

Test ReportSPONSOR: **Auralex Acoustics**
Indianapolis, IN**Sound Absorption**
RAL™-A20-213

CONDUCTED: 2020-06-10

Page 1 of 9

ON: Studiofoam Royale

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 Studiofoam Royale. 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 Royale
Material ID: Auralex Studiofoam
Density: 32 kg/m³ (2 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 sculpted foam panels
Dimensions: 36 @ 304.8 mm (12 in.) wide x 606 mm (23.858 in.) long
Key Geometry: Protrusion and void features centered at middle of panel width, extend across panel length
Protrusions @ 202 mm (7.953 in.) x 25 mm (0.984 in.)
Voids @ 204 mm (8.032 in.) x 24 mm (0.945 in.)
Thickness: 75 mm (2.953 in.), including protrusion
50 mm (1.969 in.), excluding protrusion
Overall Weight: 9.75 kg (21.5 lbs)
Installation: Voids facing test surface, protrusions exposed to sound field



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
2020-06-10

RAL™-A20-213

Page 2 of 9

Overall Specimen Properties

Size: 2.74 m (108.0 in) wide by 2.44 m (96.0 in) long
Thickness: 0.07 m (2.875 in)
Weight: 9.75 kg (21.5 lbs)
Mass per Unit Area: 1.46 kg/m² (0.3 lbs/ft²)
Calculation Area: 6.689 m² (72 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 22.0 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 59.55 % ± 0.1 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 97.3 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 left exposed, as would be typical of a field 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
2020-06-10

RAL™-A20-213

Page 3 of 9



Figure 1 – Specimen mounted in test chamber



Figure 2 – Individual specimen panel, detail of material and geometry

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
2020-06-10

RAL™-A20-213

Page 4 of 9



Figure 3 – Detail of specimen installation

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
2020-06-10

RAL™-A20-213

Page 5 of 9

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	1.90	20.46	0.28
** 125	2.00	21.53	0.30
160	2.42	26.06	0.36
200	3.70	39.81	0.55
** 250	4.88	52.57	0.73
315	6.77	72.88	1.01
400	7.84	84.39	1.17
** 500	8.11	87.27	1.21
630	7.90	85.04	1.18
800	7.82	84.16	1.17
** 1000	7.55	81.24	1.13
1250	7.51	80.81	1.12
1600	7.32	78.78	1.09
** 2000	7.40	79.64	1.11
2500	7.49	80.60	1.12
3150	7.08	76.22	1.06
** 4000	7.20	77.47	1.08
5000	7.32	78.76	1.09

SAA = 1.05

NRC = 1.05

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
2020-06-10

RAL™-A20-213
Page 6 of 9

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


Dean Victor

Lead Experimentalist

Report by


Malcolm Kelly

Acoustical Test Engineer

Approved by


Eric P. Wolfram

Laboratory Manager



NVLAP LAB CODE 100227-0

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

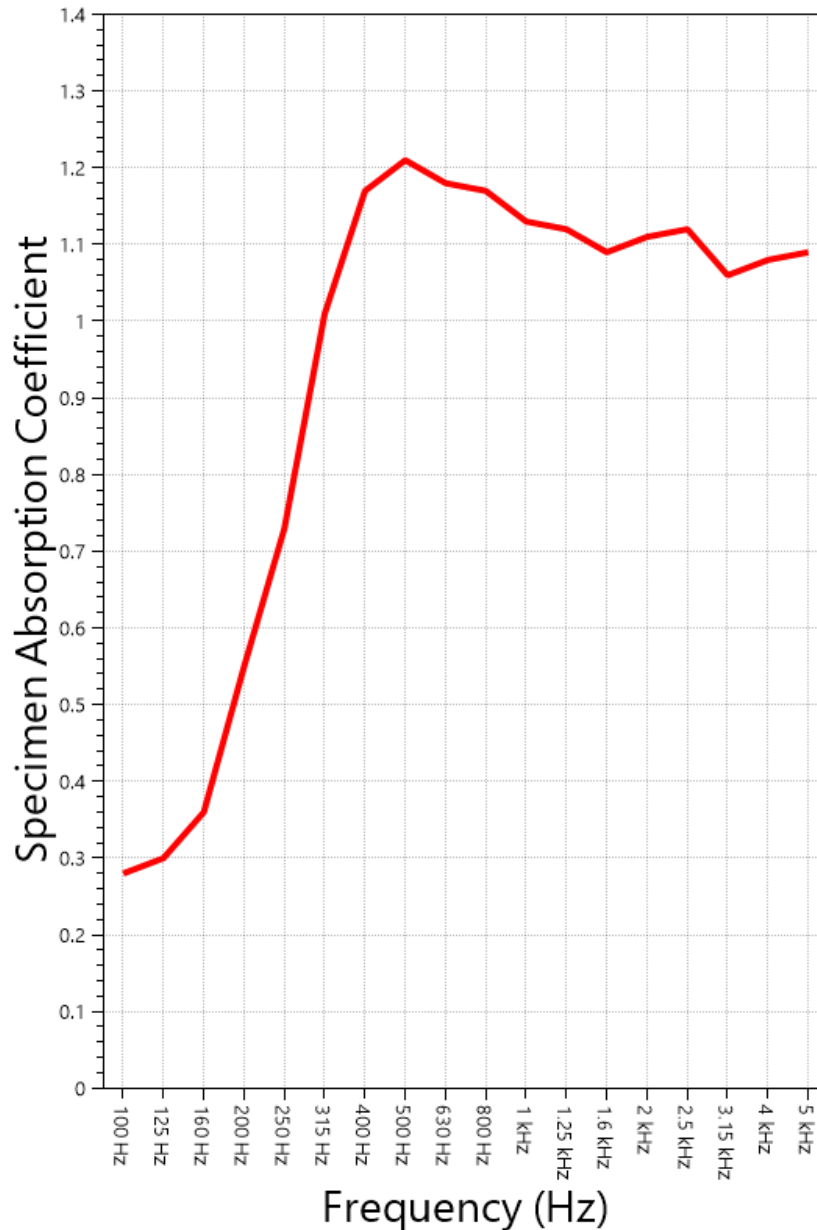
Auralex Acoustics
2020-06-10

RAL™-A20-213

Page 7 of 9

SOUND ABSORPTION REPORT

Studiofoam Royale



SAA = 1.05

NRC = 1.05

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

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

Test Report

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Auralex Acoustics
2020-06-10

RAL™-A20-213

Page 8 of 9

APPENDIX A: Extended Frequency Range Data

Specimen: Studiofoam Royale (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	5.58	0.08
40	9.57	0.13
50	9.76	0.14
63	3.08	0.04
80	2.27	0.03
100	20.46	0.28
125	21.53	0.30
160	26.06	0.36
200	39.81	0.55
250	52.57	0.73
315	72.88	1.01
400	84.39	1.17
500	87.27	1.21
630	85.04	1.18
800	84.16	1.17
1000	81.24	1.13
1250	80.81	1.12
1600	78.78	1.09
2000	79.64	1.11
2500	80.60	1.12
3150	76.22	1.06
4000	77.47	1.08
5000	78.76	1.09
6300	82.76	1.15
8000	84.69	1.18
10000	85.03	1.18
12500	81.56	1.13

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
2020-06-10

RAL™-A20-213

Page 9 of 9

APPENDIX B: Instruments of Traceability

Specimen: Studiofoam Royale (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	2020-02-18	2021-02-18

APPENDIX C: Revisions to Original Test Report

Specimen: Studiofoam Royale (See Full Report)

<u>Date</u>	<u>Revision</u>
2020-06-11	Original report issued

END