

TEST REPORT

for

Radial Engineering
1588 Kebet Way
Port Coquitlan, BC V3C 5M5
Jay Porter / 604-942-1001

Sound Absorption Testing
ASTM C 423-09a/ E795-05

On

**Ceiling Panels:
ThunderTile™ Ceiling Panels**

Report Number: NGC 4015008

Assignment Number: G-1158

Test Date: 03/16/2015

Report Approval Date: 04/17/2015

Submitted by: _____

Andrew E. Heuer
Senior Test Engineer



Reviewed by: _____

Robert J Menchetti
Director



The results reported above apply to specific samples submitted for measurement. No responsibility is assumed for performance of any other specimen. The laboratory's accreditation or any of its test reports in no way constitute or imply product certification, approval, or endorsement by NVLAP or any agent of the U.S. Government. This report may not be reproduced except in full, without written approval of the laboratory.

Revision Summary:

Date	SUMMARY
Approval Date : 04/17/2015	Original issue date: 04/17/2015 Original NGCTS report: NGC 4015008

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Report Number: NGC 4015008

Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method - Designation: C 423-09a / E795-05.

For the test, a Linear Averaging Mode is used as the Averaging Algorithm when measuring the Decay Times.

Specimen Description: Designated by client as: ThunderTile™ Ceiling Panels

The test specimens were observed to have the following characteristics:

Panels are: Reveal Edge, T-bar

Face Finish: Fiberglass Tissue Micro-Mesh sealed with white paint

Panel Core: High Density Glass wool

Back Finish: 1/2 inch gypsum board with foil

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 25.91 mm (1.02 in.), 137.42 kg/m² (2.24 PSF)

Unit Size: Eight Units, 609.6 mm x 1219.2 mm (24 in. x 48 in.)

Two Units, 304.8 mm x 1219.2 mm (12 in. x 48 in.)

Mounting: E-400 Mount as per ASTM E-795-05

Total Sample Size: 70.94 Sq. Ft. (6.59 m²)

Preconditioning: Minimum 24 hours at 70°F, 55% R.H

Test Results: The results of the tests are given on pages 4 and 5 of the report.

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Sound Absorption Test Data per C423 - 09a

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No. of test report: **NGC4015008** Date of test: **3/16/2015**
Temp. [°C]: **17.0** Humidity [%]: **68** Spec. Size [m²]: **6.593**

Frequency [Hz]	Absorption Coefficients a _s	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.38	9.44	12.71
125	0.18	9.53	11.09
160	0.25	7.69	9.84
200	0.22	7.94	9.83
250	0.24	7.94	10.04
315	0.22	7.05	8.99
400	0.26	6.69	8.94
500	0.36	6.60	9.69
630	0.66	6.51	12.20
800	0.90	6.16	13.94
1000	0.79	6.56	13.39
1250	0.72	7.01	13.28
1600	0.72	7.54	13.81
2000	0.66	8.33	14.08
2500	0.60	8.84	14.00
3150	0.58	8.54	13.56
4000	0.53	8.34	12.95
5000	0.50	7.73	12.08

Reverberation Room Volume: **282.1** m³

Noise Reduction Coefficient NRC: 0.50 Avg. 250, 500, 1000, 2000 Hz : **0.513**
Sound Absorption Average SAA: 0.53 Avg. 200 - 2500 Hz: **0.529**

NOTE: Estimates of repeatability and reproducibility for sound absorption coefficients of a specimen are referenced in ASTM C423 - 09a test method.

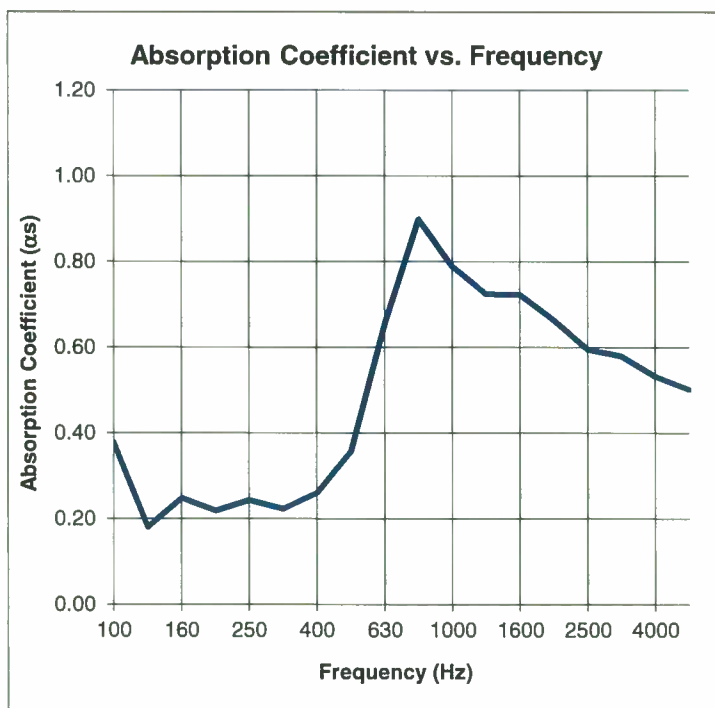
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Sound Absorption Test Data per C423 - 09a

Test report: **NGC4015008**
 Date of test: 3/16/2015
 Spec. Size [m²]: 6.593
 Room Vol.[m³]: 282.1
 Temp. [°C]: 17.0
 Humidity [%]: 68

Noise Reduction Coefficient NRC: 0.50
Sound Absorption Average SAA: 0.53

Frequency [Hz]	Absorption Coefficients α_s
100	0.38
125	0.18
160	0.25
200	0.22
250	0.24
315	0.22
400	0.26
500	0.36
630	0.66
800	0.90
1000	0.79
1250	0.72
1600	0.72
2000	0.66
2500	0.60
3150	0.58
4000	0.53
5000	0.50



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