

KINETICS NOISE CONTROL ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON AN RT-7, NOISE BARRIER PANEL

REPORT NUMBER

M6557.02-113-11-R0

TEST DATE

09/07/21

ISSUE DATE

09/29/21

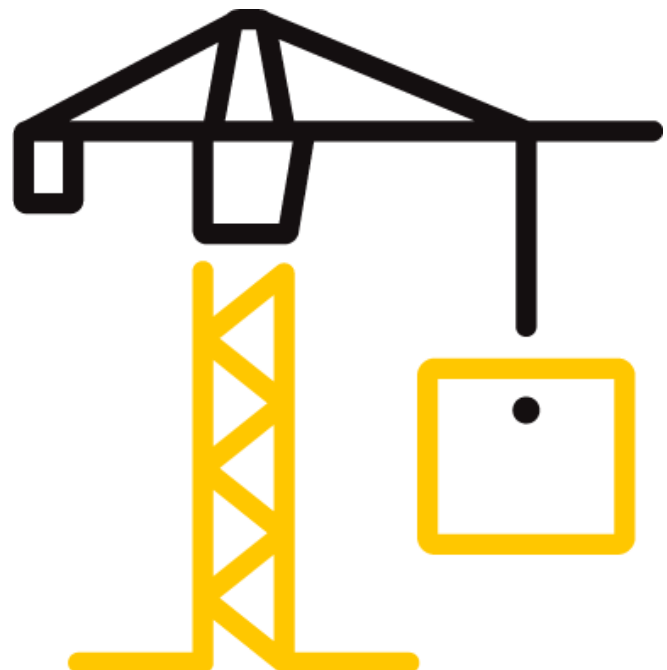
PAGES

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DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2761 (01/17/21)

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TEST REPORT FOR KINETICS NOISE CONTROL

Report No.: M6557.02-113-11-R0

Date: 09/29/21

REPORT ISSUED TO KINETICS NOISE CONTROL

6300 Irelan Place

P.O. Box 655

Dublin, Ohio 43017-0655

SECTION 1 SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Kinetics Noise Control 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:	Andrew M. Johnston	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician Acoustical Testing	TITLE:	Project Lead Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	09/29/21	DATE:	09/29/21

AMJ:jmcs

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	RT-7
TYPE	Noise Barrier Panel
DATA FILE NO.	M6557.01B
STC	47
OITC	33

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 E413-16, *Classification for Rating Sound Insulation*

ASTM E1332-16, *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
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	63763-3*	04/20
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125*	05/20
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126*	05/20
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64902	11/20
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT02256	01/21
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65103	03/21
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64905	03/21
Source Room Microphone	PCB piezotronics	378B20	Microphone and Preamplifier	64906	03/21
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/21
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64908	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	11/20
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	01/21
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	02/21
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/21

*- 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
Andrew M. Johnston	Intertek B&C
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

MATERIAL	ACTUAL THICKNESS (inches)	AVERAGE WEIGHT
KNM-200B	0.20	2.0 lbs/ft ²
FIBERGLASS	2.00	0.5 lbs/ft ²
GYPSUM BOARD	0.625	2.1 lbs/ft ²
FIBERGLASS	2.00	0.5 lbs/ft ²
GYPSUM BOARD	0.625	2.1 lbs/ft ²
FIBERGLASS	2.00	0.5 lbs/ft ²
KNM-200B	0.20	2.0 lbs/ft ²

COMMENTS

The test specimen had a total nominal thickness of 7-3/4". All material layers were 72" by 48" sheets.

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft ²)
247	10.29

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

M6557.01B DATA

SPECIMEN AREA	2.23 m ²	RECEIVE TEMP.	22.2 °C	SOURCE TEMP	21.4 °C
TECHNICIAN	Andrew M. J...	RECEIVE HUMIDITY	48%	SOURCE HUMIDIT	50%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	31.5	5.2	108	83	21	2.40	-
100	32.0	5.6	108	84	20	2.45	-
125	34.2	5.9	108	81	23	1.31	8
160	41.4	5.7	110	69	38	0.71	0
200	40.6	5.2	110	59	48	0.50	0
250	29.7	5.7	107	53	51	0.78	0
315	24.1	6.2	108	50	55	0.54	0
400	20.4	6.8	110	48	58	0.35	0
500	17.0	6.8	108	46	58	0.41	0
630	17.9	6.4	107	42	61	0.37	0
800	14.0	6.6	106	37	66	0.39	0
1000	9.5	6.8	107	35	68	0.36	0
1250	8.8	7.2	106	32	71	0.39	0
1600	7.1	7.5	105	31	70	0.26	0
2000	6.6	8.1	105	33	68	0.31	0
2500	6.7	9.1	106	31	70	0.22	0
3150	7.3	10.6	104	25	73	0.30	0
4000	8.1	13.1	102	18	77	0.33	0
5000	9.2	16.7	102	14	81	0.33	-
STC RATING	47 (Sound Transmission Class)						
DEFICIENCIES	8 (Sum of Deficiencies)						
OITC RATING	33 (Outdoor-Indoor Transmission Class)						

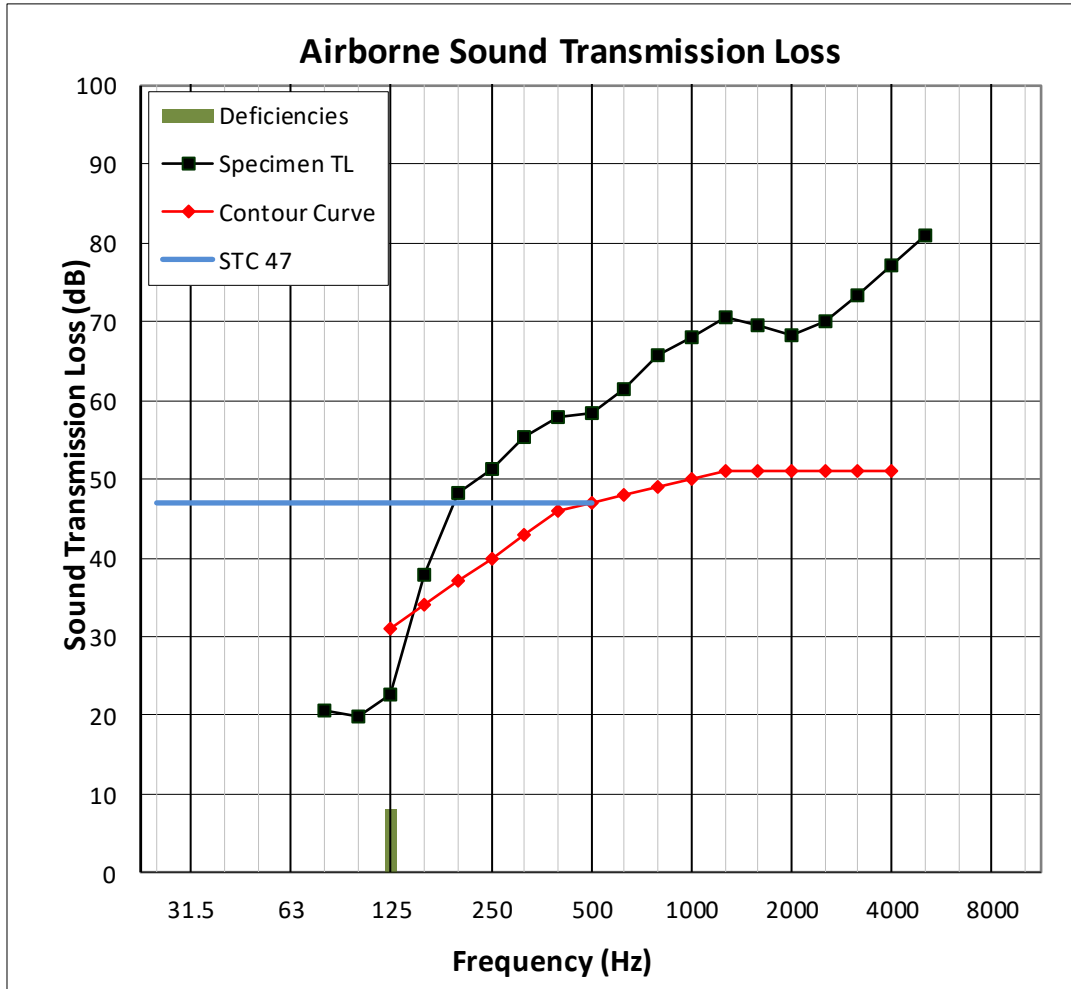
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
 - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
 - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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M6557.01B GRAPH



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SECTION 11

PHOTOGRAPHS

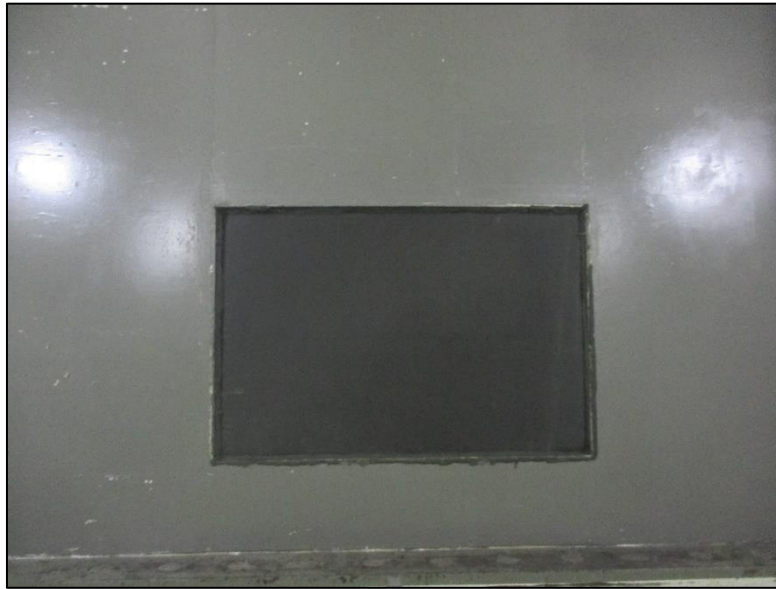


Photo No. 1
Receive Room View of Installed Test Specimen



Photo No. 2
Source Room View of Installed Test Specimen



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SECTION 12

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	09/29/21	N/A	Original Report Issue