

**Daidalos Peutz** bouwfysisch ingenieursbureau  
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[www.daidalospeutz.be](http://www.daidalospeutz.be)



NBN EN ISO 17025:2017  
 EA MLA signatory

**NOISE LAB**  
**TEST REPORT Number A-2025LAB-039-K028-45761\_E-v2**

**Customer :** Gerflor  
 50, Cours de la République  
 69627 Villeurbanne Cedex  
 France

**Contacts :** Client : Sébastien Metayer  
 Noise lab : Gert-Jan Loobuyck

**Tests :** Laboratory measurement of the improvement of impact sound insulation by a floor covering on a heavyweight standard floor.  
**Product name :** Gerflor - LVT floor: CREATION 55 CLIC ACOUSTIC (under load of 21.0 kg/m<sup>2</sup>)

**Normative references:**

NBN EN ISO 10140-3:2021 Acoustics - Laboratory measurement of sound insulation of building elements  
 - Part 3: Measurements of impact sound insulation

*Various other related norms:*

NBN EN ISO 10140-1:2021 Acoustics - Laboratory measurement of sound insulation of building elements  
 - Part 1: Application rules for specific products

NBN EN ISO 10140-4:2021 Acoustics - Laboratory measurement of sound insulation of building elements  
 - Part 4: Measurement procedures and requirements

NBN EN ISO 10140-5:2021 Acoustics - Laboratory measurement of sound insulation of building elements  
 - Part 5: Requirements for test facilities and equipment

NBN EN ISO 12999-1:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 - Part 1: Sound insulation

NBN EN ISO 717-2:2021 Acoustics - Rating of sound insulation in buildings and of building elements  
 - Part 2: Impact sound insulation

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.

BELAC is a signatory of all existing multilateral agreements and recognition agreements of International Laboratory Accreditation Cooperation (ILAC).

In this way, reports issued by BELAC accredited bodies are internationally accredited.

<b>Date and reference of the request:</b>	25/02/2025	2025LAB-039
<b>Date of receipt of the specimen (s):</b>	10/04/2025	SONK028
<b>Date of tests:</b>	14/04/2025	
<b>Date of preparation of the test report:</b>	16/04/2025	

The measurements were carried out at Daidalos Peutz Laboratory for Acoustics at Hooglede, see appendix 1

This test report together with its annexes contains : 13 pages and must be multiplied only in its entirety.

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

**Amendments to the test report:**

This test report with the reference number: A-2025LAB-039-K028-45761\_E-v2

replaces the previous test report with number: A-2025LAB-039-K028-45761\_E

**Reason for amendment of test report:**

Technical data from the manufacturer's datasheet has been added to the report.



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**STANDARD METHOD**

The normalised impact sound pressure level  $L_n$  and the reduction of impact sound pressure level (improvement of impact sound insulation)  $\Delta L$  were measured according to the standard NBN EN ISO 10140-3:2021. A detailed description of the test set up has been given in the figures of annex 1 of this report.

The tests were measured as follows:

- The test sample is mounted onto a heavyweight standard floor, in accordance with the descriptions in the standard NBN EN ISO 10140-1 and 10140-3.
- The standardized (see NBN EN ISO 10140-5:2021 Annex E) tapping machine is positioned in 3 or 4 positions on the test floor (depending on the sample). The impact sound pressure levels are measured in the receiving room below the test floor using a moving microphone. A one-third octave band analyser measured the averaged sound levels in the third octave bands from 100 to 5000 Hz. If required, the levels are corrected to account for the background noise. The individual measurements are then averaged energetically for each one-third octave band and converted with the reverberation time measurements to the normalized impact sound pressure level  $L_n$  for a receiving room having 10m<sup>2</sup> of equivalent sound absorption area.
- The normalized impact sound pressure level of the heavyweight standard floor  $L_{n,0}$  is measured using the identical procedure.
- The normalized impact sound pressure level is calculated according to the following equation:

$$L_n = L_i + 10 \log (A/A_0) \quad [\text{dB}]$$

met	$L_n$	=	The normalized impact sound pressure level, expressed in dB (ref 20 $\mu$ Pa)
	$L_i$	=	the energy average sound pressure level in a one-third octave band in the receiving room when the floor under test is excited by the standardized tapping machine
	$A_0$	=	the reference equivalent absorption area (= 10m <sup>2</sup> )
	$A$	=	the measured equivalent absorption area

- The temperature, relative humidity and static pressure is also measured in the test rooms.
- The improvement  $\Delta L$  of the impact sound insulation is calculated from the difference between the weighted impact sound levels of the bare floor without and with the floor covering:

$$\Delta L = L_{n,0} - L_n \quad [\text{dB}]$$

met	$\Delta L$	=	The improvement of the impact sound insulation
	$L_{n,0}$	=	normalized impact sound pressure level of the bare floor
	$L_n$	=	normalized impact sound pressure level of the bare floor with floor covering

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**TEST REPORT Number A-2025LAB-039-K028-45761\_E-v2**

**STANDARD METHOD**

**Single rating numbers**

Evaluation according to EN ISO 717-2 defines single-number quantities,  $L_{n,w}$  ( $C_i$ ) for the impact sound insulation of floors and  $\Delta L_w(C_{i,\Delta})$  for the reduction of impact sound pressure level (improvement of impact sound insulation) by floor coverings from the results of measurements carried out in accordance with NBN EN ISO 10140-3. The values obtained in accordance with ISO 10140-3 are compared with reference values at the frequencies of measurement within the range 100Hz to 3150 Hz for measurements in one-third octave bands. The calculation of the single-value indicator can not be summarised in a few lines. See standard NBN EN ISO 717-2 for details.

$L_{n,w}$  = weighted normalized impact sound pressure level

$L_{n,w} + C_i$  = weighted normalized impact sound pressure level corrected with the adaptation term  $C_i$

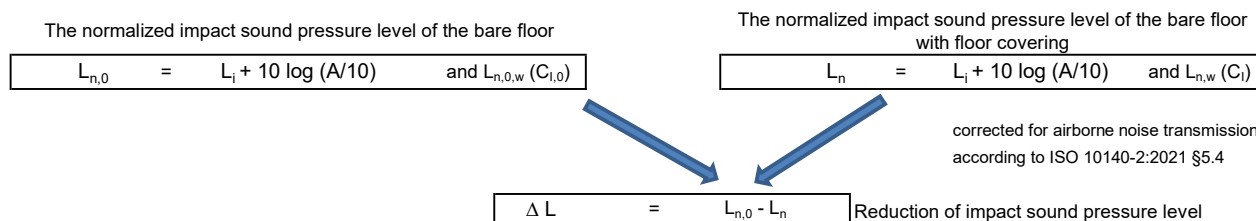
$C_i$  =  $L_{n,sum} - 15 - L_{n,w}$  With  $L_{n,sum}$  the summation on an energetic basis for the one-third octave bands in the frequency range 100Hz to 2,5kHz

$$L_{n,sum} = 10 \log \sum_{i=1}^x 10^{\frac{L_i}{10}}$$

Calculations of the spectrum adaptation term may additionally be carried out for an enlarged frequency range.

The single-number quantities of impact sound insulation properties of floors, presented as  $L_{n,w}$  ( $C_i$ )

The single-number quantities of the weighted reduction in impact sound pressure level for floor coverings, is presented as  $\Delta L_w(C_{i,\Delta})$  and  $\Delta L_{in}$



To compare the measurement results obtained in different test laboratories, the normalized impact sound level  $L_n$ , is referred to the reference floor defined in ISO 717-2 in the following way. The quantity is designated by the index "r" ("reference floor"):  $L_{n,r}$

$$L_{n,r} = L_{n,r,0} - \Delta L \quad \text{and} \quad L_{n,r,w} (C_{i,r})$$

with  $L_{n,r,0}$  is the defined normalized impact sound pressure level of the reference floor (see ISO 717-2 point 5.2)

$$\Delta L_w = L_{n,r,0,w} - L_{n,r,w} = 78 - L_{n,r,w} \quad \text{with} \quad C_{i,\Delta} = C_{i,r,0} - C_{i,r} = -11 - C_{i,r}$$

$$\Delta L_{in} = \Delta L_w + C_{i,\Delta}$$

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**SPECIAL MEASUREMENT CONDITIONS**

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**ACCURACY**

The accuracy of the impact sound insulation as calculated can be expressed in terms of repeatability (tests within one laboratory) and reproducibility (between various laboratories)

Repeatability [r]

When: - two tests are performed on identical test material - within a short period of time - by the same person or team - using the same instrumentation - under unchanged environmental conditions - the probability will be 95% that the difference between the two test results will be less than or equal to r

Reproducibility [R]

When: - two tests are performed on identical test material - in different laboratories - by different person(s) - under different environmental conditions - the probability will be 95% that the difference between the two test results will be less than or equal to R

The standard ISO 12999-1 contains a statement on the expected reproducibility R, based on the results of various interlaboratory tests.

The standard deviation for the reduction in impact sound pressure level,  $\Delta L_w$ , obtained under reproducibility conditions,  $\sigma_R$ , for the single number value, in accordance with ISO 717-2, from table 7 of standard ISO 12999-1 is 1,1dB.

At present, there are no results available for impact sound insulation at reproducibility conditions. Indicated values are estimates.

The standard deviation for impact sound insulation,  $L_{n,w}$ , obtained under reproducibility conditions,  $\sigma_R$ , for the single number value, in accordance with ISO 717-2, from table 5 of standard ISO 12999-1 is 1,5dB.

For  $L_{n,w}$  is  $\sigma_R$ , from table 5 of standard ISO 12999-1 estimated as 1,5dB

**ENVIRONMENTAL CONDITIONS during the tests**

	<i>Source room</i>	<i>Receiving room</i>
<b>Temperature :</b>	T = 18,9 °C	18,2 °C
<b>Atmospheric pressure :</b>	p = 1005,8 hPa	1005 hPa
<b>Relative humidity :</b>	h <sub>r</sub> = 55,7 %	51,8 %

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**MEASUREMENT AND CALCULATION DETAILS**

The results as presented here relate only to the tested items and laboratory conditions as described in this test report.

The results of the measurements are presented on the next pages (6 till 9)

- on page 7 : the measurement results for the normalized impact sound level for the bare floor (the naked laboratory floor)
- on page 8 : the measurement results for the normalized impact sound level for the bare floor with floor covering, composition of the test element in annex 2
- on page 9 : the calculation of the reduction of impact sound pressure

The results are given at all frequencies of measurement, both in tabular form and in the form of a graph.

The next table present an overview of the measurements and calculations

f	$L_{n,0}$ bare floor	$L_n$ bare floor + floor covering	$\Delta L$ $L_{n,0} - L_n$	$L_{n,r,0}$ reference floor according ISO 717-2 / 5.2	$L_{n,r}$ reference floor + floor covering $L_{n,r,0} - \Delta L$	
(Hz)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
50	40,6	39,8	0,8			
<b>63</b>	<b>62,6</b>	<b>59,5</b>	3,1			
80	65,9	64,5	1,4			
100	62,2	59,0	3,2	67,0	<b>63,8</b>	
<b>125</b>	<b>65,2</b>	<b>63,2</b>	2,0	67,5	<b>65,5</b>	
160	64,3	62,8	1,5	68,0	<b>66,5</b>	
200	65,4	64,0	1,4	68,5	<b>67,1</b>	
<b>250</b>	<b>65,8</b>	<b>63,0</b>	2,8	69,0	<b>66,2</b>	
315	65,2	60,9	4,3	69,5	<b>65,2</b>	
400	65,5	58,5	7,0	70,0	<b>63,0</b>	
<b>500</b>	<b>66,5</b>	<b>55,0</b>	11,5	70,5	<b>59,0</b>	
630	67,4	49,3	18,1	71,0	<b>52,9</b>	
800	68,9	48,1	20,8	71,5	<b>50,7</b>	
<b>1000</b>	<b>69,6</b>	<b>45,6</b>	24,0	72,0	<b>48,0</b>	
1250	71,1	46,0	25,1	72,0	<b>46,9</b>	
1600	71,0	40,5	30,5	72,0	<b>41,5</b>	
<b>2000</b>	<b>69,1</b>	<b>34,3</b>	34,8	72,0	<b>37,2</b>	
2500	69,1	26,5	42,6	72,0	<b>29,4</b>	
3150	68,9	20,2	48,7	72,0	<b>23,3</b>	
<b>4000</b>	<b>67,0</b>	<b>15,1</b>	51,9	/	/	
5000	64,4	10,2	54,2	/	/	
<b>ISO 717-2</b>	$L_{n,0,w}$	$L_{n,w}$		$L_{n,r,0,w}$	$L_{n,r,w}$	$\Delta L_w = 78 - L_{n,r,w}$
	<b>76</b>	<b>56</b>		78	59	<b>19 dB</b>
	$C_{l,0}$	$C_l$		$C_{l,r,0}$	$C_{l,r}$	$C_{l,\Delta} = C_{l,r,0} - C_{l,r}$
	<b>-11</b>	<b>0</b>		-11	0	<b>-11 dB</b>
						$\Delta L_{in} = \Delta L_w + C_{l,\Delta}$
						<b>8 dB</b>

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**L<sub>n,0</sub>**

**NORMALIZED IMPACT SOUND PRESSURE LEVEL (of standard floor) in accordance with ISO 10140-3:2021**

**Client: Gerflor**

**Date of test: 14/04/2025**

**Description of the test setup:**

The base floor used is a 140 mm thick solid reinforced concrete slab.  
 According to ISO 10140-5 Annex C this is the "heavyweight standard floor".

Receiving room volume V: 53,4 m<sup>3</sup>

Reference floor area : 12,0 m<sup>2</sup>

Tested floor area : 10,3 m<sup>2</sup>

Signal : Standard tapping machine with steel-headed hammers.

— reference values (according ISO 717-2)  
 — shifted reference values (according ISO 717-2)

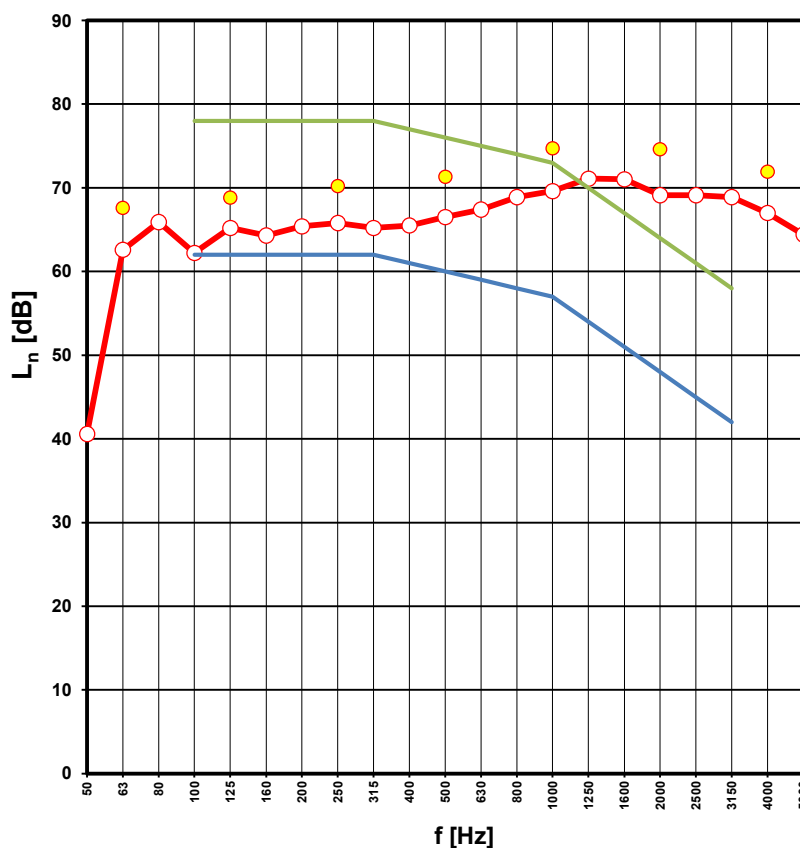
f (Hz)	L <sub>n,0</sub> (dB)	(*)
<b>1/3 octave bands :</b>		
50	40,6	
<b>63</b>	<b>62,6</b>	
80	65,9	
100	62,2	
<b>125</b>	<b>65,2</b>	
160	64,3	
200	65,4	
<b>250</b>	<b>65,8</b>	
315	65,2	
400	65,5	
<b>500</b>	<b>66,5</b>	
630	67,4	
800	68,9	
<b>1000</b>	<b>69,6</b>	
1250	71,1	
1600	71,0	
<b>2000</b>	<b>69,1</b>	
2500	69,1	
3150	68,9	
<b>4000</b>	<b>67,0</b>	
5000	64,4	

<b>octave bands :</b>	
<b>63</b>	<b>67,6</b>
<b>125</b>	<b>68,8</b>
<b>250</b>	<b>70,2</b>
<b>500</b>	<b>71,3</b>
<b>1000</b>	<b>74,7</b>
<b>2000</b>	<b>74,6</b>
<b>4000</b>	<b>71,9</b>

B: L<sub>n</sub> < value shown

(\*) b : background noise correction used

B : Maximum background noise correction used



Rating according to ISO 717-2

**L<sub>n,0,w</sub> (C<sub>i,0</sub>) = 76 ( -11 ) dB**

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method

No. of test report: SONK029  
 Date: 14/04/2025

Name of test institute: Daidalos Peutz Laboratory of Acoustics, Hoogdele, Belgium  
 Signature: Gert-Jan Loobuyck

**NOISE LAB**  
**TEST REPORT Number A-2025LAB-039-K028-45761\_E-v2**

**L<sub>n</sub>**

**NORMALIZED IMPACT SOUND PRESSURE LEVEL in accordance with ISO 10140-3:2021**

**Client:** Gerflor

**Date of test:** 14/04/2025

**Description of the test setup:**

±6 mm LVT with attached underlay: CREATION 55 CLIC ACOUSTIC (under load of 21.0 kg/m<sup>2</sup>)  
 140 mm heavyweight standard floor = solid reinforced concrete slab

Receiving room volume V: 53,4 m<sup>3</sup>  
 Reference floor area : 12,0 m<sup>2</sup>  
 Tested floor area : 10,3 m<sup>2</sup>

Signal : Standard tapping machine with steel-headed hammers.

— reference values (according ISO 717-2)  
 — shifted reference values (according ISO 717-2)

f	L <sub>n</sub>	(*)	(**)
(Hz)	(dB)		
<b>1/3 octave bands :</b> —			
50	39,8		
<b>63</b>	<b>59,5</b>		
80	64,5		
100	59,0		
<b>125</b>	<b>63,2</b>		
160	62,8		
200	64,0		
<b>250</b>	<b>63,0</b>		
315	60,9		
400	58,5		
<b>500</b>	<b>55,0</b>		
630	49,3		
800	48,1		
<b>1000</b>	<b>45,6</b>		
1250	46,0		
1600	40,5		
<b>2000</b>	<b>34,3</b>		
2500	26,5		
3150	20,2	b	
<b>4000</b>	<b>15,1</b>	b	
5000	10,2	B	

<b>octave bands :</b> ●	
<b>63</b>	<b>65,7</b>
<b>125</b>	<b>66,8</b>
<b>250</b>	<b>67,6</b>
<b>500</b>	<b>60,5</b>
<b>1000</b>	<b>51,5</b>
<b>2000</b>	<b>41,6</b>
<b>4000</b>	<b>21,7</b>

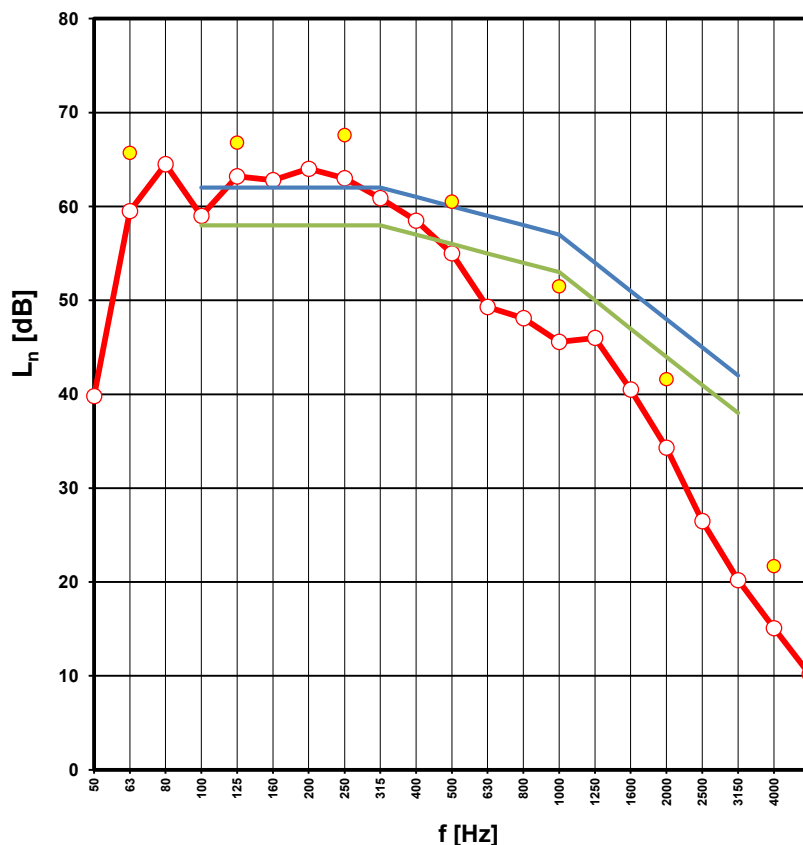
B: L<sub>n</sub>=< value shown

(\*) b : background noise correction used

B : Maximum background noise correction used

(\*\*) d : correction for airborne sound transmission in accordance with ISO10140-3:2021 §5.4

D: sound transmission is dominated by airborne sound and impact sound insulation cannot be measured correctly (ISO 10140-3:2021 §5.4)



Rating according to ISO 717-2

**L<sub>n,w</sub> (C<sub>i</sub>) = 56 ( 0 ) dB**

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method

No. of test report: SONK028  
 Date: 14/04/2025

Name of test institute: Daidalos Peutz Laboratory of Acoustics, Hooglede, Belgium  
 Signature: Gert-Jan Loobuyck

**NOISE LAB**  
**TEST REPORT Number A-2025LAB-039-K028-45761\_E-v2**



**REDUCTION OF IMPACT SOUND PRESSURE LEVEL BY FLOOR COVERINGS in accordance with ISO 10140-3:2021**

**Client:** Gerflor

**Date of test:** 14/04/2025

**Description of the test setup:**

±6 mm LVT with attached underlay: CREATION 55 CLIC ACOUSTIC (under load of 21.0 kg/m<sup>2</sup>)  
 140 mm heavyweight standard floor = solid reinforced concrete slab

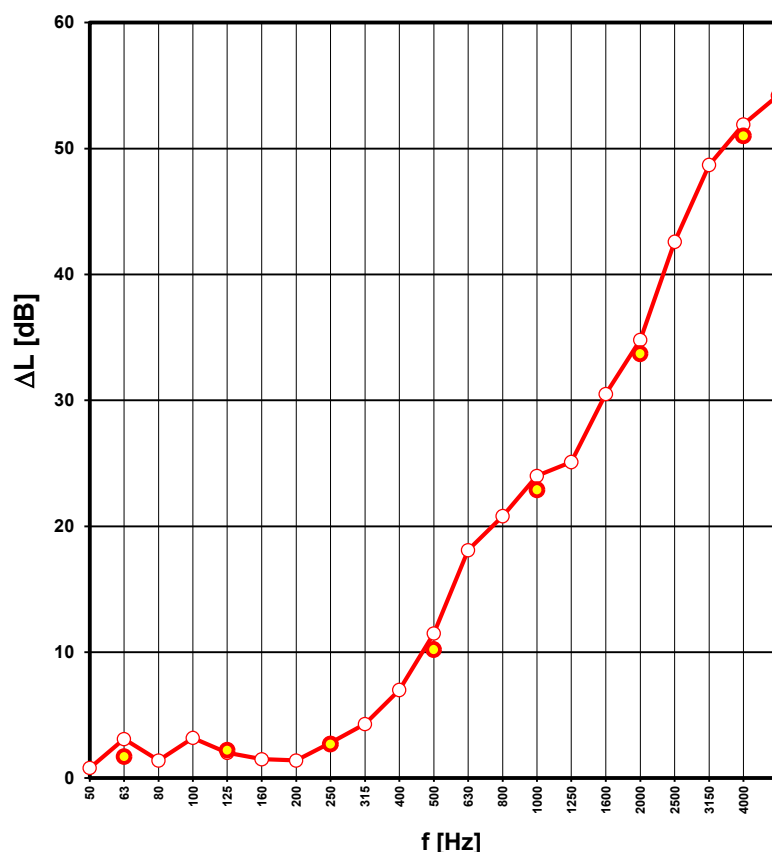
**Receiving room volume V:** 53,4 m<sup>3</sup>

**Reference floor area :** 12,0 m<sup>2</sup>

**Tested floor area :** 10,3 m<sup>2</sup>

**Signal :** Standard tapping machine with steel-headed hammers.

f (Hz)	$\Delta L$ = $L_{n,0} - L_n$ (dB)
<b>1/3 octave bands :</b> <span style="color: red;">■</span>	
50	0,8
63	3,1
80	1,4
100	3,2
125	2,0
160	1,5
200	1,4
250	2,8
315	4,3
400	7,0
500	11,5
630	18,1
800	20,8
1000	24,0
1250	25,1
1600	30,5
2000	34,8
2500	42,6
3150	48,7
4000	51,9
5000	54,2
<b>octave bands :</b> <span style="color: yellow;">●</span>	
63	1,7
125	2,2
250	2,7
500	10,2
1000	22,9
2000	33,7
4000	51,0



Rating according to ISO 717-2

$\Delta L_w (C_{1,\Delta})$  = 19 ( -11 ) dB

$\Delta L_{lin}$  = 8 dB

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method

No. of test report: SONK028  
 Date: 14/04/2025

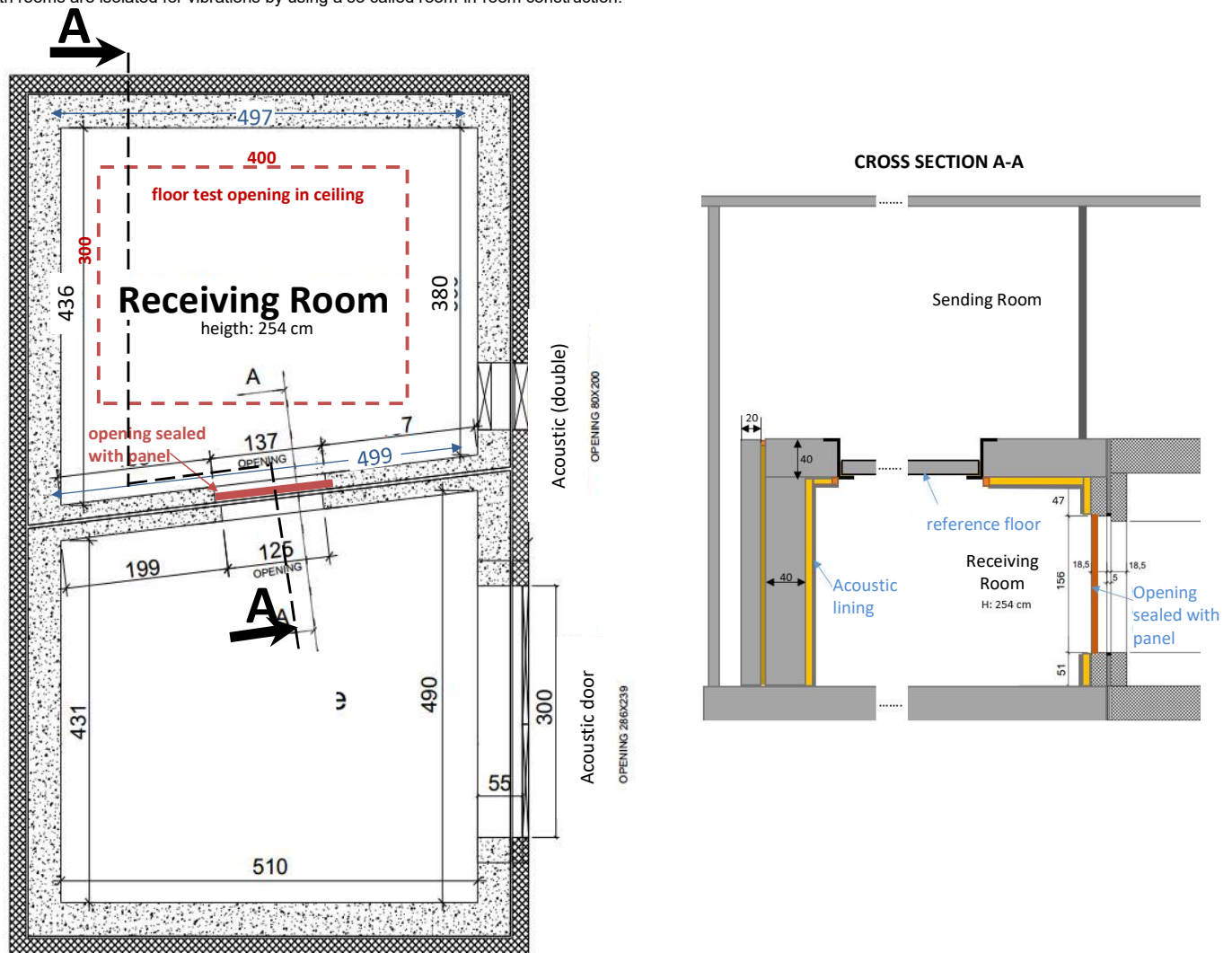
Name of test institute: Daidalos Peutz Laboratory of Acoustics, Hooglede, Belgium  
 Signature: Gert-Jan Loobuyck

**NOISE LAB**  
**TEST REPORT Number A-2025LAB-039-K028-45761\_E-v2**

**ANNEX 1 : Sound insulation test facilities at Daidalos Peutz Laboratory of Acoustics**

**Daidalos Peutz Laboratory of Acoustics, Diksmuidesteeweg 17B/1, B-8830 Hooglede, Belgium**

The test rooms meet the requirements of ISO 10140-5  
 Both rooms are isolated for vibrations by using a so called room-in-room construction.



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**ANNEX 2: Description test items by manufacturer**

*The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer*

Description of the test element as a layered structure

Layer	Thickness (mm)	$\rho$ (kg/m <sup>3</sup> )	$m''$ (kg/m <sup>2</sup> )	Description of the layer
1	±6		±7,89	LVT with attached underlay: CREATION 55 CLIC ACOUSTIC (under load of 21.0 kg/m <sup>2</sup> )
2	140	2300	322	heavyweight standard floor = solid reinforced concrete slab
3				
4				
5				
6				
7				
8				
9				
10				

**Gerflor - LVT floor: CREATION 55 CLIC ACOUSTIC (under load of 21.0 kg/m<sup>2</sup>)**

Technical description (from manufacturer datasheet):  
 Total thickness (EN ISO 24346): 6 mm  
 Wear layer thickness (EN ISO 24340): 0.55 mm  
 Plank size (EN ISO 24342): 212 x 1238.8 mm

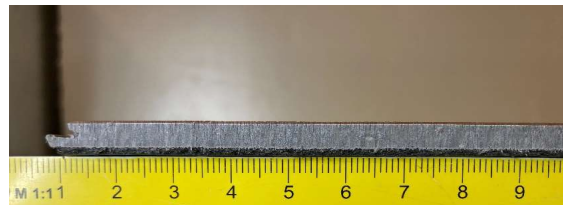
thickness of the factory-attached underlay (indicative measurement in the laboratory): ±1.0 mm  
 surface mass density (indicative measurement in the laboratory): ±7.89 kg/m<sup>2</sup>

Installation :  
 The installation in the laboratory was performed according to the installation instructions of the product.  
 The floorcovering was clicked together and laid loosely on the bare concrete floor of the laboratory without the use of adhesives.

Frontside and backside of the LVT plank



Section view of the LVT plank



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**ANNEX 3: Technical sheet**

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*The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer*

**More information can be obtained from Gerflor**

**NOISE LAB**  
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**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

The LVT floor covering with attached underlay was mounted according to the instructions of ISO 10140-1.  
 The floor was classified according to annex H.2.2 of ISO 10140-1: Category II - Large specimen  
 This category includes floor coverings of which at least one constituent is rigid.  
 The floorcovering measures  $\pm 2.76 \times 3.72$  m and covers at least  $10 \text{ m}^2$  with a smaller dimension of at least 2,3m.  
 The assembled floor covering was tested under load, with a uniformly distributed load of  $21.0 \text{ kg/m}^2$ .  
 The tapping machine was placed in 4 different positions on the test floor.  
 The same tapping machine positions were used on the concrete reference floor.

*Photos of the four tapping machine positions on the tested floorcovering:*



*tapping machine positions on the reference concrete floor:*

