at the limit of measurement due to the influence of background noise

Frequency range according to the curve of reference values (ISO 717-1)



Rating according to ISO 717-1

$$D_{nT,w}(C_{tr}) = 55 \text{ (-5) dB}$$

$$D_{nT,w} + C_{tr} = 50 \text{ dB}$$

Evaluation based on field measurement results obtained by an engineering method

Test report: 11119S-3

Name of test institute: Soundtesting.co.uk Ltd

Date of report: 24/05/2018

Signature:

Engineer: B. Bielicki, BSc Audio Technology, AMIOA

File Ref: 11119S

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ISO 140-7:1998 Standardised Impact Sound Pressure Level

Revision No. 1

Field measurements of impact isolation of floors

Client: Floorscan Acoustics Ltd

Date of test: 15/05/2018

Description and identification of the building construction and test arrangement, direction of measurement:

Source Room: 1st Floor, Apartment 4, Kitchen/Living Room

Source room volume: 40.2m³

Receiver room: Ground Floor, Apartment 2, Kitchen/Living Room

Receiver room volume: 38.0m³

Direction of test: Vertical

Area of common partition: 16.0m²

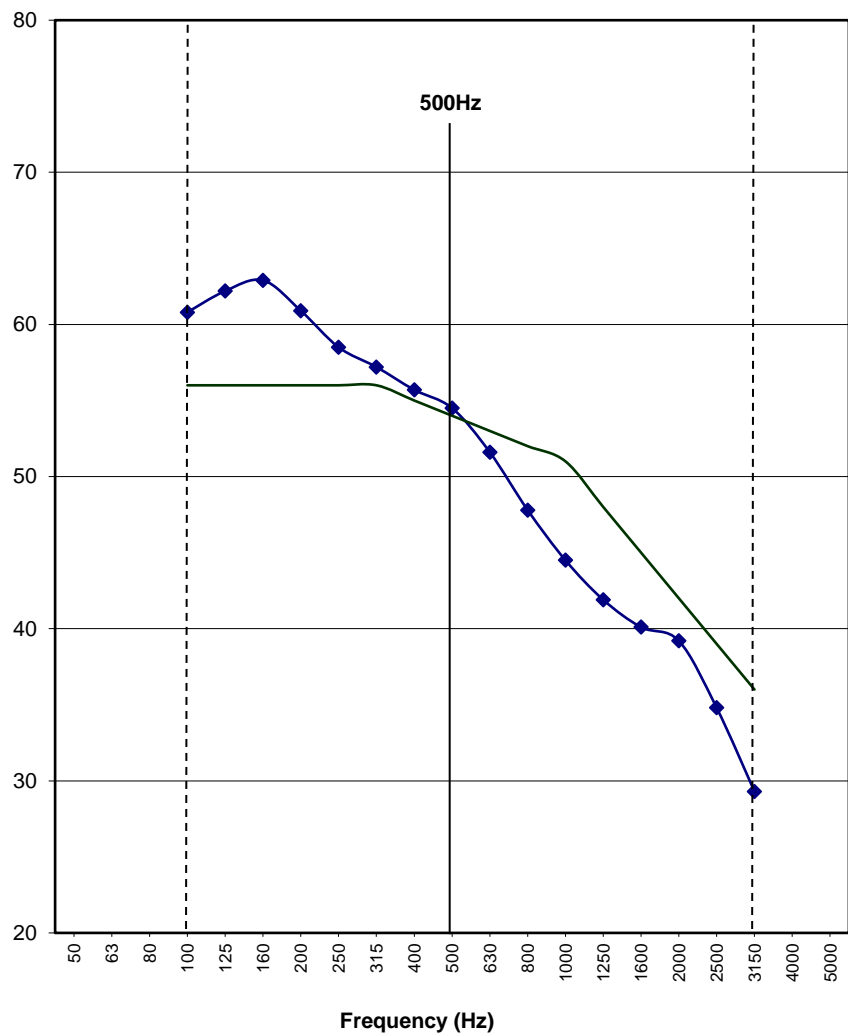
Floor Construction: Engineered oak flooring, 15mm dB matting, 22mm Chipboard, Timber joists with 100mm Rockwool, 30mm Resilient bar, 15mm Fire board, 15mm Sound board.

Frequency (Hz)	L'_{nT} (1/3 oct) dB
50	N/A
63	N/A
80	N/A
100	60.8
125	62.2
160	62.9
200	60.9
250	58.5
315	57.2
400	55.7
500	54.5
630	51.6
800	47.8
1000	44.5
1250	41.9
1600	40.1
2000	39.2
2500	34.8
3150	≤29.3*
4000	N/A
5000	N/A

* Value is at the limit of measurement due to the influence of background noise

Weighted Impact Sound Pressure Level, L'_{nT} (dB)

Frequency range according to the curve of reference values (ISO 717-2)



Rating according to ISO 717-2

$L'_{nT,w}$ = 54 dB

Evaluation based on field measurement results obtained by an engineering method

Test report: 11119S-4

Name of test institute: Soundtesting.co.uk Ltd

Date of report: 24/05/2018

Signature:

Engineer: B. Bielicki, BSc Audio Technology, AMIOA

File Ref: 11119S

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BS EN ISO 140-4:1998 Standardised Level Difference

Revision No. 1

Field measurements of airborne sound insulation between rooms

Client: Floorscan Acoustics Ltd

Date of test: 15/05/2018

Description and identification of the building construction and test arrangement, direction of measurement:

Source Room: Ground Floor, Apartment 1, Bedroom

Source room volume: 28.6m³

Receiver room: Ground Floor, Apartment 2, Bedroom

Receiver room volume: 26.3m³

Direction of test: Horizontal

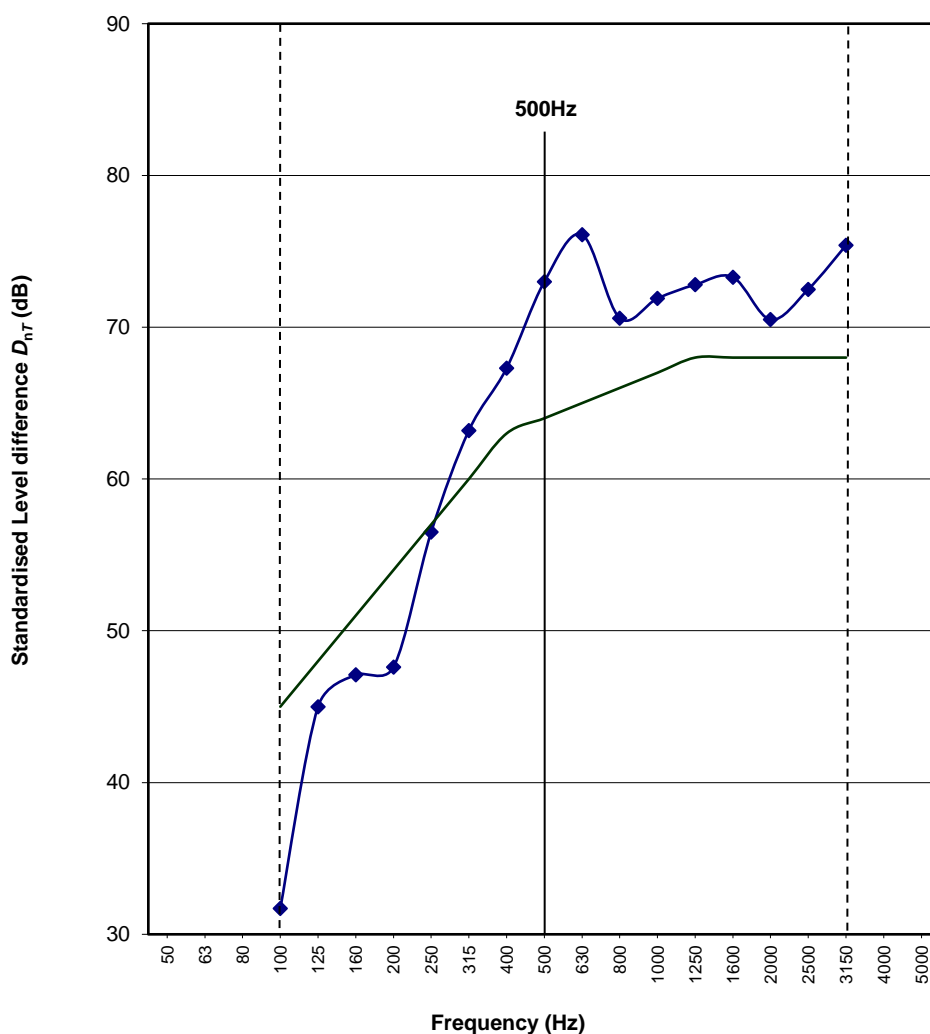
Area of common partition: 6.5m²

Wall Construction: 15mm SoundBloc, Batens with 25mm insulation, 100mm Block, 90mm Recticel insulation, 100mm Block, Battens with 25mm insulation, 15mm SoundBloc.

Frequency (Hz)	D_{nT} (1/3 oct) dB
50	N/A
63	N/A
80	N/A
100	31.7
125	45.0
160	47.1
200	47.6
250	56.5
315	63.2
400	67.3
500	≥73.0*
630	≥76.1*
800	≥70.6*
1000	≥71.9*
1250	≥72.8*
1600	≥73.3*
2000	≥70.5*
2500	≥72.5*
3150	≥75.4*
4000	N/A
5000	N/A

* Value is at the limit of measurement due to the influence of background noise

Frequency range according to the curve of reference values (ISO 717-1)



Rating according to ISO 717-1

$$D_{nT,w} (C_{tr}) = 64 \text{ (-13) dB}$$

$$D_{nT,w} + C_{tr} = 51 \text{ dB}$$

Evaluation based on field measurement results obtained by an engineering method

Test report: 11119S-5

Name of test institute: Soundtesting.co.uk Ltd

Date of report: 24/05/2018

Signature: Engineer: B. Bielicki, BSc Audio Technology, AMIOA

File Ref: 11119S

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