

## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

**Smooth 2 Inch Thick Space Absorbers  
9 Units Arranged in a Three by Three Pattern  
Each Unit Spaced 6 Inches From Adjacent Unit  
Each Unit Mounted With D-40 Spacers on the Backside**

Report Number: NGC 4016026

Assignment Number: G-1276

Test Date: 06/27/2016

Report Approval Date: 08/15/2016

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016026

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Report Number: NGC 4016026

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: Smooth 2" Thick Foam Units

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam; Smooth

Panel Core: White Foam

Back Finish: White Foam with four D-40 Spacers attached

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 51.82 mm (2.04 in.), 0.98 kg/m<sup>2</sup> (0.20 PSF)

Unit Size: Nine Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)

Mounting: 9 Units spaced 6 Inches apart in a 3 x 3 arrangement with four D-40 Spacers on backside of each unit, perimeter of units not sealed.

Total Sample Size: 36 Sq. Ft. (3.369 m<sup>2</sup>)

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.

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Sound Absorption Test Data per C423 - 09a**

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No. of test report: **NGC4016026**

Date of test: 6/27/2016

Temp. [°C]: 22.0

Humidity [%]: 51

Spec. Size [m<sup>2</sup>]: 3.369

Frequency [Hz]	Absorption Metric Sabins per Unit	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.01	9.17	9.26
125	0.04	9.52	10.02
160	0.11	7.90	9.24
200	0.12	8.14	9.55
250	0.23	8.12	10.80
315	0.34	7.18	11.21
400	0.46	6.86	12.29
500	0.55	6.95	13.49
630	0.60	6.65	13.81
800	0.59	6.45	13.48
1000	0.58	6.82	13.77
1250	0.55	7.18	13.71
1600	0.53	7.37	13.66
2000	0.54	8.01	14.40
2500	0.56	7.97	14.61
3150	0.54	7.08	13.56
4000	0.54	5.56	12.04
5000	0.56	3.20	9.86

Reverberation Room Volume: 282.1 m<sup>3</sup>

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

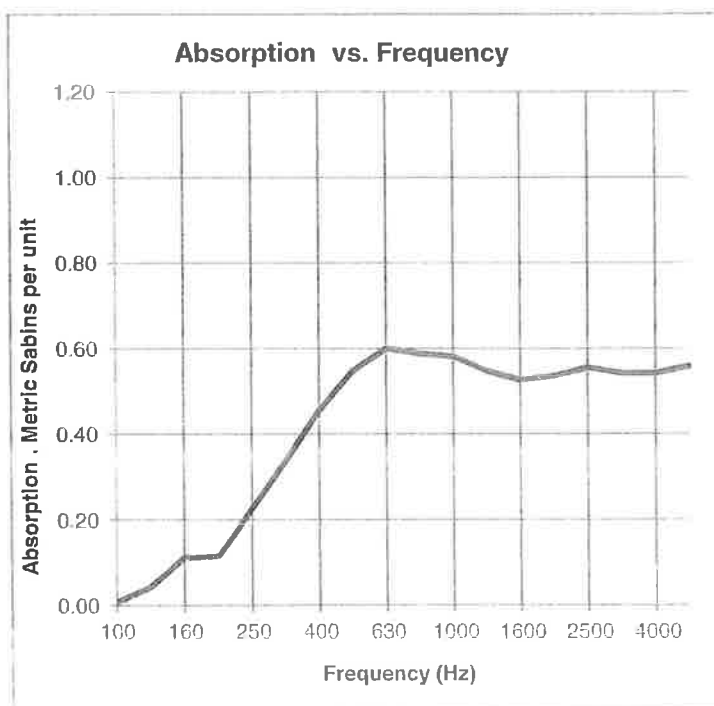
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**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016026**  
 Date of test: 6/27/2016  
 Spec. Size [m<sup>2</sup>]: 3.369  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 51

Frequency [Hz]	Absorption Metric Sabins per unit
100	0.01
125	0.04
160	0.11
200	0.12
250	0.23
315	0.34
400	0.46
500	0.55
630	0.60
800	0.59
1000	0.58
1250	0.55
1600	0.53
2000	0.54
2500	0.56
3150	0.54
4000	0.54
5000	0.56



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.

Buffalo, NY 14215

Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

**Smooth 1-1/2 Inch Thick Space Absorbers  
9 Units Arranged in a Three by Three Pattern  
Each Unit Spaced 6 Inches From Adjacent Unit  
Each Unit Mounted With D-40 Spacers on the Backside**

Report Number: NGC 4016038

Assignment Number: G-1276

Test Date: 07/28/2016

Report Approval Date: 08/15/2016

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

Reviewed by: \_\_\_\_\_

Robert J. Menchetti  
Director

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**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016038

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Report Number: NGC 4016038

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: Smooth 1" Thick Foam Units

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam; Smooth

Panel Core: White Foam

Back Finish: White Foam with four D-40 Spacers attached

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 38.86 mm (1.53 in.), 0.78 kg/m<sup>2</sup> (0.16 PSF)

Unit Size: Nine Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)

Mounting: 9 Units spaced 6 Inches apart in a 3 x 3 arrangement with four D-40 Spacers on backside of each unit, perimeter of units not sealed.

Total Sample Size: 36 Sq. Ft. (3.369 m<sup>2</sup>)

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.

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.



**Sound Absorption Test Data per C423 - 09a**

Page 4 of 5

No. of test report: **NGC4016038**

Date of test: 7/28/2016

Temp. [°C]: 23.0

Humidity [%]: 50

Spec. Size [m<sup>2</sup>]: 3.369

Frequency [Hz]	Absorption Metric Sabins per unit	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.09	8.97	10.03
125	0.04	9.43	9.94
160	0.09	7.62	8.75
200	0.11	7.75	9.03
250	0.16	8.22	10.07
315	0.25	7.28	10.23
400	0.33	6.94	10.87
500	0.43	6.93	12.06
630	0.50	6.47	12.49
800	0.53	6.26	12.64
1000	0.54	6.77	13.24
1250	0.52	7.13	13.37
1600	0.50	7.67	13.62
2000	0.47	8.66	14.28
2500	0.49	9.12	14.99
3150	0.51	9.10	15.16
4000	0.51	8.97	15.06
5000	0.51	8.70	14.80

Reverberation Room Volume: 282.1 m<sup>3</sup>

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

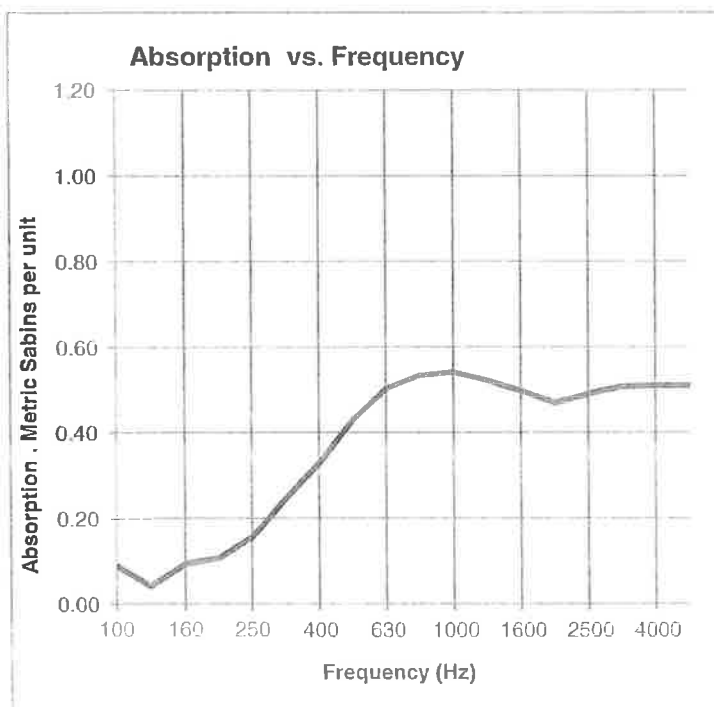
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**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016038**  
 Date of test: 7/28/2016  
 Spec. Size [m<sup>2</sup>]: 3.369  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 23.0  
 Humidity [%]: 50

Frequency [Hz]	Absorption Metric Sabins per unit
100	0.09
125	0.04
160	0.09
200	0.11
250	0.16
315	0.25
400	0.33
500	0.43
630	0.50
800	0.53
1000	0.54
1250	0.52
1600	0.50
2000	0.47
2500	0.49
3150	0.51
4000	0.51
5000	0.51



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.

Buffalo, NY 14215

Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

**Smooth 1 Inch Thick Space Absorbers  
9 Units Arranged in a Three by Three Pattern  
Each Unit Spaced 6 Inches From Adjacent Unit  
Each Unit Mounted With D-40 Spacers on the Backside**

Report Number: NGC 4016037

Assignment Number: G-1276

Test Date: 07/28/2016

Report Approval Date: 08/15/2016

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

Reviewed by: \_\_\_\_\_

Robert J Menchetti  
Director

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<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016037

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Report Number: NGC 4016037

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: Smooth 1" Thick Foam Units

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam; Smooth

Panel Core: White Foam

Back Finish: White Foam with four D-40 Spacers attached

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 25.91 mm (1.02 in.), 0.49 kg/m<sup>2</sup> (0.10 PSF)

Unit Size: Nine Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)

Mounting: 9 Units spaced 6 Inches apart in a 3 x 3 arrangement with four D-40 Spacers on backside of each unit, perimeter of units not sealed.

Total Sample Size: 36 Sq. Ft. (3.369 m<sup>2</sup>)

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.

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Sound Absorption Test Data per C423 - 09a**

Page 4 of 5

No. of test report: **NGC4016037**

Date of test: 7/28/2016

Temp. [°C]: 23.0

Humidity [%]: 50

Spec. Size [m<sup>2</sup>]: 3.369

Frequency [Hz]	Absorption Metric Sabins per unit	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.02	8.97	9.16
125	0.00	9.43	9.42
160	0.04	7.62	8.16
200	0.07	7.75	8.59
250	0.10	8.22	9.38
315	0.16	7.28	9.25
400	0.23	6.94	9.64
500	0.31	6.93	10.60
630	0.37	6.47	10.91
800	0.43	6.26	11.38
1000	0.45	6.77	12.16
1250	0.46	7.13	12.66
1600	0.46	7.67	13.11
2000	0.43	8.66	13.77
2500	0.42	9.12	14.10
3150	0.45	9.10	14.45
4000	0.45	8.97	14.35
5000	0.45	8.70	14.11

Reverberation Room Volume: 282.1 m<sup>3</sup>

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

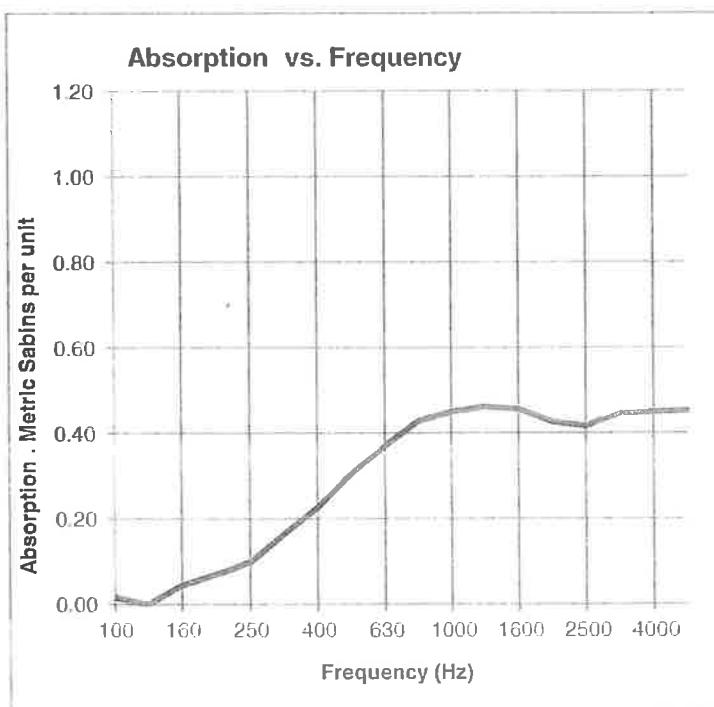
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**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016037**  
 Date of test: 7/28/2016  
 Spec. Size [m<sup>2</sup>]: 3.369  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 23.0  
 Humidity [%]: 50

Frequency [Hz]	Absorption Metric Sabins per unit
100	0.02
125	0.00
160	0.04
200	0.07
250	0.10
315	0.16
400	0.23
500	0.31
630	0.37
800	0.43
1000	0.45
1250	0.46
1600	0.46
2000	0.43
2500	0.42
3150	0.45
4000	0.45
5000	0.45



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### **STC Architectural Products**

1200 Northland Ave.

Buffalo, NY 14215

Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

**Patterned 1-1/2 Inch Thick  
9 Units Arranged in a Three by Three Pattern  
Each Unit Spaced 6 Inches From Adjacent Unit  
Each Unit Mounted With D-40 Spacers on the Backside**

Report Number: NGC 4016027

Assignment Number: G-1276

Test Date: 06/27/2016

Report Approval Date: 08/15/2016

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

Reviewed by: \_\_\_\_\_

Robert J Menchetti  
Director

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**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016027

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Report Number: NGC 4016027

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: Patterned 1-1/2" Thick Foam Units

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam; Patterned

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 38.86 mm (1.53 in.), 0.59 kg/m<sup>2</sup> (0.12 PSF)

Unit Size: Nine Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)

Mounting: 9 Units spaced 6 Inches apart in a 3 x 3 arrangement with four D-40 Spacers on backside of each unit, perimeter of units not sealed.

Total Sample Size: 36 Sq. Ft. (3.369 m<sup>2</sup>)

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.

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Sound Absorption Test Data per C423 - 09a**

Page 4 of 5

No. of test report: **NGC4016027**

Date of test: 6/27/2016

Temp. [°C]: 22.0

Humidity [%]: 51

Spec. Size [m<sup>2</sup>]: 3.369

Frequency [Hz]	Absorption Metric Sabins per unit	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.02	9.17	9.47
125	0.02	9.52	9.76
160	0.06	7.90	8.67
200	0.04	8.14	8.61
250	0.11	8.12	9.38
315	0.19	7.18	9.45
400	0.25	6.86	9.86
500	0.35	6.95	11.17
630	0.41	6.65	11.59
800	0.46	6.45	11.96
1000	0.49	6.82	12.61
1250	0.49	7.18	13.02
1600	0.48	7.37	13.08
2000	0.45	8.01	13.42
2500	0.45	7.97	13.29
3150	0.48	7.08	12.75
4000	0.49	5.56	11.41
5000	0.47	3.20	8.86

Reverberation Room Volume: 282.1 m<sup>3</sup>

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

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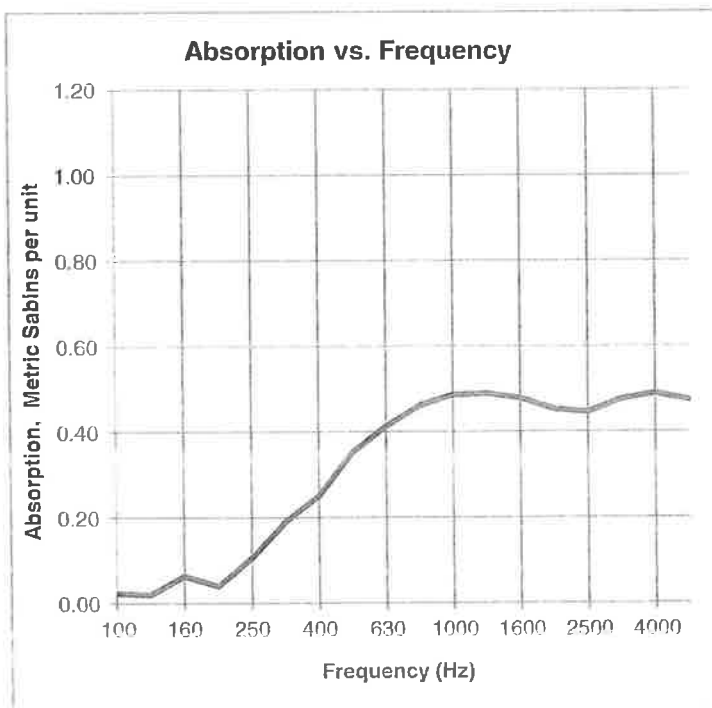
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016027**  
 Date of test: 6/27/2016  
 Spec. Size [m<sup>2</sup>]: 3.369  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 51



Frequency [Hz]	Absorption Metric Sabins per unit
100	0.02
125	0.02
160	0.06
200	0.04
250	0.11
315	0.19
400	0.25
500	0.35
630	0.41
800	0.46
1000	0.49
1250	0.49
1600	0.48
2000	0.45
2500	0.45
3150	0.48
4000	0.49
5000	0.47



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### **STC Architectural Products**

1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On


### **Smooth 2 Inch Thick Type D-40 Mounting**

Report Number: NGC 4016025

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

Submitted by:   
Andrew E. Heuer  
Senior Test Engineer

Reviewed by:   
Robert J Menchetti  
Director

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NGC 4016025  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016025

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Report Number: NGC 4016025

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: Smooth 2" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 51.82 mm (2.04 in.), 0.98 kg/m<sup>2</sup> (0.20 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type D-40 as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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.

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

**Sound Absorption Test Data per C423 - 09a**

Page 4 of 5

No. of test report: **NGC4016025**

Date of test: 6/24/2016

Temp. [°C]: 22.0

Humidity [%]: 53

Spec. Size [m<sup>2</sup>]: 6.739

Frequency [Hz]	Absorption Coefficients a	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.03	9.44	9.75
125	0.17	9.58	11.13
160	0.35	7.61	10.78
200	0.48	8.03	12.31
250	0.69	8.02	14.21
315	0.96	7.22	15.82
400	1.10	6.90	16.73
500	1.14	6.88	17.04
630	1.11	6.49	16.40
800	1.09	6.26	15.97
1000	1.04	6.72	16.00
1250	0.99	7.09	15.91
1600	1.00	7.62	16.57
2000	1.02	8.57	17.67
2500	1.03	9.24	18.46
3150	1.02	9.13	18.28
4000	1.02	9.03	18.11
5000	1.04	8.72	17.99

Reverberation Room Volume: 282.1 m<sup>3</sup>

Noise Reduction Coefficient NRC: **0.95**

Avg. 250, 500, 1000, 2000 Hz: **0.972**

Sound Absorption Average SAA: **0.97**

Avg. 200 - 2500 Hz: **0.971**

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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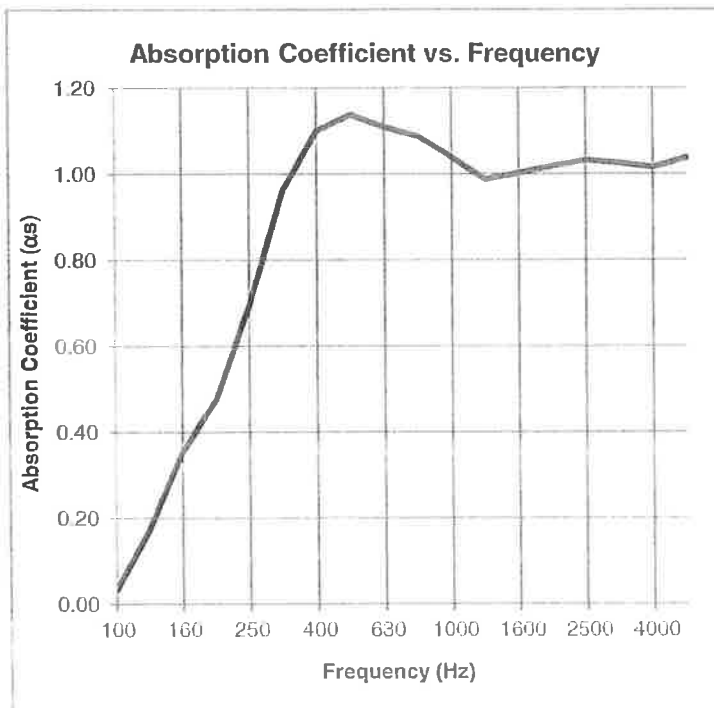
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016025**  
 Date of test: 6/24/2016  
 Spec. Size [m<sup>2</sup>]: 6.7387  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.95**  
**Sound Absorption Average SAA: 0.97**

Frequency [Hz]	Absorption Coefficients $\alpha_c$
100	0.03
125	0.17
160	0.35
200	0.48
250	0.69
315	0.96
400	1.10
500	1.14
630	1.11
800	1.09
1000	1.04
1250	0.99
1600	1.00
2000	1.02
2500	1.03
3150	1.02
4000	1.02
5000	1.04



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.

Buffalo, NY 14215

Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

### **Smooth 1-1/2 Inch Thick Type D-40 Mounting**

Report Number: NGC 4016023

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

NGC 4016023  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016023

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

Report Number: NGC 4016023

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: Smooth 1-1/2" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 38.86mm (1.53 in.), 0.78 kg/m<sup>2</sup> (0.16 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type D-40 as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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.

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

Sound Absorption Test Data per C423 - 09a					Page 4 of 5
No. of test report:		NGC4016023		Date of test:	6/23/2016
Temp. [°C]: 22.0		Humidity [%]: 53		Spec. Size [m²]: 6.738	
Frequency [Hz]		Absorption Coefficients α	Avg. Decay Rate		
			Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]	
100		0.01	9.44	9.43	
125		0.13	9.58	10.78	
160		0.25	7.61	9.87	
200		0.33	8.03	11.01	
250		0.51	8.02	12.59	
315		0.69	7.22	13.37	
400		0.84	6.90	14.44	
500		1.03	6.88	16.06	
630		1.04	6.49	15.77	
800		1.03	6.26	15.48	
1000		1.00	6.72	15.61	
1250		0.98	7.09	15.82	
1600		0.98	7.62	16.40	
2000		0.96	8.57	17.14	
2500		0.96	9.24	17.79	
3150		0.97	9.13	17.81	
4000		1.00	9.03	17.95	
5000		0.98	8.72	17.50	
Reverberation Room Volume:		282.1		m³	
Noise Reduction Coefficient NRC:		0.85		Avg. 250, 500, 1000, 2000 Hz :	
Sound Absorption Average SAA:		0.86		Avg. 200 - 2500 Hz:	
				0.873	
				0.862	
NOTE: Estimates of repeatability and reproducibility for sound absorption coefficients of a specimen are referenced in ASTM C423 - 09a test method.					

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

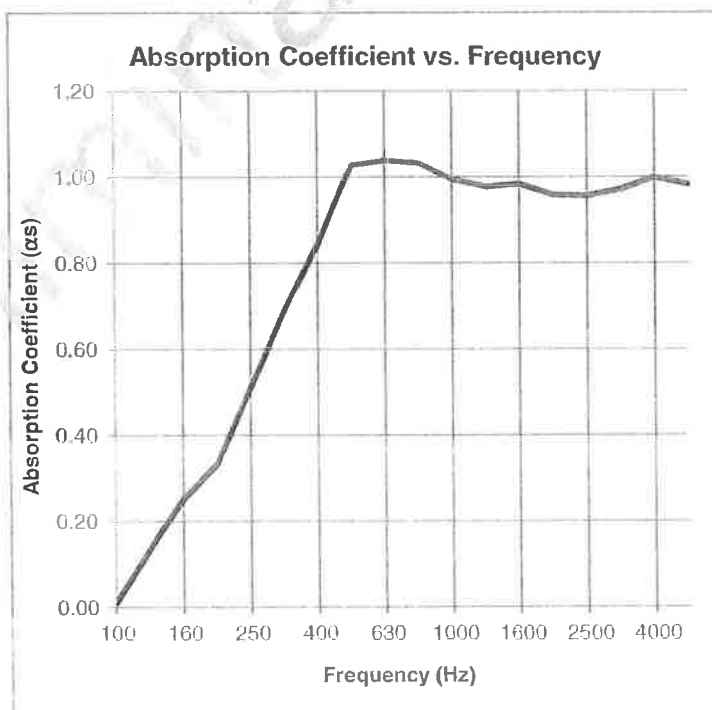
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016023**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.85**  
**Sound Absorption Average SAA: 0.86**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.01
125	0.13
160	0.25
200	0.33
250	0.51
315	0.69
400	0.84
500	1.03
630	1.04
800	1.03
1000	1.00
1250	0.98
1600	0.98
2000	0.96
2500	0.96
3150	0.97
4000	1.00
5000	0.98



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## TEST REPORT

for

**STC Architectural Products**  
1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### Sound Absorption Testing

ASTM C 423-09a/ E795-05

On

**Smooth 1 Inch Thick  
Type D-40 Mounting**

Report Number: NGC 4016022

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

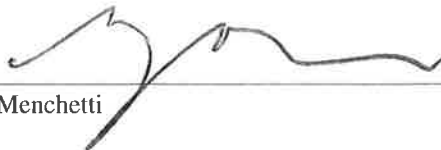
Submitted by: \_\_\_\_\_

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

NGC 4016022  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016022

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.



Report Number: NGC 4016022

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: Smooth 1" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 25.91 mm (1.02 in.), 0.49 kg/m<sup>2</sup> (0.10 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type D-40 as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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**

Page 4 of 5

No. of test report: **NGC4016022**

Date of test: 6/23/2016

Temp. [°C]: 22.0

Humidity [%]: 53

Spec. Size [m²]: 6.738

Frequency [Hz]	Absorption Coefficients $\alpha_s$	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.02	9.44	9.61
125	0.04	9.58	9.90
160	0.15	7.61	8.98
200	0.20	8.03	9.81
250	0.30	8.02	10.74
315	0.44	7.22	11.15
400	0.61	6.90	12.32
500	0.75	6.88	13.57
630	0.86	6.49	14.17
800	0.91	6.26	14.43
1000	0.92	6.72	14.97
1250	0.92	7.09	15.31
1600	0.90	7.62	15.64
2000	0.90	8.57	16.61
2500	0.87	9.24	16.98
3150	0.89	9.13	17.07
4000	0.93	9.03	17.30
5000	0.92	8.72	16.96

Reverberation Room Volume: 282.1 m³

Noise Reduction Coefficient NRC: **0.70**

Avg. 250, 500, 1000, 2000 Hz: **0.719**

Sound Absorption Average SAA: **0.72**

Avg. 200 - 2500 Hz: **0.715**

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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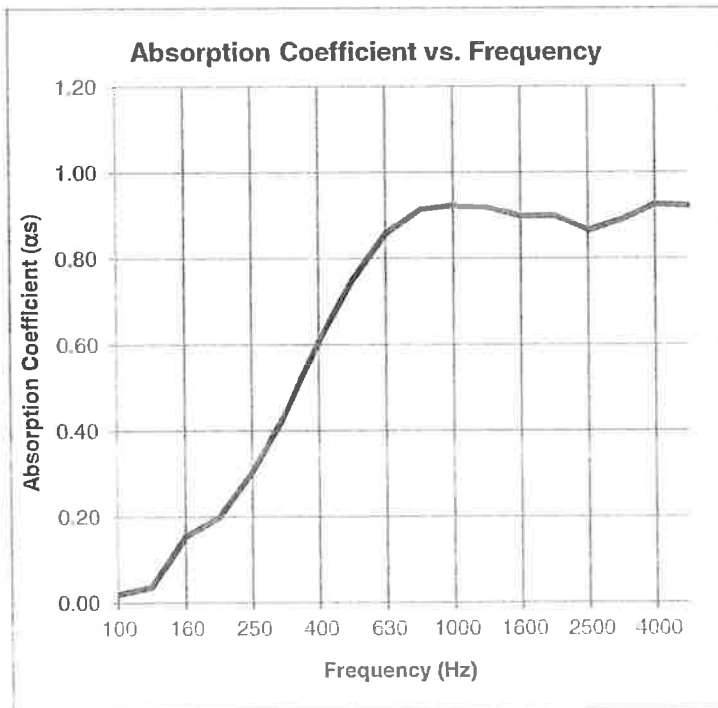
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016022**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.70**  
**Sound Absorption Average SAA: 0.72**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.02
125	0.04
160	0.15
200	0.20
250	0.30
315	0.44
400	0.61
500	0.75
630	0.86
800	0.91
1000	0.92
1250	0.92
1600	0.90
2000	0.90
2500	0.87
3150	0.89
4000	0.93
5000	0.92



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On


### **Patterned 1-1/2 Inch Thick Type D-40 Mounting**

Report Number: NGC 4016024

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

Submitted by:   
Andrew E. Heuer  
Senior Test Engineer

Reviewed by:   
Robert J. Menchetti  
Director

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NGC 4016024  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016024

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Report Number: NGC 4016024

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: Patterned 1-1/2" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: Patterned White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 37.85 mm (1.49 in.), 0.59 kg/m<sup>2</sup> (0.12 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type D-40 as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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**

Page 4 of 5

No. of test report: **NGC4016024**

Date of test: 6/23/2016

Temp. [°C]: 22.0

Humidity [%]: 53

Spec. Size [m<sup>2</sup>]: 6.738

Frequency [Hz]	Absorption Coefficients $\alpha_s$	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.01	9.44	9.48
125	0.07	9.58	10.23
160	0.18	7.61	9.20
200	0.21	8.03	9.95
250	0.36	8.02	11.24
315	0.53	7.22	11.99
400	0.69	6.90	13.07
500	0.87	6.88	14.61
630	0.94	6.49	14.89
800	0.98	6.26	15.02
1000	0.96	6.72	15.30
1250	0.95	7.09	15.55
1600	0.94	7.62	15.98
2000	0.92	8.57	16.78
2500	0.92	9.24	17.43
3150	0.93	9.13	17.48
4000	0.99	9.03	17.88
5000	0.93	8.72	17.43

Reverberation Room Volume: 282.1 m<sup>3</sup>

**Noise Reduction Coefficient NRC:** 0.80      Avg. 250, 500, 1000, 2000 Hz: 0.776  
**Sound Absorption Average SAA:** 0.77      Avg. 200 - 2500 Hz: 0.772

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

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

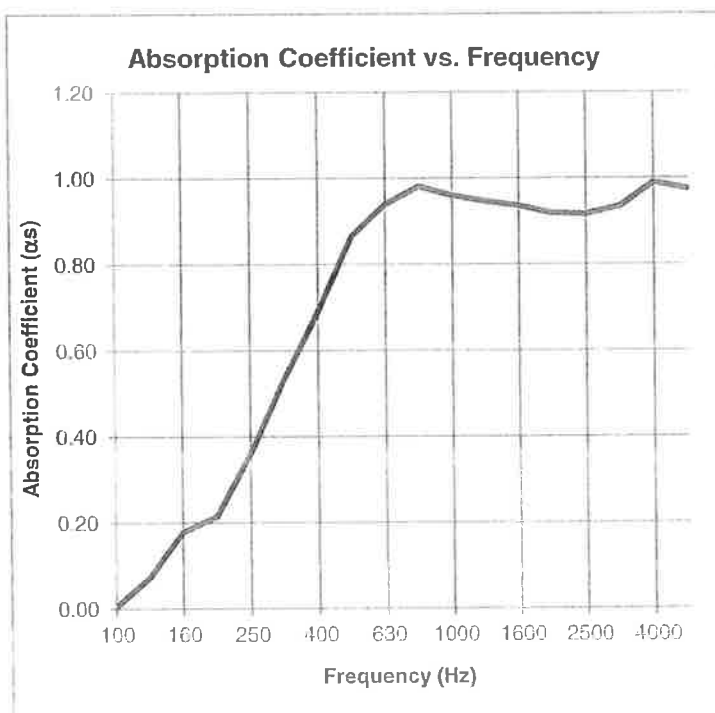
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016024**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.80**  
**Sound Absorption Average SAA: 0.77**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.01
125	0.07
160	0.18
200	0.21
250	0.36
315	0.53
400	0.69
500	0.87
630	0.94
800	0.98
1000	0.96
1250	0.95
1600	0.94
2000	0.92
2500	0.92
3150	0.93
4000	0.99
5000	0.98



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

### **Smooth 2 Inch Thick Type A Mounting**

Report Number: NGC 4016021

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

NGC 4016021  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016021

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

Report Number: NGC 4016021

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: Smooth 2" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 51.82 mm (2.04 in.), 0.98 kg/m<sup>2</sup> (0.20 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type A as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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**

Page 4 of 5

No. of test report: **NGC4016021**

Date of test: 6/23/2016

Temp. [°C]: 22.0

Humidity [%]: 53

Spec. Size [m<sup>2</sup>]: 6.738

Frequency [Hz]	Absorption Coefficients $\alpha_s$	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.08	9.44	10.16
125	0.11	9.58	10.59
160	0.26	7.61	9.95
200	0.35	8.03	11.15
250	0.56	8.02	13.01
315	0.78	7.22	14.17
400	0.95	6.90	15.40
500	1.01	6.88	15.93
630	1.04	6.49	15.77
800	1.04	6.26	15.52
1000	1.00	6.72	15.68
1250	0.98	7.09	15.84
1600	0.98	7.62	16.36
2000	0.99	8.57	17.40
2500	0.98	9.24	18.00
3150	0.96	9.13	17.71
4000	0.97	9.03	17.71
5000	1.02	8.72	17.82

Reverberation Room Volume: 282.1 m<sup>3</sup>

Noise Reduction Coefficient NRC: 0.90

Avg. 250, 500, 1000, 2000 Hz: 0.891

Sound Absorption Average SAA: 0.89

Avg. 200 - 2500 Hz: 0.888

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

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

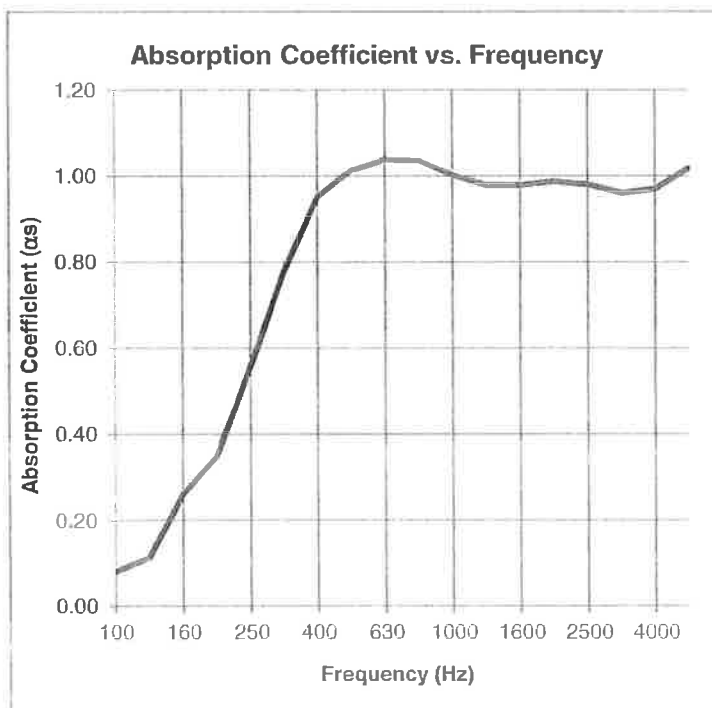
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016021**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.90**  
**Sound Absorption Average SAA: 0.89**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.08
125	0.11
160	0.26
200	0.35
250	0.56
315	0.78
400	0.95
500	1.01
630	1.04
800	1.04
1000	1.00
1250	0.98
1600	0.98
2000	0.99
2500	0.98
3150	0.96
4000	0.97
5000	1.02



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

### **Smooth 1-1/2 Inch Thick Type A Mounting**

Report Number: NGC 4016019

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

Reviewed by: \_\_\_\_\_

Robert J Menchetti  
Director

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NGC 4016019  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

<b>Date</b>	<b>SUMMARY</b>
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016019

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Report Number: NGC 4016019

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: Smooth 1-1/2" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 38.86 mm (1.53 in.), 0.78 kg/m<sup>2</sup> (0.16 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)

Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type A as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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: **NGC4016019**

Date of test: **6/23/2016**

Temp. [°C]: **22.0**

Humidity [%]: **53**

Spec. Size [m<sup>2</sup>]: **6.738**

Frequency [Hz]	Absorption Coefficients $a_s$	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.12	9.44	10.51
125	0.13	9.58	10.72
160	0.17	7.61	9.15
200	0.22	8.03	10.00
250	0.36	8.02	11.26
315	0.50	7.22	11.68
400	0.66	6.90	12.83
500	0.84	6.88	14.35
630	0.86	6.49	14.19
800	0.92	6.26	14.49
1000	0.92	6.72	14.98
1250	0.94	7.09	15.47
1600	0.91	7.62	15.74
2000	0.92	8.57	16.76
2500	0.93	9.24	17.56
3150	0.93	9.13	17.43
4000	0.94	9.03	17.41
5000	0.94	8.72	17.10

Reverberation Room Volume: **282.1** m<sup>3</sup>

Noise Reduction Coefficient NRC: **0.75** Avg. 250, 500, 1000, 2000 Hz: **0.760**

Sound Absorption Average SAA: **0.75** Avg. 200 - 2500 Hz: **0.749**

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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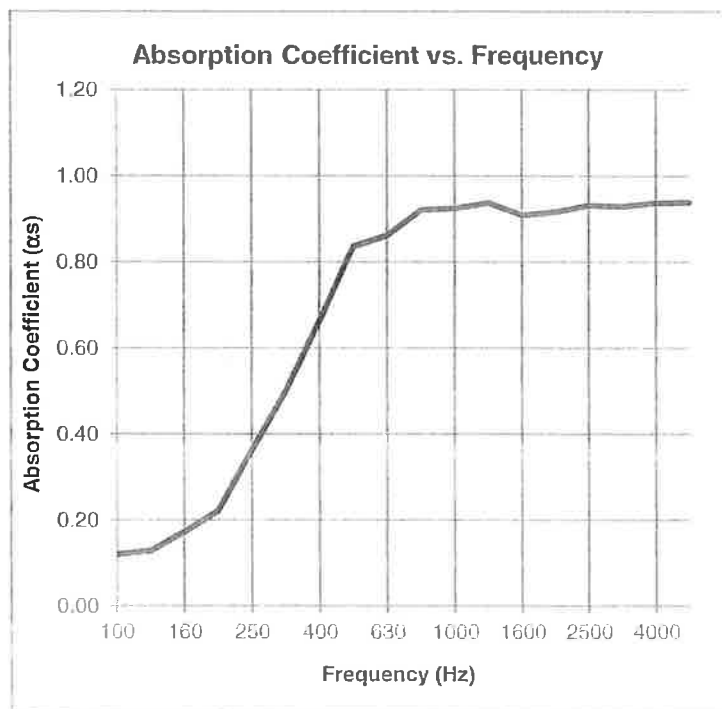
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016019**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.75**  
**Sound Absorption Average SAA: 0.75**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.12
125	0.13
160	0.17
200	0.22
250	0.36
315	0.50
400	0.66
500	0.84
630	0.86
800	0.92
1000	0.92
1250	0.94
1600	0.91
2000	0.92
2500	0.93
3150	0.93
4000	0.94
5000	0.94



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## TEST REPORT

for

**STC Architectural Products**  
1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### Sound Absorption Testing

ASTM C 423-09a/ E795-05

On

**Smooth 1 Inch Thick  
Type A Mounting**

Report Number: NGC 4016018

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

Reviewed by: \_\_\_\_\_

Robert J Menchetti  
Director

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NGC 4016018  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

Date	SUMMARY
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016018

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

Report Number: NGC 4016018

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: Smooth 1" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 25.91 mm (1.02 in.), 0.49 kg/m<sup>2</sup> (0.10 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type A as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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**

Page 4 of 5

No. of test report: **NGC4016018**

Date of test: **6/23/2016**

Temp. [°C]: **22.0**

Humidity [%]: **53**

Spec. Size [m<sup>2</sup>]: **6.738**

Frequency [Hz]	Absorption Coefficients $\alpha$	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.02	9.44	9.62
125	0.07	9.58	10.21
160	0.11	7.61	8.57
200	0.14	8.03	9.28
250	0.22	8.02	9.95
315	0.31	7.22	9.98
400	0.45	6.90	10.93
500	0.54	6.88	11.73
630	0.66	6.49	12.43
800	0.74	6.26	12.84
1000	0.78	6.72	13.70
1250	0.81	7.09	14.35
1600	0.83	7.62	15.04
2000	0.85	8.57	16.17
2500	0.85	9.24	16.87
3150	0.87	9.13	16.89
4000	0.87	9.03	16.79
5000	0.91	8.72	16.85

Reverberation Room Volume: **282.1** m<sup>3</sup>

Noise Reduction Coefficient NRC: **0.60**

Avg. 250, 500, 1000, 2000 Hz: **0.598**

Sound Absorption Average SAA: **0.60**

Avg. 200 - 2500 Hz: **0.599**

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

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, NIST or any agency of the Federal Government. This report may not be reproduced except in full, without written approval of the laboratory.

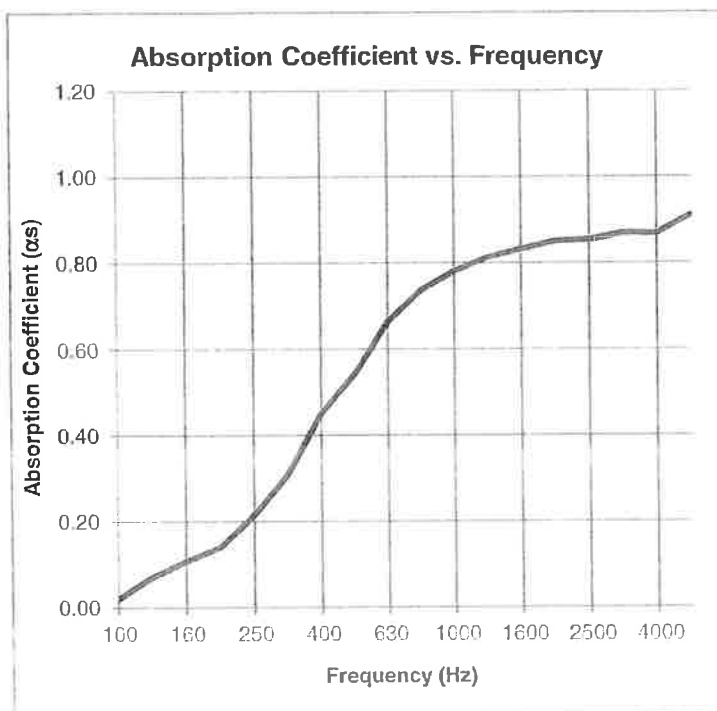
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016018**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.60**  
**Sound Absorption Average SAA: 0.60**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.02
125	0.07
160	0.11
200	0.14
250	0.22
315	0.31
400	0.45
500	0.54
630	0.66
800	0.74
1000	0.78
1250	0.81
1600	0.83
2000	0.85
2500	0.85
3150	0.87
4000	0.87
5000	0.91



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## TEST REPORT

for

### **STC Architectural Products**

1200 Northland Ave.  
Buffalo, NY 14215  
Paul L. Battaglia / 716-392-3831

### **Sound Absorption Testing**

ASTM C 423-09a/ E795-05

On

### **Patterned 1-1/2 Inch Thick Type A Mounting**

Report Number: NGC 4016020

Assignment Number: G-1276

Test Date: 06/23/2016

Report Approval Date: 08/15/2016

Submitted by: \_\_\_\_\_

Andrew E. Heuer  
Senior Test Engineer

Reviewed by: \_\_\_\_\_

Robert J Menchetti  
Director

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NGC 4016020  
STC Architectural Products  
08/15/2016  
Page 2 of 5

**Revision Summary:**

Date	SUMMARY
Approval Date : 08/15/2016	Original issue date: 08/15/2016 Original NGCTS report: NGC 4016020

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Report Number: NGC 4016020

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: Patterned 1-1/2" Thick

The test specimens were observed to have the following characteristics:

Panels are: Square edge.

Face Finish: Patterned White Foam

Panel Core: White Foam

Back Finish: White Foam

All weights and dimension are averaged:

Measured dimensions: Various sizes, see below

Overall Thickness and weight: 37.85 mm (1.49 in.), 0.59 kg/m<sup>2</sup> (0.12 PSF)

Unit Size: Sixteen Units, 609.6 mm x 609.6 mm (24 in. x 24 in.)  
Four Units, 304.8 mm x 609.6 mm (12 in. x 24 in.)

Mounting: Type A as per ASTM E795-05. Perimeter of test specimen sealed.

Total Sample Size: 72.52 Sq. Ft. (6.738 m<sup>2</sup>)

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**

Page 4 of 5

No. of test report: **NGC4016020**

Date of test: 6/23/2016

Temp. [°C]: 22.0

Humidity [%]: 53

Spec. Size [m<sup>2</sup>]: 6.738

Frequency [Hz]	Absorption Coefficients $\alpha_s$	Avg. Decay Rate	
		Empty d (empty) [dB/s]	Specimen d (specimen) [dB/s]
100	0.04	9.44	9.84
125	0.08	9.58	10.30
160	0.16	7.61	9.00
200	0.16	8.03	9.45
250	0.25	8.02	10.24
315	0.37	7.22	10.55
400	0.51	6.90	11.42
500	0.67	6.88	12.87
630	0.76	6.49	13.32
800	0.81	6.26	13.47
1000	0.84	6.72	14.20
1250	0.85	7.09	14.68
1600	0.86	7.62	15.30
2000	0.86	8.57	16.21
2500	0.88	9.24	17.08
3150	0.88	9.13	17.01
4000	0.90	9.03	17.11
5000	0.94	8.72	17.14

Reverberation Room Volume: 282.1 m<sup>3</sup>

Noise Reduction Coefficient NRC: 0.65 Avg. 250, 500, 1000, 2000 Hz: 0.653

Sound Absorption Average SAA: 0.65 Avg. 200 - 2500 Hz: 0.651

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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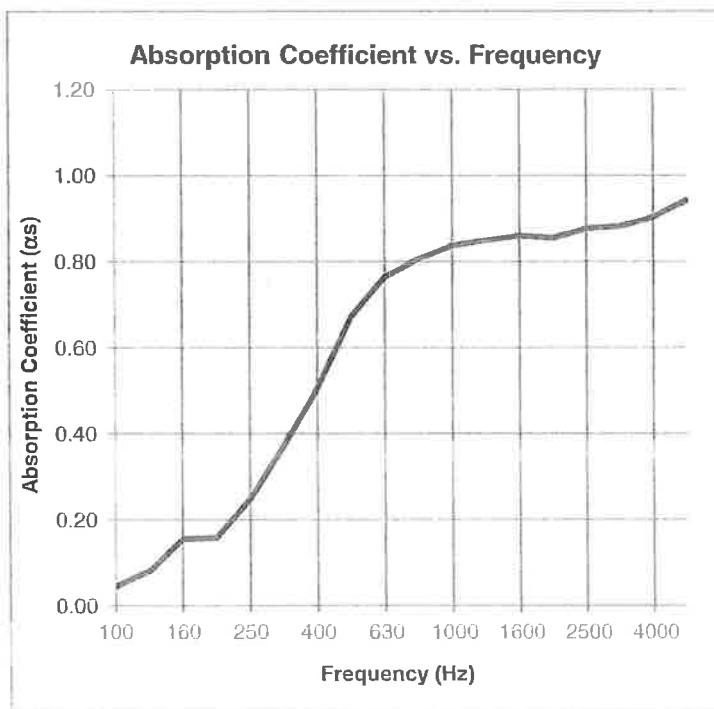
**Sound Absorption Test Data per C423 - 09a**

Page 5 of 5

Test report: **NGC4016020**  
 Date of test: 6/23/2016  
 Spec. Size [m<sup>2</sup>]: 6.738  
 Room Vol.[m<sup>3</sup>]: 282.1  
 Temp. [°C]: 22.0  
 Humidity [%]: 53

**Noise Reduction Coefficient NRC: 0.65**  
**Sound Absorption Average SAA: 0.65**

Frequency [Hz]	Absorption Coefficients $\alpha_s$
100	0.04
125	0.08
160	0.16
200	0.16
250	0.25
315	0.37
400	0.51
500	0.67
630	0.76
800	0.81
1000	0.84
1250	0.85
1600	0.86
2000	0.86
2500	0.88
3150	0.88
4000	0.90
5000	0.94



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