

TFI Report 471328-02

Impact Sound Insulation

Customer

Signature Floorcoverings Pty Ltd.
13 Wurundjeri Drive Epping VIC
3076 Australia
AUSTRALIA

Product

Rigid LVT
Rigid LVT 5.5

This report includes 2 pages and 1 annex(es)
This report is a supplement to report no. 471328-01.

Responsible at TFI

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Aachen, 12.09.2017

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1 Transaction

Test order	sound insulation according to EN ISO 10140
Order date	14.08.2017
Your reference	D. Ryan
Product designation	Rigid LVT 5.5
TFI sample number	17-08-0102

2 Product Specification

Construction	heterogeneous
Structure	flat
Pattern	tonal effect without pattern
Colour of the use surface	beige, light brown, brown

View



Thickness [mm]	5.5*
Density [kg/m ³]	~1900*
Type of delivery	modules
	*customer information

3 Results

Weighted normalized impact sound pressure level $L_{n,w} = 55 \text{ dB}^*$

*tested on a 140mm concrete slab floor with an area-related mass off the laboratory with no ceiling

4 Annexes

Impact sound insulation TS 471328-02^a

The annexes marked ^a are based on tests accredited in accordance with EN ISO/IEC 17025.

Annex TS - Impact Sound Insulation

1 Transaction

Product designation	Rigid LVT 5.5
TFI sample number	17-08-0102
Testing period	01.09.2017

2 Test Method / Requirements

EN ISO 10140-1:2014	Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for certain products
EN ISO 10140-2:2010	Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation
EN ISO 10140-3:2015	Acoustics - Laboratory measurement of sound insulation of building elements - Part 3: Measurement of impact sound reduction
EN ISO 10140-4:2010	Acoustics - Laboratory measurement of sound insulation of building elements - Part 4: Measurement procedures and requirements
EN ISO 10140-5:2014	Acoustics - Laboratory measurement of sound insulation of building elements - Part 5: Requirements for test facilities and equipment
EN ISO 717-1:2013	Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation
EN ISO 717-2:2013	Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound reduction

3 Remarks

The size of the test surface does not meet the requirements of ISO 10140-1 according to category II

4 Measuring Operation

Measurement of the impact sound pressure level:	Using with 4 tapping machine position. (The single results of the one-third-octave-bands were averaged on an energy basis)
Test surface:	~3 m ²
Category:	II
Connection with the floor:	loose laid
Damage to the sample:	None

5 Laboratories

Test rooms:	Laboratories of the TFI Aachen GmbH, Hauptstrasse 133, 52477 Alsdorf, Germany
Sending room (1.04):	$V = 52.4 \text{ m}^3$ (with diffusers)
Receiving room (0.01):	$4.05 \text{ m} \times 3.95 \text{ m} \times 3.33 \text{ m} + 2.00 \text{ m} \times 0.98 \text{ m} \times 0.18 \text{ m}$; $V = 53.6 \text{ m}^3$ (cuboid room, with diffusers)
Reference floor:	$4.27 \text{ m} \times 4.46 \text{ m}$; $S = 19.04 \text{ m}^2$ 14 cm concrete slab floor with an area-related mass of $m' \sim 322 \text{ kg/m}^2$
Flanking walls:	Lime sand brick walls with light wall facings (facing shell $d = 12 \text{ cm}$) with an average area-related mass of $m' \sim 330 \text{ kg/m}^2$
Weighted normalized impact sound pressure level	$L_{n,0,w} = 77 \text{ dB}$
Weighted normalized impact sound pressure level	$L_{n,w} = 55 \text{ dB}$
Weighted normalized impact sound pressure level	$L_{n,r,w} = 58 \text{ dB}$

6 Measuring Devices

Real time analyser:	Norsonic Nor140, SN: 1406927
Microphone:	Norsonic Type 1209/21135
Tapping machine:	NORSONIC, Type 211, SN: 502 (standard tapping machine with 3 feet and 5 hammers according to ISO 10140)

7 Evaluation

The impact sound pressure level generated by the standard tapping machine is measured in the receiving room under a bare heavy floor with and without a floor covering. The impact sound reduction is determined on the basis of the measured values as follows:

$$\Delta L = L_{n,0} - L_n \text{ (dB)}$$

$L_{n,0}$ Impact sound pressure level without a floor covering (dB)

L_n Impact sound pressure level with a floor covering (dB)

For the evaluation of the weighted reduction in impact sound pressure level ΔL_w , the relevant reference curve is shifted in increments of 1 dB towards the measured curve until the sum of unfavourable deviations is as large as possible, but not more than 32 dB.

The linear impact sound level ΔL_{lin} is determined according to the following equation:

$$\Delta L_{in} = L_{n,r,0,w} + C_{l,r,0} - (L_{n,r,w} + C_{l,r}) = \Delta L_w + C_{l,\Delta}$$

$L_{n,r,w}$	is the calculated weighted normalized impact sound pressure level of the reference floor with the floor covering under test
$L_{n,r,0,w}$	78 dB, calculated from $L_{n,r,0}$ according to Section 4.3.1 of DIN EN ISO 717-2: 2013
$C_{l,r}$	Spectrum adaptation term for the reference floor with the floor covering to be tested
$C_{l,r,0}$	-11 dB, spectrum adaptation term for the reference floor with $L_{n,r,0}$ determined according to Annex A, Section A.2.1 of DIN EN ISO 717-2:2013

8 Note

The results are based on measurements performed under laboratory conditions with artificial excitation (standard procedure). The test results are applicable in due consideration of the national provisions and the local circumstances and/or constructions.

Impact sound insulation according ISO 10140-1

Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a heavyweight reference floor

Product name Rigid LVT 5.5

Testing period 01.09.2017

TFI sample number 17-08-0102

Construction
(from top to bottom)

-

Installed by

TFI

Receiving room

Source room

Volume 53,6 m³Volume 52,4 m³

Air temperature 21,9 °C

Air temperature 22,1 °C

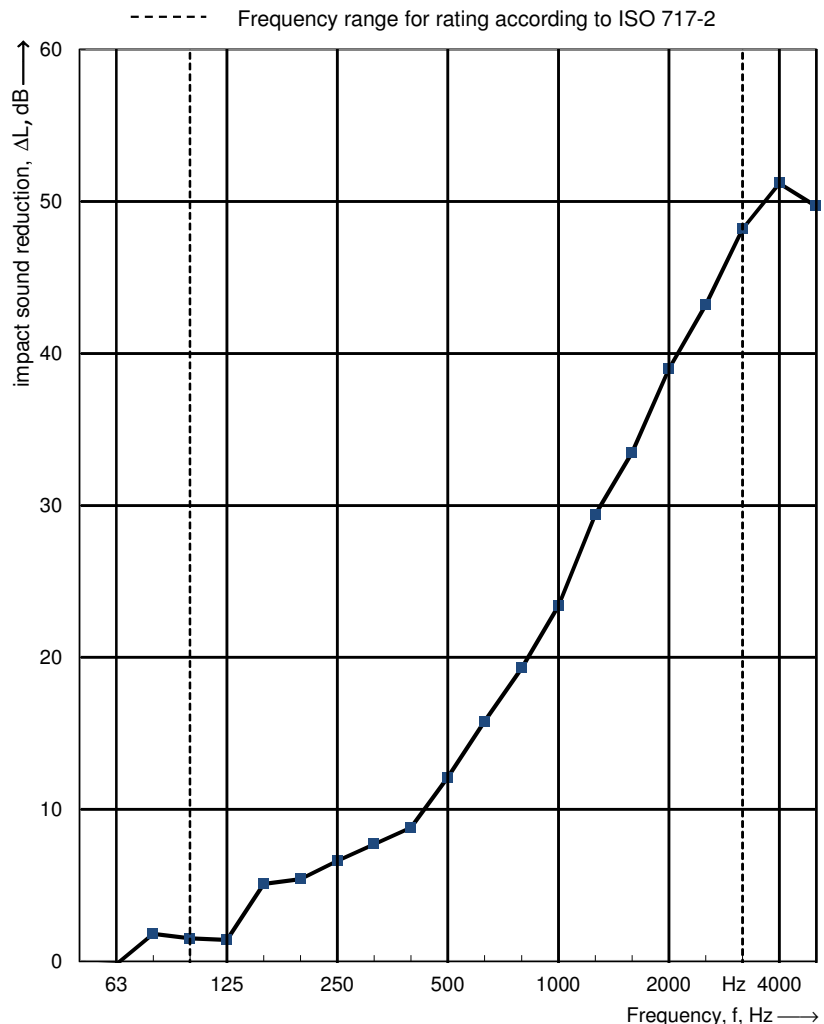
Relative air humidity 64,9 %

Relative air humidity 63,9 %

Static pressure 100,4 kPa

Type of reference floor: Massiv

Frequency f [Hz]	$L_{n,0}$ 1/3 oct. [dB]	ΔL 1/3 oct. [dB]
50	60,3	-0,3
63	67,3	-0,2
80	68,2	1,8
100	58,0	1,5
125	60,8	1,4
160	62,3	5,1
200	68,3	5,4
250	73,6	6,6
315	68,9	7,7
400	68,4	8,8
500	69,2	12,1
630	68,2	15,8
800	69,6	19,3
1000	70,3	23,4
1250	70,2	29,4
1600	71,1	33,5
2000	71,5	39,0
2500	70,7	43,2
3150	70,4	48,2
4000	69,4	51,2
5000	65,6	49,7



Rating according to ISO 717-2

 $\Delta L_w = 20$ dB $C_{l,\Delta} = -10$ dB $C_{l,r} = -1$ dB

The results are based on a test performed with an artificial source under laboratory conditions (engineering method) with the specified reference floor.

