intertek
Total Quality. Assured.

# SERENITY SLIDING DOOR SYSTEMS
# ACOUSTICAL PERFORMANCE TEST REPORT

**SCOPE OF WORK**
ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A SER-STC SLIDING DOOR SYSTEM

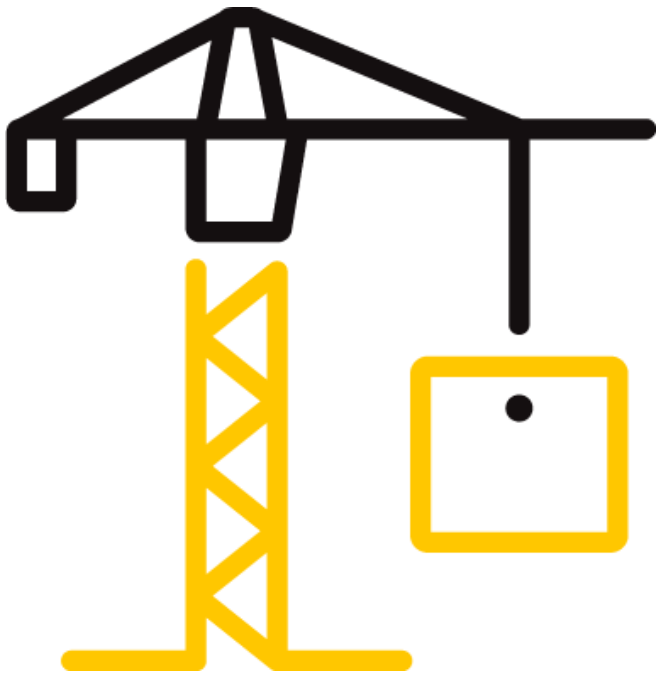
**REPORT NUMBER**
P6849.01-113-11-R0

**TEST DATE**
02/15/23

**ISSUE DATE**
04/19/23

**PAGES**
13

**DOCUMENT CONTROL NUMBER**
RT-R-AMER-Test-2761 (09/09/22)

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

# TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS

Report No.: P6849.01-113-11-R0
Date: 04/19/23

## REPORT ISSUED TO

**SERENITY SLIDING DOOR SYSTEMS**
4710 Northpark Drive
Colorado Springs, Colorado 80918

## SECTION 1

**SCOPE**

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Serenity Sliding Door Systems 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.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

| | | | |
|---|---|---|---|
| **COMPLETED BY:** | Zachary P. Golden | **REVIEWED BY:** | Kurt A. Golden |
| **TITLE:** | Technician Team Leader<br>Acoustical Testing | **TITLE:** | Manager<br>Acoustical Testing |
| **SIGNATURE:** | Digitally Signed by: Zachary Golden | **SIGNATURE:** | Digitally Signed by: Kurt A. Golden |
| **DATE:** | 04/19/23 | **DATE:** | 04/19/23 |

ZPG:jmcs

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building



## SECTION 2
## SUMMARY OF TEST RESULTS

| | |
|---|---|
| **SERIES/MODEL** | SER-STC |
| **TYPE** | Sliding Door System |

| | |
|---|---|
| **SEAL SET** | Sealed with duct seal on both sides of leaf |
| **DATA FILE NO.** | P6849.01A |
| **TEST CONDITION** | Inoperable |
| **STC** | 43 |
| **OITC** | 36 |

| | |
|---|---|
| **SEAL SET** | Seal Set 2 |
| **DATA FILE NO.** | P6849.01A4 |
| **TEST CONDITION** | Operable |
| **STC** | 35 |
| **OITC** | 32 |

## 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 E413-22,** *Classification for Rating Sound Insulation*

**ASTM E1332-22,** *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 installed by the client in the test opening on the receive room side. 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.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building



## 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 |
|---|---|---|---|---|---|
| 2-Channel Analog Input | National Instruments | NI-9250 | 2-Channel Analog Input | INT02672 | 09/22 |
| 2-Channel Analog Input | National Instruments | NI-9250 | 2-Channel Analog Input | INT02673 | 09/22 |
| 2-Channel Analog Input | National Instruments | NI-9250 | 2-Channel Analog Input | INT02674 | 09/22 |
| 2-Channel Analog Input | National Instruments | NI-9250 | 2-Channel Analog Input | INT02675 | 09/22 |
| 2-Channel Analog Input | National Instruments | NI-9250 | 2-Channel Analog Input | INT02676 | 09/22 |
| 2-Channel Analog Input | National Instruments | NI-9250 | 2-Channel Analog Input | INT02677 | 09/22 |
| Source Room Microphone | PCB Piezotronics | 378B20 | Microphone and Preamplifier | 65319 | 10/22 |
| Source Room Microphone | PCB Piezotronics | 378C20 | Microphone and Preamplifier | 64905 | 04/22 |
| Source Room Microphone | PCB Piezotronics | 378B20 | Microphone and Preamplifier | 64340 | 10/22 |
| Source Room Microphone | PCB Piezotronics | 378C20 | Microphone and Preamplifier | INT02256 | 01/23 |
| Source Room Microphone | PCB piezotronics | 378B20 | Microphone and Preamplifier | 64909 | 01/23 |
| Receive Room Microphone | PBC Piezotronics | 378B20 | Microphone and Preamplifier | 64908 | 01/23 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | Microphone and Preamplifier | 64902 | 10/22 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | Microphone and Preamplifier | 64903 | 08/22 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | Microphone and Preamplifier | 64907 | 01/23 |
| Receive Room Microphone | PCB Piezotronics | 378B20 | Microphone and Preamplifier | 64911 | 10/22 |
| Receive Room Environmental Indicator | Comet | T7510 | Receive Room | INT00603 | 10/22 |
| Source Room Environmental Indicator | Comet | T7510 | Source Room | 64914 | 03/22 |
| Microphone Calibrator | Norsonic | 1251 | Acoustical Calibrator | Y002919 | 04/22 |

**- 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<br>Temperature and humidity controlled<br>Isolation pads under the floor |
| **SOURCE ROOM** | 207 $m^3$ | Stationary diffusers only<br>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 |

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

**TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS**
Report No.: P6849.01-113-11-R0
Date: 04/19/23

## SECTION 6
## LIST OF OFFICIAL OBSERVERS

| NAME | COMPANY |
|---|---|
| Andrew Petrosky | Serenity Sliding Door Systems |
| 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.

The specimen was returned per the client's request.

## 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.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building



## SECTION 9
## SPECIMEN DESCRIPTION

| | FRAME |
|---|---|
| **SIZE** | 45-1/2" by 85-1/4" |
| **THICKNESS** | 7-1/2" |
| CORNERS | Butted |
| FASTENERS | Screws |
| SEAL METHOD | Sealant |
| **MATERIAL** | Aluminum |
| REINFORCEMENT | N/A |
| THERMAL BREAK MATERIAL | N/A |
| **WEIGHT** | 36 lbs |

*N/A-Not Applicable*

The frame was connected to the outside face of the wall construction on the receive room side. The test opening was 42-1/2" wide by 83-3/4" high.

The wood door was 44" wide by 83-3/4" high by 1-3/4" deep. The weight of the door was 284 lbs.

Per the client's request, the contents of the door leaves are proprietary.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

**TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS**
Report No.: P6849.01-113-11-R0
Date: 04/19/23

| | TYPE | QUANTITY | LOCATION |
|---|---|---|---|
| **SEAL SET 2 WEATHERSTRIP (Option P6849.01A4 only)** | 1/4" Polypile with center fin | 2 Rows | Receiver channel |
| | 1/4" Polypile with center fin | 1 Row | Valance and backer |
| | Planet automatic drop seal | 1 Row | Bottom rail |
| | ASSA ABLOY S88 | 2 Rows | Receiver channel |
| | ASSA ABLOY S773 | 1 Row | Valance, backer, and meeting stile |
| | ASSA ABLOY S773 | 2 Rows | Meeting jamb |
| | ASSA ABLOY S773 (2" long strip) | 1 Row | Sill guide base at meeting stile |
| **HARDWARE** | Sliding wheel assembly | 1 Set | Track |
| **DRAINAGE** | No drainage | | |

| **LEAF WEIGHT** (lbs) | **AVERAGE WEIGHT** (lbs/ft$^2$) |
|---|---|
| 320 | 11.10 |

Photographs are included in Section 11.

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

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

# TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS

Report No.: P6849.01-113-11-R0
Date: 04/19/23

## SECTION 10

## TEST RESULTS

### P6849.01A DATA, Inoperable (Sealed with duct seal on both sides of leaf)

| | | | | | |
|---|---|---|---|---|---|
| **SPECIMEN AREA** | 2.30 m² | **RECEIVE TEMP.** | 21.9 °C | **SOURCE TEMP** | 21.4 °C |
| **TECHNICIAN** | Zachary P. G | **RECEIVE HUMIDITY** | 47% | **SOURCE HUMIDIT** | 49% |

| FREQ (Hz) | BACKGROUND SPL (dB) | ABSORPTION (m²) | SOURCE SPL (dB) | RECEIVE SPL (dB) | SPECIMEN TL (dB) | 95% SAMPLING LIMIT | NUMBER OF DEFICIENCIES |
|---|---|---|---|---|---|---|---|
| 80 | 40.1 | 5.3 | 109 | 80 | 26 | 1.80 | - |
| 100 | 33.0 | 6.5 | 108 | 75 | 29 | 2.38 | - |
| 125 | 36.7 | 5.5 | 107 | 74 | 29 | 1.11 | 0 |
| 160 | 39.5 | 5.1 | 110 | 77 | 30 | 0.92 | 0 |
| 200 | 37.8 | 5.8 | 110 | 74 | 31 | 0.45 | 2 |
| 250 | 33.4 | 6.2 | 107 | 71 | 31 | 0.82 | 5 |
| 315 | 30.5 | 5.9 | 108 | 72 | 32 | 0.27 | 7 |
| 400 | 28.1 | 5.8 | 110 | 72 | 34 | 0.31 | 8 |
| 500 | 26.2 | 6.0 | 108 | 66 | 38 | 0.53 | 5 |
| 630 | 23.6 | 6.1 | 106 | 59 | 43 | 0.35 | 1 |
| 800 | 23.4 | 6.5 | 106 | 55 | 47 | 0.40 | 0 |
| 1000 | 22.2 | 6.6 | 107 | 55 | 47 | 0.23 | 0 |
| 1250 | 22.8 | 7.0 | 107 | 54 | 48 | 0.41 | 0 |
| 1600 | 19.1 | 7.5 | 105 | 53 | 47 | 0.19 | 0 |
| 2000 | 11.5 | 7.9 | 106 | 52 | 48 | 0.19 | 0 |
| 2500 | 8.9 | 9.0 | 106 | 50 | 50 | 0.15 | 0 |
| 3150 | 8.8 | 10.9 | 104 | 47 | 51 | 0.18 | 0 |
| 4000 | 9.0 | 13.6 | 102 | 43 | 52 | 0.20 | 0 |
| 5000 | 9.1 | 17.2 | 103 | 41 | 53 | 0.35 | - |
| **STC RATING** | | 43 | *(Sound Transmission Class)* | | | | |
| **DEFICIENCIES** | | 28 | *(Sum of Deficiencies)* | | | | |
| **OITC RATING** | | 36 | *(Outdoor-Indoor Transmission Class)* | | | | |

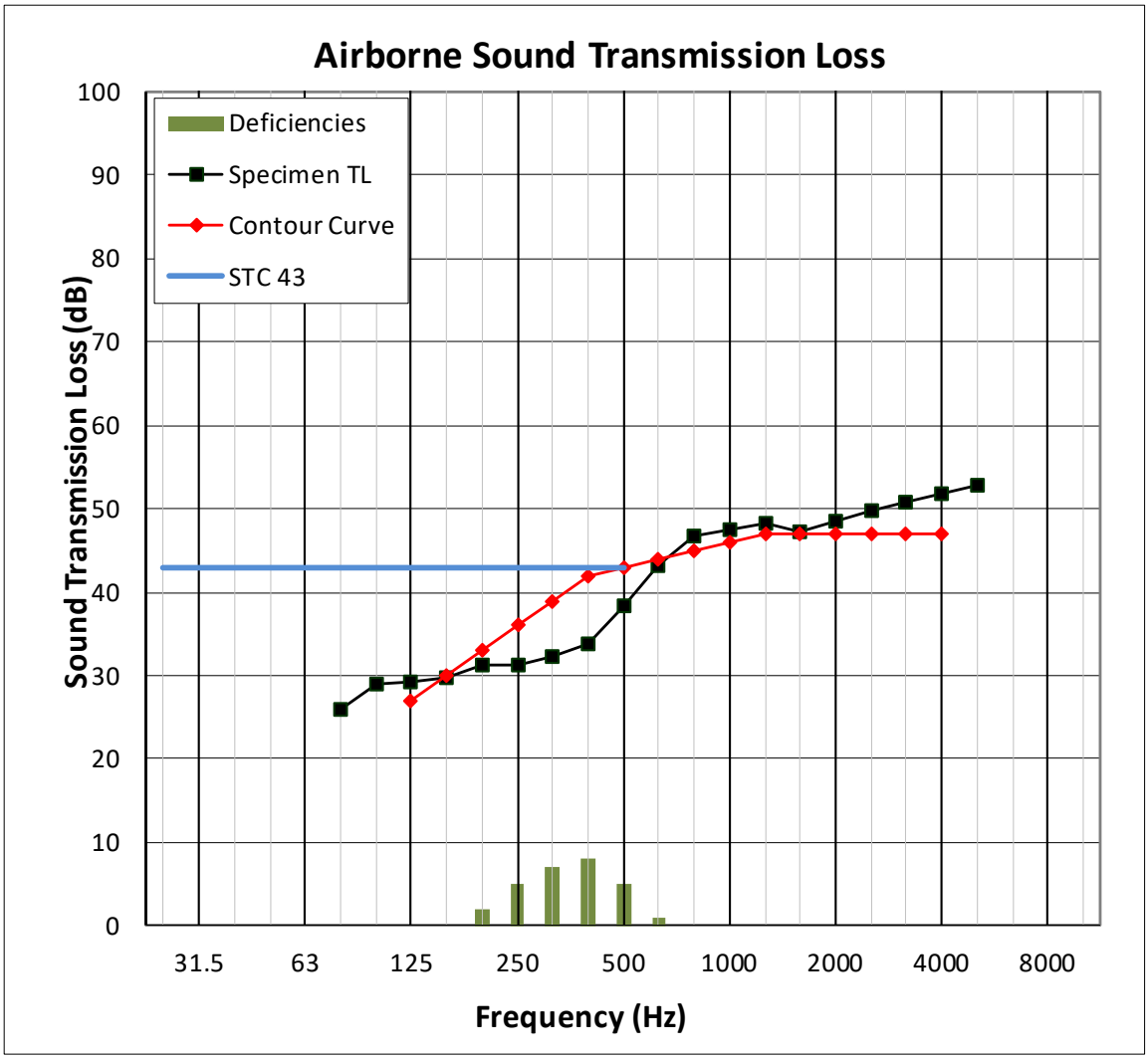
***Notes:*** *1) Receive Room levels less than 5 dB above the Background levels are red.*
*2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.*
*3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied*

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

**TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS**
Report No.: P6849.01-113-11-R0
Date: 04/19/23

**P6849.01A GRAPH, Inoperable (Sealed with duct seal on both sides of leaf)**



intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

## TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS

Report No.: P6849.01-113-11-R0
Date: 04/19/23

### P6849.01A4 DATA, Operable with Seal Set 2

| | | | | | |
|---|---|---|---|---|---|
| **SPECIMEN AREA** | 2.30 m² | **RECEIVE TEMP.** | 21.5 °C | **SOURCE TEMP** | 21.9 °C |
| **TECHNICIAN** | Zachary P. G | **RECEIVE HUMIDITY** | 49% | **SOURCE HUMIDIT** | 48% |

| FREQ (Hz) | BACKGROUND SPL (dB) | ABSORPTION (m²) | SOURCE SPL (dB) | RECEIVE SPL (dB) | SPECIMEN TL (dB) | 95% SAMPLING LIMIT | NUMBER OF DEFICIENCIES |
|---|---|---|---|---|---|---|---|
| 80 | 39.5 | 5.3 | 108 | 80 | 25 | 1.66 | - |
| 100 | 31.6 | 6.5 | 108 | 77 | 27 | 2.43 | - |
| 125 | 36.0 | 5.3 | 107 | 77 | 27 | 1.18 | 0 |
| 160 | 40.0 | 5.0 | 110 | 79 | 28 | 0.94 | 0 |
| 200 | 38.6 | 6.0 | 109 | 76 | 29 | 0.43 | 0 |
| 250 | 33.2 | 6.2 | 107 | 74 | 29 | 0.84 | 0 |
| 315 | 30.7 | 6.1 | 108 | 73 | 31 | 0.39 | 0 |
| 400 | 28.9 | 6.1 | 110 | 73 | 32 | 0.33 | 2 |
| 500 | 26.8 | 6.0 | 108 | 69 | 35 | 0.47 | 0 |
| 630 | 24.3 | 6.1 | 106 | 67 | 35 | 0.28 | 1 |
| 800 | 24.6 | 6.5 | 106 | 68 | 33 | 0.42 | 4 |
| 1000 | 23.3 | 6.7 | 107 | 72 | 31 | 0.27 | 7 |
| 1250 | 24.1 | 7.1 | 107 | 68 | 33 | 0.38 | 6 |
| 1600 | 20.2 | 7.6 | 105 | 66 | 35 | 0.24 | 4 |
| 2000 | 11.6 | 8.0 | 106 | 64 | 36 | 0.18 | 3 |
| 2500 | 8.1 | 9.1 | 106 | 63 | 37 | 0.16 | 2 |
| 3150 | 7.1 | 11.0 | 104 | 61 | 37 | 0.24 | 2 |
| 4000 | 7.8 | 13.7 | 102 | 56 | 39 | 0.20 | 0 |
| 5000 | 8.8 | 17.1 | 103 | 53 | 41 | 0.34 | - |
| **STC RATING** | | 35 | *(Sound Transmission Class)* | | | | |
| **DEFICIENCIES** | | 31 | *(Sum of Deficiencies)* | | | | |
| **OITC RATING** | | 32 | *(Outdoor-Indoor Transmission Class)* | | | | |

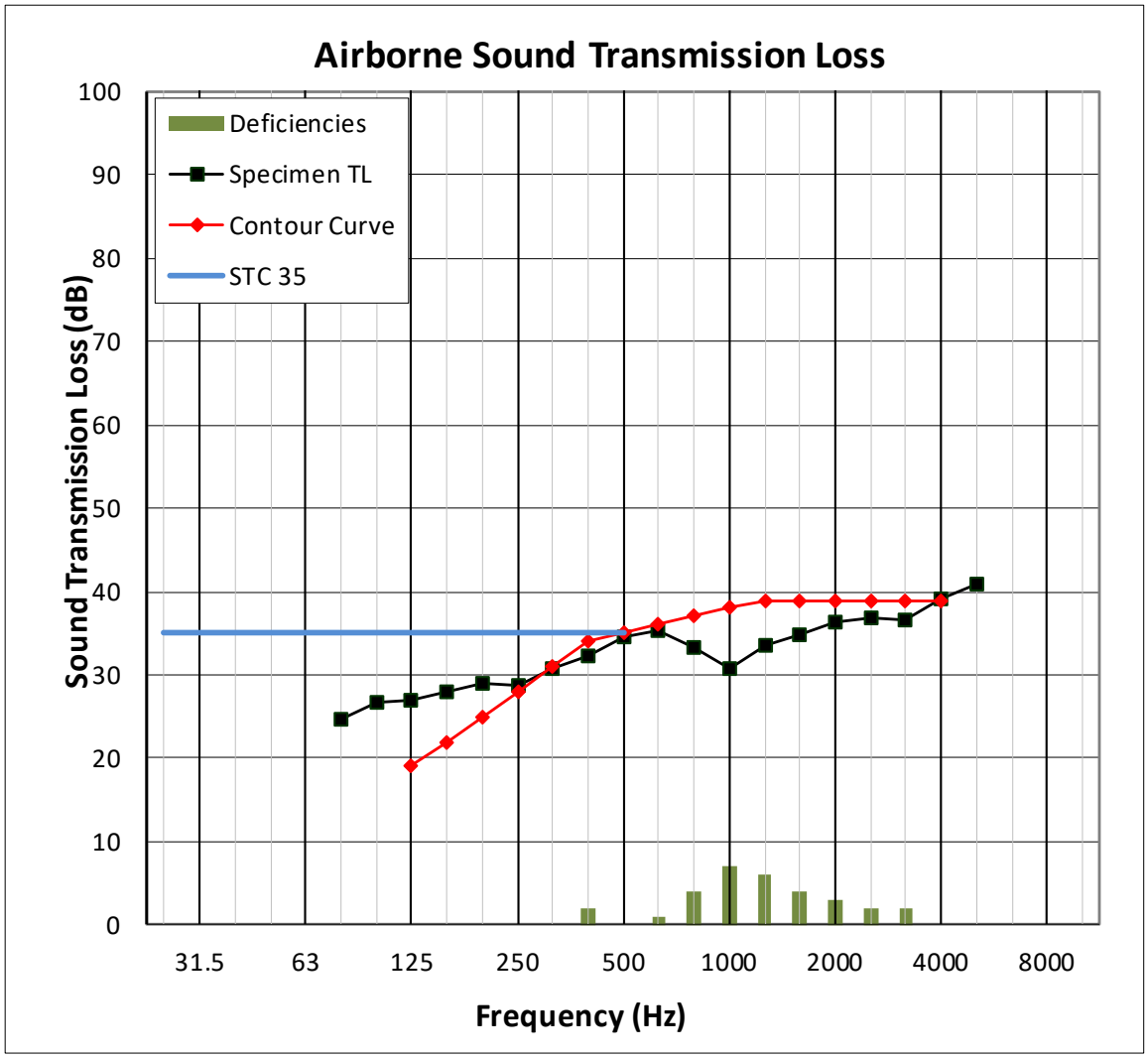
***Notes:*** *1) Receive Room levels less than 5 dB above the Background levels are red.*
*2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.*
*3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied*

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

**TEST REPORT FOR SERENITY SLIDING DOOR SYSTEMS**
Report No.: P6849.01-113-11-R0
Date: 04/19/23

**P6849.01A4 GRAPH, Operable with Seal Set 2**



130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building



## SECTION 11
## PHOTOGRAPHS

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

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

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building



## SECTION 12
## REVISION LOG

| REVISION # | DATE | PAGES | REVISION |
|---|---|---|---|
| 0 | 04/19/23 | N/A | Original Report Issue |