

ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

ADT 3447

20 February 2025

Dex Construction Group Ltd
Second Floor
Northern Assurance Building
9-21 Princess Street
MANCHESTER
M2 4DN

APPROVED DOCUMENT E SOUND INSULATION TESTS

COLLYHURST VILLAGE, MANCHESTER

ACOUSTIC CONSULTANCY REPORT 3447/ATR

Revision	Date	Issued By	Checked By	Revision Notes
-	20 February 2025	Jack Williamson	Chris Middleton	-

1.0 TEST PROCEDURE

1.1 Purpose of Tests

To undertake sound insulation tests to verify whether the tested constructions are compliant with Requirement E1 of the Building Regulations as defined in Approved Document E. The development comprises a series of purpose built houses.

1.2 Test Particulars

The tests were undertaken at Collyhurst Village, Manchester on behalf of Dex Construction Group Ltd by Jack Williamson of Acoustic Design Technology Ltd. on 18 February 2025.

The results relate only to the items tested and the sample as received.

1.3 Instrumentation

The sound insulation tests were conducted using the following instrumentation:-

Norsonic Nor140 Sound Level Meter

Norsonic 1225 ½" Measurement Microphone

Norsonic 1251 Microphone Calibrator

High Intensity Broad Band Noise Source

The meter was calibrated prior to the tests and the calibration checked on completion. No significant change occurred.

1.4 Test Method (Airborne Sound Insulation)

Airborne sound insulation tests were undertaken in accordance with the requirements of BS EN ISO 140-4 : 1998 and the guidance in Annex B to Approved Document E as described in ADT test procedure TP1 Revision H.

For each of two loudspeaker positions in the source room, two 15 second sweeps of a rotating microphone were carried out in the source and receiver rooms. The measured levels were then logarithmically averaged to obtain third octave band $L_{eq,T}$ levels for each loudspeaker position in both the source and receiver room. Background readings in the receiver room were also taken, and the receiver room levels corrected as required.

Reverberation times in the receiver room were recorded using a single loudspeaker position, 3 measurement positions and 2 readings at each position in accordance with ISO 354:2003, all arithmetically averaged to derive third octave band T_{60} for the receiver room, as described in ADT test procedure TP3 Revision K.

The level measurements for each source and receiver room were used with the receiver room reverberation time measurements to determine the standardised level differences for each loudspeaker position, which were subsequently arithmetically averaged to obtain overall results as stipulated in Annex B of Approved Document E and weighted in accordance with ISO 717-1:1997.

1.5 Schedule of Tests

Details of each test and the relevant requirements of Approved Document E are provided in the attached table 3447/T1 for the airborne tests.

2.0 RESULTS

2.1 Single Figure Results

Single figure $D_{nT,w} + C_{tr}$ airborne sound insulation results are listed in the attached table 3447/T1.

2.2 Third Octave Band Results

Third octave band results are provided in the attached graphs 3447/A1 – A8 for the airborne sound insulation tests as referenced by the attached table 3447/T1.

3.0 CONCLUSION

3.1 All airborne sound insulation tests achieved compliance with Requirement E1 of the Building Regulations.

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FOR ACOUSTIC DESIGN TECHNOLOGY

SCHEDULE OF TESTS AND SUMMARY OF RESULTS

Airborne Sound Insulation

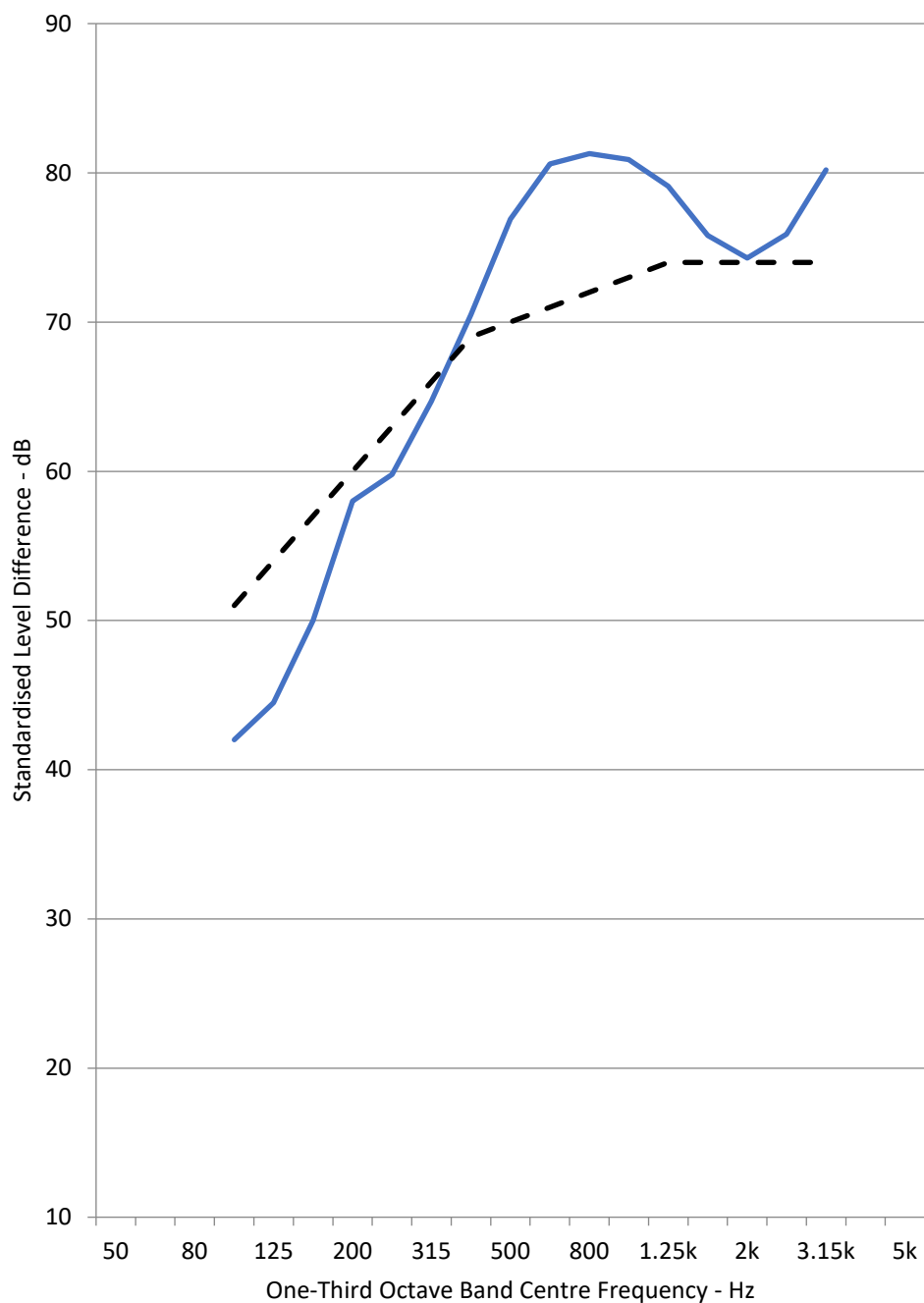
Source Room	Approx. Volume ⁽¹⁾ (m ³)	Receiver Room	Approx. Volume ⁽¹⁾ (m ³)	Structure	Test Date	Reference	D _{nT,w} + C _{tr} (dB)		Pass/Fail
							Achieved	Required	
Kitchen/Living 9	80	Kitchen/Living 10	80	Wall	18/02/2025	3447/A1	59	>=45	Pass
2F Bedroom 9	30	2F Bedroom 10	30	Wall	18/02/2025	3447/A2	56	>=45	Pass
Kitchen/Living 11	80	Kitchen/Living 12	80	Wall	18/02/2025	3447/A3	60	>=45	Pass
2F Bedroom 11	30	2F Bedroom 12	30	Wall	18/02/2025	3447/A4	54	>=45	Pass
Kitchen/Living 14	80	Kitchen/Living 15	80	Wall	18/02/2025	3447/A5	56	>=45	Pass
1F Bedroom 14	30	1F Bedroom 15	30	Wall	18/02/2025	3447/A6	56	>=45	Pass
Kitchen/Living 16	80	Kitchen/Living 17	80	Wall	18/02/2025	3447/A7	55	>=45	Pass
1F Bedroom 16	30	1F Bedroom 17	30	Wall	18/02/2025	3447/A8	57	>=45	Pass

(1) – room volumes have been determined as the arithmetic product of the typical room length, width and height obtained from the construction issue drawings as provided by the customer

TABLE 3447/T1

Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	42.0
125	44.5
160	50.0
200	≥ 58.0
250	59.8
315	64.7
400	70.5
500	≥ 76.9
630	≥ 80.6
800	≥ 81.3
1k	≥ 80.9
1.25k	≥ 79.1
1.6k	≥ 75.8
2k	≥ 74.3
2.5k	≥ 75.9
3.15k	≥ 80.2
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 70 (-4 ; -11)$ dB

$D_{nT,w} + C_{tr} = 59$ dB

Evaluation based on field measurement results obtained by an engineering method

Source Room	Kitchen/Living 9	Receiver Room	Kitchen/Living 10
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test – Wall

Project

Collyhurst Village, Manchester

Drawing No.

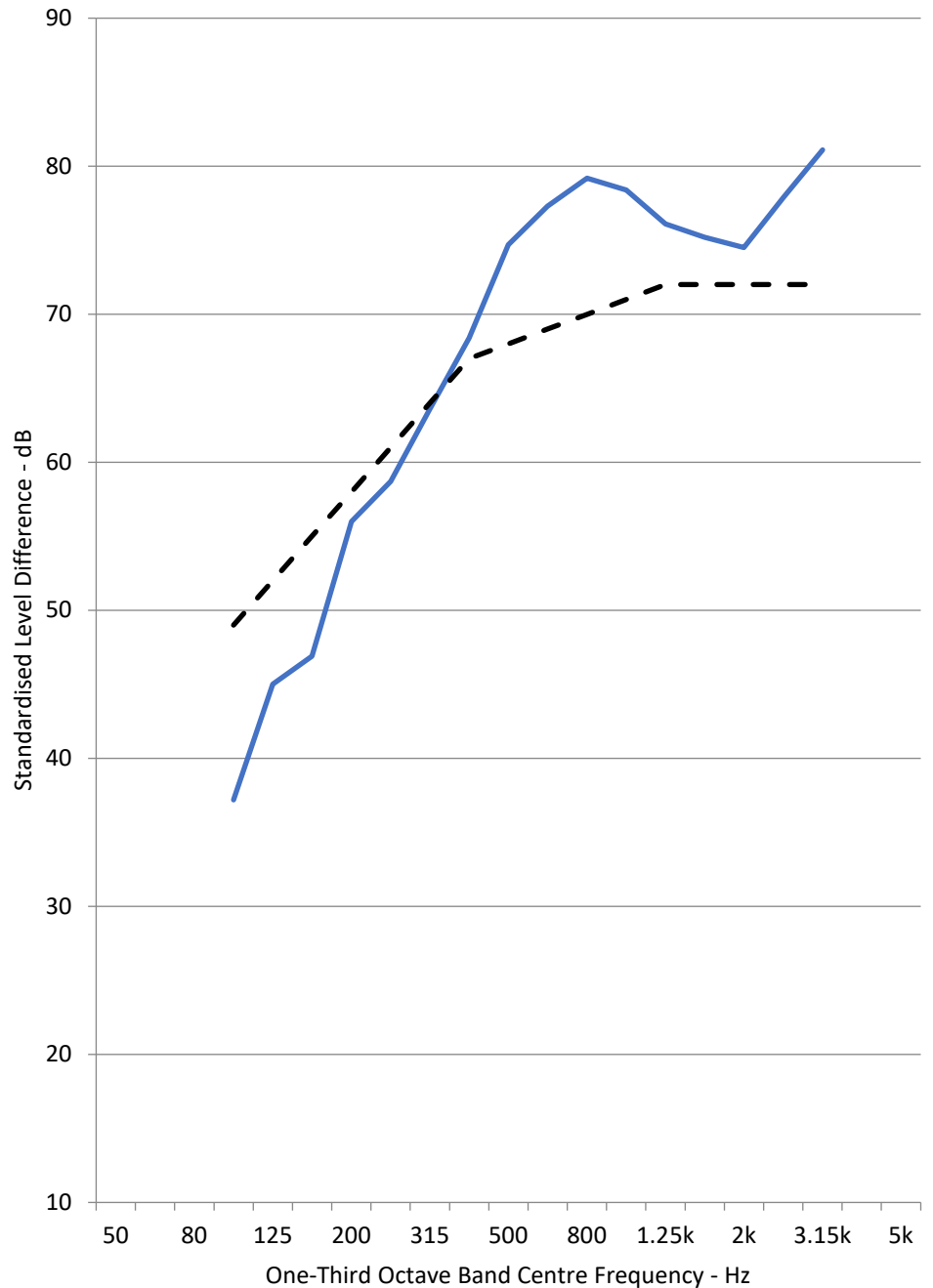
3447/A1



ACOUSTIC DESIGN TECHNOLOGY
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Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	37.2
125	45.0
160	46.9
200	56.0
250	58.7
315	63.6
400	68.4
500	74.7
630	≥ 77.3
800	≥ 79.2
1k	≥ 78.4
1.25k	≥ 76.1
1.6k	≥ 75.2
2k	≥ 74.5
2.5k	≥ 77.9
3.15k	≥ 81.1
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 68 (-5 ; -12) \text{ dB}$

$D_{nT,w} + C_{tr} = 56 \text{ dB}$

Evaluation based on field measurement results obtained by an engineering method

Source Room	2F Bedroom 9	Receiver Room	2F Bedroom 10
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

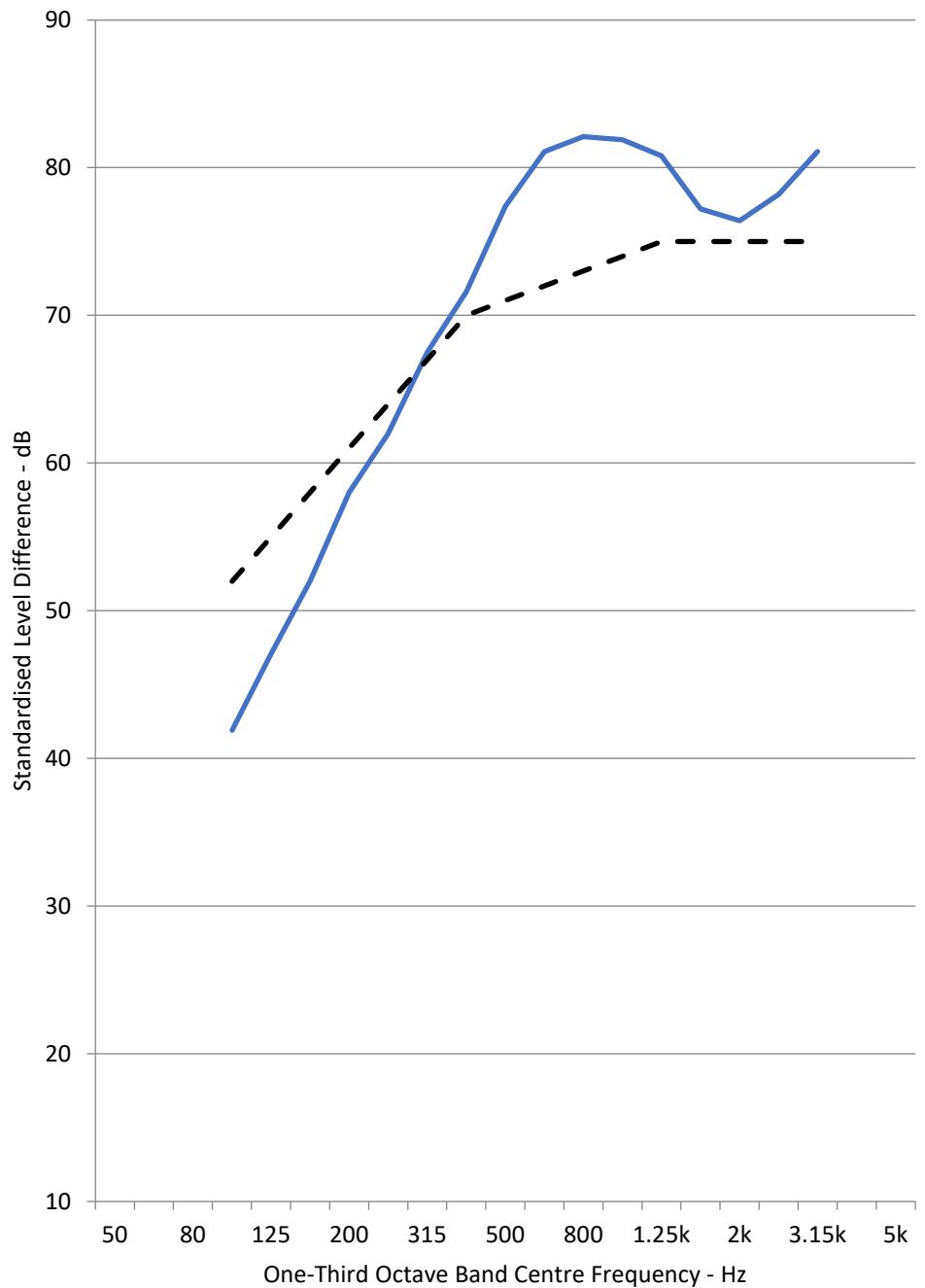
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3447/A2



Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	41.9
125	47.1
160	52.0
200	58.0
250	62.0
315	67.5
400	71.6
500	≥ 77.4
630	≥ 81.1
800	≥ 82.10
1k	≥ 81.9
1.25k	≥ 80.8
1.6k	≥ 77.2
2k	≥ 76.4
2.5k	≥ 78.2
3.15k	≥ 81.1
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 71 (-4 ; -11)$ dB

$D_{nT,w} + C_{tr} = 60$ dB

Evaluation based on field measurement results obtained by an engineering method

Source Room	Kitchen/Living 11	Receiver Room	Kitchen/Living 12
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

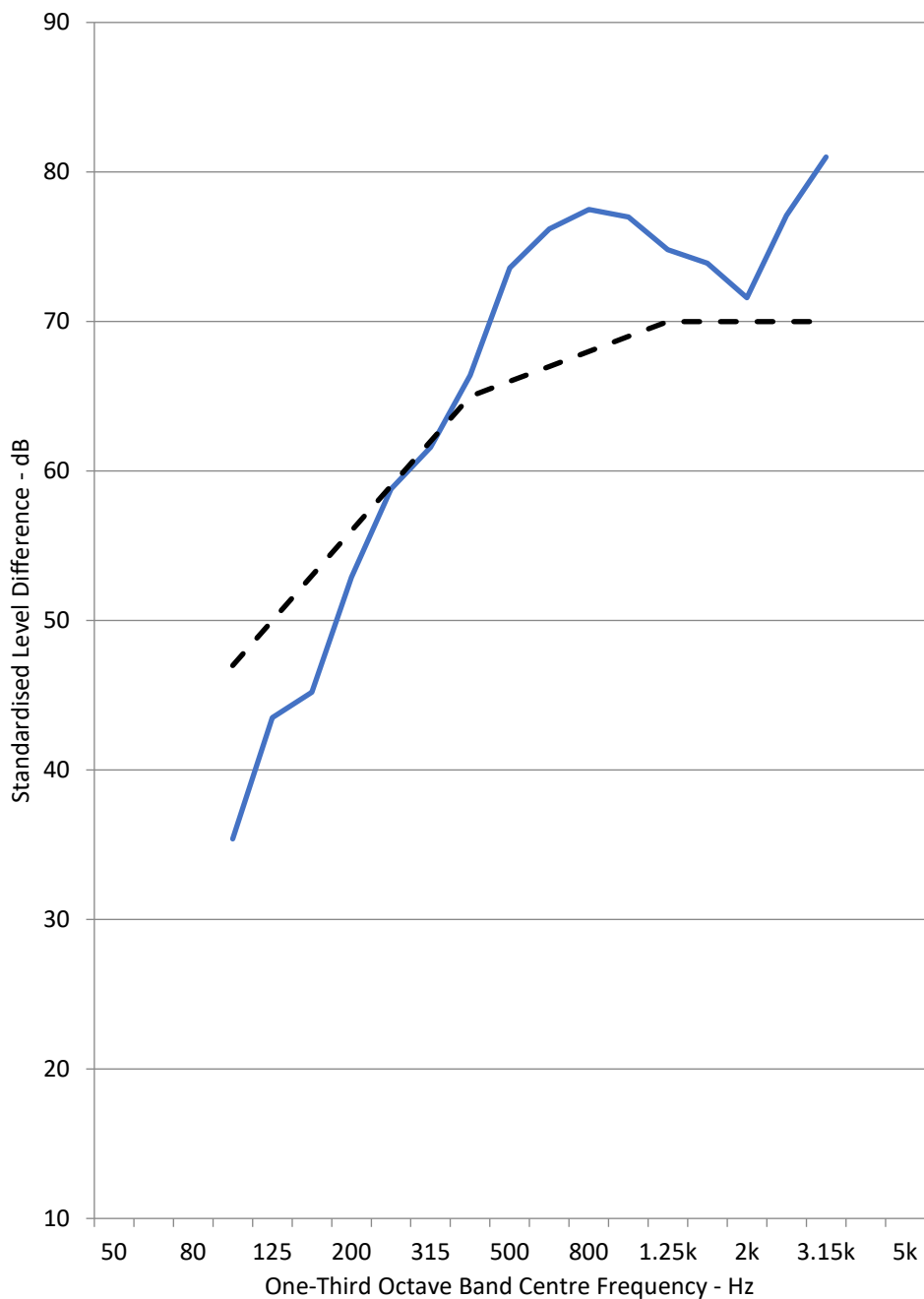
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3447/A3



Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	35.4
125	43.5
160	45.2
200	52.9
250	58.8
315	61.6
400	66.4
500	≥ 73.6
630	≥ 76.2
800	≥ 77.5
1k	≥ 77.0
1.25k	≥ 74.8
1.6k	≥ 73.9
2k	≥ 71.6
2.5k	≥ 77.1
3.15k	≥ 81.0
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 66 (-5 ; -12)$ dB

$D_{nT,w} + C_{tr} = 54$ dB

Evaluation based on field measurement results obtained by an engineering method

Source Room	2F Bedroom 11	Receiver Room	2F Bedroom 12
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

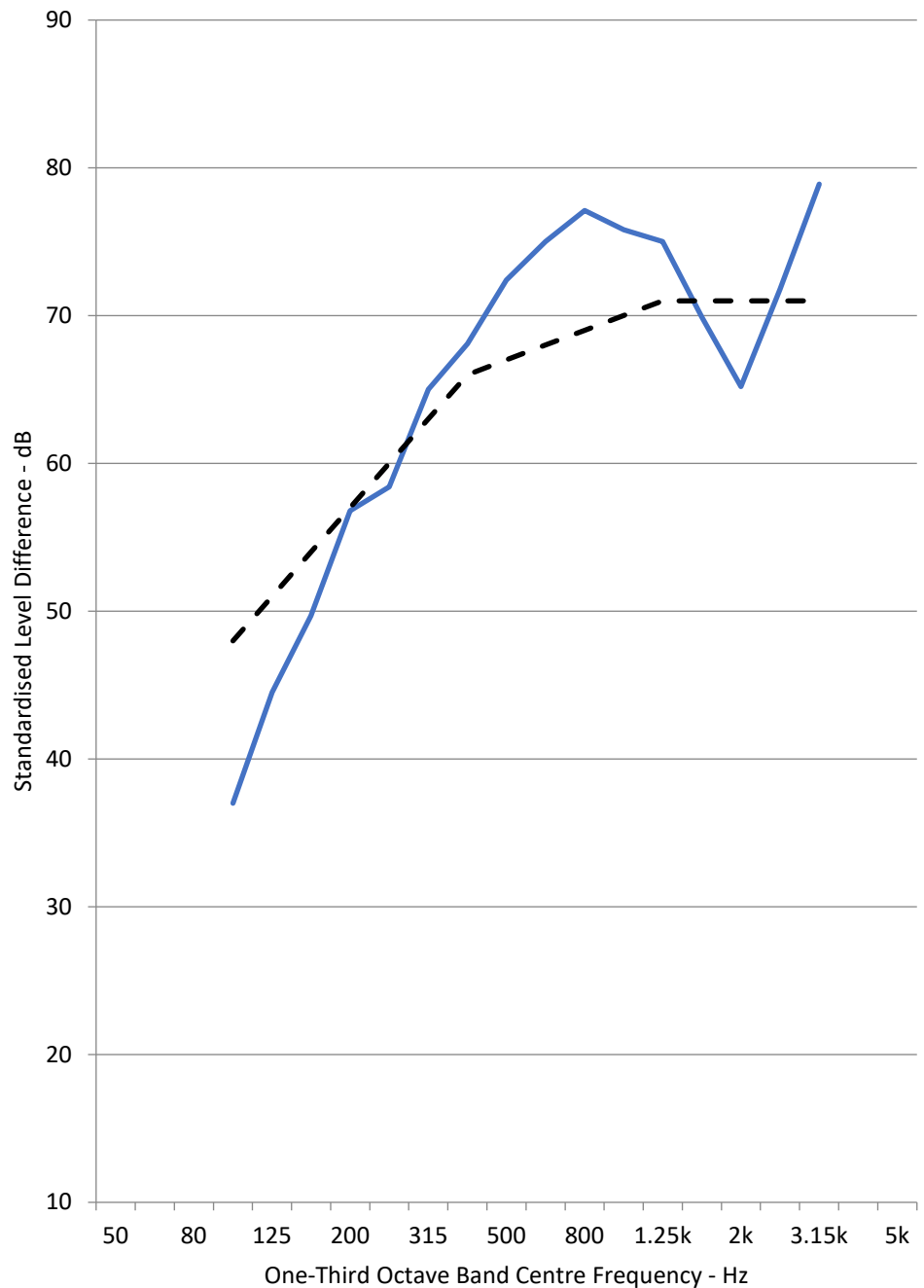
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3447/A4



Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	37.0
125	44.5
160	49.7
200	56.8
250	58.4
315	65.0
400	68.1
500	72.4
630	75.0
800	≥ 77.1
1k	≥ 75.8
1.25k	≥ 75.0
1.6k	≥ 69.9
2k	≥ 65.2
2.5k	≥ 71.8
3.15k	≥ 78.9
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 67 (-4 ; -11)$ dB

$D_{nT,w} + C_{tr} = 56$ dB

Evaluation based on field measurement results obtained by an engineering method

Source Room	Kitchen/Living 14	Receiver Room	Kitchen/Living 15
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

Drawing No.

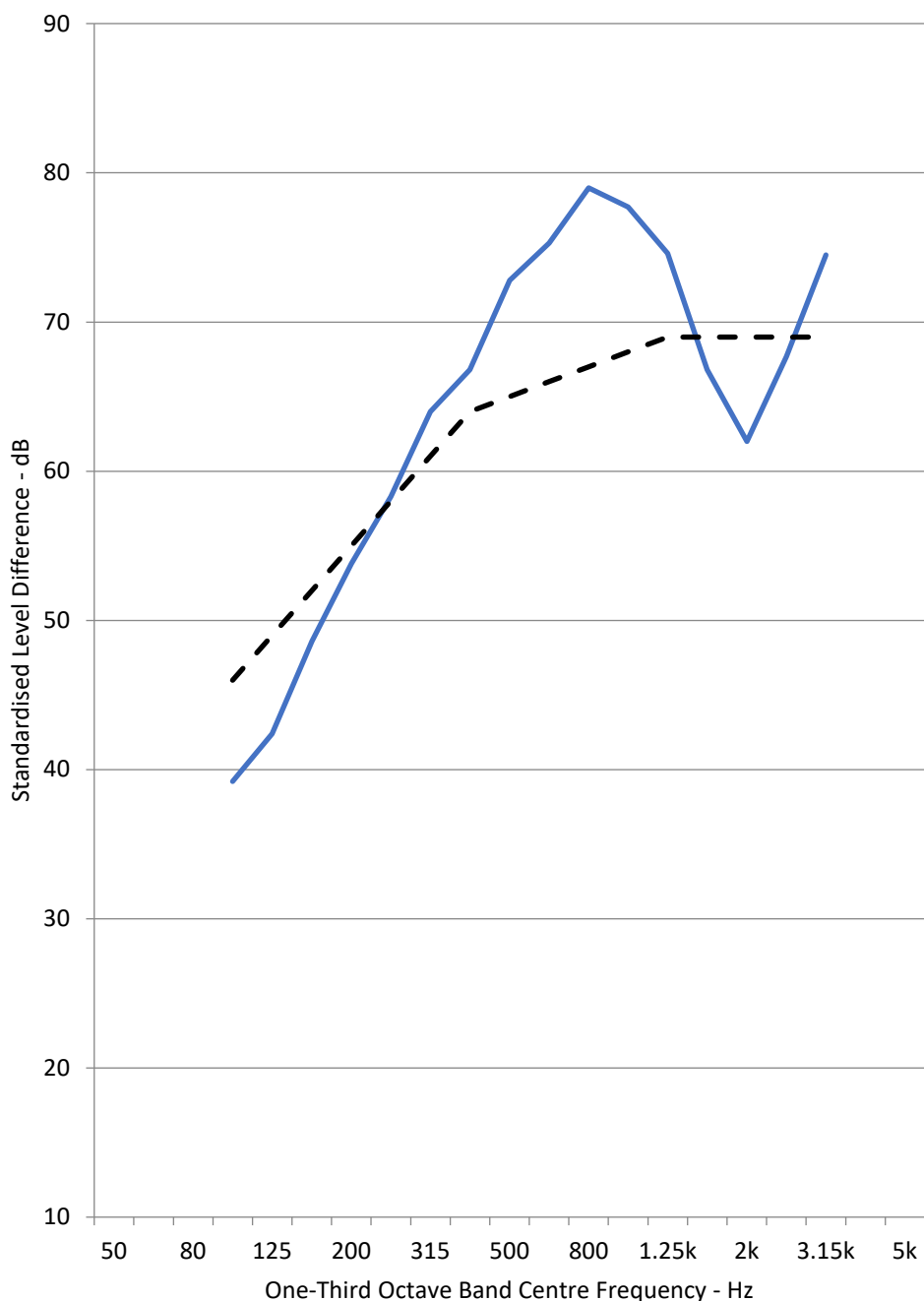
3447/A5



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Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	39.2
125	42.4
160	48.6
200	53.8
250	58.3
315	64.0
400	66.8
500	72.8
630	75.3
800	≥ 79.0
1k	≥ 77.7
1.25k	≥ 74.6
1.6k	≥ 66.8
2k	≥ 62.0
2.5k	≥ 67.7
3.15k	≥ 74.5
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 65 (-3 ; -9) \text{ dB}$

$D_{nT,w} + C_{tr} = 56 \text{ dB}$

Evaluation based on field measurement results obtained by an engineering method

Source Room	1F Bedroom 14	Receiver Room	1F Bedroom 15
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

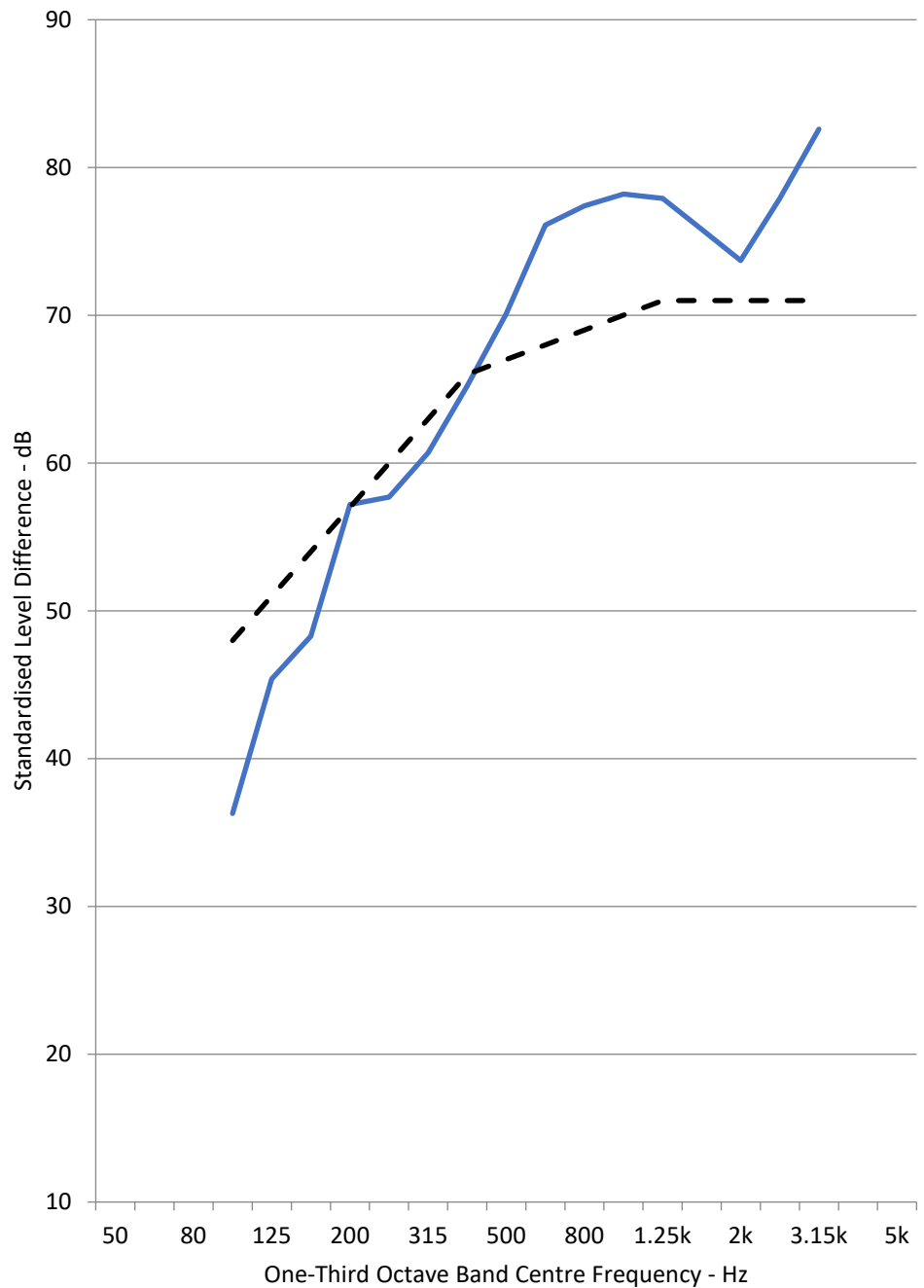
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3447/A6



Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	36.3
125	45.4
160	48.3
200	57.2
250	57.7
315	60.7
400	65.2
500	70.1
630	≥ 76.1
800	≥ 77.4
1k	≥ 78.2
1.25k	≥ 77.9
1.6k	≥ 75.8
2k	≥ 73.7
2.5k	≥ 77.9
3.15k	≥ 82.6
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 67 (-4 ; -12)$ dB

$D_{nT,w} + C_{tr} = 55$ dB

Evaluation based on field measurement results obtained by an engineering method

Source Room	Kitchen/Living 16	Receiver Room	Kitchen/Living 17
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

Drawing No.

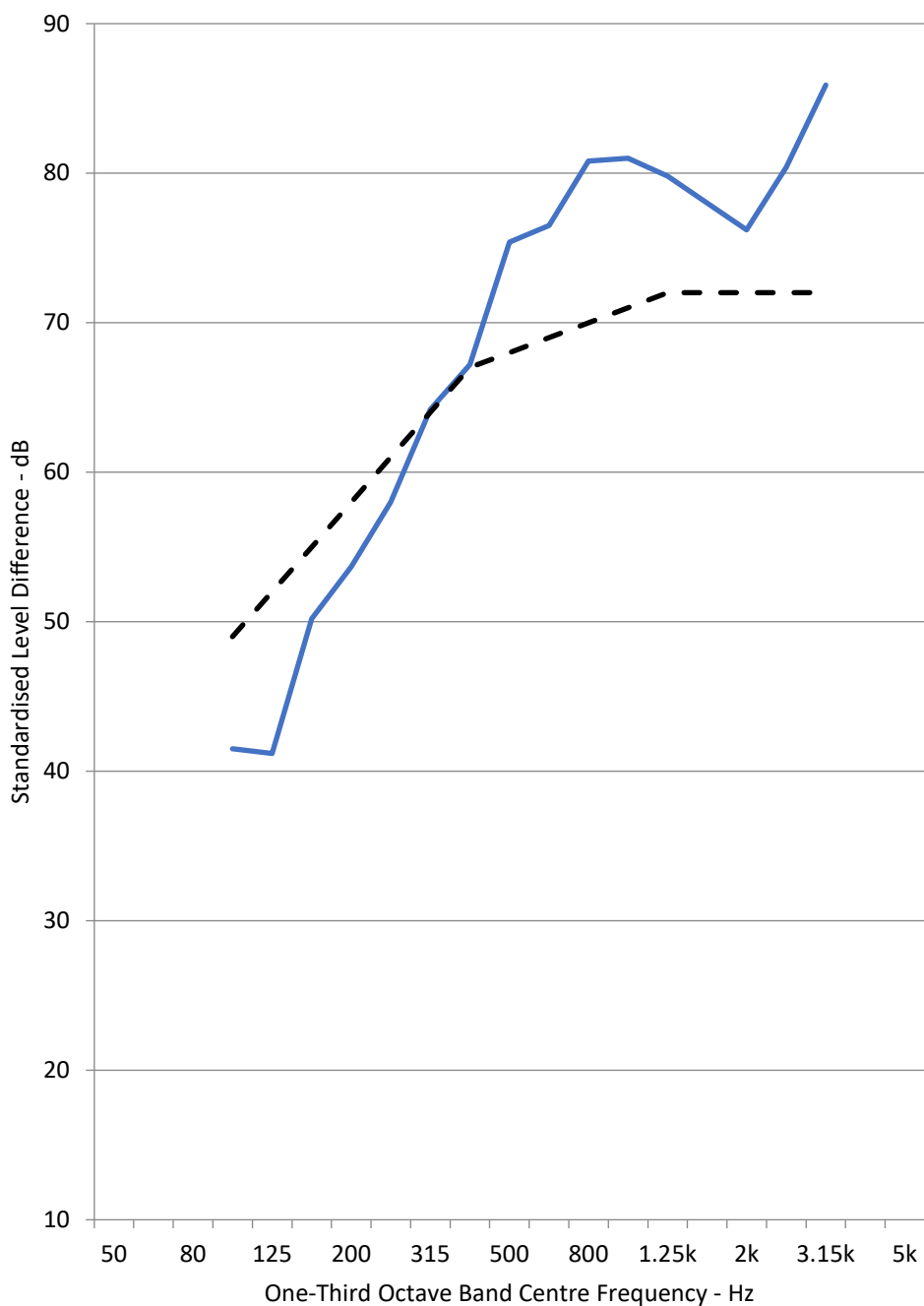
3447/A7



ACOUSTIC DESIGN TECHNOLOGY
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Standardized level difference according to BS EN ISO 140-4 and Annex B to Approved Document E 2003
Field measurements of airborne sound insulation between rooms

Frequency (Hz)	D_{nT} (dB)
50	
63	
80	
100	41.5
125	41.2
160	50.2
200	53.7
250	58.0
315	64.2
400	67.2
500	≥ 75.4
630	≥ 76.5
800	≥ 80.8
1k	≥ 81.0
1.25k	≥ 79.8
1.6k	≥ 78.0
2k	≥ 76.2
2.5k	≥ 80.4
3.15k	≥ 85.9
4k	
5k	



Rating according to BS EN ISO 717-1

$D_{nT,w} (C ; C_{tr}) = 68 (-4 ; -11) \text{ dB}$

$D_{nT,w} + C_{tr} = 57 \text{ dB}$

Evaluation based on field measurement results obtained by an engineering method

Source Room	1F Bedroom 16	Receiver Room	1F Bedroom 17
Test Element	Wall	Test Date	18/02/2025



Description

Airborne Sound Insulation Test - Wall

Project

Collyhurst Village, Manchester

Drawing No.

3447/A8

