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Report Number **BTC 15537A**

An acoustic test report covering laboratory sound insulation testing to BS EN ISO 140-3:1995 on a series of partitions incorporating Hill Top Section (HTS) 70mm studs and HTS 50mm studs at 600mm centres with a different board coverings

Test Dates: 10th to 17th December 2007

Customer: **CMH Design and Consultancy Services Limited**
40 Ridgeway
Hixon
Stafford

0296

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The Building Test Centre
Fire Acoustics Structures

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FOREWORD

The test sponsor was CMH Design and Consultancy Services Limited.

The test specimens were installed by Tony Harding and Chris Hobbs between 7th December and 17th December 2007

The Building Test Centre played no role in the design or selection of the materials comprising the test specimen.

REPORT AUTHORISATION

Report Author	Authorised by
Christopher Mutton M.Phys Technologist	**Alexandra Chambers** B.Eng. MIOA *Section Manager*

The Building Test Centre will not discuss the content of this report without written permission from the test sponsor. The Building Test Centre retains ownership of the test report content but authorises the test sponsor to reproduce the report as necessary in its entirety only.

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TEST CONSTRUCTION

15538A

72mm HTS channels fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres. 70mm HTS studs positioned between the head and base channels at 600mm centres with the studs at each end of the aperture fixed at 600mm centres using 25mm Gyproc drywall screws.

Framework clad with a double layer of 12.5mm Gyproc Wallboard (ex. East Leake). Inner layer screw fixed at 300mm centres around the perimeter of each board using 25mm Gyproc Drywall Screws. Outer layer screw fixed at 300mm centres around the perimeter of each board and at intermediate studs using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant

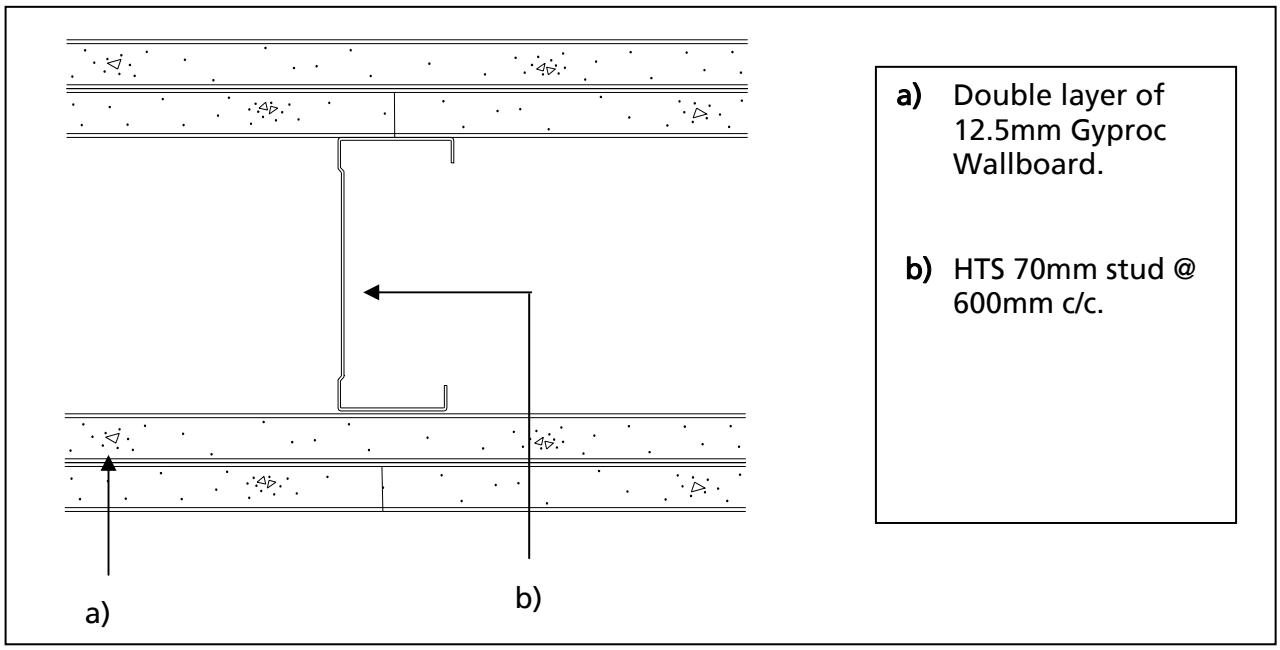

Figure 1 Cross section through partition 15538A

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15540A

The boards on the source room side of the partition were removed and a layer of 30mm insulation slab was placed inside the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant.

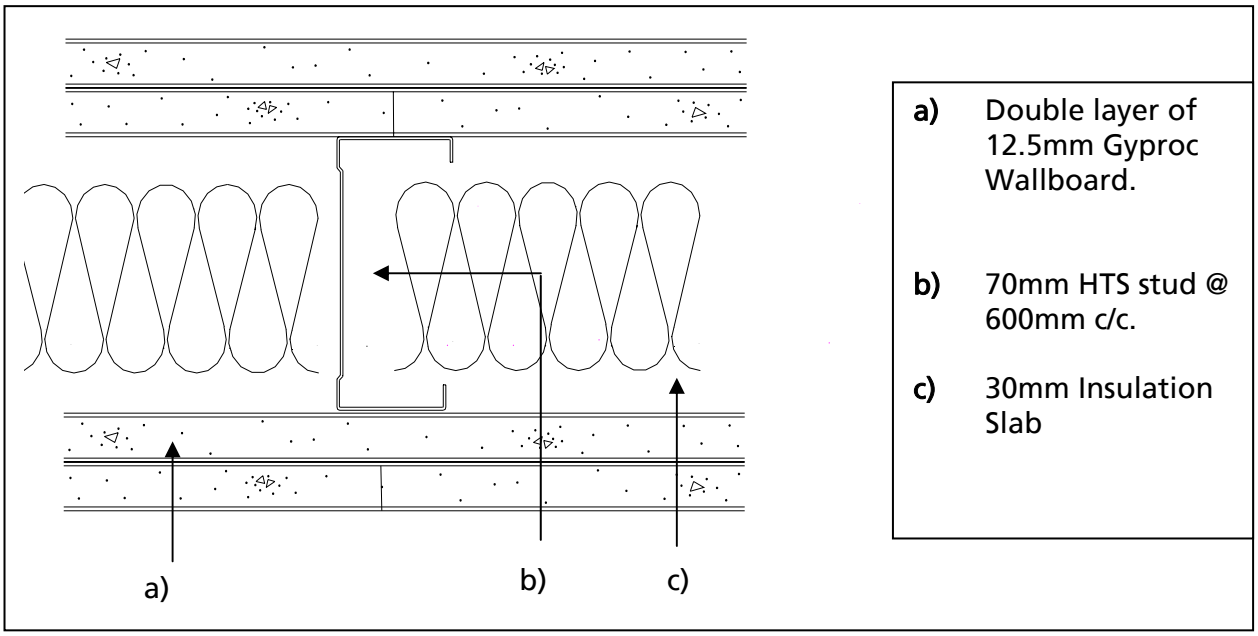

Figure 2 Cross section through partition 15540A

15539A

The outer layer boards were removed from both sides of the partition. All joints and screw heads were taped and the perimeter taped and sealed with Gyproc sealant.

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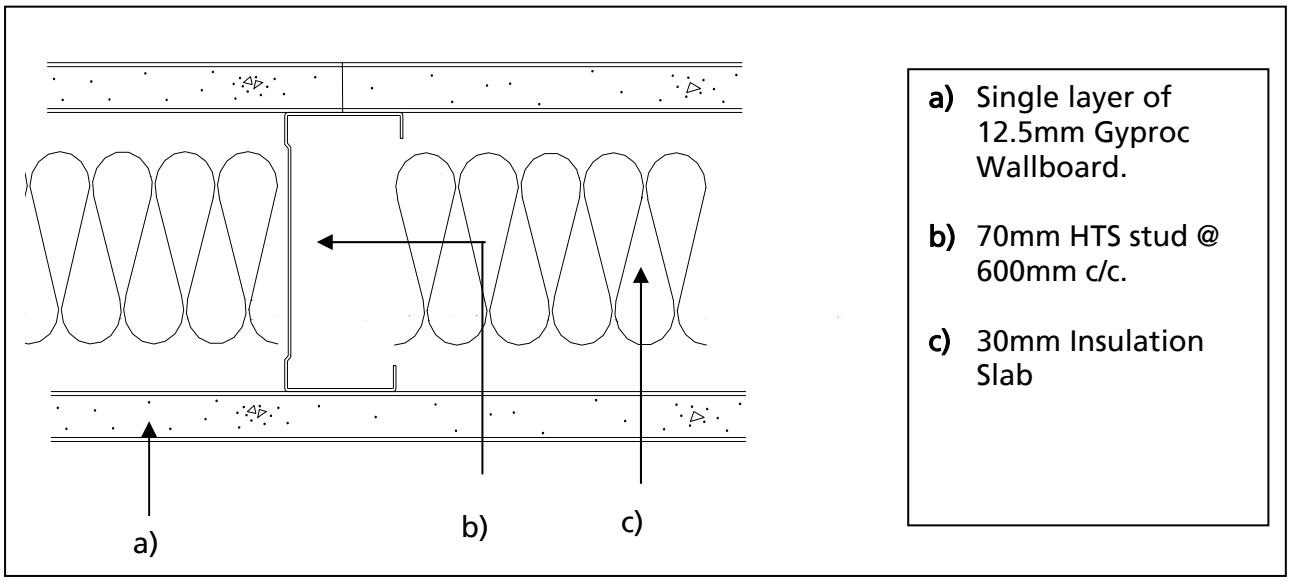

Figure 3 Cross section through partition 15539A

15537A

The boards on the receiving room side of the partition were removed and the 30mm insulation slab was removed from the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant

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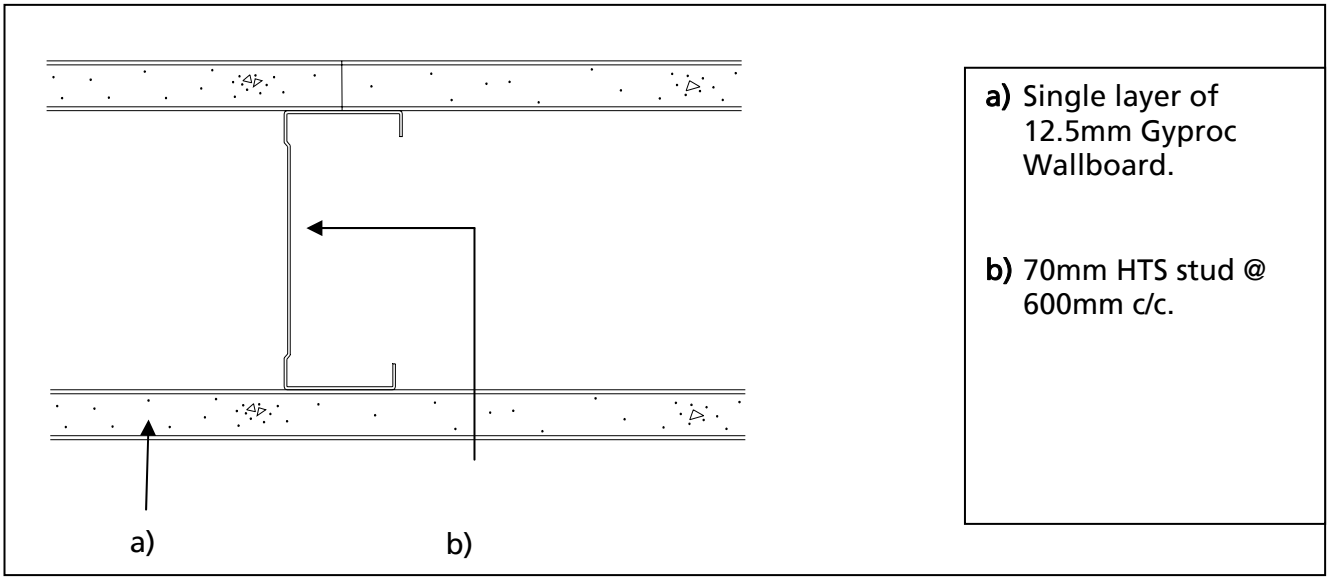

Figure 4 Cross section through partition 15537A

15542A

The boards and the studs were removed from the aperture leaving the channel in place. The studs were replaced with HTS 70mm studs onto which a double layer of 12.5mm Gyproc SoundBloc was screw fixed, using 25mm Gyproc drywall screws for the inner boards and 36mm Gyproc dry wall screws for the outer boards. The joints were staggered between layers and all joints and screw heads were taped. The perimeter was taped and sealed using Gyproc sealant.

15544A

The boards on the source room side of the partition were removed and a layer of 30mm insulation slab was installed within the cavity. The boards were then replaced, the joints and screw heads taped. The perimeter was taped and then sealed using Gyproc sealant.

15543A

The outer layer boards were removed from both sides of the partition, the joints and screw heads taped and the perimeter resealed.

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15541A

The boards on the receiving room side of the partition were removed and the 30mm insulation slab was removed from the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc sealant.

15548A

The boards and the studs were removed from the aperture leaving the channel in place. The studs were replaced with HTS 70mm studs onto which a double layer of 15mm Gyproc SoundBloc was screw fixed, using 25mm Gyproc drywall screws for the inner boards and 36mm Gyproc dry wall screws for the outer boards. The joints were staggered between layers and all joints and screw heads were taped. The perimeter was taped and sealed using Gyproc sealant.

15550A

The boards on the source room side of the partition were removed and a layer of 30mm insulation slab was installed within the cavity. The boards were then replaced, the joints and screw heads taped. The perimeter was taped and then sealed using Gyproc sealant.

15549A

The outer layer boards were removed from both sides of the partition, the joints and screw heads taped and the perimeter resealed.

15547A

The boards on the receiving room side of the partition were removed and the 30mm insulation slab was removed from the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc sealant.

15577A

50mm HTS Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres. HTS 50mm Studs were positioned between the head and base channels at 600mm centres with the studs at each end of the aperture fixed at 600mm centres using 25mm Gyproc drywall screws.

Framework clad with a double layer of 12.5mm Gyproc Wallboard (ex. East Leake). Inner layer screw fixed at 300mm centres around the perimeter of each board using 25mm Gyproc

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Drywall Screws. Outer layer screw fixed at 300mm centres around the perimeter of each board and at intermediate studs using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant

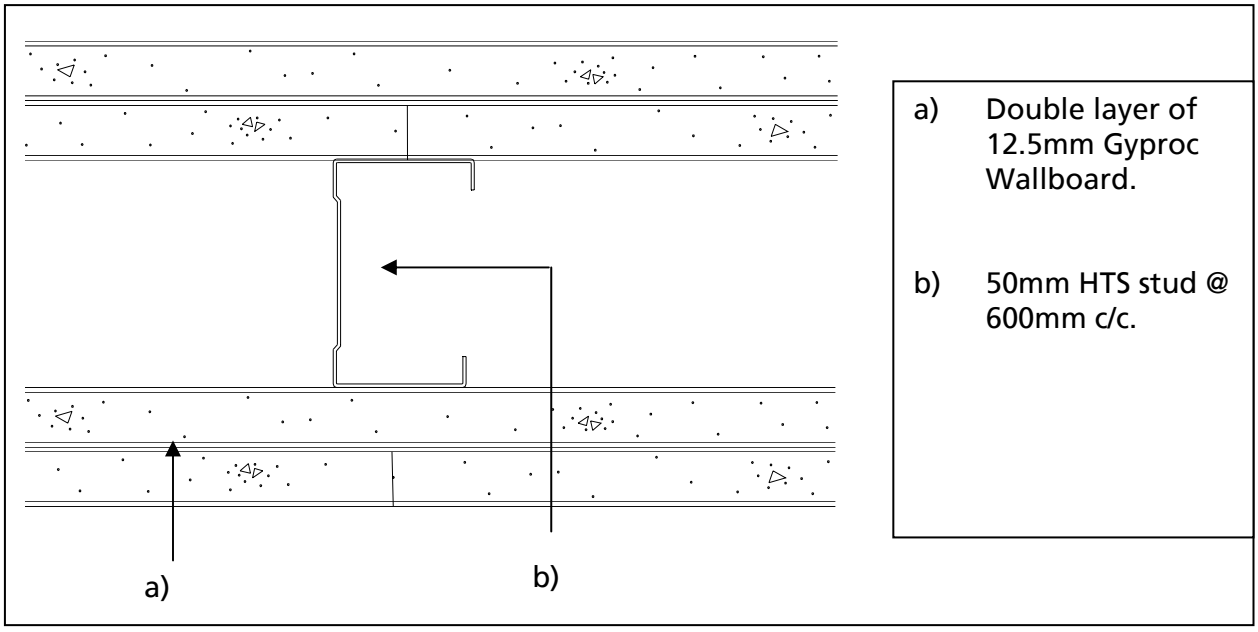

Figure 5 Cross section through partition 15577A

15575A

The boards on the source room side of the partition were removed and a layer of 30mm insulation slab was installed within the cavity. The boards were then replaced, the joints and screw heads taped. The perimeter was taped and then sealed using Gyproc sealant.

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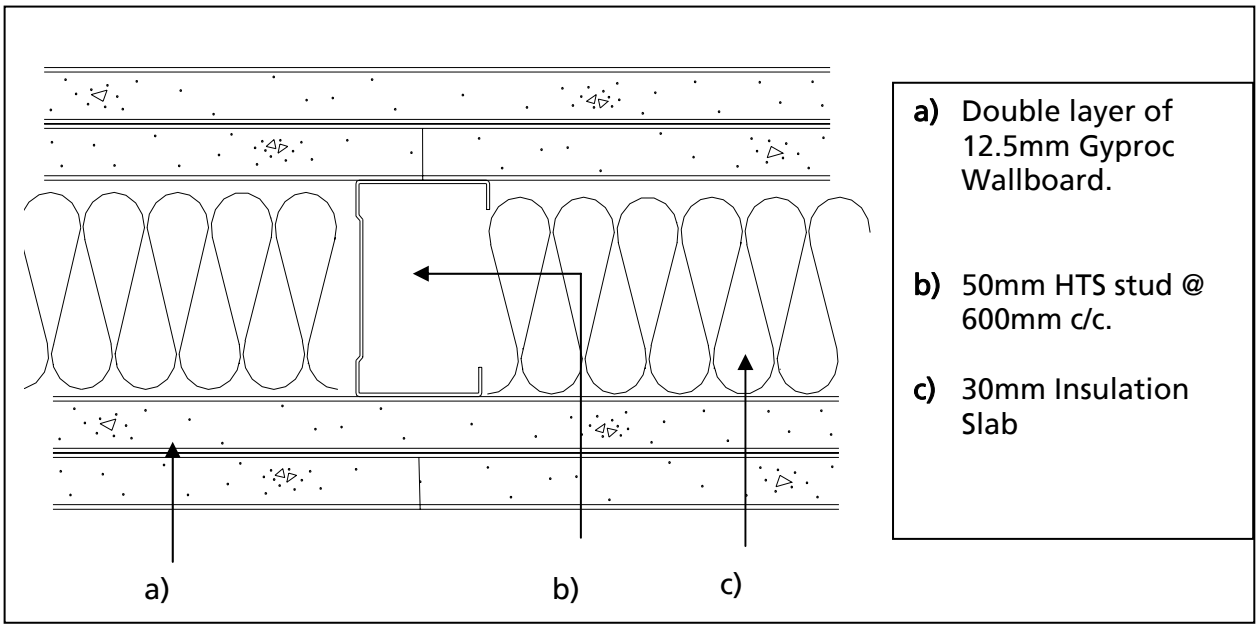

Figure 6 Cross section through partition 15575A

15576A

The outer layer boards were removed from both sides of the partition, the joints and screw heads taped and the perimeter resealed.

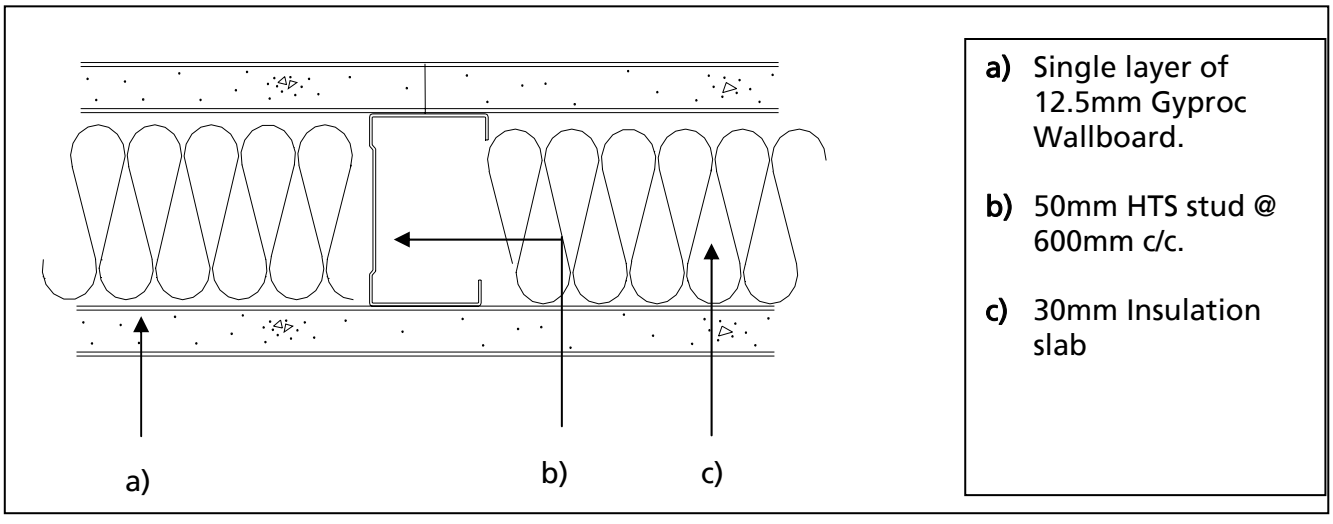

Figure 7 Cross section through partition 15576A

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15578A

The boards on the receiving room side of the partition were removed and the 30mm insulation slab was removed from the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc sealant.

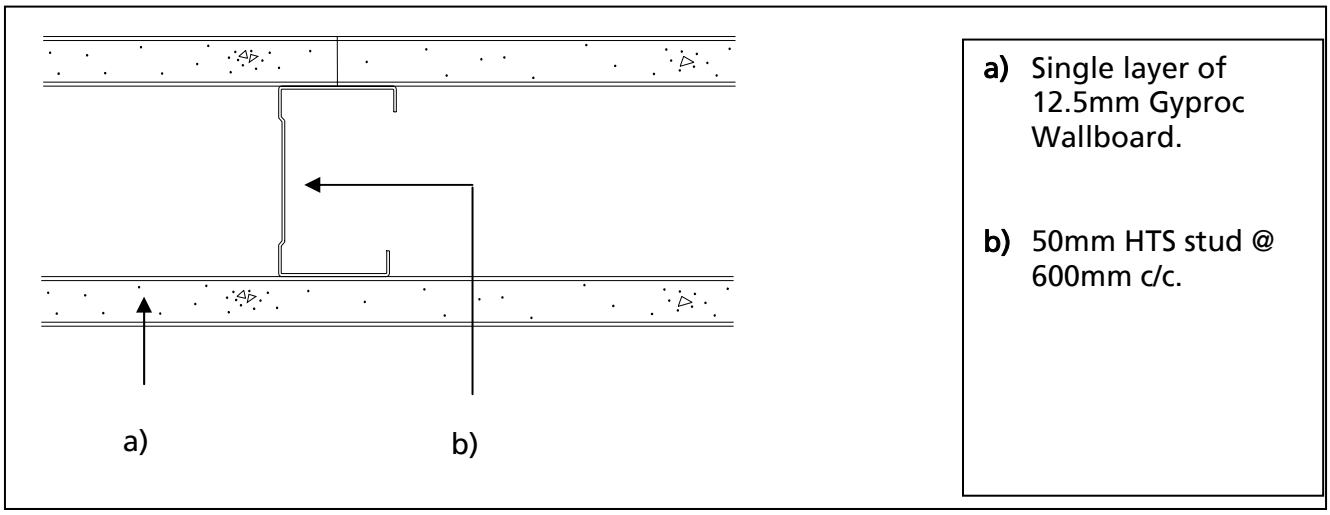

Figure 8 Cross section through partition 15582A

15581A

The boards and the studs were removed from the aperture leaving the channel in place. The studs were replaced with HTS 50mm studs onto which a double layer of 12.5mm Gyproc SoundBloc was screw fixed, using 25mm Gyproc drywall screws for the inner boards and 36mm Gyproc dry wall screws for the outer boards. The joints were staggered between layers and all joints and screw heads were taped. The perimeter was taped and sealed using Gyproc sealant.

15579A

The boards on the source room side of the partition were removed and a layer of 30mm insulation slab was installed within the cavity. The boards were then replaced, the joints and screw heads taped. The perimeter was taped and then sealed using Gyproc sealant.

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15580A

The outer layer boards were removed from both sides of the partition, the joints and screw heads taped and the perimeter resealed.

15582A

The boards on the receiving room side of the partition were removed and the 30mm insulation slab was removed from the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc sealant.

15585A

The boards and the studs were removed from the aperture leaving the channel in place. The studs were replaced with HTS 70mm studs onto which a double layer of 15mm Gyproc SoundBloc was screw fixed, using 25mm Gyproc drywall screws for the inner boards and 36mm Gyproc dry wall screws for the outer boards. The joints were staggered between layers and all joints and screw heads were taped. The perimeter was taped and sealed using Gyproc sealant.

15583A

The boards on the source room side of the partition were removed and a layer of 30mm insulation slab was installed within the cavity. The boards were then replaced, the joints and screw heads taped. The perimeter was taped and then sealed using Gyproc sealant.

15584A

The outer layer boards were removed from both sides of the partition, the joints and screw heads taped and the perimeter resealed.

15586A

The boards on the receiving room side of the partition were removed and the 30mm insulation slab was removed from the cavity. The boards were then replaced and all joints and screw heads were taped. The perimeter taped and sealed with Gyproc sealant.

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15545A

72mm HTS channels fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres. 70mm HTS studs positioned between the head and base channels at 600mm centres with the studs at each end of the aperture fixed at 600mm centres using 25mm Gyproc drywall screws.

Resilient bars were spaced at 400mm centres vertically up each stud on the source room side of the partition. These were screw fixed to each stud using 13mm Gyproc wafer head jack point screws. A layer of 50mm insulation quilt was placed in the cavity.

Framework on the source side of the partition was clad with a double layer of 12.5mm Gyproc Wallboard (ex. East Leake). Inner layer screw fixed at 300mm centres horizontally along each resilient bar using 25mm Gyproc Drywall Screws. Outer layer screw fixed at 300mm centres horizontally along each resilient bar using 36mm Gyproc drywall screws.

The boards on the receiving room side of the partition were clad with a double layer of 12.5mm Gyproc Wallboard (ex. East Leake). Inner layer screw fixed at 300mm centres around the perimeter of each board using 25mm Gyproc Drywall Screws. Outer layer screw fixed at 300mm centres around the perimeter of each board and at intermediate studs using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant

15546A

The boards on the receiving room side of the partition were removed and resilient bars were spaced at 400mm centres vertically up each stud. These were screw fixed to each stud using 13mm Gyproc wafer head jack point screws.

The boards from the receiving room side of the partition were then replaced. Inner layer screw fixed at 300mm centres horizontally along each resilient bar using 25mm Gyproc Drywall Screws. Outer layer screw fixed at 300mm centres horizontally along each resilient bar using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant

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15552A

The boards on both sides of the partition were removed and replaced with 15mm SoundBloc (ex East Leake) and screw fixed to the resilient bars at 300mm centres horizontally and at 400mm centres vertically. Inner layer screw fixed at 300mm centres horizontally along each resilient bar using 25mm Gyproc Drywall Screws. Outer layer screw fixed at 300mm centres horizontally along each resilient bar using 36mm Gyproc drywall screws.

15551A

The boards on the receiving room side of the partition were removed and the resilient bars removed from the frame then the boards were replaced. Inner layer screw fixed at 300mm centres horizontally along each resilient bar using 25mm Gyproc Drywall Screws. Outer layer screw fixed at 300mm centres horizontally along each resilient bar using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints and screw heads were taped. The perimeter taped and sealed with Gyproc Sealant

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TEST MATERIALS

Plasterboard

I) Nominally 2400mm (long) x 1200mm (wide) x 12.5mm (thick) Gyproc WallBoard manufactured by British Gypsum Limited, ex East Leake.

Surface density:	8.04kg/m^2
Average thickness:	12.65mm
Board Code:	16 301 7 15:31

II) Nominally 2400mm (long) x 1200mm (wide) x 12.5mm (thick) Gyproc SoundBloc manufactured by British Gypsum Limited, ex East Leake.

Surface density:	10.87kg/m^2
Average thickness:	12.66mm
Board Code:	16 337 7 23:22

III) Nominally 2400mm (long) x 1200mm (wide) x 15mm (thick) Gyproc SoundBloc manufactured by British Gypsum Limited, ex East Leake.

Surface density:	12.81kg/m^2
Average thickness:	15.031mm
Board Code:	16 318 7 18:59

Metal Components

I) 70mm HTS Stud
II) 72mm HTS Channel
III) 50mm HTS Stud
IV) 52mm HTS Channel
V) 15mm HTS resilient bar

All metal components are supplied by Hilltop Systems.

Fasteners

I) 25mm Gyproc drywall screws
II) 36mm Gyproc drywall screws

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III) 13mm Gyproc wafer head jack point screws

All fasteners supplied by British Gypsum Limited

Insulation

I) Nominally 30mm thick RockSilk Insulation Slab (RS45)

Surface Density 1.25kg/m^2

II) Nominally 50mm thick Acoustic partition roll insulation quilt

Surface density 078kg/m^2

Insulation manufactured by Knauf Insulation

Miscellaneous Components

I) Gyproc Sealant supplied by British Gypsum Limited
II) Join Tape supplied by British Gypsum Limited

Where measurements could not be taken, then weight and dimensions were provided by the customer or the manufacturer e.g. from material labelling. Material information was recorded according to procedure MAT/1.

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TEST RESULTS

Test code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H15537A	Single layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 70mm metal stud frame	36 (-3;-9) dB
H15538A	Double layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 70mm metal stud frame	44 (-3;-9) dB
H15539A	Single layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 70mm metal stud frame and 30mm insulation slab in the cavity	42 (-4;-12) dB
H15540A	Double layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 70mm metal stud frame and 30mm insulation slab in the cavity	50 (-3;-9) dB
H15541A	Single layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame	40 (-3;-9) dB
H15542A	Double layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame	50 (-2;-7) dB
H15543A	Single layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame and 30mm insulation slab in the cavity	46 (-3;-9) dB
H15544A	Double layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame and 30mm insulation slab in the cavity	54 (-2;-7) dB
H15545A	Double layer 12.5mm SoundBloc (ex East Leake) on a 70mm metal stud frame with a resilient bar on the source room side and 50mm insulation quilt in the cavity	57 (-2;-7) dB
H15546A	Double layer 12.5mm SoundBloc (ex East Leake) on a 70mm metal stud frame with a resilient bar on each side of the partition and 50mm insulation quilt in the cavity	60 (-3;-8) dB
H15547A	Single layer of 15mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame	42 (-4;-11) dB

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Test code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H15548A	Double layer of 15mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame	51 (-3;-8) dB
H15549A	Single layer of 15mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame and 30mm insulation slab in the cavity	47 (-3;-10) dB
H15550A	Double layer of 15mm Gyproc SoundBloc (ex East Leake) on a 70mm metal stud frame and 30mm insulation slab in the cavity	55 (-2;-8) dB
H15551A	Double layer 15mm SoundBloc (ex East Leake) on a 70mm metal stud frame with a resilient bar on the source room side and 50mm insulation quilt in the cavity	58 (-3;-8) dB
H15552A	Double layer 15mm SoundBloc (ex East Leake) on a 70mm metal stud frame with a resilient bar on each side of the partition and 50mm insulation quilt in the cavity	63 (-2;-7) dB
H15575A	Double layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 50mm metal stud frame and 30mm insulation slab in the cavity	47 (-3;-11) dB
H15576A	Single layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 50mm metal stud frame and 30mm insulation slab in the cavity	39 (-3;-9) dB
H15577A	Double layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 50mm metal stud frame	42 (-4;-10) dB
H15578A	Single layer of 12.5mm Gyproc WallBoard (ex East Leake) on a 50mm metal stud frame	35 (-2;-7) dB
H15579A	Double layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame and 30mm insulation slab in the cavity	53 (-2;-8) dB
H15580A	Single layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame and 30mm insulation slab in the cavity	44 (-4;-11) dB

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Test code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H15581A	Double layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame	46 (-3;-9) dB
H15582A	Single layer of 12.5mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame	38 (-3;-9) dB
H15583A	Double layer of 15mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame and 30mm insulation slab in the cavity	53 (-3;-10) dB
H15584A	Single layer of 15mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame and 30mm insulation slab in the cavity	44 (-4;-12) dB
H15585A	Double layer of 15mm Gyproc SoundBloc (ex East Leake) on a 50mm metal stud frame	48 (-3;-9) dB
H15586A	Single layer of 15mm Gyproc SoundBloc d (ex East Leake) on a 50mm metal stud frame	40 (-2;-9) dB

For full test data see Appendix A of this report.

Test conducted in accordance with BS EN ISO 140-3: 1995 except for Clause F.2 where minimum distances for measurements at frequencies under 100Hz can not be met.

Rated in accordance with BS EN ISO 717-1: 1997

TEST PROCEDURE

The test specimen (3.6 m x 2.4 m) was constructed in a wall dividing two reverberant rooms of approximately 98m^3 and 62m^3. The accuracy of the test method conforms to BS EN 20140-2:1993, the test procedure used is detailed in the test data in Appendix A of this report. Broad-band white noise was used to measure the level differences and broad-band pink noise was used to measure the reverberation times. Third octave band pass filters were used in real time mode. See appendix B for further information.

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LIMITATIONS

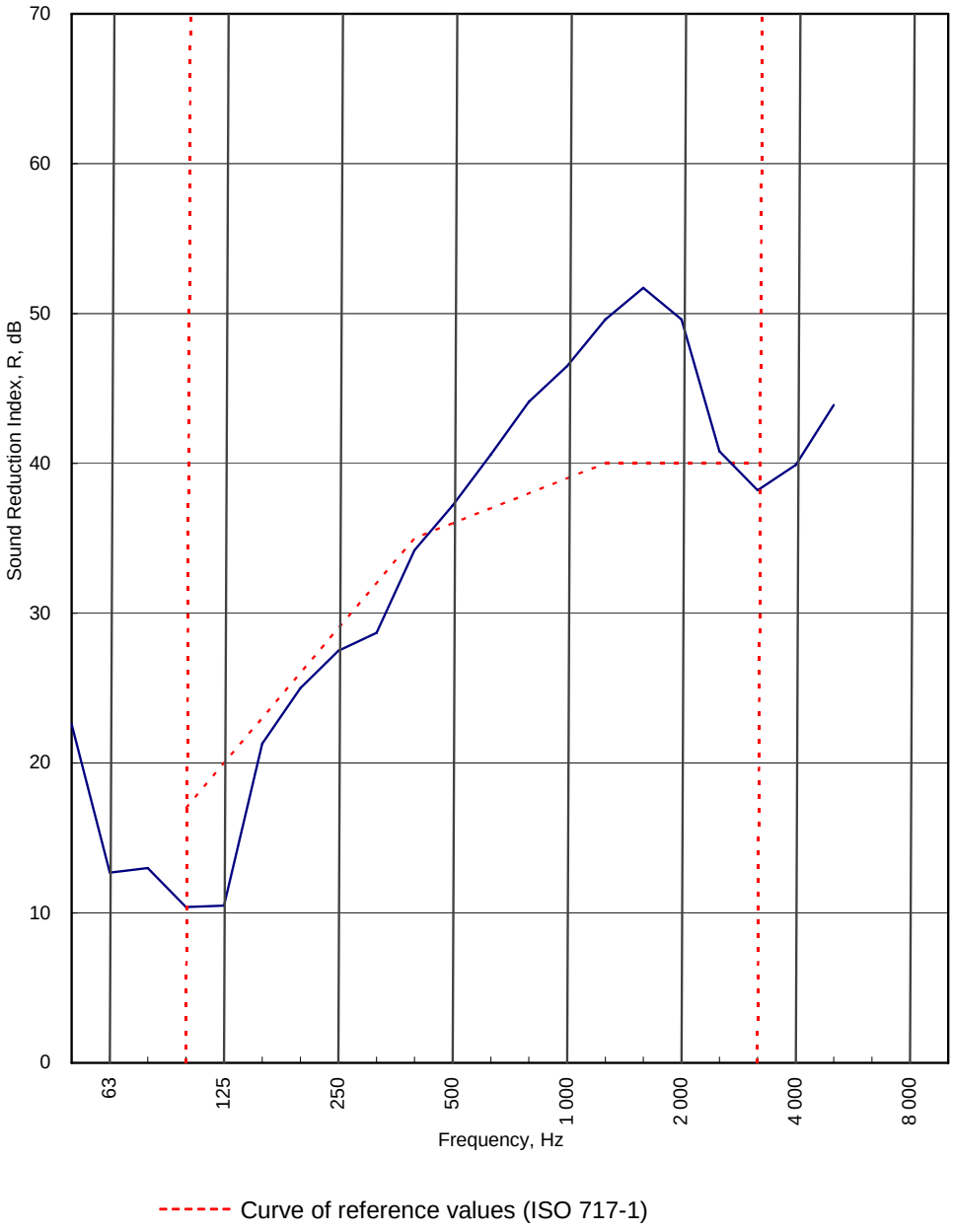
The results only relate to the behaviour of the element of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential acoustic performance of the element in use nor do they reflect the actual behaviour.

The specification and interpretation of test methods are subject to ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

APPENDIX A- TEST DATA

Test Code:
H15537AA
Test Date:
10/12/07

Freq. Hz	R dB
50	22.6
63	12.7
80	13.0
100	10.4
125	10.5
160	21.3
200	25.0
250	27.5
315	28.7
400	34.2
500	37.2
630	40.6
800	44.1
1 000	46.5
1 250	49.6
1 600	51.7
2 000	49.6
2 500	40.8
3 150	38.2
4 000	39.9
5 000	43.9
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 36 (-3;-9) dB**		
	Max dev. 9.5 dB at 125 Hz		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-3 dB**	$C_{50\text{-}5000}$= **-3 dB**	$C_{100\text{-}5000}$= **-2 dB**
	$C_{tr,50\text{-}3150}$= **-11 dB**	$C_{tr,50\text{-}5000}$= **-11 dB**	$C_{tr,100\text{-}5000}$= **-9 dB**

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15537AA** Test Date: **10/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.18**
Temperature, deg.C:	**14.7**	**14.9**
Rel. Humidity, %RH:	**50.2**	**50.2**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.7	38.4	18.4	38.4	0.95	-0.7	**22.6**		
63	64.7	52.0	14.5	52.0	1.12	0.0	**12.7**		14.4
80	71.4	58.4	11.7	58.4	1.12	0.0	**13.0**		
100	82.3	70.4	31.6	70.4	0.78	-1.5	**10.4**	6.6	
125	102.3	90.7	15.3	90.7	0.86	-1.1	**10.5**	9.5	12.0
160	88.6	66.9	9.8	66.9	1.02	-0.4	**21.3**	1.7	
200	94.8	69.9	23.2	69.9	1.15	0.1	**25.0**	1.0	
250	96.4	69.9	9.3	69.9	1.39	1.0	**27.5**	1.5	26.8
315	96.6	69.0	12.7	69.0	1.42	1.1	**28.7**	3.3	
400	95.2	61.7	25.0	61.7	1.30	0.7	**34.2**	0.8	
500	93.3	56.9	10.5	56.9	1.34	0.8	**37.2**		36.6
630	92.3	52.9	5.4	52.9	1.46	1.2	**40.6**		
800	92.7	50.1	5.8	50.1	1.59	1.5	**44.1**		
1 000	92.3	47.2	6.7	47.2	1.55	1.4	**46.5**		46.2
1 250	93.4	44.9	10.0	44.9	1.45	1.1	**49.6**		
1 600	96.1	45.7	3.4	45.7	1.50	1.3	**51.7**		
2 000	97.7	49.1	3.3	49.1	1.41	1.0	**49.6**		44.7
2 500	96.1	55.7	2.9	55.7	1.22	0.4	**40.8**		
3 150	95.3	57.5	4.3	57.5	1.23	0.4	**38.2**	1.8	
4 000	97.3	57.6	4.8	57.6	1.16	0.2	**39.9**		40.1
5 000	101.1	57.0	6.9	57.0	1.06	-0.2	**43.9**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**26.2**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	36	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
	(50-3150)	**-3**	**-11**		
	(50-5000)	**-3**	**-11**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

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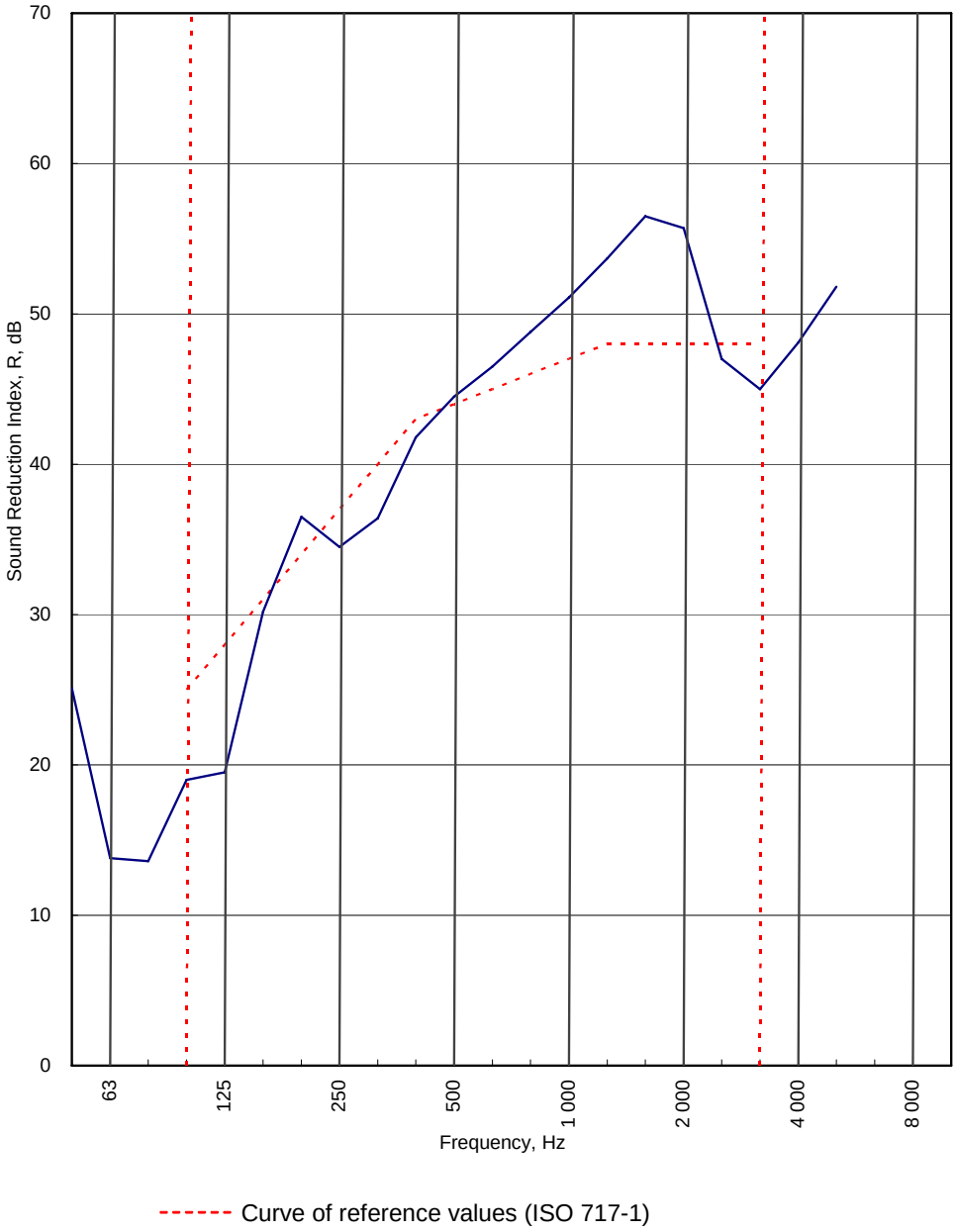
Test Code:
H15538AA
Test Date:
10/12/07

Freq. Hz	R dB
50	25.1
63	13.8
80	13.6
100	19.0
125	19.5
160	30.2
200	36.5
250	34.5
315	36.4
400	41.8
500	44.5
630	46.5
800	48.8
1 000	51.1
1 250	53.7
1 600	56.5
2 000	55.7
2 500	47.0
3 150	45.0
4 000	48.1
5 000	51.8
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 44 (-3;-9) dB

Max dev. 8.5 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-4 dB** $C_{50\text{-}5000}$= **-3 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-13 dB** $C_{tr,50\text{-}5000}$= **-13 dB** $C_{tr,100\text{-}5000}$: **-9 dB**

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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15538AA** Test Date: **10/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.96**
Temperature, deg.C:	**14.1**	**14.6**
Rel. Humidity, %RH:	**52.2**	**51**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.3	34.6	27.0	**33.8**	0.64	-2.4	**25.1**		
63	63.4	48.9	20.4	48.9	0.95	-0.7	**13.8**		15.3
80	70.4	55.6	9.2	55.6	0.84	-1.2	**13.6**		
100	82.7	62.9	21.4	62.9	0.92	-0.8	**19.0**	6.0	
125	101.9	81.6	14.7	81.6	0.93	-0.8	**19.5**	8.5	20.8
160	87.7	57.7	19.2	57.7	1.16	0.2	**30.2**	0.8	
200	93.6	58.2	29.3	58.2	1.44	1.1	**36.5**		
250	95.4	61.9	14.1	61.9	1.41	1.0	**34.5**	2.5	35.7
315	95.5	60.4	17.7	60.4	1.49	1.3	**36.4**	3.6	
400	94.5	53.6	28.6	53.6	1.36	0.9	**41.8**	1.2	
500	92.3	49.0	12.1	49.0	1.48	1.2	**44.5**		43.8
630	91.3	46.2	10.3	46.2	1.53	1.4	**46.5**		
800	91.8	44.4	5.5	44.4	1.55	1.4	**48.8**		
1 000	91.3	41.9	6.9	41.9	1.64	1.7	**51.1**		50.8
1 250	92.6	40.5	8.4	40.5	1.59	1.6	**53.7**		
1 600	95.3	40.4	3.8	40.4	1.59	1.6	**56.5**		
2 000	97.0	42.7	3.9	42.7	1.55	1.4	**55.7**		50.8
2 500	95.3	49.1	3.3	49.1	1.33	0.8	**47.0**	1.0	
3 150	94.5	50.0	4.6	50.0	1.26	0.5	**45.0**	3.0	
4 000	96.6	48.9	5.2	48.9	1.21	0.4	**48.1**		47.5
5 000	100.5	48.8	7.1	48.8	1.14	0.1	**51.8**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**26.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	44	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
Background Corrected					
	(50-3150)	**-4**	**-13**		
	(50-5000)	**-3**	**-13**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

Customer: **CMH Design and Consultancy Services Limited**

UKAS TESTING

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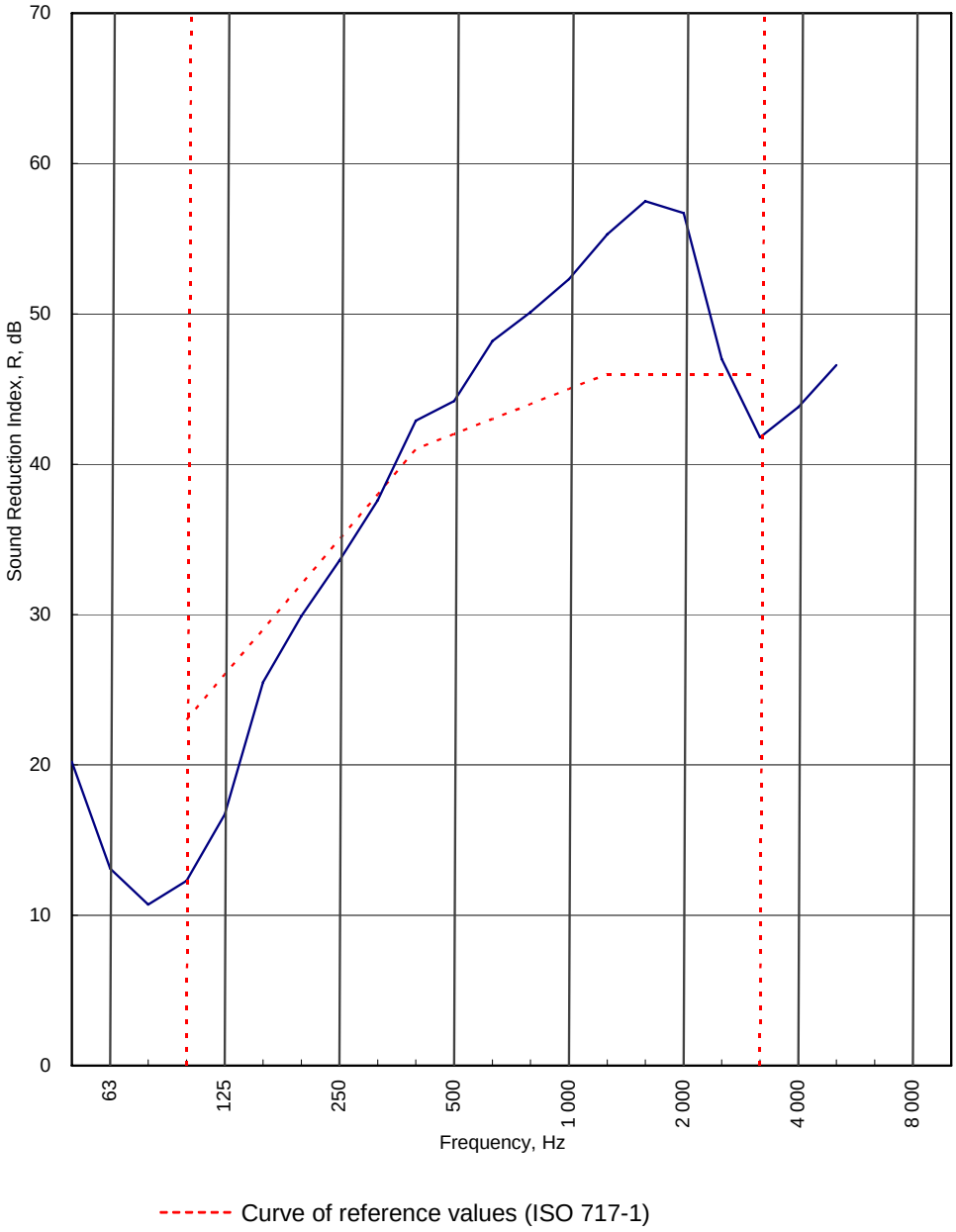
Test Code:
H15539AA
Test Date:
10/12/07

Freq. Hz	R dB
50	20.2
63	13.1
80	10.7
100	12.3
125	16.7
160	25.5
200	29.9
250	33.6
315	37.6
400	42.9
500	44.2
630	48.2
800	50.1
1 000	52.3
1 250	55.3
1 600	57.5
2 000	56.7
2 500	47.0
3 150	41.8
4 000	43.8
5 000	46.6
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 42 (-4;-12) dB

Max dev. 10.7 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-6 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-4 dB**

$C_{tr,50\text{-}3150}$= **-15 dB** $C_{tr,50\text{-}5000}$= **-15 dB** $C_{tr,100\text{-}5000}$: **-12 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15539AA** Test Date: **10/12/07**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2	Room Volume, m^3:	**98**	**60.18**
		Temperature, deg.C:	**14.6**	**15**
		Rel. Humidity, %RH:	**51**	**48.4**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	62.9	39.2	12.7	39.2	**0.50**	-3.5	**20.2**		
63	64.6	51.8	13.0	51.8	**1.20**	0.3	**13.1**		13.2
80	70.2	58.1	9.1	58.1	0.81	-1.4	**10.7**		
100	81.8	68.5	28.4	68.5	0.88	-1.0	**12.3**	10.7	
125	102.1	84.2	11.8	84.2	0.85	-1.2	**16.7**	9.3	15.6
160	88.4	63.1	7.4	63.1	1.17	0.2	**25.5**	3.5	
200	94.3	65.1	21.5	65.1	1.30	0.7	**29.9**	2.1	
250	96.3	63.8	9.2	63.8	1.45	1.1	**33.6**	1.4	32.6
315	96.5	60.2	12.2	60.2	1.49	1.3	**37.6**	0.4	
400	95.0	53.2	26.0	53.2	1.43	1.1	**42.9**		
500	93.1	49.8	11.4	49.8	1.38	0.9	**44.2**		44.6
630	92.2	45.2	5.6	45.2	1.46	1.2	**48.2**		
800	92.9	44.1	6.4	44.1	1.52	1.3	**50.1**		
1 000	92.2	41.2	5.1	41.2	1.52	1.3	**52.3**		52.1
1 250	93.3	39.1	6.6	39.1	1.44	1.1	**55.3**		
1 600	96.1	40.0	3.1	40.0	1.54	1.4	**57.5**		
2 000	97.8	42.2	3.3	42.2	1.45	1.1	**56.7**		51.0
2 500	96.1	49.6	2.8	49.6	1.25	0.5	**47.0**		
3 150	95.3	53.9	4.1	53.9	1.21	0.4	**41.8**	4.2	
4 000	97.3	53.7	4.7	53.7	1.18	0.2	**43.8**		43.6
5 000	101.0	54.3	6.7	54.3	1.10	-0.1	**46.6**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**31.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	42	**-4**	**-12**		
	(100-5000)	**-4**	**-12**		
	(50-3150)	**-6**	**-15**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-5**	**-15**	Worksheet: 140_3_1.XLS	

UKAS TESTING
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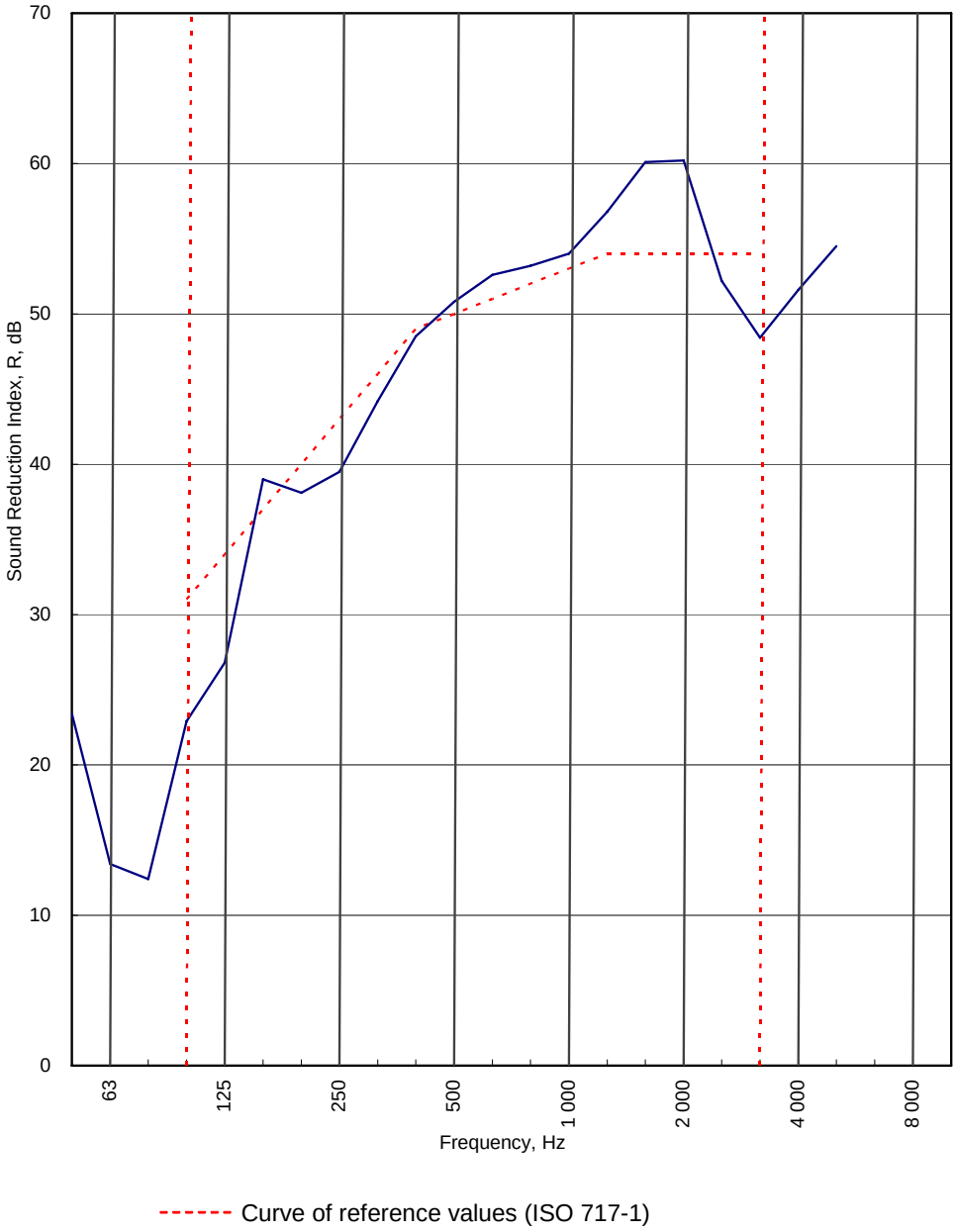
Test Code:
H15540AA
Test Date:
10/12/07

Freq. Hz	R dB
50	23.4
63	13.4
80	12.4
100	22.9
125	26.8
160	39.0
200	38.1
250	39.5
315	44.2
400	48.5
500	50.8
630	52.6
800	53.2
1 000	54.0
1 250	56.8
1 600	60.1
2 000	60.2
2 500	52.2
3 150	48.4
4 000	51.6
5 000	54.5
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 50 (-3;-9) dB**		
	Max dev. 8.1 dB at 100 Hz		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-8 dB**	$C_{50\text{-}5000}$= **-7 dB**	$C_{100\text{-}5000}$= **-2 dB**
	$C_{tr,50\text{-}3150}$= **-19 dB**	$C_{tr,50\text{-}5000}$= **-19 dB**	$C_{tr,100\text{-}5000}$: **-9 dB**

UKAS TESTING
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Customer: **CMH Design and Consultancy Services Limited**

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15540AA** Test Date: **10/12/07**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2		
	Room Volume, m^3:	**98**	**59.96**
	Temperature, deg.C:	**14.5**	**14.4**
	Rel. Humidity, %RH:	**50.5**	**51.2**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	62.1	36.5	23.3	**36.3**	0.64	-2.4	**23.4**		
63	63.9	49.2	20.2	49.2	0.83	-1.3	**13.4**		14.4
80	69.9	55.3	15.9	55.3	0.67	-2.2	**12.4**		
100	83.3	59.9	22.1	59.9	0.98	-0.5	**22.9**	8.1	
125	102.4	75.0	10.9	75.0	0.97	-0.6	**26.8**	7.2	26.1
160	88.7	50.2	11.2	50.2	1.24	0.5	**39.0**		
200	94.2	56.9	22.3	56.9	1.35	0.8	**38.1**	1.9	
250	96.4	58.2	9.6	58.2	1.49	1.3	**39.5**	3.5	39.9
315	96.6	53.4	16.8	53.4	1.40	1.0	**44.2**	1.8	
400	95.2	47.5	26.5	47.5	1.33	0.8	**48.5**	0.5	
500	93.2	43.5	11.3	43.5	1.42	1.1	**50.8**		50.3
630	92.1	40.9	8.7	40.9	1.55	1.4	**52.6**		
800	92.7	41.1	6.5	41.1	1.61	1.6	**53.2**		
1 000	92.2	39.6	5.3	39.6	1.54	1.4	**54.0**		54.4
1 250	93.1	37.8	5.8	37.8	1.57	1.5	**56.8**		
1 600	96.1	37.7	3.6	37.7	1.64	1.7	**60.1**		
2 000	97.8	39.0	3.0	39.0	1.53	1.4	**60.2**		55.8
2 500	96.0	44.6	2.9	44.6	1.34	0.8	**52.2**	1.8	
3 150	95.2	47.4	4.2	47.4	1.28	0.6	**48.4**	5.6	
4 000	97.3	46.2	4.7	46.2	1.24	0.5	**51.6**		50.8
5 000	101.1	46.7	6.7	46.7	1.13	0.1	**54.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**30.4**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	50	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
Background Corrected					
	(50-3150)	**-8**	**-19**		
	(50-5000)	**-7**	**-19**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

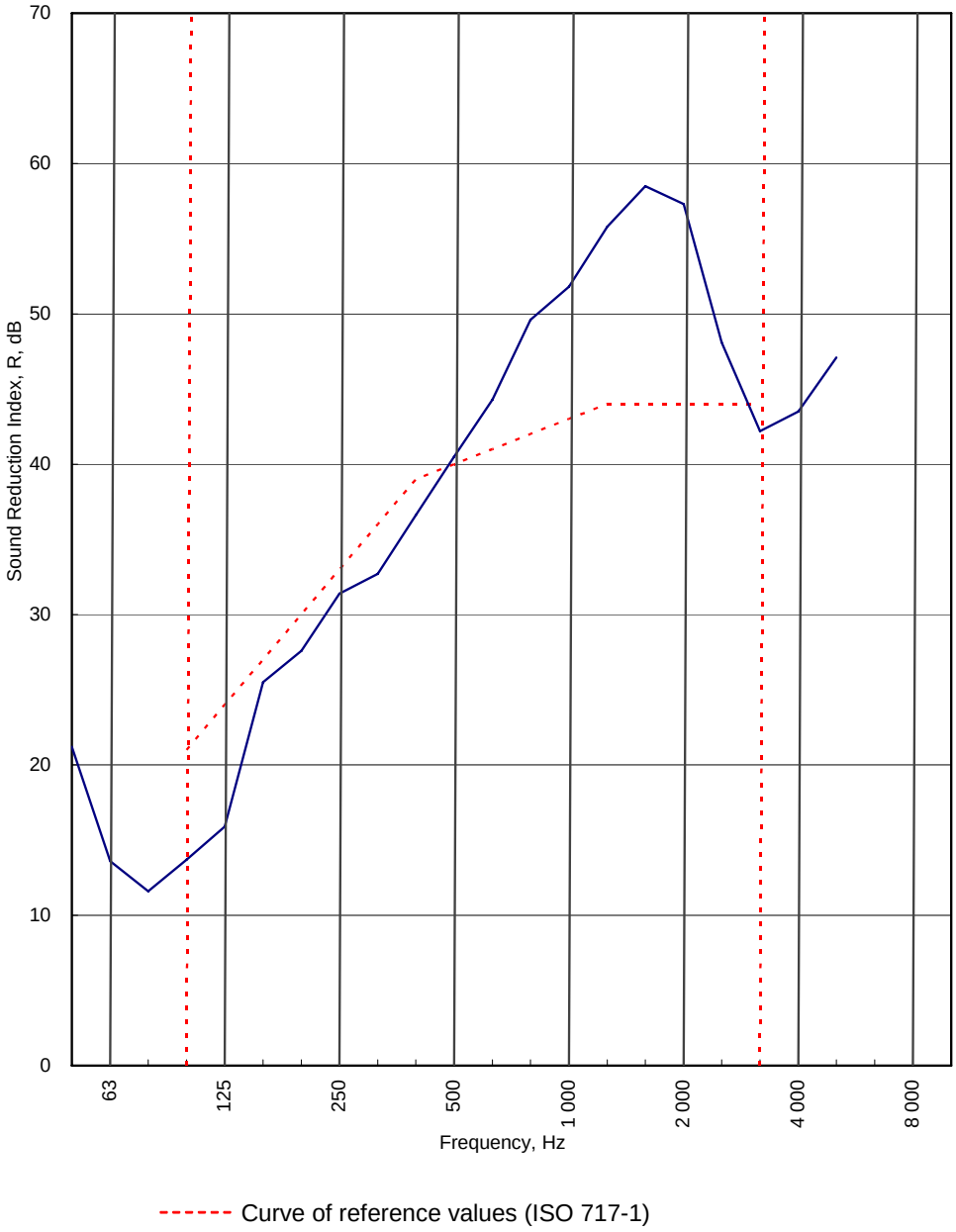
Customer: **CMH Design and Consultancy Services Limited**

UKAS TESTING

0296

Test Code:
H15541AA
Test Date:
11/12/07

Freq. Hz	R dB
50	21.2
63	13.6
80	11.6
100	13.7
125	15.9
160	25.5
200	27.6
250	31.4
315	32.7
400	36.6
500	40.5
630	44.3
800	49.6
1 000	51.8
1 250	55.8
1 600	58.5
2 000	57.3
2 500	48.1
3 150	42.2
4 000	43.5
5 000	47.1
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 40 (-3;-9) dB

Max dev. 8.1 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-4 dB** $C_{50\text{-}5000}$= **-3 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-12 dB** $C_{tr,50\text{-}5000}$= **-12 dB** $C_{tr,100\text{-}5000}$= **-9 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15541AA** Test Date: **11/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.18**
Temperature, deg.C:	**14.4**	**14.4**
Rel. Humidity, %RH:	**45.4**	**43.9**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	62.2	38.8	17.2	38.8	0.67	-2.2	**21.2**		
63	64.5	50.4	13.7	50.4	1.00	-0.5	**13.6**		14.0
80	70.0	59.1	8.2	59.1	**1.32**	0.7	**11.6**		
100	83.2	68.0	19.8	68.0	**0.79**	-1.5	**13.7**	7.3	
125	82.6	65.2	7.0	65.2	0.79	-1.5	**15.9**	8.1	16.2
160	88.0	62.4	6.4	62.4	1.10	-0.1	**25.5**	1.5	
200	93.8	67.1	18.4	67.1	1.38	0.9	**27.6**	2.4	
250	96.5	66.5	8.1	66.5	1.54	1.4	**31.4**	1.6	30.0
315	96.2	64.5	12.9	64.5	1.39	1.0	**32.7**	3.3	
400	95.1	59.0	24.6	59.0	1.26	0.5	**36.6**	2.4	
500	93.1	53.5	11.9	53.5	1.36	0.9	**40.5**		39.4
630	92.2	49.1	5.9	49.1	1.47	1.2	**44.3**		
800	92.9	44.7	5.5	44.7	1.54	1.4	**49.6**		
1 000	92.3	41.7	4.8	41.7	1.47	1.2	**51.8**		51.7
1 250	93.4	38.7	7.9	38.7	1.43	1.1	**55.8**		
1 600	96.3	39.0	4.2	39.0	1.46	1.2	**58.5**		
2 000	97.7	41.4	3.4	41.4	1.39	1.0	**57.3**		52.0
2 500	96.2	48.6	3.3	48.6	1.24	0.5	**48.1**		
3 150	95.3	53.3	4.4	53.3	1.17	0.2	**42.2**	1.8	
4 000	97.0	53.6	4.8	53.6	1.14	0.1	**43.5**		43.8
5 000	100.9	53.5	6.8	53.5	1.05	-0.3	**47.1**		
6 300									
8 000									
10 000									

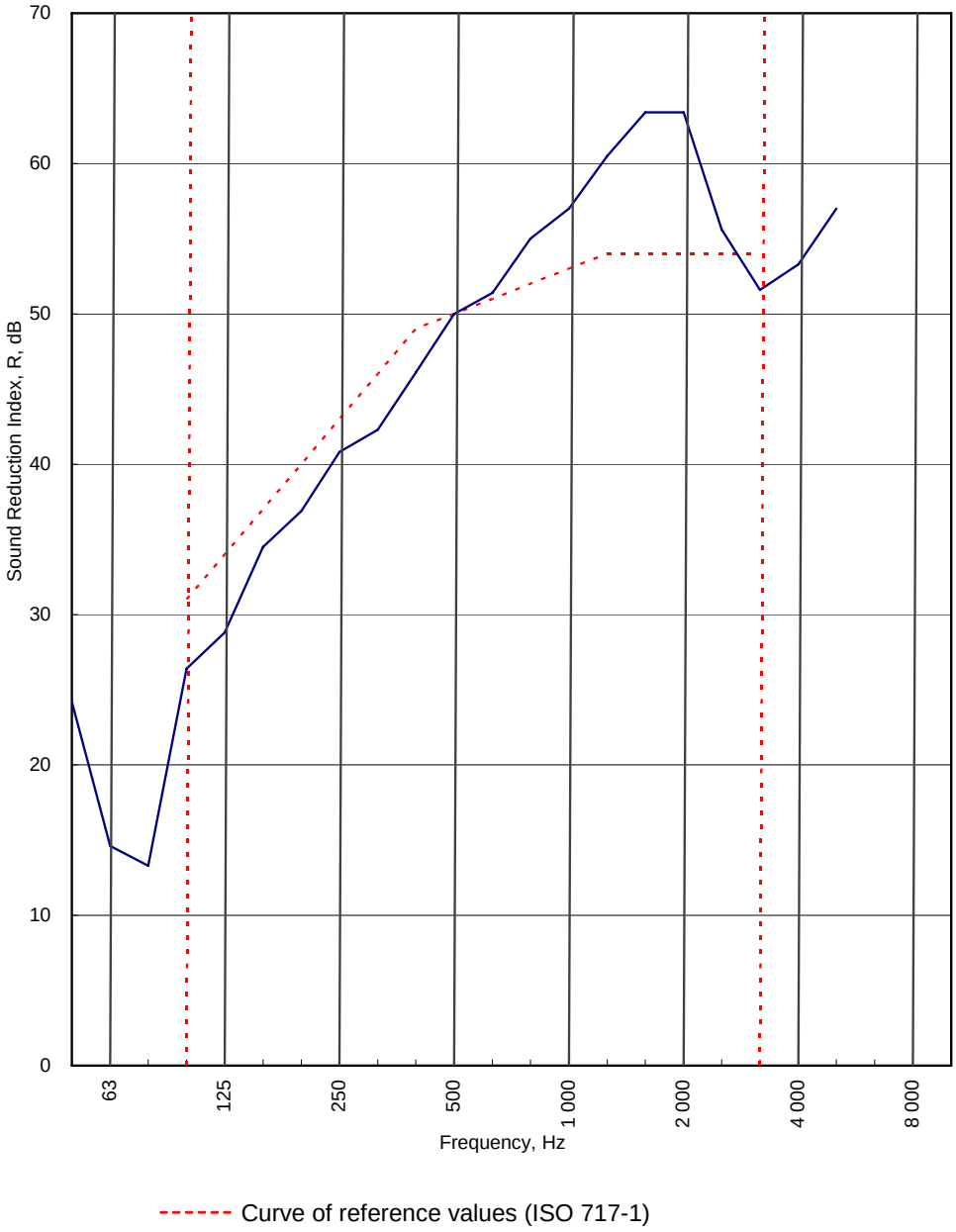
Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28.4**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	40	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
	(50-3150)	**-4**	**-12**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-3**	**-12**	Worksheet: 140_3_1.XLS	

Customer: **CMH Design and Consultancy Services Limited**

UKAS TESTING 0296

Test Code:
H15542AA
Test Date:
10/12/07

Freq. Hz	R dB
50	24.2
63	14.6
80	13.3
100	26.4
125	28.8
160	34.5
200	36.9
250	40.8
315	42.3
400	46.1
500	50.0
630	51.4
800	55.0
1 000	57.0
1 250	60.5
1 600	63.4
2 000	63.4
2 500	55.6
3 150	51.6
4 000	53.3
5 000	57.0
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 50 (-2;-7) dB

Max dev. 5.2 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-7 dB** $C_{50\text{-}5000}$= **-6 dB** $C_{100\text{-}5000}$= **-1 dB**

$C_{tr,50\text{-}3150}$= **-18 dB** $C_{tr,50\text{-}5000}$= **-18 dB** $C_{tr,100\text{-}5000}$: **-7 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15542AA** Test Date: **10/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.96**
Temperature, deg.C:	**14.9**	**15.1**
Rel. Humidity, %RH:	**49.6**	**49.9**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.8	34.9	12.1	34.9	**0.60**	-2.7	**24.2**		
63	64.5	50.0	11.5	50.0	**1.13**	0.1	**14.6**		15.5
80	71.2	56.1	7.4	56.1	**0.74**	-1.8	**13.3**		
100	84.8	56.8	19.8	56.8	0.77	-1.6	**26.4**	4.6	
125	83.0	53.1	6.9	53.1	0.86	-1.1	**28.8**	5.2	28.8
160	88.2	53.9	6.9	53.9	1.16	0.2	**34.5**	2.5	
200	94.5	58.6	21.8	58.6	1.39	1.0	**36.9**	3.1	
250	96.0	56.6	8.0	56.6	1.53	1.4	**40.8**	2.2	39.4
315	96.2	55.1	12.3	55.1	1.45	1.2	**42.3**	3.7	
400	95.0	49.6	26.0	49.6	1.29	0.7	**46.1**	2.9	
500	92.9	43.8	11.1	43.8	1.36	0.9	**50.0**		48.6
630	91.9	41.7	5.4	41.7	1.47	1.2	**51.4**		
800	92.4	38.6	6.0	38.6	1.47	1.2	**55.0**		
1 000	92.1	36.3	4.4	36.3	1.47	1.2	**57.0**		57.0
1 250	93.3	34.0	6.4	34.0	1.48	1.2	**60.5**		
1 600	96.1	34.0	3.7	34.0	1.49	1.3	**63.4**		
2 000	97.7	35.3	3.1	35.3	1.41	1.0	**63.4**		59.1
2 500	96.1	41.1	2.9	41.1	1.27	0.6	**55.6**		
3 150	95.3	44.1	4.3	44.1	1.21	0.4	**51.6**	2.4	
4 000	97.3	44.3	4.7	44.3	1.19	0.3	**53.3**		53.4
5 000	101.0	44.1	6.7	44.1	1.14	0.1	**57.0**		
6 300									
8 000									
10 000									

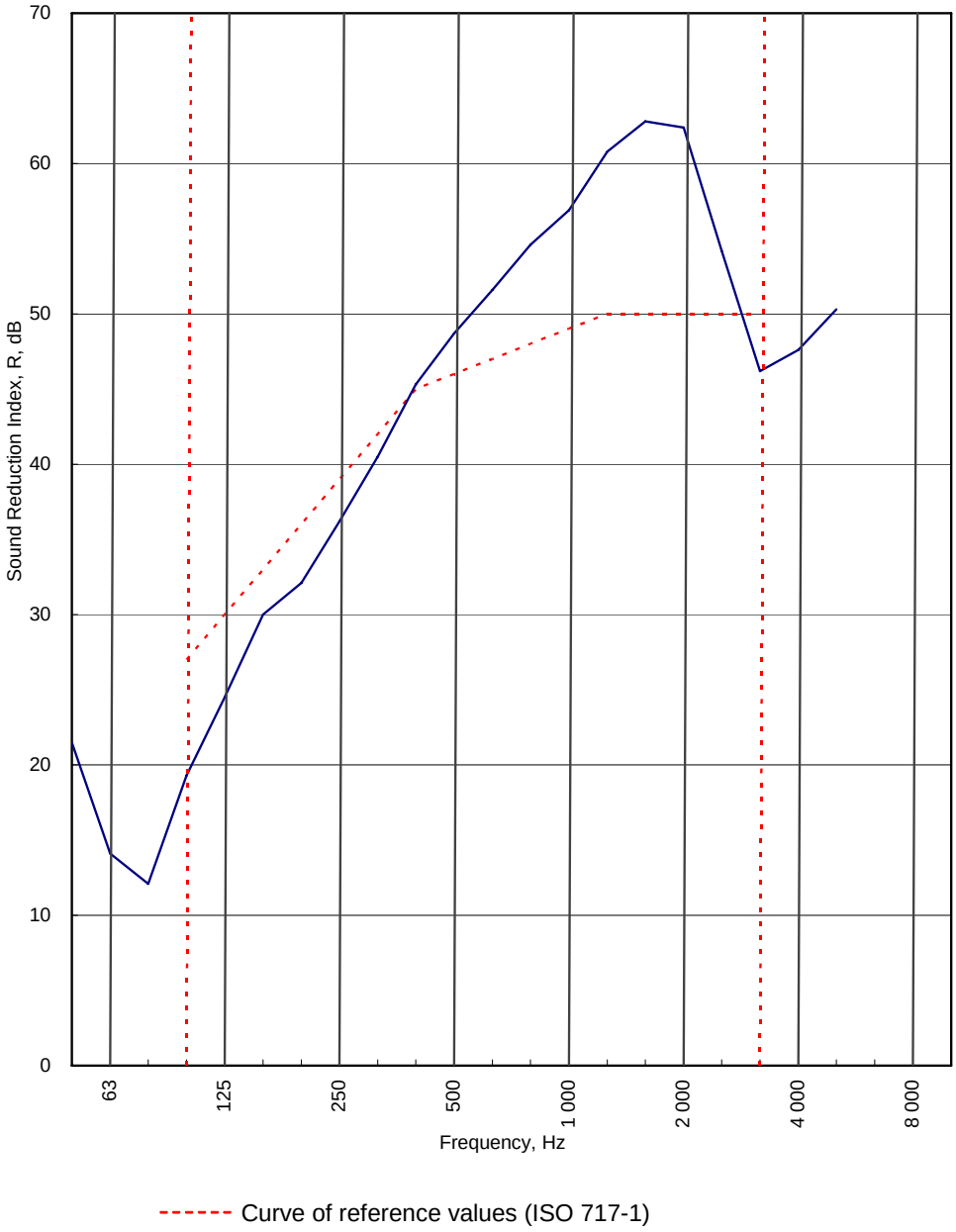
Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**26.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	50	**-2**	**-7**		
	(100-5000)	**-1**	**-7**		
	(50-3150)	**-7**	**-18**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-6**	**-18**	Worksheet: 140_3_1.XLS	

UKAS TESTING
0296

Customer: **CMH Design and Consultancy Services Limited**

Test Code:
H15543AA
Test Date:
11/12/07

Freq. Hz	R dB
50	21.5
63	14.1
80	12.1
100	19.3
125	24.5
160	30.0
200	32.1
250	36.2
315	40.5
400	45.3
500	48.7
630	51.6
800	54.6
1 000	56.9
1 250	60.8
1 600	62.8
2 000	62.4
2 500	54.2
3 150	46.2
4 000	47.6
5 000	50.3
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 46 (-3;-9) dB

Max dev. 7.7 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-5 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-16 dB** $C_{tr,50\text{-}5000}$= **-16 dB** $C_{tr,100\text{-}5000}$: **-9 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15543AA** Test Date: **11/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.18**
Temperature, deg.C:	**14.4**	**14**
Rel. Humidity, %RH:	**45.6**	**44.6**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.6	39.5	34.1	**38.2**	0.72	-1.9	**21.5**		
63	65.0	50.3	18.6	50.3	0.96	-0.6	**14.1**		14.5
80	69.8	57.9	14.2	57.9	1.16	0.2	**12.1**		
100	83.2	62.5	23.0	62.5	0.81	-1.4	**19.3**	7.7	
125	82.5	57.2	15.5	57.2	0.93	-0.8	**24.5**	5.5	22.7
160	87.7	57.9	20.5	57.9	1.16	0.2	**30.0**	3.0	
200	93.7	62.6	20.0	62.6	1.41	1.0	**32.1**	3.9	
250	95.8	60.8	10.0	60.8	1.46	1.2	**36.2**	2.8	35.0
315	96.1	56.8	13.4	56.8	1.46	1.2	**40.5**	1.5	
400	94.8	50.3	24.5	50.3	1.33	0.8	**45.3**		
500	93.1	45.1	10.3	45.1	1.31	0.7	**48.7**		47.8
630	91.8	41.3	6.0	41.3	1.44	1.1	**51.6**		
800	92.5	39.4	5.6	39.4	1.56	1.5	**54.6**		
1 000	92.0	36.4	5.6	36.4	1.50	1.3	**56.9**		56.7
1 250	93.3	33.8	6.7	33.8	1.52	1.3	**60.8**		
1 600	96.0	34.4	3.9	34.4	1.48	1.2	**62.8**		
2 000	97.6	36.1	3.7	36.1	1.37	0.9	**62.4**		57.9
2 500	96.0	42.4	3.6	42.4	1.27	0.6	**54.2**		
3 150	95.0	48.9	4.6	48.9	1.14	0.1	**46.2**	3.8	
4 000	96.9	49.2	5.0	49.2	1.09	-0.1	**47.6**		47.7
5 000	100.9	50.2	6.8	50.2	1.02	-0.4	**50.3**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28.2**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	46	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
Background Corrected					
	(50-3150)	**-5**	**-16**		
	(50-5000)	**-5**	**-16**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

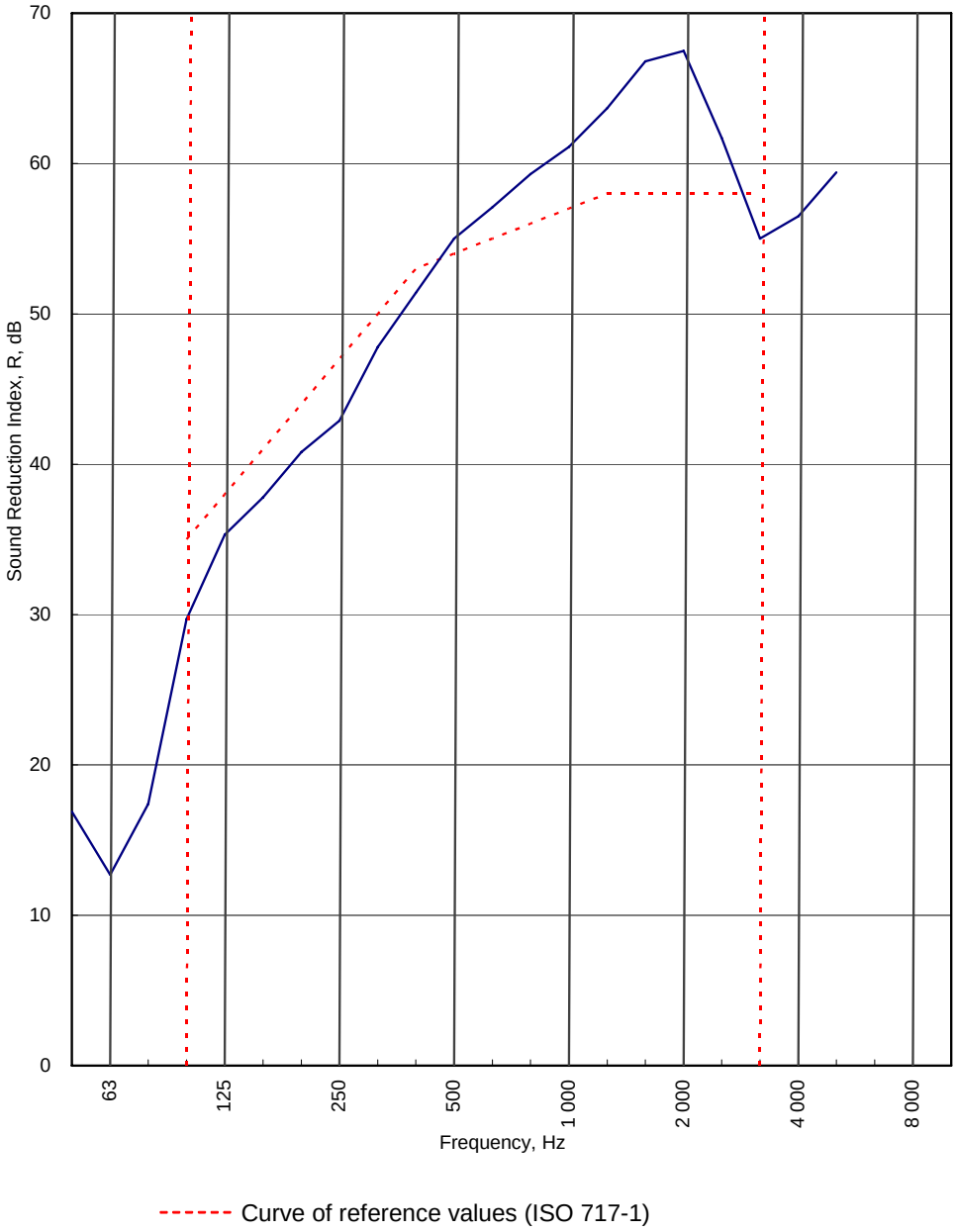
Customer: **CMH Design and Consultancy Services Limited**

UKAS TESTING

0296

Test Code:
H15544AA
Test Date:
10/12/07

Freq. Hz	R dB
50	16.9
63	12.7
80	17.4
100	29.7
125	35.3
160	37.8
200	40.8
250	42.9
315	47.8
400	51.4
500	55.0
630	57.1
800	59.3
1 000	61.1
1 250	63.7
1 600	66.8
2 000	67.5
2 500	61.7
3 150	55.0
4 000	56.5
5 000	59.4
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 54 (-2;-7) dB

Max dev. 5.3 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-9 dB** $C_{50\text{-}5000}$= **-8 dB** $C_{100\text{-}5000}$= **-1 dB**

$C_{tr,50\text{-}3150}$= **-21 dB** $C_{tr,50\text{-}5000}$= **-21 dB** $C_{tr,100\text{-}5000}$: **-7 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15544AA** Test Date: **10/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.96**
Temperature, deg.C:	**15.3**	**15.6**
Rel. Humidity, %RH:	**50.1**	**47.4**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	55.0	35.5	18.5	35.5	0.61	-2.6	**16.9**		
63	62.2	48.2	12.8	48.2	0.83	-1.3	**12.7**		15.1
80	72.7	52.8	8.0	52.8	0.62	-2.5	**17.4**		
100	81.9	51.1	19.5	51.1	0.86	-1.1	**29.7**	5.3	
125	82.5	46.5	6.7	46.5	0.94	-0.7	**35.3**	2.7	32.9
160	108.9	71.4	7.3	71.4	1.18	0.3	**37.8**	3.2	
200	95.3	55.3	23.3	55.3	1.32	0.8	**40.8**	3.2	
250	95.4	53.8	9.5	53.8	1.51	1.3	**42.9**	4.1	43.0
315	96.4	49.9	13.2	49.9	1.50	1.3	**47.8**	2.2	
400	95.3	44.4	26.9	44.4	1.24	0.5	**51.4**	1.6	
500	93.0	39.0	11.2	39.0	1.40	1.0	**55.0**		53.9
630	91.9	35.9	5.4	35.9	1.43	1.1	**57.1**		
800	92.3	34.4	5.9	34.4	1.54	1.4	**59.3**		
1 000	91.9	32.0	4.5	32.0	1.48	1.2	**61.1**		61.0
1 250	93.1	30.5	6.7	30.5	1.43	1.1	**63.7**		
1 600	96.1	30.5	3.7	30.5	1.47	1.2	**66.8**		
2 000	97.8	31.2	3.2	31.2	1.37	0.9	**67.5**		64.5
2 500	96.2	34.9	3.0	34.9	1.22	0.4	**61.7**		
3 150	95.2	40.6	4.4	40.6	1.21	0.4	**55.0**	3.0	
4 000	97.3	41.0	4.9	41.0	1.16	0.2	**56.5**		56.6
5 000	101.0	41.6	6.8	41.6	1.10	0.0	**59.4**		
6 300									
8 000									
10 000									

Total U. Dev., dB **25.3**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	54	**-2**	**-7**
	(100-5000)	**-1**	**-7**
	(50-3150)	**-9**	**-21**
	(50-5000)	**-8**	**-21**

Procedure: ISO140/3/A - issue 1

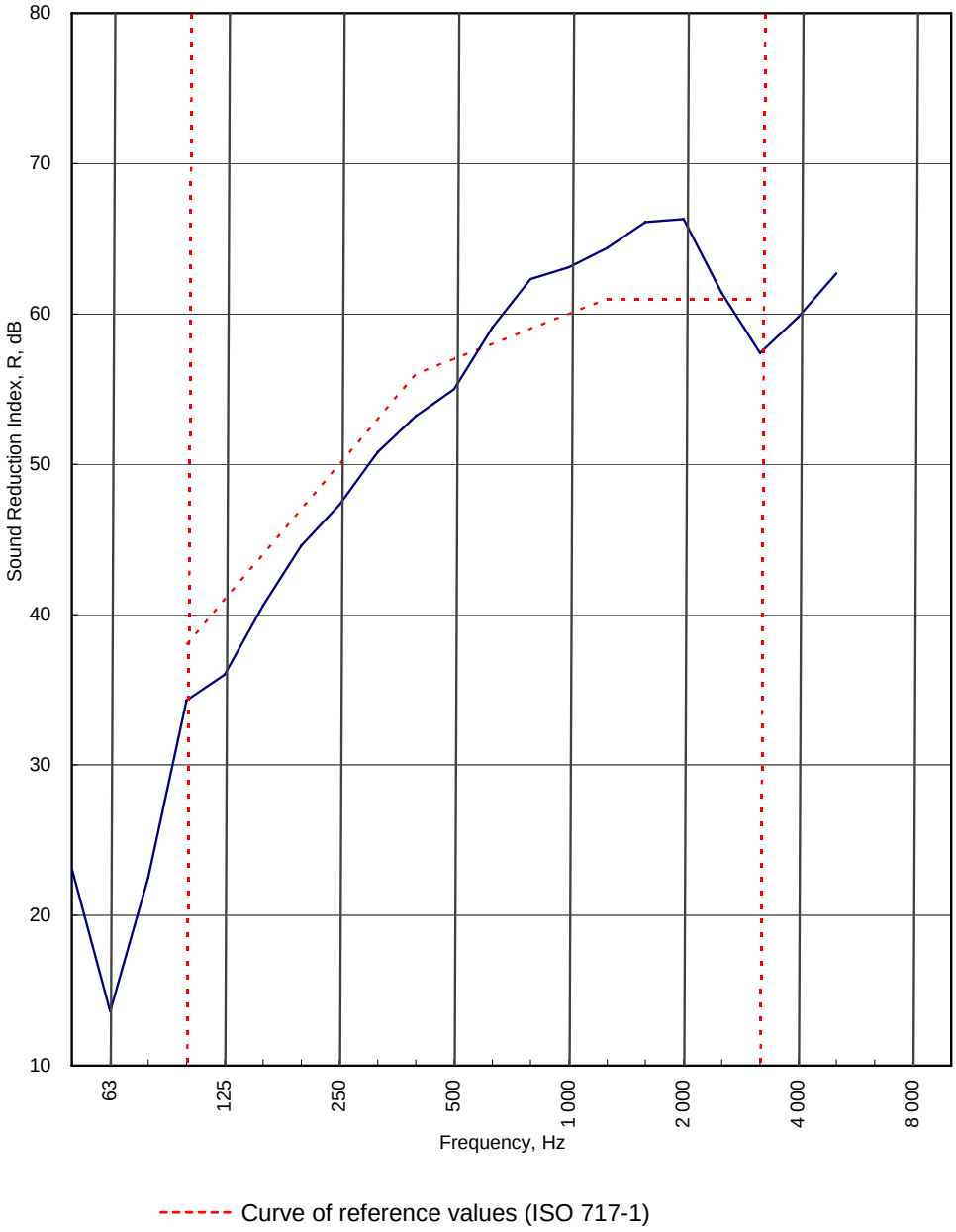
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H15545AA
Test Date:
14/12/2007

Freq. Hz	R dB
50	23.1
63	13.6
80	22.5
100	34.3
125	36.0
160	40.6
200	44.6
250	47.3
315	50.8
400	53.2
500	55.0
630	59.1
800	62.3
1 000	63.1
1 250	64.4
1 600	66.1
2 000	66.3
2 500	61.4
3 150	57.4
4 000	59.8
5 000	62.7
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 57 (-2;-7) dB

Max dev. 5 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-9 dB** $C_{50\text{-}5000}$= **-8 dB** $C_{100\text{-}5000}$= **-1 dB**

$C_{tr,50\text{-}3150}$= **-22 dB** $C_{tr,50\text{-}5000}$= **-22 dB** $C_{tr,100\text{-}5000}$: **-7 dB**

UKAS TESTING
0296

Customer: **CMH Design and Consultancy Services Limited**

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15545AA** Test Date: **14/12/2007**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.83**
Temperature, deg.C:	**15.7**	**15.3**
Rel. Humidity, %RH:	**41.4**	**41.3**

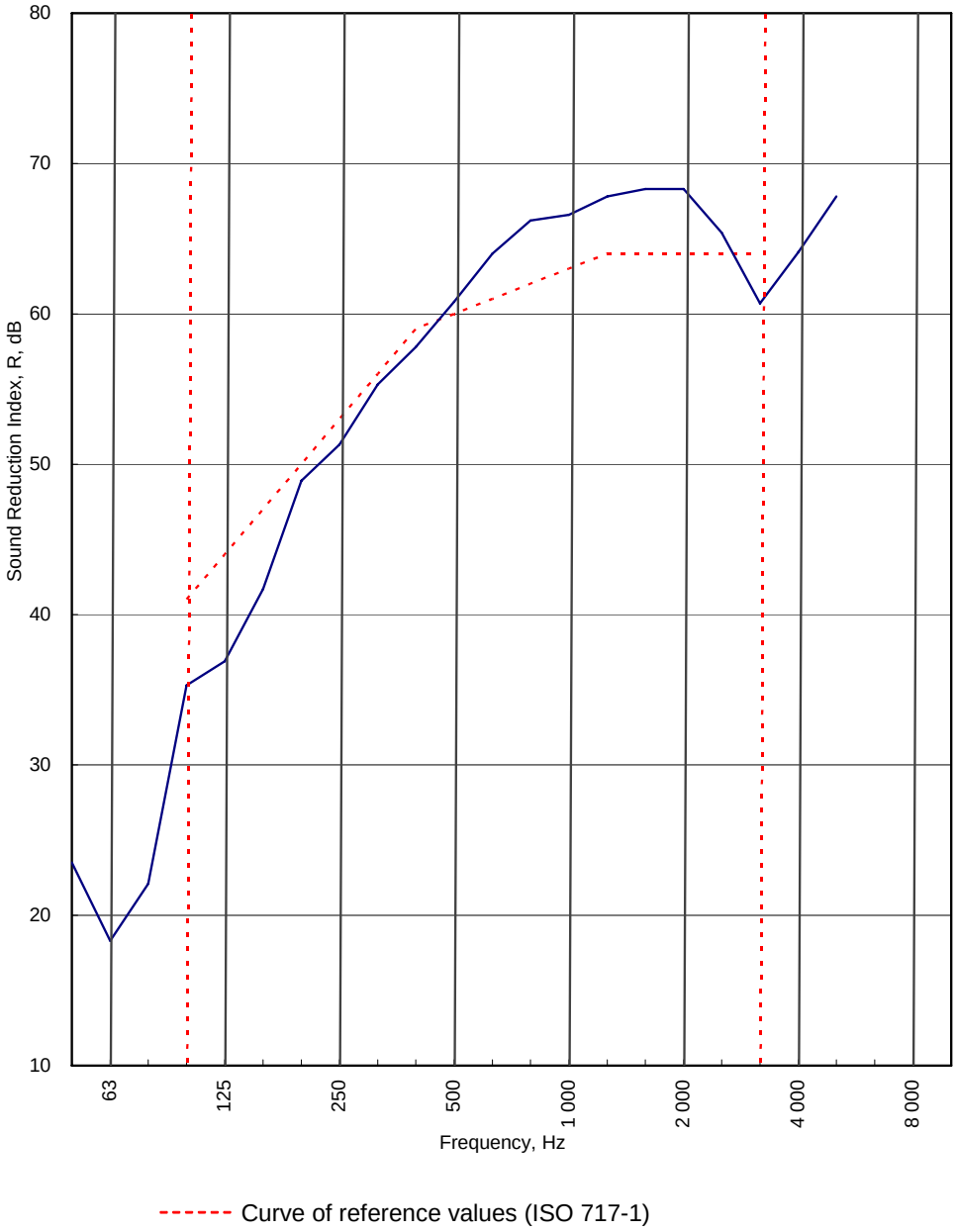
	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	59.8	34.6	15.5	34.6	0.68	-2.1	**23.1**		
63	61.8	46.1	19.4	46.1	0.68	-2.1	**13.6**		17.4
80	71.6	46.7	11.6	46.7	**0.64**	-2.4	**22.5**		
100	82.7	48.2	22.1	48.2	**1.07**	-0.2	**34.3**	3.7	
125	80.8	44.6	7.7	44.6	1.07	-0.2	**36.0**	5.0	36.3
160	86.6	45.8	7.3	45.8	1.07	-0.2	**40.6**	3.4	
200	92.4	48.5	14.2	48.5	1.30	0.7	**44.6**	2.4	
250	94.1	47.8	0.7	47.8	1.38	1.0	**47.3**	2.7	46.9
315	94.1	44.6	6.2	44.6	1.50	1.3	**50.8**	2.2	
400	92.8	40.5	14.1	40.5	1.37	0.9	**53.2**	2.8	
500	91.0	36.8	1.5	36.8	1.34	0.8	**55.0**	2.0	55.1
630	89.8	31.9	1.5	31.9	1.46	1.2	**59.1**		
800	90.3	29.3	3.6	29.3	1.51	1.3	**62.3**		
1 000	90.0	28.3	14.8	**28.1**	1.47	1.2	**63.1**		63.2
1 250	91.3	28.2	4.4	28.2	1.48	1.3	**64.4**		
1 600	93.9	28.9	4.9	28.9	1.44	1.1	**66.1**		
2 000	95.8	30.5	5.3	30.5	1.39	1.0	**66.3**		64.0
2 500	94.0	32.9	5.5	32.9	1.20	0.3	**61.4**		
3 150	93.1	35.9	6.9	35.9	1.17	0.2	**57.4**	3.6	
4 000	94.4	34.8	9.8	34.8	1.15	0.2	**59.8**		59.5
5 000	98.4	35.5	10.1	35.5	1.05	-0.2	**62.7**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**27.8**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	57	**-2**	**-7**		
	(100-5000)	**-1**	**-7**		
Background Corrected					
	(50-3150)	**-9**	**-22**		
RT's > factor 1.5 apart				Procedure: ISO140/3/B - issue 1	
	(50-5000)	**-8**	**-22**	Worksheet: 140_3_1.XLS	

UKAS TESTING
0296

Test Code:
H15546AA
Test Date:
14/12/2007

Freq. Hz	R dB
50	23.5
63	18.3
80	22.1
100	35.3
125	36.9
160	41.7
200	48.9
250	51.3
315	55.3
400	57.8
500	60.8
630	64.0
800	66.2
1 000	66.6
1 250	67.8
1 600	68.3
2 000	68.3
2 500	65.4
3 150	60.7
4 000	64.1
5 000	67.8
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 60 (-3;-8) dB

Max dev. 7.1 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-10 dB** $C_{50\text{-}5000}$= **-9 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-22 dB** $C_{tr,50\text{-}5000}$= **-22 dB** $C_{tr,100\text{-}5000}$: **-8 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15546AA** Test Date: **14/12/2007**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2	Room Volume, m^3:	**98**	**59.7**
		Temperature, deg.C:	**15.4**	**15.2**
		Rel. Humidity, %RH:	**42.6**	**43.2**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	59.8	34.4	18.9	34.4	0.71	-1.9	**23.5**		
63	62.0	42.3	19.5	42.3	0.81	-1.4	**18.3**		20.7
80	72.3	47.4	9.2	47.4	**0.58**	-2.8	**22.1**		
100	82.8	46.6	15.7	46.6	**0.89**	-0.9	**35.3**	5.7	
125	107.3	70.1	6.4	70.1	1.03	-0.3	**36.9**	7.1	37.2
160	112.5	71.3	7.9	71.3	1.23	0.5	**41.7**	5.3	
200	92.5	44.5	15.7	44.5	1.36	0.9	**48.9**	1.1	
250	94.2	44.1	2.0	44.1	1.45	1.2	**51.3**	1.7	51.1
315	94.2	40.2	5.5	40.2	1.49	1.3	**55.3**	0.7	
400	92.7	36.1	14.6	36.1	1.46	1.2	**57.8**	1.2	
500	91.0	31.0	1.7	31.0	1.32	0.8	**60.8**		60.2
630	89.9	27.0	1.5	27.0	1.41	1.1	**64.0**		
800	90.5	25.5	3.8	25.5	1.45	1.2	**66.2**		
1 000	108.5	43.1	15.0	43.1	1.45	1.2	**66.6**		66.8
1 250	108.0	41.3	4.3	41.3	1.42	1.1	**67.8**		
1 600	110.2	43.0	4.9	43.0	1.41	1.1	**68.3**		
2 000	111.5	44.3	5.3	44.3	1.41	1.1	**68.3**		67.1
2 500	109.0	44.0	5.6	44.0	1.22	0.4	**65.4**		
3 150	106.9	46.4	6.9	46.4	1.16	0.2	**60.7**	3.3	
4 000	105.5	41.5	10.0	41.5	1.12	0.1	**64.1**		63.3
5 000	105.1	37.0	10.3	37.0	1.04	-0.3	**67.8**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**26.1**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	60	**-3**	**-8**		
	(100-5000)	**-2**	**-8**		
	(50-3150)	**-10**	**-22**		
RT's > factor 1.5 apart				Procedure: ISO140/3/B - issue 1	
	(50-5000)	**-9**	**-22**	Worksheet: 140_3_1.XLS	

UKAS TESTING
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Test Code:
H15547AA
Test Date:
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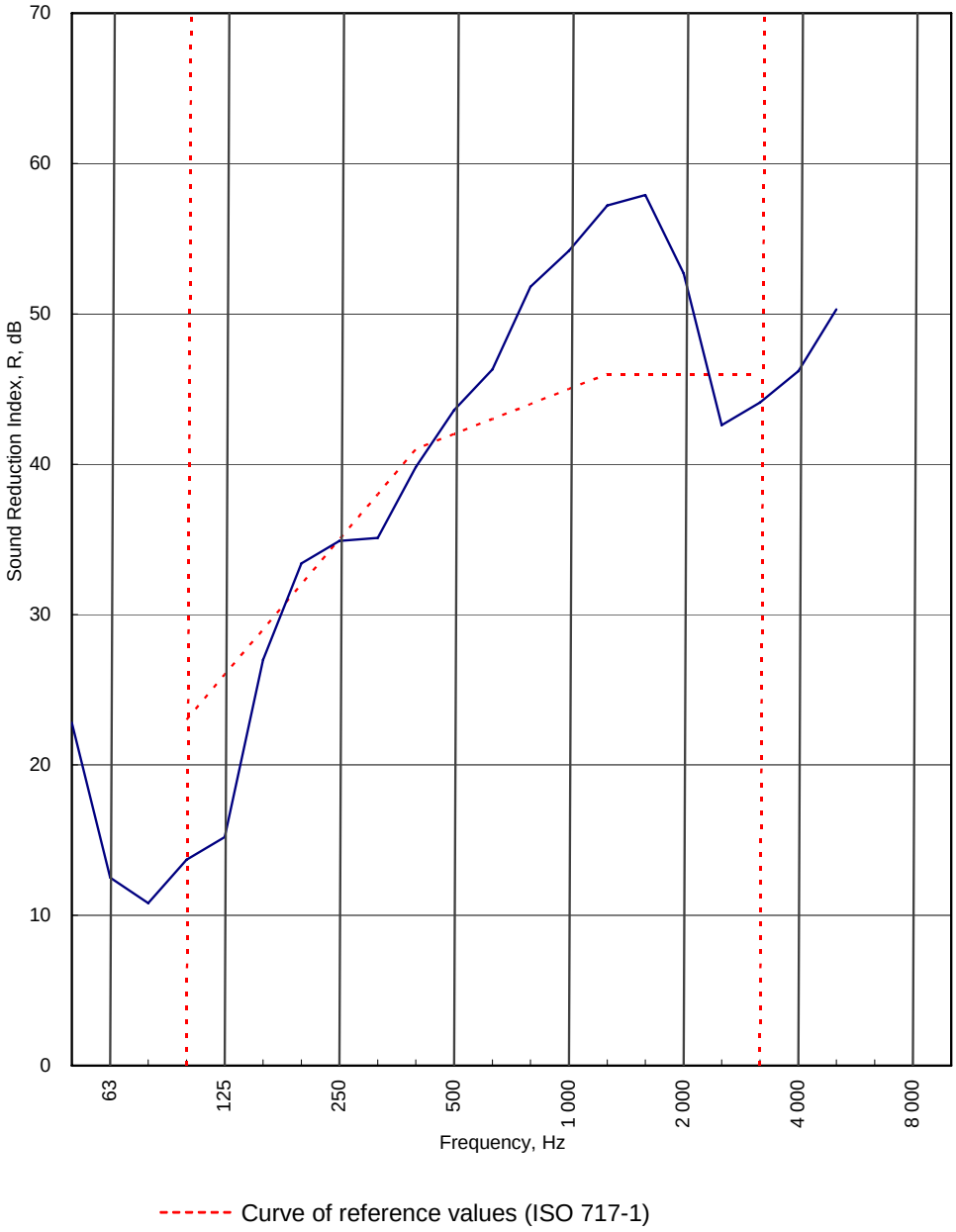
Freq. Hz	R dB
50	22.8
63	12.5
80	10.8
100	13.7
125	15.2
160	27.0
200	33.4
250	34.9
315	35.1
400	39.8
500	43.6
630	46.3
800	51.8
1 000	54.2
1 250	57.2
1 600	57.9
2 000	52.7
2 500	42.6
3 150	44.1
4 000	46.2
5 000	50.3
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 42 (-4;-11) dB

Max dev. 10.8 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-6 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-4 dB**

$C_{tr,50\text{-}3150}$= **-14 dB** $C_{tr,50\text{-}5000}$= **-14 dB** $C_{tr,100\text{-}5000}$: **-11 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15547AA** Test Date: **11/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.14**
Temperature, deg.C:	**14.9**	**15.1**
Rel. Humidity, %RH:	**47.6**	**44.8**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.2	64.5	17.6	64.5	0.91	-0.9	**22.8**		
63	88.6	75.1	17.5	75.1	0.88	-1.0	**12.5**		13.2
80	71.1	58.7	14.3	58.7	0.77	-1.6	**10.8**		
100	83.0	69.1	28.3	69.1	1.07	-0.2	**13.7**	9.3	
125	82.7	66.5	13.0	66.5	0.88	-1.0	**15.2**	10.8	16.0
160	109.3	82.1	4.7	82.1	1.06	-0.2	**27.0**	2.0	
200	94.8	62.5	18.9	62.5	1.45	1.1	**33.4**		
250	96.7	63.1	9.4	63.1	1.50	1.3	**34.9**	0.1	34.4
315	96.8	62.8	13.9	62.8	1.45	1.1	**35.1**	2.9	
400	95.2	56.2	22.5	56.2	1.34	0.8	**39.8**	1.2	
500	93.2	50.4	11.1	50.4	1.33	0.8	**43.6**		42.4
630	92.2	46.8	7.1	46.8	1.36	0.9	**46.3**		
800	92.9	42.3	6.2	42.3	1.48	1.2	**51.8**		
1 000	92.4	39.4	4.9	39.4	1.46	1.2	**54.2**		53.9
1 250	93.4	37.4	6.5	37.4	1.48	1.2	**57.2**		
1 600	96.2	39.5	3.6	39.5	1.47	1.2	**57.9**		
2 000	97.7	46.0	2.7	46.0	1.40	1.0	**52.7**		46.9
2 500	96.2	54.1	3.1	54.1	1.24	0.5	**42.6**	3.4	
3 150	95.3	51.5	4.4	51.5	1.19	0.3	**44.1**	1.9	
4 000	97.2	51.1	4.9	51.1	1.14	0.1	**46.2**		46.2
5 000	101.0	50.5	6.6	50.5	1.07	-0.2	**50.3**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**31.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	42	**-4**	**-11**		
	(100-5000)	**-4**	**-11**		
	(50-3150)	**-6**	**-14**		
	(50-5000)	**-5**	**-14**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

UKAS TESTING

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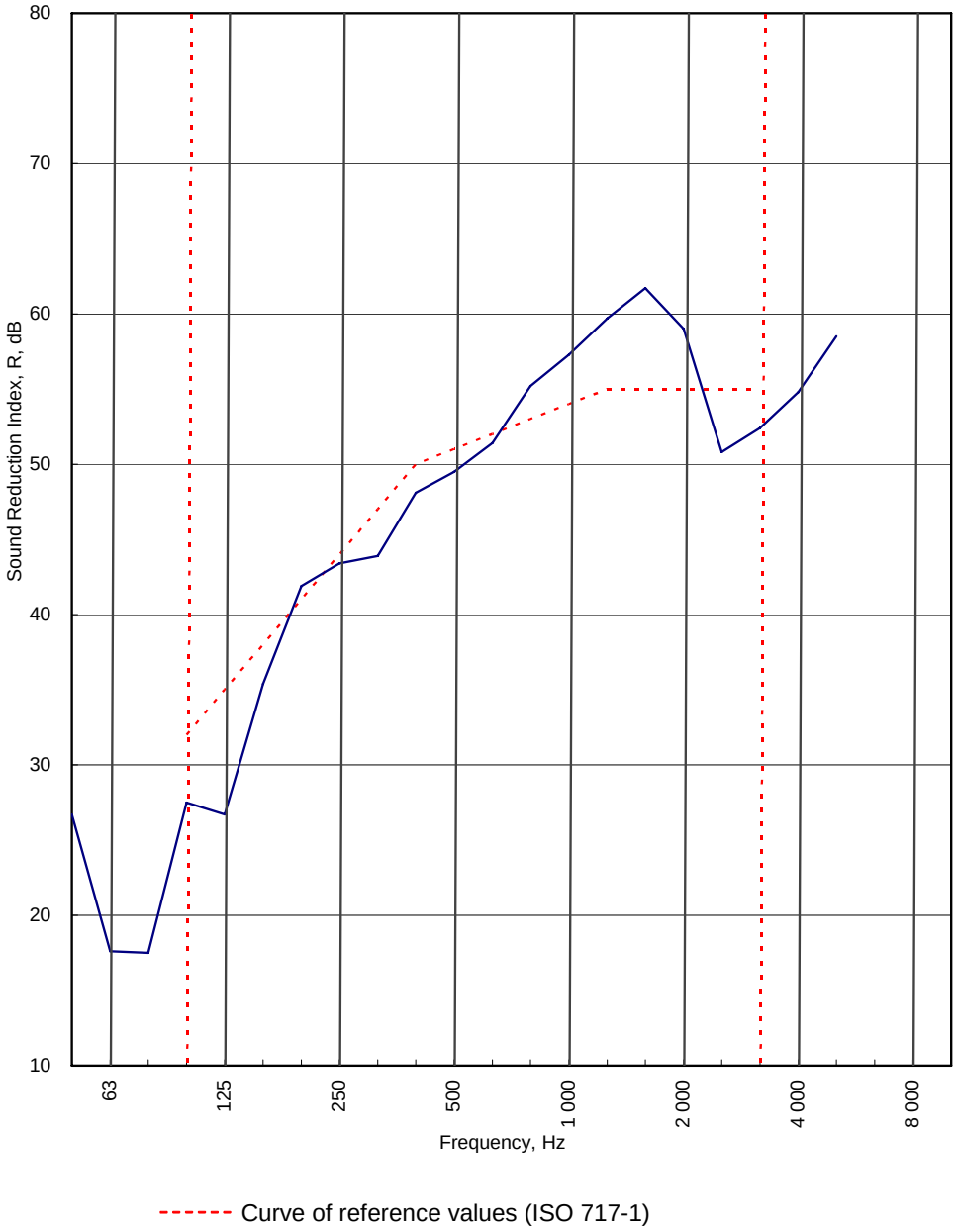
Test Code:
H15548AA
Test Date:
11/12/07

Freq. Hz	R dB
50	26.7
63	17.6
80	17.5
100	27.5
125	26.7
160	35.4
200	41.9
250	43.4
315	43.9
400	48.1
500	49.5
630	51.4
800	55.2
1 000	57.3
1 250	59.7
1 600	61.7
2 000	59.0
2 500	50.8
3 150	52.4
4 000	54.8
5 000	58.5
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 51 (-3;-8) dB

Max dev. 8.3 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-6 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-16 dB** $C_{tr,50\text{-}5000}$= **-16 dB** $C_{tr,100\text{-}5000}$: **-8 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15548AA** Test Date: **11/12/07**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2	Room Volume, m^3:	**98**	**59.87**
		Temperature, deg.C:	**15.1**	**15**
		Rel. Humidity, %RH:	**46.9**	**44.3**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.4	32.9	23.1	**32.4**	**0.66**	-2.3	**26.7**		
63	66.0	48.8	12.7	48.8	**1.22**	0.4	**17.6**		19.1
80	71.8	54.5	8.1	54.5	1.16	0.2	**17.5**		
100	84.8	56.7	16.2	56.7	0.96	-0.6	**27.5**	4.5	
125	83.6	56.2	6.3	56.2	0.94	-0.7	**26.7**	8.3	28.5
160	108.6	73.3	7.2	73.3	1.14	0.1	**35.4**	2.6	
200	94.5	53.3	20.5	53.3	1.30	0.7	**41.9**		
250	96.5	54.5	8.2	54.5	1.54	1.4	**43.4**	0.6	43.0
315	96.4	53.7	13.5	53.7	1.47	1.2	**43.9**	3.1	
400	95.2	48.1	22.8	48.1	1.40	1.0	**48.1**	1.9	
500	92.9	44.3	9.8	44.3	1.37	0.9	**49.5**	1.5	49.5
630	91.8	41.4	5.3	41.4	1.39	1.0	**51.4**	0.6	
800	92.4	38.5	6.0	38.5	1.50	1.3	**55.2**		
1 000	92.2	36.2	4.8	36.2	1.51	1.3	**57.3**		57.0
1 250	93.4	35.0	6.4	35.0	1.51	1.3	**59.7**		
1 600	96.1	35.6	3.9	35.6	1.47	1.2	**61.7**		
2 000	97.8	39.7	2.8	39.7	1.37	0.9	**59.0**		54.7
2 500	96.3	45.9	2.9	45.9	1.21	0.4	**50.8**	4.2	
3 150	95.4	43.3	4.4	43.3	1.20	0.3	**52.4**	2.6	
4 000	97.3	42.6	4.7	42.6	1.13	0.1	**54.8**		54.6
5 000	101.1	42.4	6.6	42.4	1.06	-0.2	**58.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**29.9**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	51	**-3**	**-8**		
	(100-5000)	**-2**	**-8**		
Background Corrected					
	(50-3150)	**-6**	**-16**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-5**	**-16**	Worksheet: 140_3_1.XLS	

UKAS TESTING
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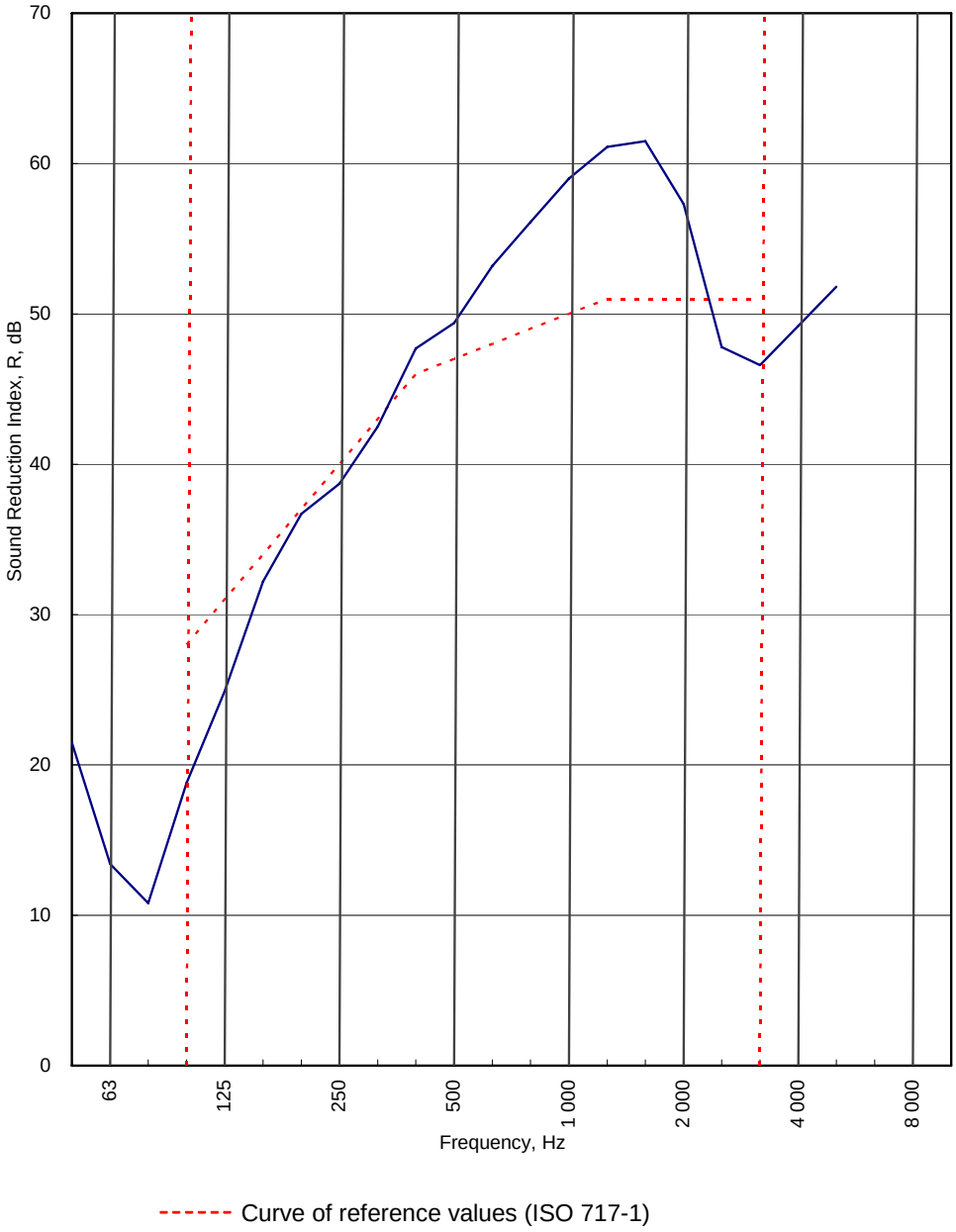
Test Code:
H15549AA
Test Date:
11/12/07

Freq. Hz	R dB
50	21.5
63	13.4
80	10.8
100	18.8
125	24.9
160	32.2
200	36.7
250	38.7
315	42.5
400	47.7
500	49.4
630	53.2
800	56.1
1 000	59.0
1 250	61.1
1 600	61.5
2 000	57.3
2 500	47.8
3 150	46.6
4 000	49.2
5 000	51.8
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 47 (-3;-10) dB

Max dev. 9.2 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-7 dB** $C_{50\text{-}5000}$= **-6 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-17 dB** $C_{tr,50\text{-}5000}$= **-17 dB** $C_{tr,100\text{-}5000}$: **-10 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15549AA** Test Date: **11/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.14**
Temperature, deg.C:	**14.4**	**14**
Rel. Humidity, %RH:	**48.7**	**42.3**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.4	37.5	24.3	**37.3**	0.61	-2.6	**21.5**		
63	65.4	50.9	13.6	50.9	0.87	-1.1	**13.4**		13.4
80	69.9	57.2	8.6	57.2	0.72	-1.9	**10.8**		
100	83.9	64.4	24.6	64.4	0.94	-0.7	**18.8**	9.2	
125	83.2	58.0	10.6	58.0	1.03	-0.3	**24.9**	6.1	22.5
160	89.1	57.0	12.6	57.0	1.14	0.1	**32.2**	1.8	
200	94.3	58.4	18.5	58.4	1.34	0.8	**36.7**	0.3	
250	96.8	58.9	7.5	58.9	1.33	0.8	**38.7**	1.3	38.7
315	96.4	55.1	13.5	55.1	1.48	1.2	**42.5**	0.5	
400	95.2	48.4	23.2	48.4	1.38	0.9	**47.7**		
500	93.2	44.5	9.7	44.5	1.32	0.7	**49.4**		49.6
630	92.4	40.2	5.0	40.2	1.40	1.0	**53.2**		
800	92.7	37.9	6.2	37.9	1.51	1.3	**56.1**		
1 000	92.4	34.9	5.2	34.9	1.57	1.5	**59.0**		58.2
1 250	93.5	33.7	8.1	33.7	1.51	1.3	**61.1**		
1 600	96.3	36.1	3.8	36.1	1.50	1.3	**61.5**		
2 000	97.8	41.6	2.9	41.6	1.44	1.1	**57.3**		51.9
2 500	96.3	48.8	3.0	48.8	1.18	0.3	**47.8**	3.2	
3 150	95.4	48.9	4.5	48.9	1.15	0.1	**46.6**	4.4	
4 000	97.3	48.1	4.9	48.1	1.12	0.0	**49.2**		48.7
5 000	101.0	48.8	6.7	48.8	1.01	-0.4	**51.8**		
6 300									
8 000									
10 000									

Total U. Dev., dB **26.8**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	47	**-3**	**-10**
	(100-5000)	**-2**	**-10**
Background Corrected			
	(50-3150)	**-7**	**-17**
	(50-5000)	**-6**	**-17**

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

UKAS TESTING

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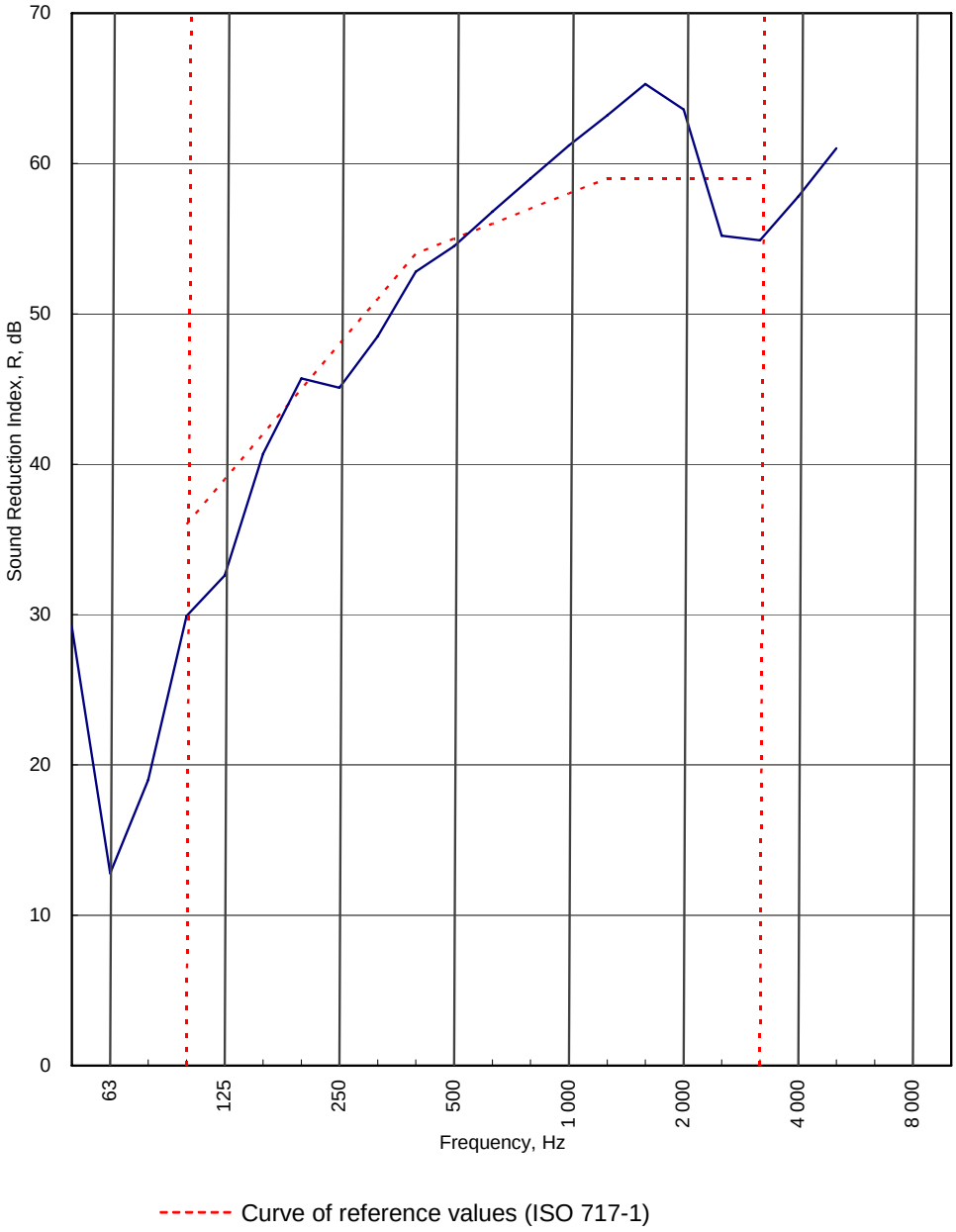
Test Code:
H15550AA
Test Date:
11/12/07

Freq. Hz	R dB
50	29.2
63	12.8
80	19.0
100	29.9
125	32.6
160	40.7
200	45.7
250	45.1
315	48.5
400	52.8
500	54.5
630	56.8
800	59.0
1 000	61.2
1 250	63.2
1 600	65.3
2 000	63.6
2 500	55.2
3 150	54.9
4 000	57.8
5 000	61.0
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 55 (-2;-8) dB

Max dev. 6.4 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-9 dB** $C_{50\text{-}5000}$= **-8 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-21 dB** $C_{tr,50\text{-}5000}$= **-21 dB** $C_{tr,100\text{-}5000}$: **-8 dB**

UKAS TESTING
0296

Customer: **CMH Design and Consultancy Services Limited**

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15550AA** Test Date: **11/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.87**
Temperature, deg.C:	**14.8**	**15.1**
Rel. Humidity, %RH:	**48.3**	**44.9**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	87.3	56.3	13.0	56.3	0.73	-1.8	**29.2**		
63	88.1	74.5	12.5	74.5	0.92	-0.8	**12.8**		16.6
80	72.8	52.0	7.1	52.0	0.74	-1.8	**19.0**		
100	84.9	54.6	21.0	54.6	1.00	-0.4	**29.9**	6.1	
125	84.0	50.6	7.4	50.6	0.92	-0.8	**32.6**	6.4	32.6
160	108.6	68.0	7.0	68.0	1.14	0.1	**40.7**	1.3	
200	94.5	49.4	22.9	49.4	1.28	0.6	**45.7**		
250	96.2	52.4	10.1	52.4	1.48	1.3	**45.1**	2.9	46.2
315	95.8	48.7	13.6	48.7	1.52	1.4	**48.5**	2.5	
400	112.4	60.4	24.8	60.4	1.33	0.8	**52.8**	1.2	
500	93.0	39.2	10.7	39.2	1.29	0.7	**54.5**	0.5	54.4
630	91.9	36.0	6.6	36.0	1.37	0.9	**56.8**		
800	92.5	34.5	7.7	34.5	1.41	1.0	**59.0**		
1 000	92.2	32.1	7.2	32.1	1.44	1.1	**61.2**		60.8
1 250	93.3	31.3	8.4	31.3	1.46	1.2	**63.2**		
1 600	96.1	32.1	4.8	32.1	1.49	1.3	**65.3**		
2 000	97.9	35.3	3.8	35.3	1.39	1.0	**63.6**		59.0
2 500	96.3	41.6	2.9	41.6	1.23	0.5	**55.2**	3.8	
3 150	95.4	40.8	4.4	40.8	1.18	0.3	**54.9**	4.1	
4 000	97.3	39.5	4.8	39.5	1.12	0.0	**57.8**		57.2
5 000	101.1	39.9	6.8	39.9	1.05	-0.2	**61.0**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28.8**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	55	**-2**	**-8**		
	(100-5000)	**-2**	**-8**		
	(50-3150)	**-9**	**-21**		
	(50-5000)	**-8**	**-21**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

UKAS TESTING

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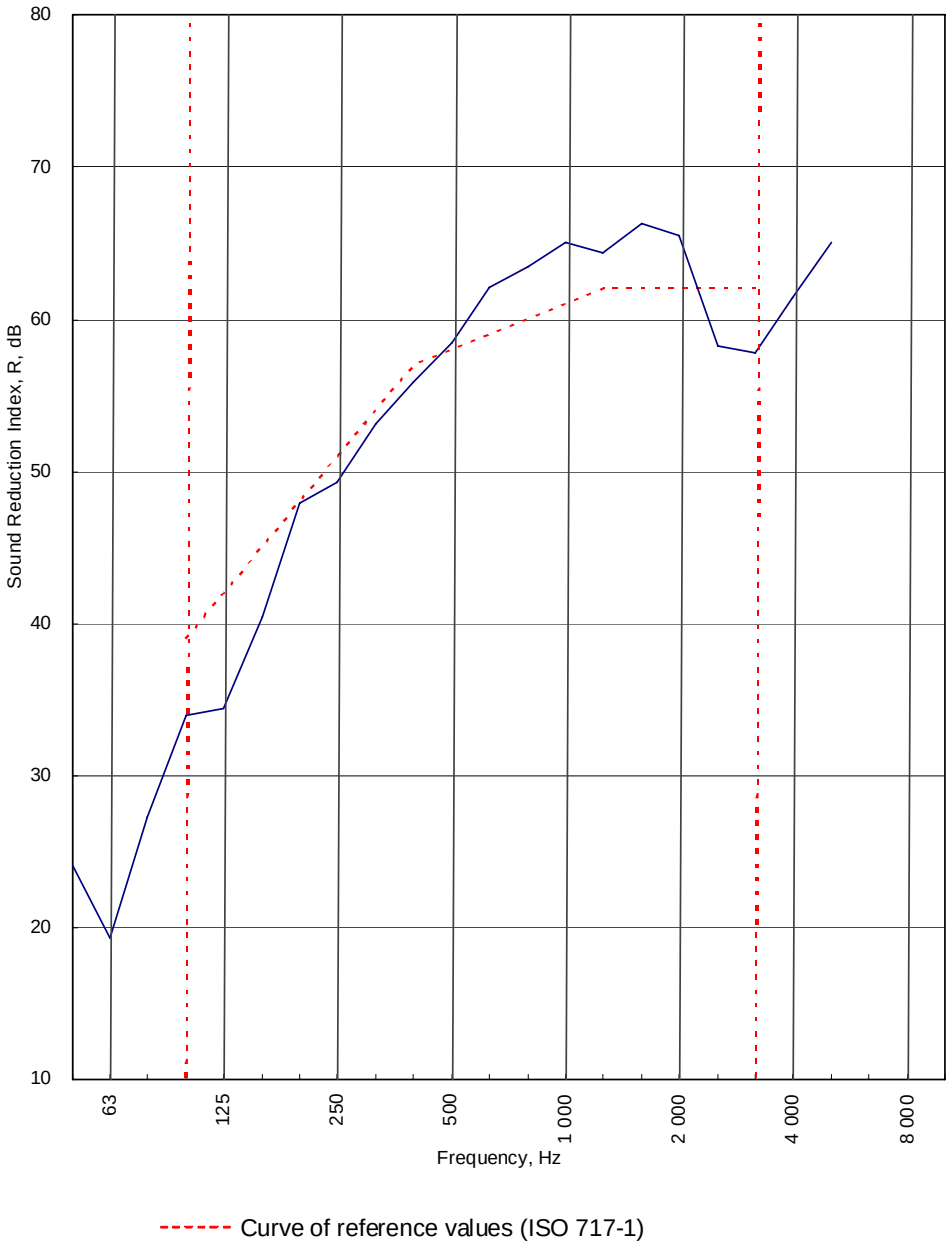
Test Code:
H15551AA
Test Date:
17/12/2007

Freq. Hz	R dB
50	24.1
63	19.3
80	27.2
100	34.0
125	34.4
160	40.4
200	47.9
250	49.3
315	53.1
400	55.9
500	58.5
630	62.1
800	63.5
1 000	65.0
1 250	64.4
1 600	66.3
2 000	65.5
2 500	58.2
3 150	57.8
4 000	61.4
5 000	65.0
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997

Rw (C;Ctr) = 58 (-3;-8) dB

Max dev. 7.6 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-7 dB** $C_{50\text{-}5000}$= **-6 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-18 dB** $C_{tr,50\text{-}5000}$= **-18 dB** $C_{tr,100\text{-}5000}$= **-8 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15551AA** Test Date: **17/12/2007**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.73**
Temperature, deg.C:	**12.7**	**12.6**
Rel. Humidity, %RH:	**43.2**	**43.3**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	58.6	32.4	15.3	32.4	0.68	-2.1	**24.1**		
63	61.4	40.5	19.0	40.5	0.77	-1.6	**19.3**		22.3
80	72.2	43.4	9.0	43.4	0.76	-1.6	**27.2**		
100	82.7	48.4	15.6	48.4	1.04	-0.3	**34.0**	5.0	
125	80.8	45.7	6.9	45.7	0.94	-0.7	**34.4**	7.6	35.5
160	113.0	73.3	8.4	73.3	1.31	0.7	**40.4**	4.6	
200	92.8	45.8	11.6	45.8	1.37	0.9	**47.9**	0.1	
250	94.9	46.9	1.8	46.9	1.49	1.3	**49.3**	1.7	49.6
315	94.9	43.1	6.1	43.1	1.49	1.3	**53.1**	0.9	
400	93.3	38.3	14.5	38.3	1.37	0.9	**55.9**	1.1	
500	91.2	33.5	2.1	33.5	1.33	0.8	**58.5**		58.1
630	90.1	29.2	2.1	29.2	1.47	1.2	**62.1**		
800	90.3	28.0	3.7	28.0	1.46	1.2	**63.5**		
1 000	108.8	45.2	14.7	45.2	1.54	1.4	**65.0**		64.3
1 250	91.4	28.3	4.5	28.3	1.48	1.3	**64.4**		
1 600	93.9	29.0	5.4	29.0	1.53	1.4	**66.3**		
2 000	95.8	31.4	5.9	31.4	1.42	1.1	**65.5**		61.7
2 500	94.1	36.4	5.9	36.4	1.23	0.5	**58.2**	3.8	
3 150	93.0	35.6	7.1	35.6	1.21	0.4	**57.8**	4.2	
4 000	94.2	32.7	10.1	32.7	1.09	-0.1	**61.4**		60.5
5 000	98.6	33.3	10.4	33.3	1.03	-0.3	**65.0**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**29**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	58	**-3**	**-8**		
	(100-5000)	**-2**	**-8**		
	(50-3150)	**-7**	**-18**		
	(50-5000)	**-6**	**-18**		

Procedure: ISO140/3/B - issue 1

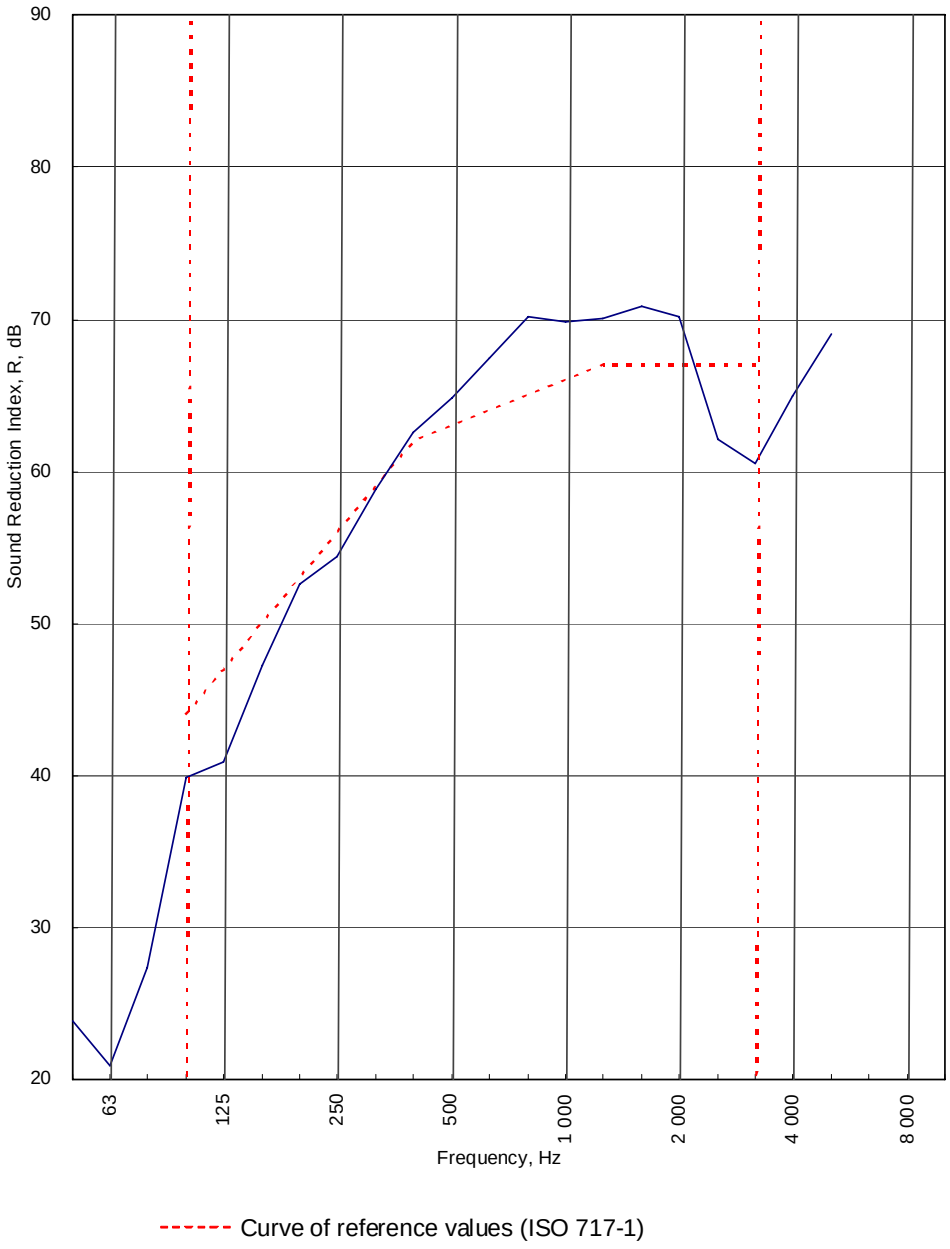
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H15552AA
Test Date:
14/12/2007

Freq. Hz	R dB
50	23.9
63	20.9
80	27.4
100	39.9
125	40.9
160	47.2
200	52.6
250	54.4
315	58.8
400	62.6
500	64.8
630	67.5
800	70.2
1 000	69.8
1 250	70.1
1 600	70.9
2 000	70.2
2 500	62.1
3 150	60.5
4 000	65.0
5 000	69.0
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997

Rw (C;Ctr) = 63 (-2;-7) dB

Max dev. 6.5 dB at 3 150 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-9 dB** $C_{50\text{-}5000}$= **-8 dB** $C_{100\text{-}5000}$= **-1 dB**

$C_{tr,50\text{-}3150}$= **-21 dB** $C_{tr,50\text{-}5000}$= **-21 dB** $C_{tr,100\text{-}5000}$= **-7 dB**

Customer: **CMH Design and Consultancy Services Limited**

UKAS TESTING 0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15552AA** Test Date: **14/12/2007**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.62**
Temperature, deg.C:	**14.8**	**15.2**
Rel. Humidity, %RH:	**44.6**	**42**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	60.5	34.9	18.3	34.9	0.75	-1.7	**23.9**		
63	62.7	39.9	19.2	39.9	0.72	-1.9	**20.9**		23.3
80	71.3	42.2	11.4	42.2	0.74	-1.7	**27.4**		
100	82.7	42.2	17.8	42.2	0.97	-0.6	**39.9**	4.1	
125	107.8	66.7	8.6	66.7	1.05	-0.2	**40.9**	6.1	41.7
160	87.0	40.7	8.1	40.7	1.36	0.9	**47.2**	2.8	
200	92.5	40.9	14.3	40.9	1.38	1.0	**52.6**	0.4	
250	94.3	41.1	8.8	41.1	1.44	1.2	**54.4**	1.6	54.6
315	94.2	36.5	8.2	36.5	1.41	1.1	**58.8**	0.2	
400	92.9	31.3	15.9	31.3	1.40	1.0	**62.6**		
500	91.1	27.2	10.8	27.2	1.35	0.9	**64.8**		64.5
630	90.0	23.5	7.9	23.5	1.39	1.0	**67.5**		
800	110.1	41.2	6.0	41.2	1.48	1.3	**70.2**		
1 000	108.7	40.2	14.2	40.2	1.49	1.3	**69.8**		70.0
1 250	108.1	39.3	4.9	39.3	1.50	1.3	**70.1**		
1 600	110.3	40.6	5.1	40.6	1.46	1.2	**70.9**		
2 000	111.5	42.3	5.7	42.3	1.40	1.0	**70.2**		65.8
2 500	108.9	47.3	5.8	47.3	1.24	0.5	**62.1**	4.9	
3 150	107.2	47.0	7.2	47.0	1.17	0.3	**60.5**	6.5	
4 000	105.9	40.9	9.9	40.9	1.10	0.0	**65.0**		63.5
5 000	105.4	36.1	10.2	36.1	1.03	-0.3	**69.0**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**26.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	63	**-2**	**-7**		
	(100-5000)	**-1**	**-7**		
	(50-3150)	**-9**	**-21**		
	(50-5000)	**-8**	**-21**		

Procedure: ISO140/3/B - issue 1

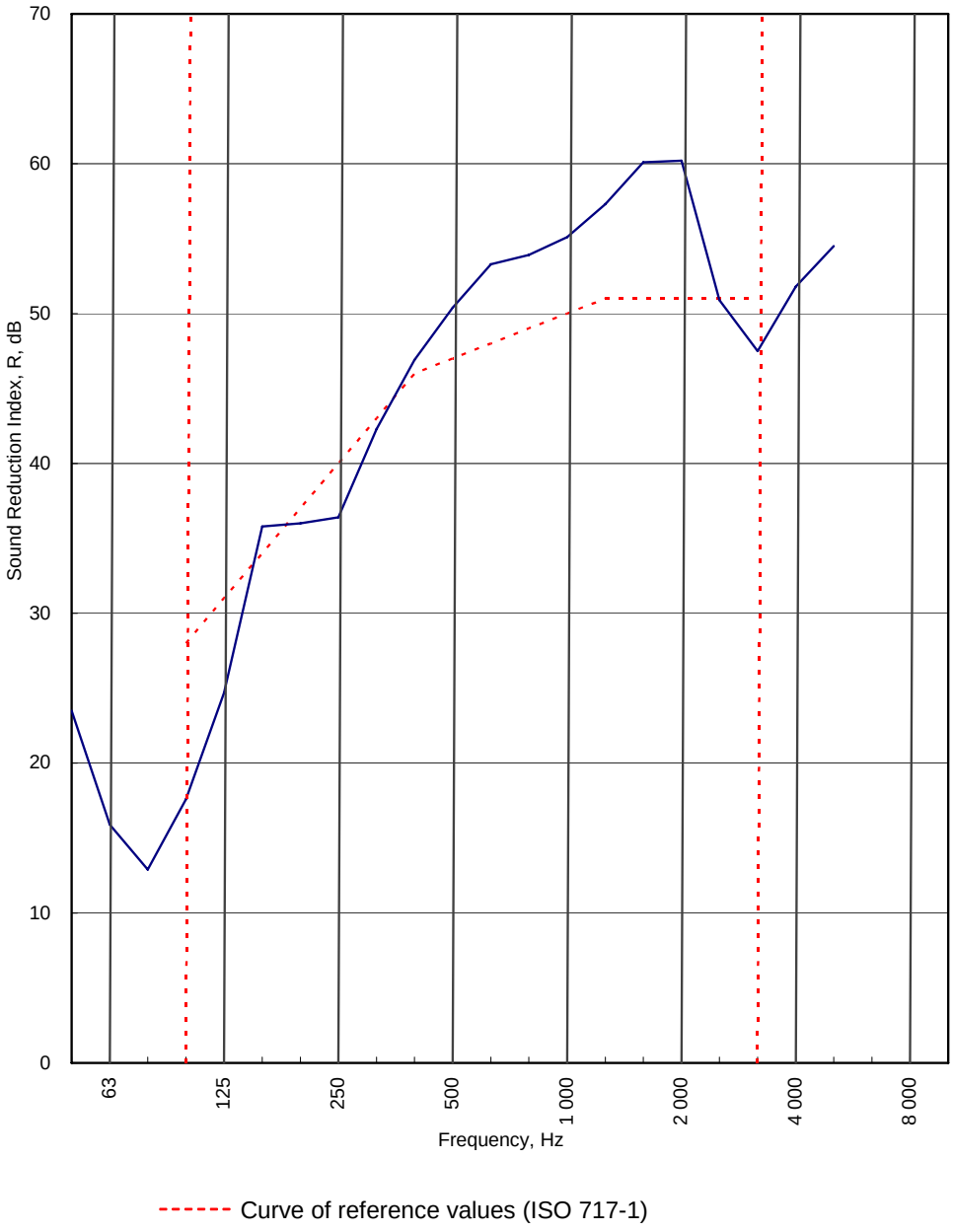
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H15575AA
Test Date:
12/12/07

Freq. Hz	R dB
50	23.5
63	15.9
80	12.9
100	17.6
125	24.7
160	35.8
200	36.0
250	36.4
315	42.3
400	46.9
500	50.4
630	53.3
800	53.9
1 000	55.1
1 250	57.3
1 600	60.1
2 000	60.2
2 500	50.9
3 150	47.5
4 000	51.8
5 000	54.5
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 47 (-3;-11) dB

Max dev. 10.4 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-6 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-3 dB**

$C_{tr,50\text{-}3150}$= **-16 dB** $C_{tr,50\text{-}5000}$= **-16 dB** $C_{tr,100\text{-}5000}$: **-11 dB**

UKAS TESTING
0296

Customer: **CMH Design and Consultancy Services Limited**

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15575AA** Test Date: **12/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.14**
Temperature, deg.C:	**14.5**	**15**
Rel. Humidity, %RH:	**45.8**	**42.8**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	62.0	36.0	14.5	36.0	0.63	-2.5	**23.5**		
63	66.1	49.2	16.9	49.2	0.88	-1.0	**15.9**		15.7
80	70.0	55.4	7.1	55.4	0.76	-1.7	**12.9**		
100	83.5	64.7	25.8	64.7	0.85	-1.2	**17.6**	10.4	
125	83.0	57.7	9.2	57.7	0.97	-0.6	**24.7**	6.3	21.5
160	108.9	73.6	1.4	73.6	1.25	0.5	**35.8**		
200	94.8	59.4	19.6	59.4	1.29	0.6	**36.0**	1.0	
250	96.5	60.9	7.2	60.9	1.33	0.8	**36.4**	3.6	37.5
315	96.4	55.3	11.8	55.3	1.46	1.2	**42.3**	0.7	
400	95.0	48.7	25.6	48.7	1.28	0.6	**46.9**		
500	92.9	43.2	11.8	43.2	1.32	0.7	**50.4**		49.4
630	92.0	39.8	5.7	39.8	1.44	1.1	**53.3**		
800	92.4	39.6	5.2	39.6	1.44	1.1	**53.9**		
1 000	92.3	38.1	4.0	38.1	1.38	0.9	**55.1**		55.2
1 250	93.4	37.1	8.2	37.1	1.39	1.0	**57.3**		
1 600	96.2	37.2	4.2	37.2	1.42	1.1	**60.1**		
2 000	97.7	38.4	3.0	38.4	1.38	0.9	**60.2**		54.7
2 500	96.1	45.6	3.1	45.6	1.21	0.4	**50.9**	0.1	
3 150	95.2	48.0	4.2	48.0	1.18	0.3	**47.5**	3.5	
4 000	97.1	45.3	5.0	45.3	1.12	0.0	**51.8**		50.3
5 000	100.9	46.1	6.5	46.1	1.04	-0.3	**54.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	47	**-3**	**-11**		
	(100-5000)	**-3**	**-11**		
	(50-3150)	**-6**	**-16**		
	(50-5000)	**-5**	**-16**		

Procedure: ISO140/3/A - issue 1

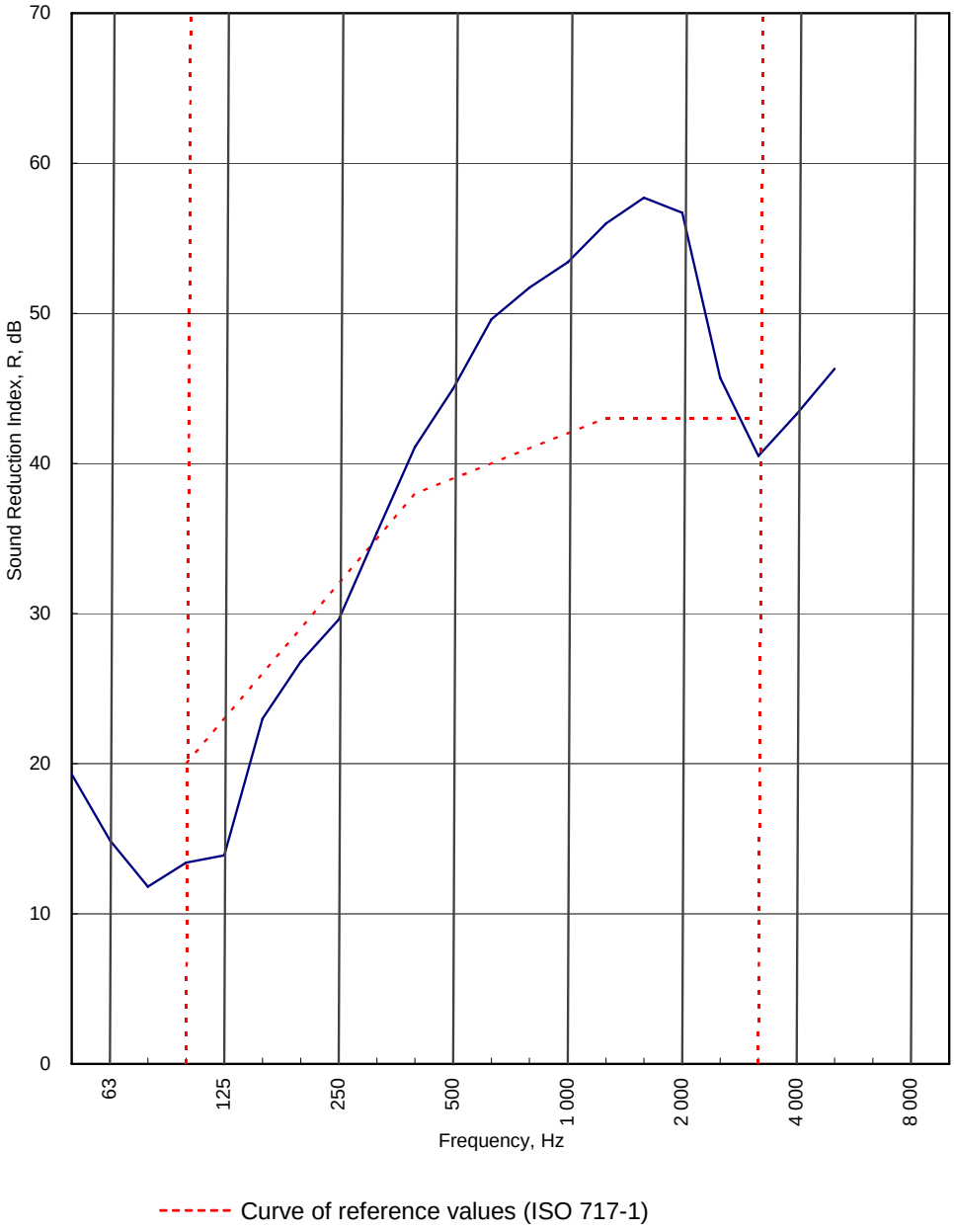
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H15576AA
Test Date:
12/12/07

Freq. Hz	R dB
50	19.3
63	14.9
80	11.8
100	13.4
125	13.9
160	23.0
200	26.8
250	29.6
315	35.4
400	41.1
500	45.0
630	49.6
800	51.7
1 000	53.4
1 250	56.0
1 600	57.7
2 000	56.7
2 500	45.7
3 150	40.5
4 000	43.3
5 000	46.3
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997

Rw (C;Ctr) = 39 (-3;-9) dB

Max dev. 9.1 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-4 dB** $C_{50\text{-}5000}$= **-3 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-12 dB** $C_{tr,50\text{-}5000}$= **-12 dB** $C_{tr,100\text{-}5000}$= **-9 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15576AA** Test Date: **12/12/07**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2	Room Volume, m^3:	**98**	**60.35**
		Temperature, deg.C:	**14.6**	**14.7**
		Rel. Humidity, %RH:	**45.8**	**43.6**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.6	40.3	11.9	40.3	**0.70**	-2.0	**19.3**		
63	65.2	50.2	11.6	50.2	**1.08**	-0.1	**14.9**		14.4
80	71.1	59.5	9.8	59.5	**1.17**	0.2	**11.8**		
100	82.9	67.8	28.2	67.8	**0.76**	-1.7	**13.4**	6.6	
125	81.9	66.7	11.7	66.7	0.83	-1.3	**13.9**	9.1	15.2
160	108.1	84.9	6.4	84.9	1.06	-0.2	**23.0**	3.0	
200	94.0	67.1	20.5	67.1	1.08	-0.1	**26.8**	2.2	
250	96.3	67.4	7.6	67.4	1.31	0.7	**29.6**	2.4	29.4
315	96.3	61.8	12.6	61.8	1.37	0.9	**35.4**		
400	95.2	54.9	20.6	54.9	1.34	0.8	**41.1**		
500	93.1	48.7	10.7	48.7	1.29	0.6	**45.0**		44.0
630	92.2	43.6	5.9	43.6	1.40	1.0	**49.6**		
800	92.7	42.1	7.4	42.1	1.43	1.1	**51.7**		
1 000	92.3	39.8	9.0	39.8	1.39	0.9	**53.4**		53.4
1 250	93.4	38.5	7.6	38.5	1.44	1.1	**56.0**		
1 600	96.2	39.6	4.6	39.6	1.44	1.1	**57.7**		
2 000	97.8	42.0	4.4	42.0	1.36	0.9	**56.7**		49.9
2 500	96.2	50.7	4.1	50.7	1.17	0.2	**45.7**		
3 150	95.3	55.0	5.5	55.0	1.18	0.2	**40.5**	2.5	
4 000	97.1	53.8	5.8	53.8	1.12	0.0	**43.3**		42.7
5 000	101.1	54.5	7.3	54.5	1.04	-0.3	**46.3**		
6 300									
8 000									
10 000									

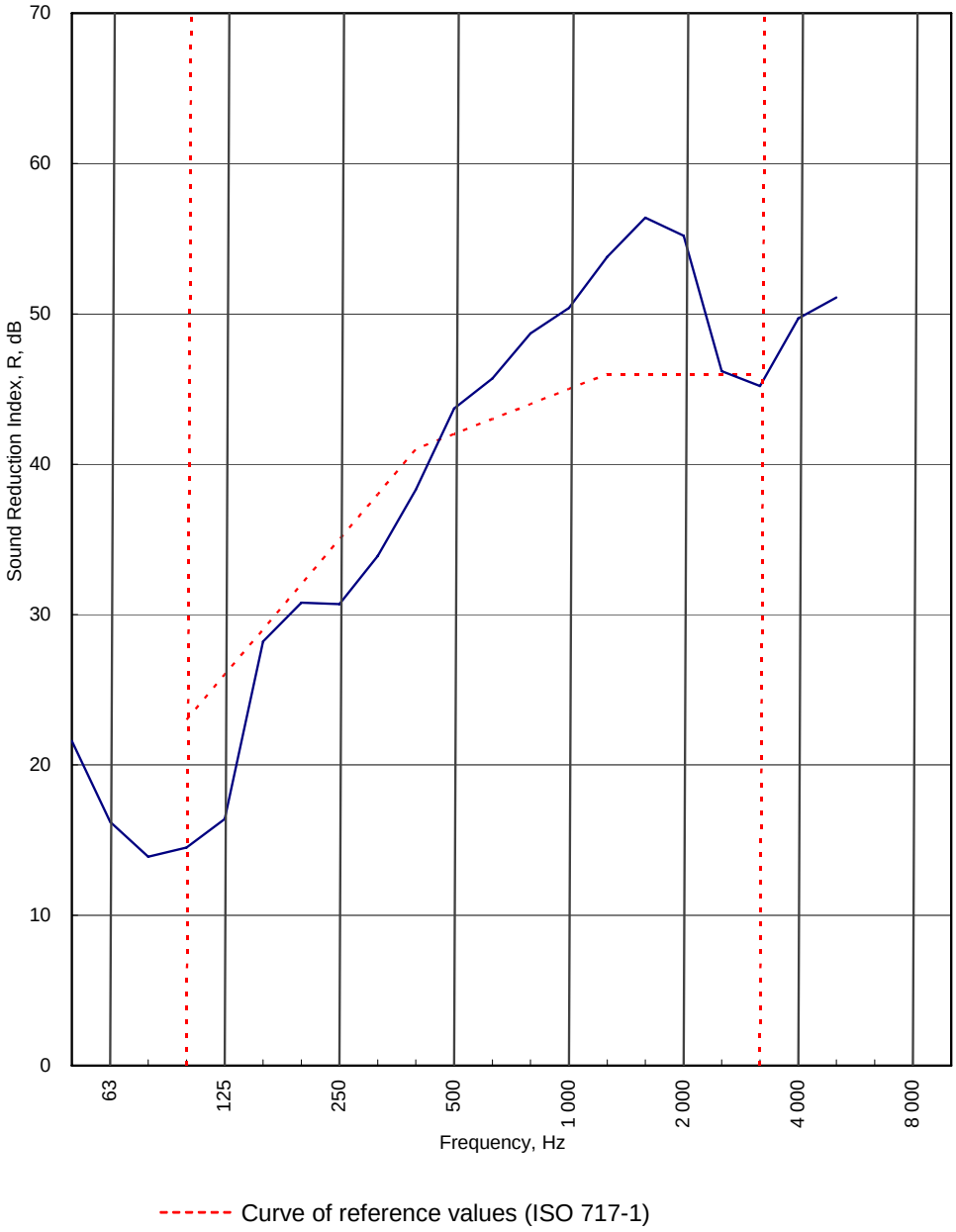
Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.8**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	39	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
	(50-3150)	**-4**	**-12**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-3**	**-12**	Worksheet: 140_3_1.XLS	

Customer: **CMH Design and Consultancy Services Limited**

UKAS TESTING
0296

Test Code:
H15577AA
Test Date:
12/12/07

Freq. Hz	R dB
50	21.6
63	16.2
80	13.9
100	14.5
125	16.4
160	28.2
200	30.8
250	30.7
315	33.9
400	38.3
500	43.7
630	45.7
800	48.7
1 000	50.4
1 250	53.8
1 600	56.4
2 000	55.2
2 500	46.2
3 150	45.2
4 000	49.7
5 000	51.1
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 42 (-4;-10) dB

Max dev. 9.6 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-5 dB** $C_{50\text{-}5000}$= **-4 dB** $C_{100\text{-}5000}$= **-3 dB**

$C_{tr,50\text{-}3150}$= **-13 dB** $C_{tr,50\text{-}5000}$= **-13 dB** $C_{tr,100\text{-}5000}$: **-10 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15577AA** Test Date: **12/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.14**
Temperature, deg.C:	**14.4**	**14.2**
Rel. Humidity, %RH:	**44.8**	**41**

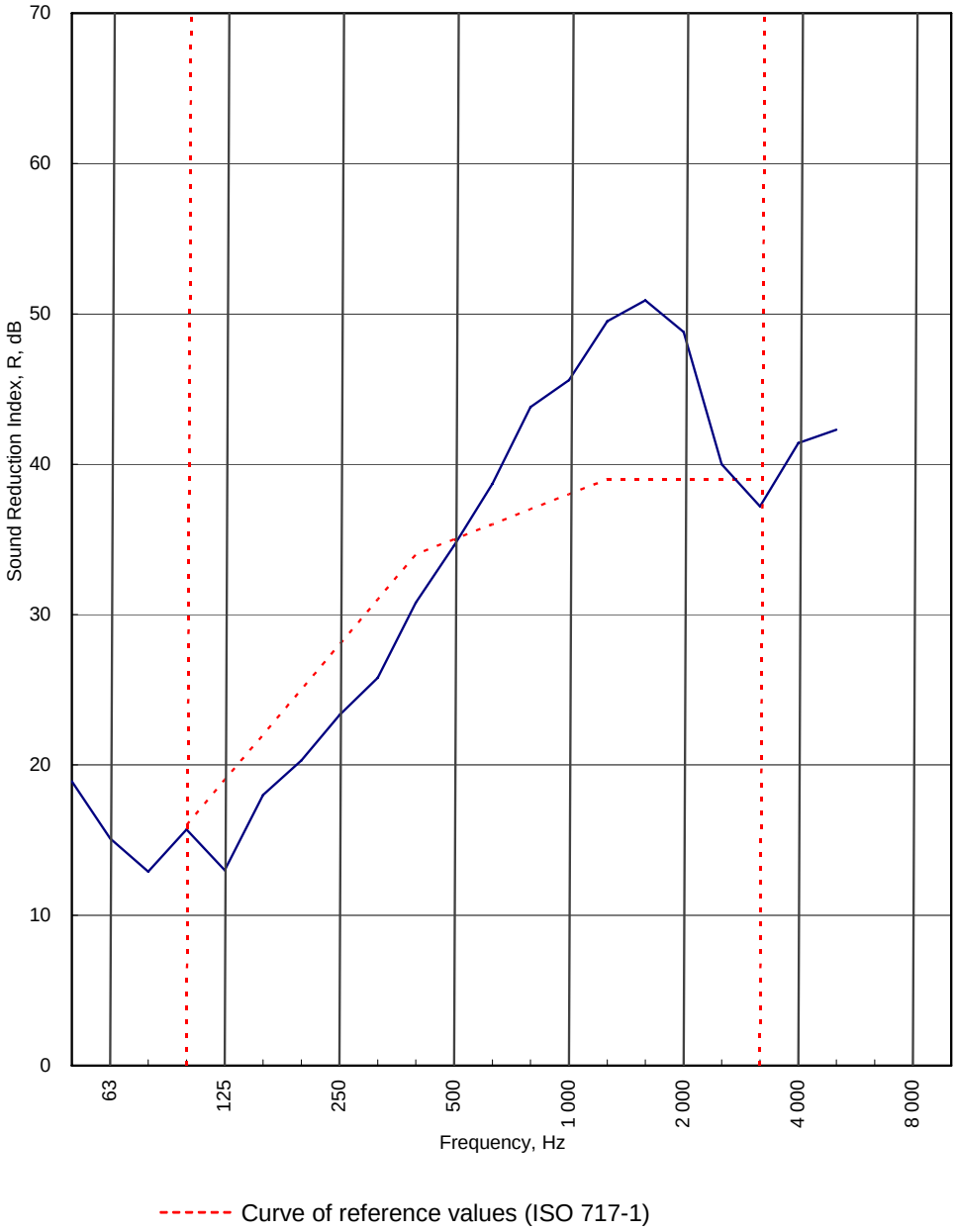
Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	61.0	36.6	14.8	36.6	**0.58**	-2.8	**21.6**		
63	64.9	48.1	15.3	48.1	**0.98**	-0.6	**16.2**		16.2
80	70.7	55.6	8.9	55.6	0.85	-1.2	**13.9**		
100	83.6	67.8	27.4	67.8	0.82	-1.3	**14.5**	8.5	
125	103.3	86.2	11.2	86.2	0.95	-0.7	**16.4**	9.6	17.0
160	88.3	60.6	8.1	60.6	1.26	0.5	**28.2**	0.8	
200	94.0	63.5	21.3	63.5	1.19	0.3	**30.8**	1.2	
250	96.3	66.6	9.1	66.6	1.39	1.0	**30.7**	4.3	31.6
315	96.3	63.5	12.0	63.5	1.42	1.1	**33.9**	4.1	
400	95.0	57.4	26.2	57.4	1.30	0.7	**38.3**	2.7	
500	92.9	49.9	12.3	49.9	1.32	0.7	**43.7**		41.4
630	92.0	47.1	5.3	47.1	1.33	0.8	**45.7**		
800	92.4	45.0	5.3	45.0	1.51	1.3	**48.7**		
1 000	92.2	42.8	4.5	42.8	1.39	1.0	**50.4**		50.5
1 250	93.3	40.4	8.7	40.4	1.38	0.9	**53.8**		
1 600	96.1	40.7	4.4	40.7	1.41	1.0	**56.4**		
2 000	97.7	43.4	3.4	43.4	1.38	0.9	**55.2**		50.1
2 500	96.1	50.2	3.1	50.2	1.19	0.3	**46.2**		
3 150	95.2	50.1	4.3	50.1	1.14	0.1	**45.2**	0.8	
4 000	96.9	47.1	4.9	47.1	1.08	-0.1	**49.7**		47.9
5 000	100.8	49.1	6.5	49.1	0.98	-0.6	**51.1**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**32**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	42	**-4**	**-10**		
	(100-5000)	**-3**	**-10**		
	(50-3150)	**-5**	**-13**		
RT's > factor 1.5 apart	**(50-5000)**	**-4**	**-13**	Procedure: ISO140/3/A - issue 1	
				Worksheet: 140_3_1.XLS	

UKAS TESTING
0296

Test Code:
H15578AA
Test Date:
12/12/07

Freq. Hz	R dB
50	18.9
63	15.1
80	12.9
100	15.7
125	13.0
160	18.0
200	20.3
250	23.3
315	25.8
400	30.8
500	34.6
630	38.7
800	43.8
1 000	45.6
1 250	49.5
1 600	50.9
2 000	48.8
2 500	40.0
3 150	37.2
4 000	41.4
5 000	42.3
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 35 (-2;-7) dB

Max dev. 6 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-2 dB** $C_{50\text{-}5000}$= **-2 dB** $C_{100\text{-}5000}$= **-1 dB**

$C_{tr,50\text{-}3150}$= **-8 dB** $C_{tr,50\text{-}5000}$= **-8 dB** $C_{tr,100\text{-}5000}$= **-7 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15578AA** Test Date: **12/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.35**
Temperature, deg.C:	**14.6**	**14.8**
Rel. Humidity, %RH:	**46.2**	**44.8**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	60.9	40.1	14.9	40.1	**0.72**	-1.9	**18.9**		
63	64.6	49.7	16.9	49.7	**1.17**	0.2	**15.1**		15.0
80	71.5	58.1	10.4	58.1	0.99	-0.5	**12.9**		
100	84.0	68.0	27.3	68.0	1.05	-0.3	**15.7**	0.3	
125	102.7	89.1	11.7	89.1	0.97	-0.6	**13.0**	6.0	15.1
160	108.1	90.1	12.8	90.1	1.11	0.0	**18.0**	4.0	
200	94.1	74.0	19.7	74.0	1.17	0.2	**20.3**	4.7	
250	96.0	73.4	9.9	73.4	1.32	0.7	**23.3**	4.7	22.6
315	96.2	71.2	12.7	71.2	1.33	0.8	**25.8**	5.2	
400	95.0	64.8	22.2	64.8	1.29	0.6	**30.8**	3.2	
500	93.0	58.9	10.6	58.9	1.25	0.5	**34.6**	0.4	33.6
630	92.1	54.3	4.9	54.3	1.37	0.9	**38.7**		
800	92.7	50.3	5.1	50.3	1.55	1.4	**43.8**		
1 000	92.3	47.9	5.3	47.9	1.46	1.2	**45.6**		45.7
1 250	93.5	45.3	6.9	45.3	1.52	1.3	**49.5**		
1 600	96.1	46.3	3.2	46.3	1.43	1.1	**50.9**		
2 000	97.7	50.0	3.3	50.0	1.43	1.1	**48.8**		43.9
2 500	96.2	56.5	3.0	56.5	1.20	0.3	**40.0**		
3 150	95.3	58.3	4.5	58.3	1.16	0.2	**37.2**	1.8	
4 000	97.1	55.6	4.9	55.6	1.08	-0.1	**41.4**		39.7
5 000	101.0	58.4	6.9	58.4	1.04	-0.3	**42.3**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**30.3**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	35	**-2**	**-7**		
	(100-5000)	**-1**	**-7**		
	(50-3150)	**-2**	**-8**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-2**	**-8**	Worksheet: 140_3_1.XLS	

UKAS TESTING
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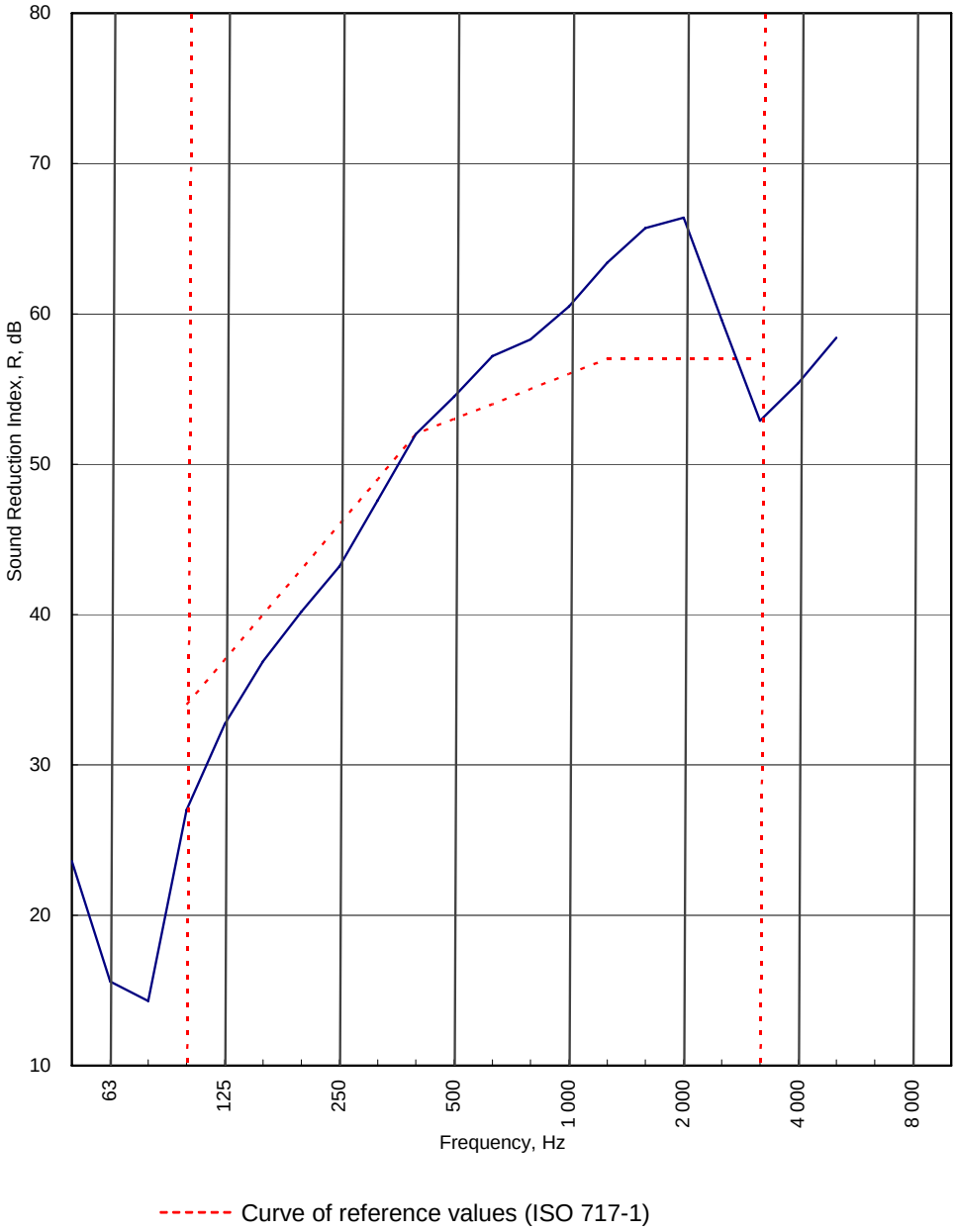
Customer: **CMH Design and Consultancy Services Limited**

Test Code:
H15579AA
Test Date:
12/12/07

Freq. Hz	R dB
50	23.6
63	15.6
80	14.3
100	27.0
125	32.7
160	36.9
200	40.2
250	43.2
315	47.6
400	52.0
500	54.5
630	57.2
800	58.3
1 000	60.5
1 250	63.4
1 600	65.7
2 000	66.4
2 500	59.6
3 150	52.9
4 000	55.4
5 000	58.4
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997

Rw (C;Ctr) = 53 (-2;-8) dB

Max dev. 7 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-8 dB** $C_{50\text{-}5000}$= **-7 dB** $C_{100\text{-}5000}$= **-1 dB**

$C_{tr,50\text{-}3150}$= **-20 dB** $C_{tr,50\text{-}5000}$= **-20 dB** $C_{tr,100\text{-}5000}$: **-8 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15579AA** Test Date: **12/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.14**
Temperature, deg.C:	**14.9**	**15.1**
Rel. Humidity, %RH:	**46.9**	**44.6**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.4	62.3	16.5	62.3	0.63	-2.5	**23.6**		
63	87.6	70.9	18.9	70.9	0.87	-1.1	**15.6**		16.4
80	71.0	55.0	10.7	55.0	0.76	-1.7	**14.3**		
100	84.1	56.4	21.9	56.4	0.95	-0.7	**27.0**	7.0	
125	82.4	49.3	11.0	49.3	1.01	-0.4	**32.7**	4.3	30.4
160	88.4	51.9	8.7	51.9	1.21	0.4	**36.9**	3.1	
200	94.4	55.1	18.6	55.1	1.38	0.9	**40.2**	2.8	
250	96.5	54.7	6.7	54.7	1.53	1.4	**43.2**	2.8	42.7
315	96.5	50.2	7.6	50.2	1.50	1.3	**47.6**	1.4	
400	95.2	44.0	14.2	44.0	1.33	0.8	**52.0**		
500	93.2	39.3	6.2	39.3	1.29	0.6	**54.5**		54.1
630	92.1	36.0	4.1	36.0	1.42	1.1	**57.2**		
800	92.4	35.2	4.9	35.2	1.44	1.1	**58.3**		
1 000	92.2	32.9	14.4	32.9	1.48	1.2	**60.5**		60.3
1 250	93.3	31.1	5.2	31.1	1.48	1.2	**63.4**		
1 600	96.0	31.4	5.6	31.4	1.45	1.1	**65.7**		
2 000	97.6	32.2	5.7	32.2	1.40	1.0	**66.4**		62.7
2 500	96.1	36.9	5.9	36.9	1.21	0.4	**59.6**		
3 150	95.2	42.5	7.4	42.5	1.17	0.2	**52.9**	4.1	
4 000	97.1	41.5	10.1	41.5	1.06	-0.2	**55.4**		55.0
5 000	100.8	42.0	10.4	42.0	1.01	-0.4	**58.4**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.5**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	53	**-2**	**-8**		
	(100-5000)	**-1**	**-8**		
	(50-3150)	**-8**	**-20**		
	(50-5000)	**-7**	**-20**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

UKAS TESTING

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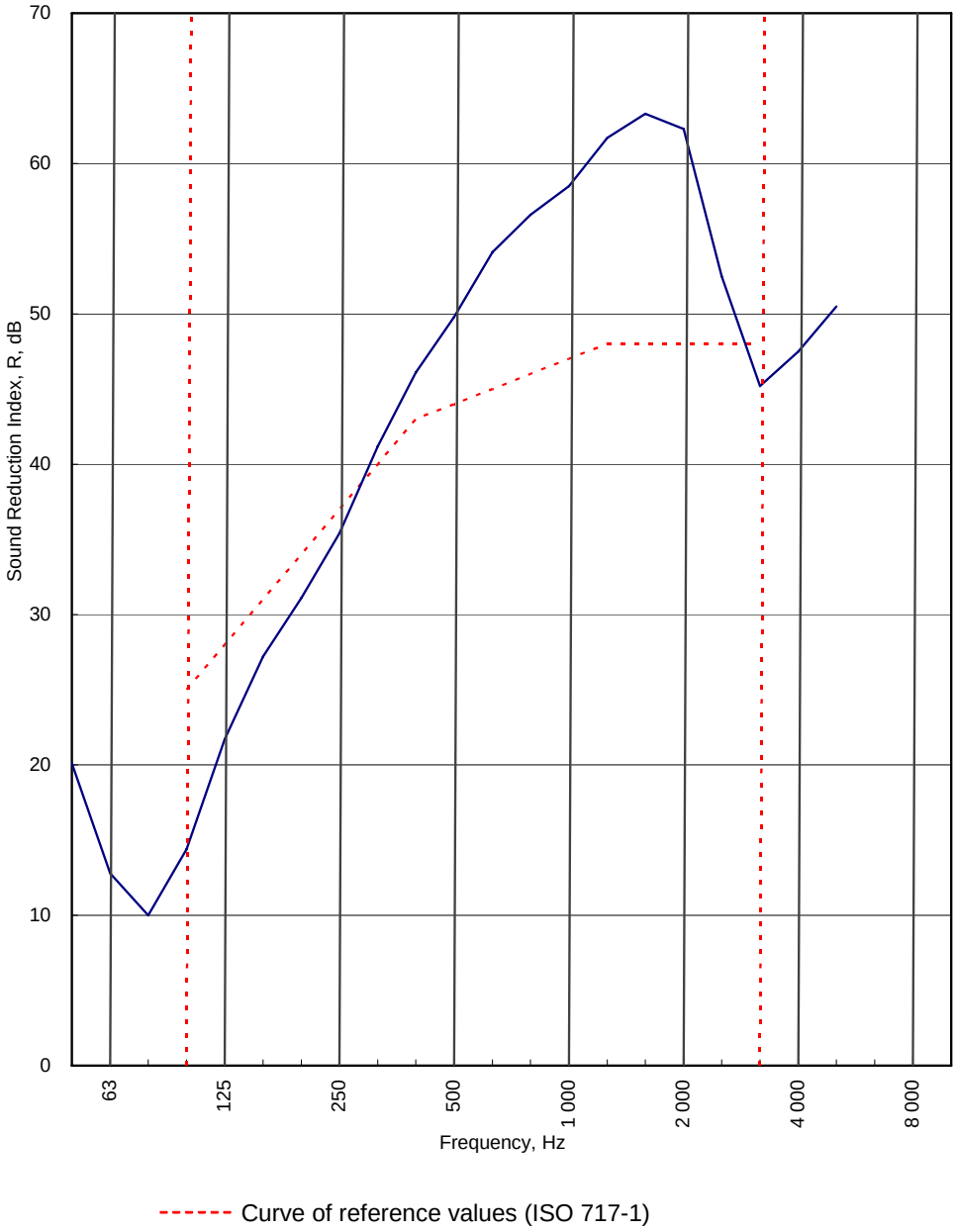
Test Code:
H15580AA
Test Date:
13/12/07

Freq. Hz	R dB
50	20.1
63	12.8
80	10.0
100	14.4
125	21.7
160	27.2
200	31.1
250	35.4
315	41.2
400	46.1
500	49.8
630	54.1
800	56.6
1 000	58.5
1 250	61.7
1 600	63.3
2 000	62.3
2 500	52.5
3 150	45.2
4 000	47.5
5 000	50.5
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 44 (-4;-11) dB

Max dev. 10.6 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-6 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-3 dB**

$C_{tr,50\text{-}3150}$= **-16 dB** $C_{tr,50\text{-}5000}$= **-16 dB** $C_{tr,100\text{-}5000}$: **-11 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15580AA** Test Date: **13/12/07**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2	Room Volume, m^3:	**98**	**60.35**
		Temperature, deg.C:	**14.7**	**14.6**
		Rel. Humidity, %RH:	**43.6**	**42.5**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	87.8	64.4	19.2	64.4	0.52	-3.3	**20.1**		
63	87.9	73.5	24.1	73.5	0.77	-1.6	**12.8**		12.7
80	69.9	57.7	11.8	57.7	0.68	-2.2	**10.0**		
100	82.8	66.8	28.7	66.8	0.78	-1.6	**14.4**	10.6	
125	82.7	60.2	12.0	60.2	0.94	-0.8	**21.7**	6.3	18.2
160	108.4	80.8	7.9	80.8	1.03	-0.4	**27.2**	3.8	
200	94.1	63.7	17.1	63.7	1.32	0.7	**31.1**	2.9	
250	96.3	62.2	4.4	62.2	1.50	1.3	**35.4**	1.6	34.2
315	96.3	56.4	5.3	56.4	1.52	1.3	**41.2**		
400	95.1	49.9	15.0	49.9	1.36	0.9	**46.1**		
500	93.3	44.1	2.4	44.1	1.27	0.6	**49.8**		48.9
630	92.6	39.4	1.7	39.4	1.36	0.9	**54.1**		
800	93.0	37.6	4.3	37.6	1.47	1.2	**56.6**		
1 000	92.5	35.2	14.7	35.2	1.48	1.2	**58.5**		58.5
1 250	93.8	33.2	4.9	33.2	1.43	1.1	**61.7**		
1 600	96.3	34.2	5.7	34.2	1.48	1.2	**63.3**		
2 000	98.0	36.6	5.3	36.6	1.39	0.9	**62.3**		56.5
2 500	96.2	44.0	5.7	44.0	1.20	0.3	**52.5**		
3 150	95.3	50.3	7.2	50.3	1.16	0.2	**45.2**	2.8	
4 000	97.0	49.4	10.0	49.4	1.10	-0.1	**47.5**		47.2
5 000	101.1	50.2	10.2	50.2	1.02	-0.4	**50.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	44	**-4**	**-11**		
	(100-5000)	**-3**	**-11**		
	(50-3150)	**-6**	**-16**		
	(50-5000)	**-5**	**-16**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

UKAS TESTING

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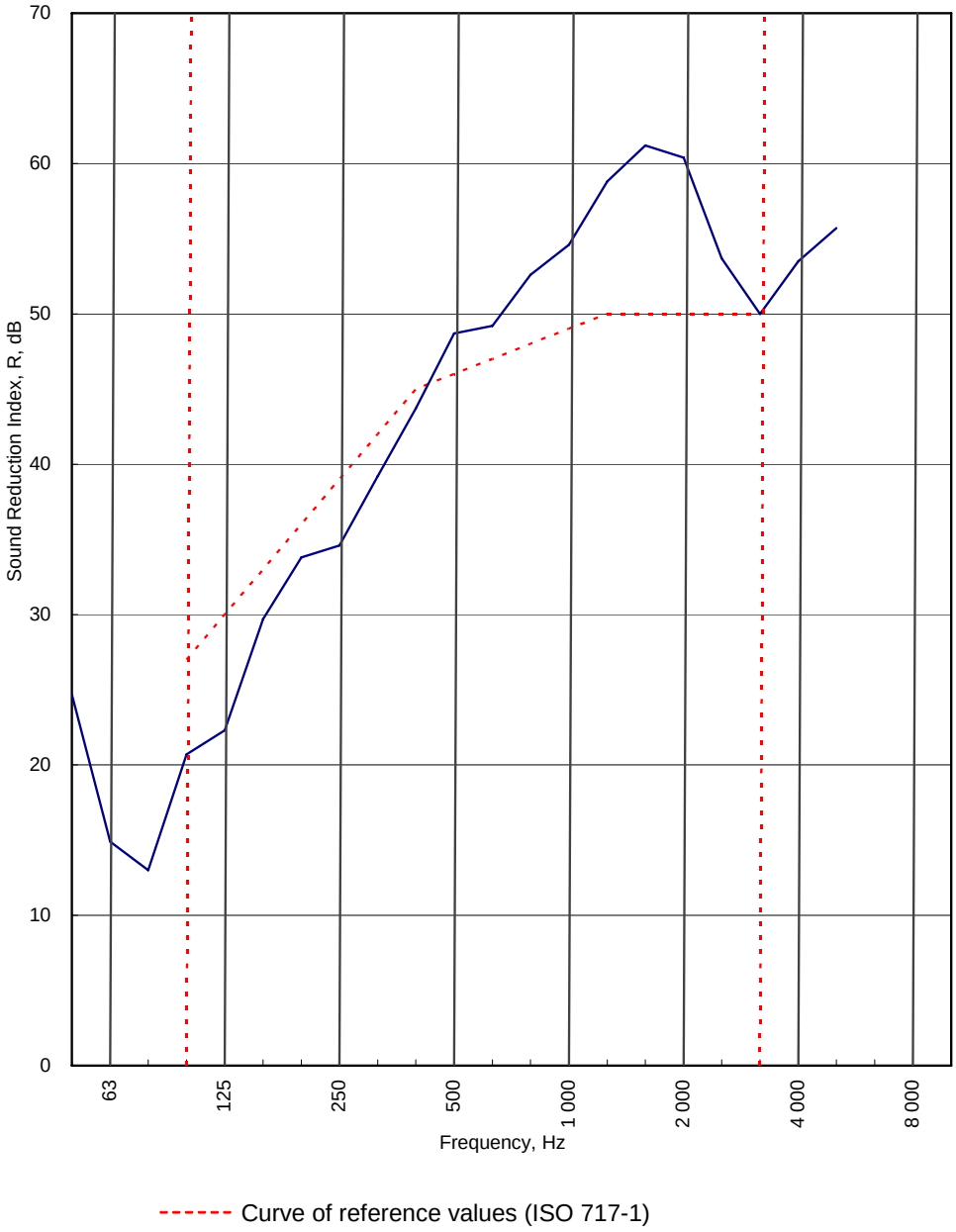
Test Code:
H15581AA
Test Date:
12/12/07

Freq. Hz	R dB
50	24.7
63	14.9
80	13.0
100	20.7
125	22.3
160	29.7
200	33.8
250	34.6
315	39.2
400	43.7
500	48.7
630	49.2
800	52.6
1 000	54.6
1 250	58.8
1 600	61.2
2 000	60.4
2 500	53.7
3 150	50.0
4 000	53.5
5 000	55.7
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 46 (-3;-9) dB

Max dev. 7.7 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-5 dB** $C_{50\text{-}5000}$= **-4 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-15 dB** $C_{tr,50\text{-}5000}$= **-15 dB** $C_{tr,100\text{-}5000}$: **-9 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15581AA** Test Date: **12/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.14**
Temperature, deg.C:	**14.5**	**14.5**
Rel. Humidity, %RH:	**47.6**	**44**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	62.1	34.9	21.2	**34.7**	0.60	-2.7	**24.7**		
63	63.6	47.6	13.7	47.6	0.87	-1.1	**14.9**		15.4
80	70.8	56.1	7.2	56.1	0.76	-1.7	**13.0**		
100	84.4	62.9	21.5	62.9	0.93	-0.8	**20.7**	6.3	
125	82.9	60.0	8.3	60.0	0.97	-0.6	**22.3**	7.7	22.9
160	108.8	79.3	5.4	79.3	1.17	0.2	**29.7**	3.3	
200	94.6	62.1	19.3	62.1	1.49	1.3	**33.8**	2.2	
250	96.5	62.9	7.4	62.9	1.39	1.0	**34.6**	4.4	35.3
315	96.5	58.5	13.9	58.5	1.46	1.2	**39.2**	2.8	
400	95.4	52.6	26.6	52.6	1.36	0.9	**43.7**	1.3	
500	93.3	45.5	11.7	45.5	1.38	0.9	**48.7**		46.4
630	92.1	43.9	5.2	43.9	1.41	1.0	**49.2**		
800	92.6	41.4	6.5	41.4	1.53	1.4	**52.6**		
1 000	92.2	38.7	5.7	38.7	1.43	1.1	**54.6**		54.7
1 250	105.3	47.7	6.9	47.7	1.46	1.2	**58.8**		
1 600	107.4	47.4	3.9	47.4	1.47	1.2	**61.2**		
2 000	108.2	48.8	3.4	48.8	1.41	1.0	**60.4**		57.0
2 500	96.1	42.7	3.0	42.7	1.20	0.3	**53.7**		
3 150	95.3	45.5	4.5	45.5	1.16	0.2	**50.0**		
4 000	97.1	43.6	5.0	43.6	1.12	0.0	**53.5**		52.4
5 000	100.9	44.9	6.8	44.9	1.03	-0.3	**55.7**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	46	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
Background Corrected					
	(50-3150)	**-5**	**-15**		
	(50-5000)	**-4**	**-15**		

Procedure: ISO140/3/A - issue 1

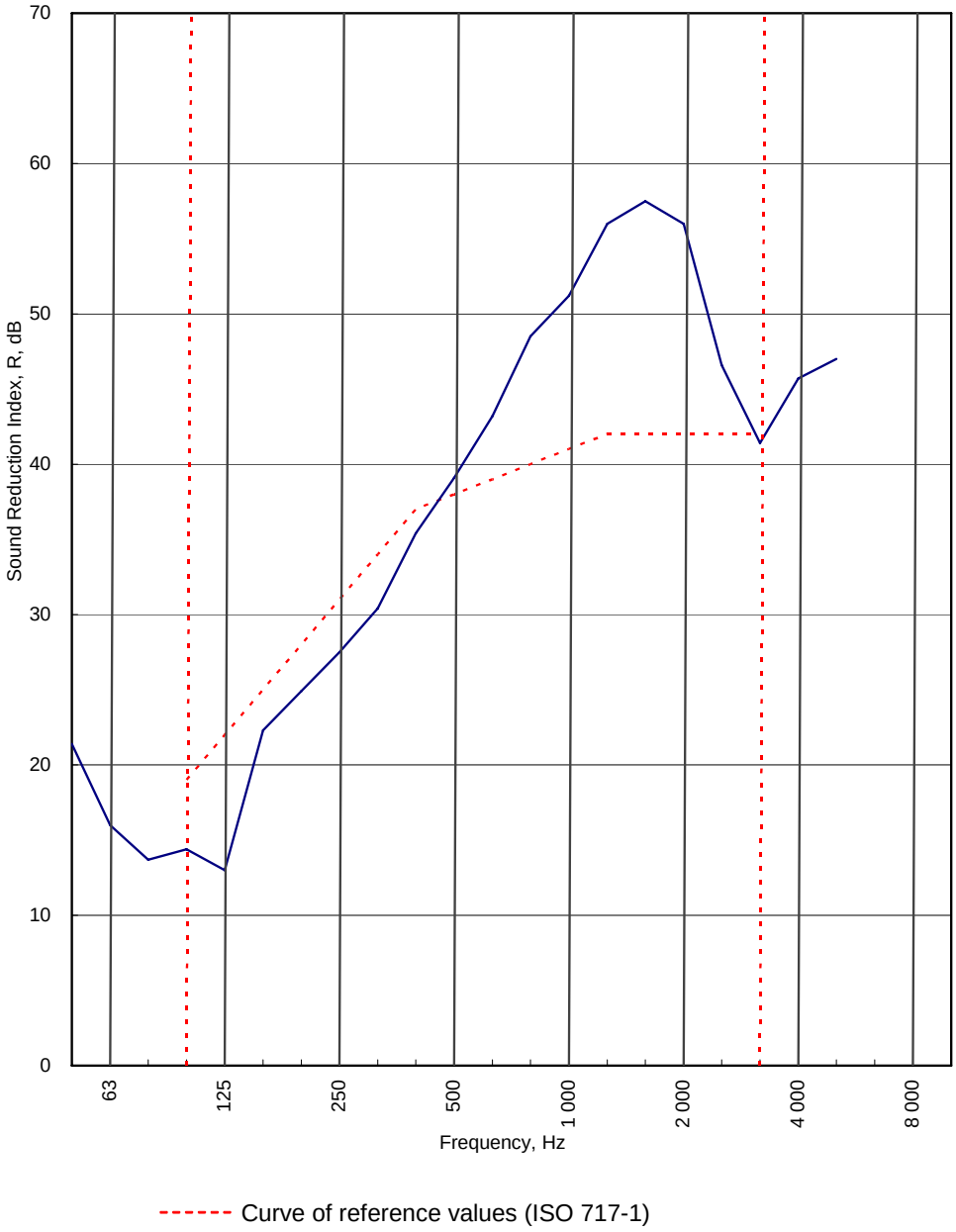
Worksheet: 140_3_1.XLS

UKAS TESTING 0296

Customer: **CMH Design and Consultancy Services Limited**

Test Code:
H15582AA
Test Date:
13/12/07

Freq. Hz	R dB
50	21.4
63	16.0
80	13.7
100	14.4
125	13.0
160	22.3
200	24.9
250	27.5
315	30.4
400	35.4
500	39.1
630	43.2
800	48.5
1 000	51.2
1 250	56.0
1 600	57.5
2 000	56.0
2 500	46.6
3 150	41.4
4 000	45.7
5 000	47.0
6 300	
8 000	
10 000	



Rating according to BS EN ISO 717-1:1997

Rw (C;Ctr) = 38 (-3;-9) dB

Max dev. 9 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-3 dB** $C_{50\text{-}5000}$= **-2 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-10 dB** $C_{tr,50\text{-}5000}$= **-10 dB** $C_{tr,100\text{-}5000}$: **-9 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15582AA** Test Date: **13/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.35**
Temperature, deg.C:	**14.7**	**14.3**
Rel. Humidity, %RH:	**44**	**43.6**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.2	63.9	21.2	63.9	**0.57**	-2.9	**21.4**		
63	88.7	72.1	19.5	72.1	**0.97**	-0.6	**16.0**		16.0
80	71.6	57.1	11.2	57.1	0.94	-0.8	**13.7**		
100	83.4	67.7	28.1	67.7	0.82	-1.3	**14.4**	4.6	
125	102.7	88.8	12.2	88.8	0.91	-0.9	**13.0**	9.0	15.1
160	109.0	86.7	9.5	86.7	1.13	0.0	**22.3**	2.7	
200	94.7	70.5	15.6	70.5	1.30	0.7	**24.9**	3.1	
250	96.4	70.1	10.9	70.1	1.47	1.2	**27.5**	3.5	27.0
315	96.4	67.1	7.0	67.1	1.45	1.1	**30.4**	3.6	
400	95.2	60.4	14.6	60.4	1.27	0.6	**35.4**	1.6	
500	93.0	54.7	2.4	54.7	1.34	0.8	**39.1**		38.2
630	92.1	49.9	1.9	49.9	1.40	1.0	**43.2**		
800	92.8	45.4	4.2	45.4	1.45	1.1	**48.5**		
1 000	92.4	42.3	14.5	42.3	1.43	1.1	**51.2**		50.9
1 250	93.7	39.0	5.1	39.0	1.50	1.3	**56.0**		
1 600	96.1	39.8	5.6	39.8	1.49	1.2	**57.5**		
2 000	97.7	42.6	5.4	42.6	1.39	0.9	**56.0**		50.6
2 500	96.1	49.7	5.8	49.7	1.17	0.2	**46.6**		
3 150	95.3	54.1	7.2	54.1	1.16	0.2	**41.4**	0.6	
4 000	97.0	51.2	10.1	51.2	1.09	-0.1	**45.7**		44.0
5 000	100.8	53.2	10.3	53.2	0.98	-0.6	**47.0**		
6 300									
8 000									
10 000									

Total U. Dev., dB **28.7**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	38	**-3**	**-9**
	(100-5000)	**-2**	**-9**
	(50-3150)	**-3**	**-10**
RT's > factor 1.5 apart			
	(50-5000)	**-2**	**-10**

Procedure: ISO140/3/A - issue 1

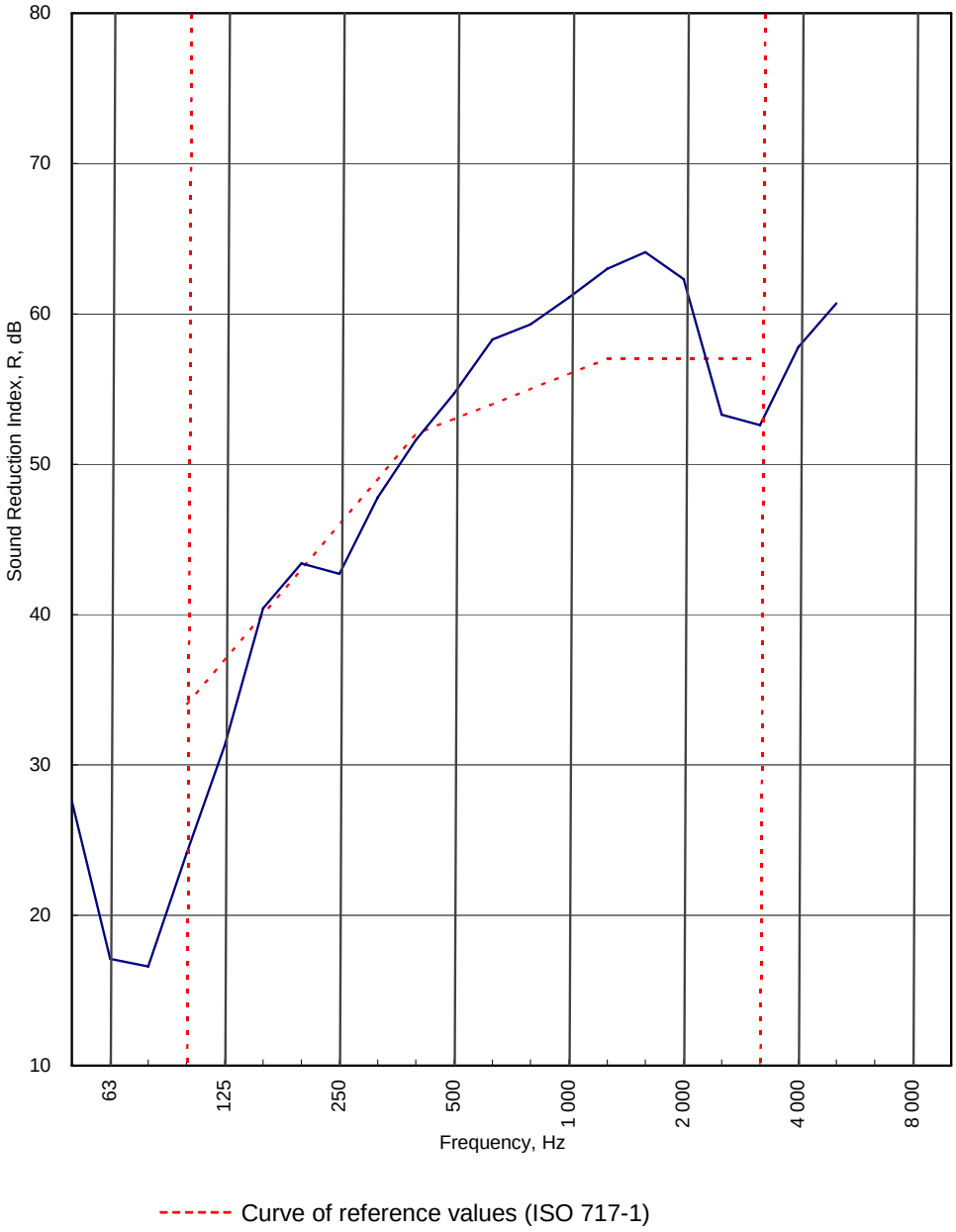
Worksheet: 140_3_1.XLS

UKAS TESTING 0296

Customer: **CMH Design and Consultancy Services Limited**

Test Code:
H15583AA
Test Date:
13/12/07

Freq. Hz	R dB
50	27.6
63	17.1
80	16.6
100	24.1
125	31.3
160	40.4
200	43.4
250	42.7
315	47.8
400	51.6
500	54.7
630	58.3
800	59.3
1 000	61.1
1 250	63.0
1 600	64.1
2 000	62.3
2 500	53.3
3 150	52.6
4 000	57.8
5 000	60.7
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 53 (-3;-10) dB

Max dev. 9.9 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-7 dB** $C_{50\text{-}5000}$= **-6 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-18 dB** $C_{tr,50\text{-}5000}$= **-18 dB** $C_{tr,100\text{-}5000}$: **-10 dB**

UKAS TESTING
0296

LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15583AA** Test Date: **13/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.05**
Temperature, deg.C:	**14.8**	**15**
Rel. Humidity, %RH:	**46.6**	**44.9**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.2	58.6	26.2	58.6	0.70	-2.0	**27.6**		
63	89.3	71.9	22.1	71.9	**1.03**	-0.3	**17.1**		18.4
80	70.8	51.9	16.8	51.9	**0.66**	-2.3	**16.6**		
100	84.3	58.7	20.6	58.7	0.79	-1.5	**24.1**	9.9	
125	83.5	51.7	13.5	51.7	0.99	-0.5	**31.3**	5.7	28.0
160	108.6	67.8	15.0	67.8	1.02	-0.4	**40.4**		
200	94.5	51.7	15.8	51.7	1.27	0.6	**43.4**		
250	96.5	54.9	7.9	54.9	1.42	1.1	**42.7**	3.3	44.1
315	96.5	50.0	7.9	50.0	1.51	1.3	**47.8**	1.2	
400	95.5	44.5	15.2	44.5	1.29	0.6	**51.6**	0.4	
500	93.1	39.1	8.0	39.1	1.31	0.7	**54.7**		54.1
630	92.1	34.7	4.8	34.7	1.36	0.9	**58.3**		
800	92.6	34.2	5.2	34.2	1.36	0.9	**59.3**		
1 000	92.3	32.4	14.1	32.4	1.48	1.2	**61.1**		60.9
1 250	93.3	31.5	4.9	31.5	1.45	1.2	**63.0**		
1 600	96.1	33.1	5.1	33.1	1.42	1.1	**64.1**		
2 000	97.8	36.5	5.5	36.5	1.39	1.0	**62.3**		57.2
2 500	96.1	43.2	5.6	43.2	1.22	0.4	**53.3**	3.7	
3 150	95.3	42.8	7.1	42.8	1.15	0.1	**52.6**	4.4	
4 000	97.2	39.5	9.9	39.5	1.14	0.1	**57.8**		55.7
5 000	101.0	40.0	10.2	40.0	1.03	-0.3	**60.7**		
6 300									
8 000									
10 000									

Total U. Dev., dB **28.6**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	53	**-3**	**-10**
	(100-5000)	**-2**	**-10**
	(50-3150)	**-7**	**-18**
RT's > factor 1.5 apart			
	(50-5000)	**-6**	**-18**

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

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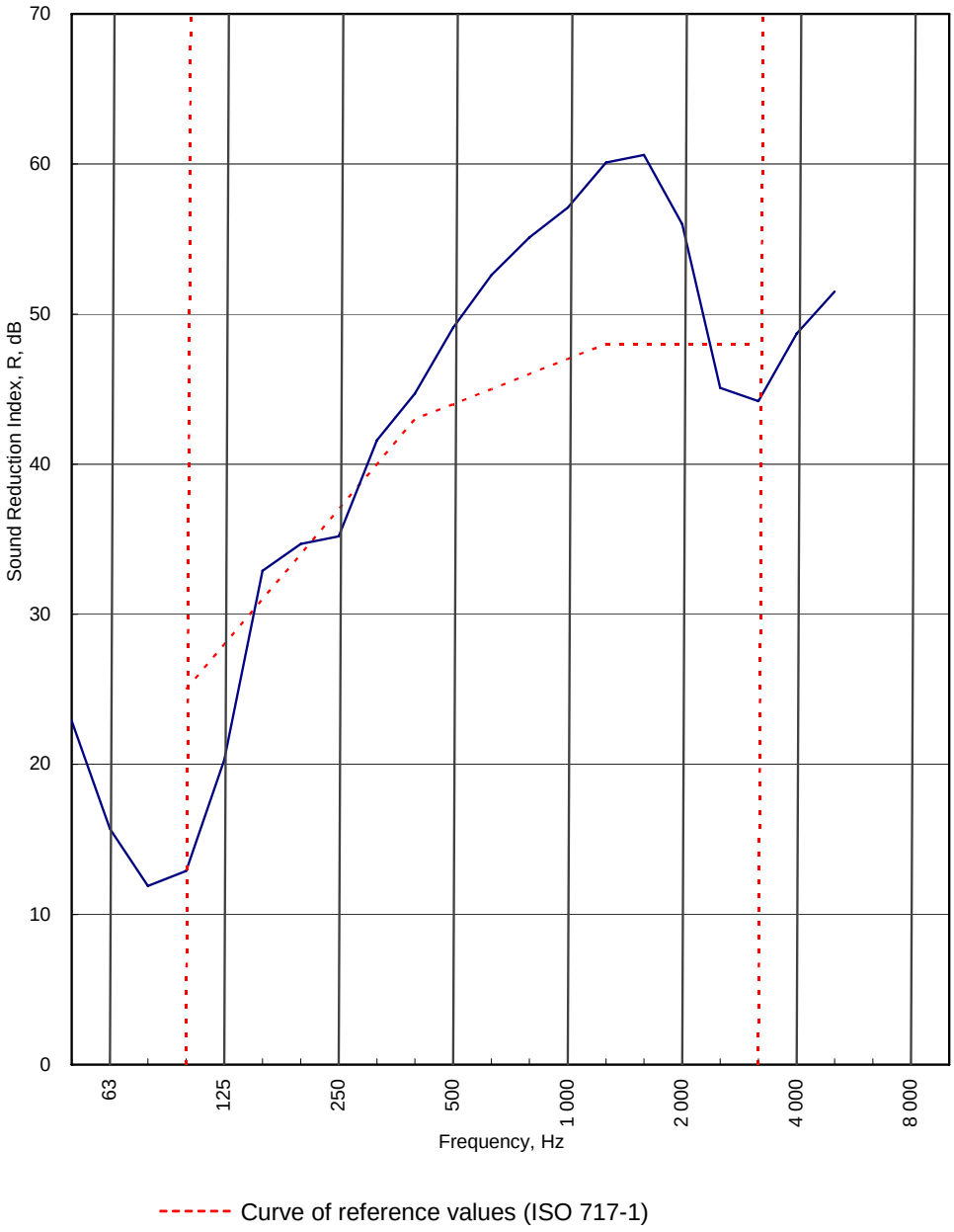
Test Code:
H15584AA
Test Date:
13/12/07

Freq. Hz	R dB
50	22.9
63	15.7
80	11.9
100	12.9
125	20.3
160	32.9
200	34.7
250	35.2
315	41.6
400	44.7
500	49.1
630	52.6
800	55.1
1 000	57.1
1 250	60.1
1 600	60.6
2 000	56.0
2 500	45.1
3 150	44.2
4 000	48.7
5 000	51.5
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 44 (-4;-12) dB

Max dev. 12.1 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-6 dB** $C_{50\text{-}5000}$= **-5 dB** $C_{100\text{-}5000}$= **-4 dB**

$C_{tr,50\text{-}3150}$= **-15 dB** $C_{tr,50\text{-}5000}$= **-15 dB** $C_{tr,100\text{-}5000}$: **-12 dB**

UKAS TESTING
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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15584AA** Test Date: **13/12/07**

		Room T2	Room T1
Specimen Area, S = **8.64** m^2	Room Volume, m^3:	**98**	**60.31**
	Temperature, deg.C:	**14.7**	**14.9**
	Rel. Humidity, %RH:	**47.1**	**44.3**

Freq Hz	Test Room T2 to Test Room T1 Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.7	63.7	22.1	63.7	0.69	-2.1	**22.9**		
63	89.5	72.8	18.7	72.8	0.88	-1.0	**15.7**		14.9
80	70.9	58.1	9.0	58.1	0.90	-0.9	**11.9**		
100	82.6	67.8	24.9	67.8	0.72	-1.9	**12.9**	12.1	
125	102.6	81.5	11.3	81.5	0.92	-0.8	**20.3**	7.7	16.9
160	88.7	56.0	9.0	56.0	1.17	0.2	**32.9**		
200	94.5	59.9	15.5	59.9	1.13	0.1	**34.7**		
250	96.6	62.4	2.1	62.4	1.42	1.0	**35.2**	1.8	36.3
315	96.4	56.0	5.5	56.0	1.46	1.2	**41.6**		
400	95.3	51.6	15.4	51.6	1.39	1.0	**44.7**		
500	93.1	44.8	2.7	44.8	1.35	0.8	**49.1**		47.6
630	92.1	40.2	2.3	40.2	1.31	0.7	**52.6**		
800	92.8	38.6	4.5	38.6	1.38	0.9	**55.1**		
1 000	92.3	36.3	14.5	36.3	1.43	1.1	**57.1**		57.0
1 250	93.4	34.4	5.2	34.4	1.45	1.1	**60.1**		
1 600	96.1	36.8	5.7	36.8	1.50	1.3	**60.6**		
2 000	97.5	42.4	5.6	42.4	1.37	0.9	**56.0**		49.4
2 500	96.1	51.3	6.0	51.3	1.19	0.3	**45.1**	2.9	
3 150	95.3	51.3	7.4	51.3	1.18	0.2	**44.2**	3.8	
4 000	97.2	48.6	10.6	48.6	1.14	0.1	**48.7**		47.1
5 000	100.9	49.1	10.6	49.1	1.04	-0.3	**51.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28.3**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	44	**-4**	**-12**		
	(100-5000)	**-4**	**-12**		
	(50-3150)	**-6**	**-15**		
	(50-5000)	**-5**	**-15**		

Procedure: ISO140/3/A - issue 1

Worksheet: 140_3_1.XLS

UKAS TESTING

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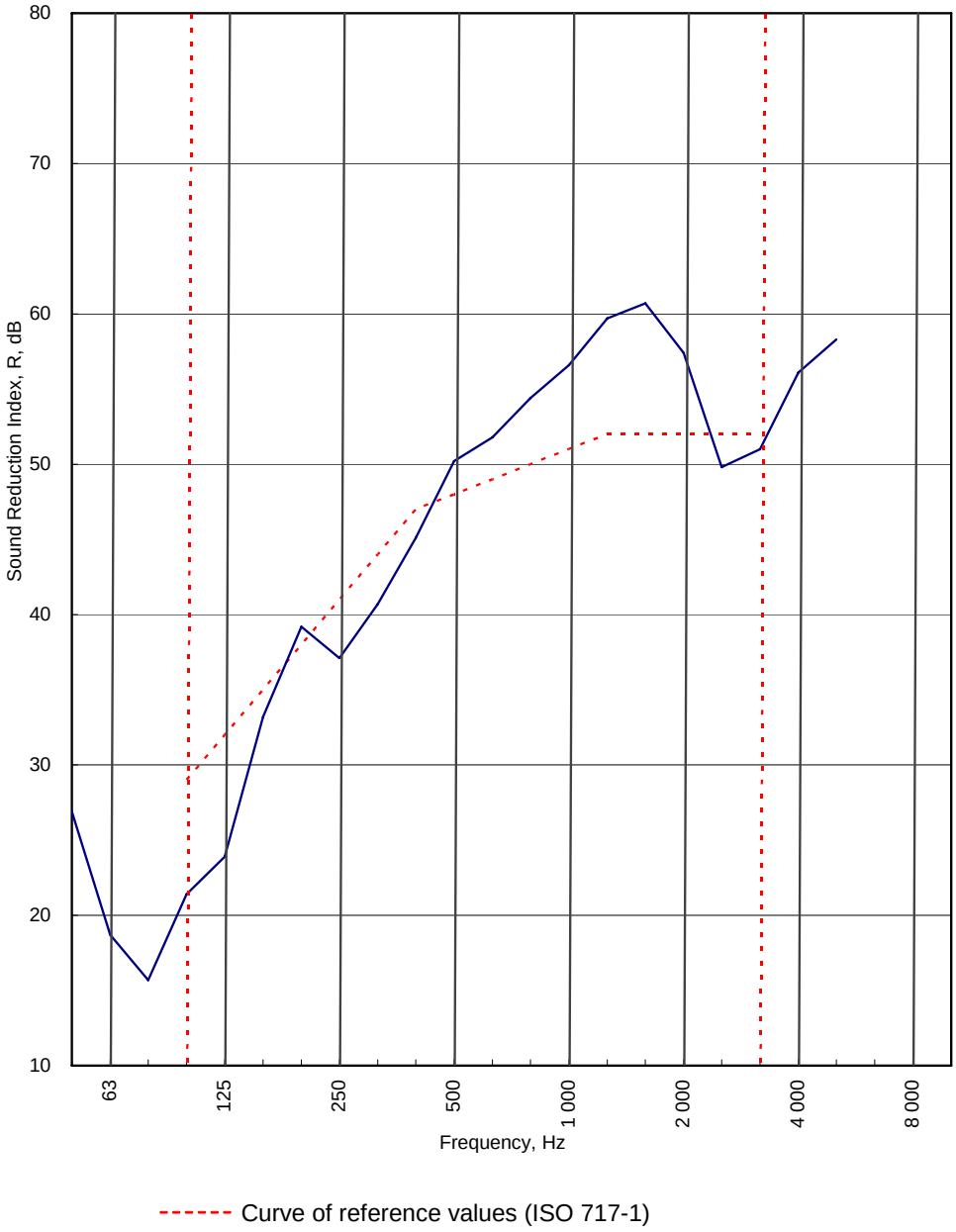
Customer: **CMH Design and Consultancy Services Limited**

Test Code:
H15585AA
Test Date:
13/12/07

Freq. Hz	R dB
50	26.9
63	18.7
80	15.7
100	21.4
125	23.9
160	33.2
200	39.2
250	37.1
315	40.7
400	45.1
500	50.2
630	51.8
800	54.4
1 000	56.6
1 250	59.7
1 600	60.7
2 000	57.4
2 500	49.8
3 150	51.0
4 000	56.1
5 000	58.3
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 48 (-3;-9) dB

Max dev. 8.1 dB at 125 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-5 dB** $C_{50\text{-}5000}$= **-4 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-14 dB** $C_{tr,50\text{-}5000}$= **-14 dB** $C_{tr,100\text{-}5000}$: **-9 dB**

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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15585AA** Test Date: **13/12/07**

Specimen Area, S = **8.64** m^2

	Room T2	Room T1
Room Volume, m^3:	**98**	**60.05**
Temperature, deg.C:	**14.8**	**14.8**
Rel. Humidity, %RH:	**47**	**45**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.6	59.0	16.5	59.0	**0.60**	-2.7	**26.9**		
63	88.9	69.5	21.6	69.5	**0.95**	-0.7	**18.7**		18.5
80	71.5	53.4	10.5	53.4	0.64	-2.4	**15.7**		
100	83.4	61.0	26.1	61.0	0.88	-1.0	**21.4**	7.6	
125	82.5	58.0	11.6	58.0	0.96	-0.6	**23.9**	8.1	24.1
160	109.1	76.0	6.3	76.0	1.14	0.1	**33.2**	1.8	
200	95.0	55.9	17.2	55.9	1.13	0.1	**39.2**		
250	96.3	60.0	5.0	60.0	1.33	0.8	**37.1**	3.9	38.7
315	96.2	57.0	7.0	57.0	1.56	1.5	**40.7**	3.3	
400	95.2	50.8	15.5	50.8	1.32	0.7	**45.1**	1.9	
500	93.4	43.9	4.9	43.9	1.31	0.7	**50.2**		48.0
630	92.1	41.4	2.8	41.4	1.42	1.1	**51.8**		
800	92.6	39.4	4.6	39.4	1.48	1.2	**54.4**		
1 000	92.2	36.7	14.7	36.7	1.42	1.1	**56.6**		56.4
1 250	93.4	34.7	4.9	34.7	1.40	1.0	**59.7**		
1 600	96.2	36.7	5.5	36.7	1.46	1.2	**60.7**		
2 000	97.8	41.3	5.4	41.3	1.37	0.9	**57.4**		53.6
2 500	96.2	46.8	5.9	46.8	1.22	0.4	**49.8**	2.2	
3 150	95.3	44.5	7.3	44.5	1.16	0.2	**51.0**	1.0	
4 000	97.1	41.0	10.0	41.0	1.12	0.0	**56.1**		54.0
5 000	101.0	42.5	10.3	42.5	1.07	-0.2	**58.3**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**29.8**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	48	**-3**	**-9**		
	(100-5000)	**-2**	**-9**		
	(50-3150)	**-5**	**-14**		
RT's > factor 1.5 apart	**(50-5000)**	**-4**	**-14**	Procedure: ISO140/3/A - issue 1	
				Worksheet: 140_3_1.XLS	

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Test Code:
H15586AA
Test Date:
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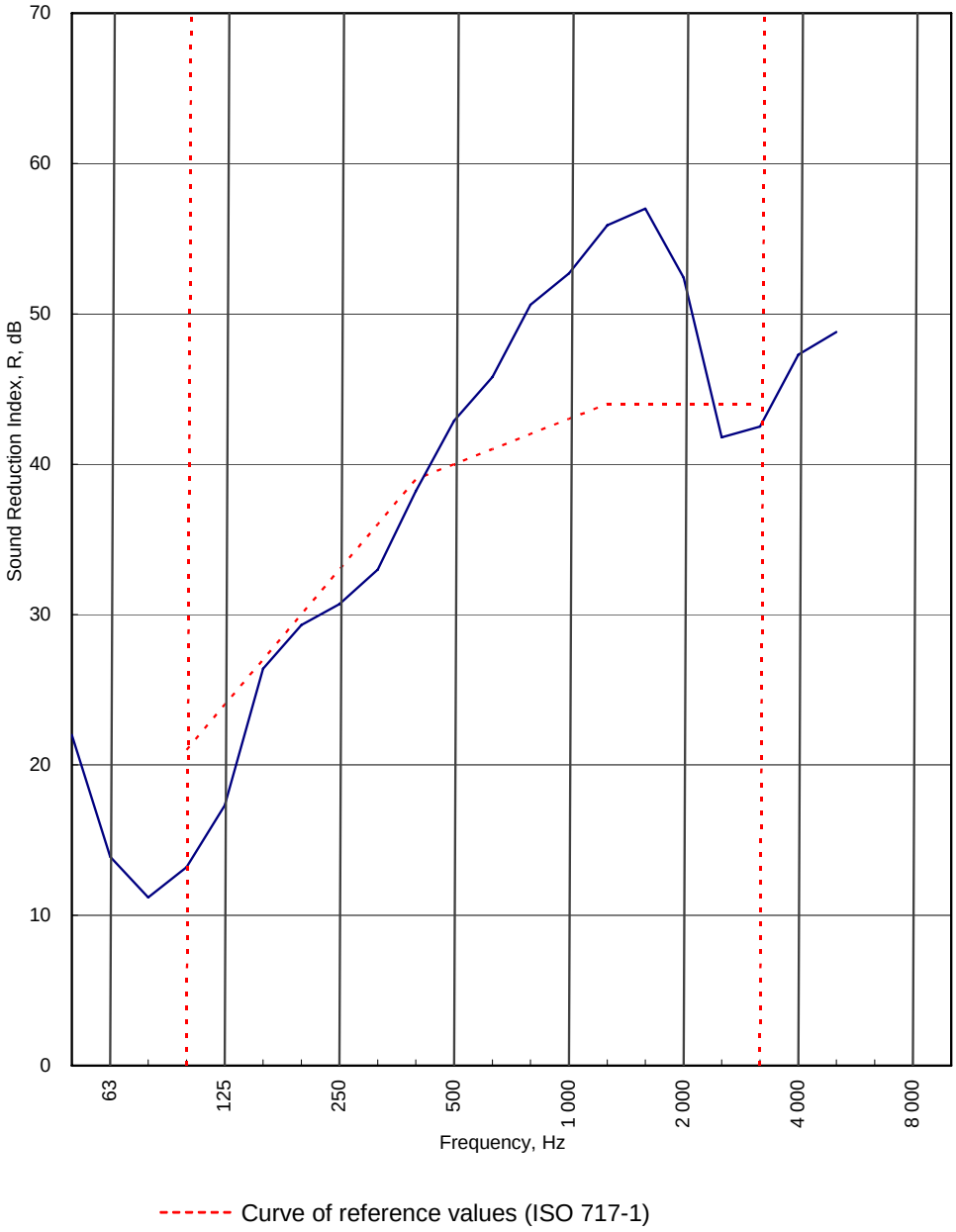
Freq. Hz	R dB
50	22.0
63	13.9
80	11.2
100	13.2
125	17.3
160	26.4
200	29.3
250	30.7
315	33.0
400	38.2
500	42.9
630	45.8
800	50.6
1 000	52.7
1 250	55.9
1 600	57.0
2 000	52.4
2 500	41.8
3 150	42.5
4 000	47.3
5 000	48.8
6 300	
8 000	
10 000	



Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 40 (-2;-9) dB

Max dev. 7.8 dB at 100 Hz

Evaluation based on laboratory measurement results obtained by an engineering method:

$C_{50\text{-}3150}$= **-4 dB** $C_{50\text{-}5000}$= **-3 dB** $C_{100\text{-}5000}$= **-2 dB**

$C_{tr,50\text{-}3150}$= **-12 dB** $C_{tr,50\text{-}5000}$= **-12 dB** $C_{tr,100\text{-}5000}$= **-9 dB**

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LABORATORY AIRBORNE SOUND INSULATION TEST - BS EN ISO 140-3:1995

Test Code: **H15586AA** Test Date: **13/12/07**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2	Room Volume, m^3:	**98**	**60.31**
		Temperature, deg.C:	**14.8**	**15.4**
		Rel. Humidity, %RH:	**46.5**	**43.9**

	Test Room T2 to Test Room T1								
Freq Hz	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB	**R dB**	U.Dev. dB	R 1/1Oct dB
50	88.9	64.3	30.2	64.3	0.62	-2.6	**22.0**		
63	89.1	73.6	22.9	73.6	0.77	-1.6	**13.9**		13.9
80	71.2	56.8	18.2	56.8	**0.54**	-3.2	**11.2**		
100	82.9	68.8	30.2	68.8	**0.91**	-0.9	**13.2**	7.8	
125	102.7	84.3	17.2	84.3	0.86	-1.1	**17.3**	6.7	16.4
160	88.7	62.1	20.1	62.1	1.06	-0.2	**26.4**	0.6	
200	94.0	64.7	13.9	64.7	1.12	0.0	**29.3**	0.7	
250	96.4	66.8	10.0	66.8	1.45	1.1	**30.7**	2.3	30.7
315	96.4	64.4	8.5	64.4	1.39	1.0	**33.0**	3.0	
400	95.1	57.7	15.1	57.7	1.35	0.8	**38.2**	0.8	
500	93.0	50.7	5.6	50.7	1.27	0.6	**42.9**		41.2
630	91.9	47.2	4.3	47.2	1.45	1.1	**45.8**		
800	92.7	43.1	5.1	43.1	1.41	1.0	**50.6**		
1 000	92.3	40.7	14.9	40.7	1.44	1.1	**52.7**		52.6
1 250	93.3	38.4	5.0	38.4	1.41	1.0	**55.9**		
1 600	96.0	40.1	5.7	40.1	1.44	1.1	**57.0**		
2 000	97.5	46.0	5.8	46.0	1.38	0.9	**52.4**		46.1
2 500	96.0	54.6	6.0	54.6	1.23	0.4	**41.8**	2.2	
3 150	95.2	52.9	7.4	52.9	1.18	0.2	**42.5**	1.5	
4 000	97.0	49.6	9.9	49.6	1.10	-0.1	**47.3**		45.3
5 000	100.8	51.7	10.2	51.7	1.05	-0.3	**48.8**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	40	**-2**	**-9**		
	(100-5000)	**-2**	**-9**		
	(50-3150)	**-4**	**-12**		
RT's > factor 1.5 apart				Procedure: ISO140/3/A - issue 1	
	(50-5000)	**-3**	**-12**	Worksheet: 140_3_1.XLS	

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APPENDIX B - TEST METHOD AND CONDITIONS

The source room (T2) was treated with six perspex diffusers of approximately 900mm x 1220mm. An omni-directional loudspeaker sound source is placed near a back corner of the source room (T2), rotating at 1 rpm and at least 0.7m from any room boundary to satisfy Annex C of BS EN ISO 140-3: 1995. A stationary loudspeaker sound source is placed in the corner of the receiving room (T1) opposite the test specimen.

The average sound pressure level in each 1/3 octave band is measured using a rotating microphone boom, positioned such that the minimum distance between microphone and sound source is 1m and between microphone and room boundaries is 0.7m. The rotating microphone has a sweep radius of at least 1m and is inclined in relation to the boundaries at an angle of at least 30° to the horizontal. The microphone has a traverse time of 32 seconds, and the sound pressure levels are averaged over 64 seconds which is equivalent to two complete sweeps of the microphone boom.

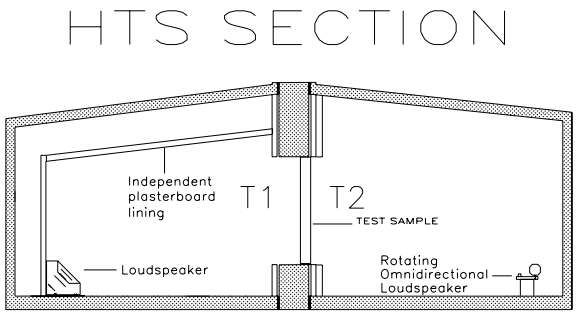
The equivalent absorption area of the receiving room is determined by producing the arithmetic average of twelve reverberation times and applying this to the Sabine formula.

The test specimen is installed in the aperture so that it finishes flush with the first independent timber in room T2 side to eliminate indirect transmission between rooms. The specimen is not installed so that the aperture depth ratio 2:1 is met as recommended in section 5.2.1 of BS EN ISO 140-3:1995. Laboratory tests have been carried out to prove the insignificance of this installation position on the test results.

The laboratory limit for measurement due to flanking is (combined BTC 11709A, BTC13562EA and BTC 15398A)

Freq Hz	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000
R'max	45.0	46.9	58.5	62.4	62.9	67.7	71.2	77.2	84.2	92.0	97.7	101.5	103.8	97.6	102.4	104.8	101.8	102.9	98.7	93.9	94.3

The figure below shows flanking and isolation treatments in the test chamber.



Chamber layout

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