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Report Number **BTC 13505A**

AN ACOUSTIC TEST REPORT COVERING A SERIES OF LABORATORY SOUND INSULATION TESTS TO BS EN ISO 140-3:1995 ON A 142MM THICK KINGSPAN TEK PANEL WITH VARIOUS DIRECT FIX AND INDEPENDENT WALL LINING COMBINATIONS.

Test Dates: 5th, 7th, 8th & 9th July 2004

www.btconline.co.uk

Customer: **Kingspan Insulation Limited**
Pembridge
Leominster
Herefordshire
HR6 9LA

British Gypsum Limited
East Leake
Loughborough
Leicestershire
LE12 6HX

UKAS TESTING
0296

The Building Test Centre
Fire Acoustics Structures

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FOREWORD

This test report details a series of sound insulation tests conducted on a 142mm Kingspan Tek Panel consisting of a 112mm rigid urethane insulation core between a single layer of 15mm OSB each side. The partition was tested independently and with combinations of independent and dependent wall lining systems using 15mm Gyproc SoundBloc, Gypframe 48I50 Studs and 25mm Isowool APR 1200 insulation. The tests were joint sponsored by Kingspan Insulation Limited and British Gypsum Limited.

The test specimens were installed by Kingspan Insulation Limited and Alltone between the 5th and 9th July 2004.

REPORT AUTHORISATION

Report Author	Authorised by
Grant Swankie	
Grant Swankie B.Eng., AMIOA *UKAS Quality Manager*	**Eur Ing. Paul Howard** BSc. (Hons.), CEng., MIOA *Head of Laboratory*

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TEST CONSTRUCTION

H13505A

The Kingspan Tek System was assembled flat, and then lifted into position within the test frame.

Three sections of 142mm Kingspan Tek Panel were used. On each vertical edge of the central panel, nominally 100mm wide OSB spline joints were inserted behind each external 15mm OSB board and screw fixed at 100mm centres as shown in Photo 2. Urethane expanding foam was applied along each vertical edge.

Photo 1 Single 142mm Kingspan Tek Panel

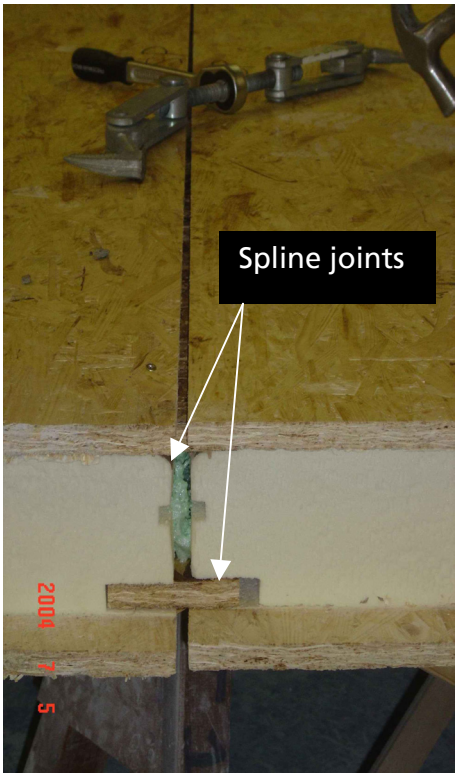

Photo 2 Spline detail showing expanding urethane foam before ratcheting panel together

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The adjoining Kingspan Tek Panels were screw fixed to the OSB splines of the central panel at 100mm centres.

Urethane expanding foam was applied around the perimeter of the partition in-between the two internal faces of the 15mm OSB board. 110mm(wide) x 51mm (deep) timber lengths were inserted around the perimeter of the partition and screw fixed as shown in photos 3 and 4.

Photo 3 Applying the urethane expanding foam

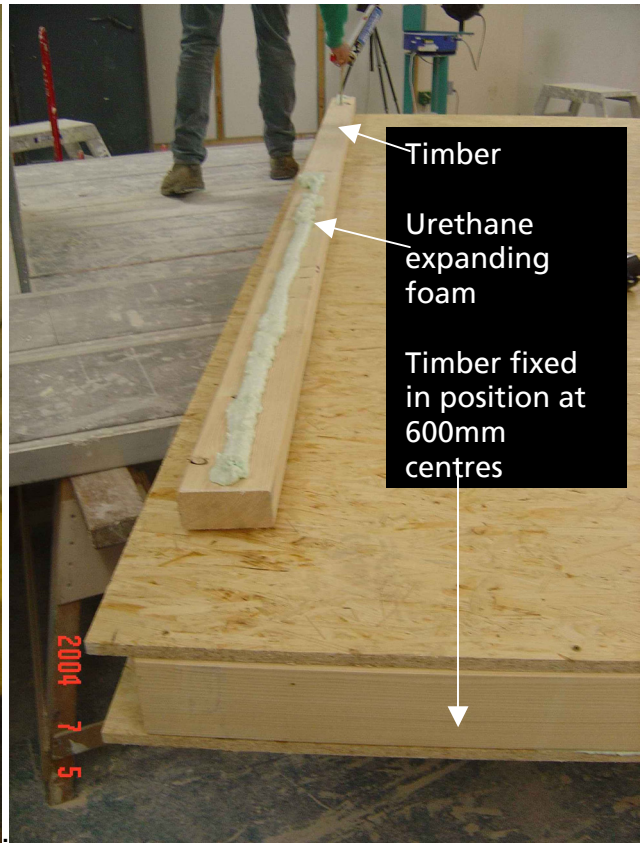

Photo 4 Preparing the perimeter timber

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Once the partition was assembled as in photo 5, it was lifted into position within the test frame.

Photo 5 Assembled Kingspan Tek Partition

Urethane expanding foam was applied around the perimeter between the test frame and the partition. Once set, the foam was cut flush with the partition and the perimeter was sealed with acoustic tape and Gyproc Sealant on each side.

Photo 6 Kingspan Tek Panel System within test frame

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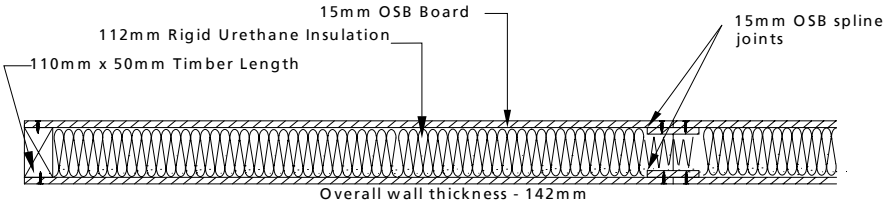

Figure 1 Plan view of Kingston Tek Partition

The Kingspan Tek System for this test was also used in all the following tests.

The descriptions of individual components making up the test specimen were provided by the customer and were checked for accuracy wherever possible.

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H13508BA

An independent wall lining was erected each side of the Kingspan Tek partition.

Gypframe 50C50 channels were offset from the face of the Kingspan Tek partition by 10mm and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on each side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs on each side.

A single layer of 15mm Gyproc SoundBloc was screw fixed at 300mm centres around the perimeter and at 300mm centres within the field of the boards using 25mm Drywall Screws.

The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant.

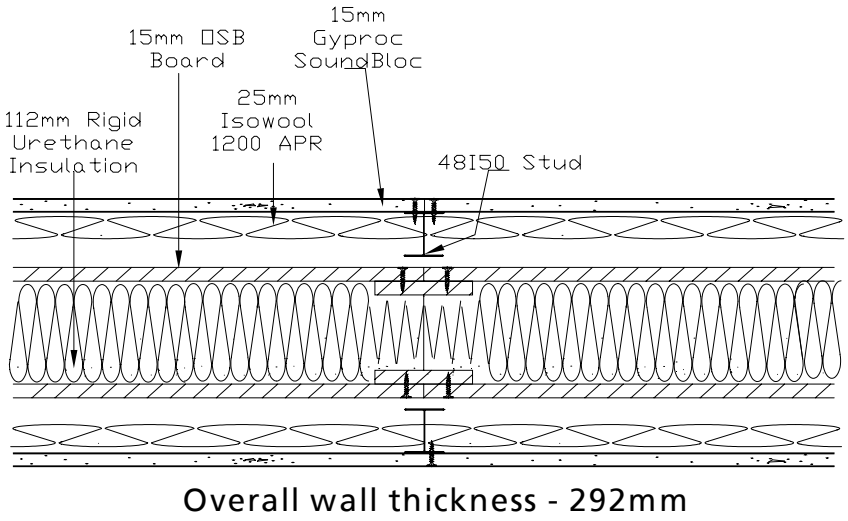

Figure 2 H13508BA Plan Cross Section of specimen construction

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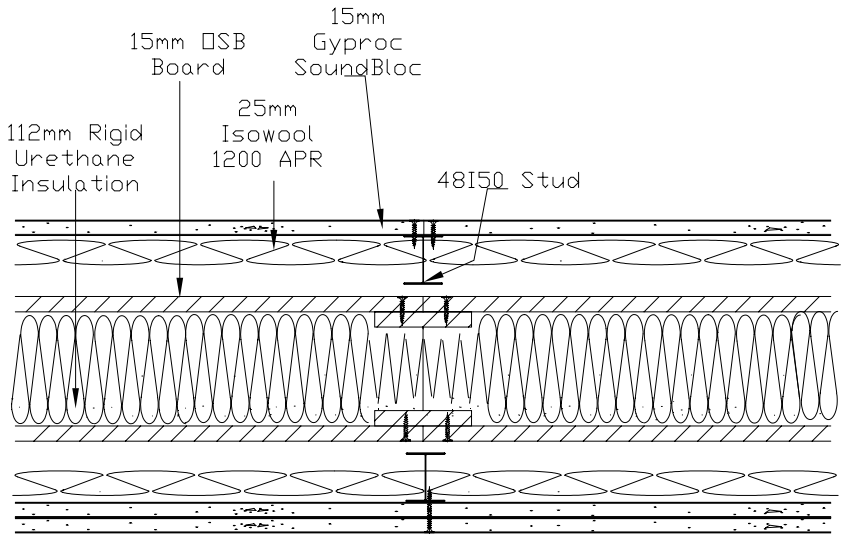
H13509A

An independent wall lining was erected each side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 10mm from the face of the Kingspan Tek Partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on each side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs on one side.
A double layer of 15mm Gyproc SoundBloc was screw fixed on the other side, the inner layer was fixed using 25mm Drywall screws, at 300mm centres, around the perimeter of the boards. The outer layer was fixed using 42mm Drywall screws at 300mm centres, around the perimeter of the boards and to the intermediate stud positions.
The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant.



Overall wall thickness - 307mm

Figure 3 H13509A Plan Cross Section of specimen construction

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H13510A

An independent wall lining was erected each side of the Kingspan Tek partition.

Gypframe 50C50 channels were offset by 10mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on each side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs on each side.
Two layers of 15mm Gyproc SoundBloc were screw fixed on each side. The inner layer was fixed using 25mm Drywall screws, at 300mm centres, around the perimeter of the boards. The outer layer was fixed using 42mm Drywall screws at 300mm centres, around the perimeter of the boards and to the intermediate stud positions.
The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant.

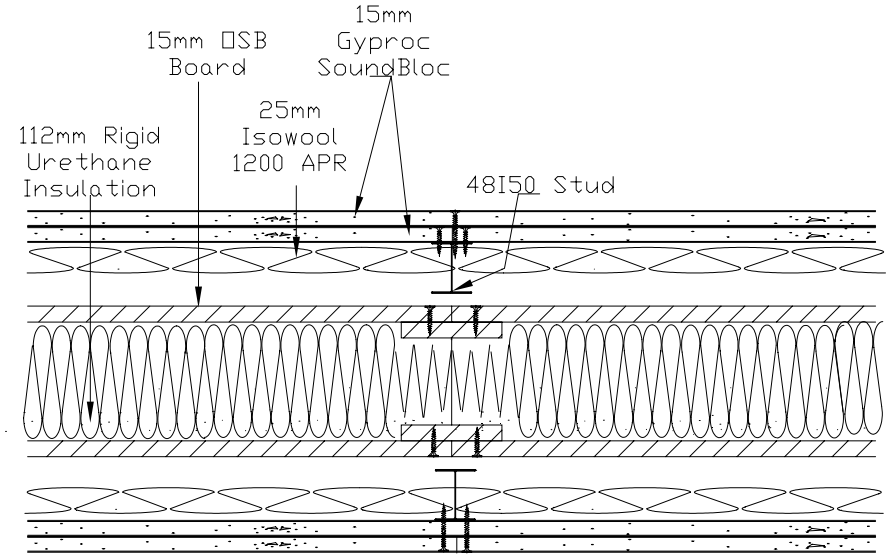

Figure 4 H13510A Plan Cross Section of specimen construction

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H13511A
An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 10mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
Two layers of 15mm Gyproc SoundBloc were screw fixed to the metalwork. The inner layer was fixed using 25mm Drywall screws, at 300mm centres, around the perimeter of the boards. The outer layer was fixed using 42mm Drywall screws at 300mm centres, around the perimeter of the boards and to the intermediate stud positions.
A single layer of 15mm Gyproc SoundBloc was screw fixed directly to the Kingspan Tek partition on the other side, using 25mm drywall screws at 300mm centres around the perimeter and vertical centre of the board.
The test specimen perimeter was sealed with acoustic tape and Gyproc Sealant on each side.

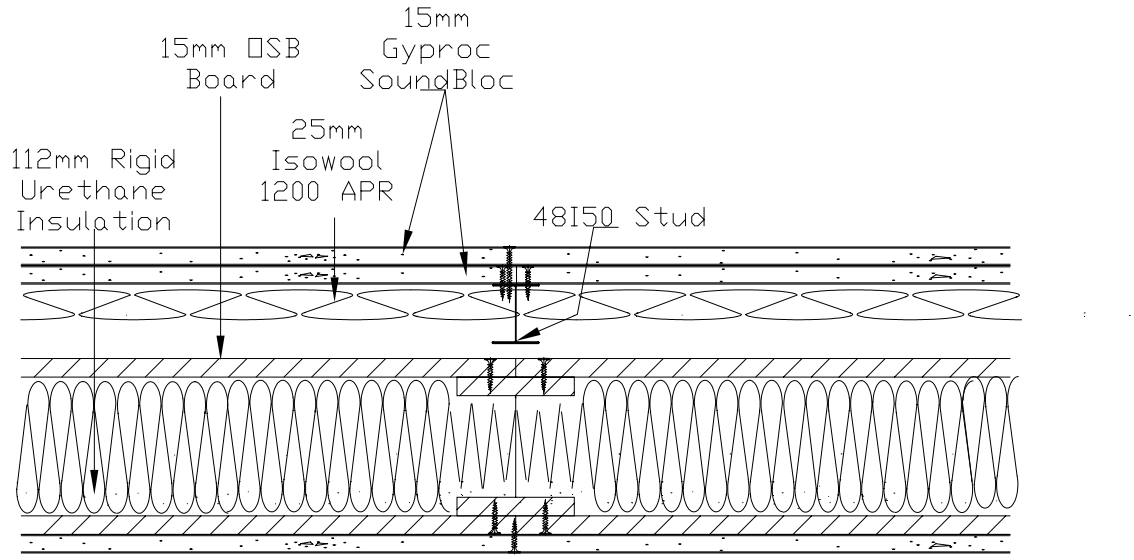

Figure 5 H13511A Plan Cross Section of specimen construction

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H13512A

An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 10mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
Two layers of 15mm Gyproc SoundBloc were screw fixed to the metalwork. The inner layer was fixed using 25mm Drywall screws, at 300mm centres, around the perimeter of the boards. The outer layer was fixed using 42mm Drywall screws at 300mm centres, around the perimeter of the boards and to the intermediate stud positions.
Two layers of 15mm Gyproc SoundBloc were screw fixed directly to the Kingspan Tek partition on the other side, using 25mm drywall screws at 600mm centres for the inner layer and 42mm drywall screws for the outer layer. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

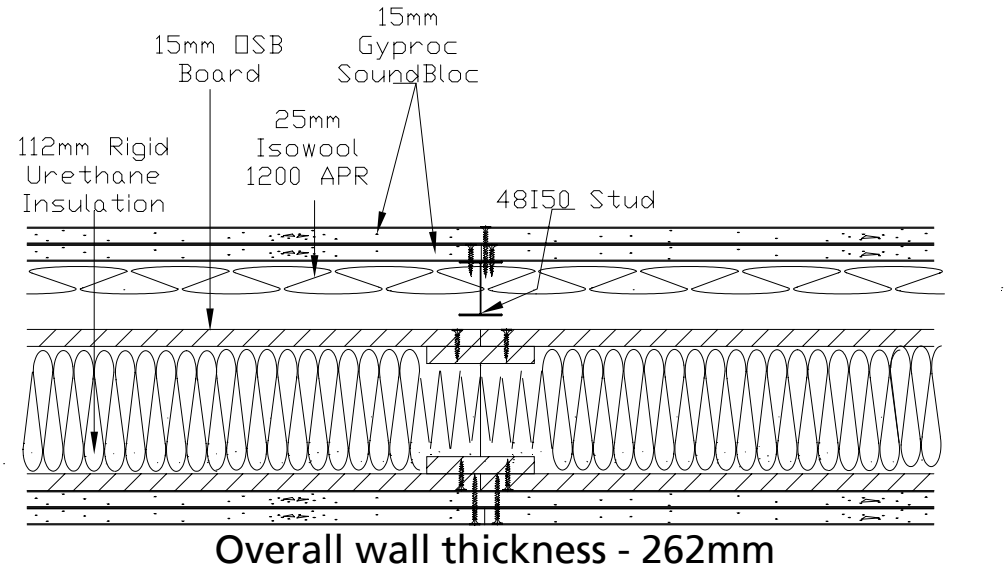

Figure 6 H13512A Plan Cross Section of specimen construction

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H13513A

Two layers of 15mm Gyproc SoundBloc were screw fixed directly to the Kingspan Tek partition on one side only, using 25mm drywall screws at 300mm centres around the perimeter of the board for the inner layer and at 300mm centres around the perimeter and vertical centre using 42mm drywall screws for the outer layer. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

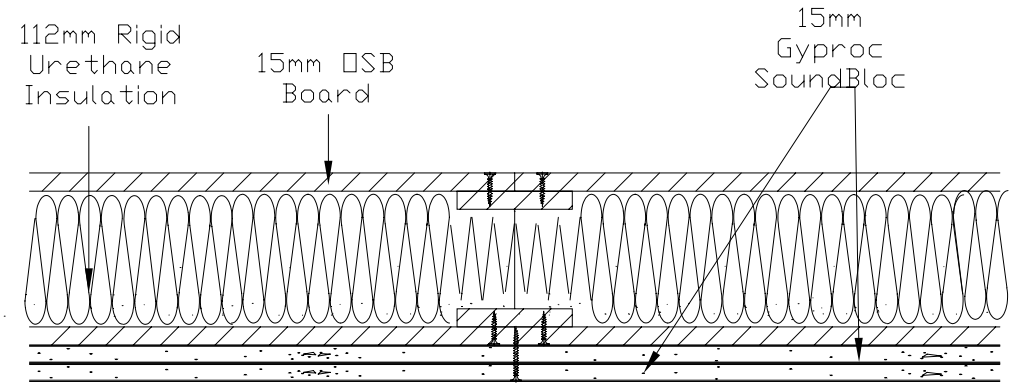

Figure 7 H13513A Plan Cross Section of specimen construction

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H13514A

Two layers of 15mm Gyproc SoundBloc were screw fixed directly to the Kingspan Tek partition on one side only, using 25mm drywall screws at 300mm centres around the perimeter of the board for the inner layer and at 300mm centres around the perimeter and vertical centre using 42mm drywall screws for the outer layer. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.
A single layer of 15mm Gyproc SoundBloc was screw fixed directly on the other side using 25mm drywall screws at 300mm centres around the perimeter of the board and vertical centre. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

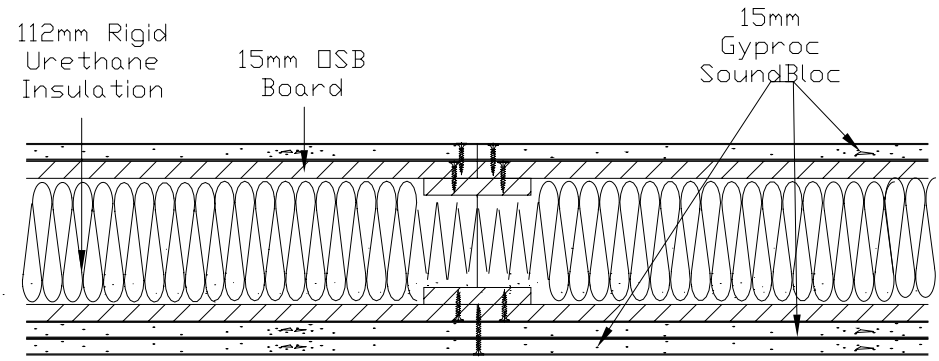

Figure 8 H13514A Plan Cross Section of specimen construction

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H13515A

Two layers of 15mm Gyproc SoundBloc were screw fixed directly to each side of the Kingspan Tek partition, using 25mm drywall screws at 300mm centres around the perimeter of the board for the inner layer and at 300mm centres around the perimeter and vertical centre using 42mm drywall screws for the outer layer. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

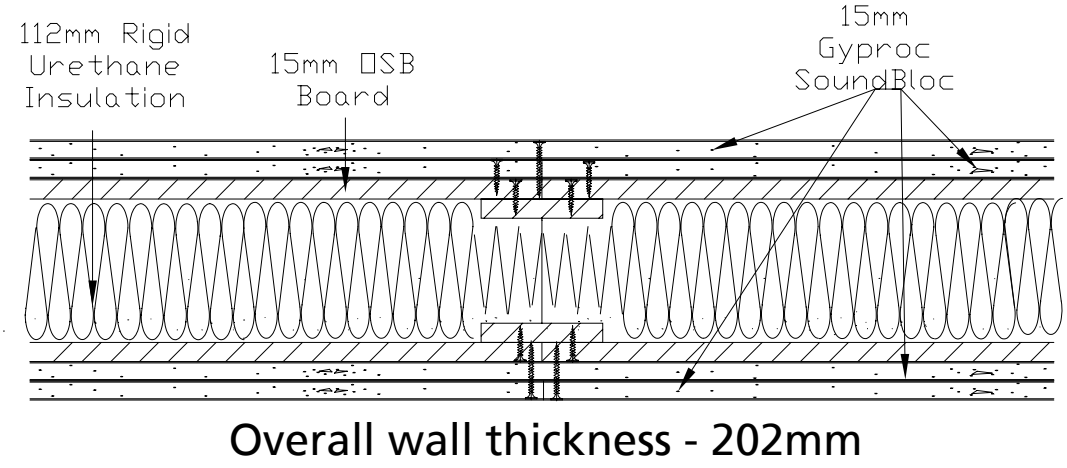

Figure 9 H13515A Plan Cross Section of specimen construction

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H13516A

A single layer of 15mm Gyproc SoundBloc was screw fixed directly to the Kingspan Tek partition on each side, using 25mm drywall screws at 300mm centres around the perimeter of the board and vertical centre.
The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

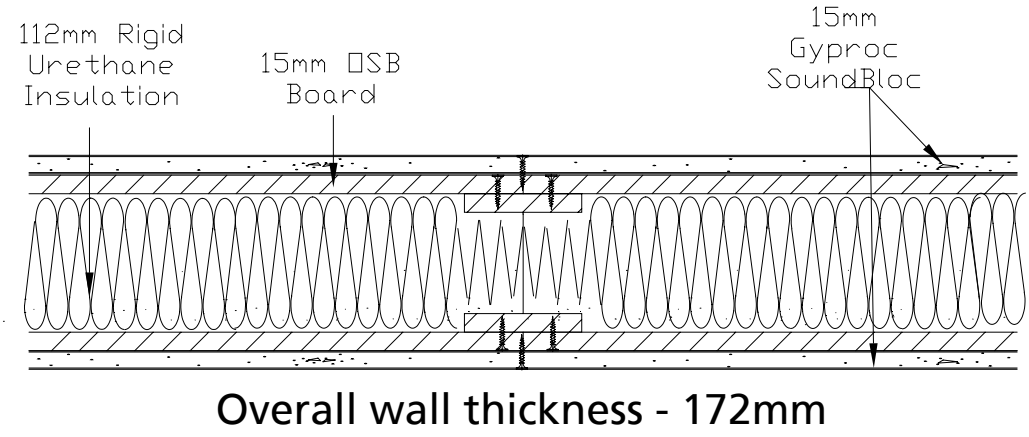

Figure 10 H13516A Plan Cross Section of specimen construction.

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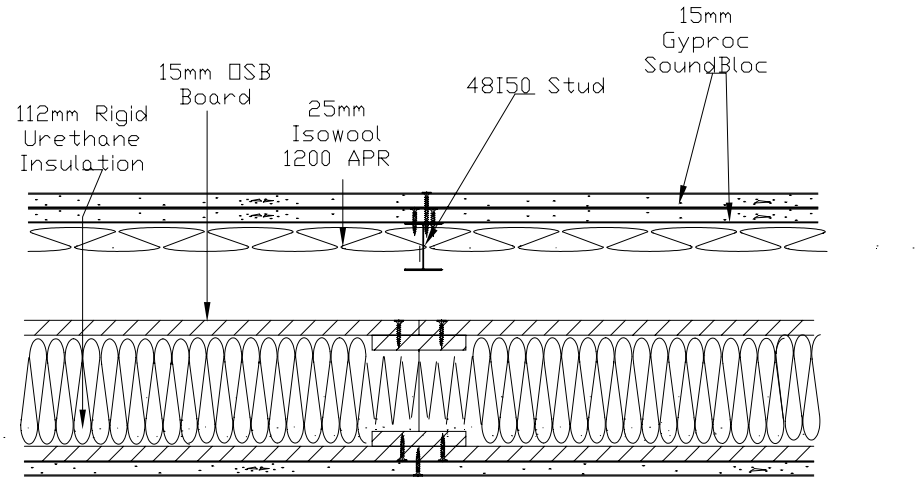
H13517A

An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
Two layers of 15mm Gyproc SoundBloc were screw fixed to the metalwork, the inner layer at 300mm around the perimeter of the board using 25mm drywall screws. The outer layer screw fixed at 300mm centres around the perimeter and intermediate studs using 42m drywall screws.
A single layer of 15mm Gyproc SoundBloc was screw fixed directly to the Kingspan Tek partition on the other side, using 25mm drywall screws at 300mm centres around the perimeter of the board and the vertical centre.
The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.



Overall wall thickness - 287mm

Figure 11 H13517A Plan Cross Section of specimen construction

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H13518A

An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
Two layers of 15mm Gyproc SoundBloc were screw fixed to the metalwork, the inner layer at 300mm around the perimeter of the board using 25mm drywall screws. The outer layer screw fixed at 300mm centres around the perimeter and intermediate studs using 42m drywall screws.
A double layer of 15mm Gyproc SoundBloc was screw fixed directly to the Kingspan Tek partition on the other side, the inner layer fixed at 300mm centres around the perimeter of the board using 25mm drywall screws, the outer layer fixed at 300mm centres around the perimeter of the board and the vertical centre using 42mm drywall screws.
The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

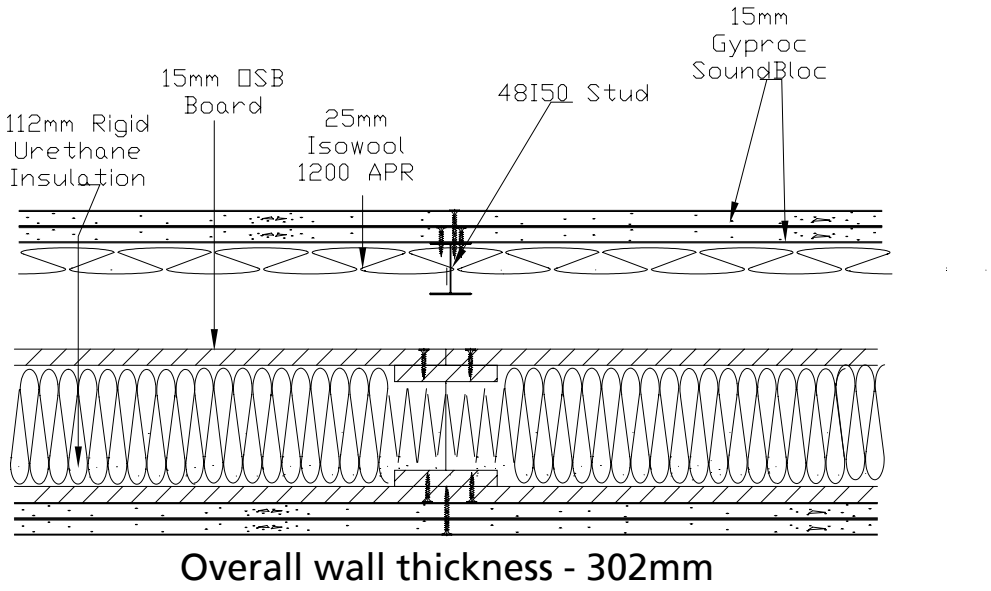

Figure 12 H13518A Plan Cross Section of specimen construction

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H13519BA

An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
Two layers of 15mm Gyproc SoundBloc were screw fixed to the metalwork. The inner layer fixed at 300mm centres around the perimeter of the board using 25mm drywall screws, the outer layer fixed at 300mm centres around the perimeter of the board and intermediate studs using 42mm drywall screws.
On the other side, the Kingspan Tek partition was exposed. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

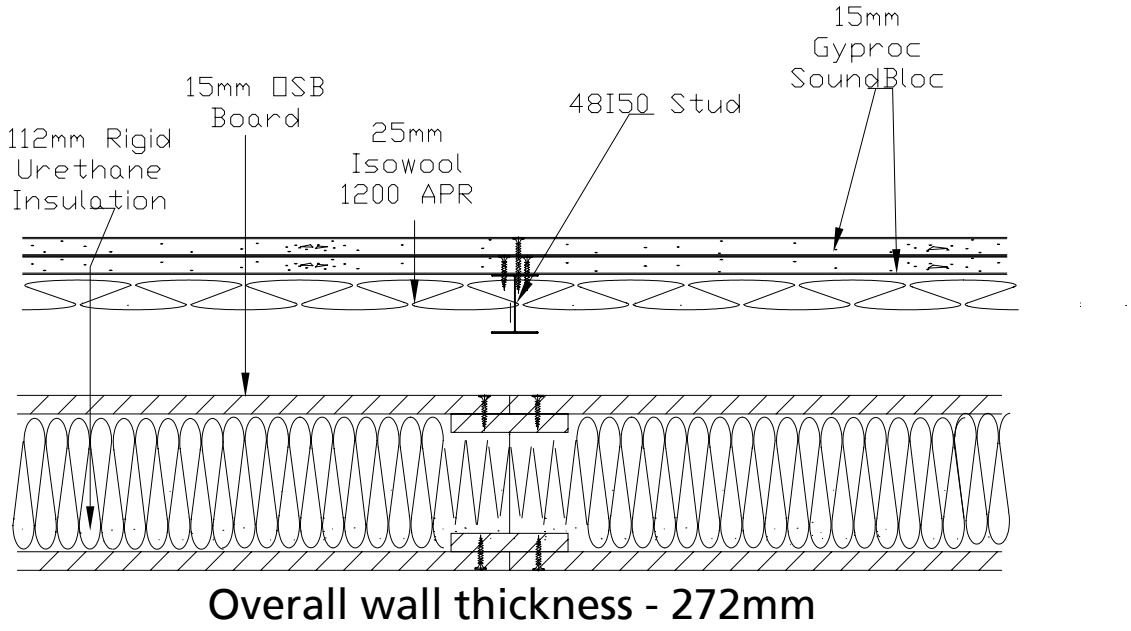

Figure 13 H13519BA Plan Cross Section of specimen construction

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H13520A

An independent wall lining was erected each side of the Kingspan Tek partition.

Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on each side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs on each side.
Two layers of 15mm Gyproc SoundBloc were screw fixed on each side, the inner layer fixed at 300mm centres around the perimeter of the board using 25mm drywall screws, the outer layer fixed at 300mm centres around the perimeter of the board and intermediate studs using 42mm drywall screws.
The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant.

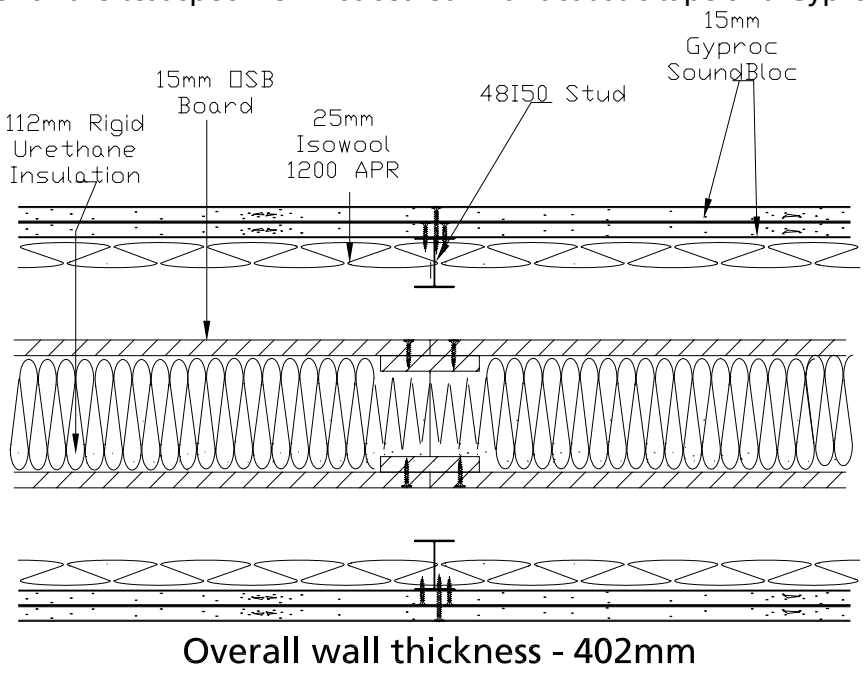

Figure 14 H13520A Plan Cross Section of specimen construction

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H13521A

An independent wall lining was erected each side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on each side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs on each side.

On one side a single layer of 15mm Gyproc SoundBloc was screw fixed at 300mm centres around the perimeter of the board and intermediate stud using 25mm drywall screws.
On the other side a double layer of 15mm SoundBloc was fixed to the metalwork, the inner layer at 300mm centres around the perimeter of the board using 25mm drywall screws, the outer layer at 300mm centres around the perimeter of the board and intermediate studs using 42mm drywall screws.

The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant.

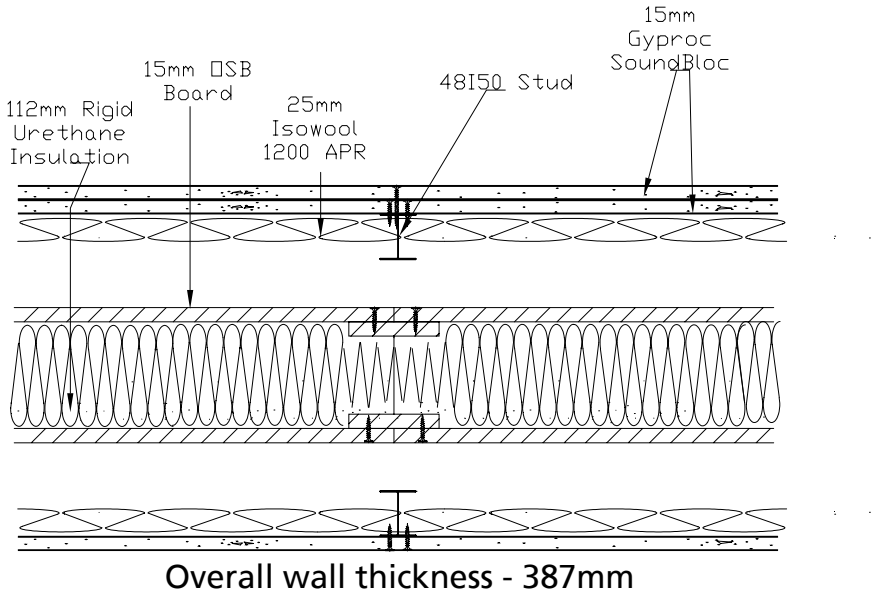

Figure 15 H13521A Plan Cross Section of specimen construction

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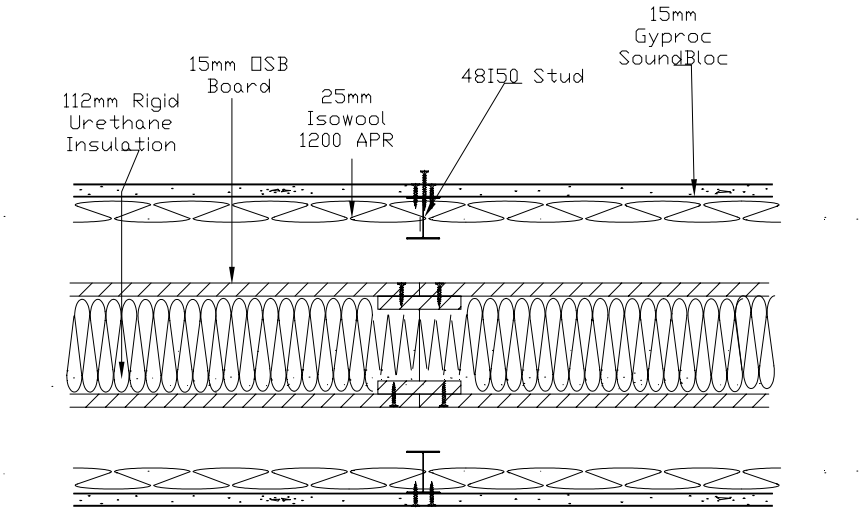
H13522A

An independent wall lining was erected each side of the Kingspan Tek partition.

Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on each side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs on each side.

A single layer of 15mm Gyproc SoundBloc was screw fixed at 300mm centres around the perimeter and intermediate studs using 25mm drywall screws.

The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant.



Overall wall thickness - 372mm

Figure 16 H13522A Plan Cross Section of specimen construction

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H13523A

An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
A single layer of 15mm Gyproc SoundBloc was screw fixed at 300mm centres around the perimeter of the board and at intermediate studs using 25mm drywall screws.
On the other side, the Kingspan Tek partition was exposed. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

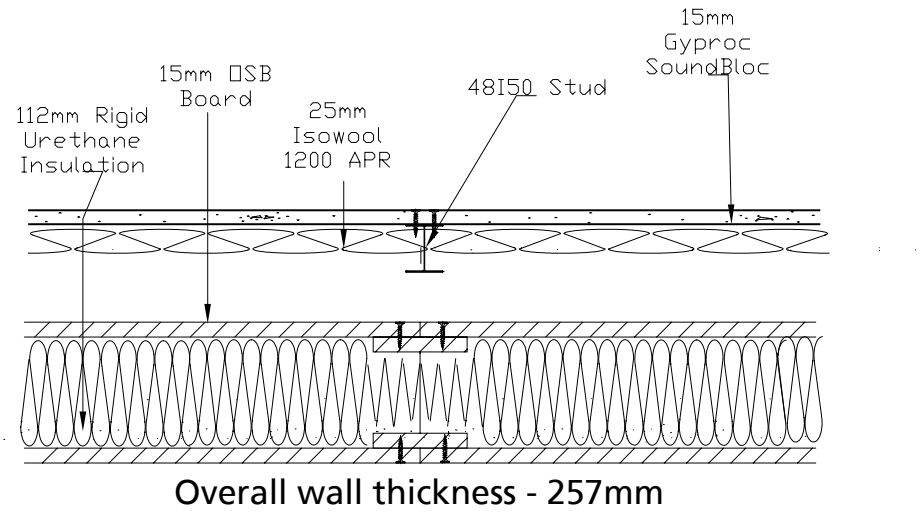

Figure 17 H13523A Plan Cross Section of specimen construction

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H13524A

An independent wall lining was erected on one side of the Kingspan Tek partition. Gypframe 50C50 channels were offset by 50mm from the face of the Kingspan Tek partition and screw fixed at 600mm centres to the head, base and vertical sides of the test frame on one side. Gypframe 48I50 studs were positioned at 600 mm within the channel. A single layer of 25mm Isowool APR 1200 was positioned between the studs.
A single layer of 15mm Gyproc SoundBloc was screw fixed at 300mm centres around the perimeter of the board and at intermediate studs using 25mm drywall screws.
On the other side, a single layer of 15mm Gyproc SoundBloc was screw fixed at 300mm centres around the perimeter of the board and vertical centre using 25mm drywall screws directly to the Kingspan Tek partition. The perimeter of the test specimen was sealed with acoustic tape and Gyproc Sealant on each side.

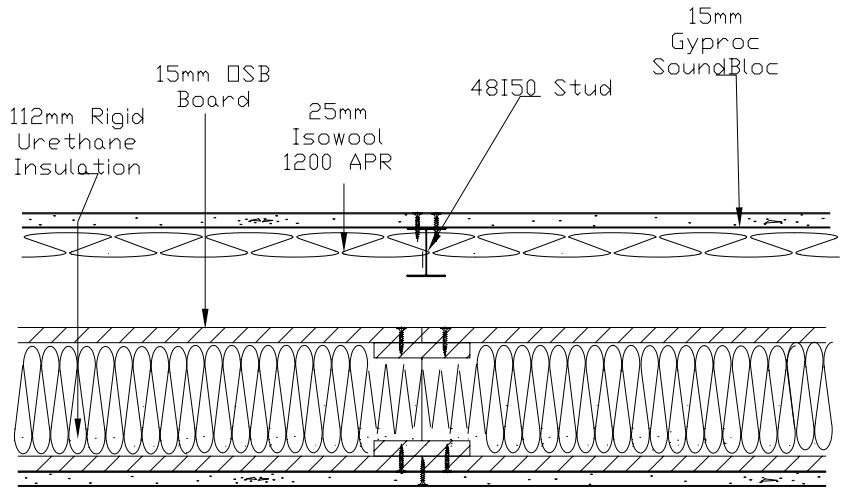

Figure 18 H13524A Plan Cross Section of specimen construction

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TEST MATERIALS

Kingspan Tek Panel

Nominally 142mm (thick) Kingspan Tek Panel, consisting of a single layer of 15mm OSB either side of 112mm rigid urethane insulation core. Supplied by Kingspan Insulation Limited.

Actual Dimensions:	2395mm(long) x 1219mm(wide) x 142mm(thick)
Surface Density:	21.75 kg/m^2

Timber

Timber length supplied by Kingspan Insulation Limited.:

Actual Dimensions:	3578mm(long) x 110mm(wide) x 51mm(deep)
Weight:	9.110kg
Weight Per Meter:	2.55kg/m

OSB Length (Spline) supplied by Kingspan Insulation Limited:

Actual Dimensions:	2442mm(long) x 95mm(wide) x 15mm(thick)
Surface Density:	9.55kg/m^2

Gyproc SoundBloc

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

Average surface density:	12.57 kg/m^2
Average thickness:	15.09 mm
Board code:	16 078 4 20:02

The surface density was calculated using the actual weight and size of a selection of the boards used in the test specimen.

Metal components

i) GypFrame 50C50 channel, nominally 0.5mm thick, manufactured from galvanised mild steel using the "Ultrasteel" process.
ii) GypFrame 48I50 studs, nominally 0.5mm thick, manufactured from galvanised mild steel using the "Ultrasteel" process.

All metal components supplied by British Gypsum Limited.

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Insulation

Nominally 25mm thick Isowool 1200 APR glass mineral wool manufactured and supplied by British Gypsum - Isover Limited.

Average Surface Density:	0.47kg/m^2
Average Density:	18.7kg/m^3

The surface density and density were calculated using the weight of one roll, its nominal surface area and nominal thickness.

Fasteners

25mm Gyproc Drywall screws supplied by British Gypsum Limited.
41mm Gyproc Drywall screws supplied by British Gypsum Limited.

Urethane Expanding Foam

Urethane Expanding Foam manufactured by Siroflex and supplied by Kingspan Insulation 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 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 was 140/3 issue 5. 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.
Where serial measurements were taken, Band Pass noise was used for individual third octave frequencies.

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 the subject of 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.

The Building Test Centre
Fire Acoustics Structures

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TEST RESULTS

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)dB
H13505A	142m Kingspan Tek panel partition.	28(-1;-3)
H13508BA	142mm Kingspan Tek panel partition with two independent wall linings, each offset by 10mm and consisting of, 25mm Isowool 1200 APR, 48I50 studs and a single layer of 15mm SoundBloc.	58(-7;-15)
H13509A	142mm Kingspan Tek panel partition with two independent wall linings, each offset by 10mm and consisting of 25mm Isowool 1200 APR, 48I50 studs, a single layer of 15mm SoundBloc on one side and a double layer of 15mm SoundBloc on the other.	63(-6;-14)
H13510A	142mm Kingspan Tek panel partition with two independent wall linings, each offset by 10mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc.	67(-7;-14)
H13511A	142mm Kingspan Tek panel partition with one independent wall lining, offset by 10mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc. A single layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on the other side.	58(-2;-9)
H13512A	142mm Kingspan Tek panel partition with one independent wall lining, offset by 10mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc. A double layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on the other side.	60(-2;-8)

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Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)dB
H13513A	142mm Kingspan Tek panel partition with a double layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on one side only.	38(-1;-3)
H13514A	142mm Kingspan Tek panel partition with a double layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on one side and a single layer of 15mm SoundBloc directly fixed on the other side.	43(-2;-5)
H13515A	142mm Kingspan Tek panel partition with a double layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on each side.	44(-1;-5)
H13516A	142mm Kingspan Tek panel partition with a single layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on each side.	40(-1;-5)
H13517A	142mm Kingspan Tek panel partition with one independent wall lining, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc. A single layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on the other side.	63(-2;-8)
H13518A	142mm Kingspan Tek panel partition with one independent wall lining, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc. A double layer of 15mm SoundBloc directly fixed to Kingspan Tek panel partition on the other side.	65(-2;-8)
H13519BA	142mm Kingspan Tek panel partition with one independent wall lining, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc.	59(-2;-8)

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Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)dB
H13520A	142mm Kingspan Tek panel partition with an independent wall lining each side, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a double layer of 15mm SoundBloc.	71(-2;-9)
H13521A	142mm Kingspan Tek panel partition with an independent wall lining each side, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs, a double layer of 15mm SoundBloc on one side and a single layer of 15mm SoundBloc on the other side.	69(-5;-13)
H13522A	142mm Kingspan Tek panel partition with an independent wall lining each side, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a single layer of 15mm SoundBloc.	65(-7;-15)
H13523A	142mm Kingspan Tek panel partition with an independent wall lining on one side only, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a single layer of 15mm SoundBloc.	56(-4;-10)
H13524A	142mm Kingspan Tek panel partition with an independent wall lining on one side only, offset by 50mm and consisting of 25mm Isowool 1200 APR, 48I50 studs and a single layer of 15mm SoundBloc. A single layer of 15mm SoundBloc Directly fixed to Kingspan Tek panel partition on the other side.	58(-3;-10)

For full data see pages 32 - 67.

Test conducted in accordance with BS EN ISO 140-3: 1995
Rated in accordance with BS EN ISO 717-1: 1997

UKAS TESTING
0296

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

APPENDIX A- TEST DATA

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

Test Code: **H13505A** Test Date: **05/07/04**

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

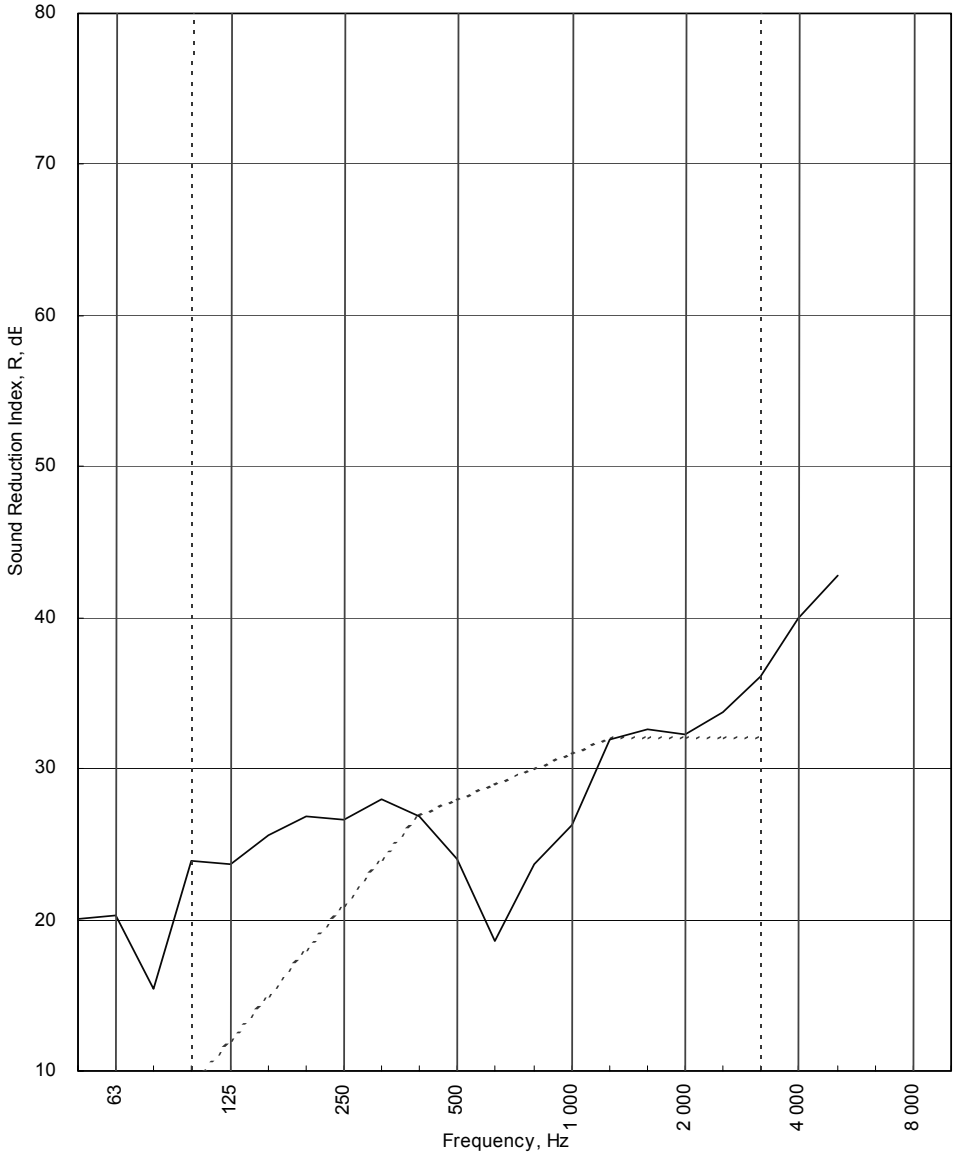
	Room T2	Room T1
Room Volume, m^3:	**98**	**59.77**
Temperature, deg.C:	**19.9**	**19.5**
Rel. Humidity, %RH:	**53**	**51.3**

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	58.1	34.9	20.1	**34.8**	**0.53**	-3.2	**20.1**		
63	64.0	42.9	20.0	42.9	**0.92**	-0.8	**20.3**		18.0
80	69.7	51.9	14.1	51.9	0.63	-2.4	**15.4**		
100	75.8	51.0	28.5	51.0	0.90	-0.9	**23.9**		
125	77.9	54.5	14.6	54.5	1.18	0.3	**23.7**		24.3
160	86.6	61.9	10.8	61.9	1.36	0.9	**25.6**		
200	92.4	65.8	16.1	65.8	1.19	0.3	**26.9**		
250	94.4	69.1	15.3	69.1	1.48	1.3	**26.6**		27.1
315	94.4	67.2	17.2	67.2	1.32	0.8	**28.0**		
400	93.4	66.5	23.6	66.5	1.07	-0.1	**26.8**	0.2	
500	91.1	66.7	19.9	66.7	1.02	-0.4	**24.0**	4.0	21.8
630	89.5	70.7	18.1	70.7	1.05	-0.2	**18.6**	10.4	
800	90.5	67.8	16.0	67.8	1.39	1.0	**23.7**	6.3	
1 000	90.1	65.1	17.3	65.1	1.49	1.3	**26.3**	4.7	26.2
1 250	90.9	60.4	13.3	60.4	1.54	1.4	**31.9**	0.1	
1 600	93.8	62.4	16.3	62.4	1.47	1.2	**32.6**		
2 000	95.3	64.2	16.7	64.2	1.47	1.2	**32.3**		32.8
2 500	93.9	61.2	12.7	61.2	1.40	1.0	**33.7**		
3 150	92.9	57.4	12.3	57.4	1.26	0.6	**36.1**		
4 000	91.7	52.4	15.8	52.4	1.30	0.7	**40.0**		38.8
5 000	89.5	47.1	13.8	47.1	1.22	0.4	**42.8**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.7**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	28	**-1**	**-3**		
	(100-5000)	**0**	**-3**		
Background Corrected					
	(50-3150)	**-1**	**-3**		
RT's > factor 1.5 apart				Test Procedure: 140/3/issue 5	
	(50-5000)	**0**	**-3**	Worksheet: 140_3_1.XLS	

Test Code:
H13505A
Test Date:
05/07/04

Freq. Hz	R dB
50	20.1
63	20.3
80	15.4
100	23.9
125	23.7
160	25.6
200	26.9
250	26.6
315	28.0
400	26.8
500	24.0
630	18.6
800	23.7
1 000	26.3
1 250	31.9
1 600	32.6
2 000	32.3
2 500	33.7
3 150	36.1
4 000	40.0
5 000	42.8
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 28 (-1;-3) dB** **Max dev. 10.4 dB at 630 Hz**		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-1 dB**	$C_{50\text{-}5000}$= **0 dB**	$C_{100\text{-}5000}$= **0 dB**
	$C_{tr,50\text{-}3150}$= **-3 dB**	$C_{tr,50\text{-}5000}$= **-3 dB**	$C_{tr,100\text{-}5000}$: **-3 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

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

Test Code: **H13508BA** Test Date: **07/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.5**
Temperature, deg.C:	**19.2**	**20**
Rel. Humidity, %RH:	**57**	**55.7**

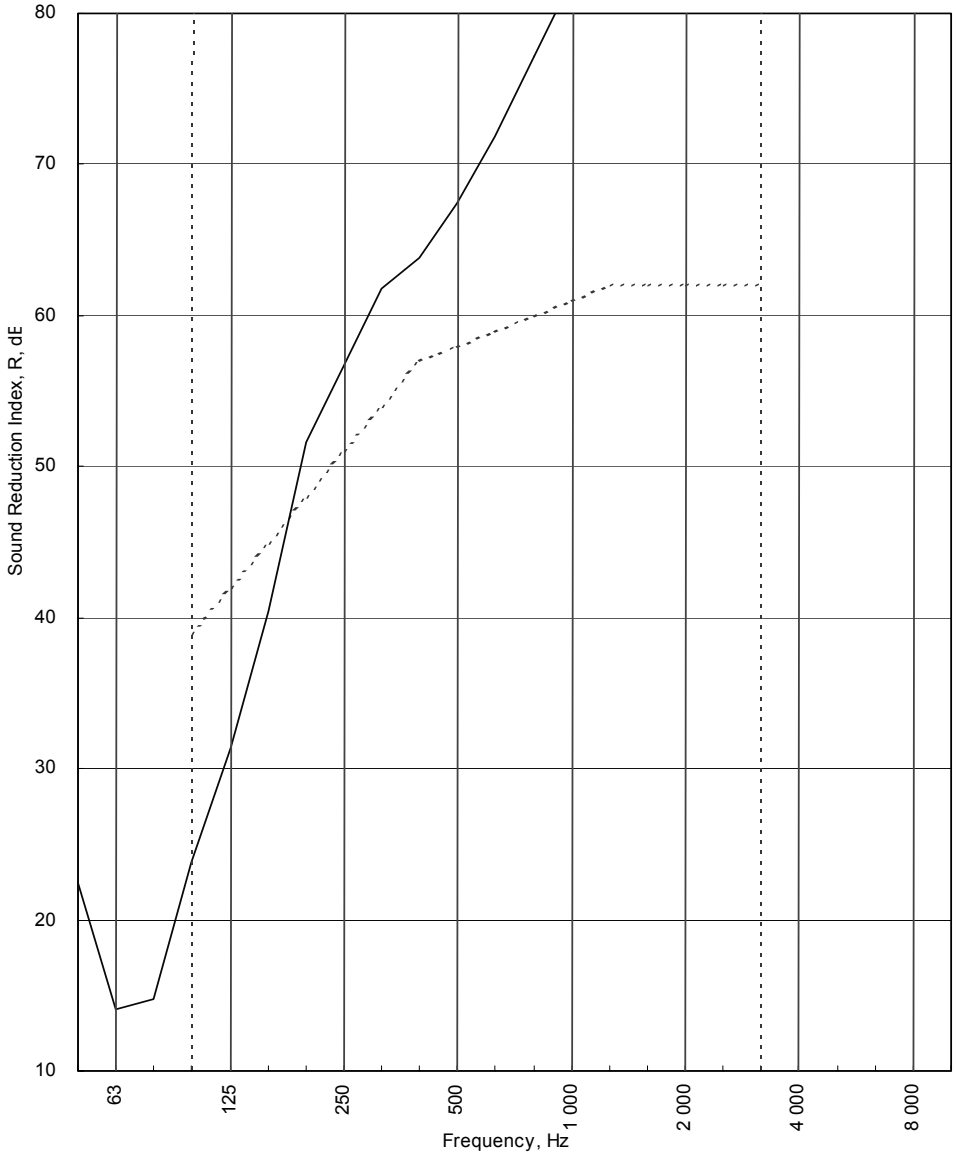
Freq Hz	Test Room T2 to Test Room T1						R dB	U.Dev. dB	R 1/1Oct dB
	Source dB	Rec. (uc) dB	Bgrnd dB	Rec. (corr) dB	Rev.time Sec	Corr. dB			
50	87.7	61.9	17.4	61.9	0.50	-3.4	**22.4**		
63	87.0	69.8	22.9	69.8	0.53	-3.1	**14.1**		15.8
80	91.2	72.2	15.2	72.2	**0.40**	-4.3	**14.7**		
100	97.6	72.4	18.5	72.4	**0.79**	-1.4	**23.8**	15.2	
125	101.2	69.7	8.6	69.7	1.06	-0.1	**31.4**	10.6	27.8
160	107.2	67.2	12.9	67.2	1.19	0.4	**40.4**	4.6	
200	113.5	62.9	15.2	62.9	1.35	1.0	**51.6**		
250	114.7	58.4	13.1	58.4	1.19	0.4	**56.7**		54.9
315	113.1	52.3	21.4	52.3	1.36	1.0	**61.8**		
400	110.2	46.5	22.5	46.5	1.10	0.1	**63.8**		
500	106.8	39.5	21.6	39.5	1.12	0.1	**67.4**		66.6
630	104.7	33.4	16.5	33.4	1.24	0.6	**71.9**		
800	104.3	28.4	17.3	**28.0**	1.33	0.9	**77.2**		
1 000	103.1	23.2	16.2	**22.2**	1.49	1.4	**82.3**		80.4
1 250	101.8	18.9	13.8	**17.6**	1.70	2.0	**86.2**		
1 600	104.7	19.2	15.4	**17.9**	1.75	2.1	**88.9**		
2 000	105.2	19.4	17.4	**18.1**	1.65	1.8	**88.9**		87.6
2 500	103.4	20.0	12.7	**19.1**	1.49	1.4	**85.7**		
3 150	101.2	18.0	13.4	**16.7**	1.39	1.1	**85.6**		
4 000	99.1	16.9	22.4	**15.6**	1.41	1.1	**84.6**		85.0
5 000	96.1	13.2	15.0	**11.9**	1.26	0.7	**84.9**		
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**		
	58	**-7**	**-15**		
	(100-5000)	**-6**	**-15**		
Background Corrected					
	(50-3150)	**-13**	**-25**		
RT's > factor 1.5 apart				Test Procedure: 140/3/issue 5	
	(50-5000)	**-12**	**-25**	Worksheet: 140_3_1.XLS	

UKAS TESTING
0296

Test Code:
H13508BA
Test Date:
07/07/04

Freq. Hz	R dB
50	22.4
63	14.1
80	14.7
100	23.8
125	31.4
160	40.4
200	51.6
250	56.7
315	61.8
400	63.8
500	67.4
630	71.9
800	77.2
1 000	82.3
1 250	86.2
1 600	88.9
2 000	88.9
2 500	85.7
3 150	85.6
4 000	84.6
5 000	84.9
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 58 (-7;-15) dB**		
	Max dev. 15.2 dB at 100 Hz		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-13 dB**	$C_{50\text{-}5000}$= **-12 dB**	$C_{100\text{-}5000}$= **-6 dB**
	$C_{tr,50\text{-}3150}$= **-25 dB**	$C_{tr,50\text{-}5000}$= **-25 dB**	$C_{tr,100\text{-}5000}$: **-15 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

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

Test Code: **H13509A** Test Date: **07/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.35**
Temperature, deg.C:	**19.6**	**19.8**
Rel. Humidity, %RH:	**53**	**49.4**

	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	86.5	60.5	18.2	60.5	0.47	-3.6	**22.4**		
63	88.0	65.1	22.4	65.1	0.66	-2.1	**20.8**		21.1
80	93.0	69.8	16.2	69.8	0.55	-2.9	**20.3**		
100	98.3	66.6	17.3	66.6	0.82	-1.2	**30.5**	13.5	
125	101.2	65.8	10.9	65.8	1.00	-0.3	**35.1**	11.9	33.9
160	107.6	62.3	10.5	62.3	1.32	0.9	**46.2**	3.8	
200	112.9	59.7	14.7	59.7	1.40	1.1	**54.3**		
250	114.6	56.8	16.4	56.8	1.28	0.7	**58.5**		57.2
315	113.0	51.6	17.4	51.6	1.29	0.8	**62.2**		
400	110.2	44.8	20.6	44.8	1.16	0.3	**65.7**		
500	106.9	38.0	19.6	38.0	1.22	0.5	**69.4**		68.5
630	104.7	31.8	18.9	**31.6**	1.32	0.9	**74.0**		
800	104.3	27.4	17.2	**27.0**	1.41	1.2	**78.5**		
1 000	102.8	21.9	17.4	**20.6**	1.53	1.5	**83.7**		81.7
1 250	102.0	17.5	16.2	**16.2**	1.67	1.9	**87.7**		
1 600	104.4	18.3	21.5	**17.0**	1.74	2.1	**89.5**		
2 000	105.1	17.9	24.9	**16.6**	1.61	1.7	**90.2**		89.7
2 500	103.2	16.5	18.4	**15.2**	1.50	1.4	**89.4**		
3 150	101.1	15.1	14.3	**13.8**	1.38	1.1	**88.4**		
4 000	98.9	16.5	14.1	**15.2**	1.36	1.0	**84.7**		85.5
5 000	96.1	13.8	13.0	**12.5**	1.27	0.7	**84.3**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**29.2**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	63	**-6**	**-14**		
	(100-5000)	**-5**	**-14**		
Background Corrected					
	(50-3150)	**-13**	**-25**		
	(50-5000)	**-12**	**-25**		

Test Procedure: 140/3/issue 5

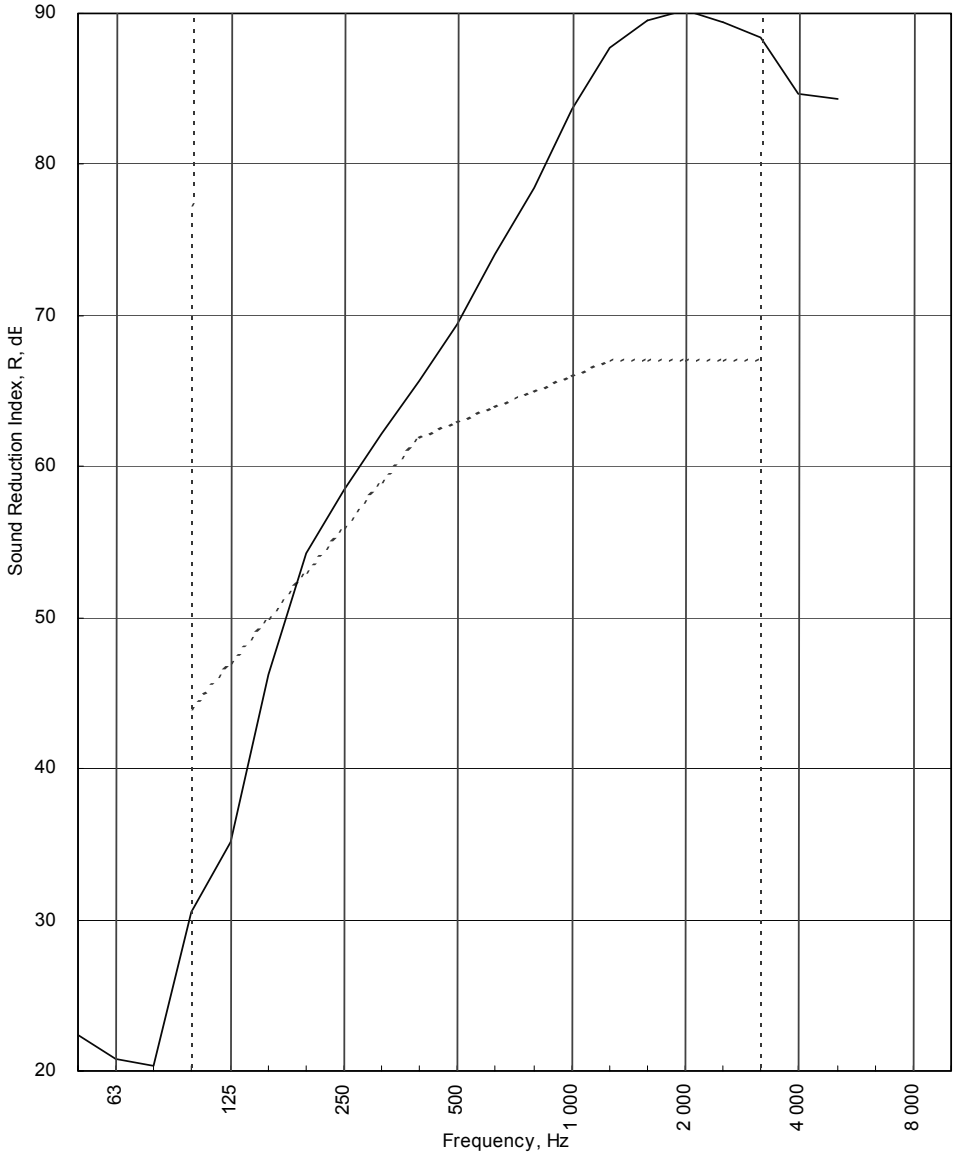
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13509A
Test Date:
07/07/04

Freq. Hz	R dB
50	22.4
63	20.8
80	20.3
100	30.5
125	35.1
160	46.2
200	54.3
250	58.5
315	62.2
400	65.7
500	69.4
630	74.0
800	78.5
1 000	83.7
1 250	87.7
1 600	89.5
2 000	90.2
2 500	89.4
3 150	88.4
4 000	84.7
5 000	84.3
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 63 (-6;-14) dB**		
	Max dev. 13.5 dB at 100 Hz		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-13 dB**	$C_{50\text{-}5000}$= **-12 dB**	$C_{100\text{-}5000}$= **-5 dB**
	$C_{tr,50\text{-}3150}$= **-25 dB**	$C_{tr,50\text{-}5000}$= **-25 dB**	$C_{tr,100\text{-}5000}$: **-14 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

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

Test Code: **H13510A** Test Date: **07/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.22**
Temperature, deg.C:	**19.6**	**22**
Rel. Humidity, %RH:	**53**	**44.1**

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	86.8	56.0	13.8	56.0	0.61	-2.5	**28.3**		
63	88.1	60.7	17.8	60.7	0.78	-1.4	**26.0**		25.8
80	93.3	66.9	14.1	66.9	0.64	-2.3	**24.1**		
100	97.8	62.9	18.2	62.9	0.89	-0.8	**34.1**	13.9	
125	101.1	61.9	8.0	61.9	1.06	-0.1	**39.1**	11.9	37.5
160	107.5	59.3	11.3	59.3	1.05	-0.1	**48.1**	5.9	
200	112.5	56.9	14.1	56.9	1.44	1.3	**56.9**	0.1	
250	114.3	55.8	13.9	55.8	1.49	1.4	**59.9**	0.1	59.2
315	113.6	51.7	22.1	51.7	1.40	1.1	**63.0**		
400	110.2	44.4	23.6	44.4	1.22	0.5	**66.3**		
500	107.0	37.9	23.2	**37.8**	1.07	0.0	**69.2**		68.8
630	104.9	31.4	20.2	**31.1**	1.22	0.5	**74.3**		
800	104.2	26.9	18.8	**26.2**	1.42	1.2	**79.2**		
1 000	102.9	21.4	17.1	**20.1**	1.45	1.3	**84.1**		82.3
1 250	102.1	17.2	15.8	**15.9**	1.55	1.6	**87.8**		
1 600	104.6	17.6	18.1	**16.3**	1.66	1.9	**90.2**		
2 000	105.3	17.4	18.9	**16.1**	1.71	2.0	**91.2**		90.5
2 500	102.9	15.6	16.2	**14.3**	1.56	1.6	**90.2**		
3 150	101.2	13.9	15.8	**12.6**	1.41	1.2	**89.8**		
4 000	99.0	16.5	22.9	**15.2**	1.43	1.2	**85.0**		85.6
5 000	95.9	14.0	15.6	**12.7**	1.27	0.7	**83.9**		
6 300									
8 000									
10 000									

Total U. Dev., dB **31.9**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	67	**-7**	**-14**
	(100-5000)	**-6**	**-14**
Background Corrected			
	(50-3150)	**-13**	**-24**
	(50-5000)	**-12**	**-24**

Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

UKAS TESTING

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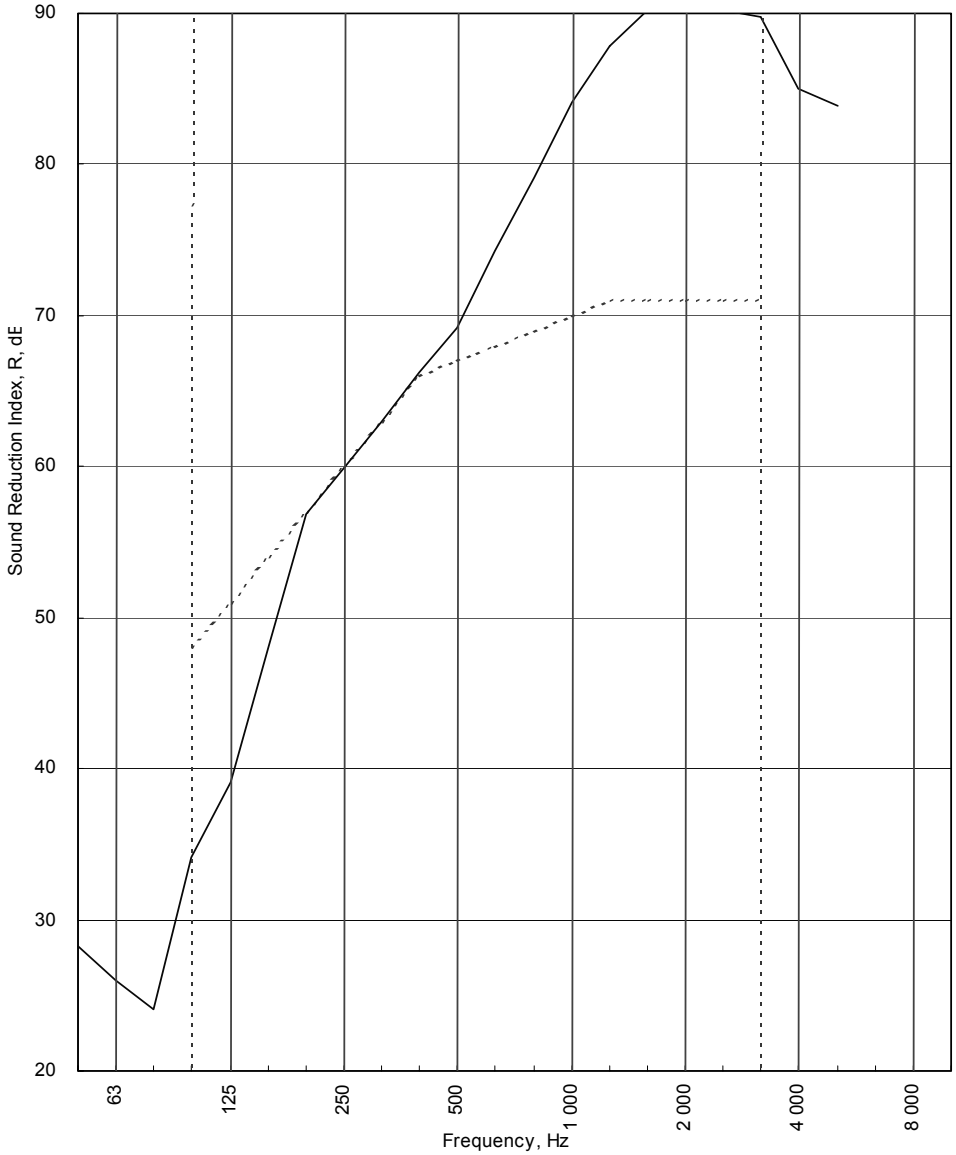
Test Code:
H13510A
Test Date:
07/07/04

Freq. Hz	R dB
50	28.3
63	26.0
80	24.1
100	34.1
125	39.1
160	48.1
200	56.9
250	59.9
315	63.0
400	66.3
500	69.2
630	74.3
800	79.2
1 000	84.1
1 250	87.8
1 600	90.2
2 000	91.2
2 500	90.2
3 150	89.8
4 000	85.0
5 000	83.9
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 67 (-7;-14) dB

Max dev. 13.9 dB at 100 Hz

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

$C_{50\text{-}3150}$= **-13 dB** $C_{50\text{-}5000}$= **-12 dB** $C_{100\text{-}5000}$= **-6 dB**

$C_{tr,50\text{-}3150}$= **-24 dB** $C_{tr,50\text{-}5000}$= **-24 dB** $C_{tr,100\text{-}5000}$: **-14 dB**

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

Test Code: **H13511A** Test Date: **07/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.87**
Temperature, deg.C:	**26.3**	**22**
Rel. Humidity, %RH:	**35.6**	**44.1**

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	31.0	13.9	31.0	0.62	-2.5	**27.8**		
63	63.5	38.0	18.4	38.0	0.72	-1.8	**23.7**		22.8
80	69.4	46.5	13.3	46.5	0.56	-2.9	**20.0**		
100	75.5	41.0	25.3	41.0	0.74	-1.7	**32.8**	6.2	
125	79.0	43.1	9.5	43.1	0.98	-0.5	**35.4**	6.6	35.1
160	85.9	45.4	7.7	45.4	0.92	-0.7	**39.8**	5.2	
200	92.9	45.4	13.4	45.4	1.20	0.4	**47.9**	0.1	
250	94.9	46.6	12.6	46.6	1.27	0.7	**49.0**	2.0	49.0
315	94.4	44.5	11.5	44.5	1.27	0.7	**50.6**	3.4	
400	92.7	39.4	17.6	39.4	1.25	0.6	**53.9**	3.1	
500	90.7	34.5	16.0	34.5	1.16	0.3	**56.5**	1.5	56.3
630	90.0	28.9	13.8	28.9	1.23	0.5	**61.6**		
800	90.7	26.0	11.8	**25.8**	1.24	0.6	**65.5**		
1 000	90.3	21.9	12.7	**21.3**	1.42	1.1	**70.1**		68.7
1 250	90.8	17.8	10.6	**16.9**	1.62	1.7	**75.6**		
1 600	94.1	18.5	12.6	**17.2**	1.71	2.0	**78.9**		
2 000	95.4	18.7	12.8	**17.4**	1.63	1.7	**79.7**		78.2
2 500	94.1	19.5	9.3	**19.1**	1.56	1.6	**76.6**		
3 150	93.0	18.1	9.4	**17.5**	1.43	1.2	**76.7**		
4 000	91.7	14.6	12.1	**13.3**	1.39	1.1	**79.5**		78.2
5 000	89.5	12.4	11.4	**11.1**	1.26	0.6	**79.0**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**28.1**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	58	**-2**	**-9**		
	(100-5000)	**-1**	**-9**		
Background Corrected					
	(50-3150)	**-8**	**-19**		
	(50-5000)	**-7**	**-19**		

Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

UKAS TESTING

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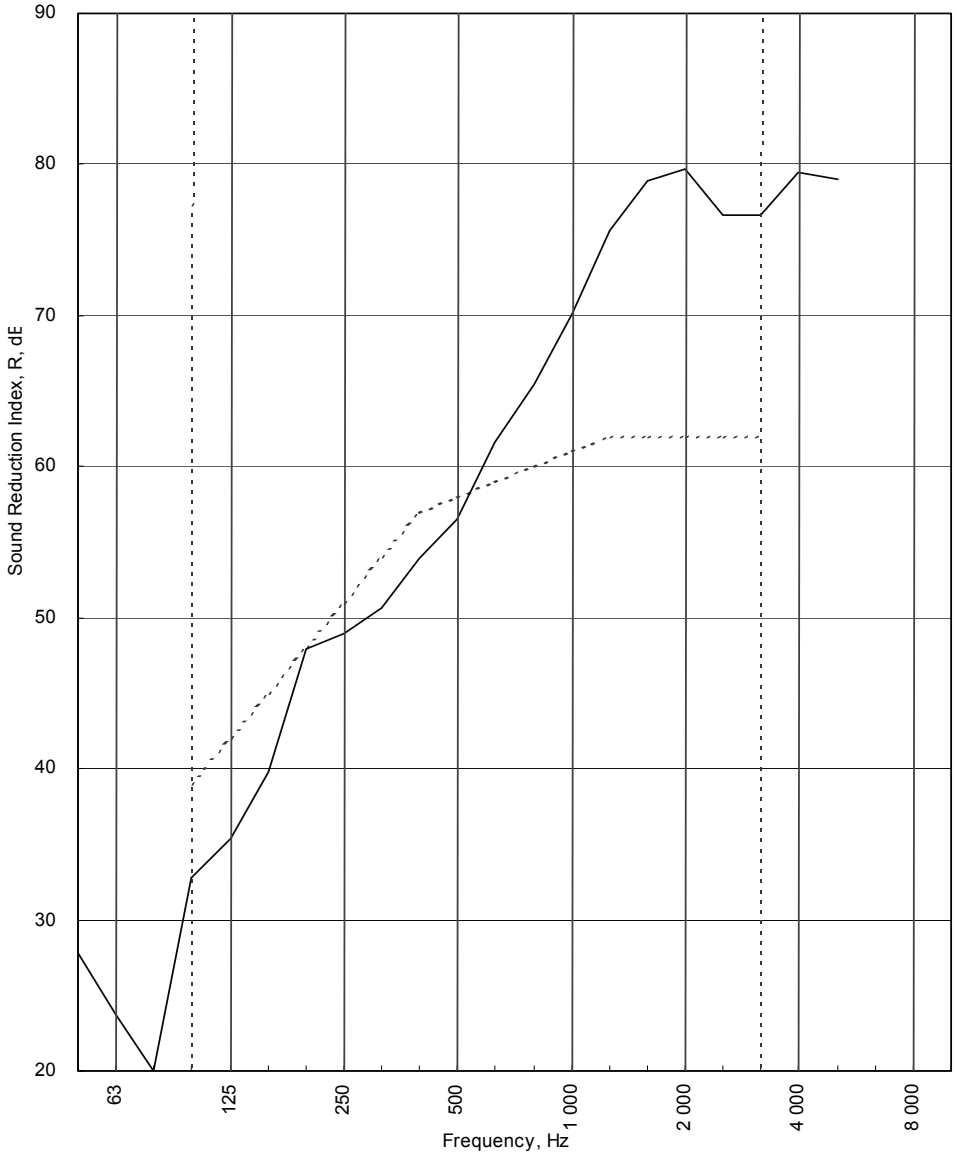
Test Code:
H13511A
Test Date:
07/07/04

Freq. Hz	R dB
50	27.8
63	23.7
80	20.0
100	32.8
125	35.4
160	39.8
200	47.9
250	49.0
315	50.6
400	53.9
500	56.5
630	61.6
800	65.5
1 000	70.1
1 250	75.6
1 600	78.9
2 000	79.7
2 500	76.6
3 150	76.7
4 000	79.5
5 000	79.0
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 58 (-2;-9) dB** **Max dev. 6.6 dB at 125 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**
	$C_{tr,50\text{-}3150}$= **-19 dB**	$C_{tr,50\text{-}5000}$= **-19 dB**	$C_{tr,100\text{-}5000}$: **-9 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13512A** Test Date: **07/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.74**
Temperature, deg.C:	**19.8**	**22**
Rel. Humidity, %RH:	**53.2**	**45.6**

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	59.6	29.9	13.2	29.9	0.49	-3.5	**26.2**		
63	64.2	35.6	6.2	35.6	0.68	-2.0	**26.6**		26.8
80	70.5	41.9	5.6	41.9	0.86	-1.0	**27.6**		
100	75.8	39.0	11.8	39.0	0.64	-2.3	**34.5**	6.5	
125	79.3	40.4	4.0	40.4	0.96	-0.5	**38.4**	5.6	37.4
160	86.7	44.4	6.2	44.4	1.40	1.1	**43.4**	3.6	
200	92.7	44.5	7.5	44.5	1.42	1.2	**49.4**	0.6	
250	94.8	45.2	9.5	45.2	1.31	0.8	**50.4**	2.6	50.3
315	94.9	43.8	17.3	43.8	1.20	0.4	**51.5**	4.5	
400	93.3	38.5	20.0	38.5	1.13	0.2	**55.0**	4.0	
500	91.4	32.7	15.8	32.7	1.08	0.0	**58.7**	1.3	57.9
630	90.2	26.5	13.4	**26.3**	1.37	1.0	**64.9**		
800	90.9	23.9	12.0	**23.6**	1.26	0.6	**67.9**		
1 000	90.5	19.5	10.0	**19.0**	1.50	1.4	**72.9**		71.2
1 250	91.1	15.9	9.7	**14.7**	1.61	1.7	**78.1**		
1 600	94.2	16.4	11.4	**15.1**	1.68	1.9	**81.0**		
2 000	95.6	17.1	11.1	**15.8**	1.72	2.0	**81.8**		80.1
2 500	94.1	17.9	9.9	**17.2**	1.55	1.5	**78.4**		
3 150	93.1	15.8	9.5	**14.6**	1.45	1.2	**79.7**		
4 000	91.8	12.1	9.2	**10.8**	1.36	1.0	**82.0**		80.8
5 000	89.7	10.8	10.7	**9.5**	1.27	0.7	**80.9**		
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**
	60	**-2**	**-8**
	(100-5000)	**-1**	**-8**
Background Corrected			
	(50-3150)	**-5**	**-16**
	(50-5000)	**-4**	**-16**

Test Procedure: 140/3/issue 5

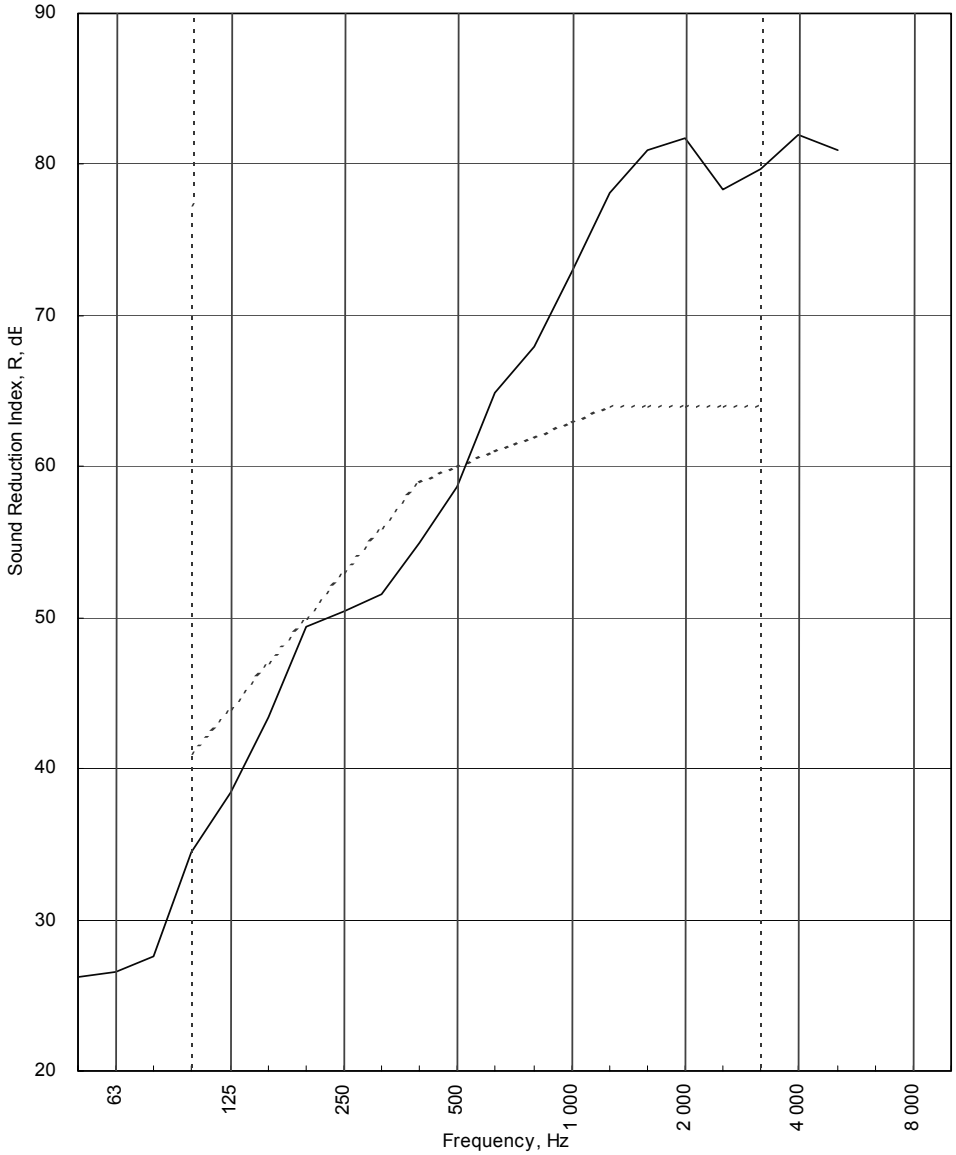
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13512A
Test Date:
07/07/04

Freq. Hz	R dB
50	26.2
63	26.6
80	27.6
100	34.5
125	38.4
160	43.4
200	49.4
250	50.4
315	51.5
400	55.0
500	58.7
630	64.9
800	67.9
1 000	72.9
1 250	78.1
1 600	81.0
2 000	81.8
2 500	78.4
3 150	79.7
4 000	82.0
5 000	80.9
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 60 (-2;-8) dB** **Max dev. 6.5 dB at 100 Hz**		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-5 dB**	$C_{50\text{-}5000}$= **-4 dB**	$C_{100\text{-}5000}$= **-1 dB**
	$C_{tr,50\text{-}3150}$= **-16 dB**	$C_{tr,50\text{-}5000}$= **-16 dB**	$C_{tr,100\text{-}5000}$: **-8 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13513A** Test Date: **07/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.5**
Temperature, deg.C:	**20.1**	**22.5**
Rel. Humidity, %RH:	**52**	**42.1**

	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	59.0	28.7	14.6	**28.5**	0.60	-2.6	**27.9**		
63	63.3	37.9	18.5	37.9	0.87	-1.0	**24.4**		24.5
80	71.1	46.9	14.3	46.9	0.76	-1.6	**22.6**		
100	75.9	45.5	21.6	45.5	1.04	-0.3	**30.1**		
125	79.3	50.1	10.0	50.1	1.07	-0.1	**29.1**		29.7
160	86.6	57.4	10.6	57.4	1.35	0.9	**30.1**		
200	92.7	61.6	15.5	61.6	1.15	0.2	**31.3**		
250	94.9	66.0	14.4	66.0	1.35	0.9	**29.8**	1.2	30.2
315	94.9	65.8	22.3	65.8	1.26	0.6	**29.7**	4.3	
400	93.3	64.2	23.2	64.2	1.18	0.3	**29.4**	7.6	
500	91.3	61.0	22.3	61.0	1.14	0.1	**30.4**	7.6	30.9
630	90.1	55.9	17.8	55.9	1.16	0.2	**34.4**	4.6	
800	91.0	53.9	18.9	53.9	1.31	0.8	**37.9**	2.1	
1 000	90.4	49.3	19.5	49.3	1.47	1.3	**42.4**		41.1
1 250	91.0	43.6	15.9	43.6	1.56	1.5	**48.9**		
1 600	94.0	44.1	19.3	44.1	1.53	1.4	**51.3**		
2 000	95.5	45.2	20.7	45.2	1.45	1.2	**51.5**		50.8
2 500	94.1	45.2	16.0	45.2	1.40	1.0	**49.9**		
3 150	93.0	42.5	15.1	42.5	1.32	0.8	**51.3**		
4 000	91.8	36.9	22.2	**36.8**	1.33	0.8	**55.8**		54.3
5 000	89.6	30.6	15.1	30.6	1.22	0.4	**59.4**		
6 300									
8 000									
10 000									

Total U. Dev., dB **27.4**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	38	**-1**	**-3**
	(100-5000)	**0**	**-3**
Background Corrected			
	(50-3150)	**-1**	**-4**
	(50-5000)	**0**	**-4**

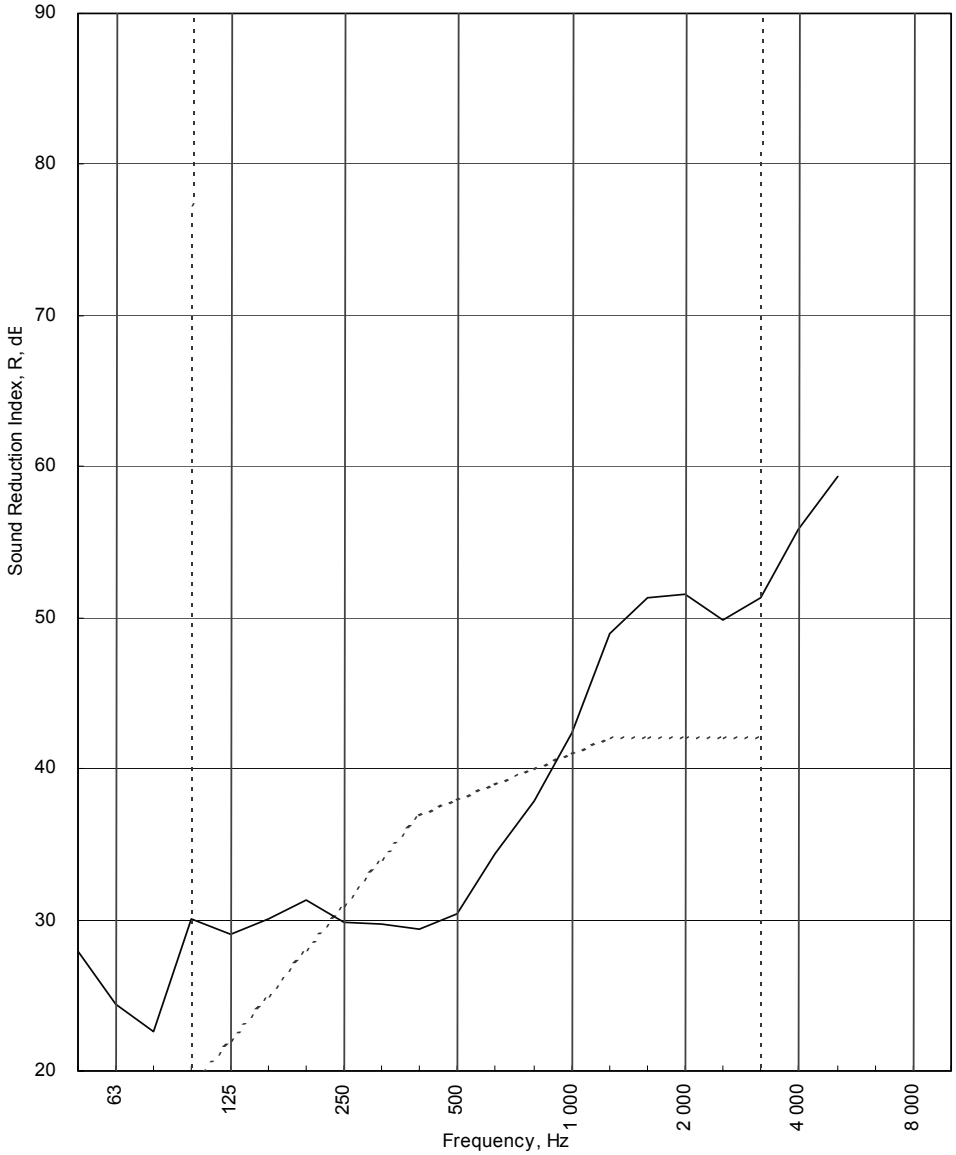
Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

UKAS TESTING 0296

Test Code:
H13513A
Test Date:
07/07/04

Freq. Hz	R dB
50	27.9
63	24.4
80	22.6
100	30.1
125	29.1
160	30.1
200	31.3
250	29.8
315	29.7
400	29.4
500	30.4
630	34.4
800	37.9
1 000	42.4
1 250	48.9
1 600	51.3
2 000	51.5
2 500	49.9
3 150	51.3
4 000	55.8
5 000	59.4
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 38 (-1;-3) dB

Max dev. 7.6 dB at 500 Hz

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

$C_{50\text{-}3150}$= **-1 dB** $C_{50\text{-}5000}$= **0 dB** $C_{100\text{-}5000}$= **0 dB**

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

UKAS TESTING
0296

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

Test Code: **H13514A** Test Date: **08/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.38**
Temperature, deg.C:	**19.7**	**19**
Rel. Humidity, %RH:	**55.1**	**58.3**

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	58.7	25.9	14.2	**25.6**	0.62	-2.5	**30.6**		
63	64.9	39.6	18.2	39.6	0.91	-0.8	**24.5**		24.3
80	70.0	45.7	14.1	45.7	0.62	-2.5	**21.8**		
100	75.2	44.6	23.4	44.6	0.92	-0.8	**29.8**		
125	79.5	49.0	11.5	49.0	1.09	0.0	**30.5**		29.6
160	86.1	58.0	8.8	58.0	1.28	0.7	**28.8**	1.2	
200	92.2	62.4	17.8	62.4	1.37	1.0	**30.8**	2.2	
250	94.4	66.1	16.3	66.1	1.22	0.5	**28.8**	7.2	30.1
315	94.6	64.1	18.1	64.1	1.28	0.7	**31.2**	7.8	
400	93.4	59.5	20.6	59.5	1.22	0.5	**34.4**	7.6	
500	91.5	53.1	20.6	53.1	1.21	0.4	**38.8**	4.2	37.3
630	90.1	48.7	18.3	48.7	1.31	0.8	**42.2**	1.8	
800	90.7	45.3	15.7	45.3	1.46	1.2	**46.6**		
1 000	90.3	39.7	15.8	39.7	1.60	1.6	**52.2**		50.2
1 250	91.1	32.9	13.0	32.9	1.69	1.9	**60.1**		
1 600	94.1	31.5	17.5	**31.3**	1.72	1.9	**64.7**		
2 000	95.5	32.5	15.1	32.5	1.70	1.9	**64.9**		62.4
2 500	94.1	35.8	14.7	35.8	1.55	1.5	**59.8**		
3 150	93.0	33.6	13.5	33.6	1.46	1.2	**60.6**		
4 000	91.7	27.9	12.4	27.9	1.41	1.1	**64.9**		63.6
5 000	89.6	21.4	12.7	**20.8**	1.33	0.8	**69.6**		
6 300									
8 000									
10 000									

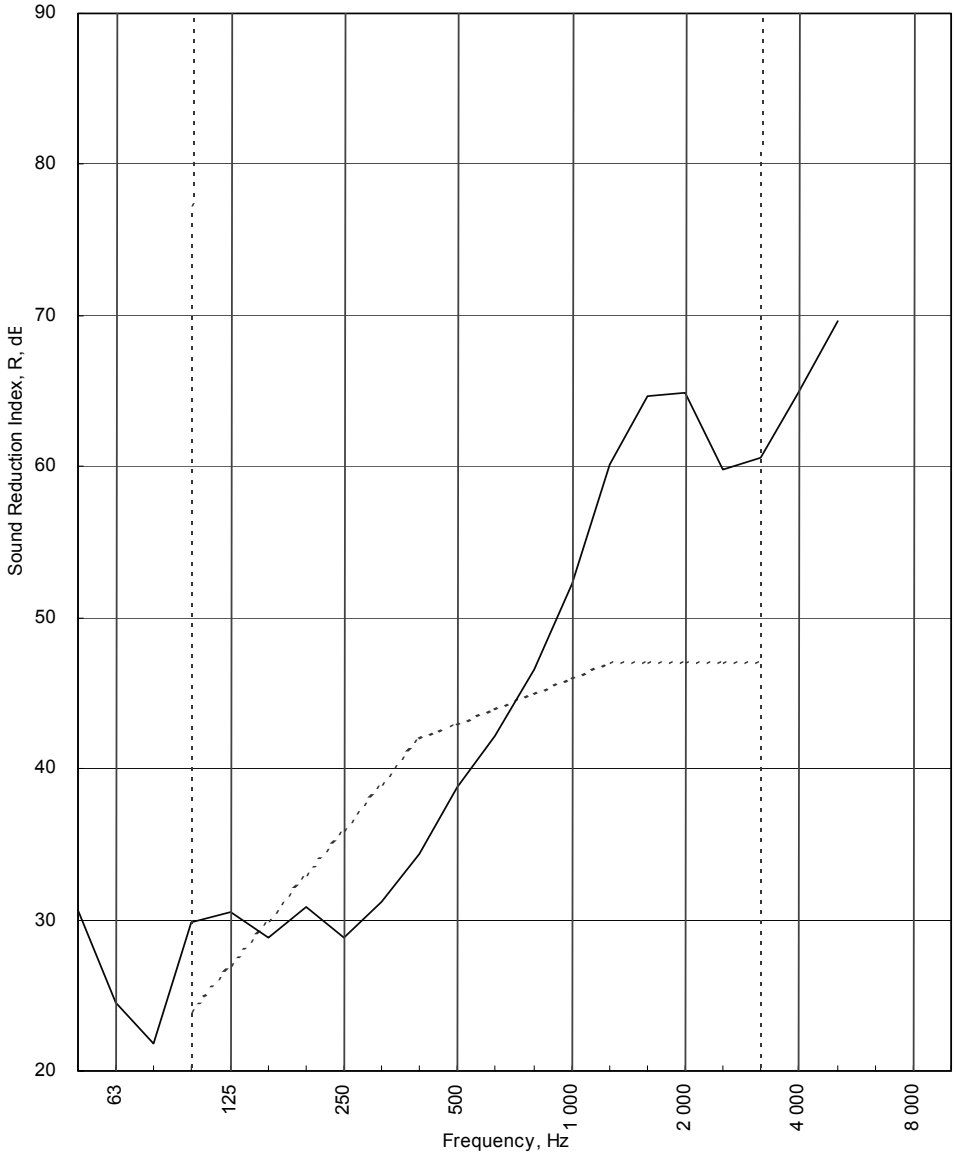
Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**32**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	43	**-2**	**-5**		
	(100-5000)	**-1**	**-5**		
Background Corrected					
	(50-3150)	**-2**	**-7**		
	(50-5000)	**-1**	**-7**		

Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

Test Code:
H13514A
Test Date:
08/07/04

Freq. Hz	R dB
50	30.6
63	24.5
80	21.8
100	29.8
125	30.5
160	28.8
200	30.8
250	28.8
315	31.2
400	34.4
500	38.8
630	42.2
800	46.6
1 000	52.2
1 250	60.1
1 600	64.7
2 000	64.9
2 500	59.8
3 150	60.6
4 000	64.9
5 000	69.6
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 43 (-2;-5) dB** **Max dev. 7.8 dB at 315 Hz**		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-2 dB**	$C_{50\text{-}5000}$= **-1 dB**	$C_{100\text{-}5000}$= **-1 dB**
	$C_{tr,50\text{-}3150}$= **-7 dB**	$C_{tr,50\text{-}5000}$= **-7 dB**	$C_{tr,100\text{-}5000}$: **-5 dB**

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

Test Code: **H13515A** Test Date: **08/07/04**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2		
	Room Volume, m^3:	**98**	**59.25**
	Temperature, deg.C:	**19**	**19.3**
	Rel. Humidity, %RH:	**58.6**	**58**

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	59.7	26.5	16.0	**26.1**	0.82	-1.3	**32.3**		
63	64.9	36.6	18.7	36.6	0.89	-0.9	**27.4**		26.7
80	70.0	44.0	15.0	44.0	0.70	-2.0	**24.0**		
100	75.0	44.1	21.5	44.1	1.00	-0.4	**30.5**		
125	79.3	49.0	10.8	49.0	1.26	0.6	**30.9**		29.4
160	85.9	58.3	10.3	58.3	1.10	0.0	**27.6**	3.4	
200	92.4	61.1	17.0	61.1	1.29	0.7	**32.0**	2.0	
250	94.8	65.0	14.4	65.0	1.26	0.6	**30.4**	6.6	31.9
315	94.9	61.3	16.8	61.3	1.19	0.4	**34.0**	6.0	
400	93.5	55.5	19.2	55.5	1.16	0.2	**38.2**	4.8	
500	91.6	50.2	18.7	50.2	1.17	0.3	**41.7**	2.3	40.8
630	90.1	45.8	17.9	45.8	1.23	0.5	**44.8**	0.2	
800	90.8	42.9	16.0	42.9	1.43	1.2	**49.1**		
1 000	90.5	37.0	15.6	37.0	1.47	1.3	**54.8**		52.7
1 250	91.1	29.7	12.7	29.7	1.60	1.6	**63.0**		
1 600	94.3	28.6	17.2	**28.3**	1.66	1.8	**67.8**		
2 000	95.7	29.4	14.9	**29.2**	1.60	1.6	**68.1**		66.1
2 500	94.2	31.7	15.3	31.7	1.51	1.4	**63.9**		
3 150	93.2	29.3	14.1	29.3	1.39	1.0	**64.9**		
4 000	91.9	23.8	13.0	**23.4**	1.41	1.1	**69.6**		68.0
5 000	89.6	17.7	13.4	**16.4**	1.31	0.8	**74.0**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.3**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	44	**-1**	**-5**		
	(100-5000)	**0**	**-5**		
Background Corrected					
	(50-3150)	**-1**	**-6**		
	(50-5000)	**0**	**-6**		

Test Procedure: 140/3/issue 5

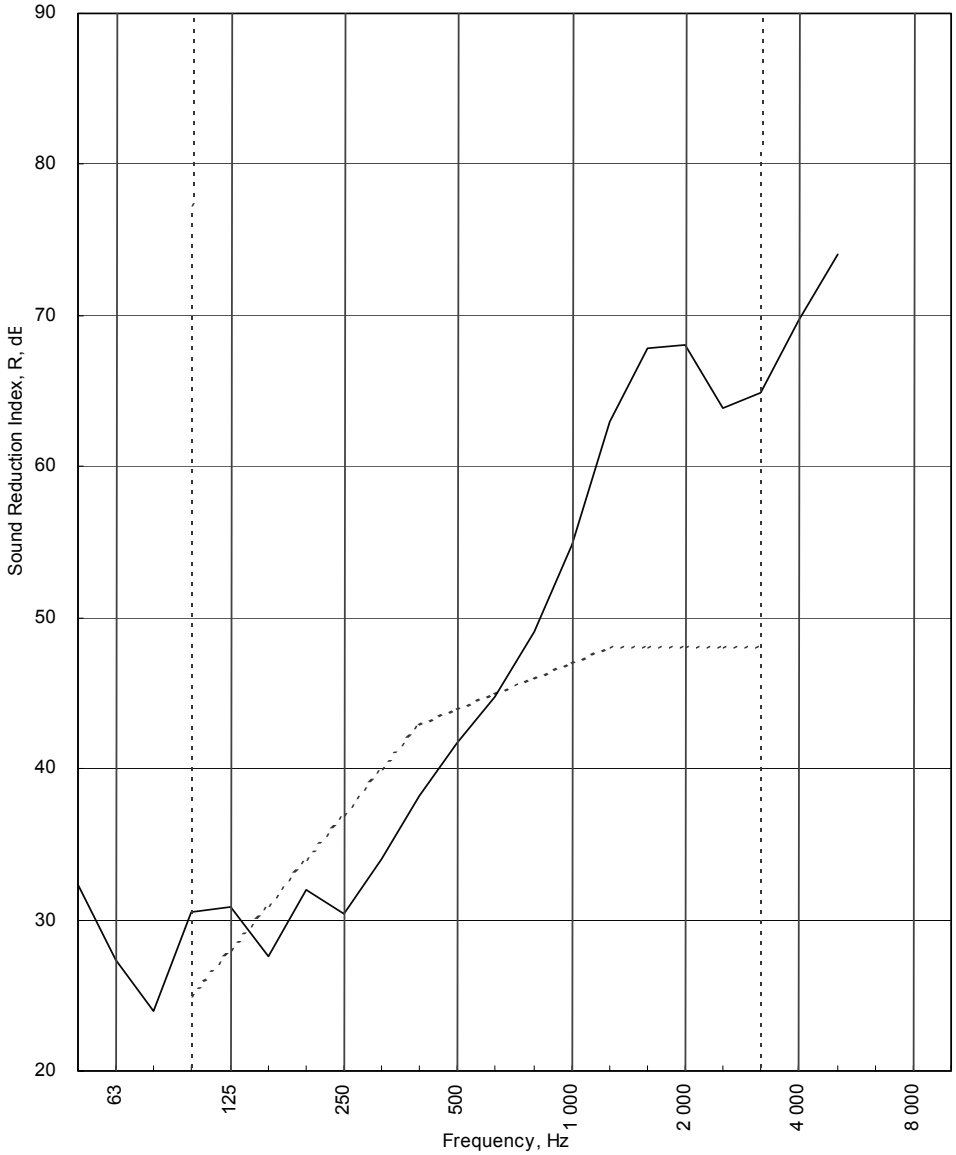
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13515A
Test Date:
08/07/04

Freq. Hz	R dB
50	32.3
63	27.4
80	24.0
100	30.5
125	30.9
160	27.6
200	32.0
250	30.4
315	34.0
400	38.2
500	41.7
630	44.8
800	49.1
1 000	54.8
1 250	63.0
1 600	67.8
2 000	68.1
2 500	63.9
3 150	64.9
4 000	69.6
5 000	74.0
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 44 (-1;-5) dB** **Max dev. 6.6 dB at 250 Hz**		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-1 dB**	$C_{50\text{-}5000}$= **0 dB**	$C_{100\text{-}5000}$= **0 dB**
	$C_{tr,50\text{-}3150}$= **-6 dB**	$C_{tr,50\text{-}5000}$= **-6 dB**	$C_{tr,100\text{-}5000}$: **-5 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

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

Test Code: **H13516A** Test Date: **08/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**59.51**
Temperature, deg.C:	**17.8**	**18.6**
Rel. Humidity, %RH:	**64.4**	**61.1**

	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	61.3	29.0	14.4	**28.8**	0.65	-2.3	**30.2**		
63	65.0	41.3	13.4	41.3	0.86	-1.1	**22.6**		22.8
80	70.6	48.9	11.9	48.9	0.79	-1.4	**20.3**		
100	75.8	46.3	24.5	46.3	1.12	0.1	**29.6**		
125	78.9	50.2	11.7	50.2	1.21	0.4	**29.1**		28.3
160	85.9	58.8	10.4	58.8	1.00	-0.4	**26.7**	0.3	
200	92.4	63.7	17.5	63.7	1.39	1.0	**29.7**	0.3	
250	94.5	67.6	16.7	67.6	1.08	-0.1	**26.8**	6.2	28.2
315	94.4	66.3	16.0	66.3	1.21	0.4	**28.5**	7.5	
400	93.1	63.2	20.4	63.2	1.18	0.3	**30.2**	8.8	
500	91.3	56.9	20.1	56.9	1.12	0.1	**34.5**	5.5	33.2
630	90.2	51.7	18.9	51.7	1.24	0.5	**39.0**	2.0	
800	90.9	48.0	16.3	48.0	1.50	1.3	**44.2**		
1 000	90.4	42.3	16.1	42.3	1.51	1.4	**49.5**		47.7
1 250	91.1	36.3	13.8	36.3	1.64	1.7	**56.5**		
1 600	94.1	35.4	18.3	35.4	1.65	1.8	**60.5**		
2 000	95.7	36.9	16.1	36.9	1.67	1.8	**60.6**		58.2
2 500	94.2	40.2	16.8	40.2	1.55	1.5	**55.5**		
3 150	93.2	38.3	15.5	38.3	1.43	1.1	**56.0**		
4 000	91.9	33.1	13.8	33.1	1.43	1.1	**59.9**		58.8
5 000	89.6	26.4	14.3	**26.1**	1.29	0.7	**64.2**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**30.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	40	**-1**	**-5**		
	(100-5000)	**0**	**-5**		
Background Corrected					
	(50-3150)	**-2**	**-6**		
	(50-5000)	**-1**	**-6**		

Test Procedure: 140/3/issue 5

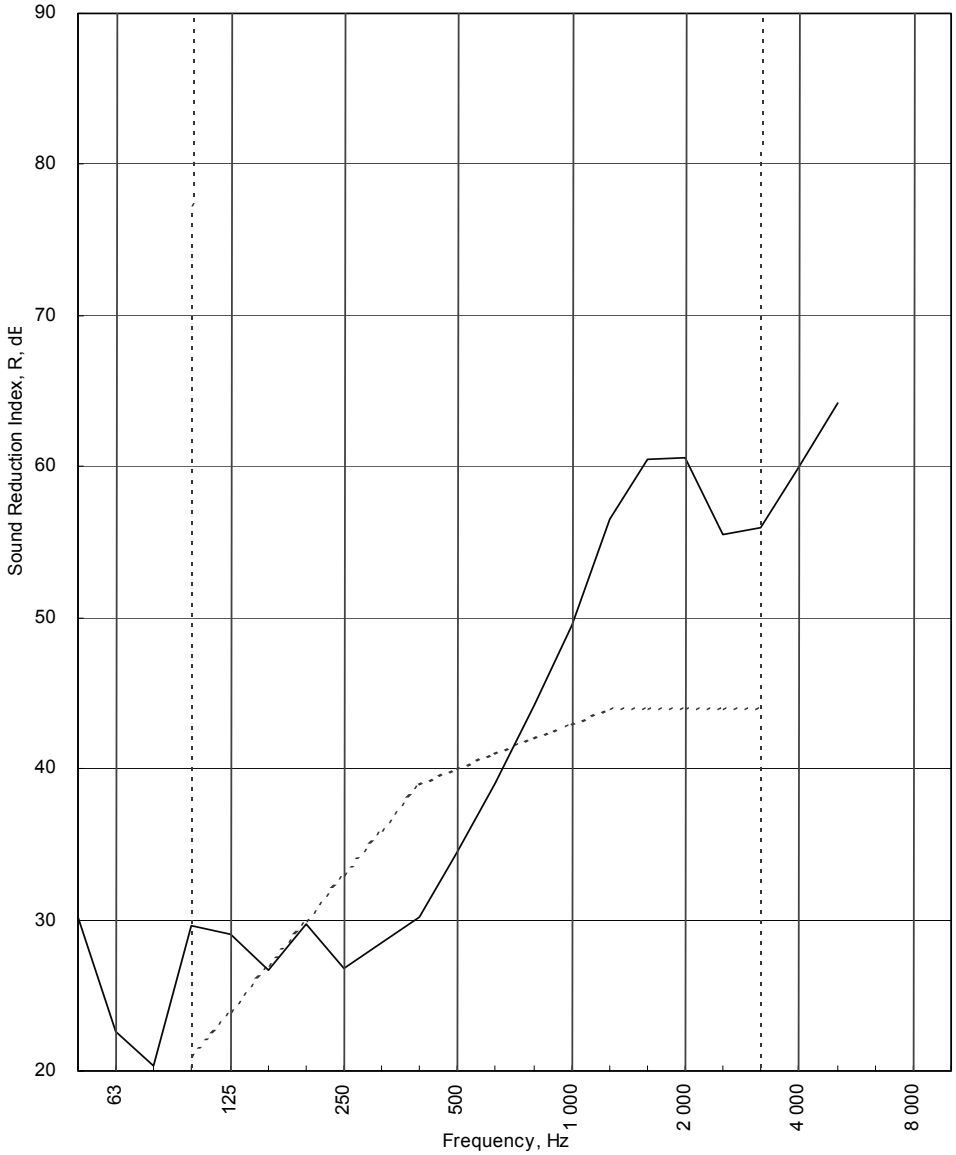
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13516A
Test Date:
08/07/04

Freq. Hz	R dB
50	30.2
63	22.6
80	20.3
100	29.6
125	29.1
160	26.7
200	29.7
250	26.8
315	28.5
400	30.2
500	34.5
630	39.0
800	44.2
1 000	49.5
1 250	56.5
1 600	60.5
2 000	60.6
2 500	55.5
3 150	56.0
4 000	59.9
5 000	64.2
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 40 (-1;-5) dB** **Max dev. 8.8 dB at 400 Hz**		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-2 dB**	$C_{50\text{-}5000}$= **-1 dB**	$C_{100\text{-}5000}$= **0 dB**
	$C_{tr,50\text{-}3150}$= **-6 dB**	$C_{tr,50\text{-}5000}$= **-6 dB**	$C_{tr,100\text{-}5000}$: **-5 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13517A** Test Date: **08/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.5**
Temperature, deg.C:	**17.7**	**19.1**
Rel. Humidity, %RH:	**64.9**	**62.6**

	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	85.2	54.3	17.8	54.3	0.65	-2.2	**28.7**		
63	88.9	58.4	20.7	58.4	0.82	-1.2	**29.3**		28.1
80	95.7	67.4	13.8	67.4	0.77	-1.5	**26.8**		
100	98.2	59.4	19.4	59.4	1.04	-0.2	**38.6**	5.4	
125	101.0	59.9	8.7	59.9	1.45	1.3	**42.4**	4.6	41.2
160	107.6	62.3	6.8	62.3	1.01	-0.3	**45.0**	5.0	
200	113.4	61.7	16.0	61.7	1.42	1.2	**52.9**	0.1	
250	114.2	60.8	12.2	60.8	1.46	1.3	**54.7**	1.3	54.5
315	113.3	57.0	13.6	57.0	1.22	0.5	**56.8**	2.2	
400	110.1	51.0	17.4	51.0	1.15	0.3	**59.4**	2.6	
500	106.8	46.7	17.1	46.7	1.11	0.1	**60.2**	2.8	61.1
630	104.6	39.1	14.3	39.1	1.24	0.6	**66.1**		
800	104.3	34.9	12.9	34.9	1.40	1.1	**70.5**		
1 000	102.9	29.3	13.7	29.3	1.55	1.6	**75.2**		73.8
1 250	102.0	22.7	11.4	**22.4**	1.76	2.1	**81.7**		
1 600	104.7	21.1	13.9	**20.2**	1.74	2.1	**86.6**		
2 000	105.1	19.6	13.5	**18.4**	1.65	1.8	**88.5**		85.5
2 500	103.2	21.7	9.7	**21.4**	1.48	1.4	**83.2**		
3 150	101.1	20.2	9.3	**19.8**	1.38	1.1	**82.4**		
4 000	99.2	15.0	11.3	**13.7**	1.41	1.1	**86.6**		84.5
5 000	95.9	12.6	11.4	**11.3**	1.34	0.9	**85.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**24**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	63	**-2**	**-8**		
	(100-5000)	**-1**	**-8**		
Background Corrected					
	(50-3150)	**-6**	**-18**		
	(50-5000)	**-5**	**-18**		

Test Procedure: 140/3/issue 5

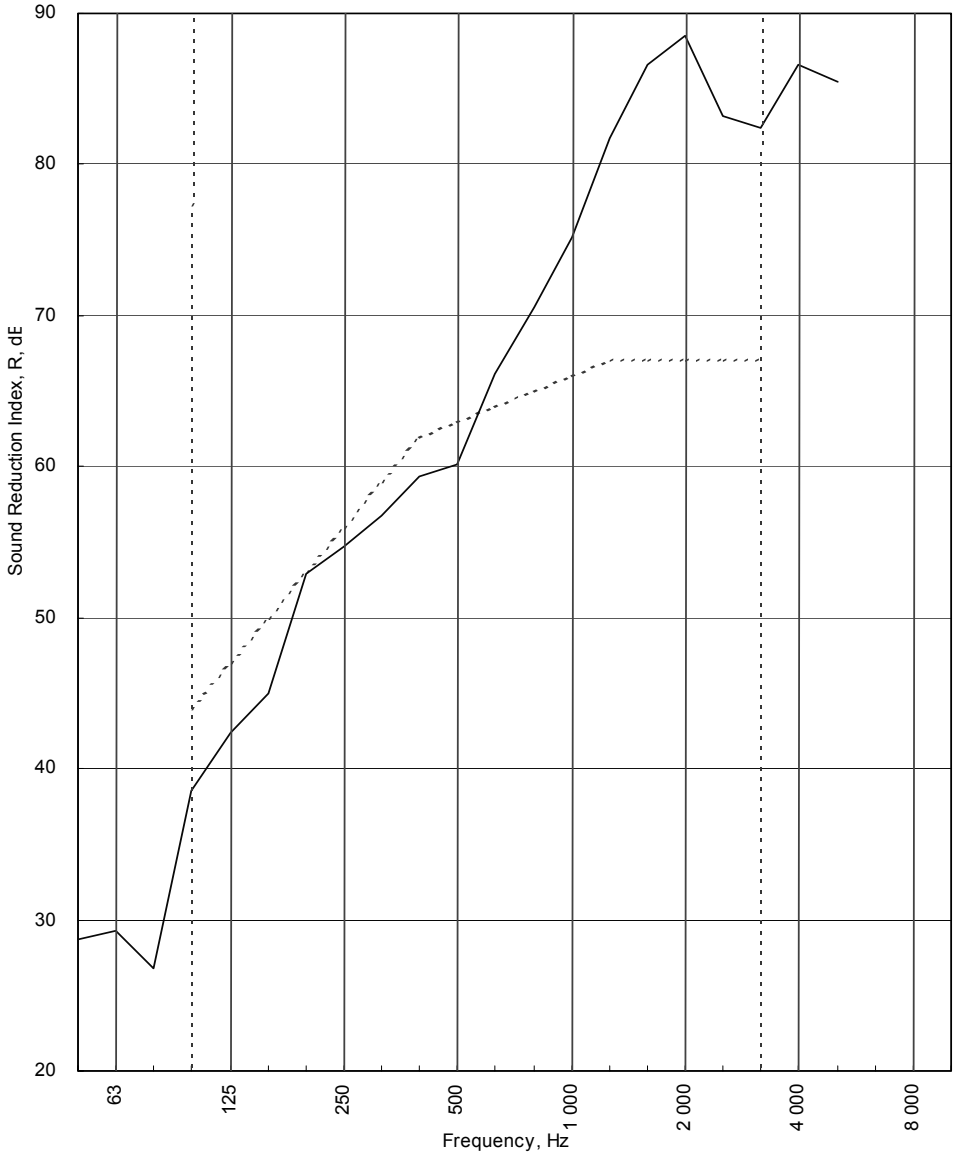
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13517A
Test Date:
08/07/04

Freq. Hz	R dB
50	28.7
63	29.3
80	26.8
100	38.6
125	42.4
160	45.0
200	52.9
250	54.7
315	56.8
400	59.4
500	60.2
630	66.1
800	70.5
1 000	75.2
1 250	81.7
1 600	86.6
2 000	88.5
2 500	83.2
3 150	82.4
4 000	86.6
5 000	85.5
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 63 (-2;-8) dB** **Max dev. 5.4 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**	$C_{100\text{-}5000}$= **-1 dB**
	$C_{tr,50\text{-}3150}$= **-18 dB**	$C_{tr,50\text{-}5000}$= **-18 dB**	$C_{tr,100\text{-}5000}$: **-8 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13518A** Test Date: **08/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.4**
Temperature, deg.C:	**17.5**	**18.5**
Rel. Humidity, %RH:	**65.6**	**59.3**

	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	87.8	55.7	15.1	55.7	0.56	-2.9	**29.2**		
63	88.9	59.9	18.9	59.9	0.78	-1.4	**27.6**		28.1
80	94.1	64.7	14.7	64.7	0.74	-1.6	**27.8**		
100	97.8	56.5	25.2	56.5	0.92	-0.7	**40.6**	5.4	
125	101.4	57.7	12.4	57.7	1.24	0.6	**44.3**	4.7	43.2
160	107.8	60.8	8.5	60.8	1.15	0.3	**47.3**	4.7	
200	113.7	62.0	16.1	62.0	1.48	1.4	**53.1**	1.9	
250	114.5	59.0	14.9	59.0	1.31	0.8	**56.3**	1.7	55.0
315	112.9	56.6	16.0	56.6	1.13	0.2	**56.5**	4.5	
400	110.2	49.5	19.7	49.5	1.15	0.3	**61.0**	3.0	
500	106.8	43.9	19.9	43.9	1.16	0.3	**63.2**	1.8	63.3
630	104.8	36.3	18.2	36.3	1.25	0.6	**69.1**		
800	104.5	31.6	15.1	31.6	1.38	1.1	**74.0**		
1 000	102.9	26.7	14.7	**26.4**	1.60	1.7	**78.2**		77.1
1 250	101.8	19.6	12.4	**18.7**	1.68	1.9	**85.0**		
1 600	104.7	20.3	16.3	**19.0**	1.66	1.9	**87.6**		
2 000	105.0	17.5	15.0	**16.2**	1.67	1.9	**90.7**		88.6
2 500	103.2	18.0	12.7	**16.7**	1.52	1.5	**88.0**		
3 150	101.4	16.4	11.3	**15.1**	1.43	1.2	**87.5**		
4 000	99.1	12.9	11.8	**11.6**	1.42	1.2	**88.7**		87.3
5 000	96.3	12.2	12.2	**10.9**	1.25	0.6	**86.0**		
6 300									
8 000									
10 000									

Total U. Dev., dB **27.7**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	65	**-2**	**-8**
	(100-5000)	**-1**	**-8**
Background Corrected			
	(50-3150)	**-8**	**-19**
	(50-5000)	**-7**	**-19**

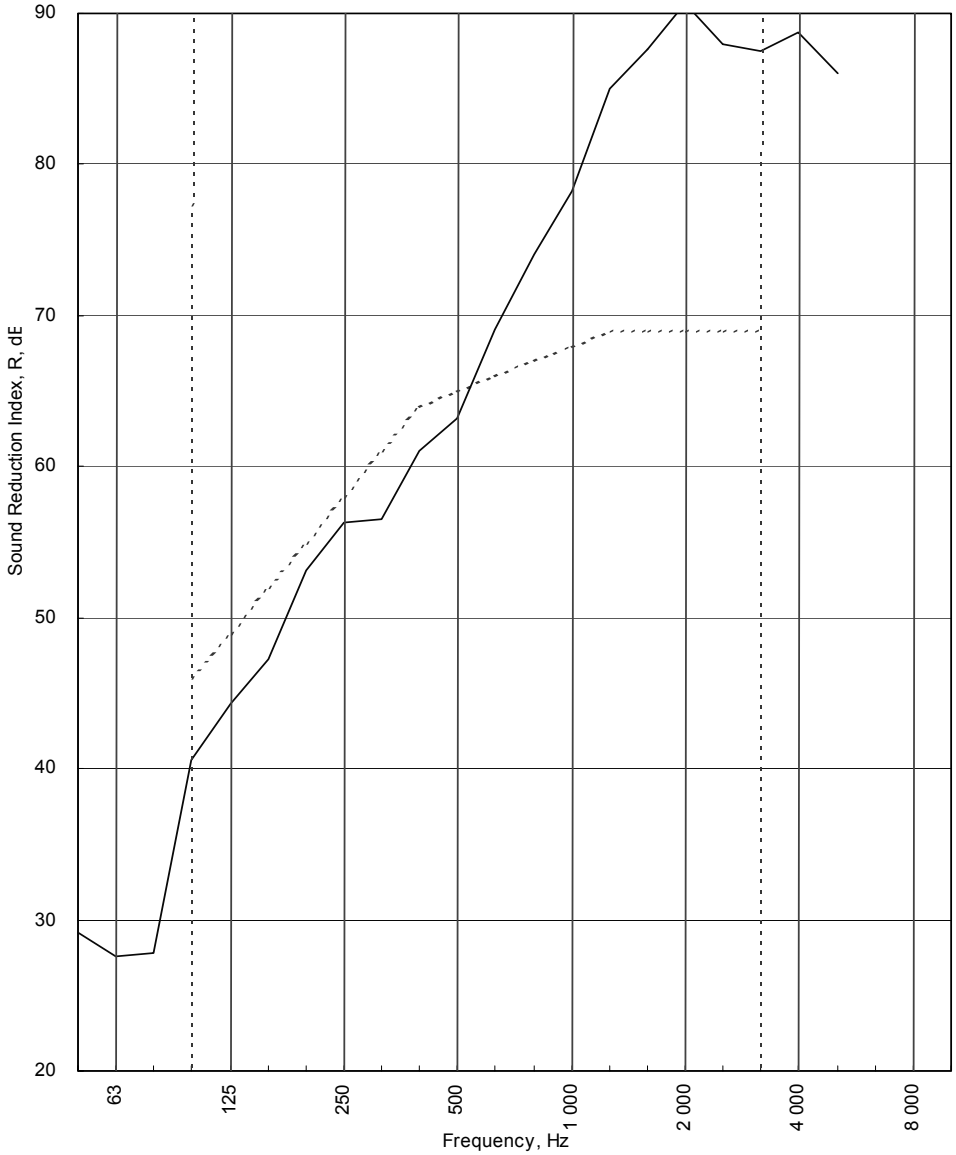
Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

UKAS TESTING 0296

Test Code:
H13518A
Test Date:
08/07/04

Freq. Hz	R dB
50	29.2
63	27.6
80	27.8
100	40.6
125	44.3
160	47.3
200	53.1
250	56.3
315	56.5
400	61.0
500	63.2
630	69.1
800	74.0
1 000	78.2
1 250	85.0
1 600	87.6
2 000	90.7
2 500	88.0
3 150	87.5
4 000	88.7
5 000	86.0
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 65 (-2;-8) dB** **Max dev. 5.4 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**
	$C_{tr,50\text{-}3150}$= **-19 dB**	$C_{tr,50\text{-}5000}$= **-19 dB**	$C_{tr,100\text{-}5000}$: **-8 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13519BA** Test Date: **09/07/04**

		Room T2	Room T1
Specimen Area, S =	**8.64** m^2		
	Room Volume, m^3:	**98**	**58.7**
	Temperature, deg.C:	**18.6**	**18.9**
	Rel. Humidity, %RH:	**53.5**	**52.6**

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	87.5	61.4	17.3	61.4	**0.54**	-3.0	**23.1**		
63	88.9	64.2	18.7	64.2	**0.82**	-1.2	**23.5**		22.9
80	93.7	70.5	14.8	70.5	0.85	-1.1	**22.1**		
100	97.9	63.2	30.2	63.2	0.89	-0.9	**33.8**	6.2	
125	100.9	63.2	14.2	63.2	1.24	0.6	**38.3**	4.7	36.9
160	107.6	64.4	6.2	64.4	1.17	0.3	**43.5**	2.5	
200	113.3	64.9	17.0	64.9	1.39	1.1	**49.5**		
250	114.2	63.9	14.7	63.9	1.30	0.8	**51.1**	0.9	51.2
315	113.2	59.0	14.9	59.0	1.17	0.3	**54.5**	0.5	
400	109.8	52.6	20.0	52.6	1.16	0.3	**57.5**	0.5	
500	106.8	48.4	17.9	48.4	1.17	0.3	**58.7**	0.3	55.9
630	104.7	51.6	14.1	51.6	1.17	0.3	**53.4**	6.6	
800	104.1	45.3	13.6	45.3	1.36	1.0	**59.8**	1.2	
1 000	102.9	43.4	13.2	43.4	1.47	1.3	**60.8**	1.2	61.5
1 250	102.1	38.1	10.9	38.1	1.62	1.7	**65.7**		
1 600	104.3	36.4	13.2	36.4	1.67	1.9	**69.8**		
2 000	105.1	34.0	12.7	34.0	1.61	1.7	**72.8**		71.3
2 500	102.9	32.2	9.6	32.2	1.44	1.2	**71.9**		
3 150	100.9	30.4	9.5	30.4	1.36	1.0	**71.5**		
4 000	99.0	22.1	11.2	**21.7**	1.35	0.9	**78.2**		75.0
5 000	96.1	17.7	12.0	**16.4**	1.22	0.5	**80.2**		
6 300									
8 000									
10 000									

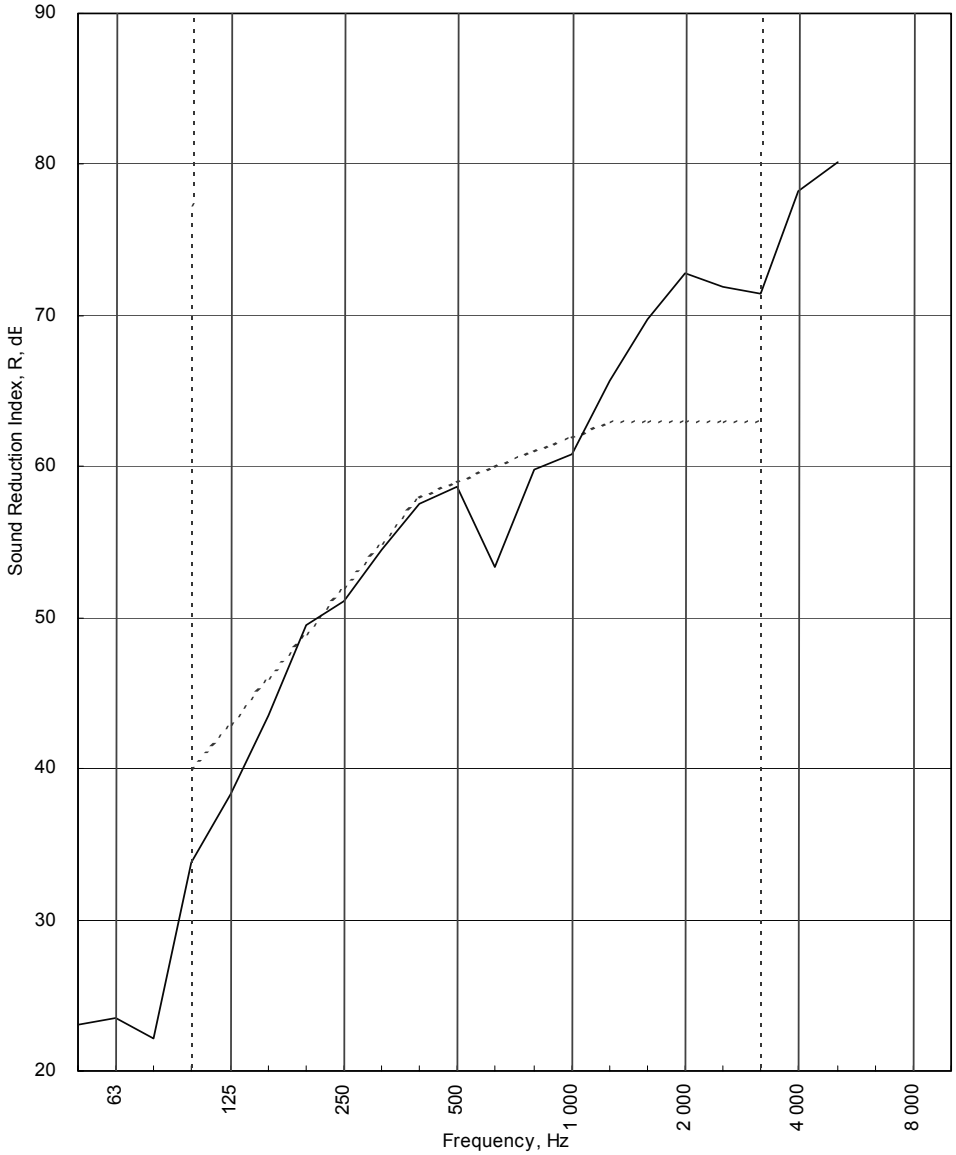
Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**24.6**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	59	**-2**	**-8**		
	(100-5000)	**-1**	**-8**		
Background Corrected					
	(50-3150)	**-7**	**-19**		
RT's > factor 1.5 apart				Test Procedure: 140/3/issue 5	
	(50-5000)	**-6**	**-19**	Worksheet: 140_3_1.XLS	

UKAS TESTING
0296

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

Test Code:
H13519BA
Test Date:
09/07/04

Freq. Hz	R dB
50	23.1
63	23.5
80	22.1
100	33.8
125	38.3
160	43.5
200	49.5
250	51.1
315	54.5
400	57.5
500	58.7
630	53.4
800	59.8
1 000	60.8
1 250	65.7
1 600	69.8
2 000	72.8
2 500	71.9
3 150	71.5
4 000	78.2
5 000	80.2
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 59 (-2;-8) dB**		
	Max dev. 6.6 dB at 630 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**
	$C_{tr,50\text{-}3150}$= **-19 dB**	$C_{tr,50\text{-}5000}$= **-19 dB**	$C_{tr,100\text{-}5000}$: **-8 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13520A** Test Date: **09/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**57.5**
Temperature, deg.C:	**18.1**	**18.2**
Rel. Humidity, %RH:	**52.1**	**50.6**

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	85.6	56.3	12.5	56.3	0.57	-2.7	**26.6**		
63	89.5	53.7	12.9	53.7	0.70	-1.8	**34.0**		29.5
80	95.0	62.0	10.9	62.0	0.71	-1.8	**31.2**		
100	98.0	52.0	14.6	52.0	0.65	-2.1	**43.9**	8.1	
125	101.4	52.1	8.8	52.1	0.90	-0.7	**48.6**	6.4	47.1
160	107.5	52.7	9.2	52.7	1.03	-0.1	**54.7**	3.3	
200	113.4	55.8	16.6	55.8	1.21	0.6	**58.2**	2.8	
250	114.6	53.8	15.8	53.8	1.23	0.6	**61.4**	2.6	60.7
315	113.2	48.9	18.1	48.9	1.23	0.6	**64.9**	2.1	
400	110.1	41.2	21.5	41.2	1.20	0.5	**69.4**	0.6	
500	106.8	34.6	20.0	**34.4**	1.29	0.8	**73.2**		72.3
630	104.8	27.5	19.5	**26.8**	1.18	0.4	**78.4**		
800	104.2	22.9	17.7	**21.6**	1.43	1.3	**83.9**		
1 000	102.7	18.7	16.8	**17.4**	1.45	1.3	**86.6**		86.2
1 250	102.1	14.6	14.8	**13.3**	1.60	1.8	**90.6**		
1 600	104.5	15.3	19.1	**14.0**	1.68	2.0	**92.5**		
2 000	105.3	14.4	20.4	**13.1**	1.69	2.0	**94.2**		93.8
2 500	103.0	10.7	17.3	**9.4**	1.56	1.7	**95.3**		
3 150	101.4	10.2	15.7	**8.9**	1.42	1.3	**93.8**		
4 000	99.0	12.3	13.8	**11.0**	1.47	1.4	**89.4**		88.2
5 000	95.8	12.8	13.9	**11.5**	1.32	0.9	**85.2**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**25.9**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	71	**-2**	**-9**		
	(100-5000)	**-1**	**-9**		
Background Corrected					
	(50-3150)	**-10**	**-23**		
	(50-5000)	**-9**	**-23**		

Test Procedure: 140/3/issue 5

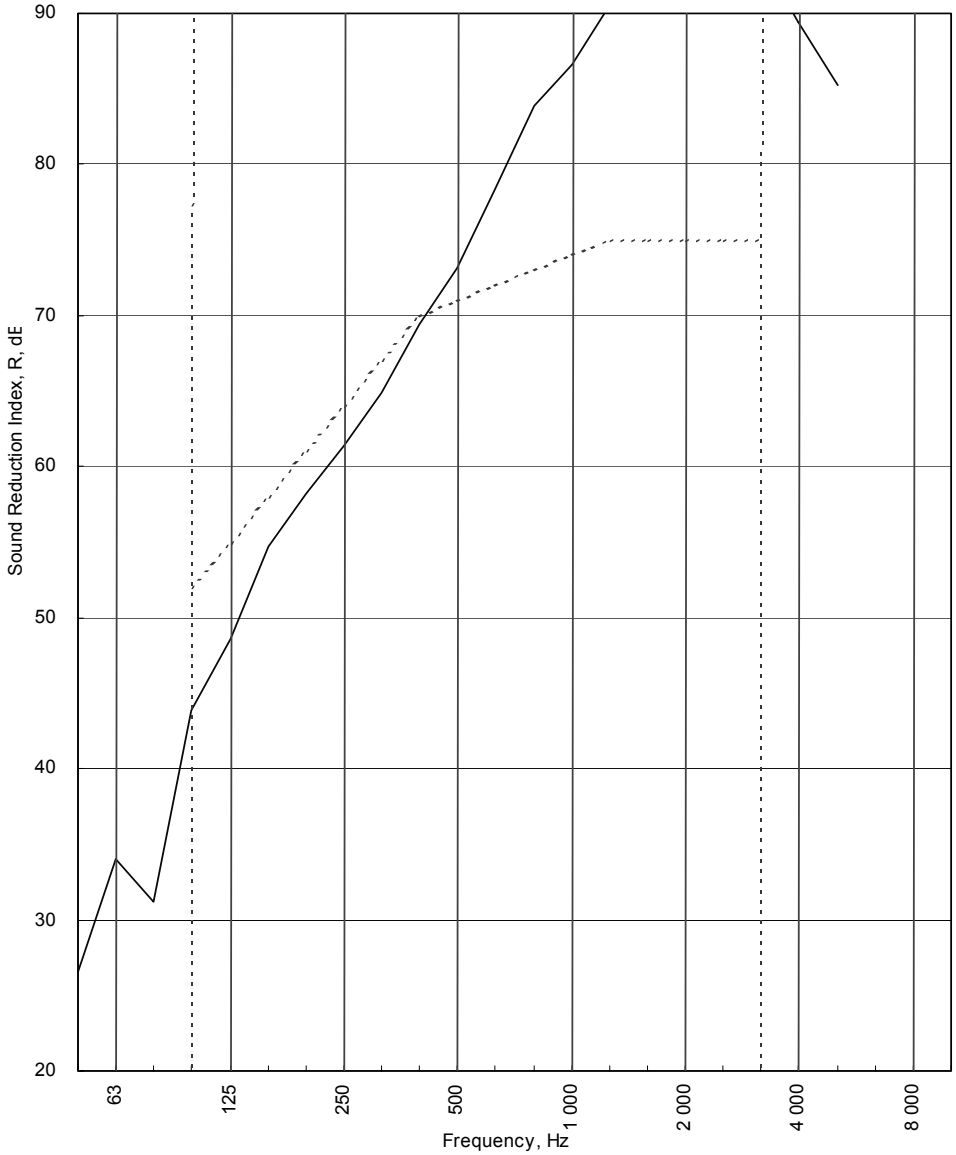
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13520A
Test Date:
09/07/04

Freq. Hz	R dB
50	26.6
63	34.0
80	31.2
100	43.9
125	48.6
160	54.7
200	58.2
250	61.4
315	64.9
400	69.4
500	73.2
630	78.4
800	83.9
1 000	86.6
1 250	90.6
1 600	92.5
2 000	94.2
2 500	95.3
3 150	93.8
4 000	89.4
5 000	85.2
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 71 (-2;-9) dB** **Max dev. 8.1 dB at 100 Hz**		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-10 dB**	$C_{50\text{-}5000}$= **-9 dB**	$C_{100\text{-}5000}$= **-1 dB**
	$C_{tr,50\text{-}3150}$= **-23 dB**	$C_{tr,50\text{-}5000}$= **-23 dB**	$C_{tr,100\text{-}5000}$: **-9 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13521A** Test Date: **09/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**57.7**
Temperature, deg.C:	**18.5**	**18.8**
Rel. Humidity, %RH:	**52.8**	**50**

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	84.3	58.4	15.9	58.4	0.64	-2.2	**23.7**		
63	90.3	59.8	20.6	59.8	0.57	-2.7	**27.8**		26.1
80	94.7	63.9	13.8	63.9	0.61	-2.4	**28.4**		
100	98.3	59.7	26.1	59.7	0.77	-1.4	**37.2**	12.8	
125	101.5	57.9	11.1	57.9	0.93	-0.6	**43.0**	10.0	40.8
160	107.7	56.4	8.0	56.4	1.14	0.3	**51.6**	4.4	
200	113.6	56.6	16.6	56.6	1.19	0.5	**57.5**	1.5	
250	114.5	54.0	15.3	54.0	1.37	1.1	**61.6**	0.4	60.2
315	113.5	49.8	17.1	49.8	1.13	0.2	**63.9**	1.1	
400	109.9	41.9	20.2	41.9	1.26	0.7	**68.7**		
500	106.9	35.3	18.9	35.3	1.10	0.1	**71.7**		71.4
630	104.9	27.9	18.3	**27.4**	1.29	0.8	**78.3**		
800	104.5	23.8	16.3	**22.9**	1.41	1.2	**82.8**		
1 000	103.0	19.0	15.3	**17.7**	1.50	1.5	**86.8**		85.6
1 250	102.2	14.8	13.9	**13.5**	1.62	1.8	**90.5**		
1 600	104.5	15.9	17.3	**14.6**	1.68	2.0	**91.9**		
2 000	105.2	15.2	17.1	**13.9**	1.65	1.9	**93.2**		93.1
2 500	103.2	11.7	14.8	**10.4**	1.59	1.7	**94.5**		
3 150	101.2	11.0	14.2	**9.7**	1.46	1.4	**92.9**		
4 000	98.8	13.2	12.2	**11.9**	1.44	1.3	**88.2**		87.9
5 000	96.1	12.8	13.2	**11.5**	1.31	0.9	**85.5**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**30.2**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	69	**-5**	**-13**		
	(100-5000)	**-4**	**-13**		
Background Corrected					
	(50-3150)	**-12**	**-25**		
	(50-5000)	**-11**	**-25**		

Test Procedure: 140/3/issue 5

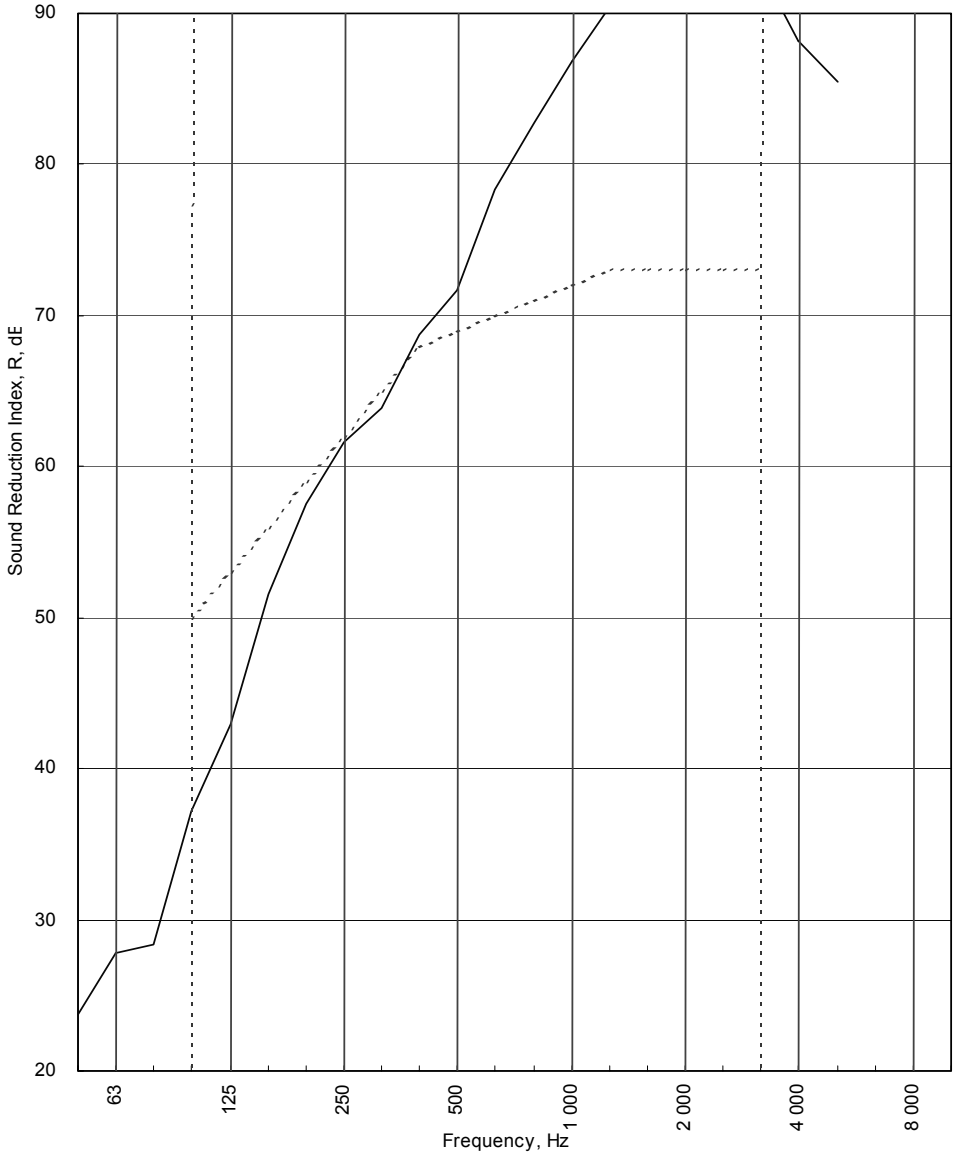
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13521A
Test Date:
09/07/04

Freq. Hz	R dB
50	23.7
63	27.8
80	28.4
100	37.2
125	43.0
160	51.6
200	57.5
250	61.6
315	63.9
400	68.7
500	71.7
630	78.3
800	82.8
1 000	86.8
1 250	90.5
1 600	91.9
2 000	93.2
2 500	94.5
3 150	92.9
4 000	88.2
5 000	85.5
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 69 (-5;-13) dB**		
	Max dev. 12.8 dB at 100 Hz		
Evaluation based on laboratory measurement results obtained by an engineering method:	$C_{50\text{-}3150}$= **-12 dB**	$C_{50\text{-}5000}$= **-11 dB**	$C_{100\text{-}5000}$= **-4 dB**
	$C_{tr,50\text{-}3150}$= **-25 dB**	$C_{tr,50\text{-}5000}$= **-25 dB**	$C_{tr,100\text{-}5000}$: **-13 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13522A** Test Date: **09/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**57.8**
Temperature, deg.C:	**17.8**	**17.2**
Rel. Humidity, %RH:	**50.7**	**53**

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	86.9	62.7	14.7	62.7	0.61	-2.4	**21.8**		
63	88.4	62.8	13.9	62.8	0.65	-2.2	**23.4**		22.2
80	93.0	68.9	11.8	68.9	0.59	-2.6	**21.5**		
100	97.6	65.8	24.1	65.8	0.85	-1.0	**30.8**	15.2	
125	100.7	61.8	9.9	61.8	0.99	-0.3	**38.6**	10.4	34.8
160	107.5	60.1	13.2	60.1	1.15	0.3	**47.7**	4.3	
200	112.4	58.4	16.0	58.4	1.00	-0.3	**53.7**	1.3	
250	114.1	55.4	12.1	55.4	1.41	1.2	**59.9**		57.2
315	112.8	49.8	24.9	49.8	1.24	0.6	**63.6**		
400	109.8	42.0	24.4	42.0	1.23	0.6	**68.4**		
500	106.9	35.1	20.5	**34.9**	1.20	0.5	**72.5**		71.3
630	104.8	28.8	15.2	**28.6**	1.15	0.3	**76.5**		
800	104.3	23.6	17.6	**22.3**	1.37	1.1	**83.1**		
1 000	102.7	19.3	17.9	**18.0**	1.49	1.4	**86.1**		85.6
1 250	102.2	14.9	13.4	**13.6**	1.62	1.8	**90.4**		
1 600	104.5	15.6	14.9	**14.3**	1.70	2.0	**92.2**		
2 000	105.1	14.4	17.3	**13.1**	1.73	2.1	**94.1**		93.1
2 500	103.3	13.0	12.6	**11.7**	1.60	1.7	**93.3**		
3 150	100.9	12.5	13.4	**11.2**	1.42	1.2	**90.9**		
4 000	98.8	12.4	22.7	**11.1**	1.46	1.3	**89.0**		87.8
5 000	96.1	12.8	15.3	**11.5**	1.30	0.8	**85.4**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**31.2**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	65	**-7**	**-15**		
	(100-5000)	**-6**	**-15**		
Background Corrected					
	(50-3150)	**-13**	**-25**		
	(50-5000)	**-12**	**-25**		

Test Procedure: 140/3/issue 5

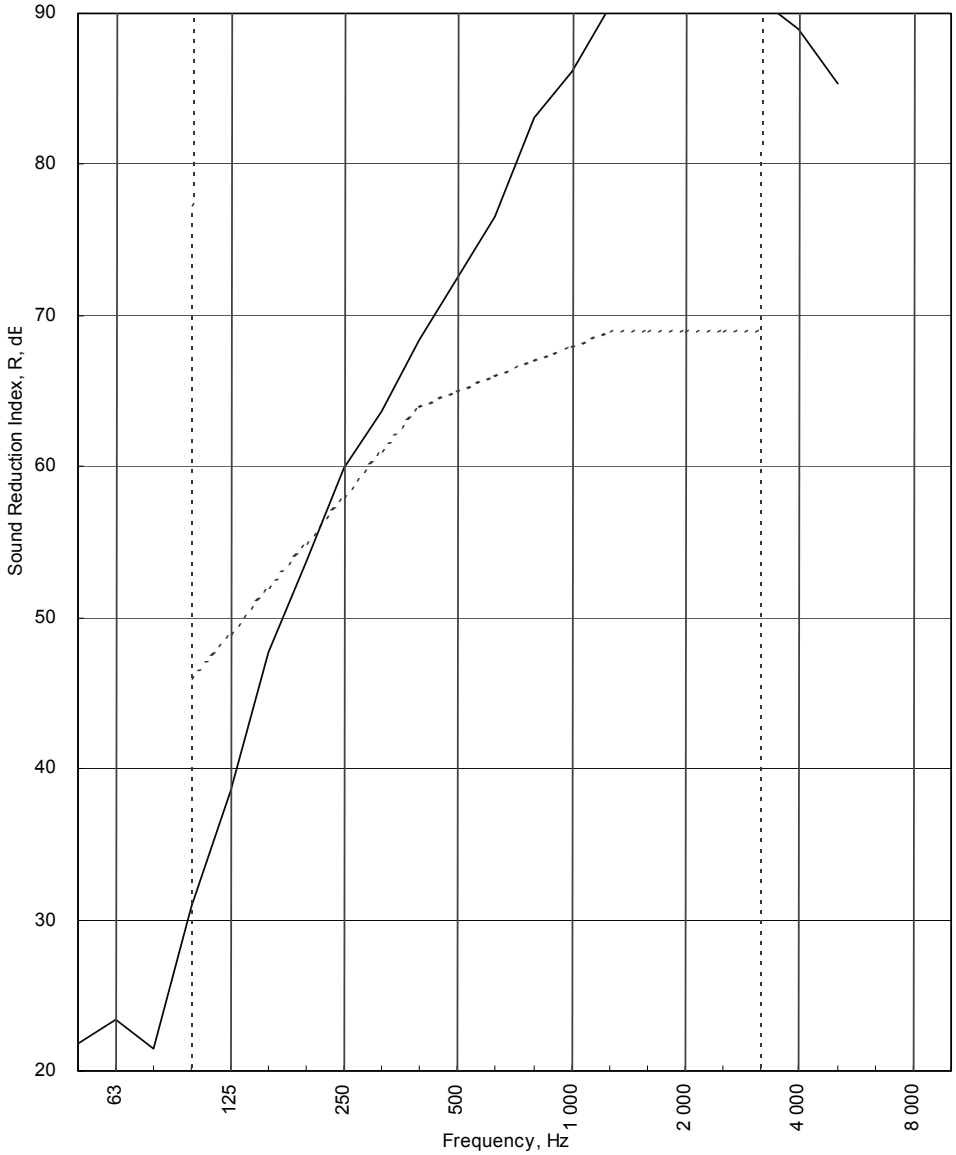
Worksheet: 140_3_1.XLS

UKAS TESTING

0296

Test Code:
H13522A
Test Date:
09/07/04

Freq. Hz	R dB
50	21.8
63	23.4
80	21.5
100	30.8
125	38.6
160	47.7
200	53.7
250	59.9
315	63.6
400	68.4
500	72.5
630	76.5
800	83.1
1 000	86.1
1 250	90.4
1 600	92.2
2 000	94.1
2 500	93.3
3 150	90.9
4 000	89.0
5 000	85.4
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to
BS EN ISO 717-1:1997

Rw (C;Ctr) = 65 (-7;-15) dB

Max dev. 15.2 dB at 100 Hz

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

$C_{50\text{-}3150}$= **-13 dB** $C_{50\text{-}5000}$= **-12 dB** $C_{100\text{-}5000}$= **-6 dB**

$C_{tr,50\text{-}3150}$= **-25 dB** $C_{tr,50\text{-}5000}$= **-25 dB** $C_{tr,100\text{-}5000}$: **-15 dB**

UKAS TESTING
0296

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

Test Code: **H13523A** Test Date: **09/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.8**
Temperature, deg.C:	**18.1**	**18.6**
Rel. Humidity, %RH:	**50.2**	**48.5**

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	87.6	63.2	16.6	63.2	0.58	-2.7	**21.7**		
63	87.8	67.9	16.4	67.9	0.85	-1.1	**18.8**		19.6
80	92.4	71.1	13.9	71.1	0.64	-2.3	**19.0**		
100	96.7	67.2	22.4	67.2	0.85	-1.1	**28.4**	8.6	
125	100.7	68.1	10.8	68.1	0.94	-0.6	**32.0**	8.0	31.3
160	107.0	68.9	8.4	68.9	1.04	-0.2	**37.9**	5.1	
200	112.2	69.7	16.9	69.7	1.54	1.5	**44.0**	2.0	
250	113.8	67.7	13.9	67.7	1.44	1.2	**47.3**	1.7	46.6
315	112.8	62.0	16.8	62.0	1.24	0.6	**51.4**	0.6	
400	110.3	56.5	20.5	56.5	1.11	0.1	**53.9**	1.1	
500	106.9	50.6	19.6	50.6	1.18	0.3	**56.6**		53.9
630	105.3	53.2	18.2	53.2	1.11	0.1	**52.2**	4.8	
800	104.3	46.0	16.8	46.0	1.41	1.1	**59.4**		
1 000	103.1	44.1	15.1	44.1	1.48	1.3	**60.3**		60.9
1 250	102.2	39.1	13.6	39.1	1.60	1.7	**64.8**		
1 600	104.6	38.8	17.5	38.8	1.58	1.6	**67.4**		
2 000	105.2	38.1	15.2	38.1	1.51	1.4	**68.5**		67.4
2 500	103.1	37.8	16.0	37.8	1.46	1.3	**66.6**		
3 150	101.0	35.6	14.9	35.6	1.36	1.0	**66.4**		
4 000	98.5	26.5	12.8	**26.3**	1.36	1.0	**73.2**		70.0
5 000	96.5	21.5	13.5	**20.8**	1.21	0.5	**76.2**		
6 300									
8 000									
10 000									

Total U. Dev., dB **31.9**

Single Figure Ratings	**Rw**	**C**	**Ctr**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**
	56	**-4**	**-10**
	(100-5000)	**-3**	**-10**
Background Corrected			
	(50-3150)	**-8**	**-19**
	(50-5000)	**-7**	**-19**

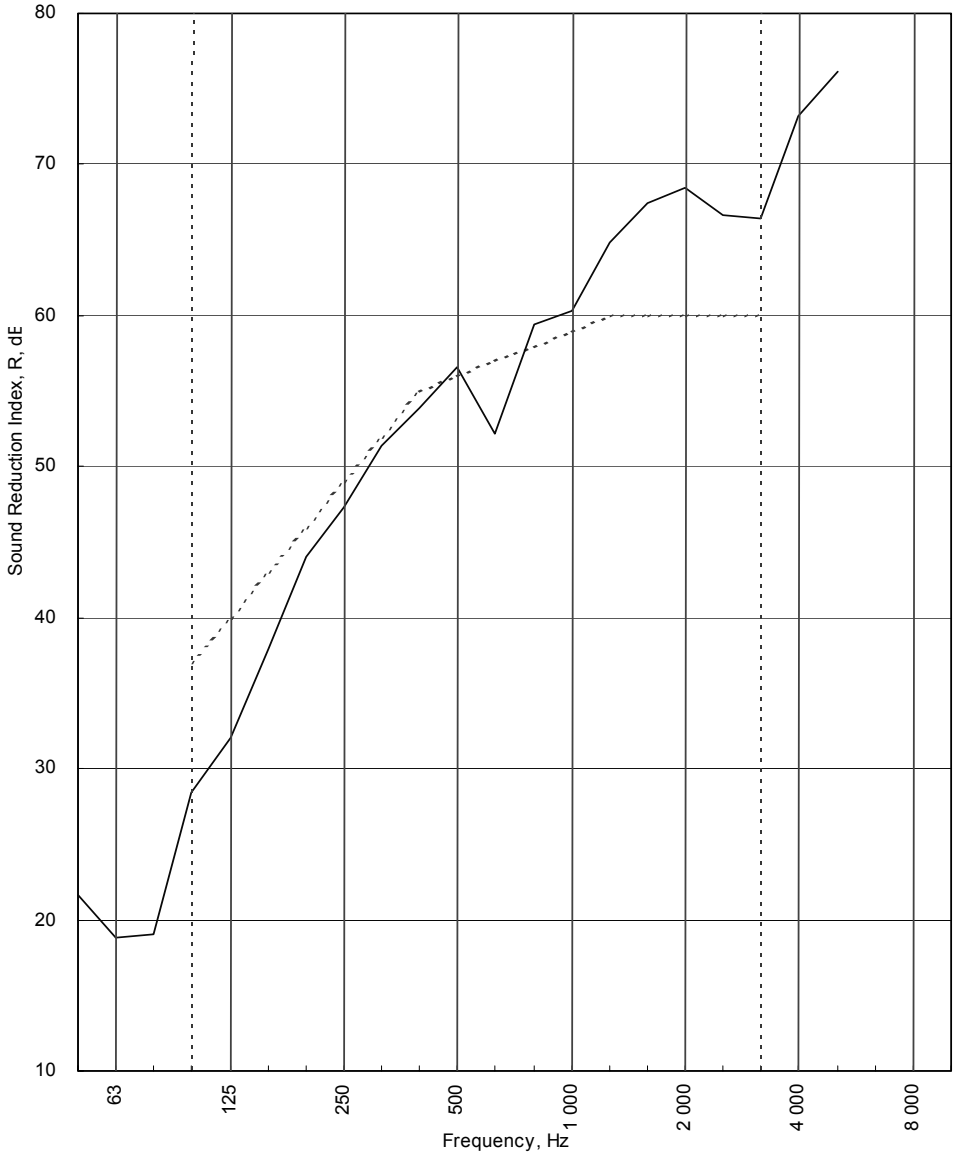
Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

UKAS TESTING 0296

Test Code:
H13523A
Test Date:
09/07/04

Freq. Hz	R dB
50	21.7
63	18.8
80	19.0
100	28.4
125	32.0
160	37.9
200	44.0
250	47.3
315	51.4
400	53.9
500	56.6
630	52.2
800	59.4
1 000	60.3
1 250	64.8
1 600	67.4
2 000	68.5
2 500	66.6
3 150	66.4
4 000	73.2
5 000	76.2
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 56 (-4;-10) dB** **Max dev. 8.6 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**	$C_{100\text{-}5000}$= **-3 dB**
	$C_{tr,50\text{-}3150}$= **-19 dB**	$C_{tr,50\text{-}5000}$= **-19 dB**	$C_{tr,100\text{-}5000}$: **-10 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

UKAS TESTING
0296

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

Test Code: **H13524A** Test Date: **09/07/04**

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

	Room T2	Room T1
Room Volume, m^3:	**98**	**58.7**
Temperature, deg.C:	**19.3**	**19.3**
Rel. Humidity, %RH:	**47.8**	**46.4**

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	86.1	58.6	17.0	58.6	0.56	-2.9	**24.6**		
63	88.4	65.5	16.7	65.5	0.83	-1.2	**21.7**		21.8
80	92.4	69.9	14.5	69.9	0.62	-2.4	**20.1**		
100	97.1	65.7	20.5	65.7	0.88	-0.9	**30.5**	8.5	
125	100.8	65.3	10.3	65.3	1.08	0.0	**35.5**	6.5	33.7
160	107.6	67.6	11.1	67.6	1.15	0.2	**40.2**	4.8	
200	112.3	66.4	15.2	66.4	1.23	0.5	**46.4**	1.6	
250	114.3	65.6	16.2	65.6	1.31	0.8	**49.5**	1.5	48.7
315	112.9	61.2	17.2	61.2	1.22	0.5	**52.2**	1.8	
400	110.4	55.5	21.6	55.5	1.30	0.8	**55.7**	1.3	
500	106.7	49.4	19.1	49.4	1.18	0.4	**57.7**	0.3	58.0
630	104.8	41.2	18.0	41.2	1.33	0.9	**64.5**		
800	104.4	36.3	16.5	36.3	1.36	1.0	**69.1**		
1 000	102.8	30.7	15.6	30.7	1.59	1.7	**73.8**		72.3
1 250	102.2	25.2	13.6	**24.9**	1.65	1.8	**79.1**		
1 600	104.5	24.6	17.7	**23.6**	1.73	2.0	**82.9**		
2 000	105.1	24.2	15.5	**23.6**	1.51	1.4	**82.9**		79.7
2 500	103.0	28.1	15.5	**27.9**	1.52	1.5	**76.6**		
3 150	101.1	26.8	13.8	**26.6**	1.41	1.1	**75.6**		
4 000	98.5	17.9	12.9	**16.6**	1.35	0.9	**82.8**		79.1
5 000	95.9	13.7	13.2	**12.4**	1.24	0.6	**84.1**		
6 300									
8 000									
10 000									

Single Figure Ratings	**Rw**	**C**	**Ctr**	**Total U. Dev., dB**	**26.3**
BS EN ISO 717-1: 1997	**dB**	**dB**	**dB**		
	58	**-3**	**-10**		
	(100-5000)	**-2**	**-10**		
Background Corrected					
	(50-3150)	**-8**	**-19**		
	(50-5000)	**-7**	**-19**		

Test Procedure: 140/3/issue 5

Worksheet: 140_3_1.XLS

UKAS TESTING

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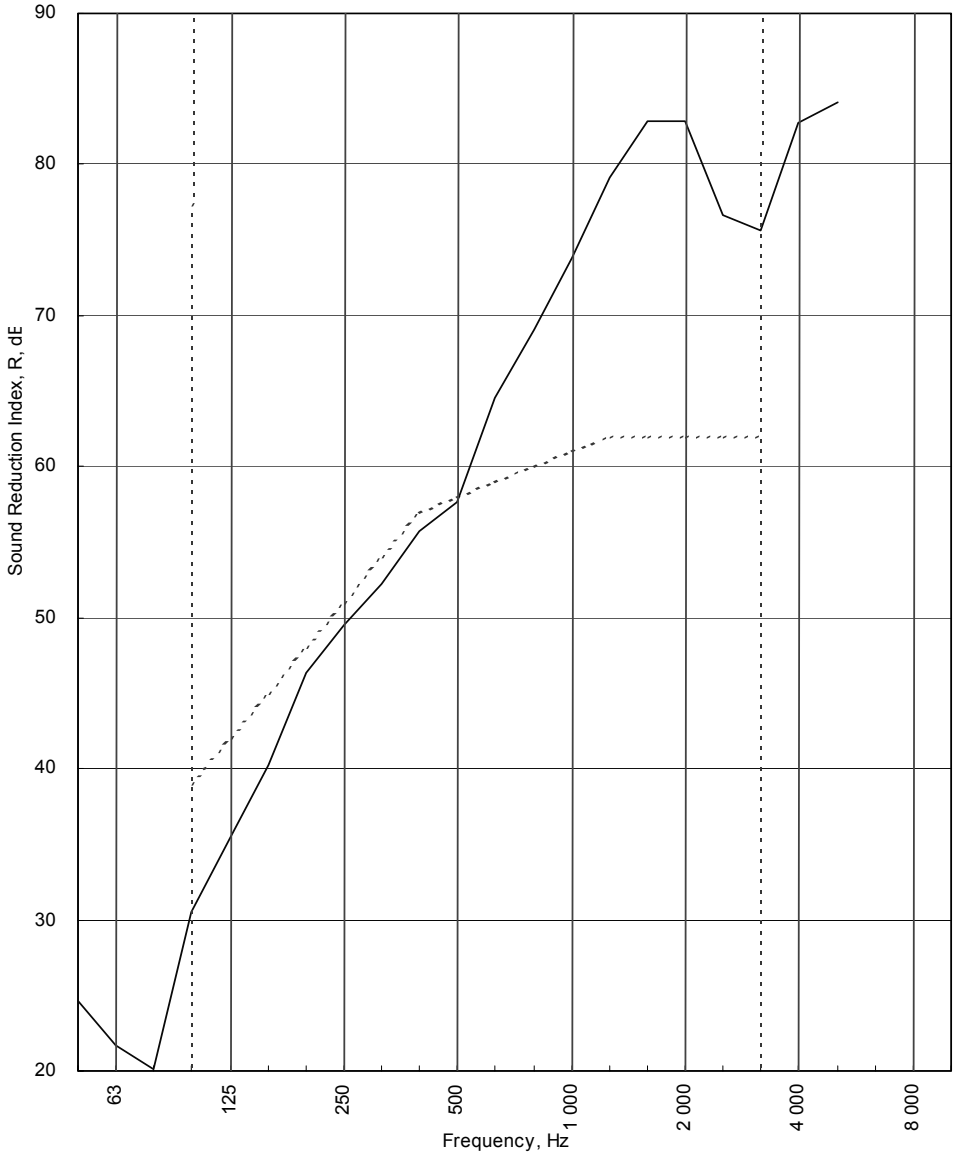
Test Code:
H13524A
Test Date:
09/07/04

Freq. Hz	R dB
50	24.6
63	21.7
80	20.1
100	30.5
125	35.5
160	40.2
200	46.4
250	49.5
315	52.2
400	55.7
500	57.7
630	64.5
800	69.1
1 000	73.8
1 250	79.1
1 600	82.9
2 000	82.9
2 500	76.6
3 150	75.6
4 000	82.8
5 000	84.1
6 300	
8 000	
10 000	



------ Curve of reference values (ISO 717-1)

Rating according to BS EN ISO 717-1:1997	**Rw (C;Ctr) = 58 (-3;-10) dB** **Max dev. 8.5 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**	$C_{tr,100\text{-}5000}$: **-10 dB**

Customer: **Kingspan Insulation Limited & British Gypsum Limited**

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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 six 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 (BTC 11709A)

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	56.3	61.8	58.5	60.6	62.5	66.3	74.1	79.5	85.0	90.4	93.8	95.0	95.3	98.3	100.4	98.5	96.3	93.9	91.1

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

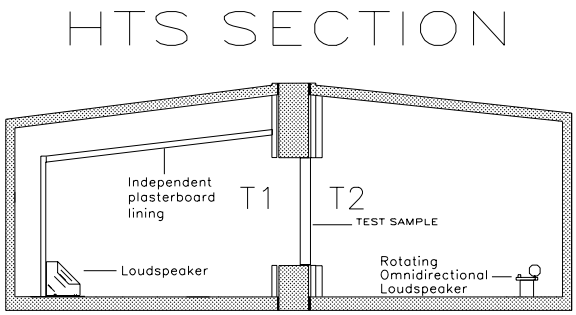

Figure 19 Chamber Layout