

TUDELU, LLC

ACOUSTICAL

PERFORMANCE

TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON
TUDELU MUTE ACOUSTICAL PANELS

REPORT NUMBER

P3024.01-113-11-R0

TEST DATE

09/30/22

ISSUE DATE

12/08/22

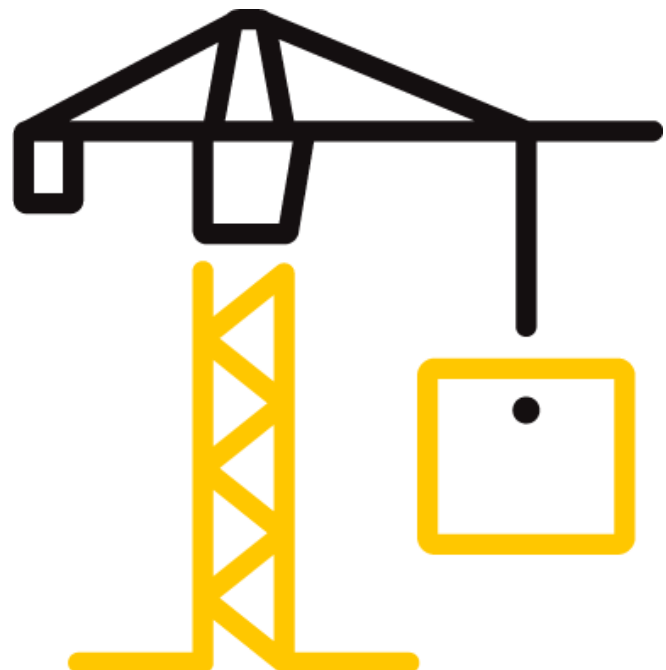
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DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2761 (09/09/22)

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TEST REPORT FOR TUDELU, LLC

Report No.: P3024.01-113-11-R0

Date: 12/08/22

REPORT ISSUED TO

TUDELU, LLC

100 Industrial Avenue #C
Little Ferry, New Jersey 07643

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Tudelu, LLC to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test methods. The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT test chambers at Intertek B&C located in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

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For INTERTEK B&C:

COMPLETED BY:	Cody L. French	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician Acoustical Testing	TITLE:	Manager Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	12/08/22	DATE:	12/08/22

CLF:jmcs

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	Tudelu Mute
TYPE	Acoustical Panels
DESCRIPTION (Nominal Dimensions)	Tudelu Mute Panel (5 mm vinyl material, 5 mm felt on inner side) 4" Air space Tudelu Mute Panel (5 mm vinyl material, 5 mm felt on inner side)
DATA FILE NO.	P3024.01B
STC	48
OITC	30

SECTION 3

TEST METHODS

The specimens were evaluated in accordance with the following:

ASTM E90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

ASTM E413-22, *Classification for Rating Sound Insulation*

ASTM E1332-22, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*

ASTM E2235-04 (2020), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

SECTION 4

SPECIMEN INSTALLATION

A sound transmission loss test was initially performed on a filler wall.

The specimen plug was removed from the filler wall assembly. The specimen was placed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. Operable portions of the test specimen, if any, were cycled at least five times prior to testing.

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**SECTION 5
EQUIPMENT**

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02579	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02580	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02581	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02583	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02584	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02585	03/22
Source Room Microphone	National Instruments	378C20	Microphone and Preamplifier	INT02910	02/22
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT02911	02/22
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT02256	02/22
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT02427	01/22
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT01089	02/22
Receive Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	INT02912	02/22
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64908	02/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/22
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	02/22
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/22
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/22

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

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m ³	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	207 m ³	Stationary diffusers only Temperature and humidity controlled

	MAXIMUM SIZE	DESCRIPTION
TL TEST OPENING	4.27 m wide by 3.05 m high	Vibration break between source and receive rooms

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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Cody L. French; Zachary P. Golden	Intertek B&C

SECTION 7

TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement.

Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions.

Two sound pressure level measurements were made simultaneously in receive and source rooms at each of five microphone positions.

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

Data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

Intertek B&C will store samples of test specimens for four years.

SECTION 8

ACOUSTICAL TEST CALCULATIONS

Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

STC Rating

To obtain the Sound Transmission Class (STC), read the TL of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve must not exceed 32. The maximum deficiency at any one frequency must not exceed 8.

OITC Rating

The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.

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SECTION 9

SPECIMEN DESCRIPTION

Tudelu Mute acoustical panels consisted of one 48" by 72" frame constructed with 1-1/2" thick by 4" wide wood lumber and fastened together with screws. One layer fabric-faced mass loaded vinyl was screwed to the wood frame on both sides, creating the 4" air space. The fabric-faced mass loaded vinyl had a 5 mm (3/16") felt backing faced toward the inner side of the test specimen on both sides.

DATA FILE	TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft ²)
P3024.01B	119	4.96

Photographs are included in Section 11.

The client did not supply a report drawing of the test specimen.

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SECTION 10

TEST RESULTS

P3024.01B DATA

SPECIMEN AREA	2.23 m ²	RECEIVE TEMP.	20.1 °C	SOURCE TEMP	20.3 °C
TECHNICIAN	Cody L. French	RECEIVE HUMIDITY	47%	SOURCE HUMIDITY	46%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
80	34.8	6.3	105	89	12	2.89	-
100	31.1	6.2	106	77	25	1.42	-
125	33.7	5.6	107	79	24	1.37	8
160	39.9	4.7	108	75	30	1.06	5
200	37.1	5.6	108	72	32	0.71	6
250	34.4	6.0	104	60	40	0.78	1
315	30.4	5.6	105	59	42	0.58	2
400	24.1	5.6	104	53	47	0.54	0
500	19.8	5.5	104	49	51	0.37	0
630	17.7	5.6	104	47	54	0.27	0
800	17.4	6.0	102	42	56	0.22	0
1000	11.3	6.0	104	39	61	0.28	0
1250	9.3	6.5	102	35	62	0.15	0
1600	6.8	6.9	99	30	64	0.18	0
2000	6.8	7.4	102	28	68	0.25	0
2500	6.5	8.7	103	27	70	0.27	0
3150	6.8	10.6	101	25	69	0.24	0
4000	7.7	13.6	99	20	71	0.28	0
5000	8.4	17.5	99	17	74	0.34	-
STC RATING	48 (Sound Transmission Class)						
DEFICIENCIES	22 (Sum of Deficiencies)						
OITC RATING	30 (Outdoor-Indoor Transmission Class)						

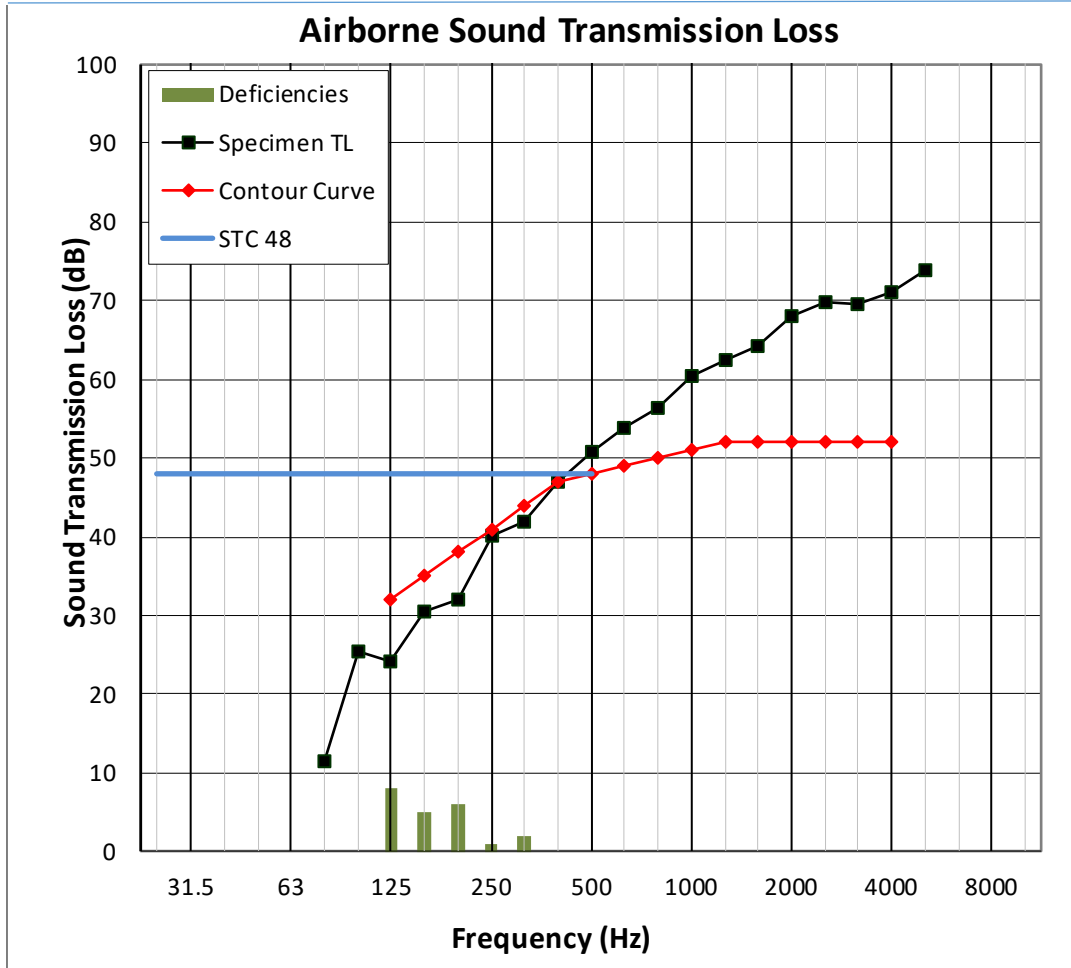
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
 - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
 - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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P3024.01B GRAPH



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SECTION 11

PHOTOGRAPHS



Photo No. 1

Receive Room View of Installed Test Specimen



Photo No. 2

Source Room View of Installed Test Specimen



Total Quality. Assured.

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SECTION 12

REVISION LOG

REVISION #	DATE	PAGES	REVISION
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