



E1551.02-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E 492 AND ASTM E 2179

Rendered to

REGUPOL AMERICA

Series/Model: 5 mm Regupol Sonus Rubber Underlayment

Specimen Type: Floor/Ceiling Assembly

Overall Size: 3023 mm by 3632 mm

IIC	55
ΔIIC	25

Test Specimen Identification:

Floor Topping: 11.92 mm Hardwood Flooring

Floor Underlayment: 5 mm Regupol Sonus Rubber Underlayment

Floor Slab: 152 mm Concrete slab

Reference should be made to Architectural Testing, Inc. Report E1551.02-113-11 for complete test specimen description.



Acoustical Performance Test Report

REGUPOL AMERICA
33 Keystone Drive
Lebanon, Pennsylvania 17042

Report	E1551.02-113-11
Test Date	10/03/14
Report Date	01/05/15
Record Retention End Date	10/03/18

Project Scope

Regupol America contracted Architectural Testing to conduct impact sound transmission and delta impact insulation 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 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 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.

Test Procedure (Continued)

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

Receive Room			
Maximum Temperature	20.5 °C	Maximum Relative Humidity	69%
Minimum Temperature	20.5 °C	Minimum Relative Humidity	69%
Average Temperature	20.5 °C	Average Relative Humidity	69%

Test Calculations

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

Test Specimen Materials

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Hardwood Flooring	914.4 by 139.7	11.9	N/A	10.98 m ²	7.62 kg/m ²
	<i>Note: Loose laid.</i>				
Rubber Underlayment	3048 by 1219.2	5.0	Regupol Sonus	10.98 m ²	3.49 kg/m ²
	<i>Note: Loose laid.</i>				
Concrete slab	3023 by 3632	152.0	N/A	10.98 m ²	366.18 kg/m 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 4142.7 kg. 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.

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:

Leeland S. Hoover
Technician II - Acoustical Testing

Bradlay D. Hunt
Project Manager - Acoustical Testing

Attachments (7)

** Stated by Client/Manufacturer*

N/A - Non Applicable



Revision Log

<u>Revision</u>	<u>Date</u>	<u>Page(s)</u>	<u>Description</u>
R0	01/05/15	N/A	Original Report Issue

Attachments

Instrumentation

Instrument	Manufacturer	Model	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	63763	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	09/14
Receive Room Environmental Indicator	Comet	T7510	63811	09/14
Microphone Calibrator	Norsonic	1251	Y002919	06/14
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	158.9 m ³
------------------------	----------------------



E1551.02-113-11-R0



IMPACT SOUND TRANSMISSION
ASTM E 492

Test Date	10/03/14
Data File No.	E1551.02
Client	Regupol America
Description	11.92 mm Hardwood Flooring, 5 mm Regupol Sonus Rubber Underlayment, 152 mm Concrete slab
Specimen Area	10.98 m ²
Technician	Leeland S. Hoover

Freq (Hz)	Background SPL (dB)	Absorption (m ²)	Normalized Impact SPL (dB)	95% Confidence Limit	Number of Deficiencies
80	53.3	14.4	57	9.9	-
100	43.6	12.3	52	3.5	0
125	36.2	10.2	55	1.9	0
160	30.1	9.2	60	4.0	3
200	27.6	11.6	65	1.1	8
250	27.1	10.7	62	1.4	5
315	23.1	9.9	61	2.5	4
400	23.1	8.1	59	1.6	3
500	24.8	7.2	51	2.1	0
630	22.0	7.2	47	3.0	0
800	22.7	7.3	43	2.5	0
1000	26.3	7.2	38	2.9	0
1250	23.8	7.4	35	2.2	0
1600	21.2	7.4	33	2.9	0
2000	14.7	8.0	28	3.5	0
2500	11.1	8.9	25	2.8	0
3150	8.6	9.7	20	2.8	0
4000	6.7	11.1	18	3.3	-
5000	6.1	12.9	11	4.1	-
6300	6.2	16.1	8	1.9	-
8000	6.4	21.0	8	0.5	-
10000	6.5	26.7	9	0.2	-

IIC Rating **55** *(Impact Insulation Class)*
Deficiencies **23** *(Sum of Deficiencies)*

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

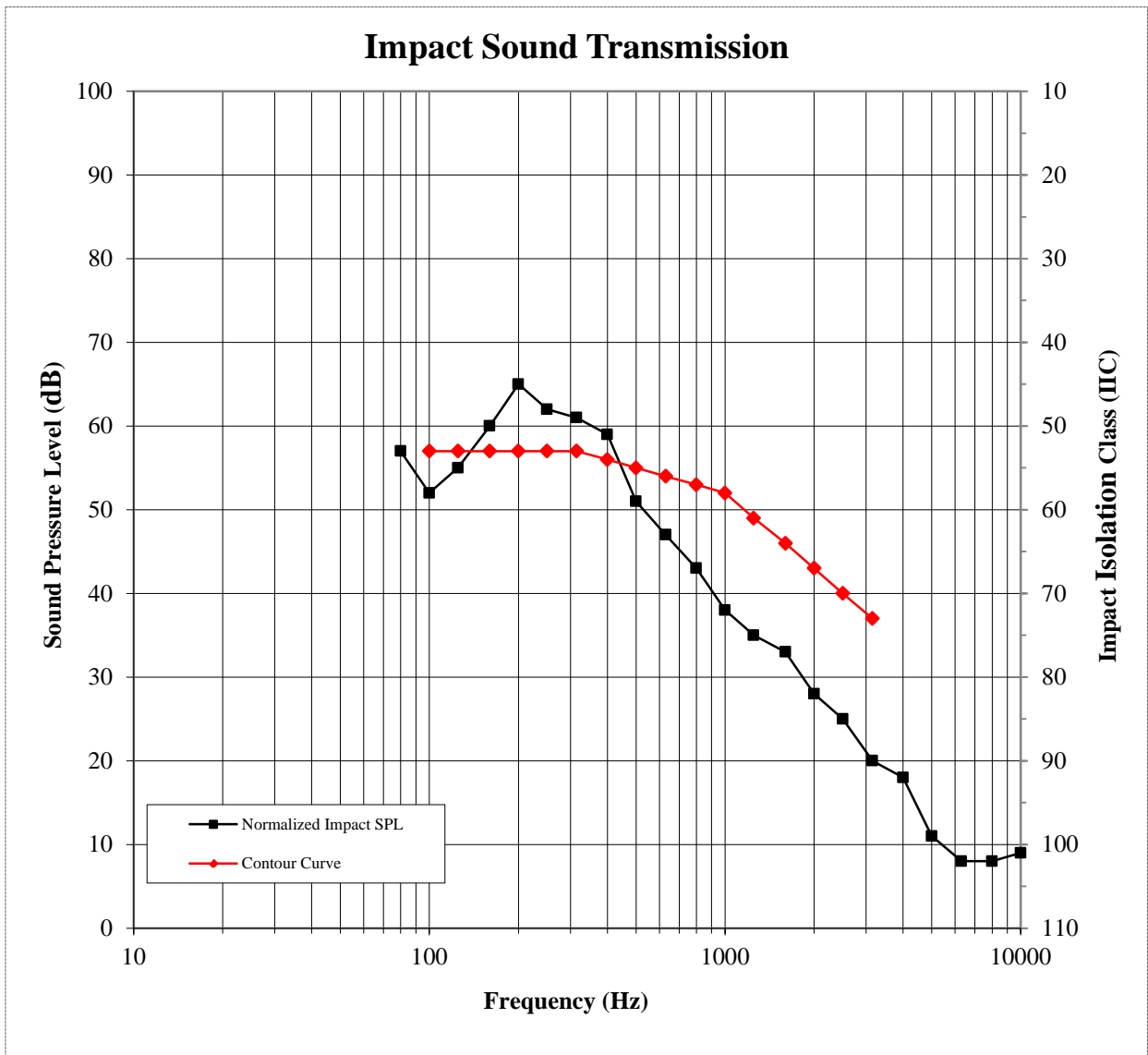


E1551.02-113-11-R0



IMPACT SOUND TRANSMISSION ASTM E 492

Test Date	10/03/14
Data File No.	E1551.02
Client	Regupol America
Description	11.92 mm Hardwood Flooring, 5 mm Regupol Sonus Rubber Underlayment, 152 mm Concrete slab
Specimen Area	10.98 m ²
Technician	Leeland S. Hoover





E1551.02-113-11-R0



DELTA IMPACT INSULATION
ASTM E 2179

Test Date	10/03/14
Data File No.	E1551.02
Client	Regupol America
Description	11.92 mm Hardwood Flooring, 5 mm Regupol Sonus Rubber Underlayment, 152 mm Concrete slab
Specimen Area	10.98 m ²
Technician	Leeland S. Hoover

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
80	53.3	13.1	68.3	6.0	56.1	5.7	-	-
100	43.6	11.2	57.8	2.1	51.8	2.1	61	2
125	36.2	9.2	60.2	2.0	54.7	3.1	62	3
160	30.1	8.3	63.5	1.8	59.1	1.8	64	5
200	27.6	10.5	70.2	1.5	64.2	1.4	63	4
250	27.1	9.6	68.0	1.0	61.8	0.9	63	4
315	23.1	8.9	66.2	0.8	60.3	1.4	64	5
400	23.1	7.3	67.4	0.8	58.5	1.1	61	3
500	24.8	6.5	67.4	0.7	50.7	0.8	54	0
630	22.0	6.5	69.0	0.8	46.4	0.6	48	0
800	22.7	6.6	71.2	0.5	42.5	0.3	43	0
1000	26.3	6.5	71.9	0.4	37.4	0.2	38	0
1250	23.8	6.7	72.3	0.4	34.6	0.2	34	0
1600	21.2	6.7	73.0	0.4	32.1	0.4	31	0
2000	14.7	7.3	73.6	0.6	27.7	0.5	26	0
2500	11.1	8.0	73.7	0.8	25.0	0.5	23	0
3150	8.6	8.7	72.7	0.7	19.8	0.3	19	0
4000	6.7	10.1	71.3	0.9	17.2	0.4	-	-
5000	6.1	11.6	68.8	1.1	10.7	0.5	-	-
6300	6.2	14.6	64.6	1.2	7.5	0.4	-	-
8000	6.4	19.0	57.3	1.3	7.5	0.3	-	-
10000	6.5	24.2	50.0	2.2	8.4	0.4	-	-

ΔIIC Rating **25** *(Delta Impact Insulation Class)*

Deficiencies 26 *(Sum of Deficiencies)*

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

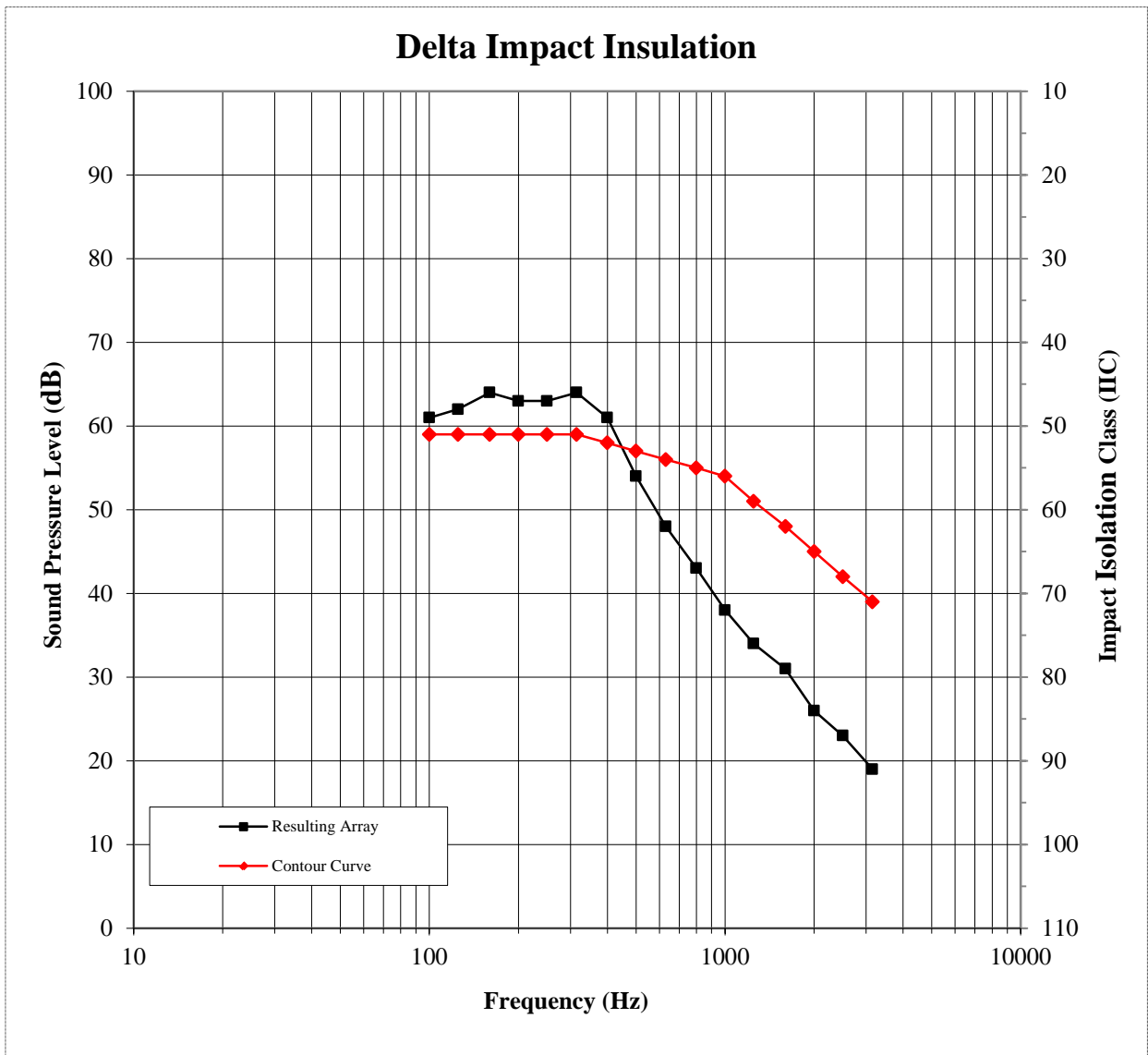


E1551.02-113-11-R0



DELTA IMPACT INSULATION ASTM E 2179

Test Date	10/03/14
Data File No.	E1551.02
Client	Regupol America
Description	11.92 mm Hardwood Flooring, 5 mm Regupol Sonus Rubber Underlayment, 152 mm Concrete slab
Specimen Area	10.98 m ²
Technician	Leeland S. Hoover



Photographs

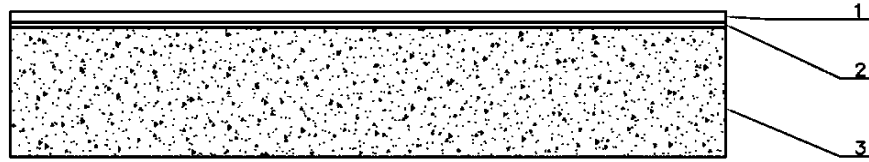


Source Room View of Test Specimen Installation



Receive Room View of Test Specimen Installation

Drawing



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