

# **THERMA-TRU CORPORATION**

# **ACOUSTICAL PERFORMANCE TEST REPORT**

**SCOPE OF WORK**

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A  
FIBERGLASS NOISE REDUCTION DOOR, 3068 HIGH PERFORMANCE DOOR WITH  
FIBERGLASS SKIN

**REPORT NUMBER**

H6980.01-113-11-R0

**TEST DATE**

12/04/17

**ISSUE DATE**

01/27/18

**RECORD RETENTION END DATE**

12/04/21

**PAGES**

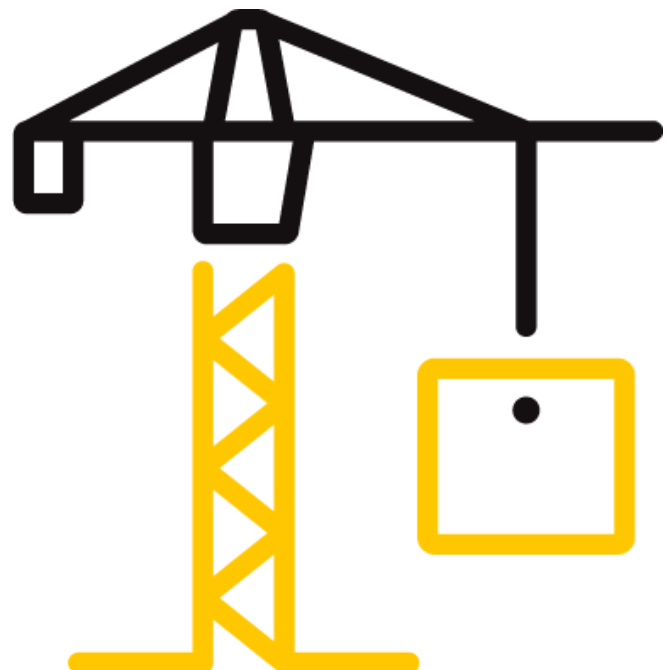
15

**DOCUMENT CONTROL NUMBER**

ATI 00274 (07/24/17)

RT-R-AMER-Test-2756

© 2017 INTERTEK



## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### REPORT ISSUED TO THERMA-TRU CORPORATION

118 Industrial Drive  
Edgerton, Ohio 43517

### SECTION 1 SCOPE

Intertek Building & Construction (B&C) was contracted by Therma-Tru Corporation to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test method(s). 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.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	Zachary P. Golden
<b>TITLE:</b>	Technician I Acoustical Testing
<b>SIGNATURE:</b>	
<b>DATE:</b>	01/27/18

<b>REVIEWED BY:</b>	Kurt A. Golden
<b>TITLE:</b>	Project Lead Acoustical Testing
<b>SIGNATURE:</b>	
<b>DATE:</b>	01/27/18

ZPG:jmcs

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



**TEST REPORT FOR THERMA-TRU CORPORATION**

Report No.: H6980.01-113-11-R0

Date: 01/27/18

**SECTION 2**

**SUMMARY OF TEST RESULTS**

**OPTION A**

<b>SERIES/MODEL</b>	Fiberglass Noise Reduction Door
<b>TYPE</b>	3068 High Performance Door with Fiberglass Skin
<b>DESCRIPTION</b>	1/2" IG (1/8" tempered, 1/4" air space, 1/8" tempered)
<b>TEST CONDITION</b>	Inoperable (sealed with duct seal on both sides)
<b>DATA FILE NO.</b>	H6980.01A
<b>STC</b>	30
<b>OITC</b>	28

**OPTION A1**

<b>SERIES/MODEL</b>	Fiberglass Noise Reduction Door
<b>TYPE</b>	3068 High Performance Door with Fiberglass Skin
<b>DESCRIPTION</b>	1/2" IG (1/8" tempered, 1/4" air space, 1/8" tempered)
<b>TEST CONDITION</b>	Operable
<b>DATA FILE NO.</b>	H6980.01A1
<b>STC</b>	30
<b>OITC</b>	28

**SECTION 3**

**TEST METHODS**

The specimens were evaluated in accordance with the:

**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 (2012)**, *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### 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.

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### 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	1643A62	04/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126	05/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125	05/16 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00652	12/16
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64903	02/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	02/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	02/17
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	02/17
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/17
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	03/17
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/17
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	Y002919	04/17

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

### TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m <sup>3</sup>	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	207 m <sup>3</sup>	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

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### SECTION 6

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Zachary P. Golden	Intertek B&C
Kurt A. Golden	Intertek B&C
Dan J. Poet	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.

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### 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.

### SECTION 9

#### SPECIMEN DESCRIPTION

	FRAME
SIZE	37-5/8" by 82"
THICKNESS	4-9/16"
CORNERS	Butted
FASTENERS	Screws
SEAL METHOD	Sealant
MATERIAL: JAMBS AND HEAD	Wood
MATERIAL: SILL	Aluminum
REINFORCEMENT	N/A
THERMAL BREAK MATERIAL	N/A

*N/A-Not Applicable*

The leaf was 36" wide by 79-1/4" high by 1-11/16" thick. The daylight opening size was 20-3/4" wide by 62-7/8" high.

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

LEAF LAYERS (OUTSIDE TO INSIDE)	LAYER DESCRIPTION (MATERIAL AND THICKNESS)
1	0.095" Fiberglass skin
2	1-1/2" Engineered lumber core
3	0.095" Fiberglass skin

<b>MEASURED OVERALL INSULATION GLASS UNIT THICKNESS</b>	0.476"
<b>SPACER TYPE</b>	Butyl

	EXTERIOR SHEET	GAP	INTERIOR SHEET
<b>MEASURED THICKNESS</b>	0.116"	0.244"	0.116"
<b>MUNTIN PATTERN</b>	N/A	N/A	N/A
<b>MATERIAL</b>	Tempered	Air*	Tempered
<b>LAMINATE MATERIAL</b>	N/A	N/A	N/A

<b>GLAZING METHOD</b>	Channel
<b>GLAZING MATERIAL</b>	Foam tape
<b>GLAZING BEAD MATERIAL</b>	Vinyl

	TYPE	QUANTITY	LOCATION
<b>WEATHERSTRIP</b>	Therma-Tru's Long Reach foam filled	1 Row	Head and lock jamb
	Q-Lon p/n QEBD-825 foam filled	1 Row	Hinge jamb
	Therma-Tru double bulb PVC door bottom	1 Row	Bottom rail
<b>HARDWARE</b>	Hinge	4	Hinge stile
	Lock assembly set	1	Lock stile
	Keeper	2	Keeper jamb
<b>DRAINAGE</b>	Sloped sill	1	Sill

<b>TOTAL WEIGHT (lbs)</b>	<b>AVERAGE WEIGHT (lbs/ft<sup>2</sup>)</b>
121	5.65

\* - Stated per Client/Manufacturer, N/A-Not Applicable

Photographs are included in Section 11. The client did not supply a report drawing of the test specimen.



**TEST REPORT FOR THERMA-TRU CORPORATION**

Report No.: H6980.01-113-11-R0

Date: 01/27/18

**MANUFACTURER'S DESCRIPTION\***

The test specimen was a Therma-Tru fiberglass Noise Reduction door assembly with a Therma-Tru Lite Assembly. The frame was 3/4 inch (19.1 mm) inside / 1-1/2 inch (38.1 mm) outside by 4-9/16 inch (116 mm) wood on the sides and top. At the bottom was a Therma-Tru adjustable sill assembly.

The specimen was installed by sliding it completely into the test chamber opening and capturing it with screws through the frame at the hinges and strike. The specimen was sealed into the test chamber opening with a heavy duct seal putty around the entire perimeter on both sides.

The door consisted of fiberglass skins with an engineered lumber core with a Therma-Tru lite assembly. The vision lite was approximately 22 inches (559 mm) wide by 64 inches (1.63 m) high and consisted of a 1/2 inch (25.4 mm) dual glazed unit which was 1/8 tempered glass, 1/4 inch (12.7 mm) air space, and 1/8 inch (3.2 mm) tempered glass. The unit was sealed only on the exterior side with a glazing bead and was captured by screwing together the two glazing lite frame members. The overall thickness of the door panel was 1-11/16 inches (42.9 mm) and it was hung on three, 4 inch (102 mm) hinges. The weather stripping used was Therma-Tru's Long Reach foam-filled weather strip on the top and lock side jambs. The hinge side jamb used Q-Lon p/n QEBD-825 foam-filled weather strip. The sealing on the bottom was the Therma-Tru double bulb PVC door bottom. An aluminum threshold with a 3/8 inch (9.5 mm) rise was located on the sill.

The door panel was held in the closed position with a knobbed lockset. The net outside frame dimensions of the door assembly were 37-5/8 inches (953 mm) wide by 82 inches (2.08 m) high by 4-9/16 inches (116 mm) thick. The overall weight of the door assembly was 121 lbs. (54.9 kg). The dimensions of the door panel were 36 inches (914 mm) wide by 79-1/4 inches (2.01 m) high by 1-11/16 inches (42.9 mm) thick. The door was opened and closed five times immediately prior to the test.

\* - Stated per Client/Manufacturer

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### SECTION 10

#### TEST RESULTS

#### H6981.01A (INOPERABLE CONDITION)

<b>SPECIMEN AREA</b>	1.99 m <sup>2</sup>	<b>RECEIVE TEMP.</b>	22.1 °C	<b>SOURCE TEMP</b>	20.5 °C
<b>TECHNICIAN</b>	Zachary Gol	<b>RECEIVE HUMIDITY</b>	49%	<b>SOURCE HUMIDITY</b>	48%

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	36.2	5.2	105	78	25	1.44	-
100	35.3	6.2	106	76	26	1.64	-
125	33.0	5.2	105	74	28	1.43	0
160	38.7	4.4	105	76	26	0.96	0
200	35.2	4.6	107	78	25	0.79	0
250	31.3	5.3	107	75	28	0.58	0
315	27.3	5.6	99	70	25	0.38	1
400	24.6	6.0	96	70	21	0.60	8
500	22.2	6.0	97	66	26	0.48	4
630	19.4	5.7	101	66	31	0.53	0
800	18.2	6.0	100	64	32	0.45	0
1000	13.1	6.1	97	57	35	0.46	0
1250	14.2	6.6	98	54	38	0.26	0
1600	11.2	7.1	101	56	39	0.33	0
2000	7.3	7.5	95	49	41	0.32	0
2500	6.2	8.5	94	46	41	0.27	0
3150	5.1	10.2	97	51	39	0.24	0
4000	5.5	12.6	95	54	34	0.26	0
5000	6.3	16.1	94	49	36	0.31	-
<b>STC RATING</b>	30 (Sound Transmission Class)						
<b>DEFICIENCIES</b>	13 (Sum of Deficiencies)						
<b>OITC RATING</b>	28 (Outdoor-Indoor Transmission Class)						

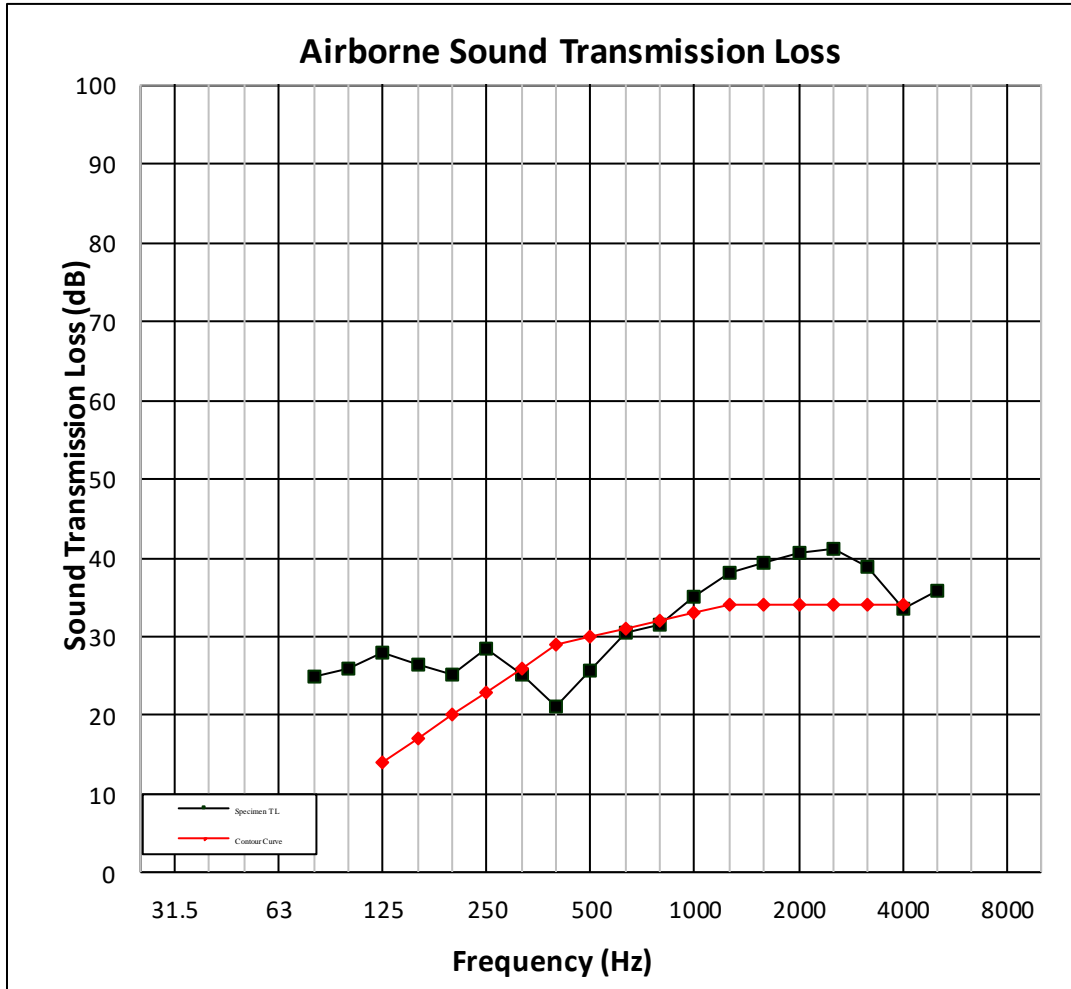
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
  - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
  - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### H6981.01A GRAPH (INOPERABLE CONDITION)



## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### H6981.01A1 (OPERABLE CONDITION)

<b>SPECIMEN AREA</b>	1.99 m <sup>2</sup>	<b>RECEIVE TEMP.</b>	22.1 °C	<b>SOURCE TEMP</b>	21.1 °C
<b>TECHNICIAN</b>	Zachary Gol	<b>RECEIVE HUMIDITY</b>	48%	<b>SOURCE HUMIDIT</b>	47%

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	38.4	5.0	105	78	24	1.60	-
100	33.8	5.3	106	76	27	1.91	-
125	34.9	5.6	105	74	28	1.18	0
160	38.7	4.4	105	76	26	1.02	0
200	35.4	4.6	107	78	25	0.80	0
250	29.6	5.2	107	75	28	0.60	0
315	24.3	5.5	99	70	25	0.38	1
400	21.6	5.8	96	70	21	0.54	8
500	18.5	5.9	97	67	26	0.60	4
630	17.7	5.8	101	66	30	0.55	1
800	15.7	6.1	100	65	31	0.49	1
1000	10.8	6.2	97	59	33	0.53	0
1250	9.3	6.7	98	59	34	0.35	0
1600	6.4	7.2	101	62	33	0.37	1
2000	4.7	7.6	95	55	34	0.29	0
2500	4.8	8.6	94	51	36	0.32	0
3150	4.6	10.4	97	53	36	0.25	0
4000	5.2	12.7	95	54	33	0.24	1
5000	6.0	16.3	94	50	35	0.32	-
<b>STC RATING</b>	30 (Sound Transmission Class)						
<b>DEFICIENCIES</b>	17 (Sum of Deficiencies)						
<b>OITC RATING</b>	28 (Outdoor-Indoor Transmission Class)						

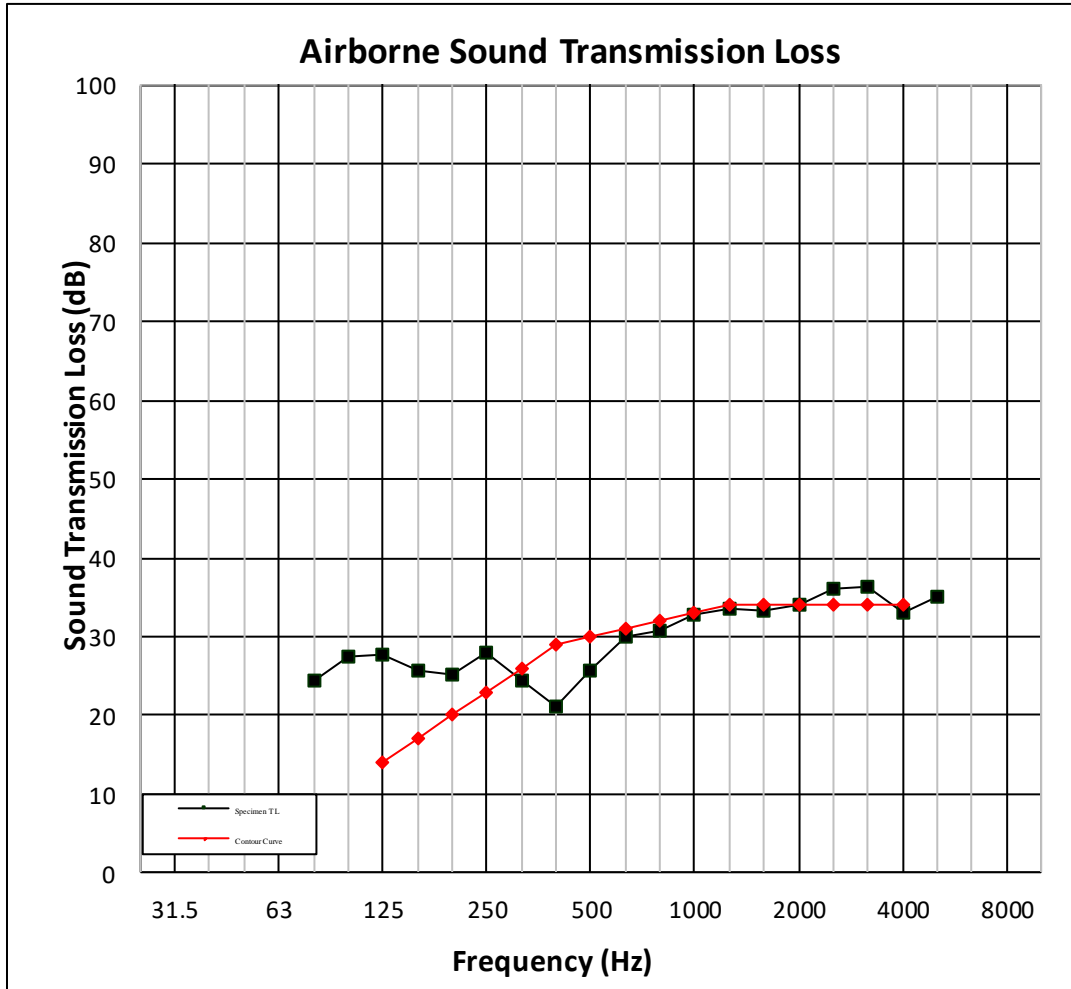
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
  - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
  - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### H6981.01A1 GRAPH (OPERABLE CONDITION)



## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### SECTION 11

### PHOTOGRAPHS



**Photo No. 1**  
**Receive Room View of Test Specimen**



**Photo No. 2**  
**Source Room View of Test Specimen**



Total Quality. Assured.

130 Derry Court  
York, Pennsylvania 17406

Telephone: 717-764-7700  
Facsimile: 717-764-4129  
[www.intertek.com/building](http://www.intertek.com/building)

## TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: H6980.01-113-11-R0

Date: 01/27/18

### SECTION 12

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/27/18	N/A	Original Report Issue