



**ASTM C 423 SOUND ABSORPTION
TEST REPORT**

Rendered to:

NEW ENGLAND SOUNDPROOFING

SERIES/MODEL: 9100AB REVRB™

TYPE: Acoustic Baffles

Summary of Test Results						
Sample ID Number & Sample Description	1/3 Octave Sound Absorption (M²/unit) at the Octave Band Frequencies					
	125	250	500	1000	2000	4000
D9015.01 Series/Model 9100AB REVRB™, acoustic baffles	0.18	0.48	1.05	1.38	1.24	1.18

Reference should be made to Architectural Testing, Inc. Report No. D9015.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.



ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

NEW ENGLAND SOUNDPROOFING
190 Felton Street
Waltham, Massachusetts 02453

Report No: D9015.01-113-11
Test Date: 07/21/14
Report Date: 08/01/14
Record Retention End Date: 07/21/18

Test Sample Identification:

Series/Model: 9100AB REVRB™

Type: Acoustic Baffles

Overall Size: 0.61 m by 1.23 m (2' by 4')

Total Units Tested: 8

Project Summary: Architectural Testing, Inc. was contracted by New England Soundproofing to conduct a sound absorption test on Series/Model 9100AB REVRB™, acoustic baffles. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The samples were provided by the client.

Test Methods: The acoustical test was conducted in accordance with the following:

ASTM C 423-09a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

ASTM E 795-05 (2012), Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM C 423. The microphone was calibrated before conducting the sound absorption test. The test equipment and test chamber descriptions are listed in Appendix A.

Test Procedure: The sound absorption of the reverberation chamber was measured before the test specimen was installed. This measurement shall be referred to as the empty room test. For the Type J mounting the test specimens were suspended vertically in four parallel rows with two baffles per row. The baffles were suspended 24" above the test surface (floor) of the reverberation room with all the absorptive sides exposed to the sound field. The baffles were arranged so there were 12" between the baffles in a row and 30" between the adjacent rows. The sound absorption test was then re-run. The absorption measurement with the specimen inside the chamber shall be referred to as the full room test.

For the empty and full room tests, ten decay measurements were conducted at each of the five microphone positions. The sound absorption test was conducted 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 empty and full room measurements.

The Sound Absorption Coefficient is the full room absorption minus the empty room absorption divided by the number of units being tested. The Sound Absorption Coefficient is dimensionless.

Sample Description:

Material Description	Average Thickness		Average Density		Average Weight	
Class A fire rated sound absorption cloth	0.76 mm	0.03 "	352.44 kg/m ³	22.00 pcf	0.27 kg/m ²	0.06 psf
Class A fire rated sound absorption insulation	51.64 mm	2.03 "	131.84 kg/m ³	8.23 pcf	6.81 kg/m ²	1.40 psf
Class A fire rated sound absorption cloth	0.76 mm	0.03 "	352.44 kg/m ³	22.00 pcf	0.27 kg/m ²	0.06 psf

The test samples consisted of eight, 0.61 m by 1.22 m (2' by 4') baffles, which were suspended vertically in four parallel rows with two baffles per row. The baffles were suspended 24" above the floor of the reverberation room. The baffles were arranged so there were 12" between the baffles in a row and 30" between the adjacent rows. Each baffle consisted of a frame constructed with 3/4" by 2" wood. The insulation was placed inside the frame and the cloth was wrapped around the frame covering all sides of the specimen. The overall thickness of the sample was 50.8 mm (2"). The total weight of the sample was 48.99 kg (108 lbs). Photographs of the test sample setup are included in Appendix C.



Comments: The client did not supply drawings on the Series/Model 9100AB REVRB™, acoustic baffles. The specimen was disassembled, and the components will be retained by Architectural Testing for four years.

Test Results: A summary of the sound absorption tests is listed below:

Summary of Test Results						
Sample ID Number & Sample Description	1/3 Octave Sound Absorption (M ² /unit) at the Octave Band Frequencies					
	125	250	500	1000	2000	4000
D9015.01 Series/Model 9100AB REVRB™, acoustic baffles	0.18	0.48	1.05	1.38	1.24	1.18

The complete test results are listed in Appendix B. The acoustical chamber is qualified down to 80 hertz. Data provided below this frequency is for reference only.

Architectural Testing 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 Architectural Testing for the entire test record retention period.

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 may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Daniel P. Platts
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Todd D. Kister
Laboratory Supervisor - Acoustical Testing

DPP:jmcs

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>
0	08/01/14	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	06/13 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/13
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003247	02/14
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003251	09/13
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	65105	04/14
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y001784 Y001785	N/A
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature and Humidity Sensor	64286	06/14

*- 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-Non Applicable



D9015.01-113-11

Appendix B
Complete Test Results



SOUND ABSORPTION
ASTM C 423

Test Date	07/21/14		
ATI No.	D9015.01		
Client	New England Soundproofing		
Specimen	Series/Model: 9100AB REVRB™ Acoustic Baffles		
Operator	Daniel P. Platts		
Number of Units	8		
Mounting Type	Type J		
	Empty	Full	
Temp C	22	22	
RH %	45	47	
B.P. (mb)	1013		

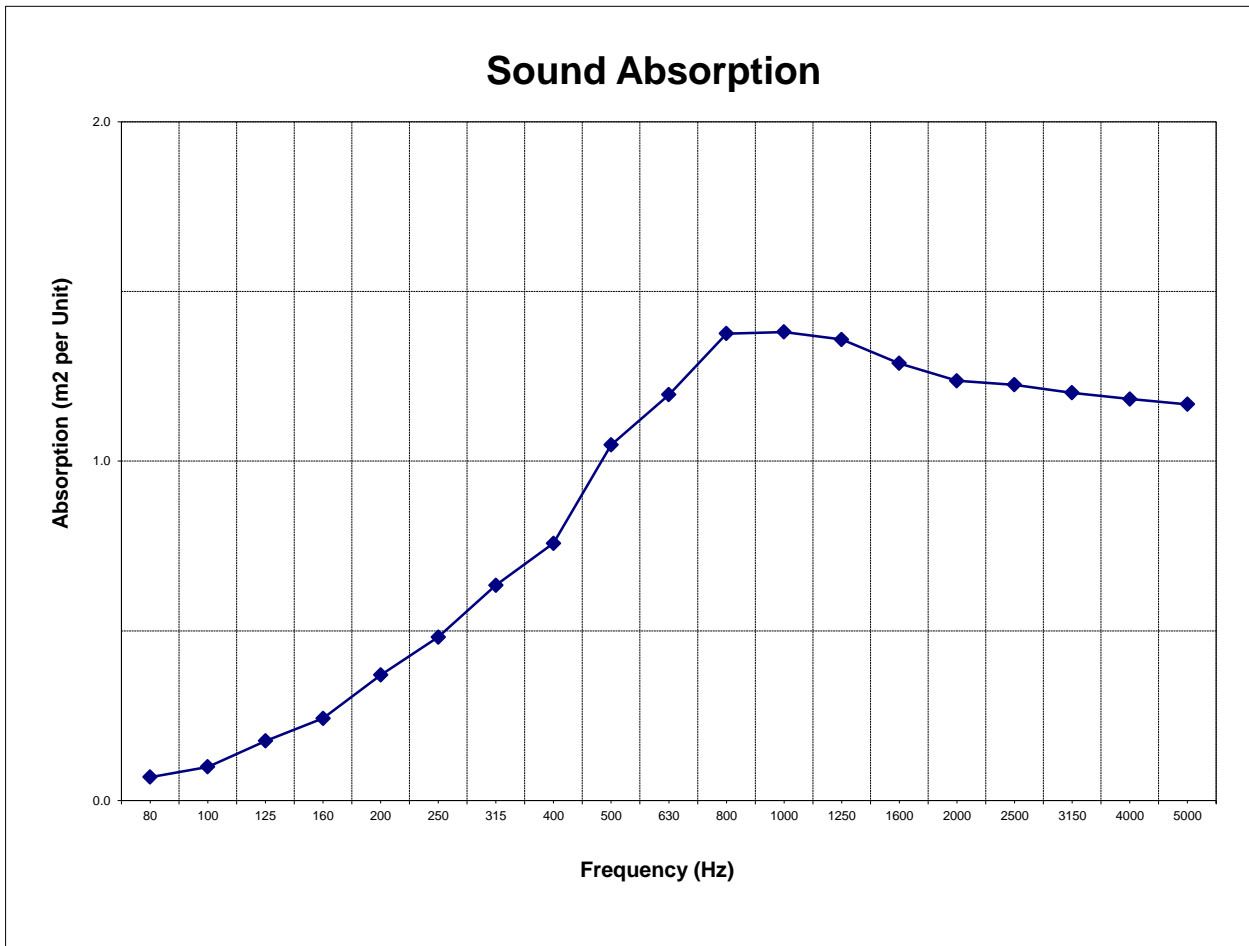
Freq (Hz)	Empty Room Absorption (m²)	Uncertainty	Full Room Absorption (m²)	Uncertainty	Absorption (m² per Unit)	Relative Uncertainty
80	5.00	0.056	5.55	0.071	0.07	0.011
100	4.93	0.010	5.72	0.055	0.10	0.007
125	4.55	0.018	5.95	0.000	0.18	0.002
160	4.42	0.005	6.36	0.055	0.24	0.007
200	4.57	0.038	7.53	0.029	0.37	0.006
250	4.85	0.002	8.70	0.011	0.48	0.001
315	4.84	0.010	9.92	0.023	0.63	0.003
400	5.21	0.009	11.28	0.048	0.76	0.006
500	5.12	0.009	13.50	0.044	1.05	0.006
630	4.77	0.025	14.34	0.060	1.20	0.008
800	4.71	0.005	15.72	0.009	1.38	0.001
1000	4.80	0.008	15.85	0.047	1.38	0.006
1250	5.09	0.004	15.96	0.026	1.36	0.003
1600	4.89	0.004	15.20	0.051	1.29	0.006
2000	4.82	0.009	14.72	0.036	1.24	0.005
2500	4.99	0.003	14.79	0.047	1.23	0.006
3150	5.29	0.002	14.91	0.066	1.20	0.008
4000	5.50	0.003	14.96	0.013	1.18	0.002
5000	6.00	0.004	15.34	0.013	1.17	0.002



SOUND ABSORPTION

ASTM C 423

Test Date	07/21/14	
ATI No.	D9015.01	
Client	New England Soundproofing	
Specimen	Series/Model: 9100AB REVRB™ Acoustic Baffles	
Operator	Daniel P. Platts	
Number of Units	8	
Mounting Type	Type J	
	Empty	Full
Temp C	22.2	22.0
RH %	45	47
B.P. (mb)	1013	



Appendix C

Photographs



View of Installed Specimen



Cross-Cut View of Installed Specimen