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Date: 24 October 2018

Our Ref: 25/09154A/09/18

Your Ref:

Page: 1 of 20

Client: Shaws Europe Ltd
33 Great Sutton Street
London
EC1V 0DX

Job Title: Various Tests on One Sample of Carpet Tiles

Client's Order No: --

Date of Receipt: 24 September 2018

Description of Sample(s): One sample of carpet tiles reference Rethread Loop Ecoworx - 633R7

Work Requested: We were asked to make the following test(s):

ISO 17025:2005	
BS ISO 1766:2000	BS EN ISO 105
	BS EN ISO 10140-3:2010
	BS EN ISO 354:2003

Note: This report relates only to the samples submitted and as described in the report.

- * subcontracted test, UKAS accredited
- ** subcontracted test, EN ISO/IEC 17025 accredited
- *** not UKAS accredited



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Client: Shaw Europe Ltd

The results are given in the following table.

<u>One-third Octave Band Centre Frequency (Hz)</u>	<u>Improvement In Impact Sound Insulation (dB)</u>
100	4.0
125	3.0
160	5.6
200	10.1
250	14.4
315	15.7
400	19.8
500	26.7
630	30.8
800	34.0
1000	42.7
1250	49.3
1600	49.6
2000	52.4
2500	56.1
3150	59.1
4000	58.5
5000	60.4 ¹

¹ Minimum Value

Improvement of impact sound (ΔL_w) = 25 dB



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Client: Shaw Europe Ltd

Random Incidence Sound Absorption Coefficient (***)

The sample was laid to cover an area measuring 3m x 4m directly on the concrete floor of the test facility.

The tests were carried out in a large reverberation chamber. The room has been designed with hard surfaces and non-parallel walls to give long empty room reverberation times with uniform decays. It has the shape of a truncated wedge. In addition, 11 plywood panels, each panel 1.22m x 2.44m, were hung in the room to improve the diffusivity of the sound field. The test sample was placed in the centre of the floor. The excitation signal comprised wide band random noise played into the room via a loudspeaker mounted in a cabinet facing a corner. The sound was monitored at each of 6 microphone positions. The room is 7.4m long x ~6.6m wide x 4.5m high. It has a volume of 220m³ and a total surface area of 224m². The volume of the room permits a maximum sample size of 12.79m², in accordance with Clause 6.2.1.1 specified in BS EN ISO 354:2003, "Acoustics - Measurement of sound absorption in a reverberation room".

The procedure followed that detailed in BS EN ISO 354:2003. Measurements were made on the rate of decay of sound in the test chamber with and without the sample in place. The frequency range from 100Hz to 5000Hz was covered in one third octave bands. An average reverberation time was taken from 5 decays at each of 6 microphone positions for each of two loudspeaker positions (i.e. 60 decays per third octave band). The decays were produced by exciting the room with amplified wide band random noise and stopping the excitation once the chamber became saturated. The time taken for the sound to decay by 20dB is measured and tripled to give the reverberation time. The reverberation time was obtained from the arithmetically averaged decays at each frequency. The measurements with and without the sample in the room were carried out consecutively to avoid significant changes in relative humidity and temperature which influence air absorption at higher frequencies.

For most purposes the absorption coefficient at each octave interval is sufficient and these are given in the following table.

<u>Frequency</u> (Hz)	<u>Average Absorption Coefficient</u> (1/1 Octave)
100 - 160	0.00
200 - 315	0.05
400 - 630	0.10
800 - 1250	0.20
1600 - 2500	0.40
3150 - 5000	0.50

Noise reduction coefficient (250 - 2000 Hz) is 0.20

Classification: E



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Date: 24 October 2018

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Client: Shaws Europe Ltd
33 Great Sutton Street
London
EC1V 0DX

Job Title: Various Tests on One Sample of Carpet Tiles

Client's Order No: --

Date of Receipt: 24 September 2018

Description of Sample(s): One sample of carpet tiles reference Rethread Loop Ecologix - 633XX

Work Requested: We were asked to make the following test(s):

[Redacted text] BS EN ISO 10140-3:2010
[Redacted text] BS EN ISO 354:2003

Note: This report relates only to the samples submitted and as described in the report.

- * subcontracted test, UKAS accredited
- ** subcontracted test, EN ISO/IEC 17025 accredited
- *** not UKAS accredited



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Client: Shaw Europe Ltd

The results are given in the following table.

<u>One-third Octave Band Centre Frequency (Hz)</u>	<u>Improvement In Impact Sound Insulation (dB)</u>
100	5.4
125	6.7
160	10.6
200	16.4
250	23.4
315	26.9
400	32.0
500	33.5
630	37.1
800	37.9
1000	49.2
1250	56.2
1600	57.2
2000	59.2
2500	59.0
3150	60.8
4000	60.2
5000	61.2 ¹

¹ Minimum Value

Improvement of impact sound (ΔL_w) = 30 dB



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Client: Shaw Europe Ltd

Random Incidence Sound Absorption Coefficient (***)

The sample was laid to cover an area measuring 3m x 4m directly on the concrete floor of the test facility.

The tests were carried out in a large reverberation chamber. The room has been designed with hard surfaces and non-parallel walls to give long empty room reverberation times with uniform decays. It has the shape of a truncated wedge. In addition, 11 plywood panels, each panel 1.22m x 2.44m, were hung in the room to improve the diffusivity of the sound field. The test sample was placed in the centre of the floor. The excitation signal comprised wide band random noise played into the room via a loudspeaker mounted in a cabinet facing a corner. The sound was monitored at each of 6 microphone positions. The room is 7.4m long x ~6.6m wide x 4.5m high. It has a volume of 220m³ and a total surface area of 224m². The volume of the room permits a maximum sample size of 12.79m², in accordance with Clause 6.2.1.1 specified in BS EN ISO 354:2003, "Acoustics - Measurement of sound absorption in a reverberation room".

The procedure followed that detailed in BS EN ISO 354:2003. Measurements were made on the rate of decay of sound in the test chamber with and without the sample in place. The frequency range from 100Hz to 5000Hz was covered in one third octave bands. An average reverberation time was taken from 5 decays at each of 6 microphone positions for each of two loudspeaker positions (i.e. 60 decays per third octave band). The decays were produced by exciting the room with amplified wide band random noise and stopping the excitation once the chamber became saturated. The time taken for the sound to decay by 20dB is measured and tripled to give the reverberation time. The reverberation time was obtained from the arithmetically averaged decays at each frequency. The measurements with and without the sample in the room were carried out consecutively to avoid significant changes in relative humidity and temperature which influence air absorption at higher frequencies.

For most purposes the absorption coefficient at each octave interval is sufficient and these are given in the following table.

<u>Frequency</u> (Hz)	<u>Average Absorption Coefficient</u> (1/1 Octave)
100 - 160	0.05
200 - 315	0.05
400 - 630	0.35
800 - 1250	0.30
1600 - 2500	0.35
3150 - 5000	0.55

Noise reduction coefficient (250 - 2000 Hz) is 0.30

Classification: D



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Date: 24 October 2018

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Client: Shaws Europe Ltd
33 Great Sutton Street
London
EC1V 0DX

Job Title: Various Tests on One Sample of Carpet Tiles

Client's Order No: --

Date of Receipt: 24 September 2018

Description of Sample(s): One sample of carpet tiles reference Ornate Loop Ecoworx - 633R3

Work Requested: We were asked to make the following test(s):

XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX	BS EN ISO 10140-3:2010
XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
BS EN 12897	XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX	BS ISO 10065:2011
BS EN 10140-3:2010	BS EN ISO 10140-3:2010
BS EN 10140-3:2010	BS EN ISO 354:2003
XXXXXXXXXXXXXXXXXXXX	

Note: This report relates only to the samples submitted and as described in the report.

- * subcontracted test, UKAS accredited
- ** subcontracted test, EN ISO/IEC 17025 accredited
- *** not UKAS accredited



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Client: Shaw Europe Ltd

The results are given in the following table.

<u>One-third Octave Band Centre</u> <u>Frequency (Hz)</u>	<u>Improvement In Impact Sound</u> <u>Insulation (dB)</u>
100	4.1
125	3.2
160	5.1
200	9.1
250	12.5
315	14.1
400	17.2
500	24.5
630	28.7
800	33.1
1000	40.8
1250	46.6
1600	48.0
2000	51.7
2500	55.8
3150	58.5
4000	58.0
5000	59.6 ¹

¹ Minimum Value

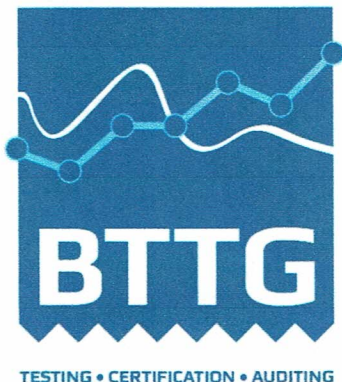
Improvement of impact sound (ΔL_w) = 25 dB



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Client: Shaw Europe Ltd

Random Incidence Sound Absorption Coefficient (***)

The sample was laid to cover an area measuring 3m x 4m directly on the concrete floor of the test facility.

The tests were carried out in a large reverberation chamber. The room has been designed with hard surfaces and non-parallel walls to give long empty room reverberation times with uniform decays. It has the shape of a truncated wedge. In addition, 11 plywood panels, each panel 1.22m x 2.44m, were hung in the room to improve the diffusivity of the sound field. The test sample was placed in the centre of the floor. The excitation signal comprised wide band random noise played into the room via a loudspeaker mounted in a cabinet facing a corner. The sound was monitored at each of 6 microphone positions. The room is 7.4m long x ~6.6m wide x 4.5m high. It has a volume of 220m³ and a total surface area of 224m². The volume of the room permits a maximum sample size of 12.79m², in accordance with Clause 6.2.1.1 specified in BS EN ISO 354:2003, "Acoustics - Measurement of sound absorption in a reverberation room".

The procedure followed that detailed in BS EN ISO 354:2003. Measurements were made on the rate of decay of sound in the test chamber with and without the sample in place. The frequency range from 100Hz to 5000Hz was covered in one third octave bands. An average reverberation time was taken from 5 decays at each of 6 microphone positions for each of two loudspeaker positions (i.e. 60 decays per third octave band). The decays were produced by exciting the room with amplified wide band random noise and stopping the excitation once the chamber became saturated. The time taken for the sound to decay by 20dB is measured and tripled to give the reverberation time. The reverberation time was obtained from the arithmetically averaged decays at each frequency. The measurements with and without the sample in the room were carried out consecutively to avoid significant changes in relative humidity and temperature which influence air absorption at higher frequencies.

For most purposes the absorption coefficient at each octave interval is sufficient and these are given in the following table.

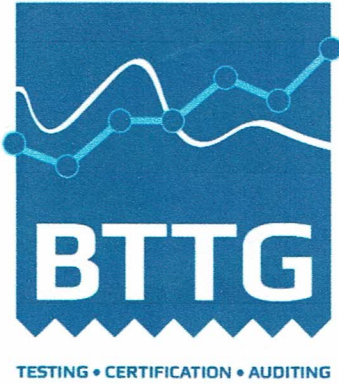
Frequency (Hz)	Average Absorption Coefficient (1/1 Octave)
100 - 160	0.00
200 - 315	0.05
400 - 630	0.05
800 - 1250	0.20
1600 - 2500	0.40
3150 - 5000	0.50

Noise reduction coefficient (250 - 2000 Hz) is 0.15

Classification: E



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Client: Shaws Europe Ltd
33 Great Sutton Street
London
EC1V 0DX

Job Title: Various Tests on One Sample of Carpet Tiles

Client's Order No: --

Date of Receipt: 24 September 2018

Description of Sample(s): One sample of carpet tiles reference Ornate Loop Ecologix - 63372

Work Requested: We were asked to make the following test(s):

[REDACTED], BS EN ISO 105-B00:2003
[REDACTED] (2005)
BS ISO 9512:2003 (2005)
BS ISO 10261-1:2004 BS 2000
[REDACTED]
BS EN 925-1:2001
[REDACTED]
BS EN 924:2012
ISO 2551-1:2001 (2010)
BS EN ISO 10140-3:2010
BS EN ISO 354:2003

Note: This report relates only to the samples submitted and as described in the report.

- * subcontracted test, UKAS accredited
- ** subcontracted test, EN ISO/IEC 17025 accredited
- *** not UKAS accredited



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 Page: 17 of 20

Client: Shaw Europe Ltd

The results are given in the following table.

<u>One-third Octave Band Centre Frequency (Hz)</u>	<u>Improvement In Impact Sound Insulation (dB)</u>
100	6.3
125	7.9
160	11.5
200	16.8
250	22.9
315	26.5
400	32.3
500	33.9
630	38.2
800	39.1
1000	49.8
1250	56.9
1600	57.1
2000	58.7
2500	58.6
3150	60.2
4000	60.0
5000	60.6 ¹

¹ Minimum Value

Improvement of impact sound (ΔL_w) = 30 dB



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Client: Shaw Europe Ltd

Random Incidence Sound Absorption Coefficient (***)

The sample was laid to cover an area measuring 3m x 4m directly on the concrete floor of the test facility.

The tests were carried out in a large reverberation chamber. The room has been designed with hard surfaces and non-parallel walls to give long empty room reverberation times with uniform decays. It has the shape of a truncated wedge. In addition, 11 plywood panels, each panel 1.22m x 2.44m, were hung in the room to improve the diffusivity of the sound field. The test sample was placed in the centre of the floor. The excitation signal comprised wide band random noise played into the room via a loudspeaker mounted in a cabinet facing a corner. The sound was monitored at each of 6 microphone positions. The room is 7.4m long x ~6.6m wide x 4.5m high. It has a volume of 220m³ and a total surface area of 224m². The volume of the room permits a maximum sample size of 12.79m², in accordance with Clause 6.2.1.1 specified in BS EN ISO 354:2003, "Acoustics - Measurement of sound absorption in a reverberation room".

The procedure followed that detailed in BS EN ISO 354:2003. Measurements were made on the rate of decay of sound in the test chamber with and without the sample in place. The frequency range from 100Hz to 5000Hz was covered in one third octave bands. An average reverberation time was taken from 5 decays at each of 6 microphone positions for each of two loudspeaker positions (i.e. 60 decays per third octave band). The decays were produced by exciting the room with amplified wide band random noise and stopping the excitation once the chamber became saturated. The time taken for the sound to decay by 20dB is measured and tripled to give the reverberation time. The reverberation time was obtained from the arithmetically averaged decays at each frequency. The measurements with and without the sample in the room were carried out consecutively to avoid significant changes in relative humidity and temperature which influence air absorption at higher frequencies.

For most purposes the absorption coefficient at each octave interval is sufficient and these are given in the following table.

Frequency (Hz)	Average Absorption Coefficient (1/1 Octave)
100 - 160	0.05
200 - 315	0.05
400 - 630	0.35
800 - 1250	0.30
1600 - 2500	0.35
3150 - 5000	0.55

Noise reduction coefficient (250 - 2000 Hz) is 0.30

Classification: D



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