

Test Report

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

Sound Absorption
RAL™-A19-351

CONDUCTED: 2019-08-21

Page 1 of 10

ON: Seem 1 Acoustic Trio - 5 units, Geo Y 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, Geo Y 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: Geo Y

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 of fixture
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)

Test Report

Focal Point LLC
2019-08-21

RAL™-A19-351
Page 2 of 10

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 ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 62.8 % ± 1.0 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.7 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 13.80 m² (148.54 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 1104.9 mm (43.5 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 three units spaced approximately 1549.4 mm (61 in.) on center from a row of two units, with the spacing staggered by 463.55 mm (18.25 in.). Units within each row were spaced approximately 1460.5 mm (57.5 in.) on center. All fixtures were oriented such that one wing was pointed toward and normal to the north wall of the test chamber.

Test Report

Focal Point LLC
2019-08-21

RAL™-A19-351
Page 3 of 10



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

Test Report

Focal Point LLC
2019-08-21

RAL™-A19-351
Page 4 of 10

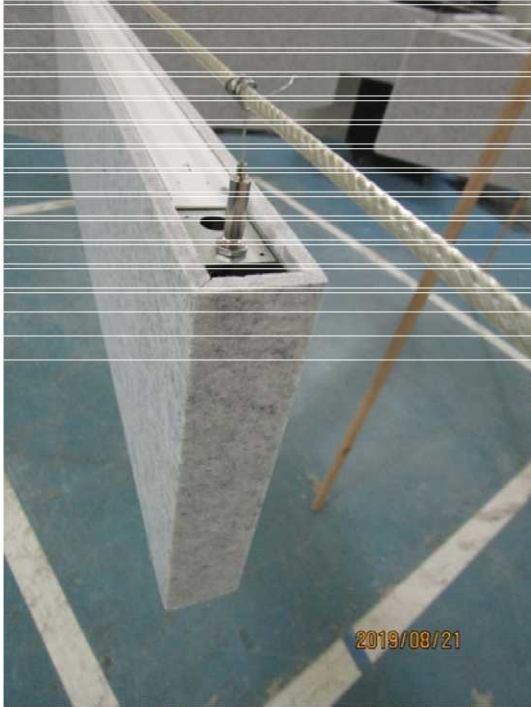


Figure 3 – Detail of fixture materials



Figure 4 – Fixture assembly, individual wing pieces

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

Focal Point LLC
2019-08-21

RAL™-A19-351
Page 5 of 10

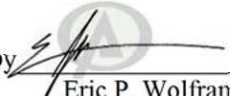
TEST RESULTS

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 | 0.90 | 9.71 | 0.18 | 1.94 |
| ** 125 | 1.08 | 11.62 | 0.22 | 2.32 |
| 160 | 0.99 | 10.71 | 0.20 | 2.14 |
| 200 | 1.77 | 19.01 | 0.35 | 3.80 |
| ** 250 | 2.16 | 23.20 | 0.43 | 4.64 |
| 315 | 3.50 | 37.66 | 0.70 | 7.53 |
| 400 | 4.14 | 44.58 | 0.83 | 8.92 |
| ** 500 | 5.09 | 54.75 | 1.02 | 10.95 |
| 630 | 5.94 | 63.94 | 1.19 | 12.79 |
| 800 | 6.93 | 74.57 | 1.39 | 14.91 |
| ** 1000 | 7.22 | 77.70 | 1.44 | 15.54 |
| 1250 | 7.85 | 84.45 | 1.57 | 16.89 |
| 1600 | 7.96 | 85.71 | 1.59 | 17.14 |
| ** 2000 | 7.96 | 85.66 | 1.59 | 17.13 |
| 2500 | 8.09 | 87.06 | 1.62 | 17.41 |
| 3150 | 8.25 | 88.77 | 1.65 | 17.75 |
| ** 4000 | 8.52 | 91.74 | 1.70 | 18.35 |
| 5000 | 8.92 | 95.98 | 1.78 | 19.20 |

Tested by 
Marc Sciaky
Senior Experimentalist

Report by 
Malcolm Kelly
Test Engineer, Acoustician

Approved by 
Eric P. Wolfram
Laboratory Manager


Digitally signed by Eric P Wolfram
DN: cn=Eric P Wolfram, o=Allion
Science & Technology,
ou=Riverbank Acoustical
Laboratories,
email=ewolfram@alionscience.com,
c=US
Date: 2019.09.04 11:03:52 -05'00'



RIVERBANK ACOUSTICAL LABORATORIES IS ACCREDITED BY NVLAP (LAB CODE 100227-0) FOR ACOUSTICAL TESTING SERVICES IN ACCORDANCE WITH ISO/IEC 17025:2005 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.

Test Report

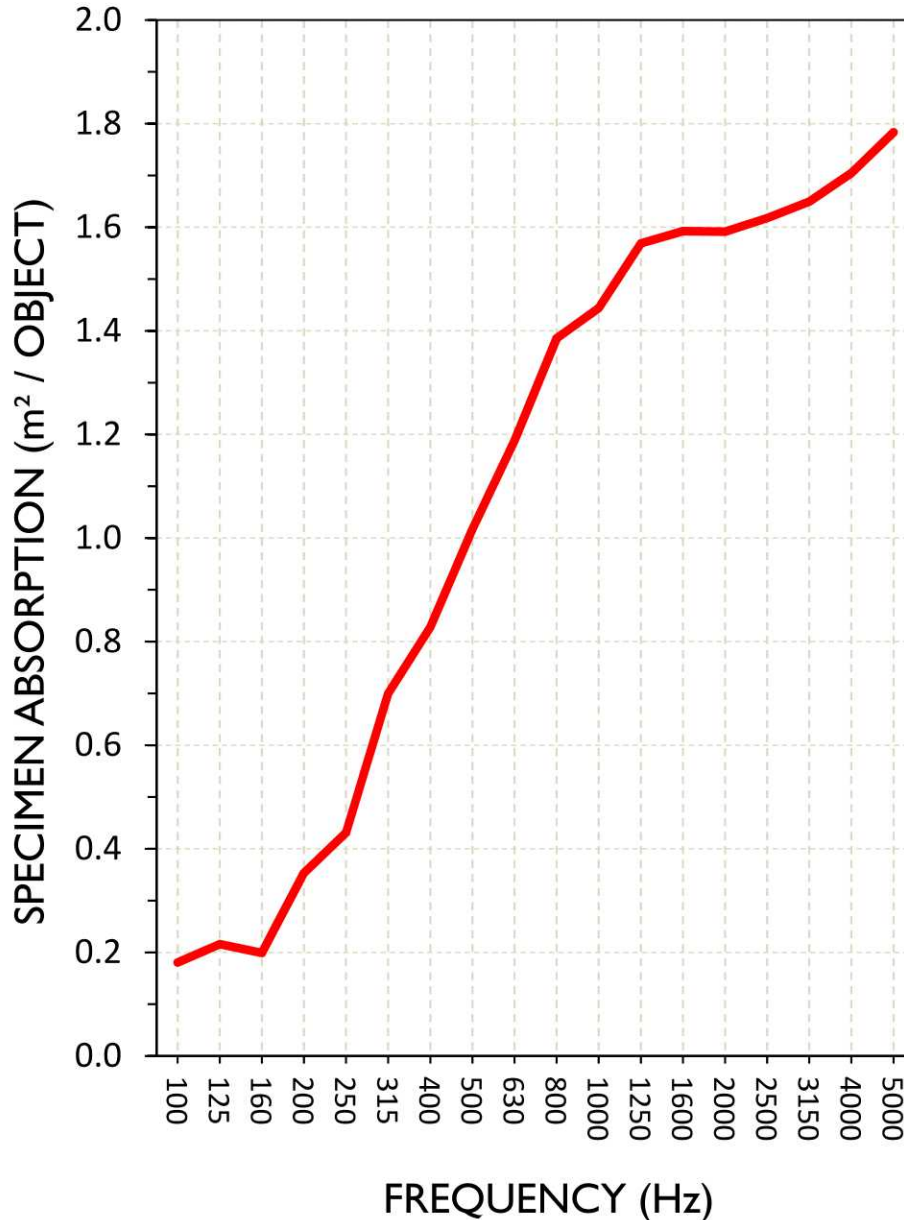
Focal Point LLC
2019-08-21

RAL™-A19-351

Page 6 of 10

SOUND ABSORPTION REPORT

Seem I Acoustic Trio - 5 units, Geo Y configuration



Test Report

Focal Point LLC
2019-08-21

RAL™-A19-351
Page 7 of 10

APPENDIX A: Extended Frequency Range Data

Specimen: Seem 1 Acoustic Trio - 5 units, Geo Y 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 | 0.14 | 1.55 | 0.03 | 0.31 |
| 40 | 0.38 | 4.14 | 0.08 | 0.83 |
| 50 | -1.07 | -11.49 | -0.21 | -2.30 |
| 63 | 0.72 | 7.70 | 0.14 | 1.54 |
| 80 | 0.32 | 3.42 | 0.06 | 0.68 |
| 100 | 0.90 | 9.71 | 0.18 | 1.94 |
| 125 | 1.08 | 11.62 | 0.22 | 2.32 |
| 160 | 0.99 | 10.71 | 0.20 | 2.14 |
| 200 | 1.77 | 19.01 | 0.35 | 3.80 |
| 250 | 2.16 | 23.20 | 0.43 | 4.64 |
| 315 | 3.50 | 37.66 | 0.70 | 7.53 |
| 400 | 4.14 | 44.58 | 0.83 | 8.92 |
| 500 | 5.09 | 54.75 | 1.02 | 10.95 |
| 630 | 5.94 | 63.94 | 1.19 | 12.79 |
| 800 | 6.93 | 74.57 | 1.39 | 14.91 |
| 1000 | 7.22 | 77.70 | 1.44 | 15.54 |
| 1250 | 7.85 | 84.45 | 1.57 | 16.89 |
| 1600 | 7.96 | 85.71 | 1.59 | 17.14 |
| 2000 | 7.96 | 85.66 | 1.59 | 17.13 |
| 2500 | 8.09 | 87.06 | 1.62 | 17.41 |
| 3150 | 8.25 | 88.77 | 1.65 | 17.75 |
| 4000 | 8.52 | 91.74 | 1.70 | 18.35 |
| 5000 | 8.92 | 95.98 | 1.78 | 19.20 |
| 6300 | 9.02 | 97.06 | 1.80 | 19.41 |
| 8000 | 8.87 | 95.48 | 1.77 | 19.10 |
| 10000 | 9.09 | 97.84 | 1.82 | 19.57 |
| 12500 | 9.26 | 99.70 | 1.85 | 19.94 |

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

Focal Point LLC
2019-08-21

RAL™-A19-351
Page 8 of 10

APPENDIX B: Instruments of Traceability

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

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

END