F6860.01-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E 90 AND ASTM E 492

Rendered to

UNITED PLASTICS CORPORATION

Series/Model: 4mm Novalis Stainmaster with United Plastics dB-4 Pro

Specimen Type: 152 mm Concrete Slab with Drop Ceiling

Overall Size: 3023 mm by 3632 mm

STC	**60**
IIC	**70**

Test Specimen Identification:
Floor Topping: 4 mm Novalis Stainmaster Premier Luxury Vinyl Plank
Floor Underlayment: 3.89 mm United Plastics dB-4 Pro Underlayment
Floor Slab: 152 mm Concrete Slab
Main Beams: 43 mm Armstrong HD8906 Drywall Main Beam
Cross Tees: 37.3 mm Armstrong XL8945P Cross Tee
Insulation: 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation
Ceiling: 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel

Reference should be made to Intertek-ATI Report F6860.01-113-11 for complete test specimen description. This page alone is not a complete report.

Acoustical Performance Test Report

UNITED PLASTICS CORPORATION
511 Hay Street
Mount Airy, North Carolina 27030

Report	F6860.01-113-11
Test Date	03/22/16
Report Date	04/01/16

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	19.3°C	Average Temperature	21.3°C
Average Relative Humidity	56%	Average Relative Humidity	52%

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
Premier Luxury Vinyl Plank	1219 by 152.4	4.0	Novalis Stainmaster	10.98 m²	7.96 kg/m²
	Note: Adhered to the underlayment with XL Brands Stix Essential RES Aerosol Spray Adhesive per manufacturer's specifications				
Underlayment	7620 by 1219	3.9	United Plastics dB-4 Pro	10.98 m²	4.14 kg/m²
	Note: Loose laid with seams taped. The underlayment was composed of a 0.75 lb. mass-loaded EVA with an attached polyester fiber layer.				
Concrete Slab	3023 by 3632	152.0	N/A	10.98 m²	366.18 kg/m²
	Note: The concrete slab was installed in a test frame flush to the source room.				
Drywall Main Beam	38.1 by 2870	43.0	Armstrong HD8906	10.9 lin m	0.45 kg/m
	Note: Twelve gauge hanger wires were attached to the bottom side of the concrete at twelve locations and then to the main beams. The hanger wire was twisted around itself a minimum of three times within 76 mm creating a 305 mm plenum. The measured steel thickness is 0.5 mm.				
Cross Tee	38.3 by 1219	37.3	Armstrong XL8945P	27.2 lin m	0.45 kg/m
	Note: Inserted into the main beams on 607 mm centers. The measured steel thickness is 0.5 mm.				
Fiberglass Insulation	2962 by 584	88.9	Johns Manville Kraft Faced R-13	10.98 m²	1.33 kg/m²
	Note: Loose laid onto the ceiling grid system				

Test Specimen Materials and Installation Details (Continued)

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Gypsum Panel	3023 by 1219	15.9	National Gypsum Gold Bond® Fire-Shield® Type X	10.56 m²	11.23 kg/m²
	Note: Fastened with fine thread drywall screws on 305 mm centers				

Comments

The total weight of the floor/ceiling assembly was 4303.9 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:

Digitally Signed by: David Dacheux

David M. Dacheux
Technician II - Acoustical Testing

Digitally Signed by: Jordan Strybos

Jordan Strybos
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	04/01/16	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	INT00127	01/16
Receive Room Microphone	Scantek	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	10/15
			63811	10/15
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	Scantek	378B20	63741	04/15
Source Room Environmental Indicator	Comet	T7510	63812	11/15
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	65351	02/16

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

Test Chambers

VT Receive Room Volume	155.77 m³
VT Source Room Volume	190 m³

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	03/22/16
Data File No.	F6860.01
Client	United Plastics Corporation
Description	4 mm Novalis Stainmaster Premier Luxury Vinyl Plank, 3.89 mm United Plastics dB-4 Pro Underlayment, 152 mm Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	David M. Dacheux

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Source SPL** (dB)	**Receive SPL** (dB)	**Specimen TL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	48.8	17.9	107	69	37	3.60	-
100	40.4	15.4	105	66	38	2.30	-
125	33.1	11.5	104	66	39	1.70	5
160	31.3	9.2	106	66	42	2.20	5
200	24.2	11.5	103	60	44	1.80	6
250	25.4	11.2	102	56	48	1.00	5
315	21.1	11.1	103	54	50	1.10	6
400	18.9	9.3	102	50	54	0.60	5
500	22.7	8.7	102	43	61	0.60	0
630	20.3	8.5	104	42	65	0.90	0
800	20.6	8.2	103	38	67	0.40	0
1000	21.8	8.3	103	40	66	0.60	0
1250	20.9	8.5	103	38	67	0.70	0
1600	17.5	8.4	103	38	67	0.70	0
2000	10.9	9.2	103	36	69	0.60	0
2500	6.8	10.1	101	35	68	0.60	0
3150	5.6	10.9	103	32	72	0.60	0
4000	5.2	12.3	105	31	74	1.30	0
5000	5.4	14.1	106	28	78	2.20	-
6300	5.7	17.9	99	18	81	1.80	-
8000	6.1	23.7	98	13	83	1.70	-
10000	6.3	29.1	93	7	83	1.60	-

STC Rating **60** *(Sound Transmission Class)*

Deficiencies 32 *(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

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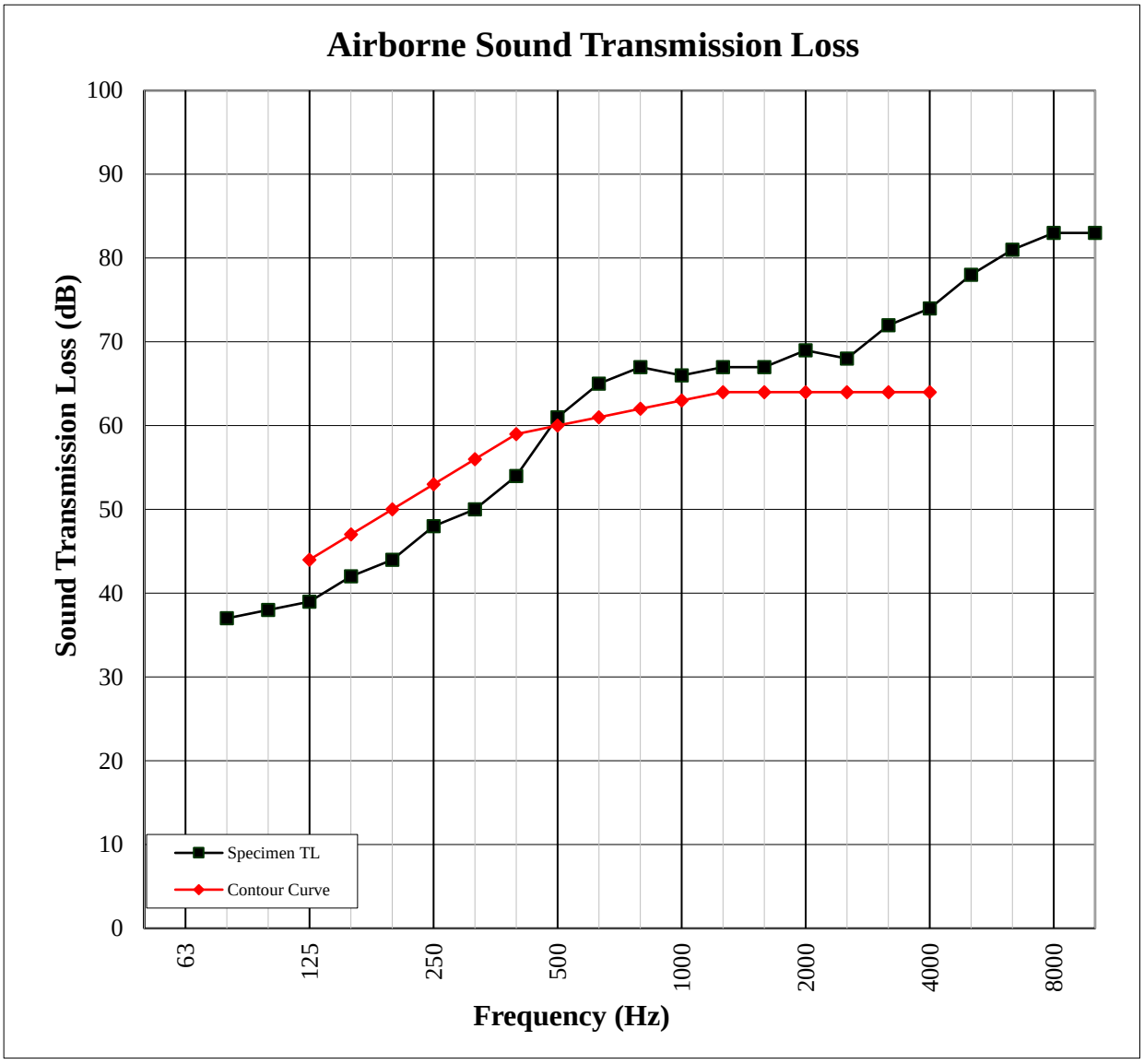
Specimen Area	10.98 m²
Technician	David M. Dacheux



Intertek Architectural Testing

IAS ACCREDITED Testing Laboratory

IMPACT SOUND TRANSMISSION

ASTM E 492

Test Date	03/22/16
Data File No.	F6860.01
Client	United Plastics Corporation
Description	4 mm Novalis Stainmaster Premier Luxury Vinyl Plank, 3.89 mm United Plastics dB-4 Pro Underlayment, 152 mm Concrete Slab, 43 mm Armstrong HD8906 Drywall Main Beam, 37.3 mm Armstrong XL8945P Cross Tee, 88.9 mm Johns Manville Kraft Faced R-13 Fiberglass Insulation, 15.9 mm National Gypsum Gold Bond® Fire-Shield® Type X Gypsum Panel
Specimen Area	10.98 m²
Technician	David M. Dacheux

Freq (Hz)	**Background SPL** (dB)	**Absorption** (m²)	**Normalized Impact SPL** (dB)	**95% Confidence Limit**	**Number of Deficiencies**
80	48.9	17.6	55	4.4	-
100	43.6	14.4	50	1.0	8
125	33.5	11.5	47	1.4	5
160	28.4	9.4	46	1.3	4
200	24.7	11.2	48	1.1	6
250	26.1	10.9	45	1.9	3
315	23.5	11.2	44	1.7	2
400	21.9	9.2	40	0.7	0
500	23.8	8.5	32	1.4	0
630	22.1	8.6	30	0.6	0
800	22.2	8.3	24	0.7	0
1000	23.0	8.4	22	0.7	0
1250	25.1	8.5	22	0.6	0
1600	20.7	8.4	20	0.2	0
2000	12.5	9.2	12	0.2	0
2500	8.7	10.2	8	0.6	0
3150	7.2	11.0	7	0.3	0
4000	5.5	12.4	6	0.2	-
5000	5.5	14.1	6	0.3	-
6300	5.7	18.0	6	0.4	-
8000	6.1	23.6	8	0.5	-
10000	6.3	29.6	9	0.6	-

IIC Rating **70** *(Impact Insulation Class)*

Deficiencies 28 *(Sum of Deficiencies)*

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

IMPACT SOUND TRANSMISSION

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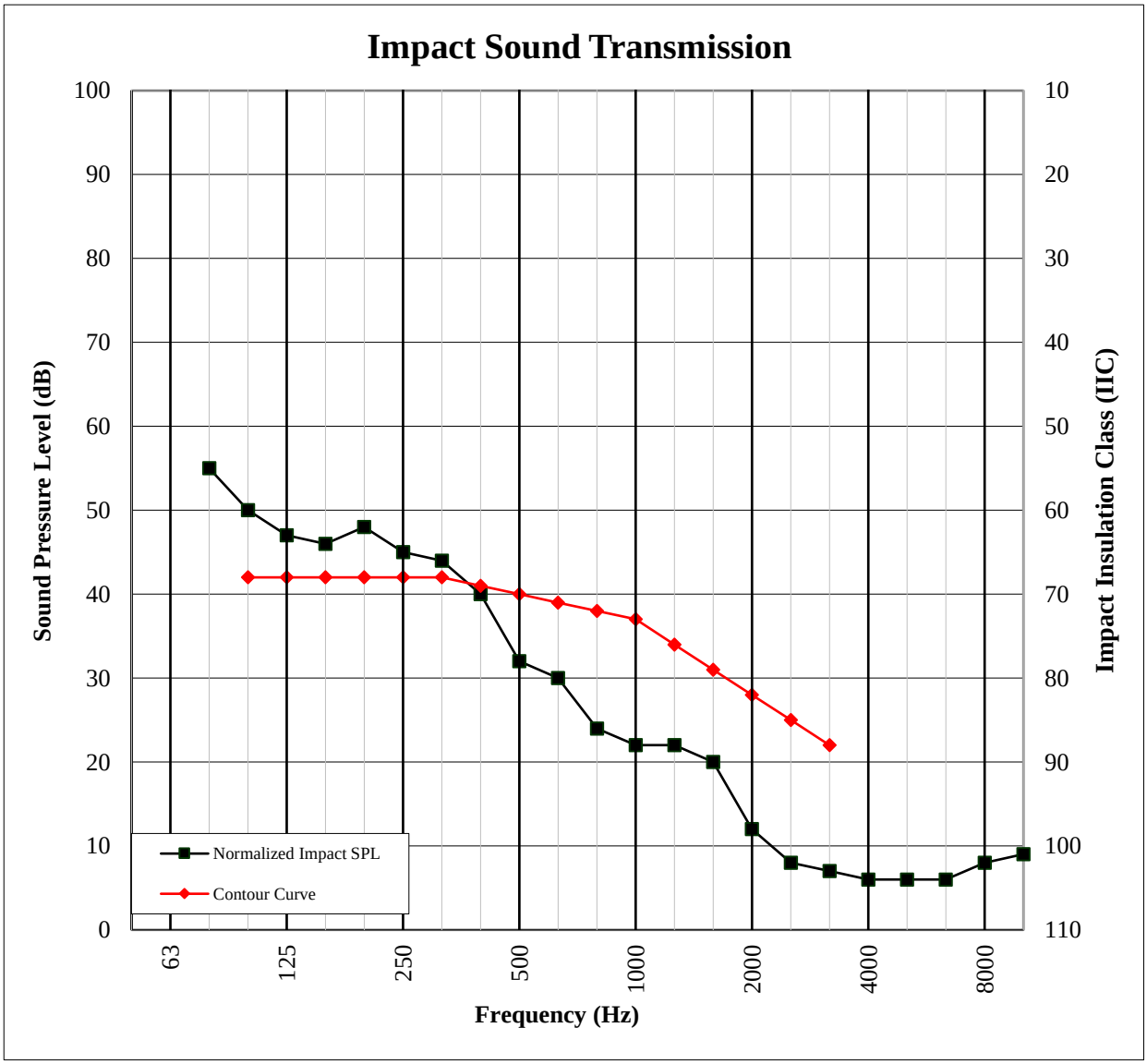


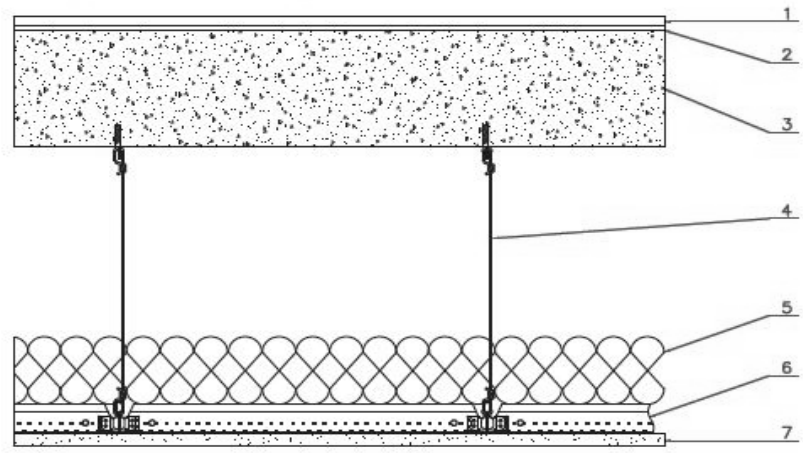
Photographs

Source Room View of Test Specimen Installation

Source Room View of Test Specimen Installation

Receive Room View of Test Specimen Installation

Drawing



1-Floor Topping
2-Underlayment
3-Concrete Slab
4-Hanger Wire
5-Insulation
6-Ceiling Grid
7-Ceiling