



F8017.01-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM C423

Rendered to

DFB SALES

SERIES/MODEL: DFB Swell Panel

TYPE: Absorption Panel

Summary of Test Results								
Data File No.	1/3 Octave Sound Absorption Coefficients at the Octave Band Frequencies						NRC	SAA
	125	250	500	1000	2000	4000		
F8017.01	0.23	0.77	1.07	1.03	0.97	0.97	0.95	0.97

Reference should be made to Intertek-ATI Report No. F8017.01-113-11 for complete test specimen description. This page alone is not a complete report.



Acoustical Performance Test Report

DFB SALES
21-07 Borden Avenue
Long Island City, New York 11101

Report	F8017.01-113-11
Test Date	05/06/16
Report Date	05/17/16

Project Scope

Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted to conduct a sound absorption test. The complete test data is included as Appendix B of this report. The client provided the test specimen.

Test Methods

Testing for this project was conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM C423-09a, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*

ASTM E795-05 (2012), *Standard Practices for Mounting Test Specimens During Sound Absorption Tests*

Test Procedure

All measurements were conducted in the HT test chamber receive room at Intertek-ATI located in York, Pennsylvania. 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.

Specimen Mounting

For the type D mounting, the specimen was separated from the floor with ½" wood furring strips with the absorptive side facing the sound field. The perimeter of the test specimen was sealed to the floor with plywood and duct tape.

Test Calculations

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

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.

Specimen Description

Seven panels of various sizes were arranged to produce a 2.37 m by 2.53 m test specimen. The total weight of the specimen was 46.03 kg. Photographs are included in Appendix C.

The test specimen was comprised of multiple elliptical panels of various sizes ranging from 2" wide by 2" thick to 12" wide by 3-1/4" thick. The panels consisted of an elliptical foam core, adhered to 1/2" thick plywood. The foam core was then wrapped in Swell felt.

Comments

The client did not supply a report drawing of the test specimen. The specimen was returned per the client's request.

Intertek-ATI will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For INTERTEK-ATI:

Matthew D. Tressler
Technician - Acoustical Testing

Kurt A. Golden
Project Lead – Acoustical Testing

MDT:jmc

Attachments (pages): This report is complete only when all attachments listed are included.

- Appendix A: Equipment description (1)
- Appendix B: Complete test results (2)
- Appendix C: Photographs (1)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
R0	05/17/16	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	Data Acquisition card	65127	04/14 *
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	12/15
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	12/15
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	12/15
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65318	10/15
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	12/15
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	02/15
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	65105	04/15

*- 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 (8291.3 ft ³)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor

N/A-Not Applicable



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Appendix B

Complete Test Results

SOUND ABSORPTION

ASTM C 423

Test Date	05/06/16	
ATI No.	F8017.01	
Client	DFB Sales	
Specimen	Swell Panels	
Operator	Matthew D. Tressler	
Sample Area	6.02 m ²	
Mounting Type	Type D	
	Empty	Full
Temp C	21.3	21.6
RH %	52	51
B.P. (mb)	995	

Freq (Hz)	Empty Room Absorption (m ²)	Uncertainty	Full Room Absorption (m ²)	Uncertainty	Absorption Coefficient	Relative Uncertainty
80	4.64	0.899	5.70	0.291	0.18	0.157
100	5.00	0.489	6.06	0.485	0.18	0.114
125	4.88	0.222	6.27	0.230	0.23	0.053
160	4.37	0.263	6.85	0.193	0.41	0.054
200	4.24	0.172	7.72	0.095	0.58	0.033
250	4.76	0.089	9.39	0.060	0.77	0.018
315	4.87	0.090	10.78	0.042	0.98	0.017
400	5.01	0.055	11.45	0.035	1.07	0.011
500	5.11	0.039	11.58	0.057	1.07	0.011
630	4.73	0.046	11.14	0.022	1.06	0.009
800	4.83	0.014	11.09	0.019	1.04	0.004
1000	4.88	0.036	11.08	0.018	1.03	0.007
1250	5.20	0.018	11.31	0.020	1.02	0.005
1600	5.21	0.017	11.32	0.007	1.02	0.003
2000	5.14	0.010	10.97	0.012	0.97	0.003
2500	5.39	0.019	11.45	0.135	1.01	0.023
3150	5.91	0.010	11.77	0.010	0.97	0.002
4000	6.25	0.015	12.09	0.008	0.97	0.003
5000	6.81	0.004	12.60	0.004	0.96	0.001

NRC Rating **0.95** *(Noise Reduction Coefficient)*
SAA Rating **0.97** *(Sound Absorption Average)*

Notes:

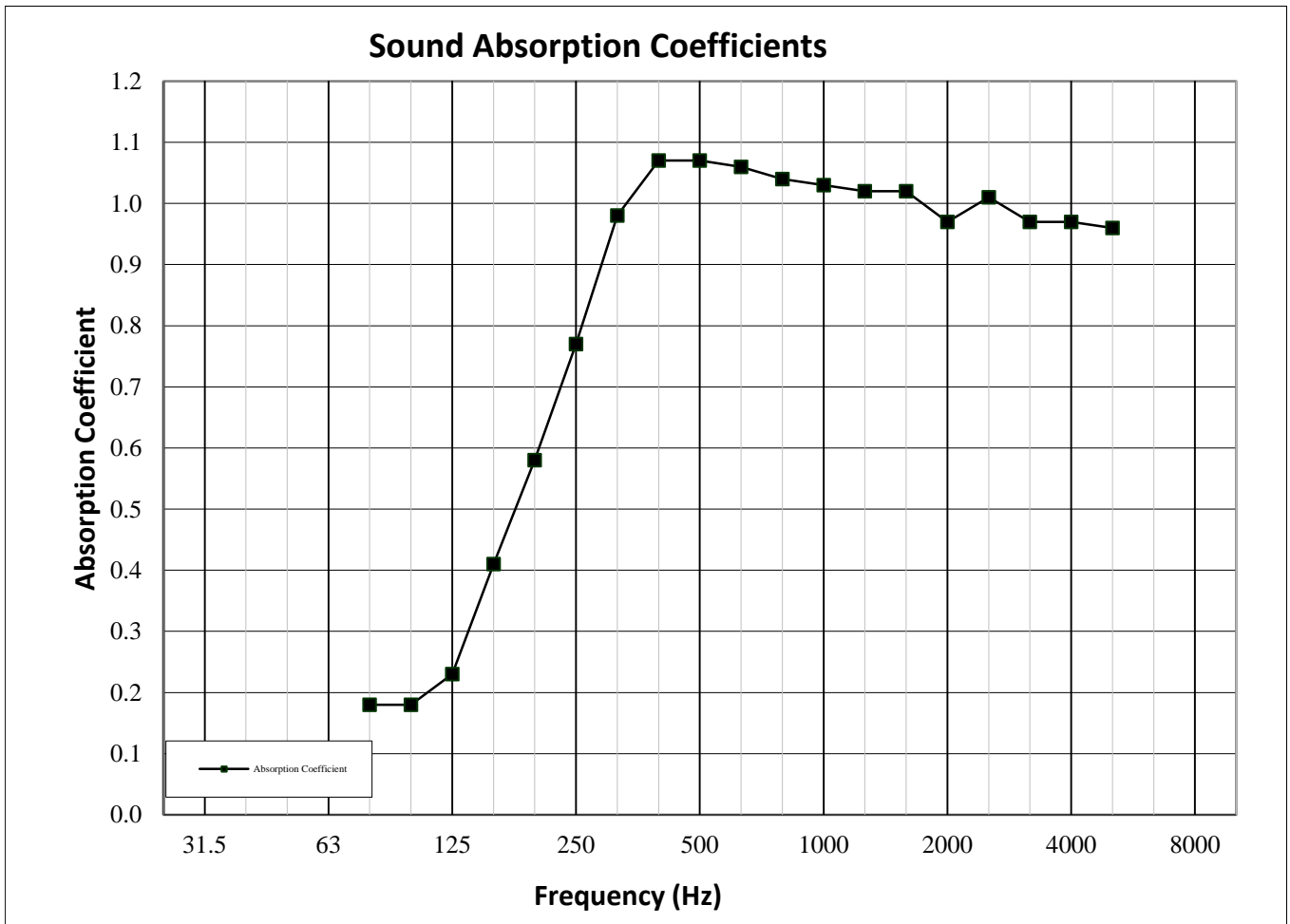
1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.

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.

SOUND ABSORPTION

ASTM C 423

Test Date	05/06/16	
ATI No.	F8017.01	
Client	DFB Sales	
Specimen	Swell Panels	
Operator	Matthew D. Tressler	
Sample Area	6.02 m ²	
Mounting Type	Type D	
	Empty	Full
Temp C	21.3	21.6
RH %	52	51
B.P. (mb)	995	



Appendix C

Photographs



View of Installed Specimen



Side View of Installed Specimen