E9991.02-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E 90 AND ASTM E 492

Rendered to

COMMERCIAL ACOUSTICS

Series/Model: Floor Blokker with LVT (Double Glue Down Application)

Specimen Type: Open Web Truss - 406 mm

Overall Size: 3023 mm by 3632 mm

STC	**62**
IIC	**53**

Test Specimen Identification:

Floor Topping: 2 mm Luxury Vinyl Tile
Floor Underlayment: 5 mm Commercial Acoustics Floor Blokker Underlayment
Subfloor Topping: 19.05 mm USG LEVELROCK® CSD® Early Exposure™ FR Gypsum Concrete
Subfloor: 18.8 mm Oriented Strand Board Sheathing
Insulation: 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation
Truss: 406.4 mm York PB Truss L/360 Open Web Truss
Ceiling Isolation: 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel
Ceiling: 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Board

Reference should be made to Intertek-ATI Report E9991.02-113-11 for complete test specimen description. This page alone is not a complete report.

Acoustical Performance Test Report

COMMERCIAL ACOUSTICS
1519 W. Cypress
Tampa, FL 33606

Report	E9991.02-113-11
Test Date	08/04/15
Report Date	08/28/15

Project Scope

Architectural Testing, Inc., a subsidiary of Intertek (Intertek-ATI), was contracted to conduct airborne sound transmission loss and impact sound transmission tests. The complete test data is included as attachments to this report. The client provided the test specimen. The specimen was constructed on the date of testing.

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 Intertek-ATI 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 five 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 five 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	
Average Temperature	23°C	Average Temperature	22.4°C
Average Relative Humidity	42%	Average Relative Humidity	43%

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 and Installation Details

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Luxury Vinyl Tile	914.4 by 152.4	2.0	N/A	10.98 m²	3.18 kg/m²
	Note: Adhered using XL 5300 Adhesive and a V notch Trowel				
Underlayment	3022.6 by 914.4	5.0	Floor Blokker	10.98 m²	3.64 kg/m²
	Note: Adhered using Spray Adhesive				
Gypsum Concrete	3023 by 3632	19.1	USG LEVELROCK® CSD® Early Exposure™ FR	10.98 m²	66.35 kg/m²
	Note: Poured directly on top of the OSB sheathing, cured a minimum of 14 days.				
Oriented Strand Board Sheathing	1219 by 2438	18.8	N/A	10.98 m²	11.65 kg/m²
	Note: The OSB was adhered to the trusses with Loctite PL 400 Subfloor adhesive. It was attached with 9D nails on 203.2 mm centers along perimeter and 304.8 mm centers along trusses.				
Fiberglass Insulation	520.7 by 3023	88.9	Johns Manville Unfaced R-13	10.98 m²	1.32 kg/m²
	Note: Installed in the cavity between trusses flush with the OSB. Hanger wire was used to keep insulation secure on 304.8mm				
Open Web Truss	88.9 by 2933.7	406.4	York PB Truss L/360	7 ea.	19.05 kg/m²
	Note: Installed on 609.6 centers using JUS414 hanger brackets.				

Test Specimen Materials and Installation Details (Continued)

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Resilient Channel	68.6 by 2902	12.7	ClarkDietrich RC Deluxe™	23.2 lin m	0.03 kg/m
	Note: Installed on 406.4 centers perpendicular to the trusses. The measured thickness of the metal was 0.7 mm.				
Gypsum Board	1219 by 3023	15.9	USG SHEETROCK® Brand FIRECODE® C Core	10.35 m²	11.9 kg/m²
	Note: Fastened to resilient channels with 25.4 mm type S screws. Seams finished with joint compound. Perimeter sealed with acoustical caulk.				

Comments

The total weight of the floor/ceiling assembly was 1203.1 kg. Intertek-ATI 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.

Intertek-ATI 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 Intertek-ATI 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 is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

FOR INTERTEK-ATI:

Leeland S. Hoover	Jordan Strybos
Technician II - Acoustical Testing	Project Manager - Acoustical Testing

Attachments (7 Pages): This report is complete only when all attachments are included.

** Stated by Client/Manufacturer*
N/A - Non Applicable

Revision Log

Revision	Date	Page(s)	Description
R0	08/28/15	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 *
Microphone Calibrator	Norsonic	1251	65105	04/15
Receive Room Microphone	PCB Piezotronics	378B20	63748	05/15
Receive Room Microphone	PCB Piezotronics	378B20	63744	05/15
Receive Room Microphone	PCB Piezotronics	378B20	63745	05/15
Receive Room Microphone	PCB Piezotronics	378B20	63746	05/15
Receive Room Microphone	PCB Piezotronics	378B20	63747	05/15
Receive Room Environmental Indicator	Comet	T7510	63810 63811	09/14
Source Room Microphone	PCB Piezotronics	378B20	63738	04/15
Source Room Microphone	PCB Piezotronics	378B20	63739	04/15
Source Room Microphone	PCB Piezotronics	378B20	63740	04/15
Source Room Microphone	PCB Piezotronics	378B20	63742	04/15
Source Room Microphone	PCB Piezotronics	378B20	63741	04/15
Source Room Environmental Indicator	Comet	T7510	63812	09/14
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	65351	11/14

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

Test Chambers

VT Receive Room Volume	156.28 m³
VT Source Room Volume	190 m³

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	08/04/15
Data File No.	E9991.02
Client	Commercial Acoustics
Description	2 mm Luxury Vinyl Tile, 5 mm Commercial Acoustics Floor Blokker Underlayment, 19.05 mm USG LEVELROCK® CSD® Early Exposure™ FR Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 406.4 mm York PB Truss L/360 Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Board
Specimen Area	10.98 m²
Technician	Leeland S. Hoover

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Source SPL** (dB)	**Receive SPL** (dB)	**Specimen TL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	62.9	14.2	108	68	40	4.60	-
100	42.8	11.8	105	68	38	2.00	-
125	37.3	9.5	104	64	42	0.90	4
160	37.7	9.1	106	63	46	1.70	3
200	30.2	10.3	104	56	49	1.60	3
250	28.0	9.6	103	52	52	1.10	3
315	28.8	10.0	104	53	53	0.60	5
400	27.7	8.0	102	49	55	0.80	6
500	23.9	7.2	102	48	57	0.50	5
630	24.3	7.0	104	43	64	0.40	0
800	24.5	7.2	103	40	66	0.20	0
1000	23.5	7.1	103	39	67	0.50	0
1250	25.9	7.2	103	39	67	0.40	0
1600	20.7	7.2	103	37	69	0.40	0
2000	14.1	8.3	103	37	69	0.40	0
2500	9.9	9.3	101	34	69	0.30	0
3150	8.0	10.4	103	31	73	0.50	0
4000	6.3	12.1	103	30	74	0.50	0
5000	6.2	14.6	103	27	75	0.50	-
6300	6.2	19.2	97	17	78	0.90	-
8000	6.7	25.6	96	12	81	1.10	-
10000	6.5	32.5	91	7	81	0.60	-

STC Rating **62** *(Sound Transmission Class)*

Deficiencies 29 *(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

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	08/04/15
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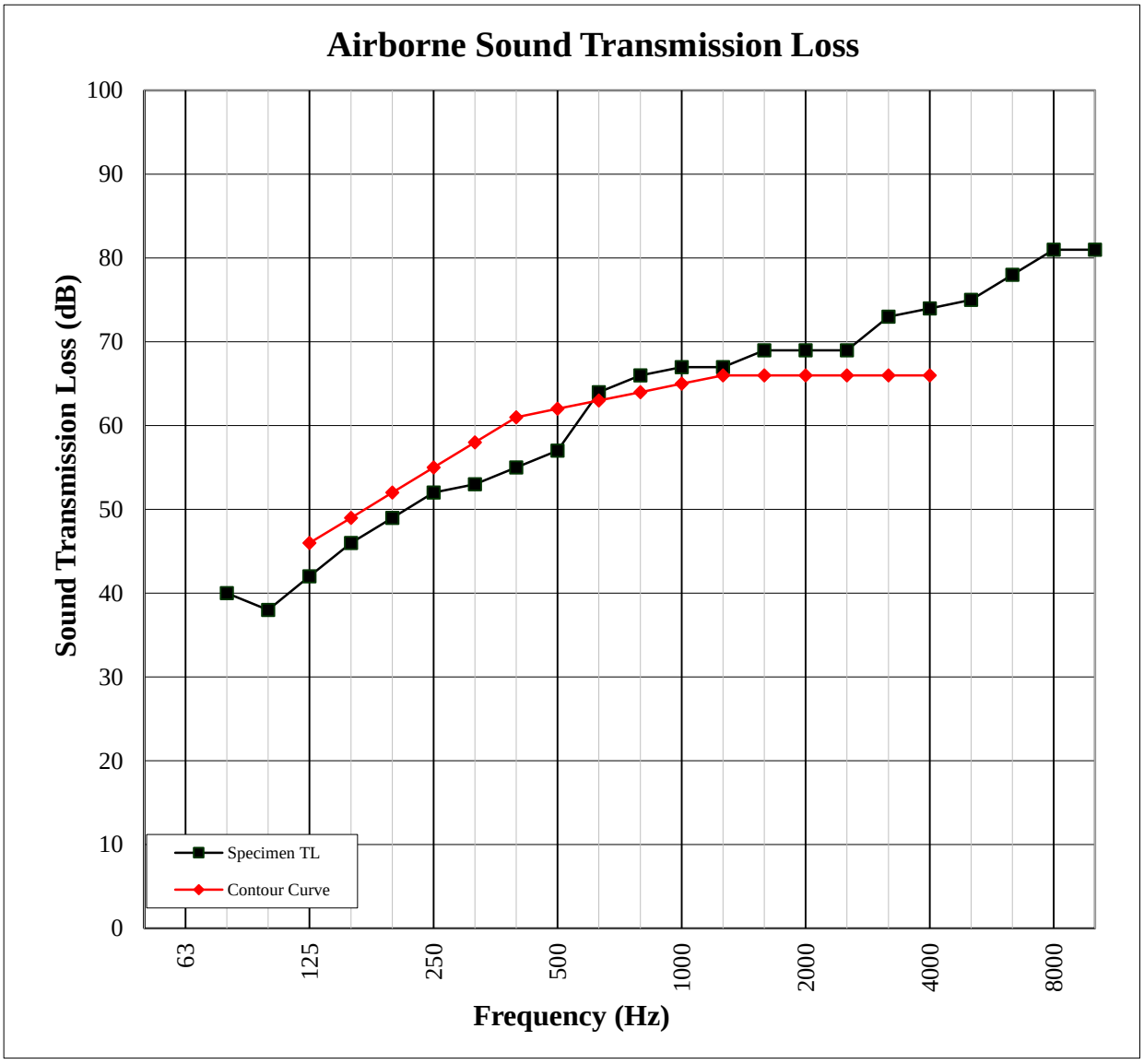
Specimen Area	10.98 m²
Technician	Leeland S. Hoover



Architectural Testing

ACCREDITED TL-144

IMPACT SOUND TRANSMISSION

ASTM E 492

Test Date	08/04/15
Data File No.	E9991.02
Client	Commercial Acoustics
Description	2 mm Luxury Vinyl Tile, 5 mm Commercial Acoustics Floor Blokker Underlayment, 19.05 mm USG LEVELROCK® CSD® Early Exposure™ FR Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 406.4 mm York PB Truss L/360 Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Board
Specimen Area	10.98 m²
Technician	Leeland S. Hoover

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Normalized Impact SPL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	64.1	14.9	57	2.0	-
100	44.8	12.3	67	1.5	8
125	39.8	9.4	63	1.1	4
160	37.6	9.1	58	2.0	0
200	30.9	10.0	56	1.4	0
250	28.7	10.0	53	1.3	0
315	29.8	9.3	49	0.9	0
400	28.5	8.3	42	1.3	0
500	25.6	7.4	43	0.6	0
630	25.6	7.2	39	0.9	0
800	25.3	7.3	32	1.0	0
1000	26.6	7.1	26	0.3	0
1250	29.0	7.3	26	0.3	0
1600	22.1	7.3	21	0.3	0
2000	15.7	8.3	18	0.3	0
2500	10.6	9.3	15	0.5	0
3150	8.9	10.5	11	0.2	0
4000	7.0	12.0	7	0.2	-
5000	6.5	14.4	7	0.3	-
6300	6.3	19.2	8	0.5	-
8000	6.8	25.6	9	0.5	-
10000	6.5	32.6	10	0.6	-

IIC Rating **53** *(Impact Insulation Class)*

Deficiencies 12 *(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

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Data File No.	E9991.02
Client	Commercial Acoustics
Description	2 mm Luxury Vinyl Tile, 5 mm Commercial Acoustics Floor Blokker Underlayment, 19.05 mm USG LEVELROCK® CSD® Early Exposure™ FR Gypsum Concrete, 18.8 mm Oriented Strand Board Sheathing, 88.9 mm Johns Manville Unfaced R-13 Fiberglass Insulation, 406.4 mm York PB Truss L/360 Open Web Truss, 12.7 mm ClarkDietrich RC Deluxe™ Resilient Channel, 15.9 mm USG SHEETROCK® Brand FIRECODE® C Core Gypsum Board
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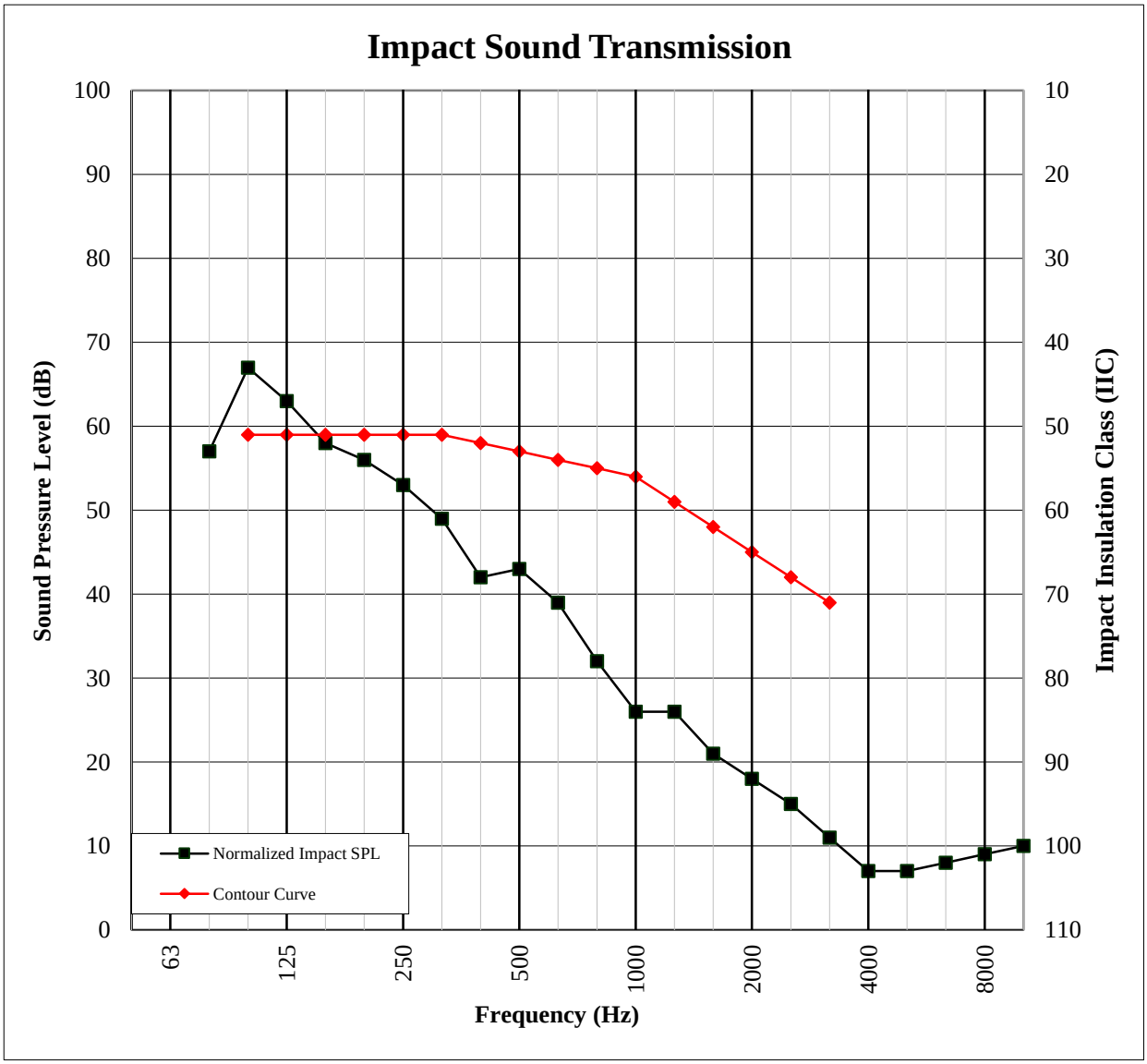
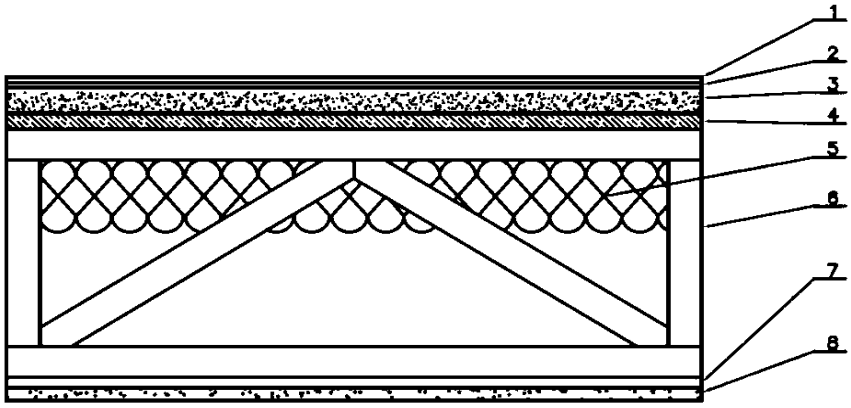


Photographs

Source Room View of Test Specimen

Receive Room View of Test Specimen

Drawings



1-Floor Topping
2-Underlayment
3-Subfloor Topping
4-Subfloor
5-Insulation
6-Truss
7-Ceiling Isolation
8-Ceiling