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

An ALION Technical Center

Test Report

RIVERBANK.ALIONSCIENCE.COM
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

FOR: **Signet Mills**
Spartanburg, SC

Sound Absorption
RAL™-A18-287

CONDUCTED: 2018-09-14

ON: R_1 76437 11634-12A EFFL61W Fabric over 2 in. fiberglass insulation

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 R_1 76437 11634-12A EFFL61W Fabric over 2 in. fiberglass insulation. A full internal inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

Insulation

Material:	Rigid fiberglass insulation board
Dimensions:	8 @ 1219.2 mm (48 in.) x 609.6 mm (24 in.)
	2 @ 1219.2 mm (48 in.) x 304.8 mm (12 in.)
Thickness:	50.8 mm (2.0 in.)
Overall Weight:	32.55 kg (71.75 lbs)
Density:	95.78 kg/m^3 (5.98 lbs/ft^3)

Fabric

Designation:	R_1 76437 11634-12A EFFL61W
Material:	Knit textile
Dimensions:	1 @ 2743.2 mm (108 in.) x 1492.25 mm (58.75 in.)
	1 @ 2743.2 mm (108 in.) x 946.15 mm (37.25 in.)
Thickness:	0.52 mm (0.0205 in.)
Overall Weight:	1.36 kg (3 lbs)
Mass per Unit Area:	0.2 kg/m^2 (0.04 lbs/ft^2)
Installation:	Loose laid over insulation

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Physical Measures

Size:	2.44 m (96.0 in) wide by 2.74 m (108.0 in) long
Thickness:	0.05 m (2.02 in)
Weight:	33.91 kg (74.75 lbs)
Mass per Unit Area:	5.07 kg/m² (1.04 lbs/ft²)
Area:	6.69 m^2 (72 ft^2)

Test Environment

Volume:	291.98 m³ (10311 ft^3)
Temperature:	20.4 °C ± 0.1 °C (Requirement: ≥10° C and ≤ 5° C change)
Humidity:	70.85 % ± 0.1 % (Requirement: ≥40% RH and ≤ 5% change)
Barometric Pressure:	99.3 kPa (Requirement not defined)

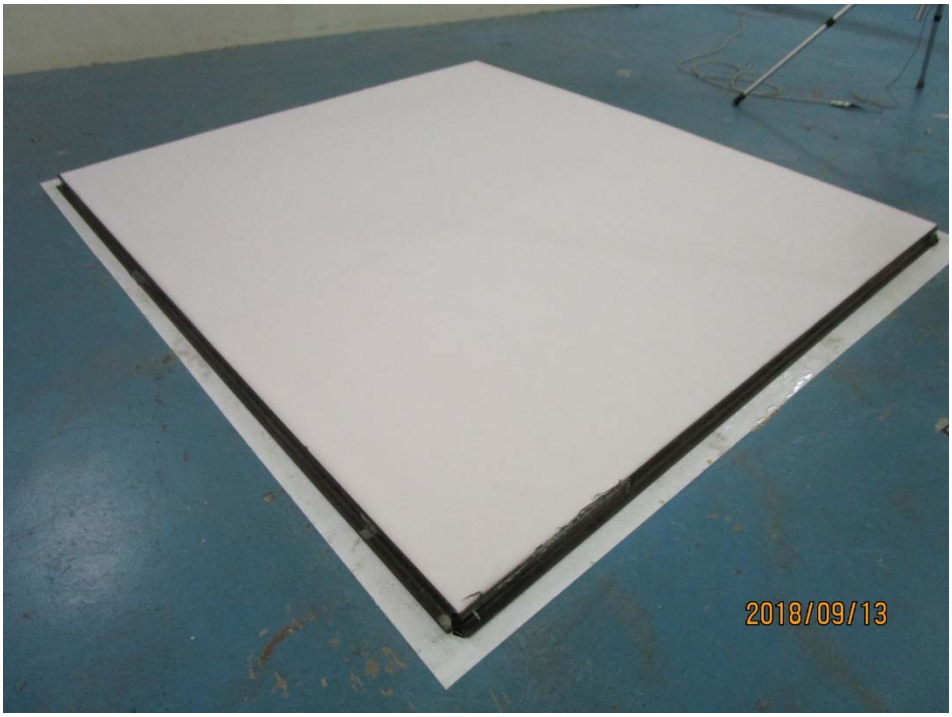

Figure 1 – Specimen mounted in test chamber

Figure 2 – Detail of fabric material

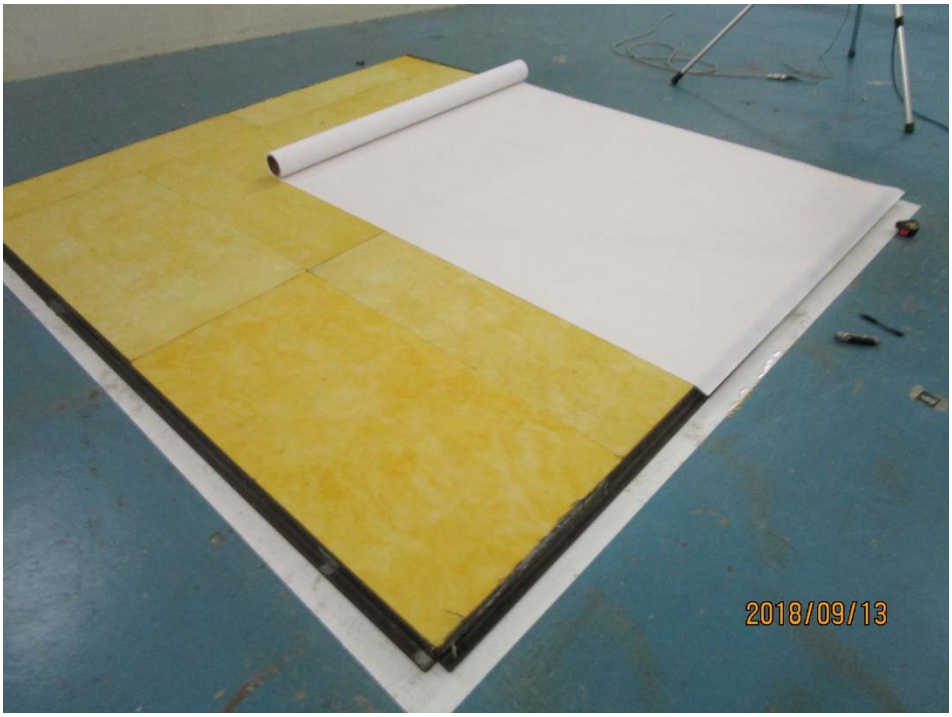

Figure 3 – Fabric partially installed over insulation

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MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. 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	1.49	16.02	0.22
** 125	2.53	27.23	0.38
160	3.05	32.81	0.46
200	4.74	51.00	0.71
** 250	5.21	56.12	0.78
315	7.18	77.31	1.07
400	7.06	75.97	1.06
** 500	7.75	83.4	1.16
630	7.93	85.31	1.18
800	7.59	81.72	1.14
** 1000	7.38	79.39	1.10
1250	7.18	77.28	1.07
1600	7.14	76.88	1.07
** 2000	6.95	74.82	1.04
2500	6.77	72.91	1.01
3150	6.98	75.17	1.04
** 4000	7.14	76.85	1.07
5000	7.28	78.35	1.09

SAA = 1.03
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

Digitally signed by Eric P Wolfram
DN: cn=Eric P Wolfram, o=Alion Science & Technology, ou=Riverbank Acoustical Laboratories, email=ewolfram@alionscience.com, c=US
Date: 2018.09.26 15:27:27 -05'00'

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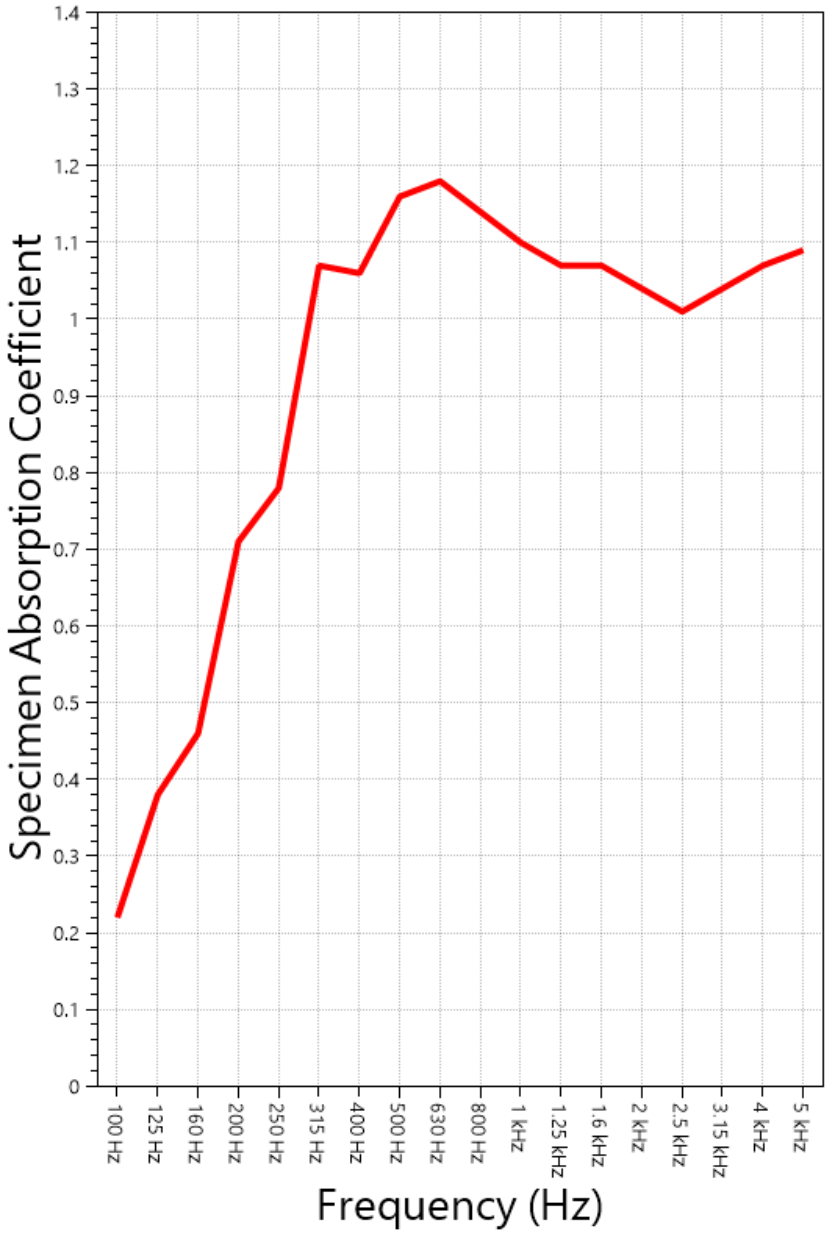
SOUND ABSORPTION REPORT

R_I 76437 11634-12A EFFL61W Fabric over 2 in. fiberglass insulation



SAA = 1.03
NRC = 1.00

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APPENDIX A: Extended Frequency Range Data

Specimen: R_1 76437 11634-12A EFFL61W Fabric over 2 in. fiberglass insulation (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	1.81	0.03
40	12.65	0.18
50	9.39	0.13
63	-3.54	-0.05
80	-0.07	0.00
100	16.02	0.22
125	27.23	0.38
160	32.81	0.46
200	51.00	0.71
250	56.12	0.78
315	77.31	1.07
400	75.97	1.06
500	83.4	1.16
630	85.31	1.18
800	81.72	1.14
1000	79.39	1.10
1250	77.28	1.07
1600	76.88	1.07
2000	74.82	1.04
2500	72.91	1.01
3150	75.17	1.04
4000	76.85	1.07
5000	78.35	1.09
6300	80.35	1.12
8000	79.52	1.10
10000	81.25	1.13
12500	89.13	1.24

APPENDIX B: Instruments of Traceability

Specimen: R_1 76437 11634-12A EFFL61W Fabric over 2 in. fiberglass insulation (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 A	Type 4943-B-001	2311428	2017-09-22	2018-09-22
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