

1512 S BATAVIA AVENUE
GENEVA, IL 60134

An ALION Technical Center

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630-232-0104

Test Report

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Focal Point Lights**
Chicago, IL

Sound Absorption
RAL™-A19-529

CONDUCTED: 2019-12-16

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ON: Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush

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 Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush. 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: Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush
Materials: Polyethylene terephthalate felt
Thickness: 9 mm (0.354 in.)
Manufacturer: Focal Point Lights

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Material: Semirigid felt panels
Dimensions: 16 @ 603.25 mm (23.75 in.) x 603.25 mm (23.75 in.)
Thickness: 9.30 - 9.62 mm (0.366 - 0.379 in.)
Overall Weight: 11 kg (24.25 lbs)

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Page 2 of 8**Overall Specimen Properties**

Size: 2.41 m (95.0 in) wide by 2.41 m (95.0 in) long
Thickness: 9.5 mm (0.374 in.)
Weight: 11.0 kg (24.25 lbs)
Mass per Unit Area: 1.89 kg/m² (0.39 lbs/ft²)
Calculation Area: 5.822 m² (62.67 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 22.1 °C ± 1.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 64.55 % ± 0.5 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 99.4 kPa (Requirement not defined)

MOUNTING METHOD

Type E-400 Mounting: The test specimen was mounted on the top face of a metal fixture with enclosed perimeter edges, with an airspace behind the specimen. The specimen was supported by an array of adjustable metal slats spanning the fixture, spaced approximately 609.6 mm (24 in.) on center. The numeral suffix in the designation is the distance in millimeters from the exposed face of the test specimen to the horizontal test surface, rounded to the nearest integer multiple of 5. Perimeter edges of the specimen were sealed with metal framing.

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Figure 1 – Specimen mounted in test chamber

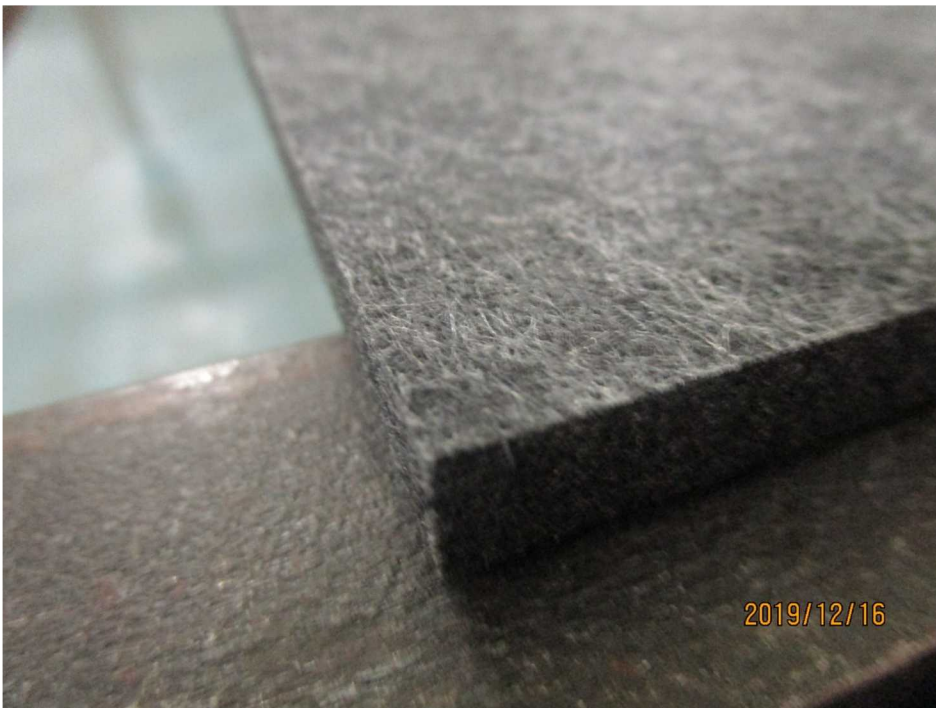


Figure 2 – Detail of specimen material

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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	5.87	63.17	1.01
** 125	5.92	63.76	1.02
160	5.50	59.23	0.95
200	5.88	63.34	1.01
** 250	5.59	60.12	0.96
315	5.50	59.22	0.95
400	5.02	54.08	0.86
** 500	4.23	45.48	0.73
630	4.72	50.81	0.81
800	4.99	53.67	0.86
** 1000	5.01	53.98	0.86
1250	5.29	56.90	0.91
1600	5.56	59.80	0.95
** 2000	5.73	61.64	0.98
2500	5.81	62.50	1.00
3150	5.92	63.72	1.02
** 4000	6.34	68.29	1.09
5000	6.55	70.49	1.12

SAA = 0.91
NRC = 0.90



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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
Marc Sciaky
Senior Experimentalist

Report by Malcolm Kelly
Malcolm Kelly
Acoustical Test Engineer

Approved by Eric P. Wolfram
Eric P. Wolfram
Laboratory Manager

Digitally signed by Eric P
Wolfram
Location: Geneva, IL
Date: 2020.01.07
14:57:40 -06'00'

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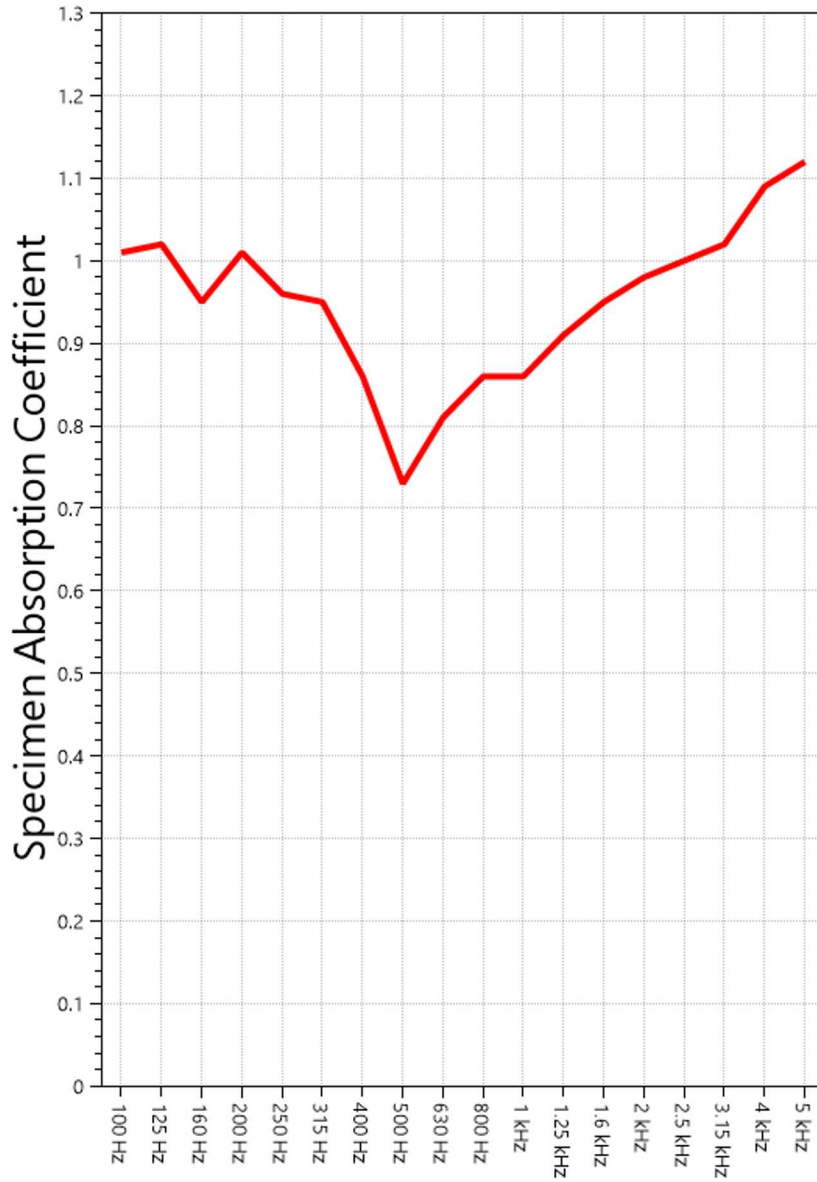
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SOUND ABSORPTION REPORT

Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush



Frequency (Hz)

SAA = 0.91

NRC = 0.90



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APPENDIX A: Extended Frequency Range Data

Specimen: Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush (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	22.65	0.36
40	11.57	0.18
50	69.51	1.11
63	33.50	0.53
80	41.60	0.66
100	63.17	1.01
125	63.76	1.02
160	59.23	0.95
200	63.34	1.01
250	60.12	0.96
315	59.22	0.95
400	54.08	0.86
500	45.48	0.73
630	50.81	0.81
800	53.67	0.86
1000	53.98	0.86
1250	56.90	0.91
1600	59.80	0.95
2000	61.64	0.98
2500	62.50	1.00
3150	63.72	1.02
4000	68.29	1.09
5000	70.49	1.12
6300	74.29	1.19
8000	83.70	1.34
10000	85.67	1.37
12500	97.37	1.55



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APPENDIX B: Instruments of Traceability

Specimen: Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush (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: Nivo Acoustic, 2 ft x 2 ft, 0 in. Flush (See Full Report)

<u>Date</u>	<u>Revision</u>
2020-01-02	Original report issued

END