



**E1552.04-113-11-R0**  
**ACOUSTICAL PERFORMANCE TEST REPORT**  
**ASTM E 90 AND ASTM E 492**

**Rendered to**

**REGUPOL AMERICA**

**Series/Model: 5 mm Regupol Sonus Rubber Underlayment**

**Specimen Type: Floor/Ceiling Assembly**

**Overall Size: 3023 mm by 3632 mm**

**STC     53**  
**IIC     52**

**Test Specimen Identification:**

Floor Topping: 7 mm Ceramic Tile

Floor Underlayment: 5 mm Regupol Sonus Rubber Underlayment

Floor Slab: 203 mm Concrete slab

Reference should be made to Architectural Testing, Inc. Report E1552.04-113-11 for complete test specimen description.



## Acoustical Performance Test Report

REGUPOL AMERICA  
33 Keystone Drive  
Lebanon, Pennsylvania 17042

<b>Report</b>	E1552.04-113-11
<b>Test Date</b>	10/28/14
<b>Report Date</b>	01/28/15
<b>Record Retention End Date</b>	10/28/18

### Project Scope

Regupol America contracted Architectural Testing to conduct airborne sound transmission loss and 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 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 a single direction of measurement. Two background noise sound pressure level and twenty sound absorption measurements were conducted at each of five microphone positions. Four sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

**Test Procedure (Continued)**

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

**Test Conditions**

Source Room		Receive Room	
Maximum Temperature	17.9 °C	Maximum Temperature	18.2 °C
Minimum Temperature	17.9 °C	Minimum Temperature	18.2 °C
Average Temperature	17.9 °C	Average Temperature	18.2 °C
Maximum Relative Humidity	60%	Maximum Relative Humidity	58%
Minimum Relative Humidity	59%	Minimum Relative Humidity	58%
Average Relative Humidity	60%	Average Relative Humidity	58%

**Test Calculations**

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

**Test Specimen Materials**

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Ceramic Tile	304.8 by 304.8	7.0	N/A	10.98 m <sup>2</sup>	14.09 kg/m <sup>2</sup>
	<i>Note: Grout was placed into the 6.35 mm 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 6.35 mm by 6.35 mm trowel. Both the grout and mortar were allowed to cure to manufacturer's specifications.</i>				
Rubber Underlayment	3048 by 1219.2	5.0	Regupol Sonus	10.98 m <sup>2</sup>	3.49 kg/m <sup>2</sup>
	<i>Note: Loose laid.</i>				
Concrete slab	3023 by 3632	203.0	N/A	10.98 m <sup>2</sup>	488.24 kg/m <sup>2</sup>
	<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 5553.9 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:

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Leeland S. Hoover  
Technician II - Acoustical Testing

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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	01/28/15	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 *
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
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
Source Room Environmental Indicator	Comet	T7510	63812	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	158.3 m <sup>3</sup>
VT Source Room Volume	190 m <sup>3</sup>



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**AIRBORNE SOUND TRANSMISSION LOSS**  
ASTM E 90

<b>Test Date</b>	10/28/14
<b>Data File No.</b>	E1552.04
<b>Client</b>	Regupol America
<b>Description</b>	7 mm Ceramic Tile, 5 mm Regupol Sonus Rubber Underlayment, 203 mm Concrete slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Leeland S. Hoover

Freq (Hz)	Background SPL (dB)	Absorption (m <sup>2</sup> )	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	61.9	14.9	109	66	43	4.90	-
100	43.7	10.7	107	67	42	2.40	-
125	38.6	8.7	106	67	41	1.80	0
160	35.4	8.2	108	74	36	2.80	4
200	28.2	10.7	107	66	42	2.20	1
250	28.6	9.3	106	66	42	0.90	4
315	25.8	9.4	106	66	41	1.10	8
400	24.2	7.6	106	63	44	0.60	8
500	22.9	6.8	106	59	50	0.60	3
630	29.0	6.6	107	54	56	0.80	0
800	29.3	6.7	107	50	60	0.80	0
1000	24.7	6.7	106	48	61	0.50	0
1250	34.0	6.7	107	44	65	0.60	0
1600	23.4	6.6	107	44	66	0.30	0
2000	12.9	7.5	107	43	66	0.60	0
2500	10.6	8.2	106	43	64	0.60	0
3150	7.8	9.2	105	40	66	0.60	0
4000	10.4	10.5	105	37	68	0.70	0
5000	6.3	12.6	105	33	71	0.80	-
6300	7.0	16.7	98	22	76	0.80	-
8000	6.9	22.3	98	15	81	0.80	-
10000	7.0	28.3	92	8	82	0.60	-

**STC Rating**      **53**      (*Sound Transmission Class*)  
**Deficiencies**      **28**      (*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

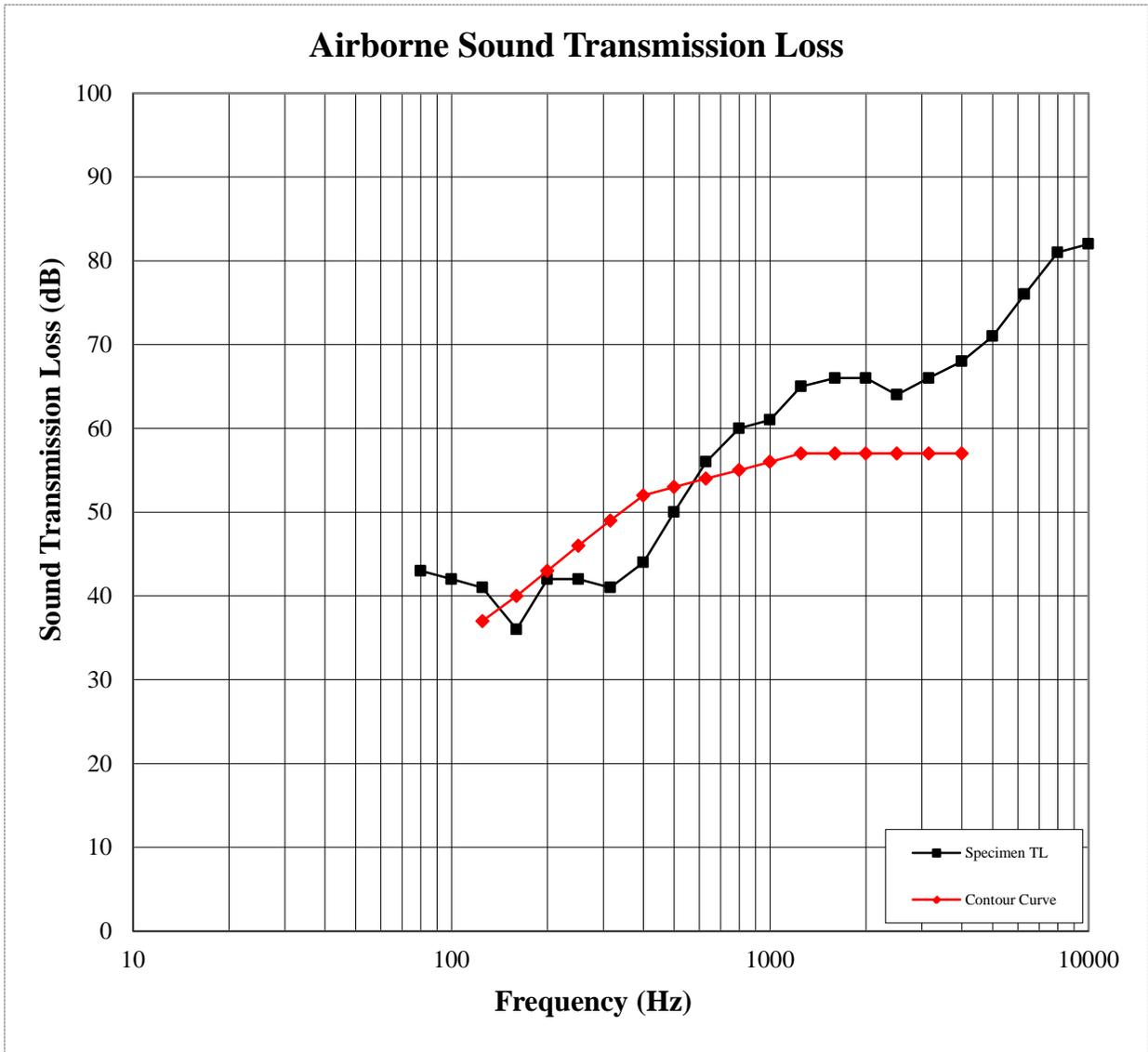


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### AIRBORNE SOUND TRANSMISSION LOSS ASTM E 90

<b>Test Date</b>	10/28/14
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<b>Client</b>	Regupol America
<b>Description</b>	7 mm Ceramic Tile, 5 mm Regupol Sonus Rubber Underlayment, 203 mm Concrete slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Leeland S. Hoover





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### IMPACT SOUND TRANSMISSION ASTM E 492

<b>Test Date</b>	10/28/14
<b>Data File No.</b>	E1552.04
<b>Client</b>	Regupol America
<b>Description</b>	7 mm Ceramic Tile, 5 mm Regupol Sonus Rubber Underlayment, 203 mm Concrete slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Leeland S. Hoover

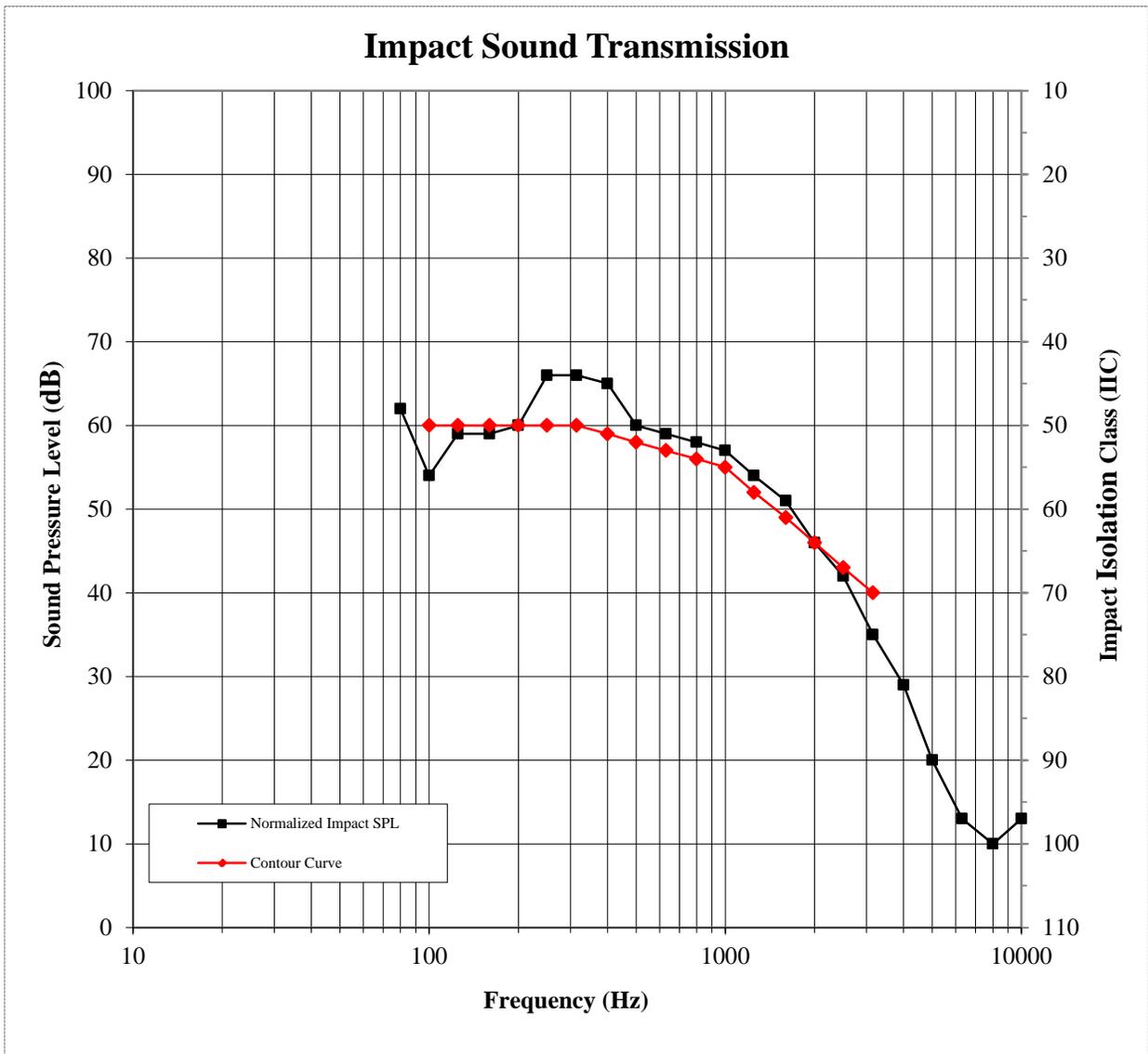
Freq (Hz)	Background SPL (dB)	Absorption (m <sup>2</sup> )	Normalized Impact SPL (dB)	95% Confidence Limit	Number of Deficiencies
80	61.5	15.5	62	3.5	-
100	42.5	12.8	54	1.7	0
125	37.9	10.0	59	3.5	0
160	34.6	8.9	59	2.3	0
200	27.6	11.4	60	4.9	0
250	29.3	10.0	66	2.3	6
315	26.7	9.6	66	3.9	6
400	24.1	8.1	65	2.3	6
500	23.5	7.3	60	2.4	2
630	26.6	7.0	59	0.4	2
800	26.8	7.2	58	1.5	2
1000	24.6	7.1	57	0.8	2
1250	23.3	7.1	54	3.4	2
1600	19.7	7.1	51	3.1	2
2000	13.4	8.1	46	2.2	0
2500	10.7	8.8	42	2.3	0
3150	9.1	9.8	35	2.2	0
4000	7.6	11.4	29	2.5	-
5000	6.8	13.5	20	2.5	-
6300	7.3	17.8	13	1.0	-
8000	7.3	23.7	10	0.7	-
10000	7.0	30.8	13	1.6	-

**IIC Rating**      **52**      *(Impact Insulation Class)*  
**Deficiencies**    **30**      *(Sum of Deficiencies)*

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

**IMPACT SOUND TRANSMISSION**  
ASTM E 492

<b>Test Date</b>	10/28/14
<b>Data File No.</b>	E1552.04
<b>Client</b>	Regupol America
<b>Description</b>	7 mm Ceramic Tile, 5 mm Regupol Sonus Rubber Underlayment, 203 mm Concrete slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Leeland S. Hoover



**Photographs**

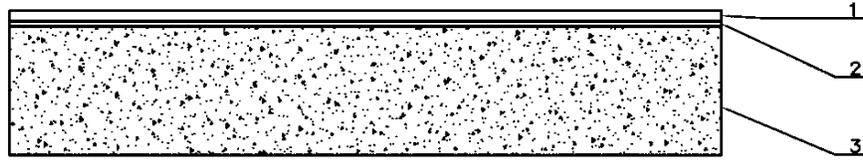


**Source Room View of Test Specimen Installation**



**Receive Room View of Test Specimen Installation**

**Drawing**



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