

ALL SEASONS WINDOW & DOOR SYSTEMS, INC. ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON EU-400, CASEMENT WINDOW

REPORT NUMBER

I9684.01-113-11-R0

TEST DATE

10/16/18

ISSUE DATE

10/23/18

PAGES

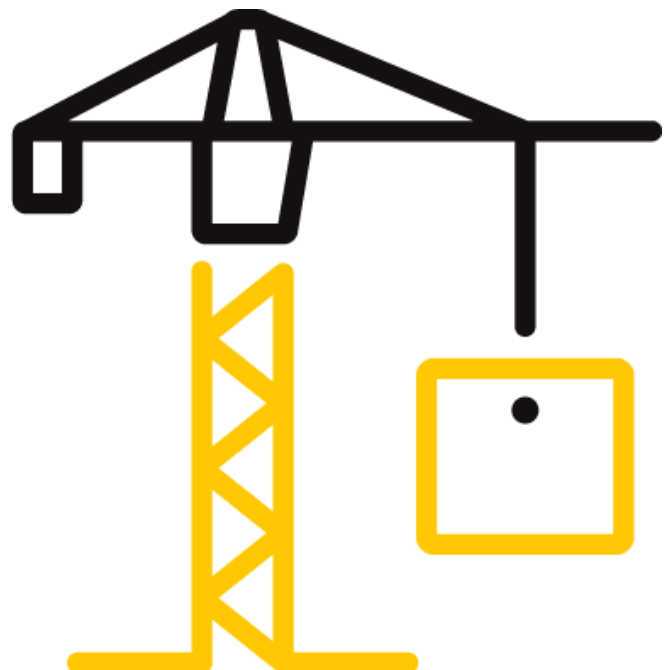
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TEST REPORT FOR ALL SEASONS WINDOW & DOOR SYSTEMS, INC.

Report No.: I9684.01-113-11-R0

Date: 10/23/18

REPORT ISSUED TO ALL SEASONS WINDOW & DOOR SYSTEM, INC.

1340 Metropolitan Avenue
Brooklyn, New York 11237

SECTION 1 SCOPE

Intertek Building & Construction (B&C) was contracted by All Seasons Window & Door Systems, Inc. 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.

For INTERTEK B&C:

COMPLETED BY:	Sean G. Close	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician Team Leader Acoustical Testing	TITLE:	Project Lead Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	10/23/18	DATE:	10/23/18

SGC:jmcs

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SECTION 2**SUMMARY OF TEST RESULTS**

SERIES/MODEL	EU-400
TYPE	Casement window

OPTION I9684.01A

GLAZING (Nominal Dimensions)	1-1/4" IG (1/4" laminated exterior, 13/16" air space, 3/16" annealed interior), Glass temperature 75°F
DATA FILE NO.	I9684.01A
STC	38
OITC	28

OPTION I9684.01B2

GLAZING (Nominal Dimensions)	1-1/4" IG (3/16" annealed, 7/8" air space, 3/16" annealed)
DATA FILE NO.	I9684.01B2
STC	33
OITC	24

OPTION I9684.01C

GLAZING (Nominal Dimensions)	1-3/16" IG (1/4" laminated, 11/16" air space, 1/4" laminated) ,Glass temperature 75°F
DATA FILE NO.	I9684.01C
STC	37
OITC	29

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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 (2012), *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	65125*	05/18
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126*	05/18
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	63763-3*	04/18
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	04/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64903	05/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65106	03/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	03/18
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	03/18
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/18
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	03/18
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/18
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/18

*- 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

N/A-Not Applicable

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Sean G. Close	Intertek B&C
Kurt A. Golden	Intertek B&C

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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

	FRAME	VENT
SIZE	47-1/4" by 59"	45-1/4" by 57"
THICKNESS	4"	3-1/2"
CORNERS	Mitered	Mitered
FASTENERS	Keyed and staked	Keyed and staked
SEAL METHOD	Sealant	Sealant
MATERIAL	Aluminum	Aluminum
REINFORCEMENT	N/A	N/A
THERMAL BREAK MATERIAL	Insulbar	Insulbar
DAYLIGHT OPENING SIZE	N/A	39-1/4" by 51-1/4"

OPTION I9684.01A

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.231"		
SPACER TYPE	Aluminum		
	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.112", 0.029", 0.112"	0.796"	0.182"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Laminated	Air*	Annealed
LAMINATE MATERIAL	PVB	N/A	N/A
GLAZING METHOD	Interior		
GLAZING MATERIAL	EPDM		
GLAZING BEAD MATERIAL	Aluminum		

OPTION I9684.01B2

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.263"		
SPACER TYPE	Aluminum		
	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.183"	0.897"	0.183"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Annealed	Air*	Annealed
LAMINATE MATERIAL	N/A	N/A	N/A
GLAZING METHOD	Interior		
GLAZING MATERIAL	EPDM		
GLAZING BEAD MATERIAL	Aluminum		

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

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OPTION I9684.01C

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS		1.247"	
SPACER TYPE	Aluminum		
	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.112", 0.028", 0.113"	0.741"	0.111, 0.031", 0.111"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Laminated	Air*	Laminated
LAMINATE MATERIAL	PVB	N/A	PVB
GLAZING METHOD	Interior		
GLAZING MATERIAL	EPDM		
GLAZING BEAD MATERIAL	Aluminum		

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	1/4" Leaf gasket	1 Row	Frame perimeter
	3/4" Multi-fin leaf gasket	1 Row	Frame perimeter
	3/8" Leaf gasket	1 Row	Vent perimeter
HARDWARE	Multi-point lock system	1	Lock stile
	Keeper	5	Vent perimeter
	Snubber	1	Hinge stile
	Hidden hinge system	1	Corner of head and sill
DRAINAGE	No drainage		

OPTION	TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft²)
A	143	7.39
B2	134	6.92
C	154	7.95

* - 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.

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SECTION 10

TEST RESULTS

OPTION I9684.01A DATA

SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	21.3 °C	SOURCE TEMP	21.6 °C
TECHNICIAN	Sean G. Clos	RECEIVE HUMIDITY	50%	SOURCE HUMIDITY	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	39.8	5.7	102	76	22	2.61	-
100	41.3	5.7	104	74	25	2.37	-
125	37.8	6.4	104	77	22	1.42	0
160	40.8	5.4	106	84	17	1.37	8
200	39.4	5.2	105	80	20	1.02	8
250	31.6	5.4	102	68	29	0.62	2
315	29.9	5.6	101	63	33	0.43	1
400	22.5	5.8	101	62	34	0.46	3
500	19.1	6.3	101	58	38	0.46	0
630	20.5	5.9	100	53	42	0.48	0
800	19.6	6.0	99	49	45	0.41	0
1000	17.0	6.2	101	49	46	0.43	0
1250	12.5	6.8	99	47	46	0.36	0
1600	9.9	7.1	99	47	46	0.43	0
2000	9.4	7.5	99	49	44	0.31	0
2500	8.9	8.6	99	51	41	0.25	1
3150	9.0	10.2	98	47	44	0.32	0
4000	9.5	12.6	96	38	50	0.42	0
5000	10.6	16.2	96	36	51	0.43	-
STC RATING	38 (Sound Transmission Class)						
DEFICIENCIES	23 (Sum of Deficiencies)						
OITC RATING	28 (Outdoor-Indoor Transmission Class)						

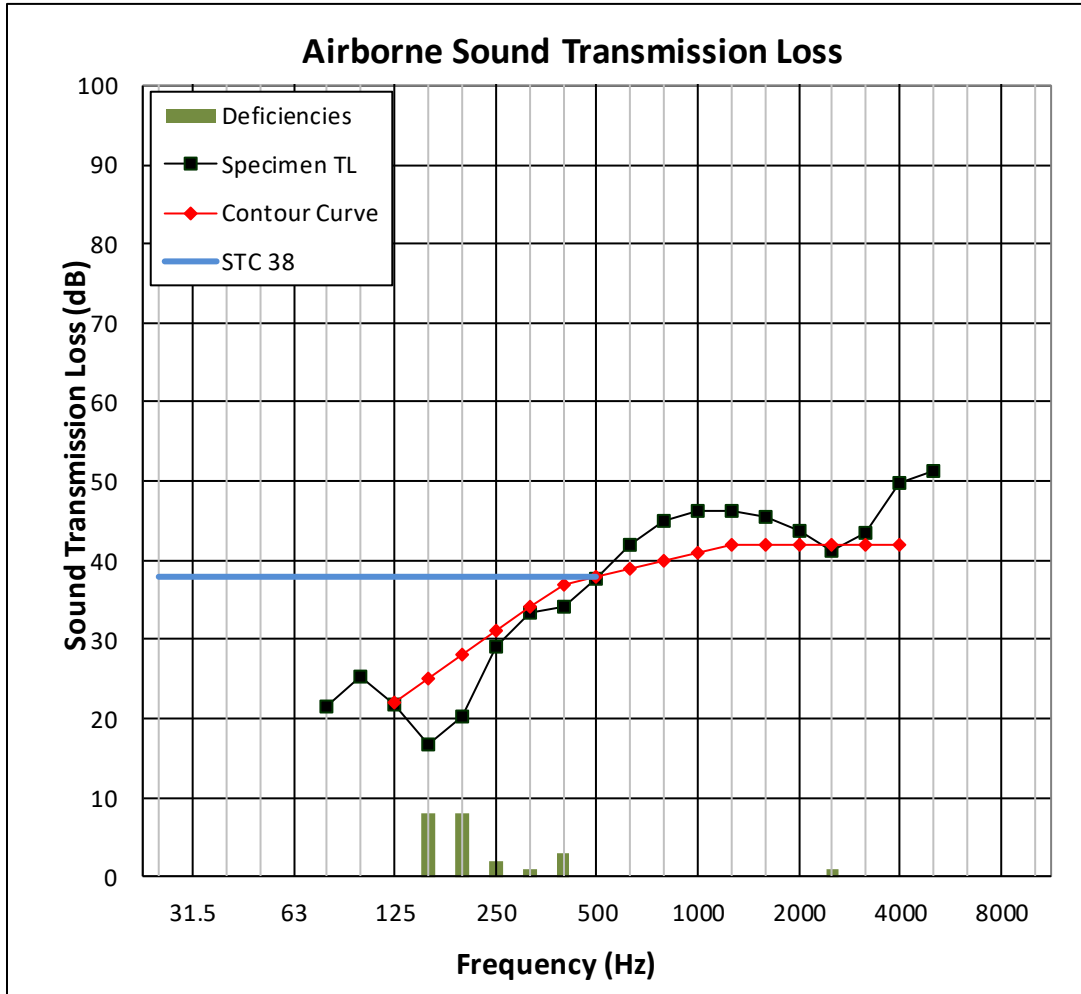
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
 - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
 - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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OPTION I9684.01A GRAPH



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OPTION I9684.01B2 DATA

SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	21.3 °C	SOURCE TEMP	21.8 °C
TECHNICIAN	Sean G. Clos	RECEIVE HUMIDITY	53%	SOURCE HUMIDIT	52%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	39.0	6.0	102	77	20	2.35	-
100	38.3	6.8	104	74	24	1.97	-
125	38.6	6.5	104	83	15	1.14	2
160	44.7	5.2	106	89	13	1.00	7
200	40.9	4.8	105	84	16	1.07	7
250	40.1	5.5	102	72	24	0.67	2
315	36.1	5.8	101	68	28	0.44	1
400	30.4	6.1	101	67	29	0.43	3
500	28.3	6.2	101	62	34	0.46	0
630	25.5	5.8	101	58	37	0.45	0
800	24.0	6.1	99	54	40	0.45	0
1000	22.2	6.3	101	53	42	0.41	0
1250	22.7	6.8	99	52	41	0.29	0
1600	21.2	7.1	99	52	41	0.44	0
2000	20.0	7.5	99	54	39	0.22	0
2500	16.9	8.6	100	59	33	0.25	4
3150	13.8	10.1	98	55	35	0.24	2
4000	10.1	12.4	96	46	42	0.33	0
5000	7.7	15.8	97	40	47	0.44	-
STC RATING	33 (Sound Transmission Class)						
DEFICIENCIES	28 (Sum of Deficiencies)						
OITC RATING	24 (Outdoor-Indoor Transmission Class)						

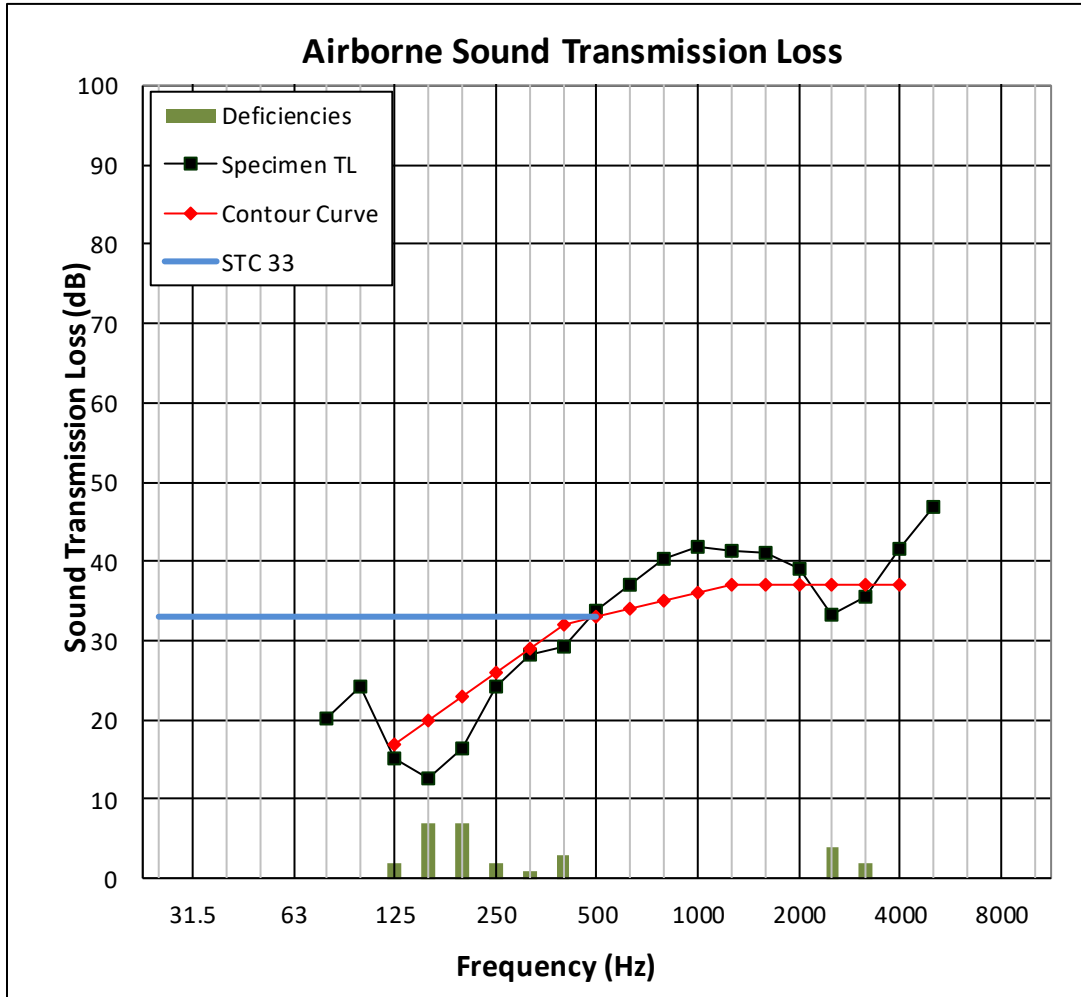
- Notes:**
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 - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
 - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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OPTION I9684.01B2 GRAPH



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OPTION I9684.01C DATA

SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	21.7 °C	SOURCE TEMP	23.2 °C
TECHNICIAN	Sean G. Clos	RECEIVE HUMIDITY	52%	SOURCE HUMIDIT	52%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	40.8	6.1	102	75	23	2.45	-
100	41.5	5.9	103	74	25	2.51	-
125	37.8	6.1	104	72	27	1.22	0
160	44.2	5.5	106	82	19	0.97	5
200	39.4	5.1	105	81	19	0.97	8
250	37.5	5.5	101	67	30	0.67	0
315	32.8	5.8	101	62	34	0.39	0
400	28.1	6.0	101	60	35	0.35	1
500	25.4	6.2	101	56	39	0.48	0
630	23.1	5.9	100	52	43	0.44	0
800	21.6	6.1	99	47	47	0.46	0
1000	19.8	6.3	101	47	48	0.47	0
1250	20.1	6.8	99	45	48	0.40	0
1600	20.3	7.2	99	44	49	0.39	0
2000	18.3	7.6	99	44	49	0.35	0
2500	15.6	8.6	99	44	49	0.30	0
3150	13.9	10.1	98	39	51	0.30	0
4000	9.6	12.5	96	34	54	0.37	0
5000	7.4	15.9	97	32	56	0.42	-
STC RATING	37 (Sound Transmission Class)						
DEFICIENCIES	14 (Sum of Deficiencies)						
OITC RATING	29 (Outdoor-Indoor Transmission Class)						

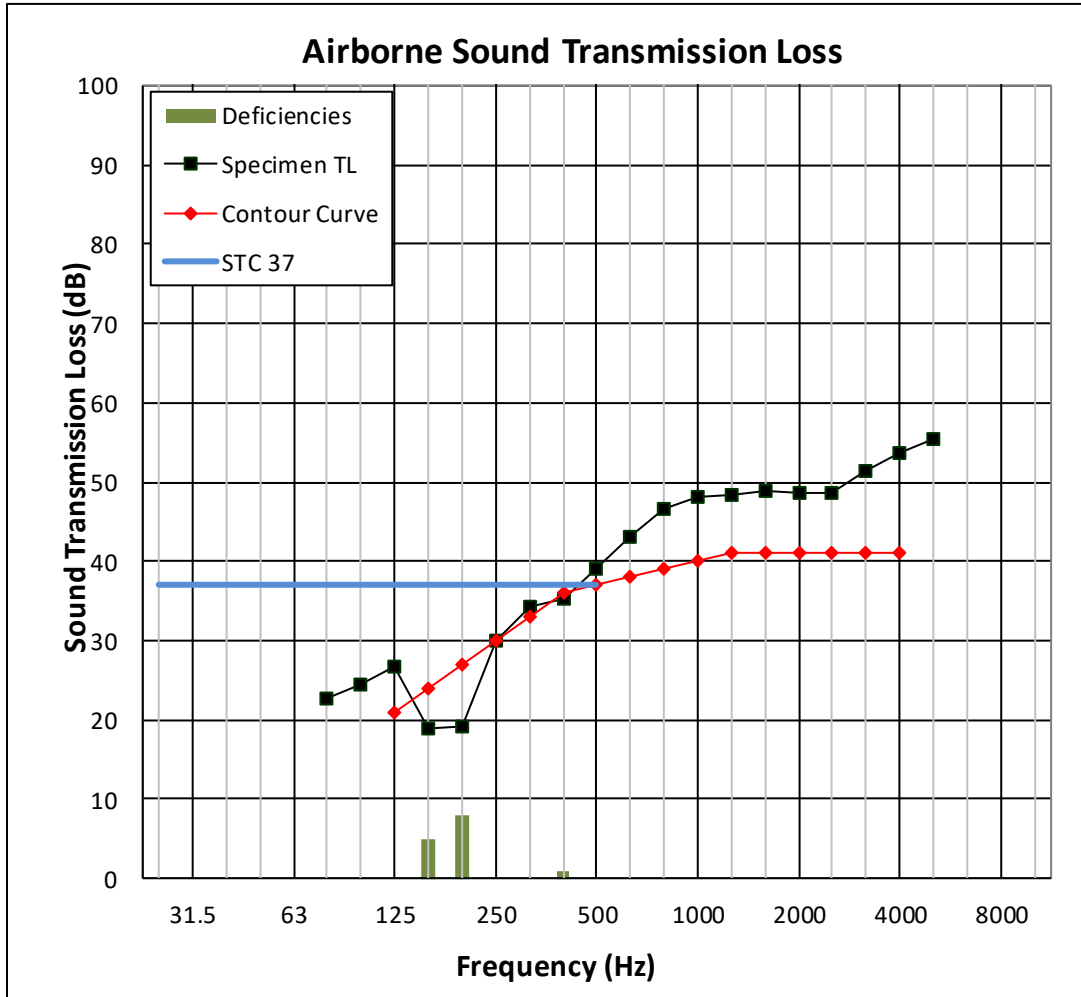
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SECTION 11

PHOTOGRAPHS



Photo No. 1
Receive Room View of Installed Specimen



Photo No. 2
Source Room View of Installed Specimen



Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
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SECTION 12

REVISION LOG

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