

NEON ENERGY ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A SERIES/MODEL ULTRA-SLIDING WINDOW

REPORT NUMBER

H8639.01-303-11 R0

TEST DATE

01/02/18

ISSUE DATE - REISSUE DATE

01/26/18 10/03/18

RECORD RETENTION END DATE

01/02/22

PAGES

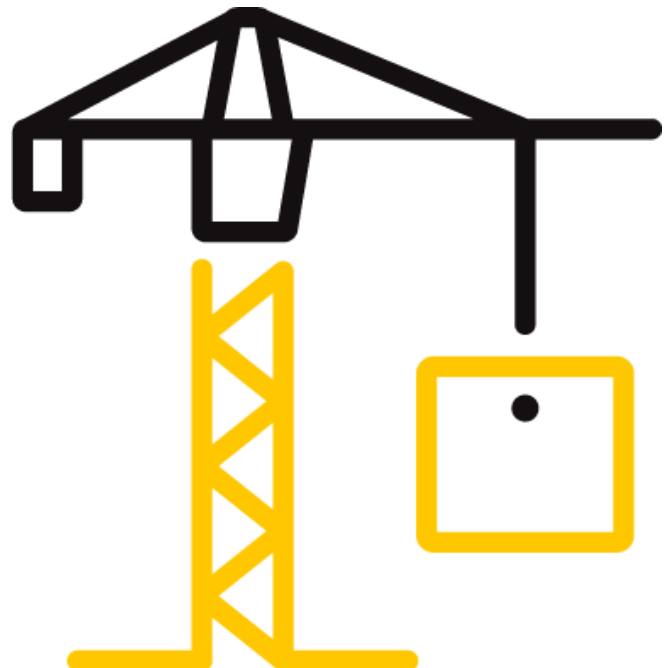
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TEST REPORT FOR NEON ENERGY

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Date: 01/26/18

REPORT ISSUED TO

NEON ENERGY

4989 East La Palma Ave.
Anaheim, California 92807

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Neon Energy 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.

SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	Ultra-Sliding
TYPE	Horizontal Sliding Window
GLAZING (Nominal Dimensions)	7/8" IG (1/4" Tempered Exterior, 7/16" Air Space, 3/16" Tempered Interior)
DATA FILE NO.	H8639.01B
STC	35
OITC	30

For INTERTEK B&C:

COMPLETED BY:	Ryan R. Lau
TITLE:	Technician II
SIGNATURE:	
DATE:	10/03/18

RRL:BDH:ab

REVIEWED BY:	Leeland S. Hoover
TITLE:	Laboratory Manager
SIGNATURE:	
DATE:	10/03/18

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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.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Card	National Instruments	PXIe-4464	Data Acquisition Card	INT00627	10/17 *
Data Acquisition Card	National Instruments	PXIe-4464	Data Acquisition Card	INT00395	10/17 *
Data Acquisition Card	National Instruments	PXIe-4464	Data Acquisition Card	INT00396	10/17 *
Source Room Microphone	PCB Piezotronics	378C20	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
Ryan R. Lau	Intertek B&C
Leeland S. Hoover	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 levels were made simultaneously in the 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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SPECIMEN DESCRIPTION

	FRAME	INTERIOR ACTIVE	EXTERIOR ACTIVE
SIZE	59" by 47-1/4"	30" by 44-3/4"	30" by 44-3/4"
THICKNESS	3-1/2"	1-3/8"	1-3/8"
CORNERS	Mitered	Mitered and Caulked	Mitered and Caulked
FASTENERS	Screws	Screws	Screws
SEAL METHOD	Sealant	Sealant	Sealant
MATERIAL	Aluminum	Aluminum	Aluminum
REINFORCEMENT	N/A	N/A	N/A
THERMAL BREAK MATERIAL	Insulbar	Insulbar	Insulbar
DAYLIGHT OPENING SIZE	N/A	22-3/4" by 37-1/2"	22-3/4" by 37-3/4"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	0.865"
SPACER TYPE	Aluminum

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.231"	0.440"	0.194"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Tempered
LAMINATE MATERIAL	N/A	N/A	N/A

GLAZING METHOD	Channel
GLAZING MATERIAL	N/A
GLAZING BEAD MATERIAL	N/A

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	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	Polypile	18	Perimeter of frame (1), Head (1), Top rail both actives (2 each), Bottom rail both actives (2 each), Lock stile both actives (2), Meeting stile (2 each)
	Hallow bulb gasket	2	Meeting stile
HARDWARE	Multipoint lock	2	Both lock stiles (1 on each)
	Keeper	4	Both lock jambs (2 on each)
DRAINAGE	N/A	N/A	N/A

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

* - 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

TEST RESULTS

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS



TEST DATE	01/02/18				
DATA FILE NO.	H8639.01B				
CLIENT	Neon Energy				
DESCRIPTION	Series/Model: Ultra-Slider Window with 7/8" IG (1/4" Tempered Exterior, 7/16" Air Space, 3/16" Tempered Interior)				
SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	19.0 °C	SOURCE TEMP	18.1 °C
TECHNICIAN	Ryan R. Lau	RECEIVE HUMIDITY	45%	SOURCE HUMIDIT	46%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	47.1	4.6	105	75	27	1.36	-
100	37.2	4.6	105	78	23	1.28	-
125	42.3	4.6	105	77	25	1.09	0
160	44.9	4.9	104	76	24	0.78	0
200	37.6	6.2	105	80	20	0.77	5
250	27.2	6.6	106	70	30	0.73	0
315	22.1	6.7	106	68	33	0.56	0
400	23.2	6.0	105	69	31	0.55	3
500	19.0	5.3	105	64	36	0.22	0
630	18.6	5.6	107	66	36	0.33	0
800	22.1	5.8	106	64	37	0.31	0
1000	15.4	5.9	107	65	37	0.22	1
1250	19.7	6.2	105	63	36	0.27	3
1600	15.1	6.9	104	61	37	0.25	2
2000	13.5	7.9	101	58	36	0.21	3
2500	10.5	9.0	101	58	35	0.21	4
3150	8.3	10.4	100	56	37	0.28	2
4000	6.6	12.9	99	49	41	0.40	0
5000	5.9	16.7	98	44	44	0.54	-
STC RATING	35 (Sound Transmission Class)						
DEFICIENCIES	23 (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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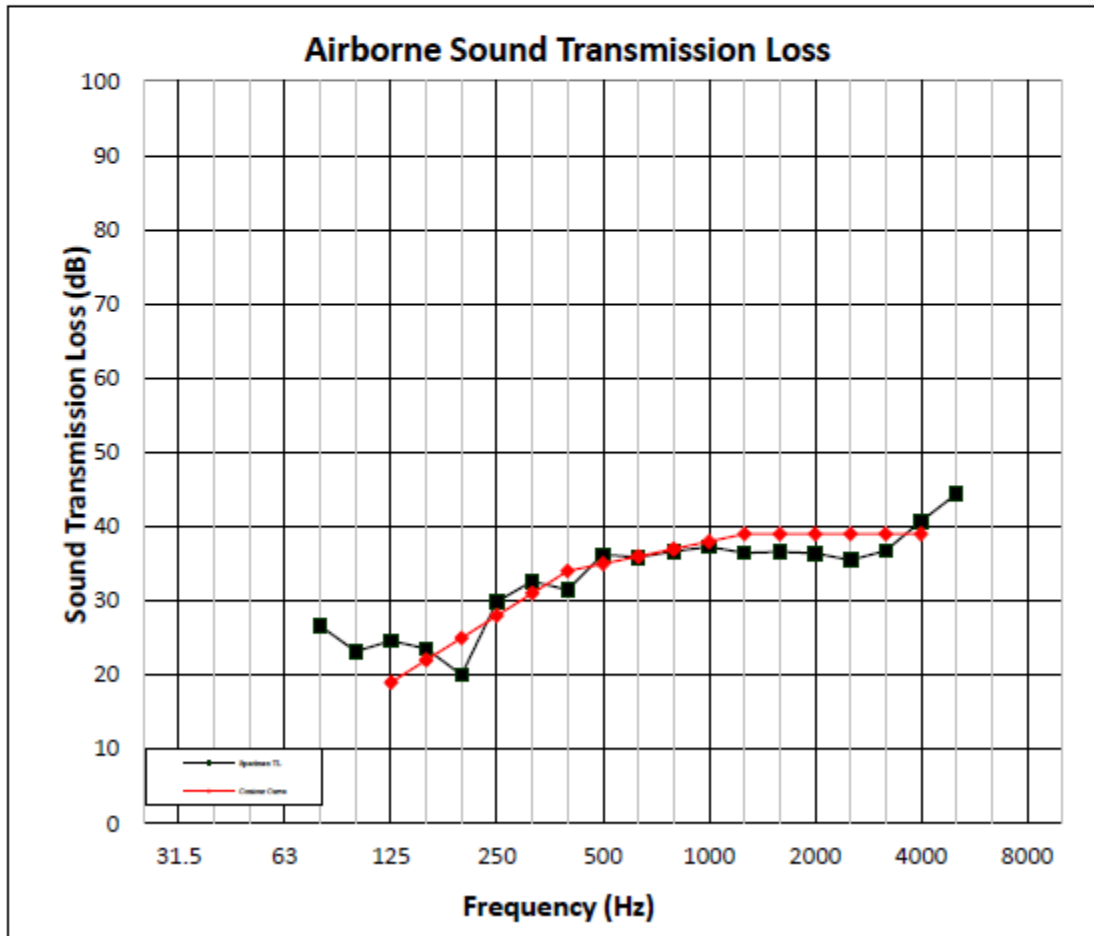
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RESULTS GRAPH

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS



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SECTION 12

PHOTOGRAPHS



Photo No. 1
Receive Room View of Test Specimen



Photo No. 2
Source Room View of Test Specimen



Total Quality. Assured.

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SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/26/18	N/A	Original Report Issue
R1	10/03/18	6	Changed Material Vinyl to Aluminum