

# TFI-Report 23-000839-01

## Impact Sound Insulation

Customer	Decora S.A. Ul. Prądyńskiego 24a 63-000 Środa Wielkopolska PL
Product	DECORA SPC with ACULAY 4.0mm+1.3mm

This report includes 9 pages.



Aachen, 21.08.2023

Dr. Andreas Zoëga  
Head of Testing Laboratory



The present document is provided with an advanced electronic signature.

This report only applies to the tested samples and has been established to the best of our knowledge. Only the entire report shall be reproduced. Under no circumstances, extracts shall be used. Furthermore, we apply the "General Terms and Conditions for the Execution of Contracts" of the TFI Aachen GmbH, also with regard to the order execution.

The test result does not include any addition or deduction for uncertainties due to measurement, sample preparation, sample collection and production tolerances.



## 1 Transaction

Order date 26.07.2023  
Order number 23-000839 - AB2300633  
Your reference Krzysztof Anioł  
Product designation DECORA SPC with ACULAY 4.0mm+1.3mm

TFI sample number 2301175

Date of sample receipt 25.07.2023

### Test order:

Impact sound insulation according to EN ISO 10140 <sup>a</sup>

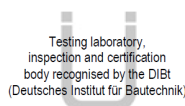
a ... Die mit a gekennzeichnete Prüfung basiert auf nach EN ISO/IEC 17025 akkreditierten Prüfungen./The test marked a are based on tests accredited in accordance with EN ISO/IEC 17025.

### Responsible at TFI:

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Notified Body  
No. 1656



Testing laboratory,  
inspection and certification  
body recognised by the DIBT  
(Deutsches Institut für Bautechnik)



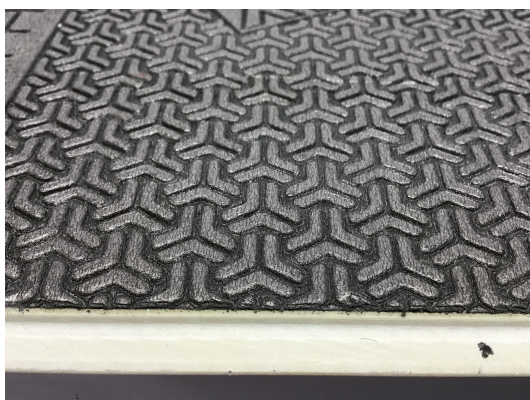
Accredited for the methods indicated in  
the partial reports to the DAKKS certificate

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HRB 8157 Aachen  
UST-IdNr. DE209411312  
Managing Director  
Dr. Jacqueline Lemm

## 2 Product description

TFI sample number 2301175



Total thickness in mm \* 4,00 + 1,30  
Total mass per unit area in g/m<sup>2</sup> \*keine Angabe/not specified

\*Angabe des Auftraggebers/Customer Information



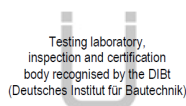
### 3 Results

Impact sound insulation  $\Delta L_w = 22 \text{ dB}$

The measurement results are evaluated without consideration of the measurement uncertainty with reference to compliance with limit values, unless otherwise specified by the test standard.

### 4 Partial Reports

Impact sound insulation according to EN ISO 10140



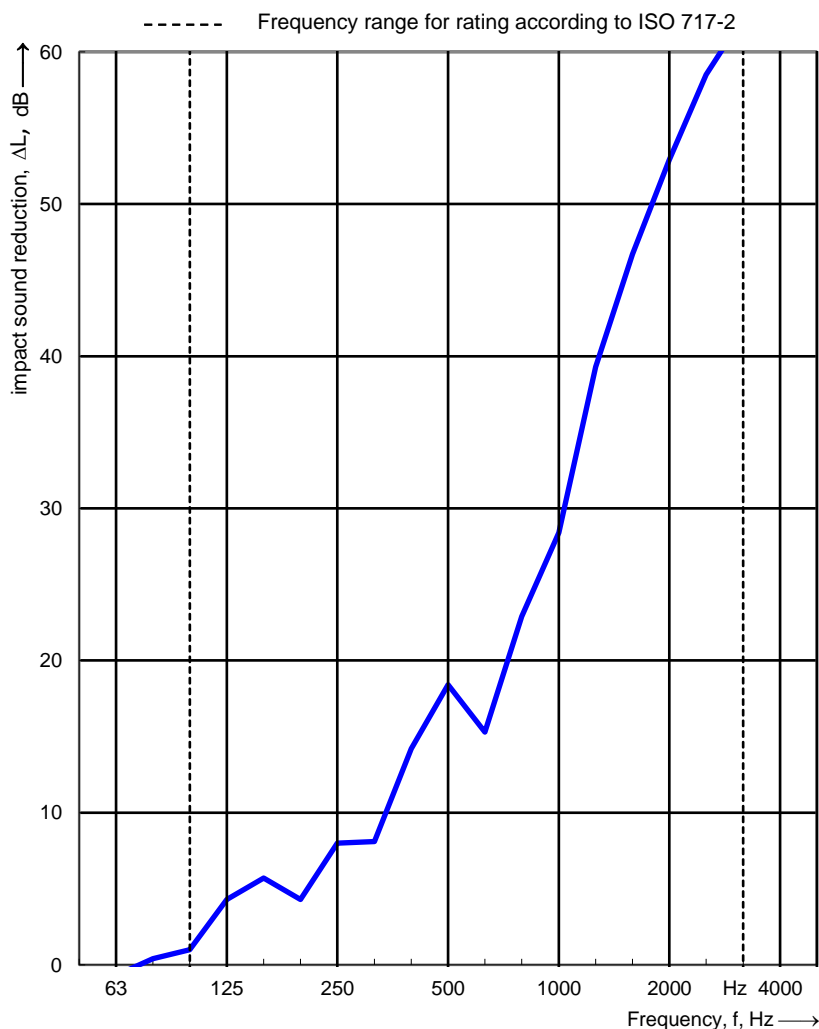
### Partial Report – Impact sound insulation according to EN ISO 10140-3

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

TFI sample number: 2301175 Testing period: 27.07.2023  
 Installed by: Customer Installation: 27.07.2023  
 Size of test area: 10,14 m<sup>2</sup>  
 Category: II  
 Connection with the floor: loosely laid  
 Construction: -  
 (if multi-parted;  
 from top to bottom)

Frequency f [Hz]	L <sub>n,0</sub> 1/3 oct. [dB]	ΔL 1/3 oct. [dB]
50	51,3	-2,2
63	59,0	-0,7
80	58,3	0,4
100	61,9	1,0
125	65,1	4,3
160	69,1	5,7
200	68,5	4,3
250	69,9	8,0
315	67,5	8,1
400	69,6	14,2
500	70,8	18,4
630	69,8	15,3
800	70,3	22,9
1000	70,5	28,4
1250	71,4	39,3
1600	72,1	46,7
2000	72,1	52,9
2500	71,8	58,5 <sup>1</sup>
3150	71,4	62,3 <sup>1</sup>
4000	70,1	64,5 <sup>1</sup>
5000	68,1	64,2 <sup>1</sup>

<sup>1</sup> Zu hoch / too high



Evaluation according to ISO 717-2

ΔL<sub>w</sub> = 22 dB      ΔL<sub>lin</sub> = 11 dB      C<sub>l,Δ</sub> = -11 dB      C<sub>l,r</sub> = 0 dB

The results are based on measurements, which were performed under laboratory conditions with artificial excitation (standard procedure).  
 Measurements in one-third octaves.



# Procedure description – Impact sound insulation according to EN ISO 10140

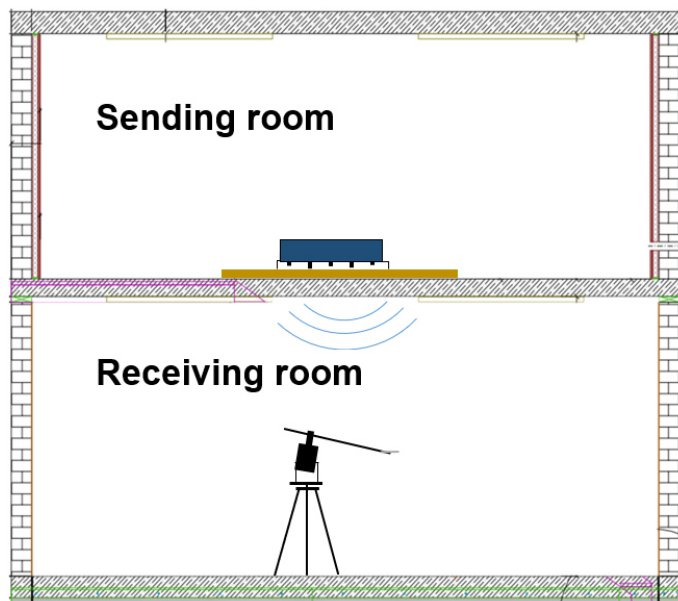
## 1 Test method / Requirements

EN ISO 10140-1:2021	Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for specific products
EN ISO 10140-3:2021	Acoustics - Laboratory measurement of sound insulation of building elements - Part 3: Measurement of impact sound insulation
EN ISO 10140-4:2021	Acoustics - Laboratory measurement of sound insulation of building elements - Part 4: Measurement procedures and requirements
EN ISO 10140-5:2021	Acoustics - Laboratory measurement of sound insulation of building elements - Part 5: Requirements for test facilities and equipment
EN ISO 717-2:2020	Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound insulation
ISO 12999-1:2020	Acoustics - Determination and application of measurement uncertainties in building acoustics - Part 1: Sound insulation

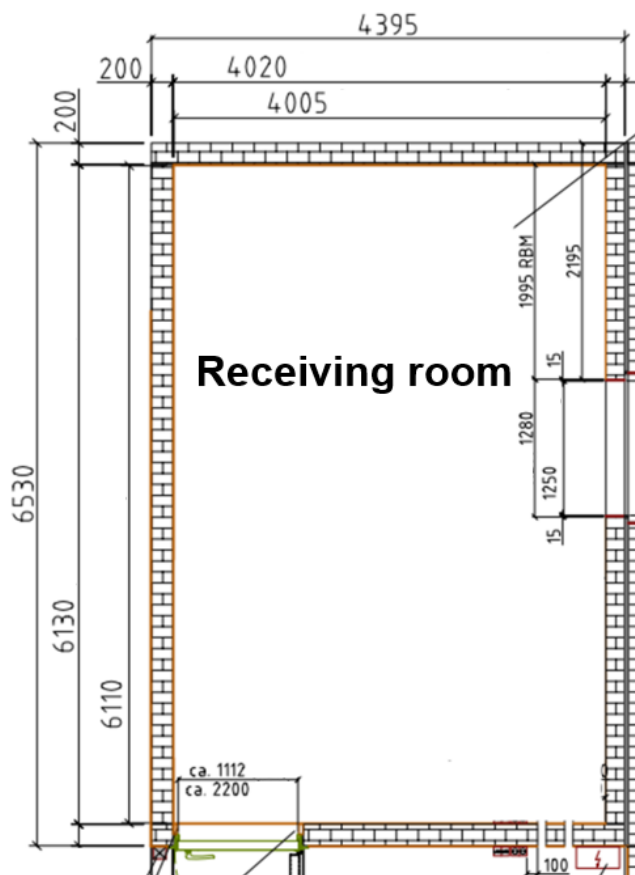
## 2 Laboratories

Test rooms:	TFI Aachen GmbH, Charlottenburger Allee 41, 52068 Aachen
Sending room (BAL1):	Room volume $V = 5,96 \text{ m} \times 3,85 \text{ m} \times 2,24 \text{ m} = 51,40 \text{ m}^3$ (cuboid room with absorbent cladding)
Receiving room (BAL2):	Room volume $V = 6,11 \text{ m} \times 4,01 \text{ m} \times 2,55 \text{ m} = 62,48 \text{ m}^3$ (cuboid room)
Reference floor:	$S = 5,96 \text{ m} \times 3,85 \text{ m} = 22,95 \text{ m}^2$ 16 cm concrete slab floor with an area-related mass of $m' \approx 384 \text{ kg/m}^2$ Elastically mounted to suppress flank transmission.
Flanking walls:	Walls in the sending room with acoustic facing shell to suppress flank transmission.

Profile:



Plan view receiving room:





### 3 Measuring devices

Real-time analyzer:	1 Norsonic Nor140
Microphone:	2 Norsonic Type1209
Loudspeaker:	1 Norsonic Nor229
Tapping machine:	1 Norsonic Nor277 (standard tapping machine with 3 feet and 5 hammers according to ISO 10140)

### 4 Measuring operation

Impact sound pressure level: 4 microphone positions with 2 tapping machine positions each

### 5 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  $\Delta L_w$ , 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  $\Delta L_{lin}$  is determined according to the following equation:

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

$L_{n,r,w}$  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 EN ISO 717-2

$C_{l,r}$  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 A.2.1 EN ISO 717-2

### 6 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.