

VALUE WINDOWS & DOORS

ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A EUROTEK 4000,
SINGLE CASEMENT WINDOWS

REPORT NUMBER

H2270.01-303-11

TEST DATE(S)

08/21/17 AND 09/26/17

ISSUE DATE

10/11/17

RECORD RETENTION END DATE

09/26/21

PAGES

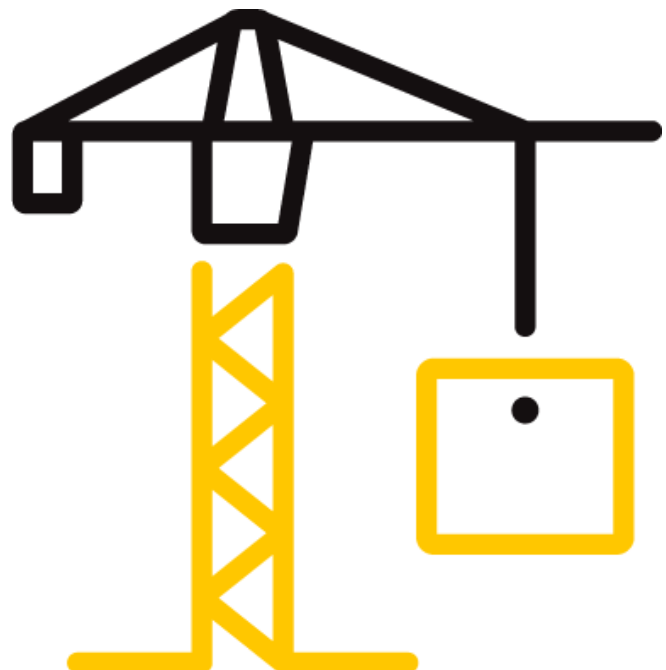
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TEST REPORT FOR VALUE WINDOWS & DOORS

Report No.: H2270.01-303-11

Date: 10/11/17

REPORT ISSUED TO

VALUE WINDOWS & DOORS

1830 Flower Avenue

Duarte, California 91010

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Value Windows & Doors 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 Lake Forest, California.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

For INTERTEK B&C:

COMPLETED BY:	Leeland S. Hoover	REVIEWED BY:	Bradlay D. Hunt
TITLE:	Technician I	TITLE:	Laboratory Manager
SIGNATURE:		SIGNATURE:	
DATE:	10/11/17	DATE:	10/11/17

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	EuroTek 4000
TYPE	Casement Window
GLAZING (Nominal Dimensions)	1-3/8" IG (3/16" Tempered Exterior, 1" Air Space, 3/16" Tempered Interior)
DATA FILE NO.	H2270.01A
STC	34
OITC	26

SERIES/MODEL	EuroTek 4000
TYPE	Casement Window
GLAZING (Nominal Dimensions)	1-9/16" IG (1/4" Laminate Exterior, 7/16" Air Space, 1/4" Laminate, 7/16" Air Space, 3/16" Tempered Interior) Glass Temperature at 75°F
DATA FILE NO.	H2270.01B
STC	38
OITC	31

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SECTION 3

TEST METHOD(S)

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. A filler wall-reducing element was used to adjust the test opening size to accommodate the test specimen. The reducing element consisted of a double 2x6 wood stud wall construction with three layers of 5/8" drywall on both sides. The stud cavities in the wall were insulated with two layers of R-19 fiberglass insulation. The specimen was placed on an isolation pad in the custom 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.

INSTRUMENTATION

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Unit	National Instruments	PXI-4462	Input Card	INT00627	10/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	INT00395	10/16
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	INT00396	10/16
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	INT00397	10/16
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00239	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00240	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00241	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00242	04/17
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	INT00243	04/17
Receive Room Microphone	PBC Piezotronics	378C20	Microphone and Preamplifier	INT00244	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00245	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00246	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00247	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00228	04/17
Receive Room Environmental Indicator	Comet	T7510	Receive Room	INT00299	10/17
Source Room Environmental Indicator	Comet	T7510	Source Room	INT00300	10/17
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	INT00288	06/17

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

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	231 m ³	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	196 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

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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Leeland S. Hoover	Intertek B&C
Ryan R. Lau	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 at each of five microphone positions in the receive and source rooms. 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	ACTIVE VENT
SIZE	47-1/4" by 59"	44" by 55-1/2"
THICKNESS	2-3/4"	2-3/4"
CORNERS	Mitered	Mitered
FASTENERS	Welds	Welds
SEAL METHOD	Foam pads	Foam pads
MATERIAL	Vinyl	Vinyl
REINFORCEMENT	Aluminum located in all members	Aluminum located in all members
THERMAL BREAK MATERIAL	N/A	N/A
DAYLIGHT OPENING SIZE	N/A	37-3/4" by 49-1/4"

OPTION A

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.313"
SPACER TYPE	Foam Over Butyl

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.180"	0.954"	0.179"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Tempered
LAMINATE MATERIAL	N/A	N/A	N/A

GLAZING METHOD	Interior
GLAZING MATERIAL	Rubber Gasket
GLAZING BEAD MATERIAL	Vinyl

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs / ft ²)
128	6.61

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

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GLASS OPTION 2

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.551"
SPACER TYPE	Foam Over Butyl

	EXTERIOR SHEET	GAP	MIDDLE SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.113", 0.025", 0.115"	0.448"	0.113", 0.027, 0.114"	0.416"	0.180"
MUNTIN PATTERN	N/A	N/A	N/A	N/A	N/A
MATERIAL	Laminate	Air	Laminate	Air	Tempered
LAMINATE MATERIAL	PVB	N/A	PVB	N/A	N/A

GLAZING METHOD	Interior
GLAZING MATERIAL	Rubber Gasket
GLAZING BEAD MATERIAL	Vinyl

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	Rubber Gasket	1	Perimeter of Frame
	Hollow Bulb Gasket	1	Perimeter of Frame
HARDWARE	Multi-Point Lock with Handle	1	Stile
	Metal Keepers	10	Sill (2), Head (2), Jamb (6)
	Mutli-Point Hinge	2	Jamb
DRAINAGE	1/8" by 1" Weep Slots	2	Sill

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs / ft²)
178	9.19

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

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

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SECTION 10

OPTION A TEST RESULTS

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	08/21/17				
DATA FILE NO.	H2270.01A				
CLIENT	Value Windows and Doors				
DESCRIPTION	Series/Model: EuroTek Series 4000 Window with 1-3/8" IG (3/16" Tempered Exterior, 1" Air Space, 3/16" Tempered Interior)				
SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	20.3 °C	SOURCE TEMP	19.9 °C
TECHNICIAN	Leeland S. Ho	RECEIVE HUMIDITY	49%	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	45.8	4.9	104	76	25	1.51	-
100	38.1	5.2	105	78	23	1.35	-
125	43.2	5.0	105	82	19	1.15	0
160	45.2	5.4	103	83	15	0.75	6
200	37.5	6.4	105	82	18	0.98	6
250	27.9	6.6	105	77	22	0.97	5
315	24.1	6.7	106	72	28	0.81	2
400	25.4	6.1	106	73	28	0.58	5
500	21.1	5.3	106	65	36	0.35	0
630	20.7	5.8	106	62	39	0.32	0
800	19.8	5.9	106	59	41	0.35	0
1000	14.1	6.0	107	60	41	0.30	0
1250	13.2	6.2	105	57	42	0.18	0
1600	12.7	6.7	104	55	44	0.24	0
2000	10.5	7.9	101	52	43	0.20	0
2500	7.9	8.8	101	61	33	0.25	5
3150	6.5	10.1	101	58	35	0.37	3
4000	6.0	12.5	99	51	40	0.39	0
5000	6.2	15.9	99	42	47	0.42	-
STC RATING	34		<i>(Sound Transmission Class)</i>				
DEFICIENCIES	32		<i>(Sum of Deficiencies)</i>				
OITC RATING	26		<i>(Outdoor-Indoor Transmission Class)</i>				

- 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 VALUE WINDOWS & DOORS

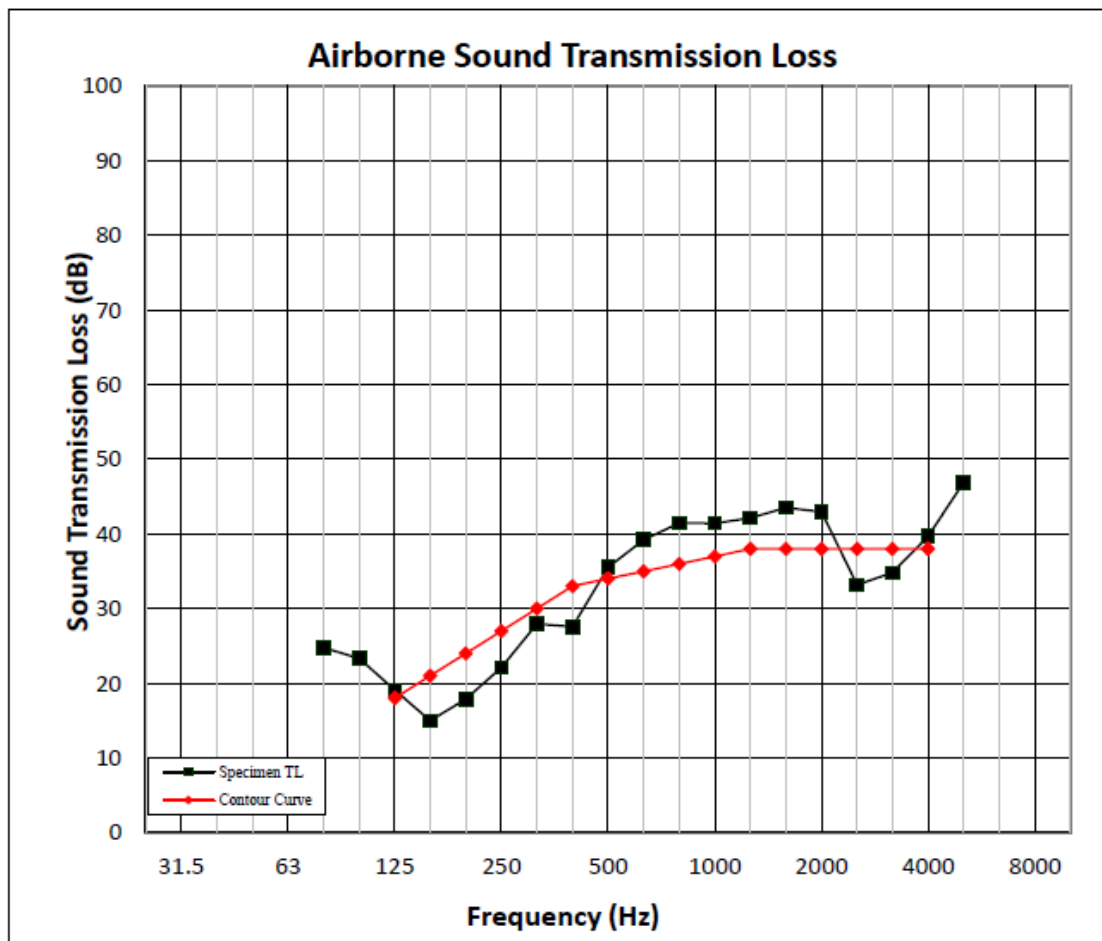
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OPTION A RESULTS GRAPH

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	08/21/17				
DATA FILE NO.	H2270.01A				
CLIENT	Value Windows and Doors				
DESCRIPTION	Series/Model: EuroTek Series 4000 Window with 1-3/8" IG (3/16" Tempered Exterior, 1" Air Space, 3/16" Tempered Interior)				
SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	20.3 °C	SOURCE TEMP	19.9 °C
TECHNICIAN	Leeland S. Ho	RECEIVE HUMIDITY	49%	SOURCE HUMIDITY	52%




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OPTION B TEST RESULTS

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	09/26/17				
DATA FILE NO.	H2270.01B				
CLIENT	Value Windows and Doors				
DESCRIPTION	Series/Model: EuroTek Series 4000 Window with 1-9/16" IG (1/4" Laminate Exterior, 7/16" Air Space, 1/4" Laminate, 7/16" Air Space, 3/16" Tempered Interior) Glass temperature at 75°F				
SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	21.2 °C	SOURCE TEMP	20.0 °C
TECHNICIAN	Leeland S. Ho	RECEIVE HUMIDITY	30%	SOURCE HUMIDIT	31%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	44.3	4.6	104	73	28	1.41	-
100	35.0	4.9	105	76	26	1.48	-
125	39.5	5.3	105	80	21	1.78	1
160	43.3	5.4	104	77	23	0.70	2
200	35.8	6.5	105	74	26	0.61	2
250	24.6	6.8	106	71	29	0.46	2
315	20.8	7.0	106	70	30	0.66	4
400	21.1	6.1	105	68	32	0.51	5
500	19.9	5.4	105	66	34	0.33	4
630	19.5	5.8	106	65	36	0.39	3
800	20.3	5.9	106	62	38	0.32	2
1000	15.6	6.1	107	61	41	0.36	0
1250	14.9	6.3	104	57	42	0.27	0
1600	14.4	7.1	103	54	43	0.15	0
2000	14.2	8.8	100	52	42	0.23	0
2500	13.9	10.5	100	54	38	0.18	4
3150	13.7	12.6	100	50	41	0.45	1
4000	13.5	16.6	98	43	44	0.48	0
5000	13.4	22.1	97	38	47	0.47	-
STC RATING	38 (Sound Transmission Class)						
DEFICIENCIES	30 (Sum of Deficiencies)						
OITC RATING	31 (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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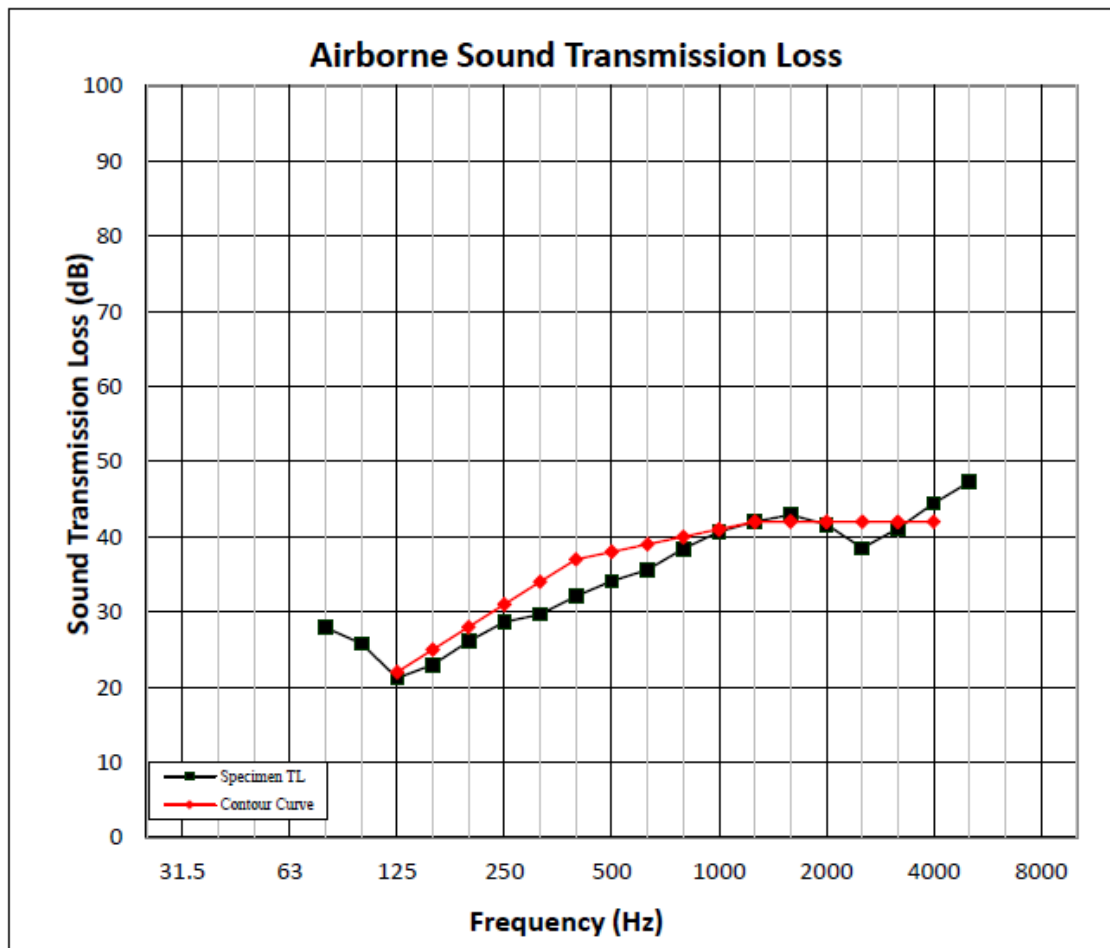
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OPTION B RESULTS GRAPH

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	09/26/17				
DATA FILE NO.	H2270.01B				
CLIENT	Value Windows and Doors				
DESCRIPTION	Series/Model: EuroTek Series 4000 Window with 1-9/16" IG (1/4" Laminate Exterior, 7/16" Air Space, 1/4" Laminate, 7/16" Air Space, 3/16" Tempered Interior) Glass temperature at 75°F				
SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	21.2 °C	SOURCE TEMP	20.0 °C
TECHNICIAN	Leeland S. Ho	RECEIVE HUMIDITY	30%	SOURCE HUMIDIT	31%



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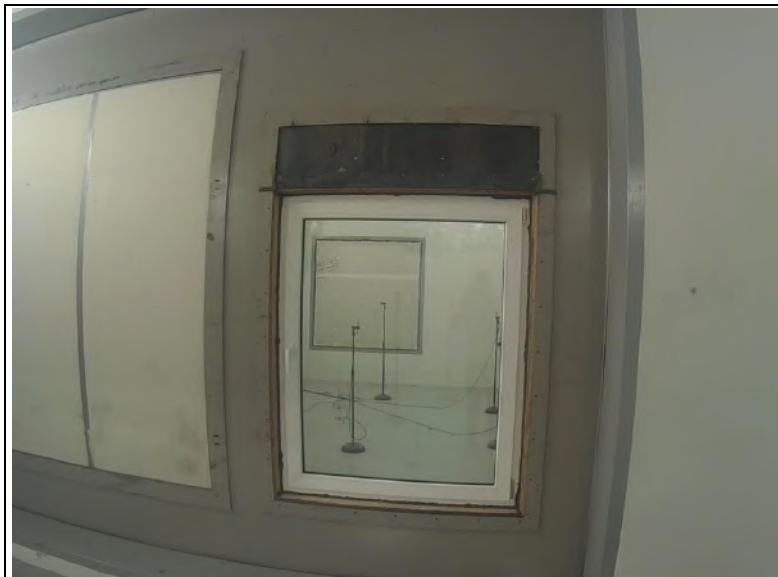
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SECTION 11

PHOTOGRAPHS



Glass Option A
Source Room View of Test Specimen



Glass Option A
Receive Room View of Test Specimen

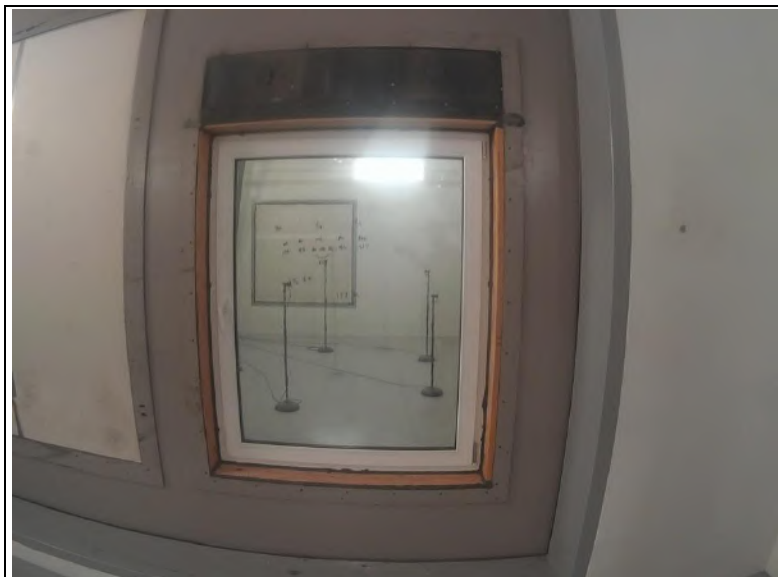
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Glass Option B
Source Room View of Test Specimen



Glass Option B
Receive Room View of Test Specimen



Total Quality. Assured.

25800 Commercentre Drive
Lake Forest, California 92630

Telephone: 949-460-9600
Facsimile: 717-764-4129
www.intertek.com/building

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SECTION 12

REVISION LOG

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