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Laboratory Standards and Certifications

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Mr. Upendra R. Oza
STANDARD CARPETS IND LLC
Industrial Area no.1 PO Box 27977
AE- SHARJAH
VERENIGDE ARABISCHE EMIRATEN

your delivery of	your reference	our reference	date
2009-05-12		PW/5484	Zwijnaarde, 2009-06-11

Analysis Report 68886

Required tests :

Determination of the electrical resistance
Assessment of static electrical propensity - walking test
Determination of sound absorption
Determination of impact sound insulation
Determination of thermal resistance by the guarded hot plate apparatus

Identification number	Information given by the client	Date of receipt
T905007	FRS Loop Pile Polypropylene Carpet Tile (Tetris)	2009-05-12

Petra Wittevrongel
order responsible

For further information, please contact our sectorial adviser Jo Wynendaele

ISO 17025
BELAC
056-TEST

VAT BE 0459.218.289 Fin. Acc. 210-0472965-45 IBAN BE44 2100 4729 6545

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Analysis Report 68886

our reference	date	page
PW/5484	2009-06-11	2 / 6

Reference : **T905007 - FRS Loop Pile Polypropylene Carpet Tile (Tetris)**

Determination of the electrical resistance

1. Method:

Applied standard	: ISO 10965 (year: 1998)
Deviations of the standard	: -
Testing atmosphere	: 23°C and 25 % relative humidity
Applied voltage	: 500 Volt
Number of specimens	: 3
Number of measurements	: 6 (2 measurements per specimen)

2. Results:

Date of ending the test: 25-05-2009

test specimen	surface resistance in Ω	vertical resistance in Ω
1	$1{,}67 \times 10^{12}$	$9{,}43 \times 10^{11}$
2	$5{,}00 \times 10^{12}$	$1{,}35 \times 10^{12}$
3	$5{,}00 \times 10^{12}$	$1{,}28 \times 10^{13}$
4	$3{,}33 \times 10^{12}$	$6{,}58 \times 10^{11}$
5	$4{,}55 \times 10^{12}$	$1{,}28 \times 10^{12}$
6	$2{,}50 \times 10^{12}$	$1{,}25 \times 10^{12}$
geometrical mean value	$3{,}41 \times 10^{12}\ \Omega$	$1{,}61 \times 10^{12}\ \Omega$

Performed in the physical lab under the responsibility of Petra Wittevrongel.

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Analysis Report 68886

our reference	date	page
PW/5484	2009-06-11	3 / 6

Reference : T905007 - FRS Loop Pile Polypropylene Carpet Tile (Tetris)

Assessment of static electrical propensity - walking test

1. Method:

Applied standard : ISO 6356 (year: 2000)
method by walking
Deviations of the standard : dimensions of the carpet 200 cm x 100 cm (assembly of 8 pieces of 50 cm x 50 cm)
Atmosphere for conditioning : 23°C and 25% relative humidity
Conditioning time : at least 7 days
Number of measurements : 3

2. Results:

Date of ending the test: 25-05-2009

	body voltage (kVolts)
measurement	with Neolite sole
1	0.0
2	0.1
3	0.2
average	0.1

Performed under accreditation in the physical lab under the responsibility of Philippe Lemaire.

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Analysis Report 68886

our reference	date	page
PW/5484	2009-06-11	4 / 6

Reference : **T905007 - FRS Loop Pile Polypropylene Carpet Tile (Tetris)**

Determination of sound absorption

1. Method:

Performed in the external lab : Schall- und Wärmemeβstelle Aachen GmbH

2. Results:

Date of ending the test : 27-05-2009

See analysis report enclosed.

Centexbel is not responsible for the test results.

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Analysis Report 68886

our reference	date	page
PW/5484	2009-06-11	5 / 6

Reference : **T905007 - FRS Loop Pile Polypropylene Carpet Tile (Tetris)**

Determination of impact sound insulation

1. Method:

Performed in the external lab : Schall- und Wärmemeβstelle Aachen GmbH

2. Results:

Date of ending the test : 27-05-2009

See analysis report enclosed.

Centexbel is not responsible for the test results.

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Analysis Report 68886

our reference	date	page
PW/5484	2009-06-11	6 / 6

Reference : **T905007 - FRS Loop Pile Polypropylene Carpet Tile (Tetris)**

Determination of thermal resistance by the guarded hot plate apparatus

1. Method:

Performed in the external lab : Ghent University, Faculty of Engineering (Department of Textiles)

2. Results:

Date of ending the test : 29-05-2009

See analysis report enclosed.

Centexbel is not responsible for the test results.

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SWA **Schall- und Wärmemeßstelle Aachen GmbH**

Institut für schalltechnische und wärmetechnische Prüfungen - Beratung - Planung

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Geschäftsführung:
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Labor: Hauptstr. 133 52 477 Alsdorf

VMPA Schallschutzprüfstelle DIN 4109
Staatlich anerkannte Sachverständige
für den Schall-u. Wärmeschutz IK-Bau NRW

Bankverbindung: Sparkasse Aachen
(BLZ 390 500 00) Kto.-Nr. 11 011 194

27.05.2009

TEST REPORT NO. : CT190509B TS

Impact sound insulation of ISO 140-8 : 1998 - 03

Date of test:	19.05.2009
Customer:	CENTEXBEL
Tested material:	T905007

laid loose on a 140 mm thick reinforced concrete floor slab

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Test results | Enclosure TS

Impact sound insulation of ISO 140-8 : 1998 - 03

Page 2 of 2

Measurement of impact sound insulation by a floor covering - on a solid strings-floor

Customer: **CENTEXBEL**

Tested material: **T905007**
Test rooms: 02 u. K2, Hauptstraße 133, 52 477 Alsdorf
Test area: 4,24 m x 4,15 m Test area of slab
Date of test: 19.05.2009

Description of the test material:

Total thickness: **- mm**

Mass / area: **- kg/m²**

laid loose on a 140 mm thick reinforced concrete floor slab

Receiving room:
Volume: 58,9 m³
Temperature: 20 °C
Humidity: 65 %

The results are based on tests, which were effected with on artificial source of sound by labratory conditions.

Frequency Hz	Ln Bare floor dB	ΔL dB
50		4,9
63		2,3
80		1,8
100	61,0	2,5
125	61,4	2,4
160	64,8	4,9
200	63,7	8,0
250	65,4	10,7
315	65,6	16,0
400	66,1	22,4
500	66,0	27,3
630	66,4	29,8
800	66,3	36,4
1000	66,2	43,4
1250	66,6	46,0
1600	67,2	45,3
2000	67,1	47,9
2500	67,0	53,7
3150	66,4	54,2
4000		---
5000		---

Reception filter: third-octave
Calculation according ISO 717-2:

Impact sound improvement index	non rated reduction of impact sound insulation	
ΔL_W = 24 dB	$\Delta L_{lin} = \Delta L_w + C_{I,\Delta}$	$C_{I,\Delta}$ = -12 dB
(VM = 24 dB)	ΔL_{lin} = 12 dB	$C_{I,r}$ = 1 dB
		$C_{I,r,50\text{-}2500}$ = 4 dB

Test report no.: **CT190509B TS**
Aachen 27.05.2009

SWA Schall- und Wärmemeßstelle Aachen GmbH

(Dipl.-Ing. A. Siebel) (Dr.-Ing. L. Siebel)

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SWA **Schall- und Wärmemeßstelle Aachen GmbH**

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Staatlich anerkannte Sachverständige
für den Schall-u. Wärmeschutz IK-Bau NRW

Bankverbindung: Sparkasse Aachen
(BLZ 390 500 00) Kto.-Nr. 11 011 194

27.05.2009

TEST REPORT NO. : CT190509B SA

Sound absorption of DIN EN ISO 354 : 2003 - 12

Date of test:	19.05.2009
Customer:	CENTEXBEL
Tested material:	T905007
	laid loose on the floor of the reverberation room

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4. Test results	Enclosure SA
Sound absorption DIN EN ISO 354 : 2003 - 12 Measurement of sound absorption in a reverberation room Customer: **CENTEXBEL**	Page 2 of 4

Tested material: **article:** **T905007**
Test room: reverberation room, Hauptstraße 133, 52 477 Alsdorf
Test area: 12,0 m²
Test method: method of reverberation room
Date of test: 19.05.2009

Description of the test material:

Total thickness: **- mm**

Mass / area: **- kg/m²**

laid loose on the floor of the reverberation room

Dimension of the test area:

length: 4,00 m
width: 3,00 m

Reverberation room:

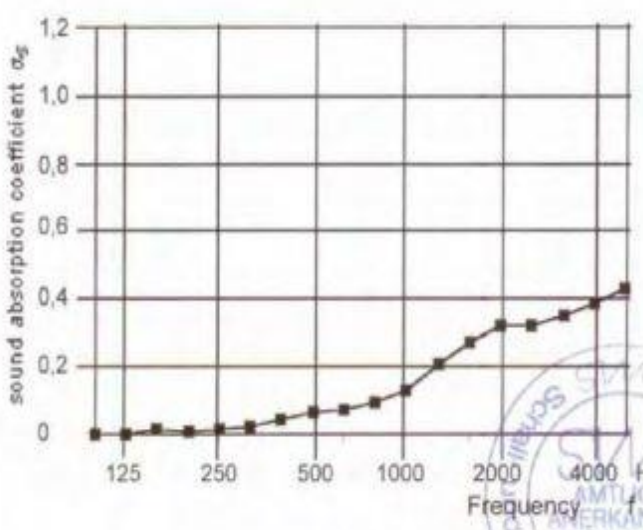
Basic plan: trapezoid
Volume: 211 m³
Temperature: 20 °C
Humidity: 65 %

f / Hz	125	250	500	1000	2000	4000
α_s	**0,00**	**0,01**	**0,06**	**0,13**	**0,32**	**0,39**

Surface areas of reverberation room: 213 m²

Surface areas of reflectors in reverberation room: 54,5 m²

Reflectors:
6 Alu panels of 1,0 m/ 2,0 m
7 Plywood panels of 1,5 m/ 1,3 m
1 Alu panels of 1,8 m/ 0,9 m



Test sound: third-octave noise
Reception filter: third-octave

Test report no.: CT190509B SA Aachen 27.05.2009	SWA Schall- und Wärmemeßstelle Aachen GmbH (Dipl.-Ing. A. Siebel) (Dr.-Ing. L. Siebel)

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4.1 Valuation of test results	Enclosure SA
Soundabsorber for the application in buildings - valuation of sound absorbtion **Sound absorption of DIN EN ISO 11654 : 1997- 07** Customer: **CENTEXBEL**	Page 3 of 4

Tested material: **article:** **T905007**
Test room: reverberation room, Hauptstraße 133, 52 477 Alsdorf
Test area: 12,0 m²
Test method: method of reverberation room
Date of test: 19.05.2009

Description of the test material:
Total thickness: - **mm**
Mass / area: - **kg/m²**
laid loose on the floor of the reverberation room

frequency - range of the "shapeindicators"

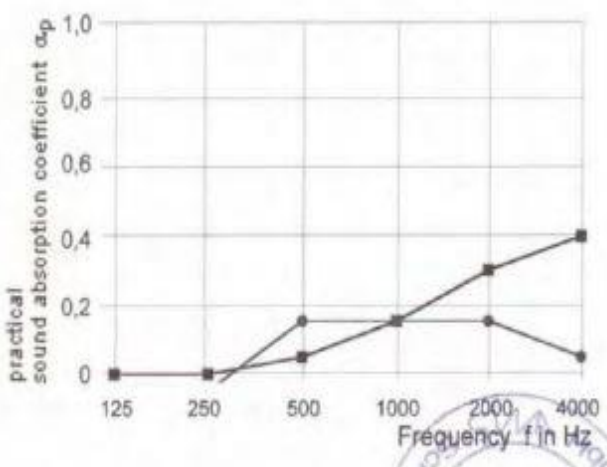
	Frequency in Hz	practical sound absorption coefficient
	125	0,00
L	250	0,00
M	500	0,05
M	1000	0,15
H	2000	0,30
H	4000	0,40

Results:
Relation - curve:

Reverberation room:
Basic plan: trapezoid
Volume: 211 m³
Temperature: 20 °C
Humidity: 65 %

Surfaces areas of reverberation room: 213 m²

Surfaces areas of reflectors in reverberation room: 54,5 m²



Evaluated sound absorptions grade α_w
α_w : **0,15 (- - H)** *)

*) It is recommended insistently to use this singular valuation with complete curve of sound absorption garde.

Test report no.: **CT190509B SA**	SWA Schall- und Wärmemeßstelle Aachen GmbH
Aachen 27.05.2009	(Dipl.-Ing. A. Siebel) (Dr.-Ing. L. Siebel)

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4.2 Test results	Enclosure SA
Reverberation times Measurement of sound absorption in a reverberation room Customer: **CENTEXBEL**	Page 4 of 4

Tested material: **article:** **T905007**
Test room: reverberation room, Hauptstraße 133, 52 477 Alsdorf
Test area: 12,0 m²
Test method: method of reverberation room
Date of test: 19.05.2009

Description of the test material:
Total thickness: - **mm**
Mass / area: - **kg/m²**

laid loose on the floor of the reverberation room
Dimension of the test area:
length: 4,00 m
width: 3,00 m

Reverberation times:

f / Hz	T1 / s	T2 / s
100	9,96	9,91
125	7,82	7,79
160	6,73	6,48
200	7,29	7,10
250	7,20	6,98
315	6,22	5,95
400	6,57	6,02
500	6,89	6,00
630	6,93	5,87
800	6,55	5,39
1000	6,48	5,00
1250	6,31	4,34
1600	5,93	3,79
2000	5,42	3,38
2500	4,65	3,05
3150	3,99	2,68
4000	3,24	2,26
5000	2,59	1,86

SWA Schall- und Wärmemeßstelle Aachen GmbH
SWA AMTLICH ANERKANNTE PRÜFSTELLE

Number of loudspeaker positions: 2 Test sound: third-octave noise
Number of microphone positions: 2 x 6 Reception filter: third-octave

Test report no.: **CT190509B SA**	SWA Schall- und Wärmemeßstelle Aachen GmbH
Aachen 27.05.2009	

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contact	**e-mail**	**date**
Didier Van Daele	didier.vandaele@UGent.be	29/05/2009

TEST REPORT 09-297 B

Samples received :

Order 7489: T905007
Received on 12/05/09

Aim of the test :

determination of applicability with floorheating

Test conditions :

Applicability with floorheating by means of TECOSY : one plate method

Standard:	DIN 52 612 part 1 (1979)° in accordance with ISO 8302 (1991)°
Method:	A sample is placed between a cold and a warm plate. The cold and the warm plate are kept at the same temperature. The quantity of energy needed to keep the warm and cold plate on temperature, is an indication for the heat transmission of the sample.
Number of tests:	2 samples (3 measurements per sample)
Test conditions:	20 ± 2°C and 65 ± 4 % relative humidity

The tests were ended in week 22/2009

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REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 103787338 Date: January 7, 2019

REPORT NO. 103787338CRT-001a

IMPACT SOUND TRANSMISSION TEST ON
ITTS TEST NUMBER 182893
STANDARD CARPETS IND. L. L. C.
OVER A SIX INCH CONCRETE SLAB

RENDERED TO

INDEPENDENT TEXTILE TESTING
PO BOX 1948
1503 MURRAY AVENUE
DALTON, GA 30722-1948

INTRODUCTION

This report gives the result of an Impact Sound Transmission test on flooring. The sample was selected and supplied by the client and received at the laboratories on January 4, 2019. The material appeared to be in new, unused condition upon arrival.

AUTHORIZATION

Signed Intertek Quotation No. Qu-00932024

TEST METHOD

The floor system was tested in general accordance with the American Society for Testing and Materials designation ASTM E492-09 (Reapproved 2016), "Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine". It was classified in accordance with ASTM E989-06 (Reapproved 2012), entitled, "Standard Classification for Determination of Impact Insulation Class (IIC)".

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GENERAL

The test method is designed to measure the impact sound transmission performance of a floor-ceiling assembly, in a controlled laboratory environment. A standard tapping machine (Bruel & Kjaer Type 3207) was placed at four positions on the test floor that forms the horizontal separation between two rooms, one directly above the other. The data obtained was normalized to a reference room absorption of 10 square meters in accordance with the test method.

The standard also prescribes a single-figure classification rating called "Impact Insulation Class, IIC" which can be used by architects, builders and code authorities for acoustical design purposes in building construction.

The IIC is obtained by matching a standard reference contour to the plotted normalized one-third octave band sound pressure levels at each test frequency. The greater the IIC rating, the lower the impact sound transmission through the floor-ceiling assembly.

DESCRIPTION OF THE FLOOR/CEILING ASSEMBLY

The floor system consisted of a six inch thick concrete slab that forms the horizontal separation between two rooms. The slab is not isolated from the receiving room walls.

DESCRIPTION OF TEST SPECIMEN

ITTS Test No. 182893
Standard Carpets Ind. L. L. C.
Style: Nylon Broadloom with SBR Latex Backing
Construction: Level Cut Loop (LCL)
The flooring weighed 0.437 lbs./ft^2.

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RESULTS OF TEST

The data obtained in the room below the panel normalized to A_o = 10 square meters, is as follows:

1/3 Octave Band Center Frequency Hertz	ITTS TEST NUMBER 182893 STANDARD CARPETS IND. L. L. C. 1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar
100	58
125	57
160	57
200	53
250	49
315	46
400	39
500	35
630	30
800	25
1000	21
1250	19
1600	17
2000	18
2500	16
3150	15
Impact Insulation Class (IIC)	62

PRECISION

The 95% uncertainty level for each tapping machine location is less than 3 dB for the 1/3 octave bands centered in the range from 100 to 400 Hz and less than 2.5 dB for the bands centered in the range from 500 to 3150 Hz.

For the floor/ceiling construction, the 95% uncertainty limits ($\triangle L_n$) for the normalized sound pressure levels were determined to be less than 2 dB for the 1/3 octave bands centered in the range from 100 to 3150 Hz.

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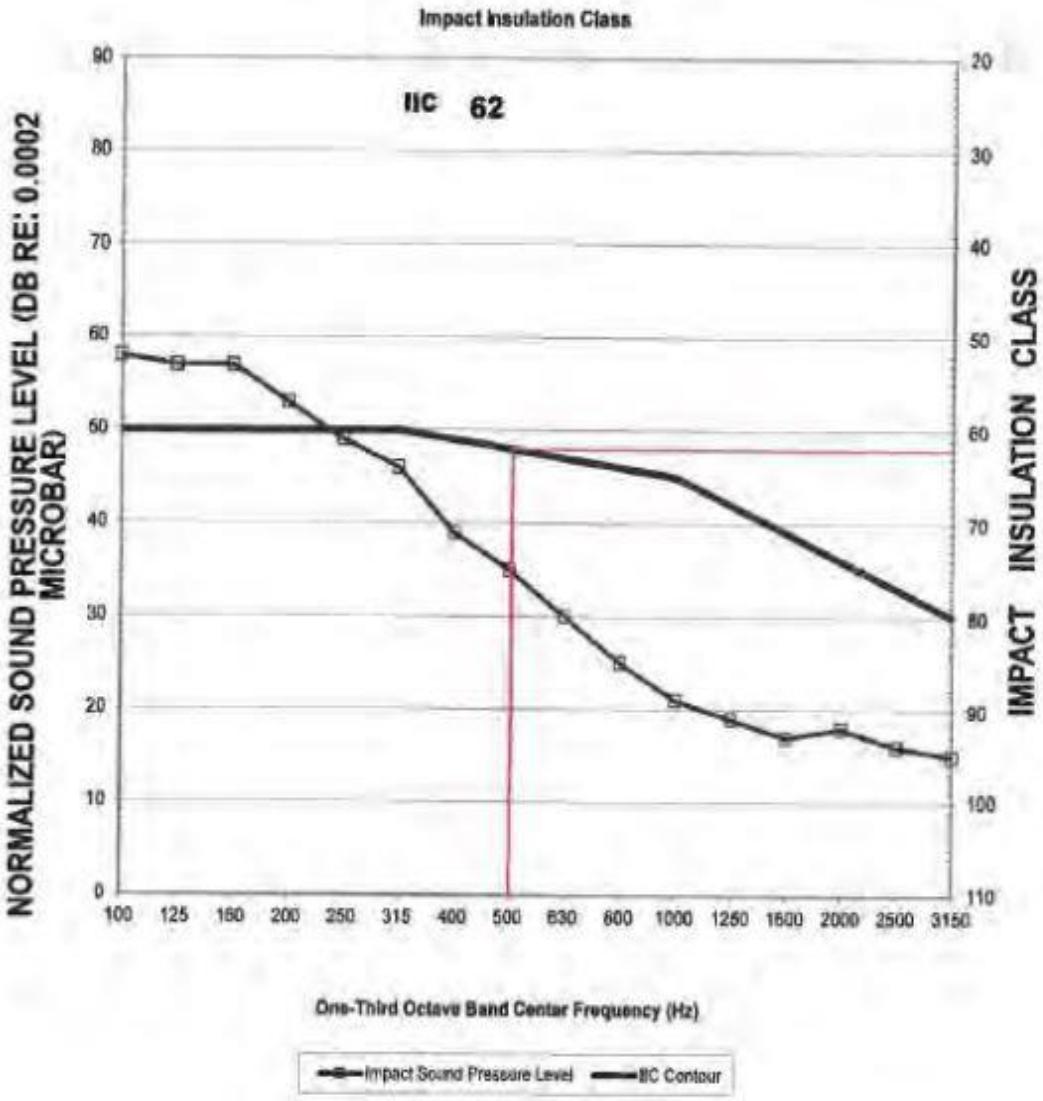
ITTS TEST NUMBER 182893
STANDARD CARPETS IND. L. L. C.
OVER A SIX INCH CONCRETE SLAB



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REMARKS

1. Ambient Temperature: 68°F
2. Relative Humidity: 35%

CONCLUSION

The test method employed for this test has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

Date of Test: January 7, 2019

Report Approved by:

Brian Cyr
Engineer
Acoustical Testing

Report Reviewed By:

James R. Kline
Engineer/Quality Supervisor
Acoustical Testing

Attachments: None

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REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 103787338 Date: January 7, 2019

REPORT NO. 103787338CRT-001b

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ITTS TEST NUMBER 182893
STANDARD CARPETS IND. L. L. C.
OVER A SIX INCH CONCRETE SLAB

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AUTHORIZATION

Signed Intertek Quotation No. Qu-00932024

TEST METHOD

The specimen was tested in general accordance with the American Society for Testing and Materials designation ASTM E2179-09 (Reapproved 2016), "Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors".

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TEST METHOD – Cont'd

Two vertically adjacent rooms are used: the upper one being designated the source room and the lower one the receiving room (10,000 ft^3). A standard concrete floor is installed in an opening between them. The rooms and the floor installation are designed so the only significant sound radiation into the receiving room is from the standard concrete floor.

A standard tapping machine is placed and activated on the standard concrete floor and the impact sound pressure levels are measured in the room below. The floor covering to be evaluated is then placed on the standard concrete floor and the impact sound pressure levels measured again.

The differences in impact sound pressure level are used to calculate two single number ratings. The first is an IIC rating calculated for the covering installed on the reference concrete floor. The second rating, ΔIIC, represents the calculated reduction in IIC when the covering is placed on the reference concrete floor, that is the improvement in IIC due to the covering.

DESCRIPTION OF THE FLOOR/CEILING ASSEMBLY

The floor system consisted of a six inch thick concrete slab that forms the horizontal separation between two rooms. The slab is not isolated from the receiving room walls.

DESCRIPTION OF TEST SPECIMEN

ITTS Test No. 182893
Standard Carpets Ind. L. L. C.
Style: Nylon Broadloom with SBR Latex Backing
Construction: Level Cut Loop (LCL)
The flooring weighed 0.437 lbs./ft^2.

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RESULTS OF TESTS

ITTS TEST NUMBER 182893
STANDARD CARPETS IND. L. L. C

1/3 Octave Band Center Frequency Hertz	1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar				
	Bare Concrete	Floor Tested	Difference in dB	Reference Floor	Final Array
100	64.9	58.0	6.9	67.0	60.1
125	68.1	56.9	11.2	67.5	56.3
160	71.1	57.3	13.8	68.0	54.2
200	71.6	52.8	18.8	68.5	49.7
250	72.5	48.5	24.0	69.0	45.0
315	74.3	45.6	28.7	69.5	40.8
400	73.9	39.1	34.8	70.0	35.2
500	74.8	34.8	40.0	70.5	30.5
630	74.9	29.6	45.3	71.0	25.7
800	75.7	26.5	49.2	71.5	22.3
1000	77.1	24.0	53.1	72.0	18.9
1250	79.2	22.6	56.6	72.0	15.4
1600	81.1	21.2	59.9	72.0	12.1
2000	83.0	21.9	61.1	72.0	10.9
2500	82.3	20.1	62.2	72.0	9.8
3150	81.5	19.6	61.9	72.0	10.1
Impact insulation Class (IIC)*					60

Calculated improvement in Impact Insulation Class: IIC 60 – IIC 28 = △IIC 32

*Classified in accordance with ASTM E989-06 (Reapproved 2012), entitled, "Standard Classification for Determination of Impact Insulation Class (IIC)".

The uncertainty limit of the impact noise test data is less than 3 dB for the 1/3 octave bands centered in the range from 100 to 400 Hz and less than 2.5 dB for the bands centered on the range from 500 to 3150 Hz.

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REMARKS

1. Ambient Temperature: 68°F
2. Relative Humidity: 35%

CONCLUSION

The test method employed for this test has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

Date of Test: January 7, 2019

Report Approved by:

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Engineer
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Engineer/Quality Supervisor
Acoustical Testing

Attachments: None

استاندارد تاثیر بر صدا

استاندارد ای ایزو ۸-۱۴۰ تاثیر بر صدا

SWA Schall- und Wärmemeßstelle Aachen GmbH

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Staatlich anerkannte Sachverständige
für den Schall-u. Wärmeschutz IK-Bau NRW

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01.06.2010

TEST REPORT NO. : CT310510 TS

Impact sound insulation of ISO 140-8 : 1998 - 03

Date of test:	31.05.2010
Customer:	CENTEXBEL
Tested material:	T004993 (non glued)
	laid loose on a 140 mm thick reinforced concrete floor slab

استاندارد تاثیر بر صدا

استاندارد ای ایزو ۸-۱۴۰ تاثیر بر صدا

Test results | Enclosure TS

Impact sound insulation of ISO 140-8 : 1998 - 03 | Page 2 of 2

Measurement of impact sound insulation by a floor covering - on a solid strings-floor

Customer: **CENTEXBEL**

Tested material: **T004993 (non glued)**

Test rooms: 02 u. K2, Hauptstraße 133, 52 477 Alsdorf

Test area: 4,24 m x 4,15 m Test area of slab

Date of test: 31.05.2010

Description of the test material:

Total thickness: - **mm**

Mass / area: - **kg/m²**

laid loose on a 140 mm thick reinforced concrete floor slab

Receiving room:

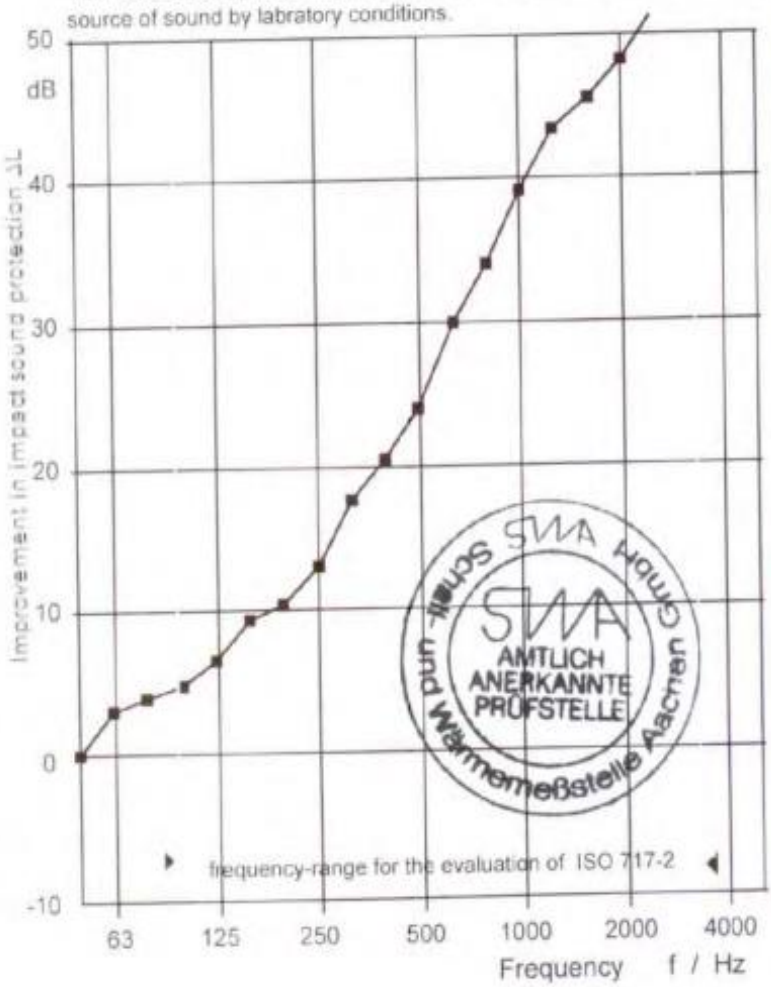
Volume: 58,9 m³

Temperature: 20 °C

Humidity: 65 %

The results are based on tests, which were effected with on artificial source of sound by labratory conditions.

Frequency	L_n	ΔL
	Bare floor	
Hz	dB	dB
50		0,1
63		3,1
80		4,1
100	61,0	4,9
125	61,4	6,6
160	64,8	9,4
200	63,7	10,6
250	65,4	13,2
315	65,6	17,8
400	66,1	20,6
500	66,0	24,0
630	66,4	30,0
800	66,3	34,1
1000	66,2	39,2
1250	66,6	43,4
1600	67,2	45,4
2000	67,1	48,1
2500	67,0	51,8
3150	66,4	54,7
4000		54,3
5000		54,5



Reception filter: third-octave

Calculation according ISO 717-2:

Impact sound improvement index

ΔL_w = 27 dB

(VM = 27 dB)

non rated reduction of impact sound insulation

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

ΔL_{lin} = 15 dB

$C_{I,\Delta}$ = -12 dB

$C_{I,r}$ = 1 dB

$C_{I,r,50\text{-}2500}$ = 6 dB

Test report no.: **CT310510 TS**

SWA Schall- und Wärmemeßstelle Aachen GmbH