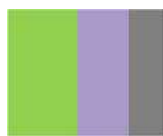


Daidalos Peutz bouwfysisch ingenieursbureau
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 laboratory of acoustics



N° 451-TEST
 NBN EN ISO 17025:2017
 EA MLA signatory

NOISE LAB
TEST REPORT Number A-2026LAB-017-0048-46115_E

Customer : Belgotex
 20 Chesterfield Road, Willowton
 Pietermaritzburg, 3201
 South Africa

Contacts : Client : Logan Cattigan
 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 : Solution Dyed Nylon Tufted ProBac Carpet Tile
 Trademarks: Terranova

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.

Date and reference of the request:	17/02/2026	2026LAB-017
Date of receipt of the specimen (s):	26/03/2026	SONO048
Date of tests:	3/04/2026	
Date of preparation of the test report:	3/04/2026	

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.

Statement of Responsibility

The laboratory cannot be held responsible for the accuracy or completeness of the information provided by the client and included in this report.
 Sampling was not carried out by the laboratory; therefore, the results in this report apply solely to the sample as received and tested.
 Responsibility for the equivalence between the tested product and the marketed product rests entirely with the applicant.

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

NOISE LAB

TEST REPORT Number A-2026LAB-017-0048-46115_E

MEASURING EQUIPMENT

Source signal

Brüel & Kjaer - 4292 : Omni Power Sound Source
 Brüel & Kjaer - 2716 : Power amplifier
 Norsonic Nor277 : Tapping machine conform ISO 10140-5 Annex E

Microphone and data acquisition system:

Brüel & Kjaer - 4189 : 1/2" free field microphone, 6Hz to 20kHz, prepolarized
 Brüel & Kjaer - ZC-0032 : 1/2" microphone preamplifier
 Brüel & Kjaer - 4231 : Sound calibrator 94&114dB SPL-1000Hz, Fulfils IEC 60942 Class1
 Brüel & Kjaer - JP 1041 : dual 10-pole adaptor JP-1041
 Brüel & Kjaer - 2270 : Sound level meter - dual channel instrument (measuring both channels simultaneously)
 Conforms with IEC 61672-1 Class 1
 Brüel & Kjaer - 3923 : rotating microphone boom

One rotating microphone system in the receiving room

<i>Number of tapping machine positions:</i>	3
<i>Minimum 0,7m between the different source positions</i>	
<i>Distances to the board of the floor at least 0.5 m</i>	
<i>Random positions and orientation of the tapping machine.</i>	
<i>Number of microphone positions for each tapping machine position:</i>	3
<i>Microphone position with a rotating microphone</i>	
<i>Number of rotations:</i>	3
<i>Rotation speed:</i>	16 s/tr
<i>Minimum rotation time:</i>	30 s
<i>Just not a rotation angle <10 ° to the chamber surfaces</i>	

Data processing

Brüel & Kjaer - BZ-5503 : utility software for hand-held analyzers
 Brüel & Kjaer - BZ-7229 : dual-channel building acoustics software
 Brüel & Kjaer - 7830 :Qualifier Software for reporting results
 A computer with proprietary software

<i>Averaging Time per measurement:</i>	48 s
<i>Number of reverberation time measurements (with graphic control):</i>	27

Test chambers

Volume receiving room:	53,74 m³
Reference floor area:	12,00 m²
Surface test floor :	1,50 m²

There are diffusers and absorption material applied in the receiving room.

Standard floor

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".

NOISE LAB
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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) ΔL 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 10m² 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 20μPa)
	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 ²)
	A	=	the measured equivalent absorption area

- The temperature, relative humidity and static pressure is also measured in the test rooms.
- The improvement ΔL 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	ΔL	=	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

NOISE LAB
TEST REPORT Number A-2026LAB-017-O048-46115_E

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

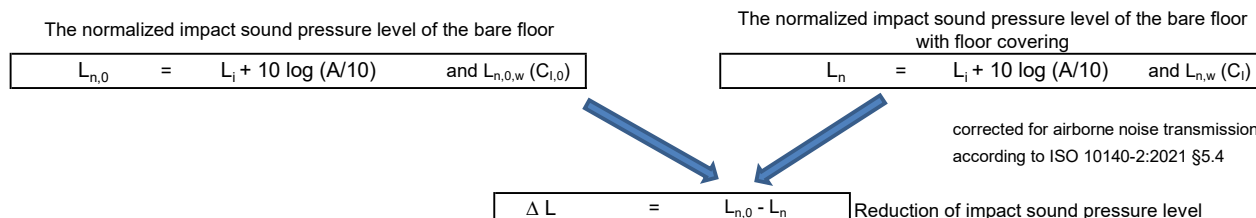
C_i = $L_{n,sum} - 15 - L_{n,w}$ With $L_{n,sum}$ the summation on an energetic basis for the one-third octave bands in the frequency range 100Hz to 2,5kHz

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

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 ΔL_{lin}



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"): $L_{n,r}$

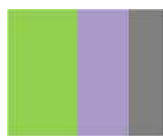
$$L_{n,r} = L_{n,r,0} - \Delta L \quad \text{and} \quad L_{n,r,w}(C_{i,r})$$

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

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

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

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NOISE LAB

TEST REPORT Number A-2026LAB-017-0048-46115_E

SPECIAL MEASUREMENT CONDITIONS

/

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, ΔL_w , obtained under reproducibility conditions, σ_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, σ_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 σ_R , from table 5 of standard ISO 12999-1 estimated as 1,5dB

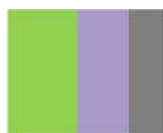
ENVIRONMENTAL CONDITIONS during the tests

Temperature :

Atmospheric pressure :

Relative humidity :

	Source room	Receiving room
T =	17,7 °C	18,0 °C
p =	1012,5 hPa	1012,2 hPa
h _r =	59,3 %	58,4 %



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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	ΔL 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} - ΔL	
(Hz)	(dB)	(dB)	(dB)	(dB)	(dB)	
50	39,7	37,4	2,3			
63	61,2	58,6	2,6			
80	64,6	61,5	3,1			
100	64,0	59,5	4,5	67,0	62,5	
125	65,9	59,9	6,0	67,5	61,5	
160	64,9	56,1	8,8	68,0	59,2	
200	67,4	55,3	12,1	68,5	56,4	
250	67,7	51,3	16,4	69,0	52,6	
315	65,8	43,6	22,2	69,5	47,3	
400	66,3	37,2	29,1	70,0	40,9	
500	66,7	32,7	34,0	70,5	36,5	
630	68,2	29,8	38,4	71,0	32,6	
800	69,0	23,4	45,6	71,5	25,9	
1000	69,4	20,8	48,6	72,0	23,4	
1250	70,1	19,9	50,2	72,0	21,8	
1600	70,6	16,0	54,6	72,0	17,4	
2000	69,5	12,2	57,3	72,0	14,7	
2500	69,3	7,4	61,9	72,0	10,1	
3150	68,3	4,9	63,4	72,0	8,6	
4000	66,9	5,7	61,2	/	/	
5000	64,3	6,3	58,0	/	/	
ISO 717-2	L _{n,0,w}	L _{n,w}		L _{n,r,0,w}	L _{n,r,w}	ΔL _w = 78 - L _{n,r,w}
	76	49		78	51	27 dB
	C _{l,0}	C _l		C _{l,r,0}	C _{l,r}	C _{l,Δ} = C _{l,r,0} - C _{l,r}
	-11	0		-11	1	-12 dB

ΔL _{lin} = ΔL _w + C _{l,Δ}
15 dB

NOISE LAB
TEST REPORT Number A-2026LAB-017-0048-46115_E

$L_{n,0}$

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

Client: Belgotex

Date of test: 3/04/2026

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: 53,7 m³

Reference floor area : 12,0 m²

Tested floor area : 1,5 m²

Signal : Standard tapping machine with steel-headed hammers.

reference values (according ISO 717-2)

shifted reference values (according ISO 717-2)

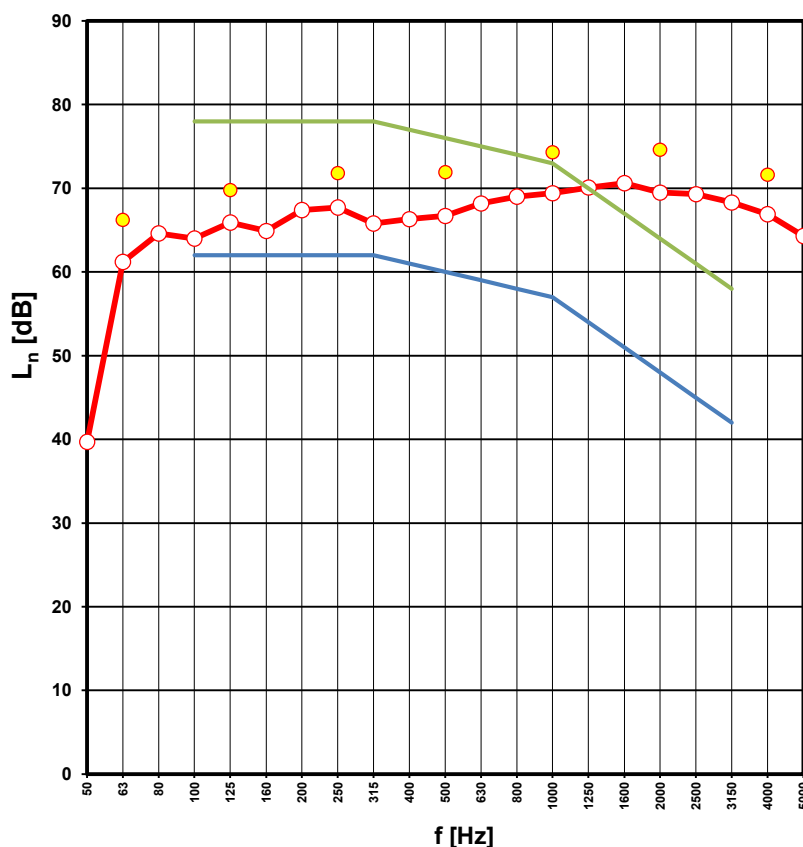
f (Hz)	$L_{n,0}$ (dB)	(*)
1/3 octave bands :		
50	39,7	
63	61,2	
80	64,6	
100	64,0	
125	65,9	
160	64,9	
200	67,4	
250	67,7	
315	65,8	
400	66,3	
500	66,7	
630	68,2	
800	69,0	
1000	69,4	
1250	70,1	
1600	70,6	
2000	69,5	
2500	69,3	
3150	68,3	
4000	66,9	
5000	64,3	

octave bands :	
63	66,2
125	69,8
250	71,8
500	71,9
1000	74,3
2000	74,6
4000	71,6

B: $L_n \leq$ value shown

(*) b : background noise correction used

B : Maximum background noise correction used



Rating according to ISO 717-2

$L_{n,0,w} (C_{i,0}) = 76 \quad (-11) \quad \text{dB}$

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

No. of test report: SONO047
 Date: 3/04/2026

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

NOISE LAB
TEST REPORT Number A-2026LAB-017-0048-46115_E

L_n

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

Client: Belgotex

Date of test: 3/04/2026

Description of the test setup:

±7,0 mm Solution Dyed Nylon Tufted ProBac Carpet Tile
140 mm heavyweight standard floor = solid reinforced concrete slab

Receiving room volume V: 53,7 m³

Reference floor area : 12,0 m²

Tested floor area : 1,5 m²

Signal : Standard tapping machine with steel-headed hammers.

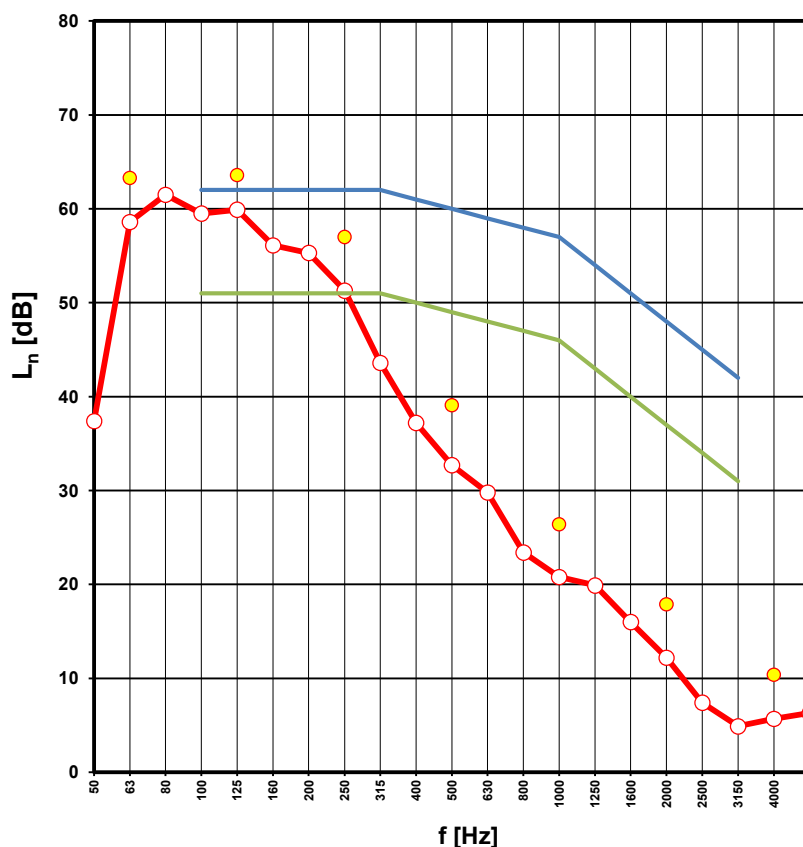
— reference values (according ISO 717-2)
— shifted reference values (according ISO 717-2)

f (Hz)	L_n (dB)	(*)	(**)
1/3 octave bands :			
50	37,4		
63	58,6		
80	61,5		
100	59,5		
125	59,9		
160	56,1		
200	55,3		
250	51,3		
315	43,6		
400	37,2		
500	32,7		
630	29,8		
800	23,4	b	
1000	20,8	b	
1250	19,9		
1600	16,0	b	
2000	12,2	b	
2500	7,4	B	
3150	4,9	B	
4000	5,7	B	
5000	6,3	B	

octave bands :	
63	63,3
125	63,6
250	57,0
500	39,1
1000	26,4
2000	17,9
4000	10,4

B: L_n < value shown

(*) b : background noise correction used
B : Maximum background noise correction used



(**) d : correction for airborne sound transmission in accordance with ISO 10140-3:2021 §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

$L_{n,w} (C_i)$ = **49** (0) dB

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

No. of test report: SONO048
Date: 3/04/2026

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

NOISE LAB

TEST REPORT Number **A-2026LAB-017-0048-46115_E**



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

Client: **Belgotex**

Date of test: 3/04/2026

Description of the test setup:

±7,0 mm Solution Dyed Nylon Tufted ProBac Carpet Tile
 140 mm heavyweight standard floor = solid reinforced concrete slab

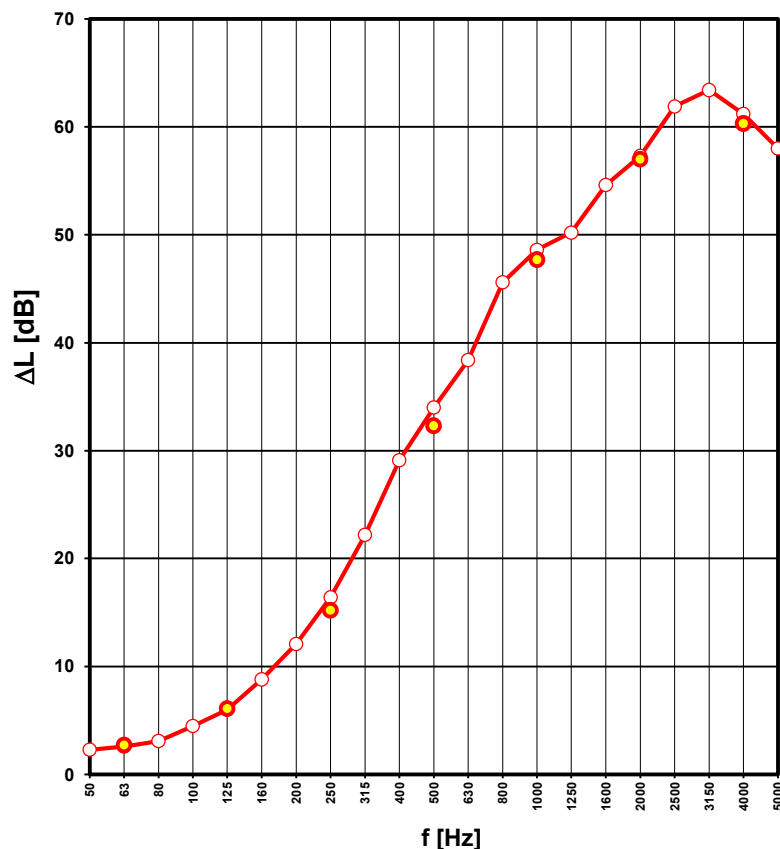
Receiving room volume V: 53,7 m³

Reference floor area : 12,0 m²

Tested floor area : 1,5 m²

Signal : Standard tapping machine with steel-headed hammers.

f (Hz)	ΔL = $L_{n,0} - L_n$ (dB)
1/3 octave bands : —	
50	2,3
63	2,6
80	3,1
100	4,5
125	6,0
160	8,8
200	12,1
250	16,4
315	22,2
400	29,1
500	34,0
630	38,4
800	45,6
1000	48,6
1250	50,2
1600	54,6
2000	57,3
2500	61,9
3150	63,4
4000	61,2
5000	58,0
octave bands : ●	
63	2,7
125	6,1
250	15,2
500	32,3
1000	47,7
2000	57,0
4000	60,3



Rating according to ISO 717-2

$\Delta L_w (C_{i,\Delta})$ = 27 (-12) dB

ΔL_{lin} = 15 dB

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

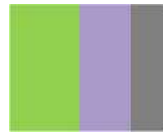
No. of test report: SONO048

Date: 3/04/2026

Name of test institute: Daidalos Peutz Laboratory of Acoustics, Hooglede, Belgium

Signature: Gert-Jan Loobuyck

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 laboratory of acoustics



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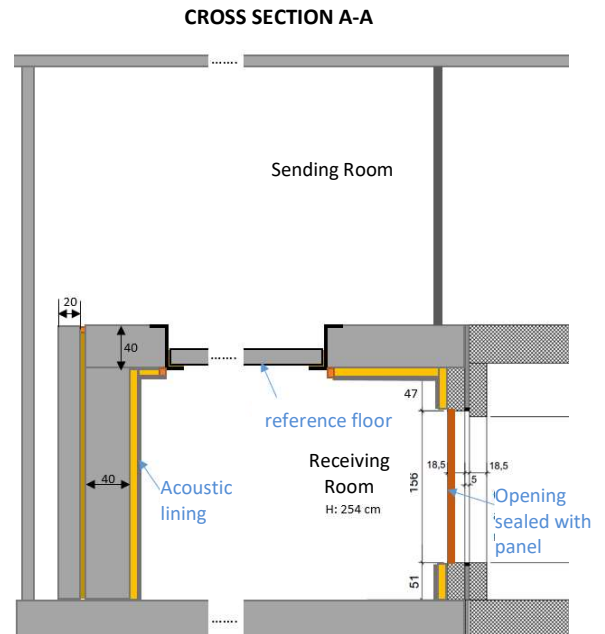
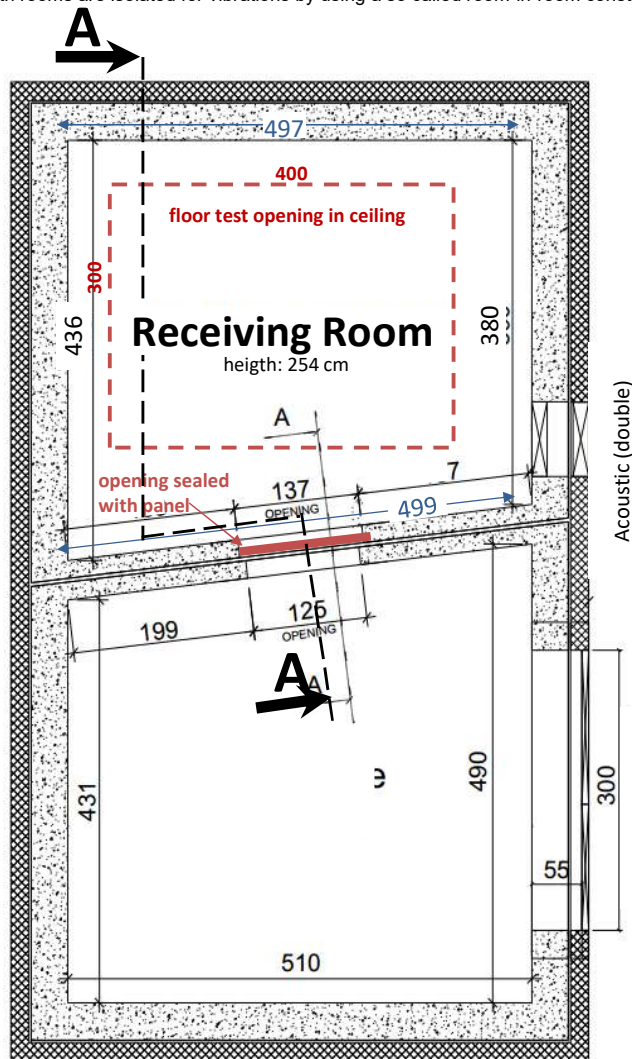
NOISE LAB
TEST REPORT Number A-2026LAB-017-O048-46115_E

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

Daidalos Peutz Laboratory of Acoustics, Diksmuidesteenweg 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.



NOISE LAB

TEST REPORT Number A-2026LAB-017-0048-46115_E

ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.
 See also the "Statement of Responsibility" on page 1 of this report.

Description of the test element as a layered structure

Layer	Thickness (mm)	ρ (kg/m ³)	m'' (kg/m ²)	Description of the layer
1	±7,0		±2,68	Solution Dyed Nylon Tufted ProBac Carpet Tile heavyweight standard floor = solid reinforced concrete slab
2	140	2300	322	
3				
4				
5				
6				

Solution Dyed Nylon Tufted ProBac Carpet Tile

Trademarks: Terranova

Thickness : indicative measurement on the test sample at the laboratory : ±7.0 mm

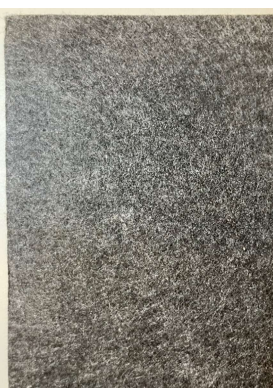
Mass per unit area, indicative measurement in the laboratory: ±2.68 kg/m²

Dimensions of one carpet tile: 500 mm x 500 mm

Photo : front side



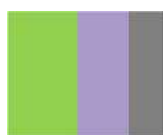
back side



section



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TEST REPORT Number A-2026LAB-017-O048-46115_E

ANNEX 3: Technical sheet

*The test sample description given by manufacturer is checked visually as good as possible by the laboratory.
See also the "Statement of Responsibility" on page 1 of this report.*

Further information can be obtained from Belgotex

NOISE LAB

TEST REPORT Number A-2026LAB-017-0048-46115_E

ANNEX 4: photographs of the test element or the test arrangement

Description of the assembly or drawing or photo

As the floor can be classified as a 'category I' floor covering, in line with the standard ISO10140-1, three tapping machine positions were tested.

Three different samples (3 x 0,5 m²) of the same source were installed onto the reference concrete floor on three positions.

To ensure that the minimum size of each sample is 650mm x 350mm, two carpet tiles of 500mm x 500mm were laid side by side, so that the total size per sample is 1000mm x 500mm.

The carpet tiles were laid loose on the concrete floor without the use of adhesives.

The same tapping machine positions were used on the uncovered floor.

The samples were large enough to support the whole tapping machine.

Photo of the testsetup:

