

Sound insulation test report: 22-26 Eldon Terrace, Ferryhill					
Testing carried out by Apex Acoustics Ltd: UKAS-accredited laboratory no. 4051 Design Works, William Street, Gateshead, NE10 0JP Tel: 0191 620 0750 www.apexacoustics.co.uk					
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Authorised signatory	<div style="background-color: black; width: 100px; height: 20px; display: inline-block;"></div> Arron Pattison, Acoustic Engineer				
Report No. and version	<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;">10760.1A</td> <td style="width: 40%;">Date</td> </tr> <tr> <td></td> <td>14th April 2023</td> </tr> </table>	10760.1A	Date		14 th April 2023
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	14 th April 2023				
Address of building	22-26 Eldon Terrace, Ferryhill, DL17 0AW				
Type of property	Dwelling-houses and flats formed by material change of use				
Client	Mousa Mohamid, 6-7 Parker Terrace, Ferryhill, DL17 8JY				
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Table 1: Summary of wall airborne sound insulation test results						
Test No.	Source Room	Receiving Room	D _{nT,w} + C _{tr} /dB		Date	Status
			Measured	Required		
1	Flat D Bedroom	Flat B Bedroom	48	≥ 43	14-04-23	Pass
2	Flat D Bathroom	Flat B Bathroom	43	≥ 43	14-04-23	Pass

Table 2: Summary of floor airborne sound insulation test results						
Test No.	Source Room	Receiving Room	D _{nT,w} + C _{tr} /dB		Date	Status
			Measured	Required		
3	Shop	Flat B Bathroom	47	≥ 43	14-04-23	Pass
4	Shop	Flat B Bedroom	52	≥ 43	14-04-23	Pass

1 Revision register

Version	Changes from previous version and reason for revision	Issued by	Date

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3 Introduction

These tests have been commissioned for pre-completion testing as described in section 1 of Approved Document E of the Building Regulations (AD-E), Reference 1. Section 0 of AD-E describes the performance requirements to be achieved as follows:

Table 0.1a: Dwelling-houses and flats - performance standards for separating walls, separating floors, and stairs that have a separating function.

	Airborne sound insulation $D_{nT,w} + C_{tr}$ dB (Minimum values)	Impact sound insulation $L'_{nT,w}$ dB (Maximum values)
Purpose built dwelling-houses and flats		
Walls	45	-
Floors and stairs	45	62
Dwelling-houses and flats formed by material change of use		
Walls	43	-
Floors and stairs	43	64

Acoustic performance standards of Table 0.1a, from Section 0 of Approved Document E

4 Details of tests

4.1 Airborne sound insulation tests

The airborne tests were carried out in accordance with ISO 140-4, Reference 2, as described in Annex B of Approved Document E, using a single sound source. All measurements were made with fixed microphone positions.

Some of the rooms tested were less than 25 m³; the sizes are indicated on the test certificates. Some of the results were at the limit of measurements, as the background levels were less than 6 dB below the received levels. Where this is the case the symbol '1' is shown on the test certificate adjacent to the relevant third octave bands indicating that the background noise level is too high.

The results of these tests were analysed in accordance with ISO 717 - 1, Reference 3, with arithmetic averaging as described in AD-E.

4.2 Equipment

The equipment used in the test included:

Item of equipment	Laboratory identity No.	Serial no
Sound level meter, Norsonics 118	13	30515
Calibrator, Norsonics 1251	14	31714
Powered Speaker, QSC K10	28	GGG530772

5 Identification of rooms tested

Flat B is situated on the first floor, to the rear façade of the building, directly above the Shop and directly adjacent to Flat D.

6 Sampling

Sample elements were agreed with the client.

7 Decision rules

Where a pass or fail decision is required, this is based upon 'simple acceptance', whereby the result is compared directly to the defined specification limit. The expanded measurement uncertainty ($U_{k=2}$, for approximately 95% confidence) is declared to be less than +/- 2 dB.

In all cases, the uncertainty of the test equipment used is assessed to ensure capability to achieve the accuracy required in the applicable specification.

8 Conclusion

The measurements were successfully conducted in the manner required by the Building Regulations, and the results have been presented in the appropriate format.

All results indicate that the measured performance achieves that required by the Building Regulations.

9 References

1. Approved Document E, Resistance to the Passage of Sound, The Building Regulations 2010, 2003 Edition, incorporating 2004, 2010, 2013 and 2015 amendments
2. BS EN ISO 140-4, 1998: Acoustics – Measurement of sound insulation of buildings and of building elements. Part 4 – Field measurements of airborne sound insulation between rooms.
3. BS EN ISO 717-1, 1997; Acoustics – Rating of sound insulation in buildings and of building elements. Part 1 – Airborne sound insulation.

10 Test data

The following pages contain the test data for each test.



Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Mousa Mohamid Date of test: 14th April 2023
Description: 22-26 Eldon Terrace, Ferryhill, DL17 0AW

Object: Wall between Flat D Bedroom and Flat B Bedroom

Source room volume: 35 m³
Receiving room volume: 25 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	
63	
80	
100	35.0
125	39.4
160	39.8
200	40.5
250	44.3
315	42.1
400	42.8
500	46.6
630	52.4
800	56.6
1000	59.7
1250	65.6
1600	66.5
2000	66.8 ¹
2500	67.1
3150	70.8 ¹
4000	
5000	

¹ Background noise too high

Rating according to ISO 717-1			
$D_{nT,w}(C;C_{tr}) = 53$ (-2 ; -5) dB	$C_{50-3150} =$ dB	$C_{50-5000} =$ dB	$C_{100-5000} =$ dB
Evaluation based on field measurements results obtained in one-third-octave bands by an engineering method.	$C_{tr,50-3150} =$ dB	$C_{tr,50-5000} =$ dB	$C_{tr,100-5000} =$ dB

Signature: [Redacted]

Test 1

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Mousa Mohamid Date of test: 14th April 2023
Description: 22-26 Eldon Terrace, Ferryhill, DL17 0AW

Object: Wall between Flat D Bathroom and Flat B Bathroom

Source room volume: 10 m³
Receiving room volume: 10 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	
63	
80	
100	30.5
125	34.7
160	37.3
200	40.1
250	35.9
315	40.8
400	45.6
500	46.9
630	44.8
800	42.5
1000	43.5
1250	46.1
1600	52.2
2000	55.7
2500	58.9
3150	62.3
4000	
5000	

Rating according to ISO 717-1
 $D_{nT,w}(C;C_{tr}) = 47$ (-1 ; -4) dB
 Evaluation based on field measurements results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} =$ dB $C_{50-5000} =$ dB $C_{100-5000} =$ dB
 $C_{tr,50-3150} =$ dB $C_{tr,50-5000} =$ dB $C_{tr,100-5000} =$ dB

Signature: [Redacted]

Test 2

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

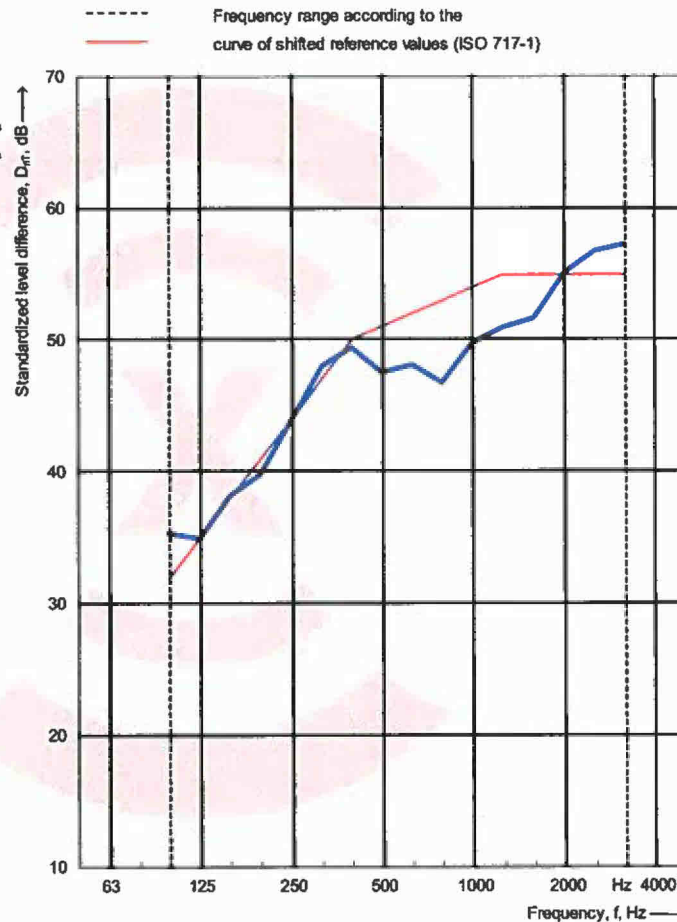
Client: Mousa Mohamid
Description: 22-26 Eldon Terrace, Ferryhill, DL17 0AW

Date of test: 14th April 2023

Object: Floor between Shop and Flat B Bathroom

Source room volume: 105 m³
Receiving room volume: 10 m³

Frequency f (Hz)	D _{nT} 1/3 octave (dB)
50	
63	
80	
100	35.4
125	35.0
160	38.2
200	39.8
250	43.9
315	48.0
400	49.4
500	47.5
630	48.1
800	46.8
1000	49.8
1250	51.0
1600	51.7
2000	55.1
2500	56.8
3150	57.3
4000	
5000	

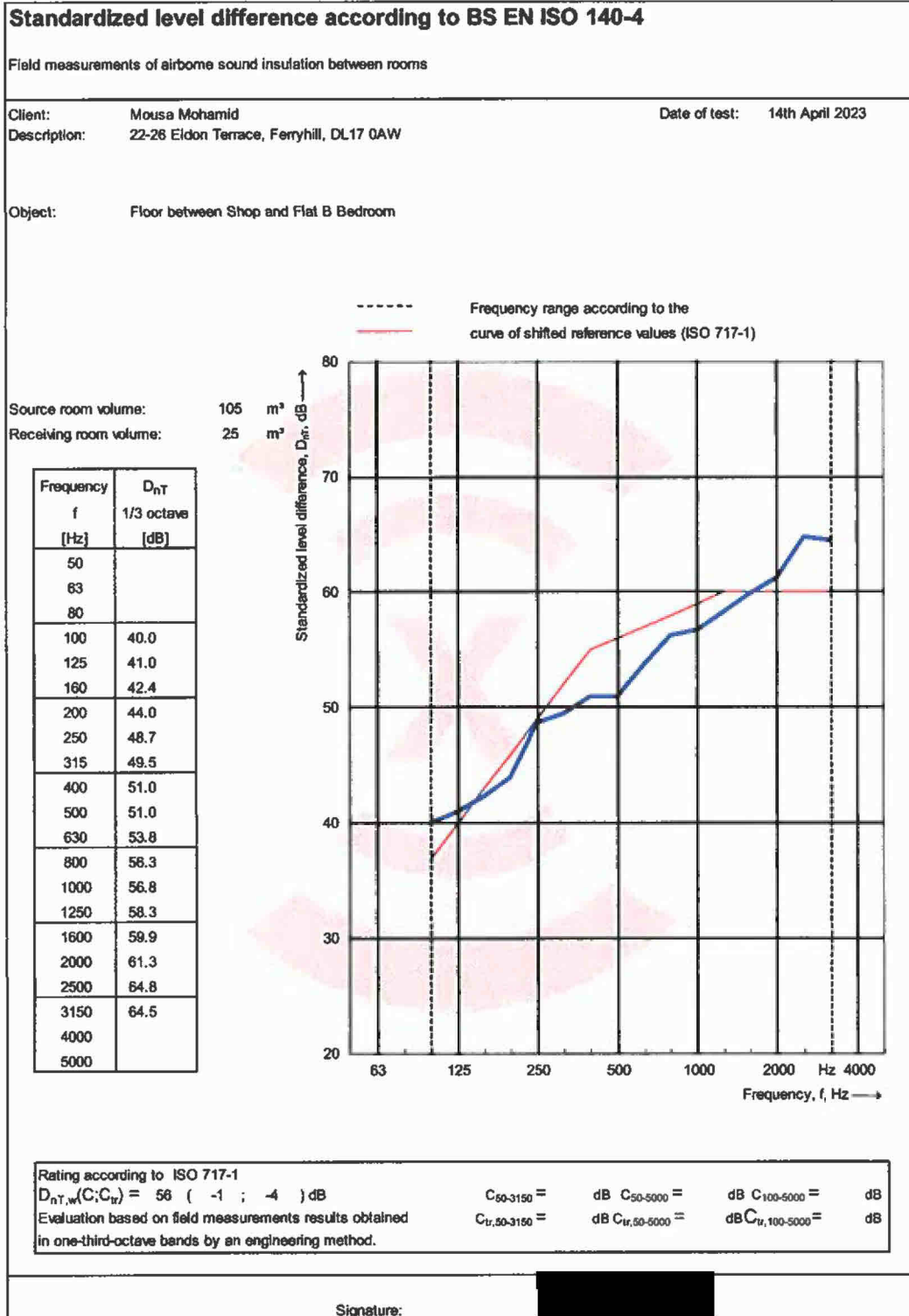


Rating according to ISO 717-1
 $D_{nT,w}(C;C_{tr}) = 51 (-2 ; -4) \text{ dB}$
 Evaluation based on field measurements results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} = \text{dB}$ $C_{50-5000} = \text{dB}$ $C_{100-5000} = \text{dB}$
 $C_{tr,50-3150} = \text{dB}$ $C_{tr,50-5000} = \text{dB}$ $C_{tr,100-5000} = \text{dB}$

Signature: [Redacted]

Test 3



Test 4