

# FABRITRAK SYSTEMS, INC. ACOUSTICAL PERFORMANCE TEST REPORT

**SCOPE OF WORK**

ASTM C423 SOUND ABSORPTION TESTING ON BAFFLES

**REPORT NUMBER**

K3668.01-113-11-R0

**TEST DATE**

11/13/19

**ISSUE DATE**

12/09/19

**PAGES**

13

**DOCUMENT CONTROL NUMBER**

RT-R-AMER-Test-2755 (01/24/19)

© 2017 INTERTEK



## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### REPORT ISSUED TO

#### FABRITRAK SYSTEMS, INC.

111 West Park Drive

Mt. Laurel, New Jersey 08054

### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by FabriTrak Systems, Inc. to perform a sound absorption 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:

<b>COMPLETED BY:</b>	Andrew M. Johnston	<b>REVIEWED BY:</b>	Kurt A. Golden
	Technician		Project Lead
<b>TITLE:</b>	Acoustical Testing	<b>TITLE:</b>	Acoustical Testing
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	12/09/19	<b>DATE:</b>	12/09/19

AMJ: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 FABRITRAK SYSTEMS, INC.**

Report No.: K3668.01-113-11-R0

Date: 12/09/19

**SECTION 2**

**SUMMARY OF TEST RESULTS**

<b>SERIES/MODEL</b>	Terra Core Poly					
<b>SAMPLE TYPE</b>	2" Baffles					
<b>CALCULATION</b>	M <sup>2</sup> /unit					
<b>MOUNTING TYPE</b>	Type J					
<b>DATA FILE NO.</b>	<b>1/3 OCTAVE SOUND ABSORPTION M<sup>2</sup>/unit AT THE OCTAVE BAND FREQUENCIES</b>					
	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>
K3668.01A	0.27	0.58	1.00	1.31	1.34	1.34

<b>SERIES/MODEL</b>	Terra Core Poly							
<b>SAMPLE TYPE</b>	2" Baffles							
<b>CALCULATION</b>	Area foot print encompassing the 8-panel configuration*							
<b>MOUNTING TYPE</b>	J							
<b>DATA FILE NO.</b>	<b>1/3 OCTAVE SOUND ABSORPTION COEFFICIENTS AT THE OCTAVE BAND FREQUENCIES</b>						<b>NRC*</b>	<b>SAA*</b>
	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>		
K3668.01A2	0.23	0.50	0.86	1.13	1.15	1.16	0.90	0.91

\* See Note in Section 8

**SECTION 3**

**TEST METHODS**

The specimens were evaluated in accordance with the following:

*ASTM C423-17, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*

*ASTM E795-16, Standard Practices for Mounting Test Specimens During Sound Absorption Tests*

**SECTION 4**

**SPECIMEN MOUNTING**

For Type J mounting the flat panels were suspended 24" off the floor vertically in four parallel rows with two panels per row. The panels were spaced 12" apart in each row and spaced 30" on center between each row. Panels were suspended using client supplied zip tie hangers and wire.

## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### 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
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	10/19
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	01/19
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/19

\*- 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

### SECTION 6

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Andrew M. Johnston	Intertek B&C
Zachary P. Golden	Intertek B&C

## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### SECTION 7

#### TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted. Empty room sound absorption measurements were conducted before the specimen was installed. Full room sound absorption measurements were conducted after the specimen was installed.

For the empty and full room measurements, ten decay measurements were conducted at each of the five microphone positions. Data was obtained at 1/3 octave band frequencies ranging from 80 to 5000 hertz. The air temperature and relative humidity conditions were monitored and recorded during the measurements.

Intertek B&C will store samples of test specimens for four years.

### SECTION 8

#### TEST CALCULATIONS

##### TYPE J (M<sup>2</sup>/UNIT CALCULATION)

The Sound Absorption Coefficient is the full room absorption minus the empty room absorption divided by the area of the sample in m<sup>2</sup>. The Sound Absorption Coefficient is dimensionless.

##### AREA FOOT PRINT ENCOMPASSING THE 8-PANEL CONFIGURATION CALCULATION (Method 1)

The Noise Reduction Coefficient (NRC) rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000 and 2000 hertz. The average is rounded to the nearest multiple of 0.05.

The Sound Absorption Average (SAA) rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

The area used in the calculation was comprised from the 8-panel configuration of hanging panels (90" by 108"), then adding an additional perimeter area to the overall foot print.

The size of additional perimeter area width was not an equal distance around the entire perimeter. On the sides where the panels were separated by 30", the perimeter was an additional 15" wide. On the sides where the panels were separated by 12", the perimeter was an additional 6" wide.

The total additional perimeter area used for the calculation was 100 ft<sup>2</sup> (122" by 120").

A drawing of the additional area used is in Section 12.

**TEST REPORT FOR FABRITRAK SYSTEMS, INC.**

Report No.: K3668.01-113-11-R0

Date: 12/09/19

*Note: ASTM is currently working on the **Area Food Print Encompassing the 8-Panel Configuration Calculation (Method 1)** using the area calculation for NRC and SAA for hanging spaced baffles, but it has not been approved yet to date. The results should not be used as comparison to specimens that were tested in a single rectangular configuration. The results will be considered as the apparent noise reduction coefficient (NRC) rating and Sound Absorption Average (SAA).*

**SECTION 9**

**TEST SPECIMEN DESCRIPTION**

<b>SERIES/MODEL</b>	2" Terra Core Poly
<b>SAMPLE TYPE</b>	Baffles
<b>MOUNTING TYPE</b>	J

Eight, 1.22 m by 0.61 m (48" by 24"), panels were arranged to produce the test specimen. The total weight of the specimen was 24.48 kg (54.4 lbs).

<b>DESCRIPTION</b>	<b>THICKNESS</b>	<b>DENSITY</b>	<b>WEIGHT</b>
FabriTrak Terra Core Poly	50.80 mm	77.76 kg/m <sup>3</sup>	3.95 kg/m <sup>2</sup>
Baffles	2"	4.86 lbs/ft <sup>3</sup>	0.81 lbs/ft <sup>2</sup>

Photographs are included in Section 11.

## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### SECTION 10

#### TEST RESULTS

##### K3668.01A DATA

<b>NO. OF UNITS</b>	8.00	
<b>MOUNTING TYPE</b>	J	
	<b>EMPTY</b>	<b>FULL</b>
<b>TEMP °C</b>	20.2	19.9
<b>RH %</b>	49	48
<b>B.P. (mb)</b>	999	999

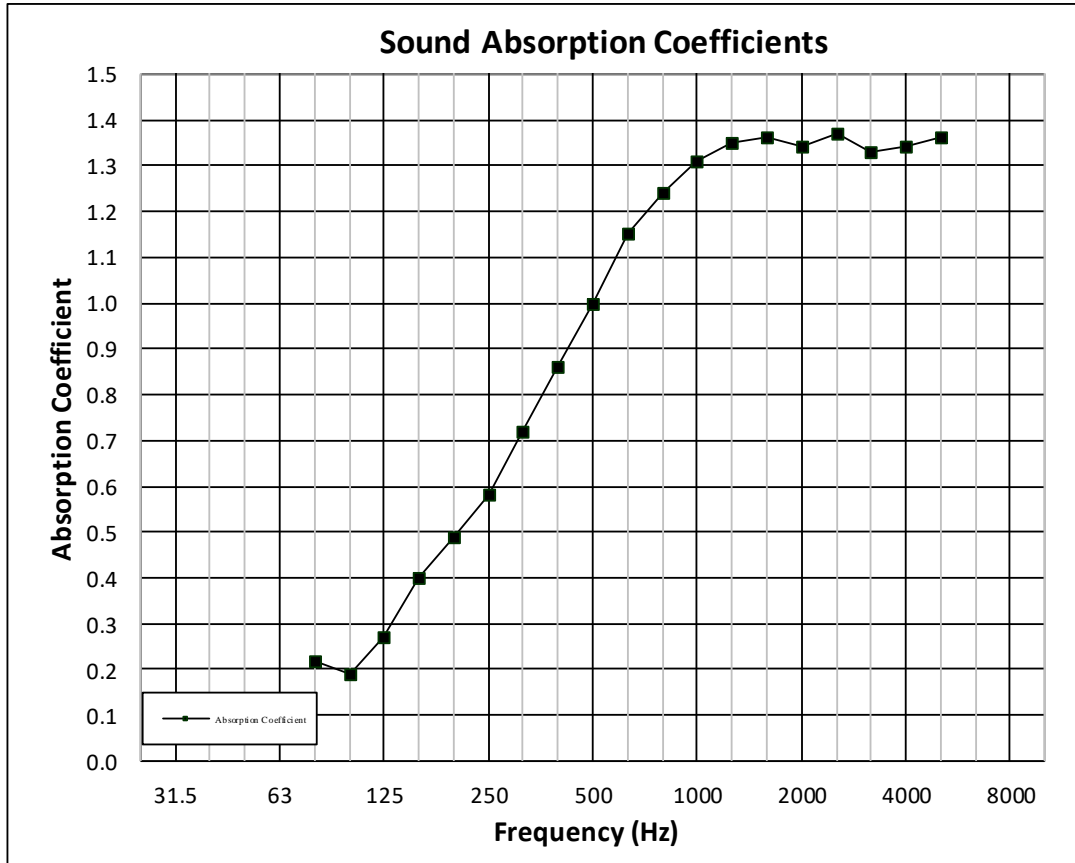
FREQ (Hz)	EMPTY ROOM ABSORPTION (m <sup>2</sup> )	UNCERTAINTY	FULL ROOM ABSORPTION (m <sup>2</sup> )	UNCERTAINTY	ABSORPTION (M <sup>2</sup> per Unit)	RELATIVE UNCERTAINTY
80	5.47	0.711	7.24	0.517	0.220	0.130
100	5.37	0.631	6.92	0.609	0.190	0.130
125	5.93	0.415	8.06	0.395	0.270	0.085
160	5.20	0.068	8.40	0.080	0.400	0.016
200	4.75	0.191	8.66	0.172	0.490	0.038
250	5.20	0.078	9.82	0.065	0.580	0.015
315	5.33	0.041	11.05	0.021	0.720	0.007
400	5.52	0.022	12.38	0.033	0.860	0.006
500	5.64	0.052	13.68	0.153	1.000	0.024
630	5.20	0.030	14.41	0.017	1.150	0.005
800	5.29	0.020	15.17	0.007	1.240	0.003
1000	5.34	0.019	15.84	0.025	1.310	0.005
1250	5.60	0.019	16.41	0.013	1.350	0.003
1600	5.66	0.016	16.52	0.007	1.360	0.003
2000	5.65	0.012	16.33	0.021	1.340	0.004
2500	5.98	0.012	16.98	0.068	1.370	0.010
3150	6.33	0.013	17.01	0.004	1.330	0.002
4000	6.89	0.005	17.63	0.004	1.340	0.001
5000	7.53	0.013	18.44	0.006	1.360	0.002

## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### K3668.01A GRAPH





**TEST REPORT FOR FABRITRAK SYSTEMS, INC.**

Report No.: K3668.01-113-11-R0

Date: 12/09/19

**K3668.01A2 FOOT PRINT DATA**

<b>SPECIMEN AREA</b>	9.29 m <sup>2</sup>	
<b>MOUNTING TYPE</b>	Type J Foot Print	
	<b>EMPTY</b>	<b>FULL</b>
<b>TEMP °C</b>	20.2	19.9
<b>RH %</b>	49	48
<b>B.P. (mb)</b>	999	1001

FREQ (Hz)	EMPTY ROOM ABSORPTION (m <sup>2</sup> )	UNCERTAINTY	FULL ROOM ABSORPTION (m <sup>2</sup> )	UNCERTAINTY	ABSORPTION COEFFICIENT	RELATIVE UNCERTAINTY
80	5.47	0.711	7.24	0.517	0.19	0.095
100	5.37	0.631	6.92	0.609	0.17	0.094
125	5.93	0.415	8.06	0.395	0.23	0.062
160	5.20	0.068	8.40	0.080	0.34	0.011
200	4.75	0.191	8.66	0.172	0.42	0.028
250	5.20	0.078	9.82	0.065	0.50	0.011
315	5.33	0.041	11.05	0.021	0.62	0.005
400	5.52	0.022	12.38	0.033	0.74	0.004
500	5.64	0.052	13.68	0.153	0.86	0.017
630	5.20	0.030	14.41	0.017	0.99	0.004
800	5.29	0.020	15.17	0.007	1.06	0.002
1000	5.34	0.019	15.84	0.025	1.13	0.003
1250	5.60	0.019	16.41	0.013	1.16	0.002
1600	5.66	0.016	16.52	0.007	1.17	0.002
2000	5.65	0.012	16.33	0.021	1.15	0.003
2500	5.98	0.012	16.98	0.068	1.18	0.007
3150	6.33	0.013	17.01	0.004	1.15	0.002
4000	6.89	0.005	17.63	0.004	1.16	0.001
5000	7.53	0.013	18.44	0.006	1.17	0.001

<b>NRC RATING</b>	0.90	<i>(Noise Reduction Coefficient)</i>
<b>SAA RATING</b>	0.91	<i>(Sound Absorption Average)</i>

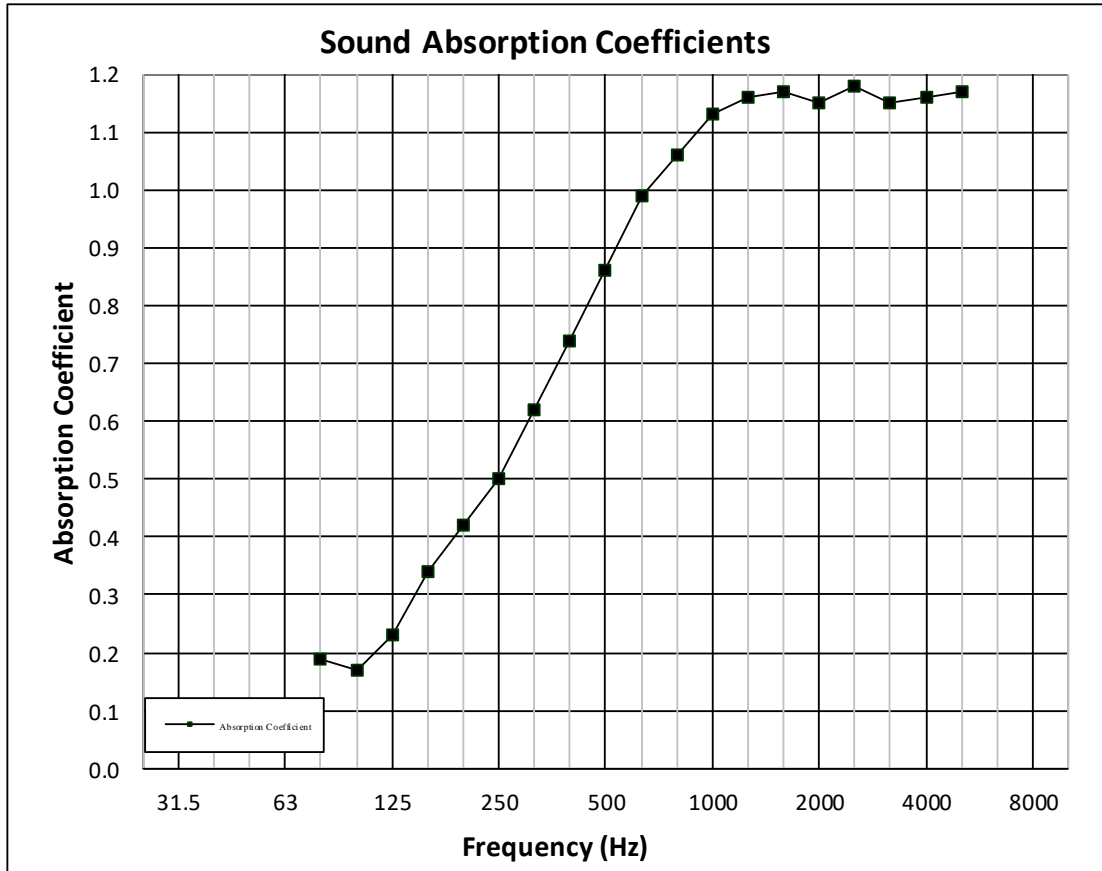
Notes: 1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.  
2) The SAA rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### K3668.01A2 FOOT PRINT GRAPH



## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### SECTION 11

### PHOTOGRAPHS



**Photo No. 1**  
**Photograph of Installed Test Specimen**



**Photo No. 2**  
**Side View of Test Specimen**

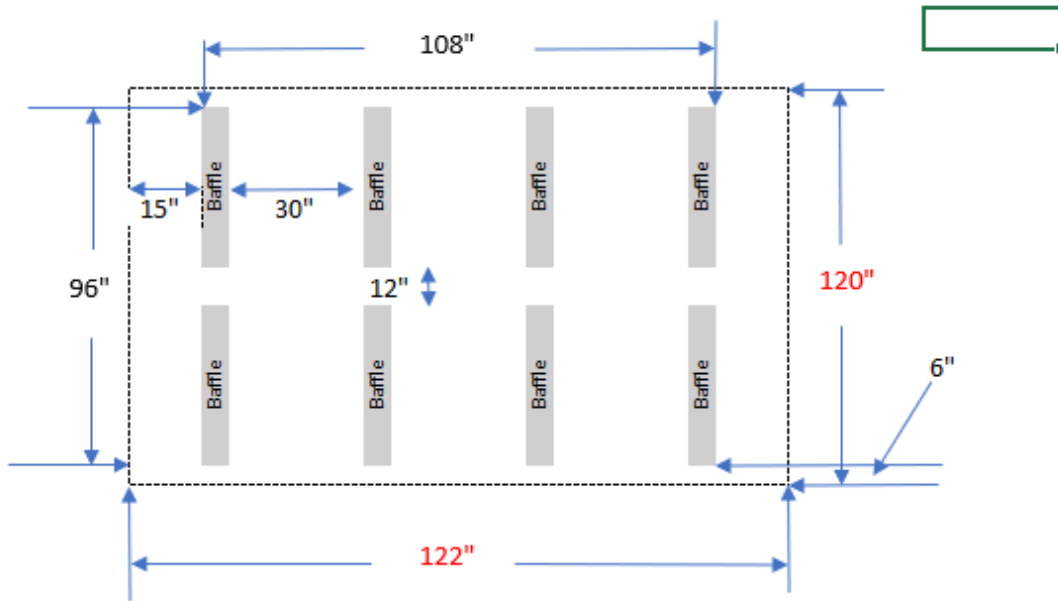
## TEST REPORT FOR FABRITRAK SYSTEMS, INC.

Report No.: K3668.01-113-11-R0

Date: 12/09/19

### SECTION 12 DRAWING

#### AREA FOOT PRINT ENCOMPASSING THE 8-PANEL CONFIGURATION CALCULATION





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 FABRITRAK SYSTEMS, INC.**

Report No.: K3668.01-113-11-R0

Date: 12/09/19

**SECTION 13**

**REVISION LOG**

REVISION #	DATE	PAGES	REVISION
0	12/09/19	N/A	Original Report Issue