

Rydon

BACTON LOW RISE BLOCK C

Pre-completion Sound Insulation Test Report

Report no.: 13-0069-0 R05 Test no.: 11250642



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BACTON LOW RISE - BLOCK C

Report No.: Date:	13-0069-0 R05 19 January 2017
ADvANCE Task no.: Task password:	50642 EAGMAC
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1 INTRODUCTION

This report is an ANC Registered Report with the unique registration number 50642. The report provides an assessment of the sound insulation of separating partitions at Block C of the Bacton Low Rise development at Vicar's Road, Gospel Oak, London NW5 4 (full postcode not yet assigned), in accordance with the requirements of the Building Regulations 2010, Approved Document E 2003.

The properties at Block C of the Bacton Low Rise development are purpose built flats.

The testing was undertaken on 12th January 2017 by Chris Matheson, Jim Smith, Sara Rubio and Peter Turner of Sustainable Acoustics Ltd, 5 Charlecote Mews, Staple Gardens, Winchester, Hampshire, SO23 8SR for Rydon, Rydon House, Station Road, Forest Row, East Sussex, RH18 5DW. Sustainable Acoustics Ltd is registered with the Association of Noise Consultants scheme for sound insulating testing and was an active member at the time of testing. Chris Matheson and Jim Smith are Approved Persons and were registered testers within the organisation at the time of testing. The Organisation Registration Number for Sustainable Acoustics Ltd is 112.

2 TEST PROCEDURE

The tests shown in this report have been carried out in full accordance with the procedures specified in Annex B of Approved Document E to the Building Regulations 2010. Where kitchen areas had units fitted, the cupboard doors were opened as specified in section B2.17 of Approved Document E.

2.1 Site conditions and observations

Ambient noise levels in rooms were dominated by construction works on the outside of the building, which affected tests on the lower floors of the building, and by passing trains, which were more noticeable on the upper floors of the building. Trains were intermittent, and therefore measurements could be taken without influence of the train noise. All rooms were tested in an empty and unfurnished condition, but it is also noted that the floor finish had been installed, which was an engineered oak wood flooring on a resilient layer.

2.2 Test constructions

The detailed test partition constructions for each test are shown on the detailed test results at Appendix 4.

Separating floors comprise engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void.

Separating walls comprise twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m² on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.



External flanking walls comprise facing brickwork, rigid thermal insulation and structural concrete wall, with single layer plasterboard lining.

2.3 Airborne sound insulation

Airborne sound insulation tests were undertaken in full accordance with the procedure specified in the British Standard BS EN ISO 140-4: 1998, Acoustics – Measurement of sound insulation in buildings and of building elements, Part 4: Field measurements of airborne sound insulation between rooms in 20 room pairs, as summarised in Table 1 below. Floor plans of the source and receiver rooms are shown in Figures 1 to 6.

	Source room details			Separating		
Room		Volume	Roo	m	Volume	partition
3.5	3F Flat 11, living	55.2 m ³	2.5	2F Flat 7, living	55.2 m ³	Floor
3.7	3F Flat 10, bedroom	28.8 m ³	2.7	2F Flat 6, bedroom	28.8 m ³	Floor
2.3	2F Flat 8, bedroom	28.8 m ³	1.2	1F Flat 4, bedroom	28.8 m ³	Floor
2.1	2F Flat 9, bedroom	28.1 m ³	1.1	1F Flat 5, bedroom	28.1 m ³	Floor
2.8	2F Flat 6, living	28.8 m ³	1.3	1F Flat 3, living	28.8 m ³	Floor
6.1	6F Flat 20, bedroom	27.8 m ³	5.3	5F Flat 18, bedroom	25.7 m ³	Floor
5.1	5F Flat 19, living	54.5 m ³	4.6	4F Flat 15, living	54.5 m ³	Floor
4.4	4F Flat 16, living	64.1 m ³	3.4	3F Flat 12, living	64.1 m ³	Floor
4.3	4F Flat 16, bedroom	31.2 m ³	3.3	3F Flat 12, bedroom	31.2 m ³	Floor
4.1	4F Flat 17, living	64.6 m ³	3.1	3F Flat 13, living	64.6 m ³	Floor
3.2	3F Flat 12, bedroom	28.8 m ³	3.2	3F Flat 13, bedroom	28.1 m ³	Wall
3.1	3F Flat 12, living	64.8 m ³	3.5	3F Flat 11, living	55.2 m ³	Wall
3.6	3F Flat 11, bedroom	32.9 m ³	3.7	3F Flat 10, bedroom	28.8 m ³	Wall
2.6	2F Flat 7, bedroom	32.9 m ³	2.7	2F Flat 6, bedroom	28.8 m ³	Wall
2.4	2F Flat 8, living	64.8 m ³	2.5	2F Flat 7, living	55.2 m ³	Wall
2.2	2F Flat 8, bedroom	28.8 m ³	2.1	2F Flat 9, bedroom	28.1 m ³	Wall
5.2	5F Flat 19, bedroom	35.8 m ³	5.3	5F Flat 18, bedroom	25.7 m ³	Wall
4.4	4F Flat 16, living	64.1 m ³	4.6	4F Flat 15, living	54.5 m ³	Wall
4.3	4F Flat 16, bedroom	31.2 m ³	4.2	4F Flat 17, bedroom	29.52 m ³	Wall
4.6	4F Flat 15, bedroom	35.0 m ³	4.7	4F Flat 14, bedroom	25.92 m ³	Wall

Table 1: Room pairs tested (airborne sound insulation)

The test equipment used is specified at Appendix 1 of this report. The source was located consecutively at two positions in the source rooms and the spatial energy average of the sound pressure level determined over a measurement period of 40 s for each source position, using a moving microphone technique at two locations within the room. The spatial energy average in the receiver room was also determined over a measurement period of 40 s for each source position, using a moving microphone technique at two locations within the room. Representative ambient



noise levels, with no test signal, were measured in each receiver room. Sound pressure level measurements were recorded in each ½-octave band in the frequency range 100 Hz–3150 Hz, with a measurement period of 40 s over two moving microphone measurements at each receiver measurement location.

2.4 Impact sound insulation

Impact sound insulation tests were undertaken in full accordance with the procedure specified in the British Standard BS EN ISO 140-7: 1998, Acoustics – Measurement of sound insulation in buildings and of building elements, Part 7: Field measurements of impact sound insulation of floors in 10 room pairs, as summarised in Table 2 below. Floor plans of the source and receiver rooms are shown in Figures 1 to 6.

	Source room details		Receiver room details								
Room		Volume	Room		Volume						
3.5	3F Flat 11, living	55.2 m ³	2.5	2F Flat 7, living	55.2 m ³						
3.7	3F Flat 10, bedroom	28.8 m ³	2.7	2F Flat 6, bedroom	28.8 m ³						
2.3	2F Flat 8, bedroom	28.8 m ³	1.2	1F Flat 4, bedroom	28.8 m ³						
2.1	2F Flat 9, bedroom	28.1 m ³	1.1	1F Flat 5, bedroom	28.1 m ³						
2.8	2F Flat 6, living	28.8 m ³	1.3	1F Flat 3, living	28.8 m ³						
6.1	6F Flat 20, bedroom	27.8 m ³	5.3	5F Flat 18, bedroom	25.7 m ³						
5.1	5F Flat 19, living	54.5 m ³	4.6	4F Flat 15, living	54.5 m ³						
4.4	4F Flat 16, living	64.1 m ³	3.4	3F Flat 12, living	64.1 m ³						
4.3	4F Flat 16, bedroom	31.2 m ³	3.3	3F Flat 12, bedroom	31.2 m ³						
4.1	4F Flat 17, living	64.6 m ³	3.1	3F Flat 13, living	64.6 m ³						

Table 2: Room pairs tested (impact sound insulation)

The test equipment used is specified at Appendix 1 of this report. The tapping machine was located consecutively at four positions in the source rooms and the spatial energy average of the sound pressure level determined over a measurement period of 40 s for each of the tapping machine positions, using a moving microphone technique at two locations within the room. Representative ambient noise levels, with no test signal, were measured in each receiver room. Sound pressure level measurements were recorded in each ½-octave band in the frequency range 100 Hz–3150 Hz, with a measurement period of 40 s over two moving microphone measurements at each receiver measurement location.

Due to an error storing the measurements in the sound level meter, only 20 seconds of background was recorded for two of the tests, between flat 16 living to flat 12 living, and between flat 17 living to flat 13 living.

2.5 Reverberation time

The reverberation time in each receiver room was determined from a series of six measurements at two source positions and three microphone positions, with two readings at each microphone



position. The decay signal was generated by instantaneously switching off a continuous white noise source. The reverberation time for each position was calculated from the decay measurements using the least squares method and the average reverberation time at each frequency band determined for the room using the Rion type NX-28BA Building Acoustics Card.

3 ASSESSMENT

3.1 Airborne sound insulation

The level differences in each $\frac{1}{3}$ -octave band for each room pair, corrected as appropriate for background noise, were converted to the standardised level difference and the single figure weighted standardised level difference $D_{nT,w}$ determined in accordance with the definitions given in the British Standard BS EN ISO 717-1: 1997, *Acoustics – Rating of sound insulation in buildings and of building elements, Part 1: Airborne sound insulation.* A number of the measured noise levels used in the calculation were less than 6 dB above the measured ambient noise level and therefore not above the limit for measurement, as shown in the table in Appendix 3. Generally the reason for measured noise levels in receiver rooms being within 6 dB of the ambient noise levels was due to the high performing partition which meant that the source noise levels was low in the receiver rooms.

The spectrum adaptation terms C (A-weighted pink noise) and C_{tr} (A-weighted urban traffic noise) were calculated in accordance with the Standard and the $D_{nT,w} + C_{tr}$ evaluated for comparison with the requirements of the Building Regulations 2010, Approved Document E 2003 (as revised in 2010). The results for each room pair in tabular and graphical form are presented in Appendix 4 and summarised in Table 3 below:



ANC Test numbe		Receiver room	D,	Pass/Fail	
ANC TEST HUMbe	Source room	Necewer room	Actual	Criterion	r assy i all
1125064201	3F Flat 11, living	2F Flat 7, living	55	45 (+ 5dB CODE)	Pass
1125064202	3F Flat 10, bedroom	2F Flat 6, bedroom	60	45 (+ 5dB CODE)	Pass
1125064203	2F Flat 8, bedroom	1F Flat 4, bedroom	67	45 (+ 5dB CODE)	Pass
1125064204	2F Flat 9, bedroom	1F Flat 5, bedroom	67	45 (+ 5dB CODE)	Pass
1125064205	2F Flat 6, living	1F Flat 3, living	64	45 (+ 5dB CODE)	Pass
1125064206	6F Flat 20, bedroom	5F Flat 18, bedroom	62	45 (+ 5dB CODE)	Pass
1125064207	5F Flat 19, living	4F Flat 15, living	60	45 (+ 5dB CODE)	Pass
1125064208	4F Flat 16, living	3F Flat 12, living	57	45 (+ 5dB CODE)	Pass
1125064209	4F Flat 16, bedroom	3F Flat 12, bedroom	61	45 (+ 5dB CODE)	Pass
1125064210	4F Flat 17, living	3F Flat 13, living	56	45 (+ 5dB CODE)	Pass
1125064211	3F Flat 12, bedroom	3F Flat 13, bedroom	62	45 (+ 5dB CODE)	Pass
1125064212	3F Flat 12, living	3F Flat 11, living	55	45 (+ 5dB CODE)	Pass
1125064213	3F Flat 11, bedroom	3F Flat 10, bedroom	56	45 (+ 5dB CODE)	Pass
1125064214	2F Flat 7, bedroom	2F Flat 6, bedroom	63	45 (+ 5dB CODE)	Pass
1125064215	2F Flat 8, living	2F Flat 7, living	59	45 (+ 5dB CODE)	Pass
1125064216	2F Flat 8, bedroom	2F Flat 9, bedroom	60	45 (+ 5dB CODE)	Pass
1125064217	5F Flat 19, bedroom	5F Flat 18, bedroom	55	45 (+ 5dB CODE)	Pass
1125064218	4F Flat 16, living	4F Flat 15, living	57	45 (+ 5dB CODE)	Pass
1125064219	4F Flat 16, bedroom	4F Flat 17, bedroom	60	45 (+ 5dB CODE)	Pass
1125064220	4F Flat 15, bedroom	4F Flat 14, bedroom	55	45 (+ 5dB CODE)	Pass

Table 3: Summary of results (airborne sound insulation)

3.2 Impact sound insulation

The impact sound pressure levels in each $\frac{1}{3}$ -octave band for each receiver room, corrected for background noise in accordance with the procedure given in BS EN ISO 140-7: 1998, were converted to the standardised impact sound pressure level and the single figure weighted standardised impact sound pressure level $L'_{nT,w}$ determined in accordance with the definitions given in the British Standard BS EN ISO 717-2: 1997, *Acoustics – Rating of sound insulation in buildings and of building elements, Part 2: Impact sound insulation*. A number of the measured noise levels used in the calculation were less than 6 dB above the measured ambient noise level and therefore not above the limit for measurement, as shown in the table in Appendix 3. Generally the reason for measured noise levels in receiver rooms being within 6 dB of the ambient noise levels was due to the high performing partition which meant that the source noise levels was low in the receiver rooms.

The $L'_{nT,w}$ values were then compared with the requirements of the Building Regulations 2010, Approved Document E 2003 (as revised in 2010). The results for each room pair in tabular and graphical form are presented in Appendix 4 and summarised in Table 4 below:

ANC Tost number		Pocoivor room		Pass/Fail	
ANC Test number	Source room	Receiver room	Actual	Criterion	rass/raii
1125064221	3F Flat 11, living	2F Flat 7, living	40	62 (-5 dB CODE)	Pass
1125064222	3F Flat 10, bedroom	2F Flat 6, bedroom	40	62 (-5 dB CODE)	Pass
1125064223	2F Flat 8, bedroom	1F Flat 4, bedroom	39	62 (-5 dB CODE)	Pass
1125064224	2F Flat 9, bedroom	1F Flat 5, bedroom	37	62 (-5 dB CODE)	Pass
1125064225	2F Flat 6, living	1F Flat 3, living	37	62 (-5 dB CODE)	Pass
1125064226	6F Flat 20, bedroom	5F Flat 18, bedroom	43	62 (-5 dB CODE)	Pass
1125064227	5F Flat 19, living	4F Flat 15, living	41	62 (-5 dB CODE)	Pass
1125064228	4F Flat 16, living	3F Flat 12, living	42	62 (-5 dB CODE)	Pass
1125064229	4F Flat 16, bedroom	3F Flat 12, bedroom	42	62 (-5 dB CODE)	Pass
1125064230	4F Flat 17, living	3F Flat 13, living	43	62 (-5 dB CODE)	Pass

Table 4: Summary of results (impact sound insulation)





Figure 1: First floor plan

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Figure 2: Second floor plan

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Figure 3: Third floor plan





Figure 4: Fourth floor plan





Figure 5: Fifth floor plan

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Figure 6: Sixth floor plan

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APPENDIX 1 Test equipment



Test equipment - airborne sound insulation

Serial no	Calibration				
Senarno	Date	Certificate no			
00170246	31/03/15	U18435			
60254	31/03/15	U18435			
00299	31/03/15	18433			
00670019	-	-			
34773049	31/03/15	U18434			
244624	30/08/2016	30/08/2018			
2550184	30/08/2016	30/08/2018			
2463721	30/08/2016	30/08/2017			
nsn	-	-			
00692	-	-			
9070007842	-	-			
nsn	-				
25508857					
5007					
	Serial no O0170246 G0254 O0299 O0670019 34773049 244624 2550184 2463721 nsn O0692 9070007842 nsn 25508857 5007	Serial no Date 00170246 31/03/15 60254 31/03/15 00299 31/03/15 00670019 - 34773049 31/03/15 244624 30/08/2016 2550184 30/08/2016 00692 - 9070007842 - nsn - 25508857 - 2550786 -			



Test equipment - impact sound insulation

Description	Sorial no	Calib	oration
	Senaino	Date	Certificate no
Measurement instrumentation			
Rion Type NA-28 sound level meter	00170246	31/03/15	U18435
Rion type NH-23 pre-amplifier	60254	31/03/15	U18435
Rion type UC-59 ½-inch free field microphone	00299	31/03/15	18433
Rion type NX-28BA Building Acoustics Card	00670019	-	-
NC-74 Sound Level Meter Calibrator	34773049	31/03/15	U18434
Brüel & Kjær 2260_G2 sound level meter	244624	30/08/2016	30/08/2018
Brüel & Kjær 4189 Microphone	2550184	30/08/2016	30/08/2018
Brüel & Kjær 4231 Calibrator	2463721	30/08/2016	30/08/2017
Sound source			
Sound Solutions Tapping Machine	TP02036	22/08/16	TP02036/08/16
Brüel & Kjær Tapping Machine 3207	2574491	31/03/2015	31/03/2017



APPENDIX 2 Test verification







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 <u>www.theanc.co.uk</u>
- 2. Navigate to the <u>ADvANCE</u> page which links to the ANC site available for use by BCOs.
- 3. Enter the following in the spaces provided:

Task Number: 50642 Task Password: EAGMAC

- 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.



APPENDIX 3 Ambient & Source Level Differences



Airborne

Reco	aiver room						⅓-0	ctave b	and ce	ntre fre	equency	/, kHz					
Neu		100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k
2.5	source 1/receiver 1	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	5.8	4.4	-	-	-	-	5.6
	source 2/receiver 1	-	-	-	-	-	-	-	5.8	1.3	1.4	0.3	-0.8	-1.8	-3.2	-4.3	-5.4
	source 2/receiver 2	-	-	-	-	-	-	-	-	2.3	3	3.2	2.4	2.5	2.5	2.1	2.1
2.7	source 1/receiver 1	-	-	-	-	-	-	-	-	2.5	1.8	0.8	3.8	5.8	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	3	1	0	2.2	2	2.4	2.9	3.8
	source 2/receiver 1	-	-	-	-	-	-	-	-	2.7	3.3	2.9	1.8	3.7	4	5	3.7
	source 2/receiver 2	-	-	-	-	-	-	-	-	2.3	1.1	-0.8	-2.3	0.5	1	2.9	1.5
1.2	source 1/receiver 1	3.2	-0.9	3.4	-	-	-	-	-	4.6	4.3	1.3	-1.6	-3.9	-3.5	-3.3	-4.8
	source 1/receiver 2	2.9	-2.6	3.2	-	-	-	-	-	4.8	5.1	2.2	0.6	-0.5	1.6	2.2	2
	source 2/receiver 1	5.8	-	-	-	-	-	-	-	0.1	-1.1	-2.8	-3.9	-6.3	-7.7	-9	-11.3
	source 2/receiver 2	-	-	-	-	-	-	-	-	0.5	0.1	-1	-1.3	-2.1	-1.5	-0.2	-1.9
1.1	source 1/receiver 1	_	-	-	-	-	-	-	-	-	5.8	3.1	4.5	5.8	4.6	3.5	4.7
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	3.3	0.2	0.3	0.5	0.3	1.2	3.1
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	3.5	4.1	2.6	2.6	2.7	3.2
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	4.2	4.3	3.1	3	3.3	2.2
1.3	source 1/receiver 1		3.5	-	-	-	-	-	4.1	2.7	2	1.6	1.8	2	1.4	0.7	-0.1
	source 1/receiver 2	-	3.3	-	-	-	-	_	3.5	2.3	1.2	0.8	0.7	0.6	-0.4	-1.2	-3.2
	source 2/receiver 1	-	-	-	-	-	-	_	4.5	1.6	1.1	0.9	0.6	1.2	1	1.3	1.3
	source 2/receiver 2	-	-	-	-	-	-	_	4.5	2	1.2	0.8	0.9	1.6	1.1	1	1.4
53	source 1/receiver 1	-	_	-	_	-	-	_	-	-	1 22	1.83	3 34	4 88	5 66	-	
0.0	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-0.14	-0.89	1.12	2.12	3.2	4.5	-
	source 2/receiver 1	-	_	-	_	-	-	_	-	-	_	4 35	5 48		-	-	_
	source 2/receiver 2	_	-	-	_	_	-	_	_	-	5 59	1 4 5	3 41	5 67	-	_	_
4.6	source 1/receiver 1	43	44	42	24	0.6	34	37	3.8	33	2.5	19	-0.4	3.07	3.6	56	_
1.0	source 1/receiver 2	53	5.2	3.6	17	1.2	3.7	3.7	3.6	3.5	3.6	3.9	1 7	4.0	4.4	5.5	_
	source 2/receiver 1	-	-	-	-	-	-	-	-	53	3.8	1 1	0.3	0.8	11	2.6	37
	source 2/receiver 2	_	_	_	_	_	_	_	_	49	3.4	0.2	0.0	0.0	0.1	2.0	3.1
3 /	source 1/receiver 1		_	_	_	_	_	_	11			- 0.2		6.0	- 0.1	2.0	-
5.4	source 1/receiver 2	_	_	_	_	_	_	_	4.1	-	_	_	-	0.0	-	_	_
	source 2/receiver 1	_	_	_	_	_	_	_		4.0	_	_	_	5.8	_	_	_
	source 2/receiver 2	_	_	_		_			_	4.0	_		_	5.0	_		_
22	source 1/receiver 1	_	_	_	_	_	16	_	_	4.0 5 Q	25	27	16	20	1 9	5.2	17
5.5	source 1/receiver 1	-	-	-	-	-	4.0 5 Q	-	-	5.0	1.9	20	2.0	2.0	4.0 5.1	5.2	4.7 5.0
	source 2/receiver 2			5.2		0.2	1.0	4.0	2.6	2.1	2.5	1.4	2.5	2.6	4.0	1.2	3.0
	source 2/receiver 2	5 1	_	1.8		-0.3	1.0	3.7	2.0	3.1	0.8	2.4	-0.8	13	3.6	4.2	13
2 1	source 1/receiver 1			4.0		0.5	1.0	5.7	2.1	5.5	6.0	5.0	0.0	1.5	5.0	7.2	4.5
5.1	source 1/receiver 1	-	-	-	-	-	-	-	-	-	0.0	5.0	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	5.0	-	-	-	-	-
<u>ว</u> า	source 2/receiver 2	-	-	-	-	-	-	-	-	2.0	- 0 1	0.7	- 0 1	- 0 7	- 0 1	-	-
5.Z	source 1/receiver 1	-	-	-	-	-	-	-	-	5.9	-0.1	0.7	0.1	-0.7	-0.1	-0.0	-2.1
	source 1/receiver 2	-	-	-	-	-	-	-	-	4.4	-0.5	-0.5	-0.7	-0.5	1.0	2.2	-1.9
	source 2/receiver 1	-	-	-	-	-	-	-	-	3.0 4.2	0.9	1.0	1.4	0.7	1.9	5.5	2.5
2.5	source 2/receiver 2		-	-	-	-	-	-	-	4.2	2.4	3.5	2.2	4.1	-	-	-
3.5	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	5.8	3.9	3.8	4.6
27	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	-	5.9	4.8	3.3 2.5	2.8	3.b
3./	source 1/receiver 1	-	-	4./	-	-	-	-	-	5.8	1.4	2.4	2.6	4.2	3.5	-	-
	source 1/receiver 2	-	5.1	4	-	-	-	-	-	4.8	0.2	-0.9	-0.1	1	1	3.5	4.3



	source 2/receiver 1	-	4.2	4.2	-	-	-	-	-	-	3.6	-3.8	-2.1	1	5	-	-
	source 2/receiver 2	-	0.6	4.3	5.6	-	-	-	-	-	3.5	-1.6	-0.7	0.6	1.1	3.1	4.3
2.7	source 1/receiver 1	-	-	-	-	-	-	-	-	-	5.6	-1	0.5	-1.2	-0.9	0.2	1.1
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	5.3	5	1.4	1.3	2.2	1.8	1.5
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	3.6	1.2	4.6	4	3.3	2.2
	source 2/receiver 2	-	-	-	-	-	-	-	-	5.5	3.9	-1	-4.6	-4	-4.9	-4.6	-5.1
2.5	source 1/receiver 1	-	-	-	-	-	-	-	-	4.6	-0.3	-0.3	1.1	5	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	5.2	1.5	1.8	2.9	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	4.2	3.1	3.7	-	5.4	5.7	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	4.5	3.2	3.1	-	4.8	5.9	-	-	-
2.1	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	3.6	2.6	1.4	-0.5
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	5.1	-	5.2	2.4	1.8	1.1	-0.9
	source 2/receiver 1	-	-	-	-	-	-	-	-	3.4	-0.9	-0.3	-3.3	-7.3	-10	-9.5	-11
	source 2/receiver 2	-	-	-	-	-	-	-	-	2.7	-1.4	-1.2	-3	-7.1	-9	-7.8	-6.9
5.3	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.6	source 1/receiver 1	-	-	-	-	-	4.9	-	-	-	-	-	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	4.7	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-
4.2	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-0.7	-2.0	-1.2	0.2	1.8	1.4	0.7
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	1.4	0.8	2.5	2.1	2.3	1.6	0.8
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	3.1	1.4	2.1	4.6	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	3.1	1.4	2.1	4.6	-	-	-
4.7	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	2.2	1.2	2.1	1.2	1.9	2.5
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	2.9	1.8	4.3	4.2	5.2	3.9
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	5.2	2.5	2.4	1.4	0.8	-0.6	2.5
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	4.1	0.9	0.3	-0.6	-1.1	-1.0	2.1

Table 5: Difference between ambient noise level and receiver measurement with source



Impact

Dessive	* ***	⅓-octave band centre frequency, kHz															
Receive	rroom	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k
2.5	source 1	-	-	-	-	-	-	-	-	-	5.7	3.7	-	-	-	-	-
	source 2	-3.5	-	-	-	-	-	-	-	-	0.4	-3.1	-2.1	-3.8	-4.3	-1.5	0.1
	source 3	-	-	-	-	-	-	-	-	-	-	5.9	4.9	3.4	4.0	3.9	1.7
	source 4	-	-	-	-	-	-	-	-	-	-	5.6	4.1	4.6	5.3	4.3	3.2
2.7	source 1	-	-	-	-	-	-	-	-	-	-	-	5.9	6.0	5.6	-	-
	source 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 3	-	-	-	-	-	-	-	-	5.0	2.7	1.2	0.5	-1.6	-2.6	-0.7	-1.4
	source 4	-	-	-	-	-	-	-	-	-	5.8	1.5	2.4	2.7	2.4	5.1	3.8
1.2	source 1	-	4.3	-	-	-	-	-	-	-	-	-	-	6.0	-	6.0	3.5
	source 2	-3.7	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 3	1.2	5.4	-	-	-	-	-	-	3.7	-2.4	-3.7	-1.8	-5.3	-0.5	2.9	-0.2
	source 4	0.1	5.7	-	-	-	-	-	-	4.0	-2.5	-4.8	-2.1	-5.0	0.2	3.2	0.7
1.1	source 1	-5.4	-2.7	-5.9	3.8	-1.3	-	-	4.7	-3.9	-5.5	-7.6	-7.3	-5.2	-4.2	-2.5	-0.7
	source 2	-	-2.2	-2.6	4.4	-0.5	-	-	-	2.6	1.0	-1.7	-1.7	-1.5	0.0	1.5	3.7
	source 3	-	1.4	1.5	2.4	5.6	5.4	-	1.7	-4.0	-2.9	-5.6	-5.5	-4.4	-3.2	-1.3	-1.0
	source 4	-	0.6	1.7	2.9	-	-	-	-1.0	-7.2	-5.5	-9.3	-9.4	-10.0	-9.1	-7.4	-7.5
1.3	source 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2	-	-	-	-	-	-	-	-	-	-	4.9	4.9	5.7	-1.6	2.5	-
	source 3	2.7	4.0	-2.4	-	-	-	-	-	4.0	-1.0	-1.0	-1.2	-1.1	0.0	1.7	4.8
	source 4	-	2.8	-2.9	-	-	-	-	4.9	3.5	-0.6	0.6	1.0	2.7	4.5	-	-
5.3	source 1	-	-	-	-	-	-	-	-	-	-	5.4	0.2	-1.7	-3.3	-2.5	-2.5
	source 2	-	-	-	-	-	-	-	-	-	-	-	3.4	2.6	0.2	-0.9	-2.4
	source 3	-	-	-	-	-	-	-	-	-	-	-	-	5.5	4.2	3.1	2.9
	source 4	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	5.0	5.3
4.6	source 1	-	-	-	-	-	-	-	-	-	-	-0.2	1.4	1.5	1.1	1.4	1.6
	source 2	-	-	-	-	-	-	-	-	-	3.1	-0.9	1.3	2.6	1.8	0.7	-0.4
	source 3	-	-	-	-	-	-	-	-	-	-	5.9	4.0	4.4	5.9	-	5.5
	source 4	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	5.4	3.6
3.4	source 1	-	-	-	-	-	-	-	-	-	-	3.1	1.9	-0.6	-2.0	-1.3	-0.1
	source 2	-	-	-	-	-	-	-	-	-	-	4.2	3.3	4.2	4.3	4.1	2.1
	source 3	-	-	-	-	-	-	-	-	-	-	5.7	4.6	4.4	4.4	4.3	1.9
	source 4	-	-	-	-	-	-	-	-	-	-	5.7	4.8	-	-	-	-
3.3	source 1	-3.1	1.5	4.6	-	-	-	-	-	5.7	0.9	-1.6	0.0	-4.0	-3.1	-3.0	-3.4
	source 2	-	-0.3	1.6	-	4.9	-	-	5.6	3.6	-0.7	-3.1	-4.6	-4.6	-3.1	-0.6	0.5
	source 3	-	-	3.8	-	-	-	2.3	-0.2	0.1	-1.6	-3.6	-3.8	-5.0	-5.4	-5.8	-5.3
	source 4	-	3.5	2.6	-	4.6	-	5.2	1.1	0.2	-4.7	-6.4	-7.2	-8.6	-9.3	-9.5	-8.6
3.1	source 1	-	-	-	-	-	-	-	-	-	-	3.5	3.2	1.2	0.6	1.1	1.5
	source 2	-	-	-	-	-	-	-	-	-	-	-	-	4.4	4.4	4.9	4.7
	source 3	-	-	-	-	-	-	-	-	-	-	5.5	3.6	3.0	2.3	2.3	2.5
	source 4	-	-	-	-	-	-	-	-	-	-	4.3	3.2	1.6	0.7	1.2	1.3

Table 6: Difference between ambient noise level and receiver measurement with source



APPENDIX 4 Test results



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock C			Project no: 13-0069-0 Test number: 1125064201			
Source room:	3F Flat 11, living	9		Test date: 12-Jan-2017			
Reciever room:	2F Flat 7, living			Tester: JS,SR,CM,PT			
Test Partition:	Engineered oak floo 12.5mm fireline pla	oring on resilient la sterboard on MF h	yer on 25 angers cr	0mm concrete slab, with ceiling below comprising one layer of eating 250mm void with 50mm mineral wool in void			
Partition area. m ² :	2	3.0	90	0			
Source room volum	e m ³ : 5	5.2	50.				
		5.2					
Receiving room vol	ume, m [•] : 0	0.2					
Frequency, Hz	DnT. dB		80.	0			
100	36.1						
125	49.5						
160	51.4		<u>ب</u>				
200	57.1		G /0.				
250	56.5		nce				
315	56.4		fere				
400	55.4		Dif				
500	>= 67.2*		a 60.	0			
630	>= 73.9*		ed L				
800	>= 70.5*		rdiz				
1000	>= 69.3*		nda				
1250	>= 73.3*		Sta 20.	0			
1600	>= 76.8*						
2000	>= 75.3*						
2500	>= 73.3*						
3150	>= 73.7*		40.	0			
* approaching o	r at the limit for measu	irement					
	DnT,w (C;Ctr):	66 (-4, -11) dB					
Measure	d, DnT,w + Ctr:	55 dB					
Criterio	n, DnT,w + Ctr:	50 dB	30.				
	Test result:	Pass		Frequency, Hz			
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester Hampshire SO23 8SR				Tested by: Januar Checked by: CM			
ANC Registration N	lumber: 112		Date: 13-Jan-2017				



Standardised level difference DnT, w according to ISO 140-4

Project: Source room: Reciever room: Test Partition:	Bacton Clock (3F Flat 10, bed 2F Flat 6, bedr Engineered oak fl 12.5mm fireline pl	C droom room ooring on resilient lay lasterboard on MF ha	ver on 24 angers c	Project no:13-0069-0Test number:1125064202Test date:12-Jan-2017Analysis date:13-Jan-2017Tester:JS,SR,CM,PT			
Partition area m ² .		12 0	00	0			
	3		90	Standardized Level Difference, DnT			
Source room volum	e, m°:	28.8					
Receiving room volu	ume, m³:	28.8					
			80	0			
Frequency, Hz	DnT, dB						
100	43.0						
125	50.2						
160	51.9			0			
200	60.5		e,				
250	55.8		enc.				
315	56.9		iffer				
400	62.5		ם ם 60	0			
500	69.5		Lev				
630	>= 76.0*		zed				
800	>= 76.3*		ardi				
1000	>= 72.6*		and				
1250	>= 74.8*		S 20				
1600	>= 76.2*						
2000	>= 73.9*						
2500	>= 71.0*		40				
3150	>= 70.2*		40				
* approaching o	r at the limit for meas	surement					
	DnT,w (C;Ctr):	68 (-2, -8) dB					
Measure	d, DnT,w + Ctr:	60 dB	20	0			
Criterio	n, DnT,w + Ctr:	50 dB	50	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
	Test result:	Pass		Frequency, Hz			
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester Hampshire SO23 8SR				Tested by: Jan H			
ANC Registration Number: 112			Date: 13-Jan-2017				



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no: Test number:	13-0069-0 1125064203	
Source room:	2F Flat 8, bec	lroom		Test date:	12-Jan-2017 13- Jan-2017	
Reciever room:	1F Flat 4, bec	lroom		Tester:	JS,SR,CM,PT	
Test Partition:	Engineered oak f 12.5mm fireline p	flooring on resilient blasterboard on MF	layer on 250mm concrete sl hangers creating 250mm vo	lab, with ceiling below comprising oid with 50mm mineral wool in vo	one layer of id	
Partition area. m ² :		12.0	100.0			
Source room volume m ³		28.8		 Standardized Level Difference, 	DnT	
	,	20.0		- Weighting Curve		
Receiving room vo	lume, m°:	28.8				
			90.0			
Frequency, Hz	DnT, dB				★	
100	>= 53.9*					
125	>= 61.2*					
160	>= 60.8*		80.0			
200	60.1		Ce, I			
250	61.1		renc			
315	59.3		iffe			
400	63.6					
500	71.3					
630	>= 80.3*		ged			
800	>= 79.3*		ardi			
1000	>= 82.1*					
1250	>= 86.8*		eg 60.0			
1600	>= 88.1*					
2000	>= 84.6*					
2500	>= 80.2*					
3150	>= 78.8*		50.0			
* approaching	or at the limit for mea	asurement				
	DnT,w (C;Ctr)	: 73 (-2, -6) dB				
Measur Criterio	ed, DnT,w + Ctr on, DnT,w + Ctr Test result	: 67 dB : 50 dB : Pass	40.0 100 125 200 200 125 125 125 125 100 100 100 100 100 100 100 100 100 10	250 250 315 250 400 500 1000 1250 1250	1600 2000 2500 3150	
Sustainable Acou 5 Charlecote Mev Winchester Hampshire SO23 8SR	ustics Ltd vs		Teste Checke	ed by: Jant		
ANC Registration	Number: 112		Date: 13-Jan-2017			



Standardised level difference DnT, w according to ISO 140-4

Project: Source room:	Bacton Clock (2F Flat 9, bedr	C oom			Project no: Test number: Test date: Analysis date:	13-0069-0 1125064204 12-Jan-2017 13-Jan-2017	
Reciever room:	1F Flat 5, bedr	oom			Tester:	JS,SR,CM,PT	
Test Partition:	Engineered oak flo 12.5mm fireline pla	poring on resilient la asterboard on MF l	ayer on 250mm co nangers creating 2	oncrete slab, with cei 50mm void with 50n	ling below comprising nm mineral wool in vo	i one layer of id	
Partition area, m ²		11.7	100.0				
	3	00.4	100.0	🔶 Standardi	zed Level Difference,	DnT	
Source room volum	e, m`:	20.1			g Curve		
Receiving room volu	ume, m ³ :	28.1					
_			90.0				
Frequency, Hz	DnT, dB						
100	51.7						
125	57.0						
160	58.7		E 80.0				
200	64.2		Jce,				
315	60.9		erer				
400	62.7		Diff				
500	72.7		70.0				
630	79.1		pa lo				
800	>= 81.8*		rdize				
1000	>= 83.8*		nda				
1250	>= 85.3*		0.06 gg				
1600	>= 86.2*						
2000	>= 84.9*						
2500	>= 83.3*		4				
3150	>= 82.5*		50.0				
* approaching o	r at the limit for meas	surement					
	DnT,w (C;Ctr):	74 (-2, -7) dB					
Measure	d, DnT,w + Ctr:	67 dB	10.0				
Criterio	n, DnT,w + Ctr:	50 dB	40.0 +	60 - 60 - 115 - 115 - 100 - 115 - 11	00 - 00 - 00 -	00 - 00 - 50 -	
	Test result:	Pass		r n n n n r Fr	requency, Hz	16 20 25 31	
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester Hampshire				Tested by:	mt h		
ANC Registration N	lumber: 112		Date: 13-Jan-2017				



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0		
Source room:	2F Flat 6, livin	g		Test number: Test date:	1125064205 12-Jan-2017		
Basiovar room.	1E Elet 2 livin	~		Analysis date:	13-Jan-2017		
Reciever room:	1F Flat 3, livin	g		l'ester:	JS,SR,CM,PT		
Test Partition:	Engineered oak fi 12.5mm fireline p	ooring on resilient la lasterboard on MF f	ayer on 250mm concrete sla nangers creating 250mm vo	ab, with ceiling below comprising id with 50mm mineral wool in vo	i one layer of id		
Partition area, m ² :		12.0	90.0				
Source room volume m ³		28.8	-	 Standardized Level Difference, 	DnT		
Baasiain ann an a		20.0		-Weighting Curve			
Receiving room vo	Receiving room volume, m : 20.0						
Frequency Hz	DnT dB		80.0				
100	50.0						
100	50.9 >= 60.5*						
125	>= 00.5		_				
200	50.0		6 70.0				
200	59.4		Jce,				
250	50.1		erer				
315	57.0		Diffe				
400	61.2		बु 60.0				
500	>= 68.9						
630	>= 69.9		lized				
800	>= 66.8"		ard				
1000	>= 66.7*		u 50.0				
1250	>= 70.9		N 2010				
1600	>= 75.9"						
2000	>= 72.6*						
2500	>= /1./*		10.0				
3150	>= /3./*		40.0				
* approaching	or at the limit for mea	surement					
Measure Criterio	DnT,w (C;Ctr): ed, DnT,w + Ctr: on, DnT,w + Ctr:	68 (-1, -4) dB 64 dB 50 dB	30.0 5. 6. 8	5 0 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 00		
	Test result:	Pass	0 1 1 1	Frequency, Hz	16 20 25 31		
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester Hampshire SO23 8SR			Tested by: Jank Checked by: CM				
ANC Registration I	Number: 112		Date: 13-Jan-2017				



Standardised level difference DnT, w according to ISO 140-4

Project: Source room: Reciever room:	Bacton Clock 6F Flat 20, be 5F Flat 18, be	C edroom edroom		Project no: Test number: Test date: Analysis date: Tester:	13-0069-0 1125064206 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT	
Test Partition:	Engineered oak f 12.5mm fireline p	flooring on resilient I plasterboard on MF	ayer on 250mm concret nangers creating 250mr	e slab, with ceiling below comprisin n void with 50mm mineral wool in v	g one layer of bid	
Partition area, m ² :		10.7	100.0			
Source room volum	ne, m³:	27.8		Standardized Level Difference Weighting Curve	, DnT	
Receiving room vo	lume, m ³ :	25.7				
			00.0			
Frequency, Hz	DnT, dB		90.0			
100	49.4					
125	56.0					
160	53.2					
200	58.5		ā 80.0			
250	54.2		Buce			
315	56.1		lfere			
400	56.7					
500	62.0					
630	74.2					
800	>= 77.2*		rdiz			
1000	>= 79.3*		nda			
1250	>= 82.7*		0.09 gg			
1600	>= 85.0*					
2000	>= 85.3*					
2500	>= 84.4*					
3150	86.3		50.0			
* approaching	or at the limit for mea	asurement				
	DnT,w (C;Ctr)	: 67 (-1, -5) dB				
Measur	ed. DnT.w + Ctr	: 62 dB				
Criterio	on, DnT.w + Ctr	: 50 dB	40.0			
	Test result	: Pass	100 12! 16(200 250 250 250 630 630 1000 1000	1600 2000 2500 315(
				Frequency, Hz		
Sustainable Acou 5 Charlecote Mev	ustics Ltd vs		Tested by:			
Winchester Hampshire SO23 8SR			Chee	cked by: Jonth		
ANC Registration	Number: 112		Date: 13-Jan-2017			



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	C		Proje	ect no:	13-0069-0
Source room:	5F Flat 19, livi	ng		Test Test	number: date:	1125064207 12-Jan-2017
Deciover reem.		~		Analy	ysis date:	13-Jan-2017
Reciever room:	4F Flat 15, livil	ng		Teste	er:	JS,SK,CIM,PT
Test Partition:	Engineered oak flo 12.5mm fireline pl	ooring on resilient la asterboard on MF h	ayer on 250mm cor hangers creating 25	ncrete slab, with ceiling bel 0mm void with 50mm min	ow comprising eral wool in voi	one layer of d
Partition area. m ² :		22.7	100 0			
Source room volume m ³		54.5	100.0	Standardized Lev	el Difference, l	DnT
Baasiain waar	1	5 4 F				
Receiving room vo	olume, m [*] :	54.5				
Frequency Hz			90.0			
100	>= 13.8*					
100	>= 43.8					
120	>= 52 6*		н			
200	>= 57.2*		und 80.0			
250	>= 53.4*		u ce			
315	>= 53.4*		fere			
400	>= 56.3*		Dif			
500	>= 63.4*		a 70.0			
630	>= 74.4*		ed L			
800	>= 76.9*		rdiz			
1000	>= 79.3*		nda			
1250	>= 83.2*		0.09 EX			
1600	>= 86.6*					
2000	>= 87.8*		•			
2500	>= 87.3*			X		
3150	>= 88.1*		50.0			
* approaching	or at the limit for meas	surement	1			
	DnT,w (C;Ctr):	66 (-2, -6) dB	4			
Measur Criterio	ed, DnT,w + Ctr: on, DnT,w + Ctr: Test result:	60 dB 50 dB Pass	40.0 100 125 125	160 250 315 315 250 400 500 500	1250 b30 b30 b30 b30 b30 b30 b30 b30 b30 b3	1600 2000 2500 3150
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	ustics Ltd ws		C	Tested by: CM Checked by: Hand	-	
ANC Registration	Number: 112		Date: 13-Jan-2017			



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0
Source room:	4F Flat 16, liv	ing		Test date:	1125064208 12-Jan-2017
Reciever room:	3F Flat 12. liv	ina		Analysis date: Tester:	13-Jan-2017 JS.SR.CM.PT
	ora <u>_</u> ,				,,
Test Partition:	Engineered oak f 12.5mm fireline p	looring on resilient la lasterboard on MF l	ayer on 250mm conc nangers creating 250	rete slab, with ceiling below comprisin mm void with 50mm mineral wool in v	g one layer of oid
Partition area, m ² :		26.7	100.0		
Source room volun	ne, m ³ :	64.1		Standardized Level Difference	:, DnT
Receiving room vo	lume m ³	64.1			
Receiving room to	lunio, m .				
Frequency, Hz	DnT, dB		90.0		
100	43.0				
125	52.0				
160	51.3				
200	54.3		D 80.0		
250	46.6		suce		
315	51.7		fere		
400	56.2		Did		
500	>= 64.1*		a 70.0		
630	>= 73.6*		Ped L		
800	75.4		rdize		
1000	74.8		Idai		
1250	79.9		0.06 ga		
1600	>= 82.8*				
2000	82.8				
2500	82.0				
3150	82.8		50.0	7	
* approaching	or at the limit for mea	asurement			
	DnT.w (C:Ctr)	• 64 (-2, -7) dB			
Measure Criterio	ed, DnT,w + Ctr on, DnT,w + Ctr Test result	: 57 dB : 50 dB : Pass	40.0	1050 1050 1050 1050 1000 1050 1000 1050 1000000	1600 2000 2500 3150
Sustainable Acou 5 Charlecote Mev Winchester Hampshire SO23 8SR	ustics Ltd vs		Cł	Tested by: CM-	
ANC Registration	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0		
Source room:	4F Flat 16, b	edroom		Test number: Test date:	1125064209 12-Jan-2017		
Decision ream.	2E Elet 10. h.	droom		Analysis date:	13-Jan-2017		
Reciever room:	3F Flat 12, b	edroom		l'ester:	JS,SR,CM,PT		
Test Partition:	Engineered oak 12.5mm fireline	flooring on resilient l plasterboard on MF	ayer on 250mm concrete hangers creating 250mm	e slab, with ceiling below comprising n void with 50mm mineral wool in vo	g one layer of id		
Partition area. m ² :		13.0	100.0				
	no m ³ .	31.2	-	Standardized Level Difference,	DnT		
Source room volum	ne, m :	31.2	-				
Receiving room vo	lume, m°:	31.2					
Free services and the			90.0				
Frequency, Hz							
100	>= 45.7*						
125	52.5						
160	>= 51.0		<mark>ام</mark> 80.0				
200	55.0		ice,				
250	>= 55.3		eren				
315	>= 54.8		Diffe				
400	>= 57.0*		e 70.0				
500	>= 66.0*						
630	>= 75.2"		izec				
800	>= 78.0*		lard				
1000	>= 78.9*		b				
1250	>= 82.4*		50.00				
1600	>= 86.1*						
2000	>= 87.6*						
2500	>= 87.2*						
3150	>= 89.4*		50.0				
* approaching	or at the limit for me	asurement					
Measuro Criterio	DnT,w (C;Ctr) ed, DnT,w + Ctr on, DnT,w + Ctr Test result	: 67 (-2, -6) dB : 61 dB : 50 dB : Pass	40.0	2000 250 250 250 4000 1250 1250 1250 1250 1250	1600 2000 2500 3150		
Sustainable Acou 5 Charlecote Mev Winchester Hampshire SO23 8SR	ustics Ltd vs		Tes	sted by: CM- ked by: JmA			
ANC Registration	Number: 112		Date: 13-Jan-2017				



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Proje	ct no:	13-0069-0
Source room:	4F Flat 17, liv	ring		Test r Test c	number: date:	1125064210 12-Jan-2017
Reciever room	3F Flat 13 liv	ina		Analy	sis date:	13-Jan-2017
Reciever room.	5F FIAL 15, IIV	ing		Teste	1.	
Test Partition:	Engineered oak t 12.5mm fireline p	flooring on resilient la plasterboard on MF h	iyer on 250mm cor angers creating 25	ncrete slab, with ceiling belo 0mm void with 50mm mine	w comprising ral wool in voi	one layer of d
Partition area. m ² :		26.9	90.0			······
Source room volum	ne m ^{3.}	64.6	50.0	Standardized Leve	el Difference, l	DnT
Beeskin was a		64.6		Weighting Curve		
Receiving room vo	iume, m [*] :	04.0				
Frequency H-	DAT 4D		80.0			
Frequency, HZ	40.0					
100	46.2					
125	47.8					
200	47.7		ام 70.0			
200	50.9 46 3		Jce,			
250	40.3		erer			
400	49.0		Diff			
400 500	58.8		बु 60.0			
630	66.2		d Le			
800	>= 69.3*		dize			
1000	>= 71 1*		dan			
1250	72.6		50.0			
1600	73.0		ол •	- / / /		
2000	72.1					
2500	69.3					
3150	72.5		40.0			
* approaching	or at the limit for me	asurement				
app.eaog						
Measure Criterie	ed, DnT,w + Ctr on, DnT,w + Ctr Test result	: 56 dB : 50 dB : Pass	12 12 12 12 12 12 12	160 200 315 400 500 630	1 1000 k	1600 2000 3150 3150
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester Hampshire SO23 8SR			Tested by: CM Checked by: Hand			
ANC Registration	Number: 112		Date: 13-Jan-2017			



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	C		Project no:	13-0069-0		
Source room:	3F Flat 12, bec	droom		Test number: Test date:	1125064211 12-Jan-2017		
Pociovar room:	2E Elat 12 ha	droom		Analysis date:	13-Jan-2017		
Recievel Toolii.	SF FIAL TS, Det			Tester.	33,3K,CM,F1		
Test Partition:	Twin 70mm stud f additional layer of mineral wool in vo	rame with two layer 18mm support ply id between two stud	rs 12.5mm plasterb within frame. 50mr d frames.	board of minimum density 20kg/m2on e n mineral wool within each stud frame a	ither side, and and 100mm		
Partition area, m ² :		8.4	100 0				
Source room volum	no m ³ .	28.8	100.0	Standardized Level Difference	e, DnT		
	3	20.0					
Receiving room vol	ume, m°:	28.1					
	Do T dP		90.0				
Frequency, HZ							
100	45.3 54.6						
125	56.4		F				
200	57.5		und 80.0				
250	61.7		suce				
315	59.3		Ifere		¥		
400	58.3						
500	68.9						
630	>= 76.0*		ced I				
800	>= 77.4*		ardiz				
1000	>= 77.3*		and a				
1250	>= 78.4*		B 60.0				
1600	>= 79.9*						
2000	>= 78.7*		1				
2500	>= 74.7*						
3150	>= //.5*		50.0				
* approaching of	or at the limit for meas	surement	4				
	DnT,w (C;Ctr):	70 (-2, -8) dB					
Measure	ed, DnT,w + Ctr:	62 dB	40.0				
Criterio	on, DnT,w + Ctr:	50 dB	25 - 25				
	Test result:	Pass		Frequency, Hz	16 20 31 33		
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester Hampshire SO23 8SR			(Tested by: Jan H			
ANC Registration	Number: 112		Date: 13-Jan-2017				



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock C			Project no: 13-0069-0
Source room:	3F Flat 12, living	3		Test number: 1125064212 Test date: 12-Jan-2017
Reciever room:	3E Elat 11 living	n		Analysis date: 13-Jan-2017 Tester: IS SR CM PT
Reciever room.				
Test Partition:	Twin 70mm stud fra additional layer of 1 mineral wool in void	ame with two layers 8mm support ply wi I between two stud f	12.5mm p thin frame rames.	plasterboard of minimum density 20kg/m2on either side, and e. 50mm mineral wool within each stud frame and 100mm
Partition area, m ² :	6	6.0	90.0	
Source room volum	e m³· 6	4 8	0010	
	3 r	5.0		
Receiving room vol	ume, m [°] : 5	5.2		
			80.0	
Frequency, HZ	Dh1, db			
100	38.0			
125	53.0		⊢	
200	56.4		⁶ 70.0	
250	50.9		nce,	
315	51.1		fere	
400	49.8		Dif	
500	62.2		60.0	
630	69.3		ed L	
800	71.3		rdize	
1000	>= 72.2*		ndaı	
1250	>= 75.8*		0.02 ga	
1600	>= 76.7*			
2000	>= 75.2*			
2500	>= 72.6*			
3150	>= 72.3*		40.0	
* approaching c	or at the limit for measu	rement		
	DnT,w (C;Ctr):	63 (-3, -8) dB		
Measure	d, DnT,w + Ctr:	55 dB		
Criterio	n, DnT,w + Ctr:	50 dB	30.0	
	Test result:	Pass		Frequency, Hz
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	stics Ltd s			Tested by: Jand Checked by: CM
ANC Registration N	lumber: 112			Date: 13-Jan-2017



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0
Source room:	3F Flat 11, be	droom		Test number: Test date:	1125064213 12-Jan-2017
Beeiever reem.	2E Elat 10 ha	draam		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 10, be	droom		Tester:	JS,SR,CM,PT
Test Partition:	Twin 70mm stud additional layer of mineral wool in vo	frame with two layer f 18mm support ply bid between two stud	rs 12.5mm plas within frame. 5 d frames.	terboard of minimum density 20kg/m2on eit 0mm mineral wool within each stud frame a	her side, and nd 100mm
Partition area. m ² :		6.0	100.0		
Source room volum	- m ³ .	32.0	100.0		, DnT
Source room volum	3	52.9			
Receiving room vol	ume, m°:	28.8			
Framing and the			90.0		
Frequency, Hz	DN1, dB				
100	43.8				*
125	>= 54.0		F		
200	>= 52 4*		80.0		
250	46.8		uce,		
315	48.3		fere		
400	52.5		Dif		
500	60.2		a 70.0 +		
630	>= 70.1*		pa		
800	>= 75.5*		rdize		
1000	>= 77.5*		ndai		
1250	>= 81.9*		0.06 ga		
1600	>= 83.9*				
2000	>= 81.8*				
2500	>= 78.0*				
3150	>= 76.8*		50.0		
* approaching c	or at the limit for mea	surement			
	DnT,w (C;Ctr):	62 (-2, -6) dB			
Measure	d, DnT,w + Ctr:	56 dB			
Criterio	on, DnT,w + Ctr:	50 dB	40.0 + 2		
	Test result:	Pass	10	Frequency, Hz	160 200 250 315
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	stics Ltd ⁄s			Tested by: Jan H	
ANC Registration N	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no	b: 13-0069-0
Source room:	2F Flat 7, bec	Iroom		Test num Test date	ber: 1125064214 : 12-Jan-2017
Pociovor room:	2E Elat 6 had	Iroom		Analysis o Tostor:	date: 13-Jan-2017
Reciever room.	ZF FIAL 0, DEC	iloom		Tester.	J 3,3K,CIVI,FT
Test Partition:	Twin 70mm stud additional layer o mineral wool in v	frame with two laye f 18mm support ply oid between two stu	ers 12.5mm plast within frame. 50 ud frames.	erboard of minimum density 20kg/r mm mineral wool within each stud	n2on either side, and frame and 100mm
Partition area. m ² :		6.0	100.0		
		32.0	100.0	Standardized Level Dif	ference, DnT
Source room volur	ne, m :	32.9			
Receiving room vo	lume, m ³ :	28.8			
			90.0		
Frequency, Hz	DnT, dB				
100	48.3				
125	55.4				
160	54.5		L 80.0		
200	59.1		се, [
250	61.7		Lenc		
315	58.6		iffe		
400	59.0				4
500	65.8		Lev.		
630	>= 69.9*		zed		
800	>= 70.7*		ardi		
1000	>= 70.5*		pu a		
1250	>= 76.5*		0.00 St a		
1600	>= 77.8*				
2000	>= 75.7*			174	
2500	>= 75.2*				
3150	>= 73.8*		50.0		
* approaching	or at the limit for mea	asurement	•		
	DnT,w (C;Ctr)	: 69 (-2, -6) dB			
Measur	ed. DnT.w + Ctr	: 63 dB			
Criterio	on. DnT.w + Ctr	: 50 dB	40.0 +		
	Test result	: Pass	100	121 160 2002 2002 2002 2000 400 400 630 630 630 800	1000 1250 1600 2000 2500
				Frequency, Hz	
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	ustics Ltd vs			Tested by: Smith	
ANC Registration	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0
Source room:	2F Flat 8, livir	g		Test number: Test date:	1125064215 12-Jan-2017
Reciever room:	2F Flat 7, livir	g		Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT
Test Partition:	Twin 70mm stud additional layer o mineral wool in w	frame with two layer f 18mm support ply pid between two stu	rs 12.5mm plasterboard within frame. 50mm mir d frames.	of minimum density 20kg/m2on eit heral wool within each stud frame ar	her side, and nd 100mm
Partition area, m ² :		6.0	90.0		
Source room volur	me m ^{3.}	64.8		Standardized Level Difference	, DnT
	. 3	55	-	Weighting Curve	
Receiving room vo	olume, m°:	55.2			
F			80.0		
Frequency, Hz	Dni, dB				
100	40.9				
125	53.3			*	
160	55.1		70.0		
200	59.3		Ce, I		
250	58.7		ren		
315	55.9		Diffe		
400	58.2		<u>a</u> 60.0		
500	>= 66.8*		Lev		
630	>= 72.1*		ized		
800	>= 68.8*		ardi		
1000	>= 67.4*				
1250	>= 72.0*		3 50.0		
1600	>= 75.1*				
2000	73.4				
2500	72.8		1		
3150	74.6		40.0		
* approaching	or at the limit for mea	asurement			
	DnT,w (C;Ctr)	: 67 (-2, -8) dB			
Measur	ed, DnT.w + Ctr	: 59 dB			
Criteri	on, DnT.w + Ctr	: 50 dB	30.0		
	Test result	: Pass	100 121 160	200 250 250 500 500 500 1000 1250	160 200 250
				Frequency, Hz	
Sustainable Acou 5 Charlecote Mey Winchester Hampshire SO23 8SR	ustics Ltd ws		Tes	sted by: Jandf sked by: CM	
ANC Registration	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	с		Project no:	13-0069-0
Source room:	2F Flat 8, bed	room		Test number: Test date:	1125064216 12-Jan-2017
Reciever room:	2F Flat 9, bed	room		Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT
Test Partition:	Twin 70mm stud additional layer of mineral wool in vo	frame with two layer f 18mm support ply oid between two stud	rs 12.5mm plasterb within frame. 50mm d frames.	oard of minimum density 20kg/m2on ei n mineral wool within each stud frame a	ther side, and nd 100mm
Partition area, m ² :		8.4	100.0		
Source room volun	ne. m ³ :	28.8	100.0	Standardized Level Difference	e, DnT
Bosoiving room vo	lumo m ³ .	28.1			
Receiving room vo	iume, m .	20.1			
Frequency, Hz	DnT, dB		90.0		
100	40.6				
125	51.3				
160	54.8		H		
200	60.0		6 80.0		
250	64 7		uce,		
315	59.8		erei		
400	62.8		Diff		
500	73.0		70.0		
630	>- 79.8*		d Le		
800	>= 81.0*		dize	*	
1000	>= 78.0*		dard		
1250	>= 70.0		<u>,</u> 60.0		
1200	>= 84.6*		S		
2000	>= 82.9*				
2000	>= 81.5*				
2500	>= 81.6*		50.0		
3150	>= 01.0		30.0		
* approaching	or at the limit for mea	surement			
	DnT,w (C;Ctr):	70 (-3, -10) dB			
Measure	ed, DnT,w + Ctr	60 dB	40.0		
Criterio	on, DnT,w + Ctr	50 dB	25		20000
	Test result:	Pass		Frequency, Hz	16 25 31 31
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	ustics Ltd vs		C	Tested by: Jan H	
ANC Registration	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0
Source room:	5F Flat 19, be	edroom		Test number: Test date:	1125064217 12-Jan-2017
Reciever room:	5F Flat 18, be	edroom		Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT
Test Partition:	Twin 70mm stud additional layer c mineral wool in v	frame with two laye of 18mm support ply roid between two stu	rs 12.5mm plasterboard within frame. 50mm mir d frames.	of minimum density 20kg/m2on eith heral wool within each stud frame ar	ner side, and d 100mm
Partition area, m ² :		6.7	90.0		
Source room volur	me. m ³ :	35.8	-	Standardized Level Difference,	DnT
Beasiving room vo	umo m ³ .	25.7	-	Weighting Curve	
Receiving room vo	oiume, m :	23.7			
Frequency Hz	DnT dB		80.0		
100	40.1				
100	40.1 50.0				
120	49.5		<u>н</u>		
200	53.1		6 70.0		
250	51.5		uce		
315	47.9		erei		
400	50.3		Diff		
500	55.6		9 60.0		
630	64.2		d Le		
800	69.2		dize		
1000	73.8		dare		
1250	~- 79 3*		5 0.0		
1200	82.9		S A		
2000	83.5				
2000	82.6				
2300	85.0		40.0		
3150	85.0		40.0		
* approaching	or at the limit for me	asurement			
	DnT,w (C;Ctr)	: 61 (-2, -6) dB			
Measur	ed, DnT,w + Ctr	: 55 dB	30.0		
Criterie	on, DnT,w + Ctr	: 50 dB	00 - 25 - 26 - 60 - 60 - 60 - 60 - 60 - 60 - 60	00 - 50 - 50 - 00 - 00 - 00 - 00 - 00 -	00 - 00 - 50 -
	Test result	:: Pass		Frequency, Hz	16 20 25 31
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	ustics Ltd ws		Te: Chec	sted by: CM- sked by: HomA	
ANC Registration	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0
Source room:	4F Flat 16, livi	ing		Test number: Test date:	1125064218 12-Jan-2017
Reciever room:	4F Flat 15, livi	ing		Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT
Test Partition:	Twin 70mm stud additional layer o mineral wool in ve	frame with two layer f 18mm support ply oid between two stud	s 12.5mm plasterb within frame. 50mn d frames.	oard of minimum density 20kg/m2on e n mineral wool within each stud frame	wither side, and and 100mm
Partition area, m ² :		5.8	90.0		
Source room volur	ne, m ³ :	64.1		Standardized Level Difference	e, DnT
Receiving room vo	dume m ³ .	54.5			
Receiving room vo	, m .	0.10			
Frequency. Hz	DnT. dB		80.0		
100	39.3				
125	47.7				
160	53.2		⊢		
200	56.1		4 70.0		
250	52.2		nce		
315	>= 53.0*		fere		
400	55.4		Diff		
500	62.3		9 60.0		
630	67.9				
800	71.6		dize		
1000	>= 73.4*		dar		
1250	74.3		50.0		
1200	75.2		S		
2000	75.0				
2500	73.0				
2000 3150	72.5		40.0		
5150 * an an a chian					
approaching	or at the limit for mea				
Measur Criteri	DnT,w (C;Ctr): ed, DnT,w + Ctr: on, DnT,w + Ctr: Test result:	: 64 (-2, -7) dB : 57 dB : 50 dB : Pass	100 125 125	160 160 160 1000 1000 1000 1000 1000 10	1250 1600 2000 3150 3150
Sustainable Acou 5 Charlecote Mey Winchester Hampshire SO23 8SR	ustics Ltd ws		(Tested by: CM Checked by: Jan 2017	
				Date. 13-Jah-2017	



Standardised level difference DnT, w according to ISO 140-4

Project: Source room: Reciever room:	Bacton Clock (4F Flat 16, bec 4F Flat 17, bec	C droom droom		Project no: Test number: Test date: Analysis date: Tester:	13-0069-0 1125064219 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT
Test Partition:	Twin 70mm stud f additional layer of mineral wool in vo	rame with two layer 18mm support ply id between two stu	rs 12.5mm plasterb within frame. 50mn d frames.	oard of minimum density 20kg/m2on ei n mineral wool within each stud frame a	ther side, and nd 100mm
Partition area, m ^{2.}		9.1	100.0		
	· · · · · · · · · · · · · · · · · · ·	21.2	100.0		e, DnT
Source room volum	ie, m :	51.2			
Receiving room vol	ume, m°:	29.5			
F ee			90.0		
Frequency, Hz	Uni, dB				
100	44.5				
125	48.8		_		
200	49.5		6 80.0		
200	57.3		Jce,		
315	55.0		ferei		
400	58.4		Diff		
500	68.1		9 70.0		
630	75.7		ed L		
800	>= 81.2*		rdiz		
1000	>= 81.4*		nda		
1250	>= 83.7*		0.06 gt		
1600	>= 86.9*				
2000	>= 86.3*			/ ¥	
2500	>= 85.5*				
3150	>= 88.3*		50.0		
* approaching c	or at the limit for meas	surement			
	DnT,w (C;Ctr):	67 (-2, -7) dB	4		
Measure	d, DnT,w + Ctr:	60 dB			
Criterio	on, DnT,w + Ctr:	50 dB	40.0 ++ Q <u>v</u>		+ 00 02
	Test result:	Pass	11	ت ک ک ک ک ک Frequency, Hz	16(20(25(31! 31!
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	stics Ltd /s		(Tested by: CM Checked by: Hom	
ANC Registration N	Number: 112			Date: 13-Jan-2017	



Standardised level difference DnT, w according to ISO 140-4

Project:	Bacton Clock	С		Project no:	13-0069-0
Source room:	4F Flat 15, be	edroom		Test number: Test date:	1125064220 12-Jan-2017
Reciever room:	4F Flat 14, be	edroom		Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT
Test Partition:	Twin 70mm stud additional layer o mineral wool in v	frame with two laye f 18mm support ply oid between two stu	rs 12.5mm plasterboard within frame. 50mm min d frames.	of minimum density 20kg/m2on eith eral wool within each stud frame ar	ner side, and d 100mm
Partition area. m ² :		6.7	100.0		
Source room volun	ne. m ³ :	35.0	-	 Standardized Level Difference, 	DnT
Receiving room vo	lume, m ³	25.9	-		
Receiving room vo	iume, m .	20.0			
Frequency, Hz	DnT, dB		90.0		
100	41.4				
125	50.8				
160	50.1		H		
200	51.7		<u>ح</u> 80.0		
250	46.4		nce		
315	45.9		fere		
400	50.8		Diff		
500	59.2		9 70.0		
630	66 8				
800	>= 70 4*		dize		
1000	>= 72.9*		dan		
1250	>= 72.0		60.0		
1600	>= 83.0*		0		
2000	>= 84.8*				
2500	>= 83 5*				
2000 3150	>= 85.5*		50.0	× +	
*	>= 00.0				
approaching					
Measure Criterio	Dn I,w (C;Ctr) ed, DnT,w + Ctr on, DnT,w + Ctr Test result	: 61 (-2, -6) dB : 55 dB : 50 dB : Pass	100 0.04	250 250 250 250 250 250 250 250 250 250	1600 2000 2500 3150
Sustainable Acou 5 Charlecote Mew Winchester Hampshire SO23 8SR	istics Ltd vs		Tes	sted by: CM- ked by: JmA	
ANC Registration I	Number: 112			Date: 13-Jan-2017	



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room: Test Partition:	Bacton Clock C 3F Flat 10, bedroom 2F Flat 6, bedroom Engineered oak flooring on res	ilient layer on 250mm concrete sl	Project no: Test number: Test date: Analysis date: Tester:	13-0069-0 1125064221 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT
Partition area, m ² :	12.0	60.0 Standardi	ized Level, L'nT 🛛 —— Weighting	g Curve
Receiving room vo	blume, m³: 28.8	50.0		
Frequency, Hz 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150	2 L'nT, dB $<= 41.5^*$ 44.1 47.1 44.1 49.6 48.4 43.8 35.7 26.6 $<= 21.8^*$ $<= 19.8^*$ $<= 19.0^*$ $<= 17.8^*$ $<= 18.1^*$ $<= 16.4^*$	40.0 30.0 20.0 10.0		
* approaching M	or at the limit for measurement easured, L'nT,w: 40 dB Criterion, L'nT,w: 57 dB Test result: Pass	100 125 200 250	315 315 1000 1250 Fredneuch Hz	2000 2500 3150
Sustainable Aco 5 Charlecote Me Winchester Hampshire SO23 8SR	ustics Ltd ws	Tester	d by: Somt	
ANC Registration	Number: 112]	Date: 13-Jan-2017	



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room: Test Partition:	Bacton Clock C 3F Flat 11, living 2F Flat 7, living Engineered oak fl 12.5mm fireline p	ooring on resilien lasterboard on MF	t layer on 25 ⁻ hangers cr	0mm co eating 25	ncrete 50mm	slab, v void w	with cei vith 50m	Projec Test n Test d Analys Tester	t no: umber ate: sis date : w compr al wool	rising o in void	13-0069- 11250642 12-Jan-20 13-Jan-20 JS,SR,CM	-0 222)17)17),PT
			CO O									
			60.0	S1	andar	dized	level I	'nT		hting (urve	
Partition area, m ² :		23.0			andar	uizcu			VV CIS	nung c		
Receiving room v	olume m ³	55.2										
Receiving room ve	June, m .	00.2	50.0									
			50.0									
Frequency, Hz	z L'nT, dB		+				◀					
100	46.2											
125	46.6		40.0				\checkmark					
160	46.8		н				- \					
200	45.2		Ľ									
250	44.6		vel,									
315	45.8											
400	46.0											
500	38.4		dard									
630	<= 27.8*		tanc									
800	<= 25.4*		ν.									
1000	<= 24.2*		20.0									
1250	<= 21.6*									•		
1600	<= 19.5*											
2000	<= 17.2*											
2500	<= 17.3*		10.0 -		_					_		
3150	<= 17.2*											
* approaching	or at the limit for mea	surement										
M	easured L'nT w	40 dB										
	cusuleu, Em,w.	57 dB	0.0									
	Test result	Pass	100	125 160	200	315	40C 500	63C 800	100C	1600	250C 315C	
							Freque	ncy, Hz			(1) (7)	
Sustainable Aco 5 Charlecote Mer Winchester Hampshire SO23 8SR	ustics Ltd ws			(Test Check	ed by	:: J :: J	mt h	1			
ANC Registration	Number: 112					Date	: 13-	Jan-201	7			



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room:	Bacton Clock C 2F Flat 9, bedroom 1F Flat 5, bedroom		Project no: 13-0069-0 Test number: 1125064223 Test date: 12-Jan-2017 Analysis date: 13-Jan-2017 Tester: JS,SR,CM,PT
Test Partition:	Engineered oak floori 12.5mm fireline plast	ing on resilient layer or erboard on MF hanger	n 250mm concrete slab, with ceiling below comprising one layer of rs creating 250mm void with 50mm mineral wool in void
		60.0	Standardized Lovel L'oT Weighting Curve
Partition area, m ² :	11.	.7	
Receiving room v	blume, m ³ : 28	.1 50.0	
Frequency, H	z L'nT, dB		
100	<= 43.6*		\star \star \star \star
125	<= 35.2*	40.0	
160	44.6	40.0	
200	40.4	L'a	
250	43.5	vel,	
315	46.3		
400	42.2	30.0	
500	32.4	dard	
630	<= 23.5*	tanc	
800	<= 20.0*	ý.	
1000	<= 18.5*	20.0	
1250	<= 19.7*		
1600	<= 21.9*		
2000	<= 25.2*		
2500	<= 28.9*	10.0	
3150	<= 29.3*		
* approaching	or at the limit for measure	ement	
м	easured, L'nT,w:	39 dB	
C	Criterion, L'nT,w:	57 dB 0.0	
	Test result:	Pass	100 120 200 200 200 200 100 1100 1100 1
			rrequency, nz
Sustainable Aco 5 Charlecote Me Winchester	ustics Ltd ws		Tested by:
Hampshire SO23 8SR			Checked by: CM
ANC Registration	Number: 112		Date: 13-Jan-2017



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room: Test Partition:	Bacton Clock C 2F Flat 8, bedroom 1F Flat 4, bedroom Engineered oak floorin 12.5mm fireline plaster	g on resilient layer on 2 board on MF hangers o	250mm concrete slab, wit creating 250mm void with	Project no: Test number: Test date: Analysis date: Tester: h ceiling below comprising 50mm mineral wool in vo	13-0069-0 1125064224 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT g one layer of id
		60.0 -			
Partition area, m ² :	12.0		Standardized Lev	vel, L'nT 🛛 —— Weighting	g Curve
Receiving room vo	blume, m³: 28.8	50.0 -			
Frequency, H	z L'nT, dB				
100	<= 40.2*				
125	<= 39.9*	40.0			
160	<= 40.9*	F			
200	<= 43.3*	, L'n			
250	<= 44.7*	evel			
315	<= 45.3*	p 30.0 -			
400	<= 42.2*	dize			
500	<= 34.0*	ıdar			
630	<= 27.5*	Star			
800	<= 25.0*	20.0 -			
1000	<= 23.6*	20.0			
1250	<= 22.1*				
1600	<= 20.5*				
2000	<= 21.2*	10.0			
2500	<= 21.9*	10.0 -			
3150	<= 21.6*				
* approaching	or at the limit for measurem	nent			
M	easured, L'nT,w: 3 Criterion, L'nT,w: 5 Test result: 1	87 dB 0.0 − 57 dB 67 Pass 7	1000 125 160 200 250 315 400	edneuc ⁶ 1000 11000 11250 Hz	2500 3150
Sustainable Acoustics LtdTested by:5 Charlecote MewsJamuWinchesterHampshireHampshireChecked by:SO23 8SRChecked by:					
ANC Registration	Number: 112		Date: 13-Jan-2017		



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room: Test Partition:	Bacton Clock C 2F Flat 6, living 1F Flat 3, living Engineered oak f	looring on resilier	nt layer on 250	mm concrete slab,	Project no: Test number: Test date: Analysis date: Tester: with ceiling below comprising	13-0069-0 1125064225 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT
	12.5mm fireline p	lasterboard on M	IF hangers cre	ating 250mm void v	vith 50mm mineral wool in vo	bid
			60.0			
Partition area. m ² :		12.0			Level, L'nT 🛛 — Weighting	g Curve
	_					
Receiving room vo	olume, m ³ :	28.8				
			50.0			
Frequency, H	z L'nT, dB					
100	<= 41.8*					
125	<= 37.9*		40.0			
160	<= 39.3*		+0.0			
200	41.9					
250	45.2		/el,			
315	46.4					
400	39.6		10.05 ji			
500	<= 34.4*		ard			
630	<= 31.2*		and			
800	<= 26.0*		s			
1000	<= 24.3*		20.0			
1250	<= 22.0*					
1600	<= 20.7*					
2000	<= 20.7 <= 21.5*					
2500	<- 22.3*		10.0			
3150	<= 22.0 <= 23.2*					
* approaching	or at the limit for mos	suromont				
approaching						
IVI	easured, L'hi,w	37 dB	0.0			
(Triterion, L'n I ,w	57 dB	100	125 160 200 250 315	400 500 3300 3000 250 500	000 500 150
	l est result	Pass			Frequency, Hz	32 26
Sustainable Acoustics Ltd Tested by: 5 Charlecote Mews Winchester Hampshire Checked by:						
ANC Registration Number: 112				Date	e: 13-Jan-2017	



Standardised impact sound pressure level according to ISO 140-7

Project:	Bacton Clock C		Project no:	13-0069-0	
Source room:	6F Flat 20, bedroom		Test date:	1125064226 12-Jan-2017	
Reciever room:	5F Flat 18, bedroom		Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT	
Test Partition:	Engineered oak flooring on res 12.5mm fireline plasterboard o	ilient layer on 250mm concrete s n MF hangers creating 250mm v	slab, with ceiling below comprising oid with 50mm mineral wool in vo	g one layer of vid	
		60.0			
Partition area, m ² :	10.7	Standard	lized Level, L'nT 🛛 — Weightin	g Curve	
Receiving room vo	blume, m³: 25.7	50.0	<u>←</u>		
Frequency, Hz	z L'nT, dB				
100	46.9				
125	42.7	40.0			
160	46.1	<u>е</u>			
200	44.4	, г.			
250	52.0	evel			
315	52.9	p 30.0			
400	52.1	dize			
500	45.9	lan			
630	32.1	Star			
800	28.2	20.0			
1000	<= 22.9*	2010			
1250	<= 18.6*			+	
1600	<= 16.1*				
2000	<= 15.7*	10.0			
2500	<= 15.8*	10.0			
3150	<= 14.9"				
* approaching	or at the limit for measurement				
M	easured, L'nT,w: 43 dB Criterion, L'nT,w: 57 dB Test result: Pass	250 250 250 250 250 250 250 250 250 250	315 315 500 630 1000 1250	2000 2500 3150	
Sustainable Acoustics Ltd Tested by: 5 Charlecote Mews Winchester Hampshire Checked by: SO23 8SR Checked by:			ed by: CM- ed by: Hand		
ANC Registration	Number: 112		Date: 13-Jan-2017		



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room:	Bacton Clock C 5F Flat 19, living 4F Flat 15, living		Project no: Test number: Test date: Analysis date: Tester:	13-0069-0 1125064227 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT
Test Partition:	Engineered oak flooring on 12.5mm fireline plasterboard	resilient layer on 250mm cond d on MF hangers creating 250	crete slab, with ceiling below comprisin mm void with 50mm mineral wool in v	ng one layer of oid
		60.0		
Dentition and m ²	20.7	Sta	ndardized Level, L'nT 🛛 —— Weightii	ng Curve
Partition area, m :	22.1			
Receiving room vo	blume, m³: 54.5			
		50.0		
Frequency, H	z L'nT, dB			
100	46.4			
125	44.2	40.0		
160	45.5	►		
200	43.7	L'h		
250	48.7	evel		
315	51.0	p 30.0		
400	49.0	dize		
500	40.6	Jdar		
630	28.1	Star		
800	<= 24.4*	20.0		
1000	<= 16.7*			
1250	<= 12.6*			
1600	<= 12.1*			
2000	<= 12.0*	10.0		
2500	<= 11./*	10.0		
3150	<= 10.2"			
* approaching	or at the limit for measurement			
м	easured, L'nT,w: 41 dE	3 0.0		
C	Criterion, L'nT,w: 57 dE	B B B B B B B B B B		200
	Test result: Pass		ې ۲ ۳ ۳ ۳ ۲ ۵ ۵ ۵ ۲ ۳ ۳ ۲ ۹ Frequency, Hz	20 25 31
Sustainable Acoustics Ltd Tested by: CM				
Winchester Hampshire SO23 8SR				
ANC Registration Number: 112 Date: 13-Jan-2017				



Standardised impact sound pressure level according to ISO 140-7

Project:	Bacton Clock C		Project no:	13-0069-0
Source room:	4F Flat 16, living		Test number: Test date:	1125064228 12-Jan-2017
Reciever room:	3F Flat 12, living		Analysis date: Tester:	13-Jan-2017 JS.SR.CM.PT
	of 11ac 12, 1011g			
Test Partition:	Engineered oak flooring on 12.5mm fireline plasterboa	resilient layer on 250mm concrete rd on MF hangers creating 250mm v	slab, with ceiling below comprising void with 50mm mineral wool in vo	g one layer of id
		60.0		
Partition area, m ² :	26.7	Standard	dized Level, L'nT Weightin	g Curve
Receiving room ve	blume, m³: 64.1			
		50.0		
Frequency, H	z L'nT, dB			
100	48.1			
125	41.8	40.0		
160	45.8	⊢		
200	46.5	L L L		
250	51.2			
315	51.6	P 30.0		
400	51.3	dize di contra d		
500	42.0	darc		
630	29.8	tan		
800	<= 23.9*	Š		
1000	<= 21.0*	20.0		
1250	<= 17.8*			
1600	<= 17.5*			
2000	<= 19.1*			
2500	<= 17.3*	10.0		
3150	<= 13.5*			
* approaching	or at the limit for measurement			
м	easured, L'nT.w: 42 d	В		
	Criterion. L'nT.w: 57 d	B 0.0		
	Test result: Pas	s 100 2 200 2 200	315 315 500 630 630 630 630 1500 1000	2000 2500 3150
		5	Frequency, Hz	
Sustainable Aco 5 Charlecote Me Winghostor	ustics Ltd ws	Test	ed by: CM	
Hampshire SO23 8SR		Check	ed by: Jank	
ANC Registration Number: 112 Date: 13-Jan-2017				



Standardised impact sound pressure level according to ISO 140-7

Project: Source room:	Bacton Clock C 4F Flat 16, bedroom			Project no: Test number: Test date:	13-0069-0 1125064229 12-Jan-2017
Reciever room:	3F Flat 12, bedroom			Analysis date: Tester:	13-Jan-2017 JS,SR,CM,PT
Test Partition:	Engineered oak flooring 12.5mm fireline plasterk	on resilient layer on 25 board on MF hangers cro	0mm concrete slab, with cei eating 250mm void with 50n	ling below comprising nm mineral wool in vo	one layer of id
		60.0 🖵			
Partition area, m ² :	13.0			.'nT — Weighting	g Curve
Receiving room v	blume, m³: 31.2	50.0			
Frequency, H	z L'nT, dB				
100	44.7				
125	<= 43.1*	40.0			
160	<= 47.4*	F			
200	47.6	, L'			
250	<= 49.0*	evel			
315	51.5	p 30.0			
400	<= 50.4*	dize		1	
500	<= 39.4*	Idai			
630	<= 28.7*	Star			
800	<= 23.7*	20.0			
1000	<= 21.4*	20.0			
1250	<= 19.1*				
1600	<= 14.5*				
2000	<= 13.3*	10.0			
2500	<= 13.3*	10.0			
3150	<= 12.7*				
* approaching	or at the limit for measureme	ent			
м	easured, L'nT,w: 4	2 dB			
(Criterion, L'nT,w: 5	7 dB 0.0 +-	25 + + + + + + + + + + + + + + + + + + +		00
	Test result: F	Pass 9	Freque	125 100 00 125 125 125 125 126	200 250 315
Sustainable Acoustics Ltd Tested by: 5 Charlecote Mews Winchester Winchester Checked by: Hampshire Checked by:					
ANC Registration Number: 112				Jan-2017	



Standardised impact sound pressure level according to ISO 140-7

Project: Source room: Reciever room:	Bacton Clock C 4F Flat 17, living 3F Flat 13, living			Project no: Test number: Test date: Analysis date: Tester:	13-0069-0 1125064230 12-Jan-2017 13-Jan-2017 JS,SR,CM,PT
Test Partition:	Engineered oak floor 12.5mm fireline plast	ing on resilient layer o erboard on MF hange	n 250mm concrete slab, with ce s creating 250mm void with 50	eiling below comprising mm mineral wool in vo	one layer of id
		60.0			
Partition area, m ² :	26	.9	Standardized Level,	L'ni — Weighting	g Curve
Receiving room vo	blume, m ³ : 64	.6 50.0			
Frequency, Ha	z L'nT, dB				
100	44.1				
125	43.5	40.0			
160	47.2	F			
200	48.5	Ľ.			
250	52.5	evel			
315	53.2	ت 30.0 p			
400	51.2	rdize			
500	43.3	nda			
630	34.1	Sta			
800	31.7	20.0			
1000	<= 20.0°				
1200	<= 20.8°				
1600	<= 19.1"				
2000	<= 19.7	10.0			
2000	<= 15.0 <= 15.2*	_000			
* approaching	or at the limit for measure	ement			
approaching					
IVI C	riterion 1 'nT w	43 UB 57 dB			
C C	Test result:	Pass	100 125 160 200 250 250 315 400 500	600 500 500 500 500 500 500 500 500 500	150
	1031163uit.		Frequ	ency, Hz	(M (A) (M)
Sustainable Acoustics Ltd 5 Charlecote Mews Winchester			Tested by:	M	
Hampshire SO23 8SR	Hampshire Checked by: Hampshire SO23 8SR				
ANC Registration Number: 112			Date: 13-Jan-2017		