

Test Report

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

Sound Absorption
RAL™-A19-352

CONDUCTED: 2019-08-21

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ON: Seem 1 Acoustic Trio - 5 units, Staggered Hex configuration

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 17025:2005 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." 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 Seem 1 Acoustic Trio - 5 units, Staggered Hex configuration. 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: Seem 1 Acoustic Trio
Material ID: AUSM1TP
Materials: 9 mm (0.354 in.) polyethylene terephthalate felt
Manufacturer: Focal Point LLC
Array Configuration: Staggered Hex

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Materials: Semirigid felt panels over metal skeleton
Construction: Three (3) rectangular "wing" pieces per fixture, angled 120° apart, meeting at center
Dimensions: Each wing @ 285.75 mm (11.25 in.) deep x 930.28 mm (36.625 in.) long x 58.74 mm (2.31 in.) wide
Assembled fixtures (5), 1651 mm (65 in.) end to end
Felt thickness @ 8.93 mm (0.3515 in.)
Overall Weight: 54.2 kg (119.5 lbs)

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Physical Measurements (per unit)

Dimensions: 1.65 m (65.0 in) wide by 1.65 m (65.0 in) long
Thickness: 0.06 m (2.312 in)
Weight: 10.84 kg (23.9 lbs)

Test Environment

Room Volume: 291.98 m³
Temperature: 21.9 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 62.5 % ± 0.6 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.8 kPa (Requirement not defined)

Each sound absorbing unit had an absorptive area (all exposed surfaces) of 1.98 m² (21.27 ft²). The total absorptive area (all exposed surfaces) of all sound-absorbing units was 9.88 m² (106.35 ft²). The array of units covered 13.15 m² (141.59 ft²) of the horizontal test surface (total treated area).

MOUNTING METHOD

Nonstandard Mounting: The specimen is an array of 5 spaced sound absorbing fixtures suspended from cables such that the closest face of the baffles is located approximately 1155.7 mm (45.5 in.) from the horizontal test surface. This approximates the mounting method of a typical ceiling baffle installation. The fixtures were distributed in two rows, with a row of two units spaced approximately 254 mm (10 in.) from a row of three units. In the row of three fixtures, the lateral spacing between adjacent fixtures was 1479.55 mm (58.25 in.) on center and 1158.88 mm (45.625 in.) on center. The fixtures in the row of two were spaced 1536.7 mm (60.5 in.) on center. All fixtures were oriented such that one wing was parallel to the north and south walls of the test chamber. For the center fixture in the row of three and the fixture closest to the sound source in the row of two, that wing was pointed toward the east wall of the test chamber. For the remaining three fixtures, that wing was pointed toward the west wall of the test chamber.

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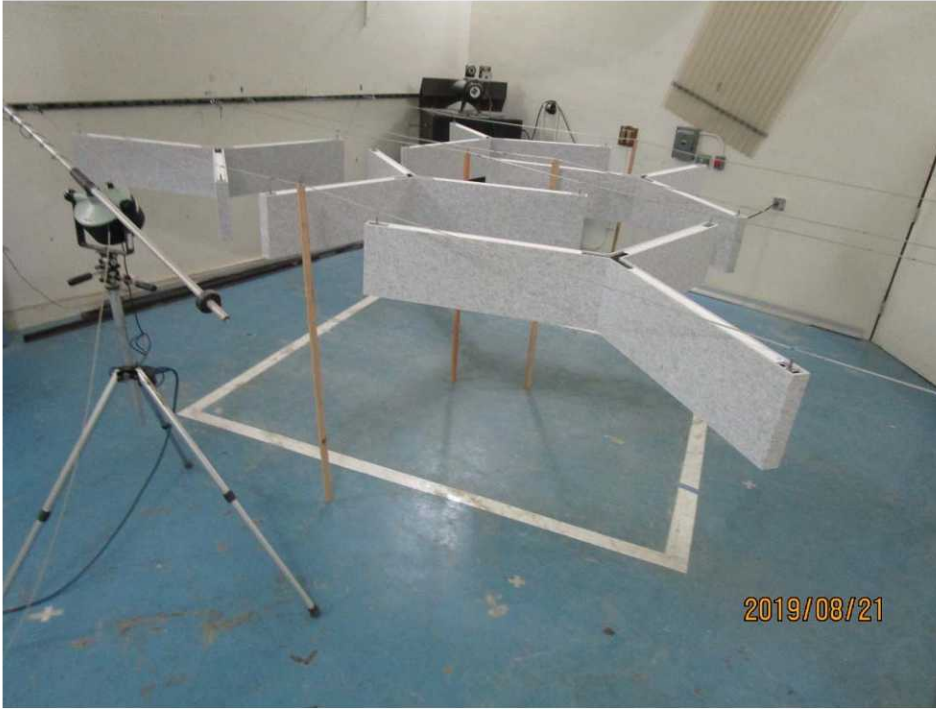


Figure 1 – Specimen mounted in test chamber, as viewed from northeast corner of test chamber



Figure 2 – Specimen mounted in test chamber, as viewed from northwest corner of test chamber

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Figure 3 – Detail of fixture materials



Figure 4 – Fixture assembly, wing pieces

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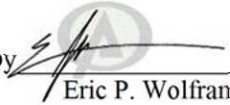
TEST RESULTS

Note: There is currently no standardized method for calculating Absorption Coefficients from spaced object absorbers. The sound absorption performance of spaced object absorbers should not be compared directly with specimens tested as a single rectangular area (e.g. mounting types A, E, etc.).

1/3 Octave Center Frequency (Hz)	Total Absorption		Absorption per Unit	
	(m ²)	(Sabins)	(m ² / Unit)	(Sabins / Unit)
100	1.37	14.77	0.27	2.95
** 125	0.96	10.35	0.19	2.07
160	0.90	9.69	0.18	1.94
200	2.04	21.91	0.41	4.38
** 250	2.36	25.37	0.47	5.07
315	3.36	36.12	0.67	7.22
400	3.93	42.35	0.79	8.47
** 500	5.10	54.93	1.02	10.99
630	5.80	62.40	1.16	12.48
800	6.77	72.89	1.35	14.58
** 1000	7.30	78.53	1.46	15.71
1250	7.85	84.44	1.57	16.89
1600	8.02	86.37	1.60	17.27
** 2000	7.99	85.99	1.60	17.20
2500	8.12	87.40	1.62	17.48
3150	8.27	89.03	1.65	17.81
** 4000	8.58	92.39	1.72	18.48
5000	8.92	96.04	1.78	19.21

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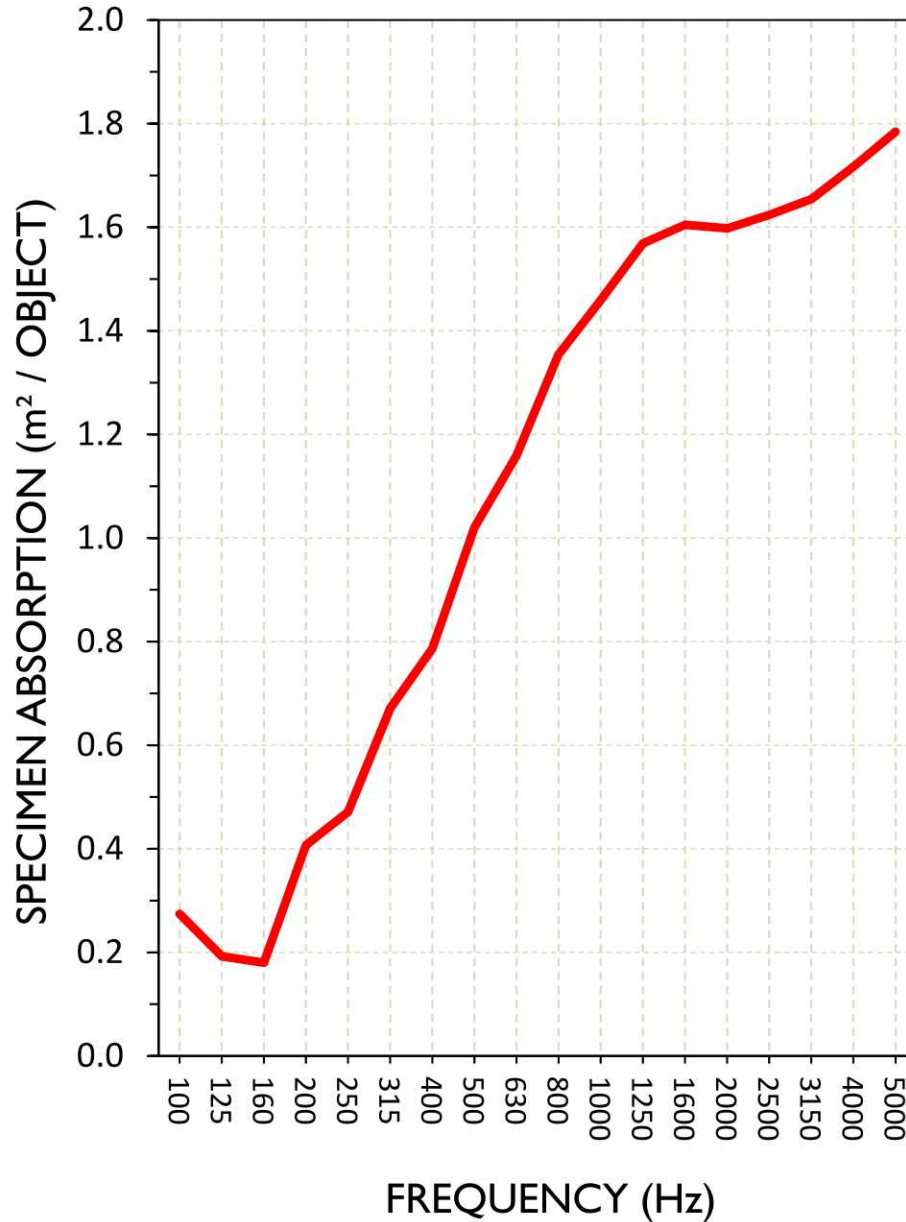
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SOUND ABSORPTION REPORT

Seem I Acoustic Trio - 5 units, Staggered Hex configuration



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APPENDIX A: Extended Frequency Range Data

Specimen: Seem 1 Acoustic Trio - 5 units, Staggered Hex configuration (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		Absorption per Unit	
	(m ²)	(Sabins)	(m ² / Unit)	(Sabins / Unit)
31.5	-0.70	-7.54	-0.14	-1.51
40	0.75	8.11	0.15	1.62
50	-0.22	-2.42	-0.04	-0.48
63	0.20	2.19	0.04	0.44
80	0.33	3.58	0.07	0.72
100	1.37	14.77	0.27	2.95
125	0.96	10.35	0.19	2.07
160	0.90	9.69	0.18	1.94
200	2.04	21.91	0.41	4.38
250	2.36	25.37	0.47	5.07
315	3.36	36.12	0.67	7.22
400	3.93	42.35	0.79	8.47
500	5.10	54.93	1.02	10.99
630	5.80	62.40	1.16	12.48
800	6.77	72.89	1.35	14.58
1000	7.30	78.53	1.46	15.71
1250	7.85	84.44	1.57	16.89
1600	8.02	86.37	1.60	17.27
2000	7.99	85.99	1.60	17.20
2500	8.12	87.40	1.62	17.48
3150	8.27	89.03	1.65	17.81
4000	8.58	92.39	1.72	18.48
5000	8.92	96.04	1.78	19.21
6300	9.05	97.44	1.81	19.49
8000	8.75	94.17	1.75	18.83
10000	8.76	94.27	1.75	18.85
12500	8.97	96.60	1.79	19.32

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APPENDIX B: Instruments of Traceability

Specimen: Seem 1 Acoustic Trio - 5 units, Staggered Hex configuration (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	System 1	2019-06-25	2020-06-25
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2018-09-28	2019-09-28
Bruel & Kjaer Pistonphone	Type 4228	2781248	2019-08-09	2020-08-09
EXTECH Hygro 662	SD700	A083662	2018-11-29	2019-11-29

APPENDIX C: Revisions to Original Test Report

Specimen: Seem 1 Acoustic Trio - 5 units, Staggered Hex configuration (See Full Report)

<u>Date</u>	<u>Revision</u>
2019-09-03	Original report issued

END