

Weighted Sound Reduction Index (R_w) calculation according to ISO 717-1
 Assessment of Laboratory Transmission Loss per ASTM E90

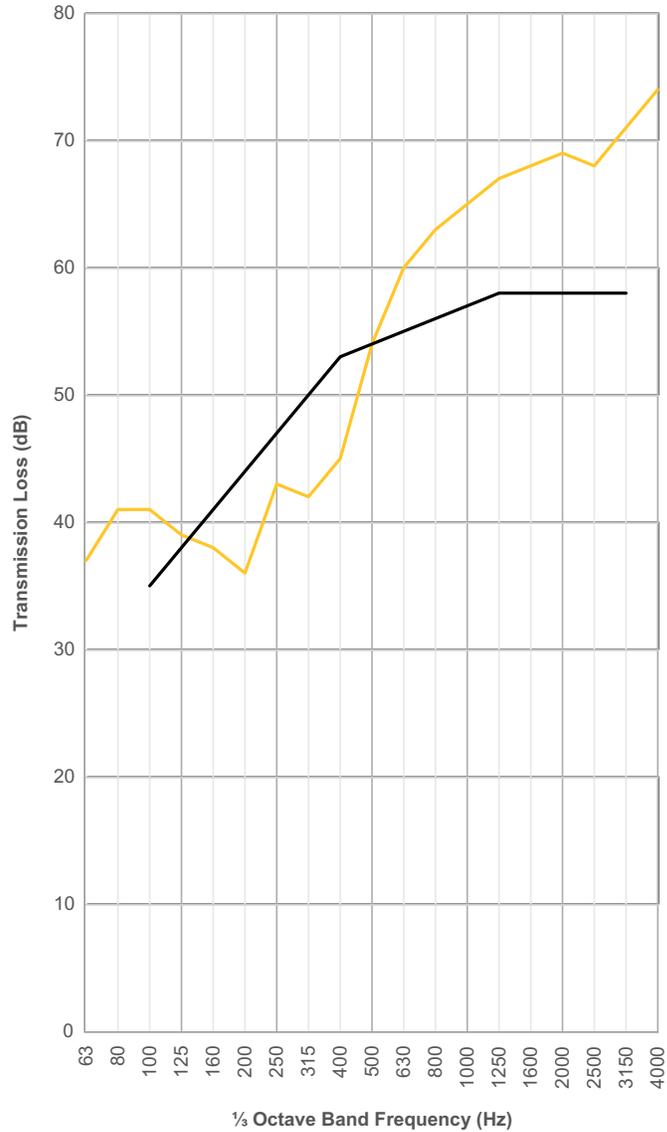
Date of Original Test
 18-Dec-14

Tested Assembly
 7.8 mm Porcelain Tile
 5 mm Pliteq GenieMat® RST05
 152 mm Concrete Slab

Test Report Number
 e2783.02-113-11-r1

Name of Testing Laboratory
 Intertek/ATI York

Freq (Hz)	TL (dB)	Def (dB)
50	37	
63	37	
80	41	
100	41	0
125	39	0
160	38	3
200	36	8
250	43	4
315	42	8
400	45	8
500	54	0
630	60	0
800	63	0
1000	65	0
1250	67	0
1600	68	0
2000	69	0
2500	68	0
3150	71	0
4000	74	
5000	76	
6300	80	
8000	82	
10000	82	



$R_w(C;C_{tr}) = 54 (-2 ; -6) \text{ dB}$

Sum of Def. (dB) = 31

$C_{50-3150} = -2$ $C_{tr,50-3150} = -7$
 $C_{50-5000} = -1$ $C_{tr,50-5000} = -7$
 $C_{100-5000} = -1$ $C_{tr,100-5000} = -6$

Weighted Normalized Impact Sound Pressure Level ($L_{n,w}$) calculation according to ISO 717-2
Assessment of Laboratory Impact Sound Transmission per ASTM E492

Date of Original Test
18-Dec-14

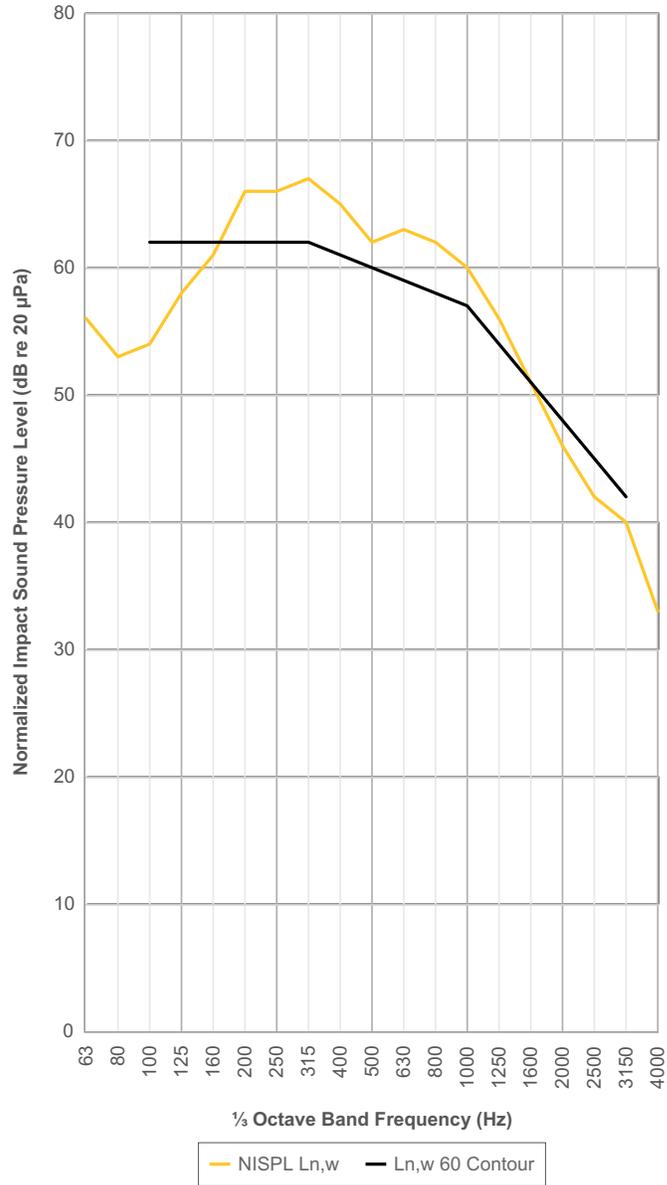
Tested Assembly
7.8 mm Porcelain Tile
5 mm Pliteq GenieMat® RST05
152 mm Concrete Slab

Test Report Number
e2783.02-113-11-r1

Name of Testing Laboratory
Intertek/ATI York

Freq (Hz)	L_n (dB)	Def (dB)
50	56	
63	56	
80	53	
100	54	0
125	58	0
160	61	0
200	66	4
250	66	4
315	67	5
400	65	4
500	62	2
630	63	4
800	62	4
1000	60	3
1250	56	2
1600	51	0
2000	46	0
2500	42	0
3150	40	0
4000	33	
5000	27	
6300	23	
8000	18	
10000	14	

$L_{n,w} = 60$ dB
Sum of Def. (dB) = 32



Weighted reduction in impact sound pressure level (ΔL_w) calculation according to ISO 717-2
 Assessment of Laboratory Impact Sound Transmission per ASTM E492

Date of Original Test
 18-Dec-14

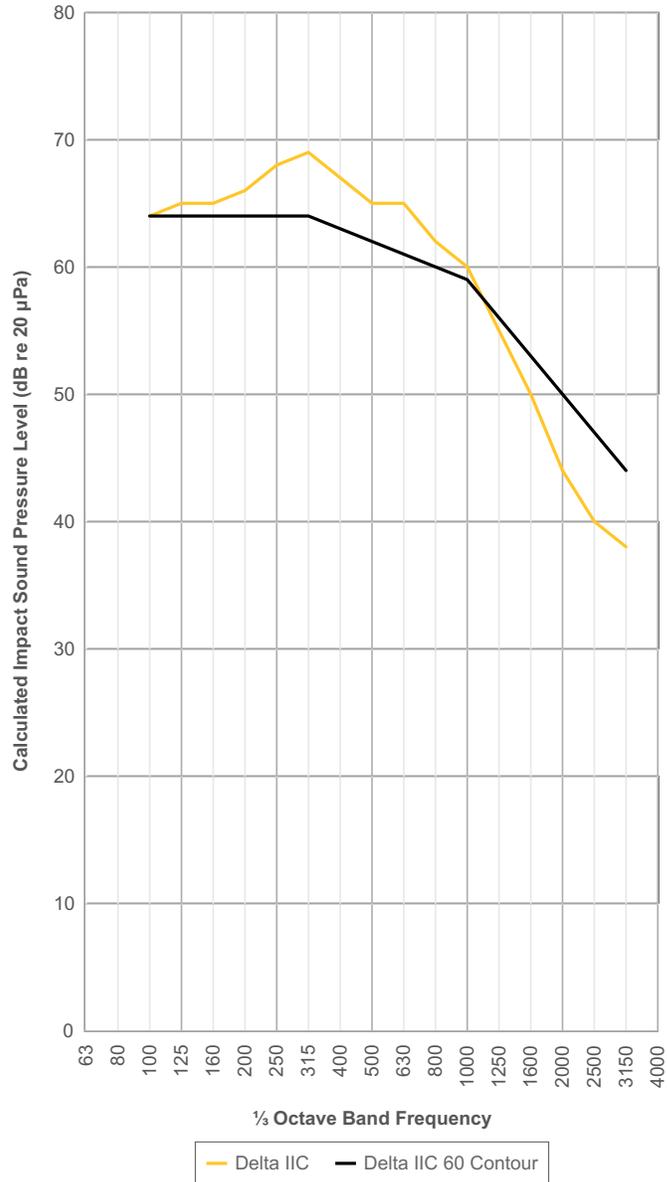
Tested Assembly
 7.8 mm Porcelain Tile
 5 mm Pliteq GenieMat® RST05
 152 mm Concrete Slab

Test Report Number
 e2783.02-113-11-r1

Name of Testing Laboratory
 Intertek/ATI York

Freq (Hz)	$L_{n,r}$ (dB)	Def (dB)
100	64	0
125	65	1
160	65	1
200	66	2
250	68	4
315	69	5
400	67	4
500	65	3
630	65	4
800	62	2
1000	60	1
1250	55	0
1600	50	0
2000	44	0
2500	40	0
3150	38	0

Delta L_{nw} = 16 dB
Sum of Def. (dB) = 27





E2783.02-113-11-R1
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E 90, ASTM E 492, ASTM E 2179

Rendered to

PLITEQ INC.

Series/Model: GenieMat™ RST05

Specimen Type: Porcelain Tile on Rubber Underlayment

Overall Size: 119 inch by 143 inch

STC	54
IIC	50
ΔIIC	20

Test Specimen Identification:

Floor Topping: 0.31 inch Daltile Type X3 Porcelain Tile

Floor Underlayment: 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment

Floor Slab: 6 inch Concrete Slab

Reference should be made to Architectural Testing, Inc. Report E2783.02-113-11 for complete test specimen description.



Acoustical Performance Test Report

Pliteq Inc.
1370 Don Mills Road, Unit 300
Toronto, Ontario M3B 3N7
CANADA

Report	E2783.02-113-11
Test Date	12/18/14
Report Date	12/31/14
Revision Date	02/03/15

Project Scope

Pliteq Inc. contracted Architectural Testing to conduct airborne sound transmission loss, impact sound transmission, and delta impact sound transmission tests. A summary of the results is listed in the Test Results section, and the complete test data is included as attachments to this report. The client provided the test specimen.

Test Methods

The acoustical tests were conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E 90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E 413-10, Classification for Rating Sound Insulation

ASTM E 492-09, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine

ASTM E 2179-03 (2009), Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete

ASTM E 989-06 (2012), Classification for Determination of Impact Insulation Class (IIC)

ASTM E 2235-04 (2012) Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

Test Procedure

All testing was conducted in the VT test chambers at Architectural Testing, Inc. located in York, Pennsylvania. The microphones were calibrated before conducting the tests.

The airborne transmission loss test was conducted in accordance with the ASTM E 90 test method using the single direction method. Two background noise sound pressure level and twenty sound absorption measurements were conducted at each of five microphone positions.

Test Procedure (Continued)

Four sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

The impact sound transmission test was conducted in accordance with the ASTM E 492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E 492, and twenty sound absorption measurements were conducted at each of five microphone positions.

The delta impact insulation test was conducted in accordance with ASTM E 2179 test method. In addition to the impact sound transmission test, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E 492 with only the concrete slab installed.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Test Conditions

Source Room		Receive Room	
Average Temperature	64.9 °F	Average Temperature	63.9 °F
Average Relative Humidity	43%	Average Relative Humidity	39%

Test Calculations

The STC (Sound Transmission Class), IIC (Impact Insulation Class), and ΔIIC (Delta Impact Insulation Class) ratings were calculated in accordance with ASTM E 413, ASTM E 989, and ASTM E 2179, respectively.

Test Specimen Materials and Installation Details

Material	Dimensions (inch)	Thickness (inch)	Manufacturer and Series	Quantity	Average Weight
Porcelain Tile	12 by 12	0.31	Daltile Type X3	118.19 ft ²	3.22 lb/ft ²
	<i>Note: Grout was placed into the 1/4 inch joints between the ceramic tile and wiped clean. The ceramic tile was placed with light pressure onto a bed of mortar on the underlayment. The mortar was set using a 1/4 inch by 1/4 inch trowel. Both the grout and mortar were allowed to cure to manufacturer's specifications.</i>				
Rubber Underlayment	119 by 36	0.22	Pliteq GenieMat™ RST05	118.19 ft ²	1.08 lb/ft ²
	N/A				
Concrete Slab	119 by 143	6.0	N/A	118.19 ft ²	75 lb/ft ²
	<i>Note: The concrete slab was installed in a test frame flush to the source room.</i>				

Comments

The total weight of the floor/ceiling assembly was 9372.5 lbs. Architectural Testing will store samples of the test specimen for four years. Photographs of the test specimen are included in the attachments. A drawing of the test specimen is included in the attachments.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:


Digitally Signed by: Jordan Strybos

Jordan Strybos
Project Manager - Acoustical Testing


Digitally Signed by: Bradley Hunt

Bradley D. Hunt
Project Manager - Acoustical Testing

Attachments (9)

** Stated by Client/Manufacturer*

N/A - Non Applicable

Revision Log

Revision	Date	Page(s)	Description
R0	12/31/14	N/A	Original Report Issue
R1	01/13/15	Cover Page, Pages 1-4, Attachments	Converted to English Units, Included Data to 50 Hz
		Page 1	Removed "Record Retention End Date"
		Page 3	Added statement regarding record retention period



Attachments

Instrumentation

Instrument	Manufacturer	Model	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	63763	06/14 *
Microphone Calibrator	Norsonic	1251	Y002919	06/14
Receive Room Microphone	PCB Piezotronics	378B20	64340	04/14
Receive Room Microphone	PCB Piezotronics	378B20	63744	04/14
Receive Room Microphone	PCB Piezotronics	378B20	63745	04/14
Receive Room Microphone	PCB Piezotronics	378B20	63746	04/14
Receive Room Microphone	PCB Piezotronics	378B20	63747	04/14
Receive Room Environmental Indicator	Comet	T7510	63810 63811	09/14 09/14
Source Room Microphone	PCB Piezotronics	378B20	63738	04/14
Source Room Microphone	PCB Piezotronics	378B20	63739	04/14
Source Room Microphone	PCB Piezotronics	378B20	63748	04/14
Source Room Microphone	PCB Piezotronics	378B20	63742	04/14
Source Room Microphone	PCB Piezotronics	378B20	63741	04/14
Source Room Environmental Indicator	Comet	T7510	63812	09/14
Tapping Machine	Norsonic	N-211	Y003242	03/14

* The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

Test Chambers

VT Receive Room Volume	5610 ft ³
VT Source Room Volume	6710 ft ³



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AIRBORNE SOUND TRANSMISSION LOSS
ASTM E 90

Test Date	12/18/14
Data File No.	E2783.02
Client	Pliteq Inc.
Description	0.31 inch Daltile Type X3 Porcelain Tile, 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment, 6 inch Concrete Slab
Specimen Area	118.2 ft ²
Technician	Jordan Strybos

Freq (Hz)	Background SPL (dB)	Absorption (m ²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
50	49.7	22.7	101	62	37	3.30	-
63	49.7	28.0	100	61	37	4.10	-
80	47.1	15.0	107	66	41	2.50	-
100	41.8	11.2	106	67	41	2.90	-
125	36.8	8.7	106	69	39	2.40	0
160	28.2	8.7	108	73	38	2.00	3
200	27.1	10.8	106	71	36	1.30	8
250	25.7	10.2	107	65	43	1.50	4
315	23.4	9.3	106	65	42	1.40	8
400	21.4	7.8	105	62	45	0.80	8
500	22.9	7.1	105	54	54	0.60	0
630	22.1	6.8	107	50	60	0.40	0
800	22.0	7.0	106	46	63	0.50	0
1000	23.2	6.7	106	44	65	0.40	0
1250	22.0	7.0	107	43	67	0.40	0
1600	18.5	7.0	106	41	68	0.30	0
2000	12.5	8.1	106	40	69	0.50	0
2500	7.6	9.2	106	39	68	0.30	0
3150	6.9	10.7	105	34	71	0.60	0
4000	5.7	13.1	105	31	74	0.60	0
5000	5.3	16.4	104	27	76	0.60	-
6300	5.7	21.4	97	16	80	0.80	-
8000	5.9	29.6	97	11	82	0.90	-
10000	5.9	37.4	92	6	82	0.70	-

STC Rating **54** (*Sound Transmission Class*)
Deficiencies **31** (*Sum of Deficiencies*)

Notes:
1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

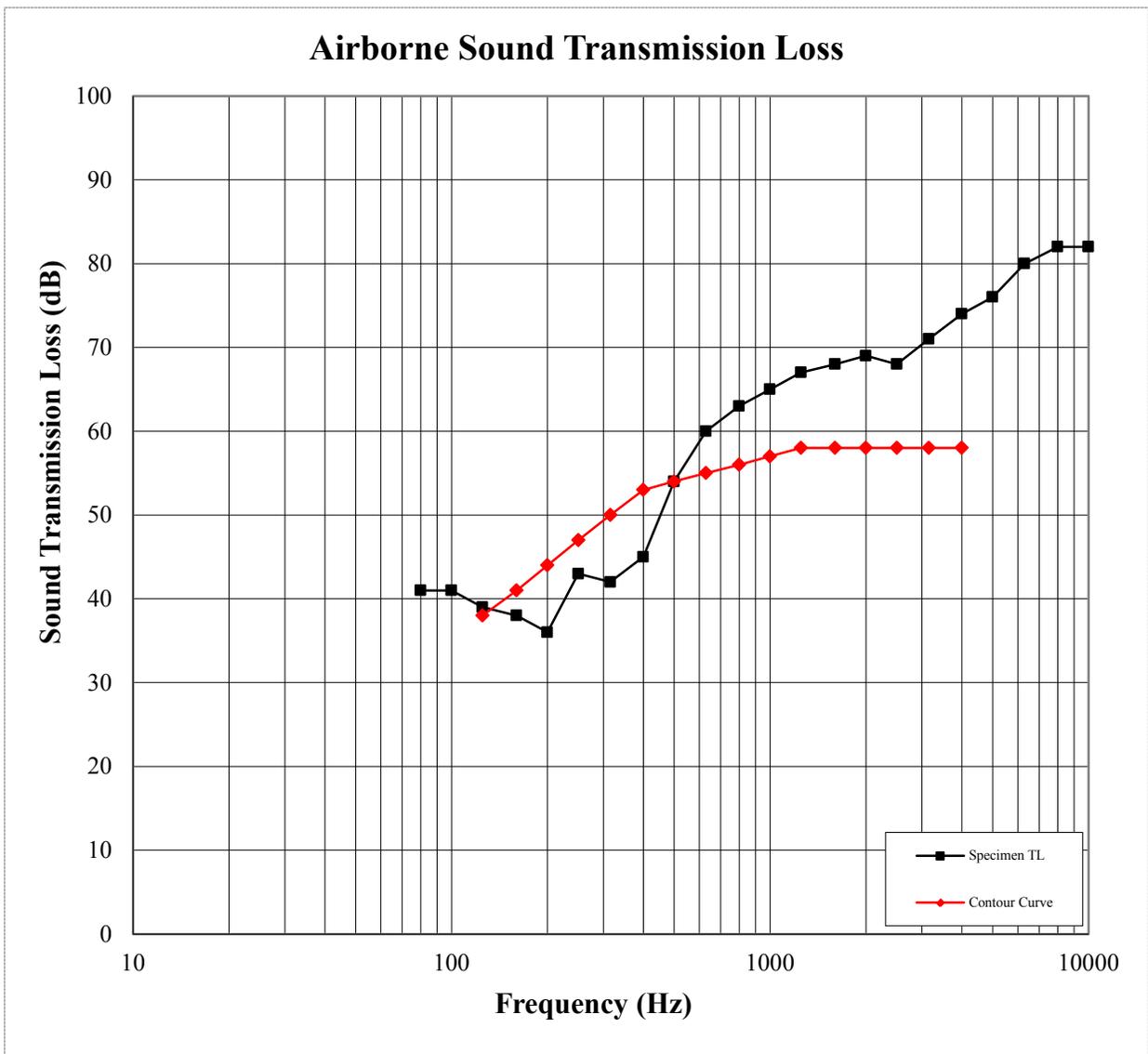


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AIRBORNE SOUND TRANSMISSION LOSS ASTM E 90

Test Date	12/18/14
Data File No.	E2783.02
Client	Pliteq Inc.
Description	0.31 inch Daltile Type X3 Porcelain Tile, 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment, 6 inch Concrete Slab
Specimen Area	118.2 ft ²
Technician	Jordan Strybos





E2783.02-113-11-R1



IMPACT SOUND TRANSMISSION
ASTM E 492

Test Date	12/18/14
Data File No.	E2783.02
Client	Pliteq Inc.
Description	0.31 inch Daltile Type X3 Porcelain Tile, 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment, 6 inch Concrete Slab
Specimen Area	118.2 ft ²
Technician	Jordan Strybos

Freq (Hz)	Background SPL (dB)	Absorption (m ²)	Normalized Impact SPL (dB)	95% Confidence Limit	Number of Deficiencies
50	45.0	22.3	56	4.7	-
63	48.5	31.0	56	4.1	-
80	49.1	15.0	53	4.4	-
100	40.0	12.2	54	2.6	0
125	36.0	9.5	58	1.3	0
160	27.4	9.1	61	2.7	0
200	25.7	10.7	66	1.4	4
250	24.2	11.2	66	1.7	4
315	20.3	9.7	67	1.9	5
400	19.1	8.2	65	1.6	4
500	23.4	7.4	62	1.9	2
630	21.3	7.2	63	1.1	4
800	20.7	7.4	62	2.4	4
1000	21.7	7.1	60	1.6	3
1250	19.3	7.5	56	2.2	2
1600	14.7	7.5	51	0.5	0
2000	7.8	8.6	46	3.8	0
2500	5.9	10.0	42	6.6	0
3150	4.8	11.3	40	5.9	0
4000	4.7	14.0	33	4.0	-
5000	5.1	17.6	27	3.4	-
6300	5.5	23.2	23	2.7	-
8000	5.8	32.1	18	1.7	-
10000	5.9	40.1	14	2.4	-

IIC Rating **50** *(Impact Insulation Class)*
Deficiencies **32** *(Sum of Deficiencies)*

Note: Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.

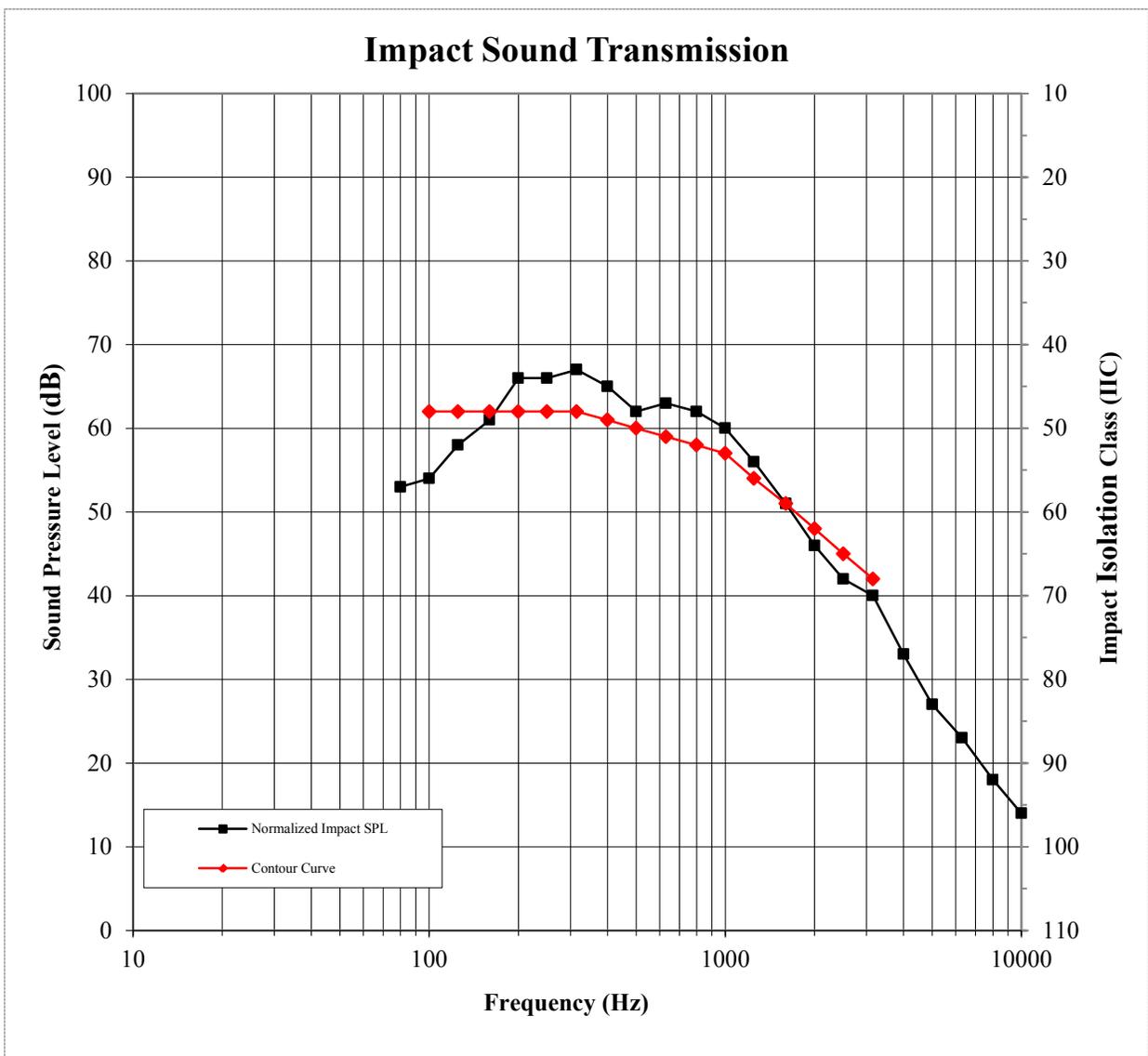


E2783.02-113-11-R1



IMPACT SOUND TRANSMISSION ASTM E 492

Test Date	12/18/14
Data File No.	E2783.02
Client	Pliteq Inc.
Description	0.31 inch Daltile Type X3 Porcelain Tile, 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment, 6 inch Concrete Slab
Specimen Area	118.2 ft ²
Technician	Jordan Strybos





E2783.02-113-11-R1



DELTA IMPACT INSULATION
ASTM E 2179

Test Date	12/18/14
Data File No.	E2783.02
Client	Pliteq Inc.
Description	0.31 inch Daltile Type X3 Porcelain Tile, 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment, 6 inch Concrete Slab
Specimen Area	118.2 ft ²
Technician	Jordan Strybos

Freq (Hz)	Bkgrd SPL (dB)	Absorption (Square Meters)	Normalized Impact SPL BARE (dB)	95% Conf Limit	Normalized Impact SPL SPEC (dB)	95% Conf Limit	Resulting Array L _{ref,c}	No. of Defici- encies
50	45.0	20.2	60.6	4.0	55.2	3.6	-	-
63	48.5	28.1	59.2	5.0	55.2	5.0	-	-
80	49.1	13.6	60.8	3.6	52.3	5.5	-	-
100	40.0	11.1	56.5	1.9	53.6	2.9	64	0
125	36.0	8.6	60.4	2.6	57.8	2.1	65	1
160	27.4	8.2	63.2	2.0	60.3	1.6	65	1
200	25.7	9.7	67.8	1.4	65.7	1.9	66	2
250	24.2	10.2	66.7	1.5	66.0	1.4	68	4
315	20.3	8.8	66.4	0.8	66.1	1.0	69	5
400	19.1	7.4	68.1	0.7	64.9	0.7	67	4
500	23.4	6.7	67.2	0.7	61.9	0.5	65	3
630	21.3	6.6	69.2	0.7	62.9	0.5	65	4
800	20.7	6.7	71.4	0.5	62.0	0.4	62	2
1000	21.7	6.4	71.5	0.6	59.3	0.4	60	1
1250	19.3	6.8	72.7	0.7	55.7	0.3	55	0
1600	14.7	6.8	72.6	0.6	50.4	0.2	50	0
2000	7.8	7.8	73.9	0.7	45.4	0.4	44	0
2500	5.9	9.0	74.0	0.9	41.8	0.4	40	0
3150	4.8	10.2	72.9	1.0	39.2	0.6	38	0
4000	4.7	12.7	72.2	1.2	32.5	0.7	-	-
5000	5.1	15.9	70.5	1.7	26.2	0.7	-	-
6300	5.5	21.0	67.3	2.4	22.1	0.9	-	-
8000	5.8	29.1	61.4	2.8	18.0	1.2	-	-
10000	5.9	36.3	51.6	3.0	13.9	1.0	-	-

ΔIIC Rating **20** *(Delta Impact Insulation Class)*

Deficiencies 27 *(Sum of Deficiencies)*

Note: Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.

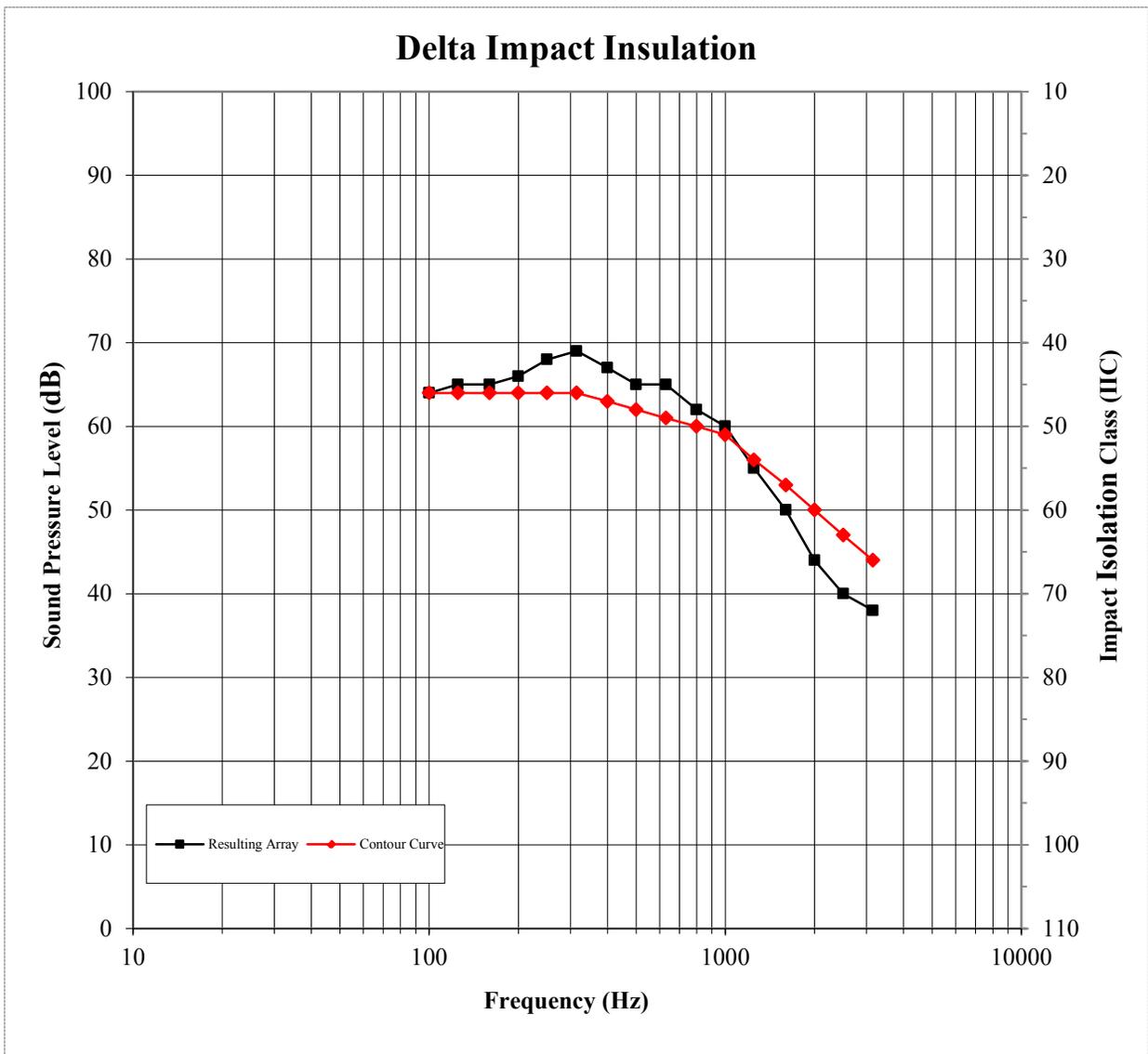


E2783.02-113-11-R1



DELTA IMPACT INSULATION ASTM E 2179

Test Date	12/18/14
Data File No.	E2783.02
Client	Pliteq Inc.
Description	0.31 inch Daltile Type X3 Porcelain Tile, 0.21 inch Pliteq GenieMat™ RST05 Rubber Underlayment, 6 inch Concrete Slab
Specimen Area	118.2 ft ²
Technician	Jordan Strybos



Photographs

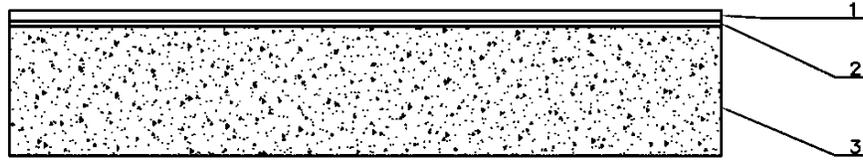


Source Room View of Test Specimen Installation



Receive Room View of Test Specimen Installation

Drawing



- 1-Floor topping
- 2-Underlayment
- 3-Concrete Slab