

# Test Report A-2020-234-01

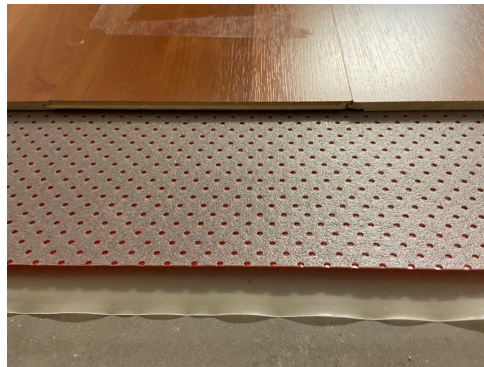
**Customer** Unifloor Underlay Systems  
Arnsbergstraat 4  
7418 Deventer  
The Netherlands



**Test Order** Impact Sound Insulation

**Test Object** floor underlay

**Picture/ Drawing:**




**Description: (for a construction from top to bottom)**

\* customer information

Position	Designation	Thickness [mm]	Weight [g/m <sup>2</sup> ]
1	click laminaat 8 mm	8*	-
2	heatfoil 1,2 mm	1,2*	-
3	PE-foil	-	-

Aachen, 23.06.2020



Dr.-Ing. Alexander Siebel

# Test Report A-2020-234-01



The test report may not be published in excerpts without the approval of the testing laboratory.

## Attachments:

SA – sound absorption in reverberation rooms DIN EN ISO 354:2003-12	
TS – impact sound DIN EN ISO 10140-1 / DIN EN ISO 10140-3	X
GS – walking sound DIN EN 16205:2018-05	
LS – airborne sound insulation DIN EN ISO 10140-2	
IR – sound absorption in impedance tubes DIN EN 10534-1 / DIN EN 10534-2	
DS – dynamic stiffness DIN EN 29052-1 - 1992-08	
TD – technical documentation for sample construction	

The test results relate only to the provided test items.

# General Annex TS for laboratory impact sound tests

## 1 Test stand description

Test rooms:	Laboratory of SWA GmbH, Hauptstraße 133, 52477 Alsdorf
Sending room:	4,27 m x 4,45 m x 2,74 m; V = 52,1 m <sup>3</sup> (cubic, with diffusers)
Receiving room:	3,95 m x 4,08 m x 3,33 m; V = 53,6 m <sup>3</sup> (cubic, with diffusers)
Reference ceiling:	4,27 m x 4,45 m; S = 19 m <sup>2</sup> 14 cm concrete solid plate ceiling with an area-related mass m' ≈ 322 kg/m <sup>2</sup>
Flanking walls:	lime sand brick walls with light weighting facing shells (d = 12cm) with a medium area-related mass of m' ≈ 330 kg/m <sup>2</sup>

## 2 Analysis

The impact sound levels generated by the standardized tapping machine are measured in the receiving room under a solid ceiling without and with a textile floor covering. From the measured values the reduction of impact sound pressure is calculated as follows:

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

$$L_{n,0} = \text{Impact sound level without floor covering in dB}$$

$$L_n = \text{Impact sound level with floor covering in dB}$$

To determine the weighted impact sound reduction the applicable reference curve is shifted in 1 dB steps into the measured curve so that the sum of the most unfavorable deviations corresponds as close as possible to the value of 32 dB without exceeding this value.

The linear impact sound level  $\Delta L_{lin}$  you can calculate after the following equation:

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

$L_{n,r,w}$  the calculated weighted norm impact sound level of the cover blanket with the blanket edition to be checked is.

$L_{n,r,0,w}$  78 dB, investigates  $L_{n,r,0}$  to 4.3.1 DIN EN ISO 717-2 : 2013.

$C_{I,r}$  Spectrum customization value.

$C_{I,r,0}$  Spectrum customization value.

## 2.1 Test Standards

Standard: (Issue)	Title
DIN EN ISO 10140-1:2016-12	Akustik – Messung der Schalldämmung von Bauteilen im Prüfstand – Teil 1: Anwendungsregeln für bestimmte Produkte
DIN EN ISO 10140-2:2010-12	Akustik – Messung der Schalldämmung von Bauteilen im Prüfstand – Teil 2: Messung der Luftschalldämmung
DIN EN ISO 10140-3:2015-11	Akustik – Messung der Schalldämmung von Bauteilen im Prüfstand – Teil 3: Messung der Trittschalldämmung
DIN EN ISO 10140-4:2010-12	Akustik – Messung der Schalldämmung von Bauteilen im Prüfstand – Teil 4: Messverfahren und Anforderungen
DIN EN ISO 10140-5:2014-09	Akustik – Messung der Schalldämmung von Bauteilen im Prüfstand – Teil 5: Anforderungen an Prüfstände und Prüfeinrichtungen

## 2.2 Evaluation Standards

Standard: (Issue)	Title
DIN EN ISO 717-1:2013-06 <sup>2</sup>	Akustik – Bewertung der Schalldämmung in Gebäuden und von Bauteilen – Teil 1: Luftschalldämmung
DIN EN ISO 717-2:2013-06 <sup>2</sup>	Akustik – Bewertung der Schalldämmung in Gebäuden und von Bauteilen – Teil 2: Trittschalldämmung
DIN EN ISO 12999-1: 2014 <sup>2</sup>	Akustik - Bestimmung und Anwendung der Messunsicherheiten in der Bauakustik - Teil 1: Schalldämmung
ASTM E989 – 18 <sup>3</sup>	Standard Classification for Determination of Single-Number Metrics for Impact Noise
ASTM E2179 - 03(2016) <sup>3</sup>	Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors

<sup>2</sup> german issue

<sup>3</sup> american issue

## 3 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

Annex TS -  $\Delta L_w$

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

Annex TS – Impact sound insulation

Date of test: 22.06.2020

Construction: click laminaat 8 mm  
 (from top to bottom) heatfoil 1,2 mm  
 PE-foil

Remarks: -

Receiving room:

Volume: 53,6 m<sup>3</sup>

Source room:

Volume: 52,1 m<sup>3</sup>

Air temperature: 20,1 °C

Relative air humidity: 58,0 %

Boundary conditions:

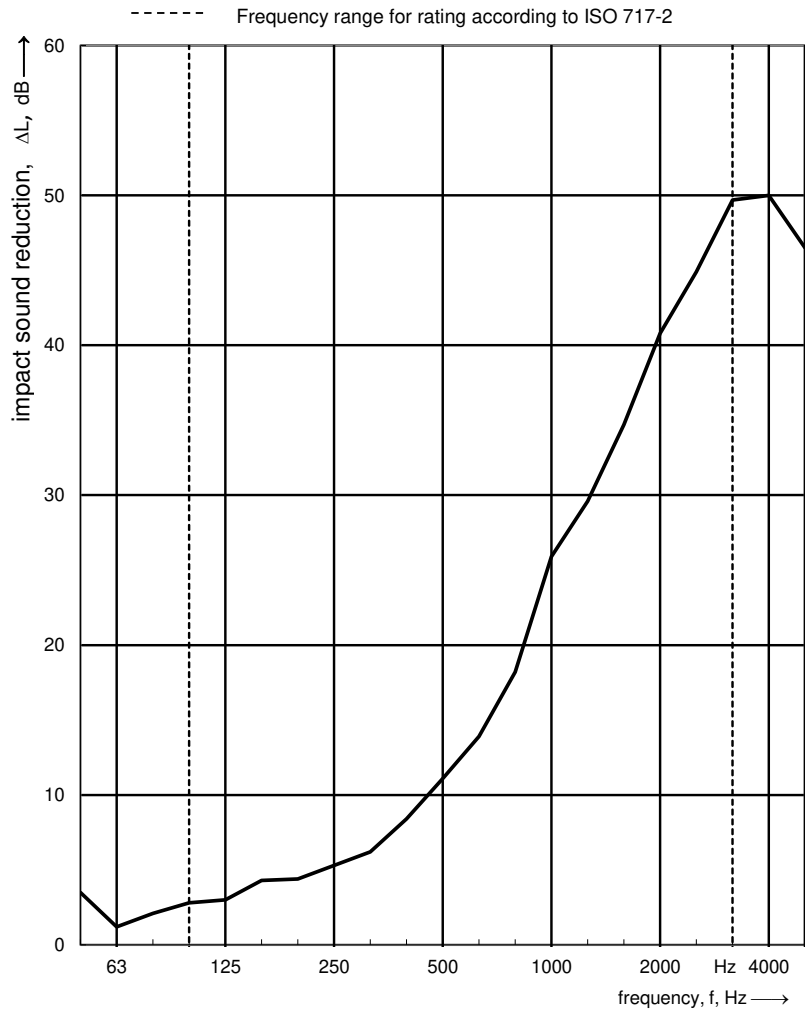
Tapping Machine positions: 4

Microphone positions: 4

Category / sample area: II / ~ 10 m<sup>2</sup>

Type of reference floor: Heavyweight

Frequency f [Hz]	$L_{n,0}$ 1/3 oct. [dB]	$\Delta L$ 1/3 oct. [dB]
50	59,0	3,5
63	64,3	1,2
80	65,1	2,1
100	58,7	2,8
125	63,3	3,0
160	61,4	4,3
200	65,7	4,4
250	71,8	5,3
315	66,8	6,2
400	68,8	8,4
500	68,0	11,1
630	68,4	13,9
800	69,3	18,2
1000	69,5	25,9
1250	71,4	29,6
1600	70,9	34,7
2000	71,2	40,8
2500	70,3	44,9
3150	70,2	49,7
4000	69,3	50,0
5000	65,3	46,5



Evaluation according to ISO 717-2

$\Delta L_w = 20$  dB

$C_{l,\Delta} = -10$  dB

$C_{l,r} = -1$  dB

$\Delta L_{in} = 10$  dB

The results are based on measurements, which were performed under laboratory conditions with artificial excitation (standard procedure).

Test report no.:

A-2020-234-01

