

Test Report

SPONSOR: **Auralex Acoustics**
Indianapolis, IN

Sound Absorption
RAL™-A19-427

CONDUCTED: 2019-10-21

Page 1 of 8

ON: 2 in. Studiofoam Wedges

TEST METHODOLOGY

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2017 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM C423-17: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-16: "Standard Practices for Mounting Test Specimens During Sound Absorption Tests." A description of the measurement procedure and room specifications are available upon request. The results presented in this report apply to the sample as received from the test sponsor.

INFORMATION PROVIDED BY SPONSOR

The test specimen was designated by the sponsor as 2 in. Studiofoam Wedges. The following nominal product information was provided by the sponsor prior to testing. The accuracy of such sponsor-provided information can affect the validity of the test results.

Product Under Test

Trade Name: Studiofoam
Material: Open cell polyurethane foam
Thickness: Average @ 31.75 mm (1.25 in.)
Overall @ 50.8 mm (2 in.)
Density: 32.0 kg/m³ (2.0 lbs/ft³)
Manufacturer: Auralex Acoustics

SPECIMEN MEASUREMENTS & TEST CONDITIONS

Through a full external visual inspection performed on the test specimen, Riverbank personnel verified the following information:

Test Specimen

Material: Flexible, compressible foam panels
Dimensions: 16 @ 606.42 mm (23.875 in.) x 603.25 mm (23.75 in.)
4 @ 606.42 mm (23.875 in.) x 301.62 mm (11.875 in.)
Thickness: Sawtooth profile, pitch @ 40 mm (1.575 in.)
Maximum @ 50.5 mm (1.988 in.)
Minimum @ 13 mm (0.512 in.)
Overall Weight: 6.12 kg (13.5 lbs)
Installation: Sawtooth profile exposed to sound field, parallel between panels

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Auralex Acoustics
2019-10-21

RAL™-A19-427
Page 2 of 8

Overall Specimen Properties

Size: 2.43 m (95.5 in) wide by 2.71 m (106.875 in) long
Thickness: 0.05 m (1.962 in)
Weight: 6.12 kg (13.5 lbs)
Mass per Unit Area: 0.93 kg/m² (0.19 lbs/ft²)
Calculation Area: 6.585 m² (70.88 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 21.8 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 55.1 % ± 1.0 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 96.8 kPa (Requirement not defined)

MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. Per sponsor request, the perimeter edges were exposed, as would be typical of an actual installation of the product under test.

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An **ALION** Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Auralex Acoustics
2019-10-21

RAL™-A19-427
Page 3 of 8

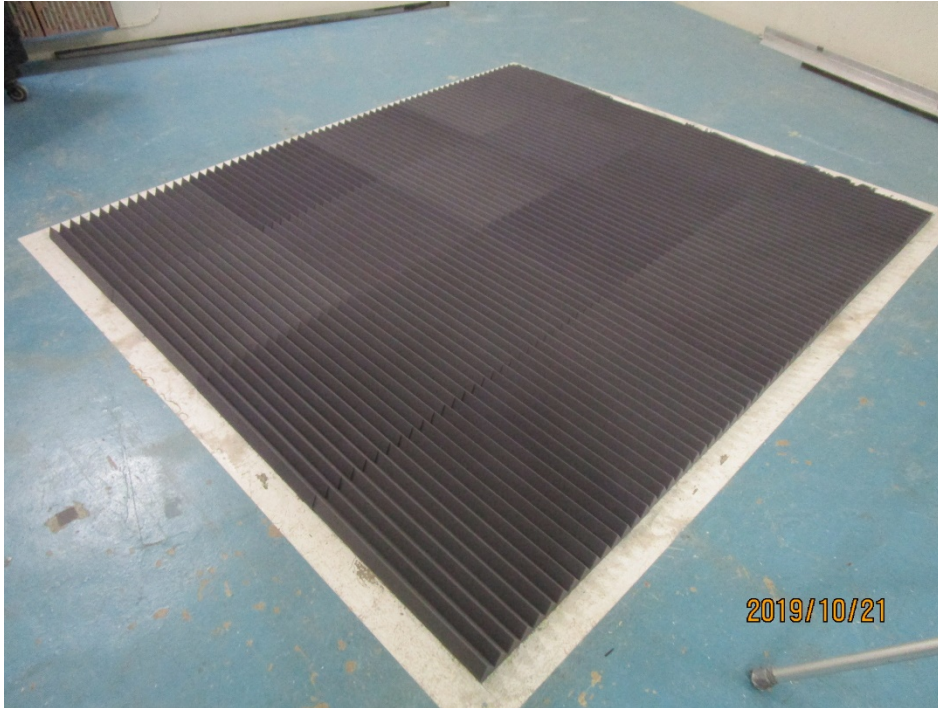


Figure 1 – Specimen mounted in test chamber



Figure 2 – Detail of specimen material

1512 S BATAVIA AVENUE
 GENEVA, IL 60134
 630-232-0104

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
 WALLACE CLEMENT SABINE

Test Report

Auralex Acoustics
 2019-10-21

RAL™-A19-427

Page 4 of 8

TEST RESULTS

Specimen total absorption and absorption coefficient are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages.

1/3 Octave Center

| Frequency (Hz) | Total Absorption (m ²) | Total Absorption (Sabins) | Absorption Coefficient |
|-------------------|---------------------------------------|------------------------------|---------------------------|
| 100 | 1.44 | 15.49 | 0.22 |
| ** 125 | 1.40 | 15.10 | 0.21 |
| 160 | 1.33 | 14.27 | 0.20 |
| 200 | 1.64 | 17.62 | 0.25 |
| ** 250 | 1.58 | 17.03 | 0.24 |
| 315 | 2.50 | 26.86 | 0.38 |
| 400 | 2.97 | 31.93 | 0.45 |
| ** 500 | 4.12 | 44.31 | 0.63 |
| 630 | 4.95 | 53.33 | 0.75 |
| 800 | 5.70 | 61.35 | 0.87 |
| ** 1000 | 6.37 | 68.58 | 0.97 |
| 1250 | 6.81 | 73.25 | 1.03 |
| 1600 | 7.12 | 76.61 | 1.08 |
| ** 2000 | 7.26 | 78.10 | 1.10 |
| 2500 | 7.27 | 78.21 | 1.10 |
| 3150 | 7.22 | 77.74 | 1.10 |
| ** 4000 | 7.18 | 77.23 | 1.09 |
| 5000 | 7.57 | 81.45 | 1.15 |

SAA = 0.74

NRC = 0.75

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report


Auralex Acoustics
2019-10-21

RAL™-A19-427
Page 5 of 8

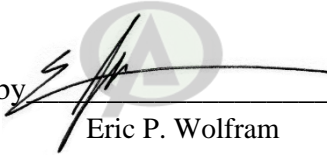
TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-17 Section 3.1.1 as the arithmetic average of the sound absorption coefficients of a material for the twelve one-third octave bands from 200 Hz through 2500 Hz, inclusive, rounded to the nearest integer multiple of 0.01.

The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the arithmetic average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, rounded to the nearest integer multiple of 0.05.

Tested by 
Marc Sciaky
Senior Experimentalist

Report by 
Malcolm Kelly
Acoustical Test Engineer

Approved by 
Eric P. Wolfram
Laboratory Manager

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

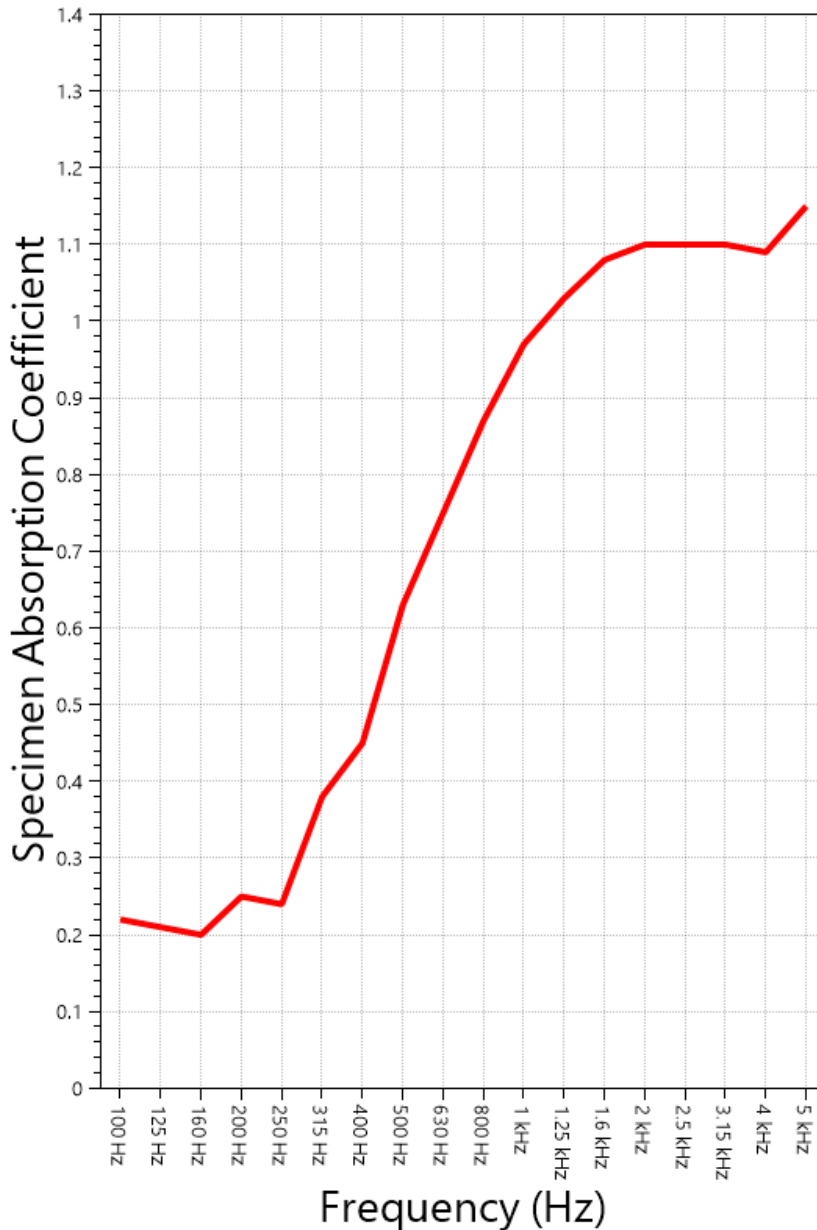
Test Report

Auralex Acoustics
2019-10-21

RAL™-A19-427

Page 6 of 8

SOUND ABSORPTION REPORT
2 in. Studiofoam Wedges



SAA = 0.74
NRC = 0.75



RIVERBANK ACOUSTICAL LABORATORIES IS ACCREDITED BY NVLAP (LAB CODE 100227-0) FOR ACOUSTICAL TESTING SERVICES IN ACCORDANCE WITH ISO/IEC 17025:2017 AND FOR THIS PROCEDURE. THIS REPORT MUST NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY RAL, NVLAP, NIST, OR ANY AGENCY OF THE U.S. GOVERNMENT. THIS REPORT SHALL NOT BE MODIFIED WITHOUT THE WRITTEN APPROVAL OF RAL. THE RESULTS REPORTED APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR TESTING; RAL ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF ANY OTHER SAMPLE.

1512 S BATAVIA AVENUE
 GENEVA, IL 60134
 630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
 WALLACE CLEMENT SABINE

Test Report

Auralex Acoustics
 2019-10-21

RAL™-A19-427

Page 7 of 8

APPENDIX A: Extended Frequency Range Data

Specimen: 2 in. Studiofoam Wedges (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-17, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

| 1/3 Octave Band Center Frequency (Hz) | Total Absorption (Sabins) | Absorption Coefficient |
|---------------------------------------------|------------------------------|---------------------------|
| 31.5 | 1.01 | 0.01 |
| 40 | -3.52 | -0.05 |
| 50 | 3.30 | 0.05 |
| 63 | 7.35 | 0.10 |
| 80 | 6.17 | 0.09 |
| <hr/> | | |
| 100 | 15.49 | 0.22 |
| 125 | 15.10 | 0.21 |
| 160 | 14.27 | 0.20 |
| 200 | 17.62 | 0.25 |
| 250 | 17.03 | 0.24 |
| 315 | 26.86 | 0.38 |
| 400 | 31.93 | 0.45 |
| 500 | 44.31 | 0.63 |
| 630 | 53.33 | 0.75 |
| 800 | 61.35 | 0.87 |
| 1000 | 68.58 | 0.97 |
| 1250 | 73.25 | 1.03 |
| 1600 | 76.61 | 1.08 |
| 2000 | 78.10 | 1.10 |
| 2500 | 78.21 | 1.10 |
| 3150 | 77.74 | 1.10 |
| 4000 | 77.23 | 1.09 |
| 5000 | 81.45 | 1.15 |
| <hr/> | | |
| 6300 | 82.86 | 1.17 |
| 8000 | 87.18 | 1.23 |
| 10000 | 87.52 | 1.23 |
| 12500 | 90.59 | 1.28 |

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Auralex Acoustics
2019-10-21

RAL™-A19-427

Page 8 of 8

APPENDIX B: Instruments of Traceability

Specimen: 2 in. Studiofoam Wedges (See Full Report)

| <u>Description</u> | <u>Model</u> | <u>Serial Number</u> | <u>Date of Certification</u> | <u>Calibration Due</u> |
|---------------------------------------------------|---------------------|-----------------------------|-------------------------------------|-------------------------------|
| System 1 | Type 3160-A-042 | 3160-106968 | 2019-06-25 | 2020-06-25 |
| Bruel & Kjaer Mic And Preamp A | Type 4943-B-001 | 2311428 | 2019-09-27 | 2020-09-27 |
| Bruel & Kjaer Pistonphone | Type 4228 | 2781248 | 2019-08-09 | 2020-08-09 |
| Omega Digital Temp., Humid. And Pressure Recorder | OM-CP-PRHTemp2000 | P97844 | 2019-02-08 | 2020-02-08 |

APPENDIX C: Revisions to Original Test Report

Specimen: 2 in. Studiofoam Wedges (See Full Report)

| <u>Date</u> | <u>Revision</u> |
|--------------------|----------------------------------------------------------------------------------------------------------------|
| 2019-10-24 | Original report issued |
| 2019-11-07 | Proprietary foam information removed per customer request. Designation changed from "Panels" to "Wedges." -EPW |

END