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

An ALION Technical Center

Test Report

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WALLACE CLEMENT SABINE

FOR: **Turf Design**
Elgin, IL

Sound Absorption
RAL™-A18-325

CONDUCTED: 2018-10-01

ON: Mesh ceiling tiles

TEST METHOD

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." The specimen mounting was performed according to ASTM E795-16: "Standard Practices for Mounting Test Specimens During Sound Absorption Tests." A description of the measuring procedure and room qualifications is available upon request.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Mesh ceiling tiles. A full external visual inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

Panel

Trade Name:	Mesh
Material ID:	03229
Materials:	Formed polyethylene terephthalate felt
Dimensions:	16 @ 609.6 mm (24 in.) x 609.6 mm (24 in.)
Wall Thickness:	5 mm (0.197 in.)
Overall Thickness:	Minimum @ 15.24 mm (0.60 in.) Maximum @ 111.12 mm (4.375 in.)
Overall Weight:	11 kg (24.25 lbs)
Installation:	Arranged with sinusoid pattern aligned

Physical Measures

Size:	2.44 m (96.0 in) wide by 2.44 m (96.0 in) long
Thickness:	0.11 m (4.375 in)
Weight:	11.68 kg (25.75 lbs)
Mass per Unit Area:	1.96 kg/m² (0.4 lbs/ft²)
Calculation Area:	5.946 m² (64 ft²)

Test Environment

Room Volume:	291.98 m³
Temperature:	21.0 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity:	66.0 % ± 0.2 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure:	99.4 kPa (Requirement not defined)

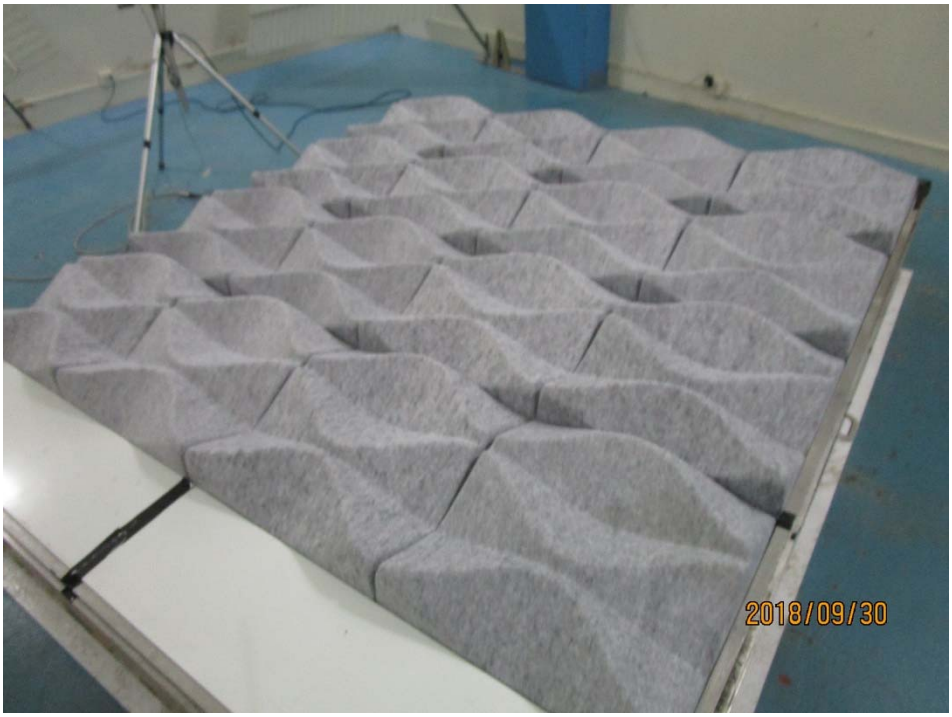

Figure 1 – Specimen mounted in test chamber

Figure 2 – Detail of individual tile

MOUNTING METHOD

Type E-400 Mounting: The test specimen was mounted with an airspace behind it. The number designates the distance in mm from the exposed face of the test specimen to the test surface, rounded to the nearest integer multiple of 5. For the purposes of this report, the mounting designation uses the point on the specimen face where minimum overall thickness was measured for reference. Perimeter edges were sealed with metal framing.

TEST RESULTS

1/3 Octave Center Frequency (Hz)	Total Absorption (m^2)	Total Absorption (Sabins)	Absorption Coefficient
100	5.32	57.28	0.90
** 125	7.01	75.49	1.18
160	5.15	55.43	0.87
200	5.70	61.39	0.96
** 250	6.03	64.96	1.01
315	5.12	55.13	0.86
400	4.53	48.74	0.76
** 500	5.20	55.97	0.87
630	6.00	64.61	1.01
800	5.67	61.03	0.95
** 1000	5.99	64.46	1.01
1250	5.99	64.49	1.01
1600	6.04	65.01	1.02
** 2000	6.15	66.23	1.03
2500	6.31	67.94	1.06
3150	6.47	69.66	1.09
** 4000	6.55	70.54	1.10
5000	6.57	70.70	1.10

SAA = 0.96
NRC = 1.00

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TEST RESULTS (Continued)

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

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

Tested by_____
Marc Sciaky
Experimentalist

Report by_____
Malcolm Kelly
Acoustician

Approved by_____
Eric P. Wolfram
Laboratory Manager

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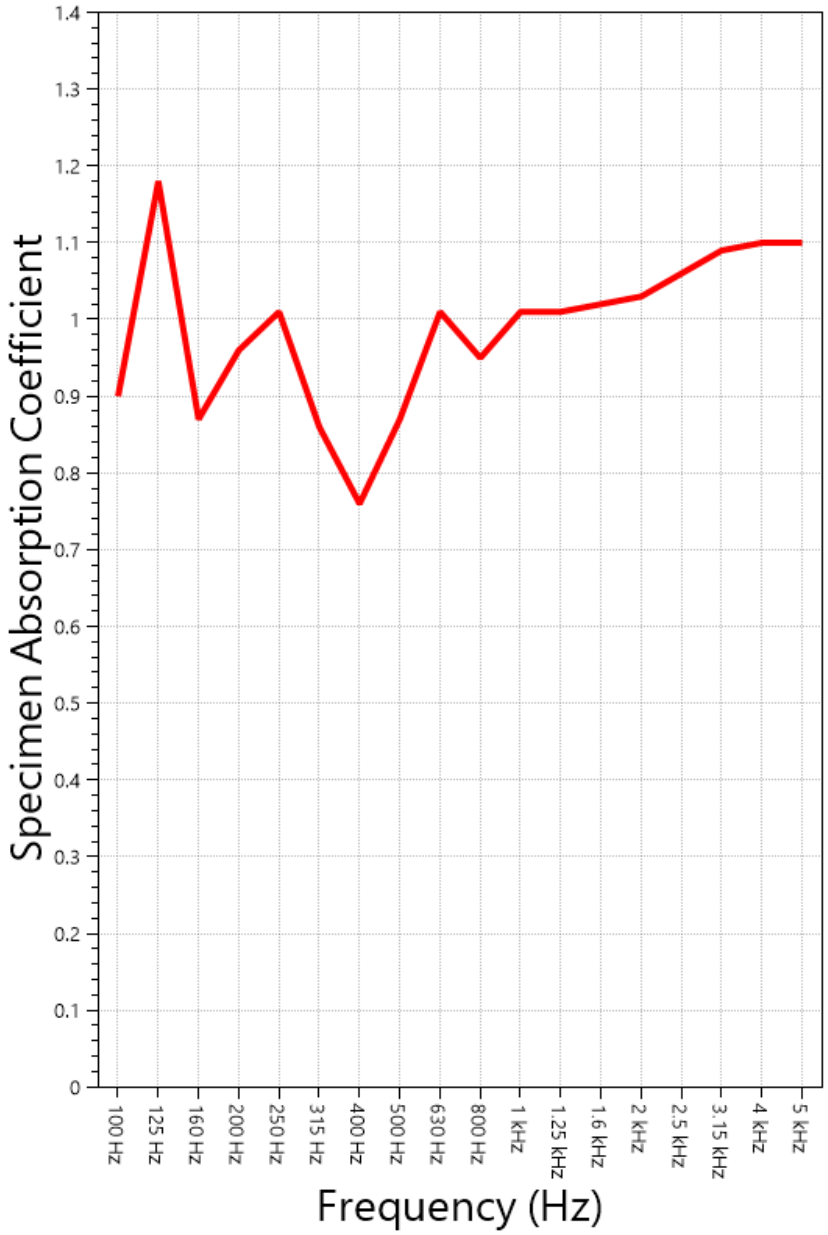
Date: 2018.11.05 09:59:53 -06'00'

SOUND ABSORPTION REPORT

Mesh ceiling tiles



SAA = 0.96
NRC = 1.00

APPENDIX A: Extended Frequency Range Data

Specimen: Mesh ceiling tiles (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	13.34	0.21
40	4.67	0.07
50	23.28	0.36
63	57.40	0.90
80	31.34	0.49
100	57.28	0.90
125	75.49	1.18
160	55.43	0.87
200	61.39	0.96
250	64.96	1.01
315	55.13	0.86
400	48.74	0.76
500	55.97	0.87
630	64.61	1.01
800	61.03	0.95
1000	64.46	1.01
1250	64.49	1.01
1600	65.01	1.02
2000	66.23	1.03
2500	67.94	1.06
3150	69.66	1.09
4000	70.54	1.10
5000	70.70	1.10
6300	73.58	1.15
8000	73.84	1.15
10000	74.67	1.17
12500	76.65	1.20

APPENDIX B: Instruments of Traceability
Specimen: Mesh ceiling tiles (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-4/2	3160-106968	2018-08-09	2019-08-09
Bruel & Kjaer Mic And Preamp C	Type 4943-B-001	2311439	2018-03-27	2019-03-27
Bruel & Kjaer Pistonphone	Type 4228	2781248	2018-08-06	2019-08-06
Omega Digital Temp., Humid. And Pressure Recorder	OM-CP-PRHTemp2000	P97844	2018-02-03	2019-02-03

END